

UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-Q

**QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the Quarterly Period ended September 30, 2020**

or

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the transition period from \_\_\_\_\_ to \_\_\_\_\_**

**Commission File Number 000-31311**

**PDF SOLUTIONS, INC.**

(Exact name of Registrant as Specified in its Charter)

**Delaware**

(State or Other Jurisdiction of Incorporation or Organization)

**25-1701361**

(I.R.S. Employer Identification No.)

**2858 De La Cruz Blvd.**

**Santa Clara, California**

(Address of Principal Executive Offices)

**95050**

(Zip Code)

**(408) 280-7900**

(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.00015 par value	PDFS	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Non-accelerated filer

Accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes  No

There were 36,629,905 shares of the Registrant's Common Stock outstanding as of October 31, 2020.

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## PART I — FINANCIAL INFORMATION

## Item 1. Financial Statements

**PDF SOLUTIONS, INC.**  
**CONDENSED CONSOLIDATED BALANCE SHEETS**  
(unaudited)  
(in thousands, except par value)

	<u>September 30,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 118,386	\$ 97,605
Short-term investments	49,983	—
Accounts receivable, net of allowance for doubtful accounts of \$963 in 2020 and \$213 in 2019	40,388	40,651
Prepaid expenses and other current assets	9,310	9,320
Total current assets	<u>218,067</u>	<u>147,576</u>
Property and equipment, net	39,487	40,798
Operating lease right-of-use assets, net	6,712	7,609
Goodwill	2,293	2,293
Intangible assets, net	5,269	6,221
Deferred tax assets, net	30,498	25,327
Other non-current assets	8,282	9,720
Total assets	<u>\$ 310,608</u>	<u>\$ 239,544</u>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 2,212	\$ 7,636
Accrued compensation and related benefits	5,396	5,072
Accrued and other current liabilities	3,001	1,665
Operating lease liabilities – current portion	1,763	1,867
Deferred revenues – current portion	19,074	10,639
Billings in excess of recognized revenues	1,430	1,117
Total current liabilities	<u>32,876</u>	<u>27,996</u>
Long-term income taxes payable	5,137	5,368
Non-current operating lease liabilities	6,764	7,677
Other non-current liabilities	1,054	2,346
Total liabilities	<u>45,831</u>	<u>43,387</u>
Commitments and contingencies (Note 13)		
Stockholders' equity:		

Preferred stock, \$0.00015 par value, 5,000 shares authorized, no shares issued and outstanding	\$	—	\$	—
Common stock, \$0.00015 par value, 70,000 shares authorized; shares issued 46,117 and 41,797, respectively; shares outstanding 36,626 and 32,503, respectively		5		5
Additional paid-in-capital		403,450		325,197
Treasury stock at cost, 9,491 and 9,294 shares, respectively		(94,992)		(91,695)
Accumulated deficit		(42,784)		(35,870)
Accumulated other comprehensive loss		(902)		(1,480)
Total stockholders' equity		264,777		196,157
Total liabilities and stockholders' equity	\$	310,608	\$	239,544

See accompanying Notes to Condensed Consolidated Financial Statements (unaudited)

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**PDF SOLUTIONS, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS**  
(unaudited)  
(in thousands, except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
<b>Revenues:</b>				
Analytics	\$ 14,346	\$ 12,691	\$ 42,766	\$ 36,099
Integrated Yield Ramp	8,766	9,223	22,912	26,924
Total revenues	<u>23,112</u>	<u>21,914</u>	<u>65,678</u>	<u>63,023</u>
<b>Costs and Expenses:</b>				
Costs of revenues	9,493	8,715	26,926	24,415
Research and development	8,328	8,435	24,672	23,993
Selling, general and administrative	8,420	5,990	24,052	19,940
Amortization of other acquired intangible assets	174	174	521	436
Restructuring charges	—	—	—	92
Interest and other expense (income), net	361	(202)	530	(307)
<b>Loss before income taxes</b>	<u>(3,664)</u>	<u>(1,198)</u>	<u>(11,023)</u>	<u>(5,546)</u>
Income tax benefit	(930)	(511)	(4,109)	(1,458)
<b>Net loss</b>	<u>\$ (2,734)</u>	<u>\$ (687)</u>	<u>\$ (6,914)</u>	<u>\$ (4,088)</u>
Other comprehensive income (loss):				
Foreign currency translation adjustments, net of tax	\$ 540	\$ (461)	\$ 581	\$ (477)
Change in unrealized losses related to available-for-sale debt securities, net of tax	(3)	—	(3)	—
Total other comprehensive income (loss)	<u>\$ 537</u>	<u>\$ (461)</u>	<u>\$ 578</u>	<u>\$ (477)</u>
<b>Comprehensive loss</b>	<u>\$ (2,197)</u>	<u>\$ (1,148)</u>	<u>\$ (6,336)</u>	<u>\$ (4,565)</u>
Net loss per share:				
Basic	<u>\$ (0.08)</u>	<u>\$ (0.02)</u>	<u>\$ (0.21)</u>	<u>\$ (0.13)</u>
Diluted	<u>\$ (0.08)</u>	<u>\$ (0.02)</u>	<u>\$ (0.21)</u>	<u>\$ (0.13)</u>
Weighted average common shares:				
Basic	<u>35,479</u>	<u>32,392</u>	<u>33,696</u>	<u>32,405</u>
Diluted	<u>35,479</u>	<u>32,392</u>	<u>33,696</u>	<u>32,405</u>

See accompanying Notes to Condensed Consolidated Financial Statements (unaudited)

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**PDF SOLUTIONS, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY**  
(unaudited)  
(in thousands)

	Nine Months Ended September 30, 2020							
	Common Stock		Additional Paid-In Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount		Shares	Amount			
<b>Balances, December 31, 2019</b>	32,503	\$ 5	\$ 325,197	9,294	\$ (91,695)	\$ (35,870)	\$ (1,480)	\$ 196,157

Issuance of common stock in connection with employee stock purchase plan	89	-	810	-	-	-	-	810
Issuance of common stock in connection with exercise of options	21	-	161	-	-	-	-	161
Vesting of restricted stock units	182	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	-	-	-	93	(1,478)	-	-	(1,478)
Stock-based compensation expense	-	-	3,513	-	-	-	-	3,513
Comprehensive loss	-	-	-	-	-	(528)	(166)	(694)
<b>Balances, March 31, 2020</b>	<b>32,795</b>	<b>5</b>	<b>329,681</b>	<b>9,387</b>	<b>(93,173)</b>	<b>(36,398)</b>	<b>(1,646)</b>	<b>198,469</b>
Issuance of common stock in connection with exercise of options	56	-	463	-	-	-	-	463
Vesting of restricted stock units	131	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	-	-	-	52	(795)	-	-	(795)
Stock-based compensation expense	-	-	3,013	-	-	-	-	3,013
Comprehensive income (loss)	-	-	-	-	-	(3,652)	207	(3,445)
<b>Balances, June 30, 2020</b>	<b>32,982</b>	<b>5</b>	<b>333,157</b>	<b>9,439</b>	<b>(93,968)</b>	<b>(40,050)</b>	<b>(1,439)</b>	<b>197,705</b>
Issuance of common stock, net of issuance costs of \$0.1 million	3,307	-	65,077	-	-	-	-	65,077
Issuance of common stock in connection with employee stock purchase plan	93	-	860	-	-	-	-	860
Issuance of common stock in connection with exercise of options	101	-	1,210	-	-	-	-	1,210
Vesting of restricted stock units	143	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	-	-	-	52	(1,024)	-	-	(1,024)
Stock-based compensation expense	-	-	3,146	-	-	-	-	3,146
Comprehensive income (loss)	-	-	-	-	-	(2,734)	537	(2,197)
<b>Balances, September 30, 2020</b>	<b>36,626</b>	<b>5</b>	<b>403,450</b>	<b>9,491</b>	<b>(94,992)</b>	<b>(42,784)</b>	<b>(902)</b>	<b>264,777</b>

*See accompanying Notes to Condensed Consolidated Financial Statements (unaudited)*

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**PDF SOLUTIONS, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY**  
**(unaudited)**  
**(in thousands)**

	Nine Months Ended September 30, 2019							
	Common Stock		Additional Paid-In Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount		Shares	Amount			
<b>Balances, December 31, 2018</b>	32,382	\$ 5	\$ 310,660	8,295	\$ (79,142)	\$ (30,452)	\$ (1,276)	\$ 199,795
Issuance of common stock in connection with employee stock purchase plan	87	-	782	-	-	-	-	782
Issuance of common stock in connection with exercise of options	87	-	518	-	-	-	-	518
Vesting of restricted stock units	104	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	-	-	-	54	(557)	-	-	(557)
Repurchases of common stock	(314)	-	-	314	(3,917)	-	-	(3,917)
Stock-based compensation expense	-	-	3,469	-	-	-	-	3,469
Comprehensive loss	-	-	-	-	-	(2,691)	(52)	(2,743)
<b>Balances, March 31, 2019</b>	<b>32,346</b>	<b>5</b>	<b>315,429</b>	<b>8,663</b>	<b>(83,616)</b>	<b>(33,143)</b>	<b>(1,328)</b>	<b>197,347</b>
Issuance of common stock in connection with exercise of options	69	-	326	-	-	-	-	326
Vesting of restricted stock units	176	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock grants	-	-	-	72	(918)	-	-	(918)
Repurchases of common stock	(300)	-	-	300	(3,790)	-	-	(3,790)
Stock-based compensation expense	-	-	2,601	-	-	-	-	2,601
Comprehensive income (loss)	-	-	-	-	-	(710)	36	(674)
<b>Balances, June 30, 2019</b>	<b>32,291</b>	<b>5</b>	<b>318,356</b>	<b>9,035</b>	<b>(88,324)</b>	<b>(33,853)</b>	<b>(1,292)</b>	<b>194,892</b>
Issuance of common stock in connection with employee stock purchase plan	85	-	751	-	-	-	-	751
Issuance of common stock in connection with exercise of options	53	-	267	-	-	-	-	267
Vesting of restricted stock units	92	-	-	-	-	-	-	-
Purchases of treasury stock in connection with tax withholdings on restricted stock	-	-	-	40	(524)	-	-	(524)

grants and exercise of options								
Repurchases of common stock	(171)	-	-	171	(2,060)	-	-	(2,060)
Stock-based compensation expense	-	-	2,809	-	-	-	-	2,809
Comprehensive loss	-	-	-	-	-	(687)	(461)	(1,148)
<b>Balances, September 30, 2019</b>	<u>32,350</u>	<u>\$ 5</u>	<u>\$ 322,183</u>	<u>9,246</u>	<u>\$ (90,908)</u>	<u>\$ (34,540)</u>	<u>\$ (1,753)</u>	<u>\$ 194,987</u>

See accompanying Notes to Condensed Consolidated Financial Statements (unaudited)

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**PDF SOLUTIONS, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS**  
**(unaudited)**  
**(in thousands)**

	<b>Nine Months Ended September 30,</b>	
	<b>2020</b>	<b>2019</b>
<b>Cash flows from operating activities:</b>		
Net loss	\$ (6,914)	\$ (4,088)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Depreciation and amortization	5,030	4,306
Stock-based compensation expense	9,476	8,642
Amortization of acquired intangible assets	952	867
Amortization of costs capitalized to obtain revenue contracts	367	344
Adjustment to contingent consideration related to acquisition	—	36
Provision (reversal of allowance) for doubtful accounts and write-off of accounts receivable	(50)	67
Loss on disposal and write-down in carrying value of property and equipment	321	130
Accretion of discount on short-term investments	(3)	—
Deferred taxes	(5,309)	(3,998)
Changes in operating assets and liabilities:		
Accounts receivable	313	16,946
Prepaid expenses and other current assets	235	(236)
Operating lease right-of-use assets	1,048	1,089
Other non-current assets	1,442	(2,937)
Accounts payable	(3,900)	(191)
Accrued compensation and related benefits	227	(431)
Accrued and other liabilities	1,568	1,393
Deferred revenues	6,928	1,482
Billings in excess of recognized revenues	313	584
Operating lease liabilities	(1,168)	(994)
<b>Net cash provided by operating activities</b>	<u>10,876</u>	<u>23,011</u>
<b>Cash flows from investing activities:</b>		
Purchases of short-term investments	(49,983)	—
Purchases of property and equipment	(4,786)	(6,841)
Prepayment for the purchase of property and equipment	(579)	—
Payment for business acquisition	—	(2,660)
<b>Cash used in investing activities</b>	<u>(55,348)</u>	<u>(9,501)</u>
<b>Cash flows from financing activities:</b>		
Proceeds from issuance of common stock, net of issuance costs paid	64,995	—
Proceeds from exercise of stock options	1,834	983
Proceeds from employee stock purchase plan	1,670	1,534
Payments for taxes related to net share settlement of equity awards	(3,297)	(1,898)
Repurchases of common stock	—	(9,639)
Repurchases of contingent consideration related to acquisition	—	(206)
<b>Net cash provided by (used in) financing activities</b>	<u>65,202</u>	<u>(9,226)</u>
Effect of exchange rate changes on cash and cash equivalents	51	(114)
Net change in cash and cash equivalents	20,781	4,170
Cash and cash equivalents, beginning of period	97,605	96,089
<b>Cash and cash equivalents, end of period</b>	<u>\$ 118,386</u>	<u>\$ 100,259</u>

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**PDF SOLUTIONS, INC.**  
**CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS - CONTINUED**  
**(unaudited)**

(in thousands)

	Nine Months Ended September 30,	
	2020	2019
<b>Supplemental disclosure of cash flow information:</b>		
Cash paid during the period for taxes	\$ 2,188	\$ 2,454
Cash paid for amounts included in the measurement of operating lease liabilities	\$ 1,598	\$ 1,268
<b>Supplemental disclosure of noncash information:</b>		
Stock-based compensation capitalized as software development costs	\$ 190	\$ 244
Property and equipment received and accrued in accounts payable and accrued and other liabilities	\$ 161	\$ 1,340
Advances for purchase of fixed assets transferred from prepaid assets to property and equipment	\$ —	\$ 1,416
Operating lease liabilities arising from obtaining right-of-use assets	\$ 151	\$ —
Issuance costs for common stock included in accounts payable and accrued and other liabilities	\$ 82	\$ —
Common shares repurchased from a cashless exercise of stock options	\$ —	\$ 128

*See accompanying Notes to Condensed Consolidated Financial Statements (unaudited)*

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**PDF SOLUTIONS, INC.**  
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)**

**1. BASIS OF PRESENTATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

***Basis of Presentation***

The interim unaudited condensed consolidated financial statements included herein have been prepared by PDF Solutions, Inc. (the “Company”) pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”), including the instructions to the Quarterly Report on Form 10-Q and Article 10 of Regulation S-X. Certain information and footnote disclosures normally included in annual financial statements prepared in accordance with accounting principles generally accepted in the United States of America have been condensed or omitted. The interim unaudited condensed consolidated financial statements reflect, in the opinion of management, all adjustments necessary (consisting only of normal recurring adjustments), to present a fair statement of results for the interim periods presented. The operating results for any interim period are not necessarily indicative of the results that may be expected for other interim periods or the full fiscal year. The accompanying interim unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto in the Company’s Annual Report on Form 10-K for the year ended December 31, 2019.

The condensed consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries after the elimination of all intercompany balances and transactions.

The condensed consolidated balance sheet at December 31, 2019, has been derived from the audited consolidated financial statements but does not include all disclosures required by accounting principles generally accepted in the United States of America.

***Reclassification of Prior Period Amounts***

Certain prior period amounts have been reclassified to conform to the current year presentation of reporting operating lease right-of-use assets, and operating lease liabilities on the Condensed Consolidated Statements of Cash Flows. This reclassification had no effect on the Company’s reported net loss or net cash provided by operating activities.

***Change in Presentation***

In the fourth quarter of 2019, in order to enhance the transparency of our revenue reporting, the Company updated its Condensed Consolidated Statements of Comprehensive Loss to change its historical presentation of revenue categories. Previously, the Company presented revenue on two lines: Solutions and Gainshare performance incentives. Included within Solutions, was revenue from software and related revenue, SaaS solutions, Design-for-Inspection (DFI™) licenses, and fixed-price project-based solution implementation services. The previous Gainshare performance incentive category included only revenue from performance incentive programs. The Company now presents revenue in the following categories: Analytics and Integrated Yield Ramp. Integrated Yield Ramp revenue is comprised of all revenue from the Company’s Integrated Yield Ramp services engagements that include performance incentives based on customers’ yield achievement (i.e. both fixed-fees and Gainshare royalty from such engagements). Analytics comprises all other revenue, including from the Company’s licenses and services for Exensio® Software, Exensio SaaS, DFI™ and Characterization Vehicle (CV®) systems that do not include performance incentives based on customers’ yield achievement.

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The change in presentation of revenue does not change the Company's net revenues or total cost of net revenues. The following table shows reclassified amounts to conform to the current period's presentation (in thousands):

	Three Months Ended September 30, 2019			Nine Months Ended September 30, 2019		
	Previously Reported	Change in Presentation Reclassification	Current Presentation	Previously Reported	Change in Presentation Reclassification	Current Presentation
<b>Revenues:</b>						
Solutions	\$ 16,208	\$ (16,208)	N/A	\$ 46,298	\$ (46,298)	N/A
Gainshare performance incentives	5,706	(5,706)	N/A	16,725	(16,725)	N/A
Analytics	N/A	12,691	\$ 12,691	N/A	36,099	\$ 36,099
Integrated Yield Ramp	N/A	9,223	9,223	N/A	26,924	26,924
Total revenues	<u>\$ 21,914</u>	<u>\$ —</u>	<u>\$ 21,914</u>	<u>\$ 63,023</u>	<u>\$ —</u>	<u>\$ 63,023</u>

Since certain costs of revenues are attributed to both Analytics and Integrated Yield Ramp revenue categories, the Company believes it is more appropriate and meaningful to present the Condensed Consolidated Statements of Comprehensive Loss under a one-step presentation format that excludes any measure of gross margin. In the fourth quarter of 2019, the Company elected to change its Condensed Consolidated Statements of Comprehensive Loss presentation from a two-step presentation, where total costs of revenues was deducted from total revenues to report a gross profit line, to a one-step presentation, where total costs and expenses are deducted from total revenues. The change in presentation does not change previously presented amounts for costs of revenues, operating expenses and other expenses (income), or loss before income taxes.

### *Use of Estimates*

The preparation of financial statements in conformity with generally accepted accounting principles in the United States ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates in these financial statements include revenue recognition, assumptions made in analysis of allowance for doubtful accounts, impairment of goodwill and long-lived assets, realization of deferred tax assets, and accounting for lease obligations, stock-based compensation expense, and income taxes. Actual results could differ from those estimates.

The global COVID-19 pandemic has impacted the operations and purchasing decisions of companies worldwide. It also has created and may continue to create significant uncertainty in the global economy. The Company has undertaken measures to protect its employees, partners, customers, and vendors. In addition, the Company's personnel worldwide are subject to various travel restrictions, which limit the ability of the Company to provide services to its customers and affiliates. This impacts the Company's normal operations. To date, the Company has been able to provide uninterrupted access to its products and services due to its globally distributed workforce, many of whom are working remotely, and its pre-existing infrastructure that supports secure access to the Company's internal systems. If, however, the COVID-19 pandemic has a substantial impact on the productivity of the Company's employees or its partners' or customers' decision to use the Company's products and services, the results of the Company's operations and overall financial performance may be adversely impacted. The duration and extent of the impact from the COVID-19 pandemic depends on future developments that cannot be accurately predicted at this time. As of the date of issuance of the financial statements, the Company is not aware of any specific event or circumstance that would require updates to the Company's estimates and judgments or revisions to the carrying value of its assets or liabilities. These estimates may change, as new events occur and additional information is obtained, and are recognized in the condensed consolidated financial statements as soon as they become known. Actual results could differ from those estimates and any such differences may be material to the financial statements.

### ***Cash and Cash Equivalents and Short-term Investments***

The Company considers all highly liquid investments with an original maturity of 90 days or less or investments with a remaining maturity of 90 days or less at the time of purchase to be cash equivalents, and those investments with original maturities greater than 90 days and less than one year to be short-term investments. The Company classifies securities with readily determinable market values as available-for-sale. Short-term investments include available-for-sale securities and are carried at estimated fair value, with the unrealized gains and losses deemed temporary in nature, net of tax, reported as a component of accumulated other comprehensive loss in stockholders' equity. Realized gains and losses and declines in value determined to be other than temporary are based on the specific identification method and are included as a component of other expense, net in the Condensed Consolidated Statements of Operations and Comprehensive Loss.

The Company periodically reviews short-term investments for impairment. In the event a decline in value is determined to be other-than-temporary, an impairment loss is recognized. When determining if a decline in value is other-than-temporary, the Company takes into consideration the current market conditions, the duration and severity of and the reason for the decline, and the likelihood that it would need to sell the security prior to a recovery of par value.

As of September 30, 2020, short-term investments consisted solely of about \$50.0 million of U.S. Treasury bills. The cost of these securities approximated fair value and there was no material gross realized or unrealized gains or losses as of September 30, 2020. As of December 31, 2019, the Company held no short-term investments. There were also no impairments in the investments' value in the three and nine months ended September 30, 2020. Refer to Note 12 "Fair Value Measurements" for further discussion on the Company's investments.

### ***Recently Adopted Accounting Standards***

#### *Intangibles – Goodwill and Other*

In January 2017, the Financial Accounting Standards Board (or FASB) issued Accounting Standards Update (ASU) No. 2017-04, Intangibles – Goodwill and Other (Topic 350). This standard eliminates step 2 from the annual goodwill impairment test. This update was effective for the Company beginning in the first quarter of 2020. The Company adopted this standard on January 1, 2020, and it did not have a material impact on its condensed consolidated financial statements and footnote disclosures.

#### *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*

In August 2018, the FASB issued ASU No. 2018-15, Intangibles – Goodwill and Other – Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract. The new guidance clarifies the accounting for implementation costs incurred to develop or obtain internal-use software in cloud computing arrangements. Further, the standard also requires entities to expense the capitalized implementation costs of a hosting arrangement over the term of the hosting arrangement. This standard was effective for the Company beginning in the first quarter of 2020. ASU No. 2018-15 should be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company adopted ASU No. 2018-15 on January 1, 2020 on a prospective basis. There was no material impact on the Company's condensed consolidated financial statements as a result of adoption of ASU No. 2018-15. As of September 30, 2020, the implementation costs capitalized by the Company pertaining to a cloud computing arrangement, which related to sales order and customer relation management, amounted to \$0.2 million. The capitalized implementation costs were included in other noncurrent assets on the Condensed Consolidated Balance Sheet and within the operating activities section of the Company's Condensed Consolidated Statement of Cash Flows for the nine months ended September 30, 2020. When the module or component of the hosting arrangement is ready for its intended use, the Company expects to amortize the capitalized implementation costs over the respective noncancellable period of the arrangement plus the period covered by an option to extend the arrangement that is reasonably certain of being exercised. The amortization expense related to these assets for the three and nine months ended September 30, 2020 was immaterial.

Management has reviewed other recently issued accounting pronouncements and has determined there are not any that would have a material impact on the condensed consolidated financial statements.

### *Accounting Standards Not Yet Effective*

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments (ASU 2016-13), which requires measurement and recognition of expected credit losses for financial assets held at the reporting date based on internal information, external information, or a combination of both relating to past events, current conditions, and reasonable and supportable forecasts. ASU No. 2016-13 replaces the existing incurred loss impairment model with a forward-looking expected credit loss model, which will result in earlier recognition of credit losses. Subsequent to the issuance of ASU No. 2016-13, the FASB issued ASU No. 2018-19, Codification Improvements to Topic 326, Financial Instruments – Credit Losses, ASU No. 2019-04, Codification Improvements to Topic 326, Financial Instruments – Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instrument, ASU No. 2019-05, Financial Instruments – Credit Losses (Topic 326) Targeted Transition Relief, ASU No. 2016-13, ASU No. 2019-10 Financial Instruments-Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842), and ASU No. 2019-11 Codification Improvements to Topic 326, Financial Instruments-Credit Losses. The subsequent ASUs do not change the core principle of the guidance in ASU No. 2016-13. Instead, these amendments are intended to clarify and improve operability of certain topics included within ASU No. 2016-13.

Additionally, ASU No. 2019-10 defers the effective date for the adoption of the new standard on credit losses for public filers that are considered small reporting companies (“SRC”) as defined by the SEC to fiscal years beginning after December 15, 2022, including interim periods within those fiscal years, which will be fiscal 2023 for the Company if it continues to be classified as a SRC. In February 2020, the FASB issued ASU 2020-02, which provides guidance regarding methodologies, documentation, and internal controls related to expected credit losses. The subsequent amendments will have the same effective date and transition requirements as ASU No. 2016-13. Early adoption is permitted. Topic 326 requires a modified retrospective approach by recording a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption. While the Company is currently evaluating the impact of Topic 326, the Company does not expect the adoption of this ASU to have a material impact on its condensed consolidated financial statements or the related disclosure.

In December 2019, the FASB issued ASU No. 2019-12, Income Taxes (Topic 740) related to simplifying the accounting for income taxes. The guidance is effective for the Company beginning in the first quarter of 2021 on a prospective basis. Early adoption is permitted. The Company is currently evaluating the impact of this ASU, and does not anticipate that the adoption of this ASU will have a significant impact on its condensed consolidated financial statements or the related disclosures.

In January 2020, the FASB issued ASU No. 2020-01-Investments-Equity Securities (Topic 321), Investments-Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815)-Clarifying the Interactions between Topic 321, Topic 323, and Topic 815. This ASU clarifies the interaction between accounting standards related to equity securities (ASC 321), equity method investments (ASC 323), and certain derivatives (ASC 815). The amendments in this ASU are effective for fiscal years beginning after December 15, 2020. The Company does not anticipate that the adoption of this ASU will have a significant impact on its condensed consolidated financial statements or the related disclosures.

In August 2020, the FASB issued ASU No. 2020-16, Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging – Contracts in Entity’s Own Equity (Subtopic 8150-20): Accounting for Convertible Instruments and Contracts in an Entity’s Own Equity, which is intended to simplify the accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts on an entity’s own equity. The guidance allows for either full retrospective adoption or modified retrospective adoption. Additionally, the ASU will require entities to use the “if-converted” method when calculating diluted earnings per share for convertible instruments. The ASU will be effective for annual reporting periods beginning after December 15, 2023 for SRCs and interim periods within those annual periods. Early adoption is permitted. The Company does not anticipate that the adoption of this ASU will have a significant impact on its condensed consolidated financial statements or the related disclosures.

## 2. REVENUE FROM CONTRACTS WITH CUSTOMERS

The Company derives revenue from two sources: Analytics revenue and Integrated Yield Ramp revenue.

The Company recognizes revenue in accordance with Financial Accounting Standards Board (“FASB”) Accounting Standard Codification (“ASC”) Topic 606, *Revenue from Contracts with Customers*, and its related amendments (collectively known as “ASC 606”). ASC 606 outlines a single comprehensive model to use in accounting for revenue arising from contracts with customers. Revenue is recognized when control of products or services is transferred to customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those promised products or services.

The Company determines revenue recognition through the following five steps:

- Identification of the contract, or contracts, with a customer
- Identification of the performance obligations in the contract
- Determination of the transaction price
- Allocation of the transaction price to the performance obligations in the contract
- Recognition of revenue when, or as, performance obligations are satisfied

The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance, and collectability of consideration is probable.

### **Contracts with multiple performance obligations**

The Company enters into contracts that can include various combinations of licenses, products and services, some of which are distinct and are accounted for as separate performance obligations. For contracts with multiple performance obligations, the Company allocates the transaction price of the contract to each performance obligation on a relative basis using standalone selling price.

### ***Analytics Revenue***

Analytics revenue is derived from the following primary offerings: licenses and services for Exensio Software, Exensio SaaS, DFITM and CV® systems that do not include performance incentives based on customers’ yield achievement.

Revenue from standalone Exensio Software is recognized depending on whether the license is perpetual or time-based. Perpetual (one-time charge) license software is recognized at the time of the inception of the arrangement when control transfers to the customers, if the software license is distinct from the services offered by us. Revenue from post-contract support is recognized over the contract term on a straight-line basis, because we are providing (i) support and (ii) unspecified software updates on a when-and-if available basis over the contract term. Revenue from time-based-licensed software is allocated to each performance obligation and is recognized either at a point in time or over time as follows. The license component is recognized at the time when control transfers to the customer, with the post-contract support component recognized ratably over the committed term of the contract. For contracts with any combination of licenses, support, and other services, distinct performance obligations are accounted for separately. For contracts with multiple performance obligations, we allocate the transaction price of the contract to each performance obligation on a relative basis using standalone selling price (or SSP) attributed to each performance obligation.

Revenue from Exensio SaaS arrangements, which allow for the use of a cloud-based software product or service over a contractually determined period of time without taking possession of software, is accounted for as subscriptions and is recognized as revenue ratably, on a straight-line basis, over the subscription period beginning on the date the service is first made available to customers.

Revenue from DFITM and CV® systems that do not include performance incentives based on customers’ yield achievement is recognized primarily as services are performed. Where there are distinct performance obligations, the Company allocates revenue to all deliverables based on their SSPs. For these contracts with multiple performance obligations, the Company allocate the transaction price of the contract to each performance obligation on a relative basis using SSP attributed to each performance obligation. Where there are not discrete performance obligations, historically, revenue is primarily recognized as services are performed using a percentage of completion method based on costs or labor-hours inputs, whichever is the most appropriate measure of the progress made towards completion of the contract. The estimation of percentage of completion method is complex and subject to many variables that require significant judgement. Please refer to “Significant Judgements” section of this Note for further discussion.

### ***Integrated Yield Ramp Revenue***

The Integrated Yield Ramp revenue is derived from the Company's fixed-fee engagements that include performance incentives based on customers' yield achievement and Gainshare royalties, typically based on customer's wafer shipments, pertaining to these fixed-price contracts.

Revenue under these project-based contracts, which are delivered over a specific period of time, typically for a fixed fee component paid on a set schedule, is recognized as services are performed using a percentage of completion method based on costs or labor-inputs, whichever is the most appropriate measure of the progress towards completion of the contract. Where there are distinct performance obligations, the Company allocates revenue to all deliverables based on their SSPs and allocates the transaction price of the contract to each performance obligation on a relative basis using SSP. Similar to the services provided in connection with DFIT<sup>™</sup> and CV<sup>®</sup> systems that are contributing to Analytics revenue, due to the nature of the work performed in these arrangements, the estimation of percentage of completion method is complex and subject to many variables that require significant judgement. Please refer to "Significant Judgments" section of this Note for further discussion.

The Gainshare royalty contained in IYR contracts is a variable fee related to continued usage of the Company's intellectual property after the fixed-fee service period ends, based on the customers' yield achievement. Revenue derived from Gainshare is contingent upon the Company's customers reaching certain defined production yield levels. Gainshare royalty periods are generally subsequent to the delivery of all contractual services and performance obligations. The Company records Gainshare as a usage-based royalty derived from customers' usage of intellectual property and records it in the same period in which the usage occurs.

### ***Disaggregation of Revenue***

The Company disaggregates revenue from contracts with customers into the timing of the transfer of goods and services and the geographical regions. The Company determined that disaggregating revenue into these categories achieves the disclosure objective to depict how the nature, amount, timing, and uncertainty of revenue and cash flows are affected by economic factors.

The Company's performance obligations are satisfied either over time or at a point-in-time. The following table represents a disaggregation of revenue by timing of revenue:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Over time	55%	70%	56%	67%
Point-in-time	45%	30%	44%	33%
Total	100%	100%	100%	100%

International revenues accounted for approximately 67% and 60% of our total revenues for the three and nine months ended September 30, 2020, respectively, compared to 66% and 60% of our total revenues for the three and nine months ended September 30, 2019, respectively. See Note 11. Customer and Geographic Information.

### ***Significant Judgments***

Judgments and estimates are required under ASC 606. Due to the complexity of certain contracts, the actual revenue recognition treatment required under ASC 606 for the Company's arrangements may be dependent on contract-specific terms and may vary in some instances.

For revenue under project-based contracts for fixed-price implementation services, revenue is recognized as services are performed using a percentage-of-completion method based on costs or labor-hours input method, whichever is the most appropriate measure of the progress towards completion of the contract. Due to the nature of the work performed in these arrangements, the estimation of percentage of completion method is complex, subject to many variables and requires significant judgment. Key factors reviewed by the Company to estimate costs to complete each contract are future labor and product costs and expected productivity efficiencies. If circumstances arise that change the original estimates of revenues, costs, or extent of progress toward completion, revisions to the estimates are made. These revisions may result in increases or decreases in estimated revenues or costs, and such revisions are reflected in revenue on a cumulative catch-up basis in the period in which the circumstances that gave rise to the revision become known.

The Company's contracts with customers often include promises to transfer products, licenses software and provide services, including professional services, technical support services, and rights to unspecified updates to a customer. Determining whether licenses and services are distinct performance obligations that should be accounted for separately, or not distinct and thus accounted for together, requires significant judgment. The Company rarely licenses software on a standalone basis, so the Company is required to estimate the range of SSPs for each performance obligation. In instances where SSP is not directly observable because the Company does not license the software or sell the service separately, the Company determines the SSP using information that may include market conditions and other observable inputs. The Company, in some cases, has more than one SSP for individual performance obligations. In these instances, the Company may use information such as the size of the customer and geographic region of the customer in determining the SSP.

The Company is required to record Gainshare royalty revenue in the same period in which the usage occurs. Because the Company generally does not receive the acknowledgment reports from its customers during a given quarter within the time frame necessary to adequately review the reports and include the actual amounts in quarterly results for such quarter, the Company accrues the related revenue based on estimates of customers underlying sales achievement. The Company's estimation process can be based on historical data, trends, seasonality, changes in the contract rate, knowledge of the changes in the industry and changes in the customer's manufacturing environment learned through discussions with customers and sales personnel. As a result of accruing revenue for the quarter based on such estimates, adjustments will be required in the following quarter to true-up revenue to the actual amounts reported.

### ***Contract Balances***

The Company performs its obligations under a contract with a customer by licensing software or providing services in exchange for consideration from the customer. The timing of the Company's performance often differs from the timing of the customer's payment, which results in the recognition of a receivable, a contract asset or a contract liability.

The Company classifies the right to consideration in exchange for software or services transferred to a customer as either a receivable or a contract asset. A receivable is a right to consideration that is unconditional, as compared to a contract asset, which is a right to consideration that is conditional upon factors other than the passage of time. The majority of the Company's contract assets represent unbilled amounts related to fixed-price service contracts when the revenue recognized exceeds the amount billed to the customer. The contract assets are generally classified as current and are recorded on a net basis with deferred revenue (i.e. contract liabilities) at the contract level. At September 30, 2020 and December 31, 2019, contract assets of \$3.8 million and \$3.6 million, respectively, are included in prepaid expenses and other current assets in the Condensed Consolidated Balance Sheets. The Company did not record any asset impairment charges related to contract assets for the periods presented.

Deferred revenues consist substantially of amounts invoiced in advance of revenue recognition and are recognized as the revenue recognition criteria are met. Deferred revenues that will be recognized during the succeeding twelve-month period are recorded as current deferred revenues and the remaining portion is recorded in the other non-current liabilities in the Condensed Consolidated Balance Sheets. At September 30, 2020 and December 31, 2019, the non-current portion of deferred revenues included in non-current liabilities was \$0.8 million and \$2.3 million, respectively. Revenue recognized for the three months ended September 30, 2020 and 2019, that was included in deferred revenues and billings in excess of recognized revenues balances at the beginning of each reporting period was \$4.7 million and \$4.4 million, respectively. Revenue recognized for the nine months ended September 30, 2020, and 2019, that was included in deferred revenues and billings in excess of recognized revenues balances at the beginning of each reporting period was \$9.5 million and \$13.0 million, respectively.

At September 30, 2020, the aggregate amount of the transaction price allocated to the remaining performance obligations related to customer contracts that were unsatisfied or partially unsatisfied was approximately \$113.2 million. Given the applicable contract terms, the majority of this amount is expected to be recognized as revenue over the next three years, with the remainder in the following two years. This amount does not include contracts to which the customer is not committed, nor contracts for which we recognize revenue equal to the amount we have the right to invoice for services performed, or future sales-based or usage-based royalty payments in exchange for a license of intellectual property. This amount is subject to change due to future revaluations of variable consideration, terminations, other contract modifications, or currency adjustments. The estimated timing of the recognition of remaining unsatisfied performance obligations is subject to change and is affected by changes to the scope, change in timing of delivery of products and services, or contract modifications.

The adjustment to revenue recognized in the three months ended September 30, 2020 and 2019 from performance obligations satisfied (or partially satisfied) in previous periods was a decrease of \$1.2 million and an increase of \$0.3 million, respectively. The adjustment to revenue recognized in the nine months ended September 30, 2020 and 2019 from performance obligations satisfied (or partially satisfied) in previous periods was an increase of \$0.4 million and an increase of \$0.1 million, respectively. These amounts primarily represent changes in estimated percentage-of-completion based contracts and changes in estimated Gainshare royalty for those customers that reported actual Gainshare revenue with some time lag.

#### ***Costs to obtain or fulfill a contract***

The Company capitalizes the incremental costs to obtain or fulfill a contract with a customer, including direct sales commissions and related fees, when it expects to recover those costs. Amortization expense related to these capitalized costs is recognized over the period associated with the revenue from which the cost was incurred. Total capitalized direct sales commission costs included in prepaid expenses and other current assets in the accompanying Condensed Consolidated Balance Sheets as of September 30, 2020 and December 31, 2019 were \$0.4 million. Total capitalized direct sales commission costs included in other non-current assets in the accompanying Condensed Consolidated Balance Sheets as of September 30, 2020 and December 31, 2019 were \$1.2 million and \$0.4 million, respectively. Amortization of these assets during each of the three months ended September 30, 2020 and 2019 was \$0.1 million. Amortization of these assets for the nine months ended September 30, 2020 and 2019 was \$0.4 million and \$0.3 million, respectively. There was no impairment loss in relation to the costs capitalized for the periods presented.

Certain eligible initial project costs are capitalized when the costs relate directly to the contract, the costs generate or enhance resources of the Company that will be used in satisfying the performance obligation in the future, and the costs are expected to be recovered. These costs primarily consist of transition and set-up costs related to the installation of systems and processes and other deferred fulfillment costs eligible for capitalization. Capitalized costs are amortized consistent with the transfer to the customer of the services to which the asset relates and recorded as a component of cost of revenues. The Company also incurs certain direct costs to provide services in relation to the specific anticipated contracts. The Company recognizes such costs as a component of costs of revenues, the timing of which is dependent upon identification of a contract arrangement. The Company also defers costs from arrangements that required it to defer the revenues, typically due to the pattern of transfer of the performance obligations in the contract. These costs are recognized in proportion to the related revenue. At the end of the reporting period, the Company evaluates its deferred costs for their probable recoverability. The Company recognizes impairment of deferred costs when it is determined that the costs no longer have future benefits and are no longer recoverable. There was no impairment loss in relation to the costs capitalized for the periods presented. Deferred costs balance included in prepaid expenses and other current assets in the accompanying Condensed Consolidated Balance Sheets was immaterial as of September 30, 2020 and was \$0.3 million as of December 31, 2019. Deferred costs balance included in other non-current assets in the accompanying Condensed Consolidated Balance Sheets was immaterial as of September 30, 2020 and was \$0.2 million as of December 31, 2019.

#### ***Practical Expedients***

The Company does not adjust transaction price for the effects of a significant financing component when the period between the transfers of the promised good or service to the customer and payment for that good or service by the customer is expected to be one year or less. The Company assessed each of its revenue generating arrangements in order to determine whether a significant financing component exists, and determined its contracts did not include a significant financing component for the three and nine months ended September 30, 2020 and 2019.

### **3. STRATEGIC PARTNERSHIP AGREEMENT WITH ADVANTEST AND RELATED PARTY TRANSACTIONS**

On July 29, 2020, the Company entered into a long-term strategic partnership with Advantest Corporation through its wholly-owned subsidiary, Advantest America, Inc. (collectively referred to herein as “Advantest”) that includes:

#### ***i. Securities Purchase Agreement and Stockholder Agreement***

Pursuant to the Securities Purchase Agreement (“SPA”), the Company issued an aggregate of 3,306,924 shares of its common stock, par value \$0.00015 per share (the “SPA Shares”), at a purchase price equal to \$19.7085 per share to Advantest for aggregate gross proceeds of \$65.2 million.

In connection with the SPA, the Company entered into a Stockholder Agreement (the “Stockholder Agreement”) with Advantest on July 30, 2020. Pursuant to the Stockholder Agreement, Advantest agreed that the Shares will be subject to a five-year lock-up period and Advantest will be subject to a five-year standstill period. The lock-up periods shall terminate upon occurrence of certain events (“Termination Event”) stipulated in the Stockholder Agreement. Advantest is permitted to sell, transfer or dispose of the SPA Shares at any time to an affiliate or in order to maintain Advantest’s equivalent percentage beneficial ownership at 9.9% of the Company’s outstanding shares of common stock. Prior to the expiration of the lock-up period, upon the occurrence of certain events, for so long as the SPA Shares constitute at least 2.0% of the Company’s outstanding shares of common stock, if Advantest proposes to sell, transfer or dispose of any SPA Shares, the SPA Shares can be repurchased by the Company in its sole option at a repurchase price to be determined pursuant to the SPA.

Pursuant to the Stockholder Agreement, for so long as a Termination Event has not occurred, Advantest agreed to vote the SPA Shares in the manner recommended by the Board of Directors as reflected in any Company proxy statement, except on matters of: (i) the issuance of Company securities subject to Nasdaq Rule 5635(b), (ii) the approval of any merger, consolidation, or amalgamation (or similar business combination) of the Company, (iii) an amendment of the Company’s Certificate of Incorporation that would disproportionately and adversely affect Advantest, or (iv) any voluntary or involuntary bankruptcy, dissolution, insolvency, reorganization, rehabilitation or similar event of the Company.

There was no occurrence of any of the termination events as of the issuance of these condensed consolidated financial statements.

***ii. Amendment #1 to Software License & Related Services Agreement***

The Company entered into Amendment #1 to that certain Software License and Related Services Agreement (“SLA”), dated as of March 25, 2020 (“Amendment #1 to SLA”) with Advantest. Amendment #1 to SLA provides for an exclusive commercial arrangement in which the Company and Advantest will collaborate on, and the Company will initially host, develop and maintain, an Advantest-specific cloud layer on the Exensio platform. Amendment #1 to SLA provides for a renewable five-year cloud-based subscription by Advantest to the Company’s Exensio analytics platform and related services to be provided by the Company for an aggregate subscription price of over \$50.0 million over the initial five-year term, subject to the achievement of certain milestones and the Company’s standard warranty and service level commitments.

Revenue recognized from this agreement during the three and nine months ended September 30, 2020 was \$1.0 million. Accounts receivable from Advantest, comprised of billed and unbilled accounts receivable, amounted to \$9.0 million, and Deferred revenue amounted to \$8.0 million as of September 30, 2020.

***iii. Development Agreement***

The Company also entered into a multi-year Amended and Restated Master Development Agreement (the “Development Agreement”) with Advantest, pursuant to which the Company and Advantest agreed to collaborate on extensions to or combinations of both of their existing technology and new technology to address mutual customers’ needs (the “Integrated Products”) through one or more development phases subject to certain conditions as set forth therein. The Development Agreement includes the Company’s assistance in the development of a cloud-based software solution for Advantest’s customers that is based on the Company’s Exensio software analytics platform for both Advantest’s internal use as well as use by Advantest’s customers. Except as may be separately set forth in a statement of work, each party will bear its own costs and expenses incurred in connection with its development thereunder. Either party may terminate the Development Agreement or any statement of work thereunder at any time upon thirty (30) days’ prior written notice.

Costs and expenses incurred related to the Development Agreement have not been significant for the three and nine months ended September 30, 2020.

#### *iv. Commercial Agreement*

The Company also entered into a multi-year Master Commercial Terms and Support Services Agreement (the “Commercial Agreement”) with Advantest. Pursuant to the Commercial Agreement, the Company and Advantest agreed to (i) commercialize and sell Integrated Products that are generated from the Development Agreement according to revenue sharing for each Integrated Product (as defined in the Commercial Agreement) as generally set forth in the Commercial Agreement and Integrated-Product specific revenue sharing and other terms agreed by the parties from time to time in addenda entered into thereunder; and (ii) provide technical services to support end customers’ use of the Integrated Products according to agreed-upon technical support sharing principles as set forth in the Commercial Agreement. Either party may terminate the Commercial Agreement at any time upon ninety (90) days’ prior written notice. Notwithstanding the foregoing, each party agreed to provide continuing technical support services for Integrated Products sold prior to termination as generally set forth in the Commercial Agreement.

No costs and expenses incurred related to the Commercial Agreement with Advantest for the three and nine months ended September 30, 2020.

The Company carries out transactions with Advantest on customary terms.

#### **4. BALANCE SHEET COMPONENTS**

##### *Accounts receivable*

Accounts receivable include amounts that are unbilled at the end of the period that are expected to be billed and collected within a 12-month period. Unbilled accounts receivable, included in accounts receivable, totaled \$6.6 million and \$7.4 million as of September 30, 2020, and December 31, 2019, respectively. Unbilled accounts receivable that are not expected to be billed and collected during the succeeding 12-month period are recorded in other non-current assets and totaled \$2.3 million and \$4.1 million as of September 30, 2020, and December 31, 2019, respectively.

##### *Property and equipment*

Property and equipment, net consist of the following (in thousands):

	<b>September 30, 2020</b>	<b>December 31, 2019</b>
Computer equipment	\$ 11,385	\$ 10,880
Software	5,035	4,690
Furniture, fixtures and equipment	2,433	2,395
Leasehold improvements	6,149	6,095
Laboratory and other equipment	5,013	4,933
Test equipment	24,118	22,980
Construction-in-progress	19,874	18,245
	<u>74,007</u>	<u>70,218</u>
Less: accumulated depreciation and amortization	(34,520)	(29,420)
Total	<u>\$ 39,487</u>	<u>\$ 40,798</u>

Test equipment includes DFITM assets at customer sites that are contributing to DFITM revenues. The construction-in-progress balance related to construction of DFITM assets totaled \$18.5 million and \$16.6 million as of September 30, 2020 and December 31, 2019, respectively. Depreciation and amortization expense was \$1.7 million during each of the three months ended September 30, 2020 and 2019. Depreciation and amortization expense for the nine months ended September 30, 2020 and 2019 was \$5.0 million and \$4.3 million, respectively.

##### *Goodwill and Intangible Assets*

As of September 30, 2020, and December 31, 2019, the carrying amount of goodwill was \$2.3 million.

Intangible assets balance was \$5.3 million and \$6.2 million as of September 30, 2020 and December 31, 2019, respectively. Intangible assets as of September 30, 2020 and December 31, 2019 consist of the following (in thousands):

	Amortization Period (Years)	September 30, 2020			December 31, 2019		
		Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Acquired identifiable intangibles:							
Customer relationships	1 – 9	\$ 7,440	\$ (5,270)	\$ 2,170	\$ 7,440	\$ (4,935)	\$ 2,505
Developed technology	4 – 9	17,460	(14,669)	2,791	17,460	(14,101)	3,359
Tradename	2 – 7	790	(692)	98	790	(673)	117
Patent	7 – 10	1,800	(1,590)	210	1,800	(1,560)	240
Total		<u>\$ 27,490</u>	<u>\$ (22,221)</u>	<u>\$ 5,269</u>	<u>\$ 27,490</u>	<u>\$ (21,269)</u>	<u>\$ 6,221</u>

The weighted average amortization period for acquired identifiable intangible assets was 5.7 years as of September 30, 2020. Intangible asset amortization expense was \$0.3 million during each of the three months ended September 30, 2020 and 2019. Intangible asset amortization expense for the nine months ended September 30, 2020 and 2019 was \$1.0 million and \$0.9 million, respectively. The Company expects annual amortization of acquired identifiable intangible assets to be as follows (in thousands):

Year Ending December 31,	Amount
2020 (remaining three months)	\$ 317
2021	1,093
2022	886
2023	886
2024	747
2025 and thereafter	1,340
Total future amortization expense	<u>\$ 5,269</u>

Intangible assets are amortized over their useful lives unless these lives are determined to be indefinite. Intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or asset group may not be recoverable. During the three and nine months ended September 30, 2020, there were no indicators of impairment related to the Company's intangible assets.

## 5. LEASES

The Company leases administrative and sales offices and certain equipment under noncancellable operating leases, which contain various renewal options and, in some cases, require payment of common area costs, taxes and utilities. These operating leases expire at various times through 2028. The Company had no leases that were classified as a financing lease as of September 30, 2020 and December 31, 2019.

Leases with an initial term of 12 months or less are not recorded on the balance sheets, and the Company recognizes lease expense for these leases on a straight-line basis over the lease term. Long-term operating leases are included in operating lease right-of-used (ROU) assets and operating lease liabilities in the Company's Condensed Consolidated Balance Sheets.

ROU assets represent the Company's right to use an underlying asset for the lease term and operating lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized based on the present value of remaining lease payments over the lease term. In determining the present value of lease payments, implicit rate must be used when readily determinable. As the Company's leases do not provide implicit rates, at the date of the Company's adoption of the new lease standard, the discount rate is calculated using the Company's incremental borrowing rate determined based on the information available. The operating lease ROU asset also includes any lease payments made and excludes lease incentives or tenant improvement allowance. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Operating lease expense for lease payments is recognized

on a straight-line basis over the lease term. Variable lease payment amounts that cannot be determined at the commencement of the lease such as increases in lease payments based on changes in index rates or usage, and common area maintenance costs are not included in the ROU assets or operating lease liabilities. These are expensed as incurred and recorded as variable lease expense.

Lease expense was comprised of the following (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Operating lease expense	\$ 455	\$ 463	\$ 1,362	\$ 1,402
Short-term lease and variable lease expense	127	130	401	333
Total lease expense	<u>\$ 582</u>	<u>\$ 593</u>	<u>\$ 1,763</u>	<u>\$ 1,735</u>

Supplemental balance sheets information related to leases was as follows:

	September 30, 2020	December 31, 2019
Weighted average remaining lease term under operating ROU leases (in years)	6.7	7.2
Weighted average discount rate for operating lease liabilities	5.24%	5.25%
Operating lease ROU assets obtained (in thousands)	\$ 151	\$ 333

Maturity of operating lease liabilities as of September 30, 2020, are as follows (in thousands):

Year Ending December 31,	Amount(a)
2020 (remaining three months)	\$ 392
2021	1,876
2022	1,626
2023	1,368
2024	1,073
2025 and thereafter	3,791
Total future minimum lease payments	\$ 10,126
Less: Interest(b)	(1,599)
Present value of future minimum lease payments operating lease liabilities(c)	<u>\$ 8,527</u>

- (a) As of September 30, 2020, the total operating lease liability includes approximately \$1.0 million related to an option to extend a lease term that is reasonably certain to be exercised.
- (b) Calculated using incremental borrowing interest rate for each lease.
- (c) Includes the current portion of operating lease liabilities of \$1.8 million as of September 30, 2020.

## 6. STOCKHOLDERS' EQUITY

### *Issuance of Common Stock*

On July 30, 2020, the Company issued 3,306,924 shares of common stock, at a purchase price of \$19.7085 per share, for aggregate gross proceeds of \$65.2 million pursuant to a Securities Purchase Agreement with Advantest dated July 29, 2020. Issuance costs related to this private placement aggregated \$0.1 million. See Note 3, Securities Purchase Agreement with Advantest, for further details.

**Stock Repurchase Program**

On May 28, 2020, the Company's 2018 stock repurchase program (the "2018 Program") that was originally adopted on May 29, 2018, expired. On June 4, 2020, the Company's Board of Directors adopted a new stock repurchase program (the "2020 Program") to repurchase up to \$25.0 million of the Company's common stock both on the open market and in privately negotiated transactions, including through Rule 10b5-1 plans, over the next two years. During the three and nine months ended September 30, 2020, no shares were repurchased under the 2020 and 2018 programs. During the three and nine months ended September 30, 2019, Company repurchased approximately 171,000 shares and 785,000 shares, respectively, under the 2018 Program. As of May 28, 2020, approximately 786,000 shares had been repurchased at an average price of \$12.43 per share, for a total price of \$9.8 million under the 2018 Program.

**7. EMPLOYEE BENEFIT PLANS**

On September 30, 2020, the Company had the following stock-based compensation plans:

**Employee Stock Purchase Plan**

In July 2001, the Company adopted a ten-year Employee Stock Purchase Plan (as amended, the "Purchase Plan") under which eligible employees can contribute up to 10% of their compensation, as defined in the Purchase Plan, towards the purchase of shares of PDF common stock at a price of 85% of the lower of the fair market value at the beginning of the offering period or the end of the purchase period. The Purchase Plan provided for twenty-four-month offering periods with four six-month purchase periods in each offering period. Under the Purchase Plan, on January 1 of each year, starting with 2002, the number of shares reserved for issuance will automatically increase by the lesser of (1) 675,000 shares, (2) 2% of the Company's outstanding common stock on the last day of the immediately preceding year, or (3) the number of shares determined by the board of directors. At the annual meeting of stockholders on May 18, 2010, the Company's stockholders approved an amendment to the Purchase Plan to extend it through May 17, 2020. The Company's proposal to extend the Purchase Plan through June 22, 2030 was not ratified by the Company's stockholders and hence, the Purchase Plan expired on May 17, 2020. After the Purchase Plan expired, no new offering periods will commence under the Purchase Plan; however, existing offering periods will continue until they expire in accordance with their terms, and participation in such offering periods will continue through the applicable expiration date. The final offering period under the Purchase Plan is expected to expire on January 31, 2022.

The Company estimated the fair value of purchase rights granted under the Purchase Plan during the period using the Black-Scholes-Merton option-pricing model with the following weighted average assumptions, resulting in the following weighted average fair values:

	<b>Nine Months Ended September 30,</b>	
	<b>2020</b>	<b>2019</b>
Expected life (in years)	1.25	1.25
Volatility	34.25%	42.45%
Risk-free interest rate	1.43%	2.24%
Expected dividend	—	—
Weighted average fair value of purchase rights granted during the period	\$ 4.83	\$ 4.08

During the three months ended September 30, 2020 and 2019, a total of approximately 93,000 and 85,000 shares, respectively issued under the Purchase Plan. During the nine months ended September 30, 2020 and 2019, a total of approximately 183,000 and 172,000 shares, respectively, were issued at a weighted-average purchase price of \$9.12 and \$8.92 per share, respectively. As of September 30, 2020, there was \$0.3 million of unrecognized compensation cost related to the Purchase Plan. That cost is expected to be recognized over a weighted average period of 0.6 year. As of September 30, 2020, 5.7 million shares were available for future issuance under the Purchase Plan.

### Stock Incentive Plans

On November 16, 2011, the Company's stockholders initially approved the 2011 Stock Incentive Plan, which has been amended and restated and approved by the Company's stockholders a number of times since then (as amended, the "2011 Plan"). Under the 2011 Plan, the Company may award stock options, stock appreciation rights ("SARs"), stock grants or stock units covering shares of the Company's common stock to employees, directors, non-employee directors and contractors. The aggregate number of shares reserved for awards under this plan is 11,550,000 shares, plus up to 3,500,000 shares previously issued under the 2001 Stock Plan adopted by the Company in 2001, which expired in 2011 (the "2001 Plan") that are either (i) forfeited or (ii) repurchased by the Company or are shares subject to awards previously issued under the 2001 Plan that expire or that terminate without having been exercised or settled in full on or after November 16, 2011. In case of awards other than options or SARs, the aggregate number of shares reserved under the 2011 Plan will be decreased at a rate of 1.33 shares issued pursuant to such awards. The exercise price for stock options must generally be at prices no less than the fair market value at the date of grant. Stock options generally expire ten years from the date of grant and become vested and exercisable over a four-year period.

Stock options granted under the 2001 Plan generally expire ten years from the date of grant and become vested and exercisable over a four-year period. Although no new awards may be granted under the 2001 Plan, awards made under the 2001 Plan that are currently outstanding remain subject to the terms of each such plan.

As of September 30, 2020, 12.1 million shares of common stock were reserved to cover stock-based awards under the 2011 Plan, of which 4.1 million shares were available for future grant. The number of shares reserved and available under the 2011 Plan includes 0.5 million shares that were subject to awards previously made under the 2001 Plan and were forfeited, expired or repurchased by the Company after the adoption of the 2011 Plan through September 30, 2020. As of September 30, 2020, there were no outstanding awards that had been granted outside of the 2011 or 2001 Plans (collectively, the "Stock Plans").

The Company estimated the fair value of share-based awards granted under the 2011 Stock Plan during the period using the Black-Scholes-Merton option-pricing model with the following weighted average assumptions, resulting in the following weighted average fair values:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Expected life (in years)	4.45	4.46	4.45	4.46
Volatility	43.92%	39.93%	40.90%	42.61%
Risk-free interest rate	0.23%	1.40%	0.60%	1.99%
Expected dividend	—	—	—	—
Weighted average fair value per share of options granted during the period	\$ 6.92	\$ 4.70	\$ 5.75	\$ 4.61

Stock-based compensation is estimated at the grant date based on the award's fair value and is recognized on a straight-line basis over the vesting periods, generally four years. Stock-based compensation expense before taxes related to the Company's stock plans and employee stock purchase plan was allocated as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Costs of revenues	\$ 790	\$ 745	\$ 2,582	\$ 2,404
Research and development	1,148	1,062	3,613	3,681
Selling, general and administrative	1,192	925	3,281	2,557
Stock-based compensation expenses	\$ 3,130	\$ 2,732	\$ 9,476	\$ 8,642

The stock-based compensation expense in the table above includes immaterial expense or credit adjustments related to cash-settled SARs granted to certain employees. The Company accounted for these awards as liability awards and the amount was included in accrued compensation and related benefits. SARs were fully exercised as of September 30, 2020. There was no stock-based compensation capitalized for the three months ended September 30, 2020. Stock-based compensation capitalized in the capitalized software development costs included in property and equipment, net, was approximately \$0.2 million for the nine months ended September 30, 2020. Stock-based compensation capitalized in the capitalized software development costs included in property and equipment, net, was approximately \$0.2 million during the three and nine months ended September 30, 2019.

Additional information with respect to options under the Stock Plans during the nine months ended September 30, 2020, was as follows:

	Number of Options (in thousands)	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (years)	Aggregate Intrinsic Value (in thousands)
Outstanding, January 1, 2020	745	\$ 10.64		
Granted (weighted average fair value of \$5.75 per share)	24	\$ 16.72		
Exercised	(177)	\$ 10.33		
Canceled	(43)	\$ 10.69		
Expired	(10)	\$ 10.06		
Outstanding, September 30, 2020	<u>539</u>	<u>\$ 11.02</u>	<u>3.56</u>	<u>\$ 4,188</u>
Vested and expected to vest, September 30, 2020	<u>531</u>	<u>\$ 10.96</u>	<u>3.48</u>	<u>\$ 4,158</u>
Exercisable, September 30, 2020	<u>433</u>	<u>\$ 10.08</u>	<u>2.32</u>	<u>\$ 3,779</u>

The aggregate intrinsic value in the table above represents the total intrinsic value based on the Company's closing stock price of \$18.71 per share as of September 30, 2020. The total intrinsic value of options exercised during the nine months ended September 30, 2020, was \$1.5 million.

As of September 30, 2020, there was \$0.5 million of total unrecognized compensation cost related to unvested stock options. That cost is expected to be recognized over a weighted average period of 2.7 years. The total fair value of shares vested during the nine months ended September 30, 2020, was \$0.2 million.

Nonvested restricted stock units activity during the nine months ended September 30, 2020, was as follows:

	Shares (in thousands)	Weighted Average Grant Date Fair Value Per Share
Nonvested, January 1, 2020	1,887	\$ 12.30
Granted	864	\$ 21.28
Vested	(652)	\$ 13.33
Forfeited	(101)	\$ 12.61
Nonvested, September 30, 2020	<u>1,998</u>	<u>\$ 15.83</u>

As of September 30, 2020, there was \$25.1 million of total unrecognized compensation cost related to nonvested restricted stock units. That cost is expected to be recognized over a weighted average period of 2.7 years. Restricted stock units do not have rights to dividends prior to vesting.

## 8. RESTRUCTURING CHARGES

On September 27, 2018, the Board of Directors of the Company approved a reduction in its workforce to reduce expenses and align its operations with evolving business needs. Notifications to the affected employees began on October 24, 2018.

From inception of the restructuring plan to September 30, 2020, the Company has recorded restructuring charges of \$0.7 million, primarily consisting of employee separation charges. As of September 30, 2020, the Company has substantially completed the implementation of the restructuring plan, and the remaining charges expected to be incurred are not expected to be significant.

The following table summarizes the activities of restructuring liabilities under this plan (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Beginning balance	\$ —	\$ —	\$ —	\$ 244
Restructuring charges	—	—	—	92
Cash payments	—	—	—	(336)
Ending balance	\$ —	\$ —	\$ —	\$ —

## 9. INCOME TAXES

Income tax benefit increased \$2.6 million for the nine months ended September 30, 2020, to a \$4.1 million income tax benefit as compared to an income tax benefit of \$1.5 million for the nine months ended September 30, 2019. The Company's effective tax rate benefit was 37% and 26% for the nine months ended September 30, 2020 and 2019, respectively. The Company's effective tax rate benefit increased in the nine months ended September 30, 2020, as compared to the same period in 2019, primarily due to a favorable increase in excess tax benefits related to employee stock compensation and an income tax benefit recorded to carryback net operating losses ("NOLs"), pursuant to the provisions of the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") passed on March 27, 2020, which allows any federal net operating losses generated in years beginning after December 31, 2017 and before January 1, 2021 to be carried back up to five taxable years to offset taxable income in the prior periods.

The Company's total amount of unrecognized tax benefits, excluding interest and penalties, as of September 30, 2020, was \$14.1 million, of which \$8.0 million, if recognized, would affect the Company's effective tax rate. The Company's total amount of unrecognized tax benefits, excluding interest and penalties, as of December 31, 2019, was \$13.6 million, of which \$7.9 million, if recognized, would affect the Company's effective tax rate. As of September 30, 2020, the Company has recorded unrecognized tax benefits of \$2.8 million, including interest and penalties of \$0.8 million, as long-term taxes payable in its Condensed Consolidated Balance Sheet. The remaining \$12.0 million has been recorded net of our deferred tax assets, of which \$6.1 million is subject to a full valuation allowance.

The valuation allowance was approximately \$11.2 million and \$10.5 million as of September 30, 2020, and December 31, 2019, respectively, which was related to California R&D tax credits and California net operating losses related to our acquisition of Syntricity that we currently do not believe are more likely than not to be ultimately realized.

The Company conducts business globally and, as a result, files numerous consolidated and separate income tax returns in the U.S. federal, various state and foreign jurisdictions. Because the Company used some of the tax attributes carried forward from previous years to tax years that are still open for audit, the federal and California statute of limitations remains open for all tax years since 2000 and 2002, respectively. The Company is not currently subject to an income tax examination or under audit in any jurisdiction.

## 10. NET LOSS PER SHARE

Basic net loss per share is computed by dividing net loss by weighted average number of common shares outstanding for the period (excluding outstanding stock options and shares subject to repurchase). Diluted net loss per share is computed using the weighted-average number of common shares outstanding for the period plus the potential effect of dilutive securities which are convertible into common shares (using the treasury stock method), except in cases in which the effect would be anti-dilutive. The following is a reconciliation of the numerators and denominators used in computing basic and diluted net loss per share (in thousands except per share amount):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Numerator:				
Net loss	\$ (2,734)	\$ (687)	\$ (6,914)	\$ (4,088)
Denominator:				
Basic weighted-average shares outstanding	35,479	32,392	33,696	32,405
Effect of dilutive options and restricted stock units	—	—	—	—
Diluted weighted average shares outstanding	35,479	32,392	33,696	32,405
Net loss per share – Basic	\$ (0.08)	\$ (0.02)	\$ (0.21)	\$ (0.13)
Net loss per share – Diluted	\$ (0.08)	\$ (0.02)	\$ (0.21)	\$ (0.13)

For the three and nine months ended September 30, 2020 and 2019, because the Company was in a loss position, basic net loss per share is the same as diluted net loss per share as the inclusion of the potential common shares would have been anti-dilutive.

The following table sets forth potential shares of common stock that are not included in the diluted net loss per share calculation above because to do so would be anti-dilutive for the periods indicated (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Outstanding options	310	525	362	584
Nonvested restricted stock units	1,084	1,394	820	985
Employee Stock Purchase Plan	190	53	146	150
Total	1,584	1,972	1,328	1,719

## 11. CUSTOMER AND GEOGRAPHIC INFORMATION

Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or group, in deciding how to allocate resources and in assessing performance.

The Company's chief operating decision maker, the chief executive officer, reviews discrete financial information presented on a consolidated basis for purposes of regularly making operating decisions, allocation of resources, and assessing financial performance. Accordingly the Company considers itself to be in one operating and reporting segment, specifically the provision of services for differentiated data and analytics solutions to the semiconductor and electronics industries.

The Company had revenues from individual customers in excess of 10% of total revenues as follows:

Customer	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
A	18%	22%	23%	30%
B	*%	16%	*%	*%
E	15%	*%	*%	*%

\* represents less than 10%

The Company had gross accounts receivable from individual customers in excess of 10% of gross accounts receivable as follows:

Customer	September 30, 2020	December 31, 2019
A	11%	27%
B	*%	14%
C	10%	12%
D	21%	*%

\* represents less than 10%

Revenues from customers by geographic area based on the location of the customers' work sites are as follows (amounts in thousands):

	Three Months Ended September 30,			
	2020		2019	
	Revenues	Percentage of Revenues	Revenues	Percentage of Revenues
United States	\$ 7,710	33%	\$ 7,341	34%
China	6,747	29	5,118	23
Japan	1,113	5	2,423	11
Rest of the world	7,542	33	7,032	32
Total revenue	\$ 23,112	100%	\$ 21,914	100%

	Nine Months Ended September 30,			
	2020		2019	
	Revenues	Percentage of Revenues	Revenues	Percentage of Revenues
United States	\$ 26,242	40%	\$ 25,203	40%
China	10,200	16	11,369	18
Taiwan	8,038	12	6,041	10
Rest of the world	21,198	32	20,410	32
Total revenue	\$ 65,678	100%	\$ 63,023	100%

Long-lived assets, net by geographic area are as follows (in thousands):

	September 30, 2020	December 31, 2019
United States	\$ 44,140	\$ 46,000
Rest of the world	2,059	2,407
Total long-lived assets, net	\$ 46,199	\$ 48,407

## 12. FAIR VALUE MEASUREMENTS

Fair value is the exit price, or the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants as of the measurement date. The multiple assumptions used to value financial instruments are referred to as inputs, and a hierarchy for inputs used in measuring fair value is established, that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs reflect assumptions market participants would use in pricing an asset or liability based on market data obtained from independent sources while unobservable inputs reflect a reporting entity's pricing based upon its own market assumptions. These inputs are ranked according to a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels.

Level 1 - Inputs are quoted prices in active markets for identical assets or liabilities.

Level 2 - Inputs are quoted prices for similar assets or liabilities in an active market, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable and market-corroborated inputs which are derived principally from or corroborated by observable market data.

Level 3 - Inputs are derived from valuation techniques in which one or more significant inputs or value drivers are unobservable.

The following table represents the Company's assets measured at fair value on a recurring basis as of September 30, 2020, and the basis for that measurement (in thousands):

<b>Assets</b>	<b>Total</b>	<b>Quoted Prices in Active Markets for Identical Assets (Level 1)</b>	<b>Significant Other Observable Inputs (Level 2)</b>	<b>Significant Unobservable Inputs (Level 3)</b>
<b>Cash equivalents</b>				
Money market mutual funds	\$ 102,977	\$ 102,977	\$ —	\$ —
<b>Short-term investments (available-for-sale debt securities)</b>				
U.S. Treasury bills (1)	49,983	49,983	—	—
<b>Total</b>	<b>\$ 152,960</b>	<b>\$ 152,960</b>	<b>\$ —</b>	<b>\$ —</b>

(1) The carrying amount of the Company's investments in U.S. Treasury bills approximate fair value due to their short-term maturities, and there have been no events or changes in circumstances that would have had a significant effect on the fair value of these securities at September 30, 2020.

The following table represents the Company's assets measured at fair value on a recurring basis as of December 31, 2019, and the basis for that measurement (in thousands):

<b>Assets</b>	<b>Total</b>	<b>Quoted Prices in Active Markets for Identical Assets (Level 1)</b>	<b>Significant Other Observable Inputs (Level 2)</b>	<b>Significant Unobservable Inputs (Level 3)</b>
<b>Cash equivalents</b>				
Money market mutual funds	\$ 27,644	\$ 27,644	\$ —	\$ —

From time to time, the Company enters into foreign currency forward contracts to reduce the exposure to foreign currency exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities, primarily on third-party accounts payables and intercompany balances. The primary objective of the Company's hedging program is to reduce volatility of earnings related to foreign currency exchange rate fluctuations. The counterparty to these foreign currency forward contracts is a financial institution that the Company believes is creditworthy, and therefore, the Company believes the credit risk of counterparty nonperformance is not significant. These foreign currency forward contracts are not designated for hedge accounting treatment.

Therefore, the change in fair value of these contracts is recorded into earnings as a component of other expense (income), net, and offsets the change in fair value of the foreign currency denominated assets and liabilities, which is also recorded in other expense (income), net in the Company's Condensed Consolidated Statements of Operations and Comprehensive Loss. For the three months ended September 30, 2020, there was no realized gain or loss from foreign currency forward contracts. For the three months ended September 30, 2019, the Company recognized a realized loss of \$0.4 million on the contract. For the nine months ended September 30, 2020 and 2019, the Company recognized a realized loss of \$0.2 million and \$0.7 million on the contracts, respectively.

The Company carries these derivatives financial instruments on its Condensed Consolidated Balance Sheets at their fair values. The Company's foreign currency forward contracts are classified as Level 2 because they are not actively traded and the valuation inputs are based on quoted prices and market observable data of similar instruments. As of September 30, 2020 and December 31, 2019, the Company had no outstanding forward contracts.

### 13. COMMITMENTS AND CONTINGENCIES

**Strategic Partnership with Advantest** — See Note 3 for the discussion about the Company's commitments under the strategic partnership with Advantest.

**Operating Leases** — Refer to Note 5, Leases, for the discussion about the Company's lease commitments.

**Indemnifications** — The Company generally provides a warranty to its customers that its software will perform substantially in accordance with documented specifications typically for a period of 90 days following initial delivery of its products. The Company also indemnifies certain customers from third-party claims of intellectual property infringement relating to the use of its products. Historically, costs related to these guarantees have not been significant. The Company is unable to estimate the maximum potential impact of these guarantees on its future results of operations.

**Purchase obligations** — The Company has purchase obligations with certain suppliers for the purchase of goods and services entered in the ordinary course of business. As of September 30, 2020, total outstanding purchase obligations were \$15.1 million, the majority of which due within the next 15 months.

**Indemnification of Officers and Directors** — As permitted by the Delaware general corporation law, the Company has included a provision in its certificate of incorporation to eliminate the personal liability of its officers and directors for monetary damages for breach or alleged breach of their fiduciary duties as officers or directors, other than in cases of fraud or other willful misconduct.

In addition, the Bylaws of the Company provide that the Company is required to indemnify its officers and directors even when indemnification would otherwise be discretionary, and the Company is required to advance expenses to its officers and directors as incurred in connection with proceedings against them for which they may be indemnified. The Company has entered into indemnification agreements with its officers and directors containing provisions that are in some respects broader than the specific indemnification provisions contained in the Delaware general corporation law. The indemnification agreements require the Company to indemnify its officers and directors against liabilities that may arise by reason of their status or service as officers and directors other than for liabilities arising from willful misconduct of a culpable nature, to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified, and to obtain directors' and officers' insurance if available on reasonable terms. The Company has obtained directors' and officers' liability insurance in amounts comparable to other companies of the Company's size and in the Company's industry. Since a maximum obligation of the Company is not explicitly stated in the Company's Bylaws or in its indemnification agreements and will depend on the facts and circumstances that arise out of any future claims, the overall maximum amount of the obligations cannot be reasonably estimated.

**Legal Proceedings** — From time to time, the Company is subject to various claims and legal proceedings that arise in the ordinary course of business. The Company accrues for losses related to litigation when a potential loss is probable and the loss can be reasonably estimated in accordance with FASB requirements. As of September 30, 2020, the Company was not party to any material legal proceedings, thus no loss was probable and no amount was accrued.

On May 6, 2020, the Company initiated an arbitration proceeding with the Hong Kong International Arbitration Center against SMIC New Technology Research & Development (Shanghai) Corporation (“SMIC”) due to SMIC’s failure to pay fees due to PDF under a series of contracts. The Company seeks to recover the unpaid fees, a declaration requiring SMIC to pay fees under the contracts in the future, and costs associated with bringing the arbitration proceeding.

## Item 2. Management’s Discussion and Analysis of Financial Condition and Results of Operations

### Forward-Looking Statements

The following discussion of our financial condition and results of operations contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements other than statements of historical fact may be forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as “may,” “could,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” “target” or “continue,” the negative effect of terms like these or other similar expressions. Any statement concerning future financial performance (including future revenues, earnings or growth rates), ongoing business strategies, prospects, or the time required of our executive management for, and expenses related to, as well as the success of our strategic growth opportunities and partnerships, including our partnership with Advantest Corporation, possible actions taken by us or our subsidiaries, and the potential impact of the COVID-19 pandemic on our business, which may be provided by us are also forward-looking statements. These forward-looking statements are only predictions. Forward-looking statements are based on current expectations and projections about future events and are inherently subject to a variety of risks and uncertainties, many of which are beyond our control, which could cause actual results to differ materially from those anticipated or projected. All forward-looking statements included in this document are based on information available to us on the date of filing and we further caution investors that our business and financial performance are subject to substantial risks and uncertainties. We assume no obligation to update any such forward-looking statements. In evaluating these statements, you should specifically consider various factors, including the risk factors set forth in Item 1. “Business” and Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the Securities and Exchange Commission on March 10, 2020. All references to “we,” “us,” “our,” “PDF,” “PDF Solutions” or “the Company” refer to PDF Solutions, Inc.

### Overview

We offer products and services designed to empower engineers and data scientists across the semiconductor ecosystem to improve the yield, quality, and profitability of their products. We derive revenues from two sources: Analytics and Integrated Yield Ramp. Our offerings combine proprietary software, physical intellectual property (or IP) for Integrated Circuits (or IC) designs, electrical measurement hardware tools, proven methodologies, and professional services. We primarily monetize our offerings through time-based license fees, contract revenue for professional services, and increasingly recently, software as a service (or SaaS). In some cases, especially on our historical integrated yield ramp (or IYR) engagements, we also receive a value-based royalty that we call Gainshare. Our products, services, and solutions have been sold to integrated device manufacturers (or IDMs), fabless semiconductor companies, foundries, out-sourced semiconductor assembly and test (or OSATs), and system houses.

### Industry Trend

The global COVID-19 pandemic has impacted the operations and purchasing decisions of companies worldwide. While the full potential economic impact brought by the COVID-19 pandemic may be difficult to assess or predict, the pandemic has resulted in significant disruption of global financial markets and on June 8, 2020, the National Bureau of Economic Research announced that the U.S. was in a recession. The COVID-19 pandemic has significantly affected how we and our customers are operating our business. For example, most U.S. states and countries worldwide have imposed and may continue to impose from time-to-time for the foreseeable future, restrictions on the physical movement of our employees, partners, and customers to limit the spread of COVID-19, including travel restrictions and shelter-in-place orders. As a result, our Shanghai office was temporarily shut down and the restrictions limited the ability of our local employees to travel to customer sites or visit our other offices from January to April 2020. Several other impacted locations were temporarily closed but our US R&D facility partially reopened in June 2020, and our offices in Canada, France, Korea and Japan have reopened on various dates during the second and third quarter of 2020. Our corporate headquarters in the United States partially reopened in the fourth quarter of 2020. We are closely monitoring the COVID-19 situation and currently preparing plans to reopen our other offices with focused on our employees’ safety. In addition, our personnel worldwide are subject to various country to country travel restrictions, which limit our ability to provide services to customers at their facilities. To date, we have been able to provide uninterrupted access to our products and services due to our globally distributed workforce, many of whom are already working remotely, and our pre-existing infrastructure, which supports secure access to our internal systems. If, however, the COVID-19 pandemic has a substantial impact on our employees’ productivity or our partners or customers decision to use our products and services, our ability to deliver on current commitments, to secure future bookings, or achieve expected financial performance may be harmed. The duration and extent of the impact from the COVID-19 pandemic depends on future developments that cannot be accurately predicted at this time, such as the severity and transmission rate of the virus, the extent and effectiveness of containment actions and the impact of these and other factors on our employees, customers, partners and vendors.

Certain general business trends may affect our Analytics revenue. In particular, the confluence of Industry 4.0 (i.e. the fourth industrial revolution, or the automation and data exchange in manufacturing technologies and processes) and cloud computing (i.e. the on-demand availability of computing resources and data storage without direct active management by the user) is driving increased innovation in semiconductor and electronics manufacturing and analytics, as well as in the organization of IT networks and computing at those same companies. First, the ubiquity of connectivity and sensor technology enables any manufacturing company to augment its factories and visualize its entire production line. In parallel, the cost per terabyte of data storage has continually decreased year to year. The combination of these two trends means that more data is collected and stored than ever before. Semiconductor companies are striving to analyze these very large data sets in real-time to make rapid decisions that measurably improve manufacturing efficiency and quality. In parallel, the traditional practice of on-site data storage, even for highly sensitive data, is changing. The ability to cost-effectively and securely store, analyze, and retrieve massive quantities of data from the cloud versus on-premise enables data to be utilized across a much broader population of users, frequently resulting in greater demands on analytics programs. The combination of these two trends means that cloud-based, analytic programs that effectively manage identity management, physical security and data protection are increasingly in demand for insights and efficiencies across the organizations of these companies. We believe that all these trends will continue for the next few years, and the challenges involved in adopting Industry 4.0 and secure cloud computing will create opportunities for companies that have a combination of advanced analytics capabilities, proven and established data infrastructures, and professional services to optimize their environment to customers’ specialized needs.

Other business trends may continue to affect our Integrated Yield Ramp revenue. The logic foundry market at the leading-edge nodes, such as 10nm and 7nm has undergone significant change over the past few years. The leading foundry continues to increase market share as other foundries have either

suspended 7nm development, forecasted a later start of mass production, or started later than originally forecast in some cases. This trend will likely continue to negatively impact our Integrated Yield Ramp business on these nodes. We expect most logic foundries to invest in derivatives of older process nodes, such as 28nm and 20nm, to extract additional value as many of their customers will not move to advanced nodes due to either technological barriers or restrictive economics. Foundries that participate at leading edge nodes are expected to continue to invest in new technologies such as memory, packaging, and multi-patterned and extreme ultraviolet lithography, as well as new innovations in process control and variability management. We expect China's investment in semiconductors to continue. In order for these trends to provide opportunities for us to increase our business in process control and electrical characterization, Chinese semiconductor manufacturers will need to increase their production volumes on advanced technology nodes and continue to engage foreign suppliers. As a result of these market developments, we have chosen to focus our resources and investments in products, services, and solutions for analytics.

There are other general business trends that may affect our business opportunities. For instance, the demand for consumer electronics, communications devices, and high-performance computing continues to drive technological innovation in the semiconductor industry as the need for products with greater performance, lower power consumption, reduced costs and smaller size continues to grow with each new product generation. In addition, advances in computing systems and mobile devices have fueled demand for higher capacity memory chips. To meet these demands, IC manufacturers and designers are constantly challenged to improve the overall performance of their ICs by designing and manufacturing ICs with more embedded applications to create greater functionality while lowering power and cost per transistor. As this trend continues, companies will continually be challenged to improve process capabilities to optimally produce ICs with minimal random and systematic yield loss, which is driven by the lack of compatibility between the design and its respective manufacturing process. We believe that these difficulties will continue to create a need for all types of products and services that address yield loss across the IC product life cycle.

### **Our Strategic Partnership with Advantest**

On July 29, 2020, we entered into a strategic partnership with Advantest Corporation through its wholly-owned subsidiary, Advantest America, Inc., (collectively, "Advantest") that includes: (i) a significant agreement for our assistance in development of cloud-based applications for Advantest tools that leverage our Exensio software analytics platform; (ii) a commercial agreement providing for the license to third parties of solutions that result from the development work that combine Advantest's testing applications and our Exensio platform; (iii) a 5-year cloud-based subscription for our Exensio analytics platform and related services; and (iv) the purchase of 3,306,924 shares of our common stock, for aggregate gross proceeds of \$65.2 million. Concurrent with the share purchase, Advantest Corporation also entered into multi-year voting and lock-up agreements.

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### **Financial Highlights**

Financial highlights for the three months ended September 30, 2020, were as follows:

- Total revenues were \$23.1 million, an increase of \$1.2 million, or 5%, compared to the three months ended September 30, 2019. Analytics revenue was \$14.3 million, which was an increase of \$1.7 million, compared to the three months ended September 30, 2019. The increase in Analytics revenue was primarily driven by a \$2.1 million increase in Exensio licenses and Characterization Vehicle (CV®) services due to higher hours worked across multiple contracts and customers, partially offset by a \$0.4 million decrease in Design-for-Inspection (DFI™) revenue. Integrated Yield Ramp revenue decreased \$0.5 million for the three months ended September 30, 2020, compared to the three months ended September 30, 2019, due primarily to decrease in Gainshare royalty from the 14nm and 28nm technology nodes.
- Costs of revenues increased \$0.8 million for the three months ended September 30, 2020, compared to the three months ended September 30, 2019, primarily due to (i) a \$1.0 million increase in personnel-related costs, (ii) a \$0.7 million increase in cloud-delivery related costs, and (iii) a \$0.1 million increase in subcontractor expenses, partially offset by (i) a \$0.5 million decrease in direct costs due mainly to hardware expense, shipping costs and the timing of deferral of contract costs, and (ii) a \$0.5 million decrease in travel expenses resulting from reduced business travel due to the global COVID-19 pandemic.
- Gross margin was 59%, compared to 60% for the three months ended September 30, 2019.
- Net loss was \$2.7 million, compared to \$0.7 million for the three months ended September 30, 2019. The increase in net loss was primarily attributable to (i) a \$0.8 million increase in costs of revenues, (ii) a \$2.3 million increase in operating expenses due primarily to our sales and marketing activities, and an increase in general and administrative expenses related to subcontractor costs, legal fees, and accounting and related fees, and (iii) \$0.6 million increase in interest and other expense (income), net, partially offset by a \$1.2 million increase in revenues, and a \$0.4 million increase in income tax benefit.
- Cash, cash equivalents and short-term investments increased \$70.8 million to \$168.4 million at September 30, 2020, from \$97.6 million at December 31, 2019, primarily due to the proceeds from the issuance of our common stock in connection with our strategic partnership with Advantest, partially offset by cash used in investing activities primarily related to additions to property and equipment for our DFI™ solution, including investments in constructing eProbe tools.

Financial highlights for the nine months ended September 30, 2020, were as follows:

- Total revenues were \$65.7 million, which was an increase of \$2.7 million, or 4%, compared to the nine months ended September 30, 2019. Analytics revenue was \$42.8 million, which was an increase of \$6.7 million, compared to the nine months ended September 30, 2019. The increase in Analytics revenue was primarily driven by an \$8.4 million increase in Exensio licenses and CV® services due to higher hours worked across multiple contracts and customers, partially offset by the expiration of an Exensio contract for a customer that ceased 7nm production in 2019 and a \$1.7 million decrease in DFI™ revenue. Integrated Yield Ramp revenue decreased \$4.0 million for the nine months ended September 30, 2020, compared to the nine months ended September 30, 2019, due primarily to a \$1.1 million decrease in revenue from lower hours worked across multiple contracts and customers, and a \$3.3 million in nonrecurring revenue from a customer contract amendment recognized in the first quarter of 2019, partially offset by a \$0.5 million increase in Gainshare royalty from the 14nm technology node.

- Costs of revenues increased \$2.5 million for the nine months ended September 30, 2020, compared to the nine months ended September 30, 2019, primarily due to (i) a \$2.3 million increase in cloud-delivery related costs and depreciation expense of test equipment, (ii) a \$0.8 million increase in direct costs related to third-party software royalty and licenses expense, equipment and hardware expense, and the timing of deferral of contract costs, and (iii) a \$0.6 million increase in personnel-related costs, partially offset by a \$1.2 million decrease in travel expenses resulting from reduced business travel due to the global COVID-19 pandemic.

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- Gross margin was 59%, compared to 61% for the nine months ended September 30, 2019.
- Net loss was \$6.9 million, compared to \$4.1 million for the nine months ended September 30, 2019. The increase in net loss was primarily attributable to (i) a \$2.5 million increase in costs of revenues, (ii) a \$4.8 million increase in operating expenses as we continued to make investments in research and development, sales and marketing activities, and due to an increase in general and administrative expenses related to subcontractor expenses, legal fees, and accounting and related fees, and (iii) a \$0.8 million increase in interest and other expense (income), net, partially offset by a \$2.7 million increase in revenues, and a \$2.7 million increase in income tax benefit.

### **Critical Accounting Policies and Estimates**

See Note 1 of “Notes to Condensed Consolidated Financial Statements (Unaudited)” of this Quarterly Report on Form 10-Q for a description of recent accounting pronouncements and accounting changes, including the expected dates of adoption and estimated effects, if any, on our condensed consolidated financial statements, and to Management’s Discussion and Analysis of Financial Condition and Results of Operations contained in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2019.

During the third quarter of 2020, we added an accounting policy disclosure for our short-term investments in Note 1 of “Notes to Condensed Consolidated Financial Statements (Unaudited)” of this Quarterly Report on Form 10-Q. Other than the aforementioned additional disclosure, there were no material changes during the nine months ended September 30, 2020 to the items that we disclosed as our critical accounting policies and estimates in Management’s Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the year ended December 31, 2019.

The following is a brief discussion of the more significant accounting policies and methods that we use.

#### ***General***

Our discussion and analysis of our financial conditions, results of operations and cash flows are based on our condensed consolidated financial statements, which have been prepared in conformity with accounting principles generally accepted in the United States of America. Our preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the reporting periods. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. The most significant estimates and assumptions relate to revenue recognition, valuation of long-lived assets including goodwill and intangible assets, and the realization of deferred tax assets. Actual amounts may differ from such estimates under different assumptions or conditions.

#### ***Revenue Recognition***

We derive revenue from two sources: Analytics and Integrated Yield Ramp.

#### ***Analytics Revenue***

Analytics revenue is derived from the following primary offerings: licenses and services for Exensio® Software, Exensio SaaS, DFI™ and CV® systems that do not include performance incentives based on customers’ yield achievement.

Revenue from standalone Exensio Software is recognized depending on whether the license is perpetual or time-based. Perpetual (one-time charge) license software is recognized at the time of the inception of the arrangement when control transfers to the customers, if the software license is distinct from the services offered by us. Revenue from post-contract support is recognized over the contract term on a straight-line basis, because we are providing (i) support and (ii) unspecified software updates on a when-and-if available basis over the contract term. Revenue from time-based-licensed software is allocated to each performance obligation and is recognized either at a point in time or over time as follows. The license component is recognized at the time when control transfers to customers, with the post-contract support component recognized ratably over the committed term of the contract. For contracts with any combination of licenses, support, and other services, distinct performance obligations are accounted for separately. For contracts with multiple performance obligations, we allocate the transaction price of the contract to each performance obligation on a relative basis using standalone selling price (or SSP) attributed to each performance obligation.

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Revenue from Exensio SaaS arrangements, which allow for the use of a cloud-based software product or service over a contractually determined period of time without taking possession of software, is accounted for as subscriptions and is recognized as revenue ratably, on a straight-line basis, over the subscription period beginning on the date the service is first made available to customers.

Revenue from DFI™ and CV® systems that do not include performance incentives based on customers’ yield achievement is recognized primarily as services are performed. Where there are distinct performance obligations, we allocate revenue to all deliverables based on their SSPs. For these contracts

with multiple performance obligations, we allocate the transaction price of the contract to each performance obligation on a relative basis using SSP attributed to each performance obligation. Where there are not discrete performance obligations, historically, revenue is primarily recognized as services are performed using a percentage of completion method based on costs or labor-hours inputs, whichever is the most appropriate measure of the progress towards completion of the contract. The estimation of percentage of completion method is complex and subject to many variables that require significant judgement.

### ***Integrated Yield Ramp Revenue***

Integrated Yield Ramp revenue is derived from our yield ramp engagements, which include Gainshare or other performance incentives based on customers' yield achievement.

Revenue under these project-based contracts, which are delivered over a specific period of time typically for a fixed fee component paid on a set schedule, is recognized as services are performed using a percentage of completion method based on costs or labor-inputs, whichever is the most appropriate measure of the progress towards completion of the contract. Where there are distinct performance obligations, we allocate revenue to all deliverables based on their SSPs and allocate the transaction price of the contract to each performance obligation on a relative basis using SSP. Similar to the services provided in connection with DFIT<sup>™</sup> and CV<sup>®</sup> systems that are contributing to Analytics revenue, due to the nature of the work performed in these arrangements, the estimation of percentage of completion method is complex and subject to many variables that require significant judgement.

The Gainshare royalty contained in yield ramp contracts is a variable fee related to continued usage of our IP after the fixed-fee service period ends, based on the customers' yield achievement. Revenue derived from Gainshare is contingent upon our customers reaching certain defined production yield levels. Gainshare royalty periods are generally subsequent to the delivery of all contractual services and performance obligations. We record Gainshare as a usage-based royalty derived from customers' usage of intellectual property and record it in the same period in which the usage occurs.

### ***Income Taxes***

We are required to assess whether it is "more-likely-than-not" that we will realize our deferred tax assets. If we believe that they are not likely to be fully realizable before the expiration dates applicable to such assets, then to the extent we believe that recovery is not likely, we must establish a valuation allowance. The valuation allowance was approximately \$11.2 million and \$10.5 million as of September 30, 2020 and December 31, 2019 respectively, which was related to California R&D tax credits and California net operating losses (NOLs) related to an acquisition that we currently do not believe to be "more-likely-than-not" to be ultimately realized. If we conclude at a future financial reporting period that there has been a change in our ability to realize our California R&D credit and net operating loss carry forward deferred tax assets, and it is at such time "more-likely-than-not" that we will realize the tax credits before applicable expiration dates, our tax provision will decrease in the period in which we make such determination.

We evaluate our deferred tax assets for realizability considering both positive and negative evidence, including our historical financial performance, projections of future taxable income, future reversals of existing taxable temporary differences, tax planning strategies and any carryback availability. In evaluating the need for a valuation allowance, we estimate future taxable income based on management approved business plans. This process involves significant management judgment about assumptions that are subject to change from period to period based on changes in tax laws or variances between future projected operating performance and actual results. Changes in the net deferred tax assets, less offsetting valuation allowance, in a period are recorded through the income tax provision and could have a material impact on the Condensed Consolidated Statements of Comprehensive Loss.

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Our income tax calculations are based on application of applicable U.S. federal, state, or foreign tax law. Our tax filings, however, are subject to audit by the respective tax authorities. Accordingly, we recognize tax liabilities based upon our estimate of whether, and the extent to which, additional taxes will be due when such estimates are more-likely-than-not to be sustained. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. To the extent the final tax liabilities are different than the amounts originally accrued, the increases or decreases are recorded as income tax expense or benefit in the Condensed Consolidated Statements of Comprehensive Loss. At September 30, 2020, no deferred taxes have been provided on undistributed earnings from our international subsidiaries. We intend to reinvest the earnings of its non-U.S. subsidiaries in those operations indefinitely. As such, we have not provided for any foreign withholding taxes on the earnings of foreign subsidiaries as of September 30, 2020. The earnings of our foreign subsidiaries are taxable in the U.S. in the year earned under the Global Intangible Low-Taxed Income rules implemented under 2017 Tax Cuts and Jobs Act.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act") was enacted. The CARES Act includes, among other things, refundable payroll tax credits, deferral of some employer FICA taxes, allowance of net operating loss carrybacks for up to five years, alternative minimum tax credit refunds, and technical amendments regarding the income tax depreciation of qualified improvement property placed in service after December 31, 2017. The removal of certain limitations on the utilization of NOLs resulted in our recognition of an income tax benefit of \$2.2 million from the carryback of federal NOLs during the nine months ended September 30, 2020.

### ***Valuation of Long-lived Assets including Goodwill and Intangible Assets***

We record goodwill when the purchase consideration of an acquisition exceeds the fair value of the net tangible and identified intangible assets as of the date of acquisition. We have one operating segment and one operating unit. We perform an annual impairment assessment of goodwill during the fourth quarter of each calendar year or more frequently, if required to determine if any events or circumstances exist, such as an adverse change in business climate or a decline in the overall industry demand, that would indicate that it would more likely than not reduce the fair value of a reporting unit below its carrying amount, including goodwill. If events or circumstances do not indicate that the fair value of a reporting unit is below its carrying amount, then goodwill is not considered to be impaired and no further testing is required. If the carrying amount exceeds its fair value, an impairment loss would be recognized equal to the amount of excess, limited to the amount of total goodwill. There was no goodwill impairment for the three and nine months ended September 30, 2020.

Our long-lived assets, excluding goodwill, consist of property and equipment and intangible assets. We periodically review our long-lived assets for impairment. For assets to be held and used, we initiate our review whenever events or changes in circumstances indicate that the carrying amount of a long-lived asset group may not be recoverable. Recoverability of an asset group is measured by comparison of its carrying amount to the expected future undiscounted cash flows that the asset group is expected to generate. If it is determined that an asset group is not recoverable, an impairment loss is

recorded in the amount by which the carrying amount of the asset group exceeds its fair value. There was no impairment of long-lived assets for the three and nine months ended September 30, 2020.

## Recent Accounting Pronouncements and Accounting Changes

See Note 1 of “Notes to Condensed Consolidated Financial Statements (Unaudited)” of this Quarterly Report on Form 10-Q for a description of recent accounting pronouncements and accounting changes, including the expected dates of adoption and estimated effects, if any, on our Condensed Consolidated Financial Statements.

## Results of Operations

### Income Statement Presentation

In the fourth quarter of 2019, in order to enhance the transparency of our revenue reporting, we updated our Condensed Consolidated Statements of Comprehensive Loss to change our historical presentation of revenue categories. Previously, we presented revenue on two lines: Solutions and Gainshare performance incentives. Included within Solutions, was revenue from software and related revenue, SaaS solutions, DFI™ licenses, and fixed-price project-based solution implementation services. The previous Gainshare performance incentive category included only revenue from performance incentive programs. We now present revenue in the following categories: Analytics and Integrated Yield Ramp. Integrated Yield Ramp revenue is comprised of all revenue from our Integrated Yield Ramp services engagements that include performance incentives based on customers’ yield achievement, i.e. both fixed-fees and Gainshare royalty from such engagements. Analytics comprises all other revenue, including from our licenses and services for Exensio Software, Exensio SaaS, DFI™ and CV® systems that do not include performance incentives based on customers’ yield achievement.

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The change in presentation of revenue does not change our net revenues or total cost of net revenues. The following table shows reclassified amounts to conform to the current period’s presentation (in thousands):

	Three Months Ended September 30, 2019			Nine Months Ended September 30, 2019		
	Previously Reported	Change in Presentation Reclassification	Current Presentation	Previously Reported	Change in Presentation Reclassification	Current Presentation
<b>Revenues:</b>						
Solutions	\$ 16,208	\$ (16,208)	N/A	\$ 46,298	\$ (46,298)	N/A
Gainshare performance incentives	5,706	(5,706)	N/A	16,725	(16,725)	N/A
Analytics	N/A	12,691	\$ 12,691	N/A	36,099	\$ 36,099
Integrated Yield Ramp	N/A	9,223	9,223	N/A	26,924	26,924
Total revenues	\$ 21,914	\$ —	\$ 21,914	\$ 63,023	\$ —	\$ 63,023

Since certain costs of revenues are attributed to both Analytics and Integrated Yield Ramp revenue categories, we believe it is more appropriate and meaningful to present the Condensed Consolidated Statements of Comprehensive Loss under a one-step presentation format that excludes any measure of gross margin. In the fourth quarter of 2019, we elected to change our Condensed Consolidated Statements of Comprehensive Loss presentation from a two-step presentation, where total costs of revenues was deducted from total revenues to report a gross profit line, to a one-step presentation, where total costs and expenses are deducted from total revenues. The change in presentation does not change previously presented amounts for costs of revenues, operating expenses and other expenses (income), or loss before income taxes.

### Discussion of Financial Data for the Three and Nine Months Ended September 30, 2020 and 2019

#### Revenues, Costs of Revenues, and Gross Margin

	Three Months Ended September 30,		Change		Nine Months Ended September 30,		Change	
	2020	2019	\$	%	2020	2019	\$	%
<b>(Dollars in thousands)</b>								
<b>Revenues:</b>								
Analytics	\$ 14,346	\$ 12,691	\$ 1,655	13%	\$ 42,766	\$ 36,099	\$ 6,667	18%
Integrated Yield Ramp	8,766	9,223	(457)	(5)%	22,912	26,924	(4,012)	(15)%
Total revenues	\$ 23,112	\$ 21,914	\$ 1,198	5%	\$ 65,678	\$ 63,023	\$ 2,655	4%
Costs of revenues	9,493	8,715	778	9%	26,926	24,415	2,511	10%
Gross profit	\$ 13,619	\$ 13,199	\$ 420	3%	\$ 38,752	\$ 38,608	\$ 144	0%
Gross margin	59%	60%			59%	61%		

<i>Analytics revenue as a percentage of total revenues</i>	62%	58%			65%	57%		
<i>Integrated Yield Ramp revenue as a percentage of total revenues</i>	38%	42%			35%	43%		

#### Analytics Revenue

Analytics revenue increased \$1.7 million for the three months ended September 30, 2020, compared to the three months ended September 30, 2019. The increase in Analytics revenue was primarily driven by a \$2.1 million increase in Exensio licenses and CV® services due to higher hours worked across multiple contracts and customers, partially offset by a \$0.4 million decrease in DFI™ revenue.

Analytics revenue increased \$6.7 million for the nine months ended September 30, 2020, compared to the nine months ended September 30, 2019. The increase in Analytics revenue was primarily driven by an \$8.4 million increase in Exensio licenses and CV® services due to higher hours worked across multiple contracts and customers, partially offset by the expiration of an Exensio contract for a customer that ceased 7nm production in 2019 and a \$1.7 million decrease in DFI™ revenue.

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**Integrated Yield Ramp Revenue**

Integrated Yield Ramp revenue decreased \$0.5 million for the three months ended September 30, 2020, compared to the three months ended September 30, 2019, due primarily to decrease in Gainshare royalty from the 14nm and 28nm technology nodes.

Integrated Yield Ramp revenue decreased \$4.0 million for the nine months ended September 30, 2020, compared to the nine months ended September 30, 2019, due primarily to a \$1.1 million decrease in revenue from lower hours worked across multiple contracts and customers, and a \$3.3 million in nonrecurring revenue from a customer contract amendment recognized in the first quarter of 2019, partially offset by a \$0.5 million increase in Gainshare royalty from the 14nm technology node.

Our Integrated Yield Ramp revenue may continue to fluctuate from period to period primarily due to the contribution of Gainshare royalty, which is dependent on many factors that are outside our control, including among others, continued production of ICs by our customers at facilities at which we generate Gainshare, sustained yield improvements by our customers, and our ability to enter into new contracts containing Gainshare.

Our revenues may fluctuate in the future and are dependent on a number of factors, including the semiconductor industry’s continued acceptance of our products, services and solutions, the timing of purchases by existing and new customers, cancellations by existing customers, and our ability to attract new customers and penetrate new markets, and further penetration of our current customer base. Fluctuations in future results may also occur if any of our significant customers renegotiate pre-existing contractual commitments, including due to adverse changes in their own business.

**Costs of Revenues**

Costs of revenues consist of costs incurred to provide and support our services, costs recognized in connection with licensing our software, and amortization of acquired technology. Services costs consist of material, employee compensation and related benefits, overhead costs, travel and allocated facilities-related costs. Software license costs consist of costs associated with licensing third-party software used by us in providing services to our customers in solution engagements, or sold in conjunction with our software products.

The increase in costs of revenues of \$0.8 million for the three months ended September 30, 2020, compared to the three months ended September 30, 2019, was primarily due to (i) a \$1.0 million increase in labor or personnel-related costs, (ii) a \$0.7 million increase in cloud-delivery related costs, and (iii) a \$0.1 million increase in subcontractor expenses, partially offset by (i) a \$0.5 million decrease in direct costs due mainly to hardware expense, shipping costs and the timing of deferral of contract costs, and (ii) a \$0.5 million decrease in travel expenses resulting from reduced business travel due to the global COVID-19 pandemic.

The increase in costs of revenues of \$2.5 million the nine months ended September 30, 2020, compared to the nine months ended September 30, 2019, was primarily due to (i) a \$2.3 million increase in cloud-delivery related costs and depreciation expense of test equipment, (ii) a \$0.8 million increase in direct costs related to third-party software royalty and licenses expense, equipment and hardware expense, and the timing of deferral of contract costs, and (iii) a \$0.6 million increase in personnel-related costs, partially offset by a \$1.2 million decrease in travel expenses resulting from reduced business travel due to the global COVID-19 pandemic.

**Gross Margin**

Gross margin for the three months ended September 30, 2020 was 59% compared to 60% for the year-ago period. Gross margin for the nine months ended September 30, 2020 was 59% compared to 61% for the year-ago period, or a decrease of 2%. The higher gross margin during nine months ended September 30, 2019 was primarily due to \$3.3 million in nonrecurring revenue from a customer contract amendment.

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**Operating Expenses:**

**Research and Development**

(Dollars in thousands)	Three Months Ended September 30,		Change		Nine Months Ended September 30,		Change	
	2020	2019	\$	%	2020	2019	\$	%
Research and development	\$ 8,328	\$ 8,435	\$ (107)	(1)%	\$ 24,672	\$ 23,993	\$ 679	3%
<i>As a percentage of total revenues</i>	36%	38%			38%	38%		

Research and development expenses consist primarily of personnel-related costs to support product development activities, including compensation and benefits, outside development services, travel, facilities cost allocations, and stock-based compensation charges.

Research and development expenses decreased for the three months ended September 30, 2020, compared to the year-ago period, primarily due to (i) a \$0.1 million decrease in personnel-related costs, and (ii) a \$0.2 million decrease in travel expenses resulting from reduced business travel due to the global COVID-19 pandemic, partially offset by a \$0.2 million increase in subcontractor expenses that is primarily related to our DFI™ and Exensio solutions.

Research and development expenses increased for the nine months ended September 30, 2020, compared to the year-ago period, primarily due to (i) a \$0.4 million increase in subcontractor expenses that is primarily related to our DFI™ and Exensio solutions, (ii) a \$0.4 million increase in depreciation expense, and (iii) a \$0.3 million increase in software licenses and maintenance expense, partially offset by a \$0.4 million decrease in travel expenses resulting from reduced business travel due to the global COVID-19 pandemic.

We anticipate our expenses in research and development will fluctuate in absolute dollars from period to period due to the timing of product development projects.

### *Selling, General and Administrative*

(Dollars in thousands)	Three Months Ended		Change		Nine Months Ended		Change	
	September 30,				September 30,			
	2020	2019	\$	%	2020	2019	\$	%
Selling, general and administrative	\$ 8,420	\$ 5,990	\$ 2,430	41%	\$ 24,052	\$ 19,940	\$ 4,112	21%
<i>As a percentage of total revenues</i>	36%	27%			37%	32%		

Selling, general and administrative expenses consist primarily of compensation and benefits for sales, marketing and general and administrative personnel, legal and accounting services, marketing communications, travel and facilities cost allocations, and stock-based compensation charges.

Selling, general and administrative expenses increased for the three months ended September 30, 2020, compared to the year-ago period, primarily due to (i) a \$1.0 million increase in legal fees, primarily related to fees for legal services, including the Advantest partnership, and for the arbitration proceeding over a disputed customer contract, (ii) a \$0.7 million increase in personnel-related costs, (iii) a \$0.5 million increase in subcontractor expenses, (iv) a \$0.3 million increase in accounting and related fees, and (v) a \$0.2 million increase in cloud-services related costs, partially offset by a \$0.1 million decrease in travel expenses.

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Selling, general and administrative expenses increased for the nine months ended September 30, 2020, compared to the year-ago period, primarily due to (i) a \$1.2 million increase in subcontractor expenses, (ii) a \$1.8 million increase in fees for legal services, including the Advantest partnership, and for the arbitration proceeding over a disputed customer contract, (iii) a \$0.9 million increase in personnel-related costs, (iv) a \$0.2 million increase in accounting and related fees, (v) a \$0.4 million increase in cloud-services related costs, and (vi) a \$0.2 million increase from a write-down of equipment, partially offset by (i) a \$0.4 million decrease in travel expenses, and (ii) a \$0.1 million decrease in depreciation expenses.

We anticipate our selling, general and administrative expenses will fluctuate in absolute dollars from period to period as a result of cost control initiatives and to support our selling efforts in the future.

### *Amortization of Other Acquired Intangible Assets*

(Dollars in thousands)	Three Months Ended		Change		Nine Months Ended		Change	
	September 30,				September 30,			
	2020	2019	\$	%	2020	2019	\$	%
Amortization of other acquired intangible assets	\$ 174	\$ 174	\$ —	—%	\$ 521	\$ 436	\$ 85	19%

Amortization of other acquired intangible assets consists of amortization of intangibles acquired as a result of certain business combination.

### *Interest and Other Expense (Income), Net*

(Dollars in thousands)	Three Months Ended		Change		Nine Months Ended		Change	
	September 30,				September 30,			
	2020	2019	\$	%	2020	2019	\$	%
Interest and other expense (income), net	\$ 361	\$ (202)	\$ 563	279%	\$ 530	\$ (307)	\$ 837	273%

Interest and other expense (income), net, primarily consists of interest income, gains and losses from foreign currency forward contracts, and foreign currency transaction exchange gains and losses.

Interest and other expense (income), net increased for the three and nine months ended September 30, 2020, compared to the year-ago periods, primarily due to a decrease in interest income due to lower interest rates, and a higher net unfavorable fluctuations in foreign exchange rates, partially offset by a decrease in loss related to foreign currency forward contracts, and an increase in other income.

### *Income Tax Benefit*

(Dollars in thousands)	Three Months Ended		Change		Nine Months Ended		Change	
	September 30,				September 30,			
	2020	2019	\$	%	2020	2019	\$	%
Income tax benefit	\$ (930)	\$ (511)	\$ (419)	82%	\$ (4,109)	\$ (1,458)	\$ (2,651)	182%

Income tax benefit increased for the three months ended September 30, 2020, compared to the year-ago period, primarily due to the results of changes in the excess tax benefit from employee stock compensation expense and the tax benefit from forecasted operating losses.

Income tax benefit increased for the nine months ended September 30, 2020, compared to the year-ago period, primarily due to favorable increase in excess tax benefits related to employee stock compensation expense and as a result of the provisions of the CARES Act. During the nine months ended September 30, 2020, we recorded an income tax benefit of \$2.2 million from the carryback of federal NOLs pursuant to the provisions of the CARES Act.

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**Liquidity and Capital Resources**

As of September 30, 2020, our working capital, defined as total current assets less total current liabilities, was \$185.2 million, compared to \$119.6 million as of December 31, 2019. Total cash and cash equivalents, and short-term investments were \$168.4 million as of September 30, 2020, compared to cash and cash equivalents of \$97.6 million as of December 31, 2019. As of September 30, 2020, and December 31, 2019, cash and cash equivalents held by our foreign subsidiaries were \$2.2 million and \$3.8 million, respectively. We believe that our existing cash resources and anticipated funds from operations will satisfy our cash requirements to fund our operating activities, capital expenditures, and other obligations for at least the next twelve months.

There has been no significant impact in respect to Liquidity and Capital Resources from the global COVID-19 pandemic. For risk discussion about the potential impact of global COVID-19 pandemic on our operations or demand for our products, refer to Item 1A, Risk Factors on Part II of this Report.

**Private Placement**

On July 29, 2020, we entered into a strategic partnership with Advantest, which includes, among others, a Securities Purchase Agreement wherein we issued and sold to Advantest America, Inc., an aggregate of 3,306,924 shares of our common stock, at a purchase price of \$19.7085 per share, for aggregate gross proceeds of \$65.2 million on July 30, 2020. All of the shares were offered and sold by us pursuant to an exemption from the registration requirements of the Securities Act 1933, as amended, provided by Section 4(a)(2) as a transaction with an accredited investor not involving a public offering. The increase in the combined balance of our cash and cash equivalents, and short-term investments during the nine months ended September 30, 2020 was primarily driven by the proceeds from the issuance of our common stock.

**Cash Flow Data**

	<b>Nine Months Ended September 30,</b>		<b>\$ Change</b>
	<b>2020</b>	<b>2019</b>	
<b>(In thousands)</b>			
Net cash flows provided by (used in):			
Operating activities	\$ 10,876	\$ 23,011	\$ (12,135)
Investing activities	(55,348)	(9,501)	(45,847)
Financing activities	65,202	(9,226)	74,428
Effect of exchange rate changes on cash and cash equivalents	51	(114)	165
Net increase in cash and cash equivalents	<u>\$ 20,781</u>	<u>\$ 4,170</u>	<u>\$ 16,611</u>

**Net Cash Flows Provided by Operating Activities**

Cash flow from operating activities during the nine months ended September 30, 2020 were consisted of net loss, adjusted for certain non-cash items which primarily consisted of depreciation and amortization, share-based compensation expense and deferred tax assets, and net change in operating assets and liabilities. The \$12.1 million decrease in cash flows from operating activities for the nine months ended September 30, 2020, compared to the year-ago period, was driven primarily by a \$9.7 million decrease in net change from operating assets and liabilities, and a \$2.8 million increase in net loss, partially offset by a \$0.4 million increase in non-cash adjustments to net loss, which was primarily due to (i) an increase in deferred tax assets of 1.3 million, partially offset by an increase in depreciation and amortization of \$0.7 million, and an increase in share-based compensation expense of \$0.8 million. The major contributors to the net change in operating assets and liabilities for the nine months ended September 30, 2020 were as follows:

- Other noncurrent assets decreased by \$1.4 million, primarily due to a decrease in the noncurrent portion of unbilled receivables due to the timing of billing and revenue recognition.
- Accounts payable decreased by \$3.9 million primarily due to the timing of payments of invoices and payment of an invoice for a multi-year licensing and distribution agreement related to our Exensio software.
- Accrued and other liabilities increased by \$1.6 million primarily due to increase in accrued legal fees and accrued cloud-services related costs.
- Deferred revenues increased by a total of \$6.9 million primarily due to timing of billing and revenue recognition.

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**Cash Flows Used in Investing Activities**

Cash used in investing activities increased by \$45.8 million for the nine months ended September 30, 2020 compared to the year-ago period. For the nine months ended September 30, 2020, cash used in investing activities primarily related to purchases of about \$50.0 million short-term investments and property and a \$5.4 million equipment purchased and prepayment for our DFI™ solution, including construction of additional eProbe tools. For the nine months ended September 30, 2019, cash flows used in investing activities related to (i) a \$6.8 million property and equipment purchased primarily related to the construction of our DFI™ solution and expansion of our research and development laboratory and clean room, and (ii) a \$2.7 million payment for a business acquisition that closed in the second quarter of 2019.

**Net Cash Flows Provided by (Used in) Financing Activities**

Net cash provided by financing activities increased by \$74.4 million for the nine months ended September 30, 2020 compared to the year-ago period. For the nine months ended September 30, 2020, net cash provided by financing activities primarily consisted of \$65.0 million net proceeds from issuance of common stock in connection with the Securities Purchase Agreement with Advantest, and \$3.5 million of proceeds from our Employee Stock Purchase Plan and exercise of stock options, partially offset by \$3.3 million in cash payments for taxes related to net share settlement of equity awards. For the nine months ended September 30, 2019, net cash used in financing activities primarily consisted of \$9.6 million in cash used to repurchase shares of our common stock, and \$1.9 million in cash payments for taxes related to net share settlement of equity awards, partially offset by \$2.5 million of proceeds from our Employee Stock Purchase Plan and exercise of stock options.

### Related Party Transactions

Refer to Note 3, Strategic Partnership Agreement with Advantest and Related Party Transactions of the Notes to Condensed Consolidated Financial Statements (Item 1 of Part I of this Report) for a discussion on related party transactions between the Company and Advantest.

### Off-Balance Sheet Agreements

We do not have any off-balance sheet arrangements, investments in special purpose entities or undisclosed borrowings or debt.

### Contractual Obligations

The following table summarizes our known contractual obligations (in thousands) as of September 30, 2020:

Contractual Obligations	Payments Due by Period						Total
	2020 (remaining three months)	2021	2022	2023	2024	2025 and thereafter	
Operating lease obligations(1)	\$ 392	\$ 1,876	\$ 1,626	\$ 1,127	\$ 809	\$ 2,979	\$ 8,809
Purchase obligations(2)	6,559	6,796	700	365	321	321	15,062
Total(3)	<u>\$ 6,951</u>	<u>\$ 8,672</u>	<u>\$ 2,326</u>	<u>\$ 1,492</u>	<u>\$ 1,130</u>	<u>\$ 3,300</u>	<u>\$ 23,871</u>

(1) Refer to Note 5, Leases of the Notes to Condensed Consolidated Financial Statements (Item 1 of Part I of this Report)

(2) Purchase obligations consist of agreements to purchase goods and services entered in the ordinary course of business.

(3) The contractual obligation table above excludes liabilities for uncertain tax positions of \$2.8 million, which are not practicable to assign to any particular years, due to the inherent uncertainty of the tax positions. See Note 9 of "Notes to Condensed Consolidated Financial Statements" for further discussion.

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### Item 3. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to three primary types of market risks: credit risk and counterparty risk, foreign currency exchange rate risk and interest rate risk. The following discusses our exposure to market risk related to changes in interest rates and foreign currency exchange rates. We do not currently own any equity investments, nor do we expect to own any in the foreseeable future. This discussion contains forward-looking statements that are subject to risks and uncertainties. Actual results could vary materially as a result of a number of factors.

*Interest Rate Risk and Credit Risk.* As of September 30, 2020, we had cash and cash equivalents and short-term investments of \$168.4 million. Cash and cash equivalents consisted of cash and highly liquid money market instruments, and short-term investments consisted of U.S. Treasury bills. We would not expect our operating results or cash flows to be affected to any significant degree by the effect of a sudden change in market interest on our portfolio. A hypothetical increase in market interest rates of 100 basis points from the market rates in effect at September 30, 2020, would cause the fair value of these investments to decrease by an immaterial amount, which would not have significantly impacted our financial position or results of operations.

At September 30, 2020 and periodically throughout the year, we have maintained cash balances in various operating accounts in excess of federally insured limits. We limit the amount of credit exposure with any one financial institution by evaluating the creditworthiness of the financial institutions with which we invest.

*Foreign Currency and Exchange Risk.* Certain of our payables for our international offices are denominated in the local currency, including the Euro, Yen and RMB. Therefore, a portion of our operating expenditures is subject to foreign currency risks. From time to time, we enter into foreign currency forward contracts to reduce the exposure to foreign currency exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities. We do not use foreign currency forward contracts for speculative or trading purposes. We record these forward contracts at fair value. The counterparty to these foreign currency forward contracts is a financial institution that we believe is creditworthy, and therefore, we believe the credit risk of counterparty non-performance is not significant. The change in fair value of these contracts is recorded into earnings as a component of other income (expense), net and offsets the change in fair value of foreign currency denominated monetary assets and liabilities, which is also recorded in other income (expense), net. As of September 30, 2020, we had no outstanding forward contracts.

### Item 4. Controls and Procedures

#### Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial and accounting officer, evaluated the effectiveness of our "disclosure controls and procedures" as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) as of September 30, 2020, in connection with the filing of this Quarterly Report on Form 10-Q. Based on that evaluation as of September 30, 2020, our principal executive officer and principal financial and accounting officer concluded that our disclosure controls and procedures were effective to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in rules and forms of the SEC and accumulated and communicated to our management as appropriate to allow timely decisions regarding required disclosure.

### Changes in Internal Control over Financial Reporting

There were no changes in the Company's internal control over financial reporting during the three months ended September 30, 2020, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

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## PART II — OTHER INFORMATION

### Item 1. Legal Proceedings

From time to time, we are subject to various claims and legal proceedings that arise in the ordinary course of business. We accrue for losses related to litigation when a potential loss is probable and the loss can be reasonably estimated in accordance with FASB requirements. During the reported period, we were not a party to any material legal proceedings, thus no loss was probable and no amount was accrued at September 30, 2020.

On May 6, 2020, we initiated an arbitration proceeding with the Hong Kong International Arbitration Center against SMIC New Technology Research & Development (Shanghai) Corporation ("SMIC") due to SMIC's failure to pay fees due to PDF under a series of contracts. We seek to recover the unpaid fees, a declaration requiring SMIC to pay fees under the contracts in the future, and costs associated with bringing the arbitration proceeding.

### Item 1A. Risk Factors

Item 1A, "Risk Factors," on pages 12 through 20 of the Company's Annual Report on Form 10-K for the year ended December 31, 2019, provides information on the significant risks associated with our business. Except as set forth below, there have been no subsequent material changes to these risks.

***We may not realize the benefits of our strategic partnership with Advantest, which could have an adverse effect on our business and results of operations.***

On July 29, 2020, we entered into a strategic partnership with Advantest Corporation through its wholly-owned subsidiary, Advantest America, Inc. (collectively, "Advantest"), that includes: (i) a significant agreement for our assistance in development of cloud-based applications for Advantest tools that leverage our Exensio software analytics platform; (ii) a commercial agreement providing for the license to third parties of solutions that result from the development work that combine Advantest's testing applications and our Exensio platform; (iii) a 5-year cloud-based subscription for our Exensio analytics platform and related services; and (iv) the purchase of 3,306,924 shares of our common stock, for aggregate gross proceeds of \$65.2 million. This strategic partnership is in the early stages of development, and the full extent of its future impact on our financial condition and results of operations is currently unknown and the failure to reap the anticipated benefits of Advantest's financial resources, technology, customer relationships, and global footprint and/or develop successful joint solutions could have an adverse effect on our business and results of operations.

***The COVID-19 pandemic has significantly affected how we and our customers are operating our business and the duration and extent to which this will impact our future results of operations and overall financial performance remains uncertain.***

The COVID-19 pandemic has significantly affected how we and our customers are operating our business. For example, most U.S. states and countries worldwide have imposed and may continue to impose from time-to-time for the foreseeable future, restrictions on the physical movement of our employees, partners, and customers to limit the spread of COVID-19, including travel restrictions and shelter-in-place orders. As a result, our Shanghai office was temporarily shut down and the restrictions limited the ability of our local employees to travel to customer sites or visit our other offices from January to April 2020. Our offices in Italy and Germany were closed in February 2020 and by March 2020, our corporate headquarters in the United States and several other impacted locations were temporarily closed as well. In addition, our personnel worldwide are subject to various country to country travel restrictions, which limit our ability to provide services to customers at their facilities. These impacts have disrupted our normal operations. If the COVID-19 pandemic has a substantial impact on our employees' productivity, our results of operations and overall financial performance may be harmed.

Moreover, the conditions caused by the COVID-19 pandemic could adversely affect our customers' ability or willingness to purchase our products or services, delay prospective customers' purchasing decisions, adversely impact our ability to provide or deliver products and on-site services to our customers, delay the provisioning of our offerings, lengthen payment terms, reduce the value or duration of their subscriptions, or affect attrition rates, all of which could adversely affect our future sales, operating results and overall financial performance.

While the potential economic impact brought by the COVID-19 pandemic may be difficult to assess or predict, the pandemic has resulted in significant disruption of global financial markets and on June 8, 2020, the National Bureau of Economic Research announced that the U.S. was in a recession. A long-term recession or long-term market downturn resulting from the spread of COVID-19 could materially impact the value of our common stock, impact our access to capital and affect our business in the near and long-term.

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The duration and extent of the impact from the COVID-19 pandemic depends on future developments that cannot be accurately predicted at this time, such as the severity and transmission rate of the virus, the extent and effectiveness of containment actions and the impact of these and other factors on our employees, customers, partners and vendors. If we are not able to respond to and manage the impact of such events effectively, or if the macroeconomic

conditions of the general economy continue to worsen or the industries in which we operate are negatively impacted over the long-term, our business, operating results, financial condition and cash flows could be adversely affected.

## Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

The information required to be disclosed by paragraph (a) of Item 2 to Form 10-Q has been included in a current report on Form 8-K and, therefore, is not furnished herein, pursuant to the last sentence in that paragraph.

## Item 3. Defaults Upon Senior Securities

None.

## Item 4. Mine Safety Disclosures

None.

## Item 5. Other Information

None.

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## Item 6. Exhibits

Exhibit Number	Description
4.1	<a href="#">Securities Purchase Agreement by and between PDF Solutions, Inc. and Advantest America, Inc. dated July 29, 2020.</a> †
4.2	<a href="#">Stockholder Agreement by and between PDF Solutions, Inc. and Advantest America, Inc. dated July 29, 2020.</a> †
10.1	<a href="#">Software License and Related Services Agreement by and between PDF Solutions, Inc. and Advantest America, Inc. dated March 25, 2020 and Amendment No.1 thereto dated July 29, 2020.</a> † +
10.2	<a href="#">Amended and Restated Master Development Agreement by and between PDF Solutions, Inc. and Advantest America, Inc. dated July 29, 2020.</a> † +
10.3	<a href="#">Master Commercial Terms and Support Services Agreement by and between PDF Solutions, Inc. and Advantest America, Inc. dated July 29, 2020.</a> † +
31.01	<a href="#">Certification of the principal executive officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</a> †
31.02	<a href="#">Certification of the principal financial and accounting officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</a> †
32.01	<a href="#">Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</a> **
32.02	<a href="#">Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</a> **
101	The following financial statements from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, formatted in Inline XBRL: (i) Condensed Consolidated Balance Sheets, (ii) Condensed Consolidated Statements of Comprehensive Loss, (iii) Condensed Consolidated Statements of Stockholders' Equity, (iv) Condensed Consolidated Statements of Cash Flows and (v) Notes to Condensed Consolidated Financial Statements, tagged as blocks of text and including detailed tags.†
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).†

† Filed herewith.

\*\* Furnished, and not filed.

+ Certain portions of this document that constitute confidential information have been redacted in accordance with Regulation S-K, Item 601(b)(10).

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

**PDF SOLUTIONS, INC.**

Date: November 6, 2020

By: /s/ JOHN K. KIBARIAN

John K. Kibarian  
President and Chief Executive Officer  
(principal executive officer)

Date: November 6, 2020

By: /s/ ADNAN RAZA

Adnan Raza  
Executive Vice President, Finance and Chief Financial  
Officer  
(principal financial and accounting officer)

**SECURITIES PURCHASE AGREEMENT**

**by and between**

**PDF SOLUTIONS, INC.**

**and**

**ADVANTEST AMERICA, INC.**

**July 29, 2020**

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## EXHIBIT

Exhibit A – Form of Stockholder Agreement

## SECURITIES PURCHASE AGREEMENT

This SECURITIES PURCHASE AGREEMENT (this “Agreement”) is dated as of July 29, 2020, by and between PDF Solutions, Inc., a Delaware corporation (the “Company”), and Advantest America, Inc., a Delaware corporation (the “Purchaser”).

WHEREAS, subject to the terms and conditions set forth herein, the Company desires to issue and sell to the Purchaser, and the Purchaser desires to purchase from the Company, the Subject Shares (as defined below);

WHEREAS, the Board (as defined below) has (i) determined that it is in the best interests of the Company and its stockholders, and declared it advisable, to enter into this Agreement providing for the transactions contemplated hereby in accordance with the General Corporation Law of the State of Delaware (the “DGCL”), upon the terms and subject to the conditions set forth herein and therein, and (ii) approved the execution, delivery and performance of this Agreement and the consummation of the transactions contemplated hereby in accordance with the DGCL, upon the terms and conditions contained herein and therein;

WHEREAS, the Purchaser has approved the execution, delivery and performance of this Agreement and the consummation of the transactions contemplated hereby in accordance with applicable Law (as defined below), upon the terms and conditions contained herein; and

WHEREAS, concurrently with the Closing (as defined below), the Company and the Purchaser will enter into a Stockholder Agreement, substantially in the form attached hereto as Exhibit A.

NOW THEREFORE, in consideration of the mutual agreements, representations, warranties and covenants herein contained, the parties hereto agree as follows:

1. Definitions. As used in this Agreement, the following terms shall have the following respective meanings:

“Affiliate” shall mean, with respect to any Person, any other Person that directly, or indirectly through one or more intermediaries, controls, is controlled by or is under common control with, such specified Person.

“Aggregate Purchase Price” shall mean the product of (i) the number of Subject Shares *multiplied by* (ii) the Per Share Purchase Price.

“Board” shall mean the Board of Directors of the Company.

“Business Day” shall mean any day, other than a Saturday, Sunday and any day which is a legal holiday under the laws of the State of New York or California or is a day on which banking institutions located in the State of New York or California are authorized or required by Law or other governmental action to close.

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“Capital Stock” shall mean, with respect to any Person, any and all shares of stock, partnership interests or other equivalent interests (however designated, whether voting or non-voting) in such Person’s equity.

“Common Stock” shall mean shares of common stock, par value \$0.00015 per share, of the Company.

“control” (including the terms “controlling,” “controlled by” and “under common control with”) with respect to any Person shall mean the possession, directly or indirectly, of the power to direct or cause the direction of the management policies of such Person, whether through the ownership of Equity Securities, by contract or otherwise.

“Equity Securities” shall mean, with respect to any Person, (i) shares of Capital Stock of, or other equity or voting interest in, such Person, (ii) any securities convertible into or exchangeable for shares of Capital Stock of, or other equity or voting interest in, such Person, (iii) options, warrants, rights or other commitments or agreements to acquire from such Person, or that obligates such Person to issue, any Capital Stock of, or other equity or voting interest in, or any securities convertible into or exchangeable for shares of Capital Stock of, or other equity or voting interest in, such Person, and (iv) obligations of such Person to grant, extend or enter into any subscription, warrant, right, convertible or exchangeable security or other similar agreement or commitment relating to any Capital Stock of, or other equity or voting interest (including any voting debt) in, such Person.

“Exchange Act” shall mean the Securities Exchange Act of 1934, as amended, and all of the rules and regulations promulgated thereunder.

“GAAP” shall mean U.S. generally accepted accounting principles.

“Governmental Entity” shall mean any United States or non-United States federal, state or local government, or any agency, bureau, board, commission, department, tribunal or instrumentality thereof or any court, tribunal, or arbitral or judicial body, including NASDAQ.

“Governmental Order” shall mean any order, agreement, conciliation, writ, judgment, injunction, decree, stipulation, determination or award entered by or with any Governmental Entity.

“Law” shall mean any applicable law, statute, code, ordinance, rule, regulation, or agency requirement of or undertaking to or agreement with any Governmental Entity, including common law.

“Lien” shall mean any lien, charge, pledge, security interest, claim or other encumbrance.

“Material Adverse Effect” means any change, event, effect or circumstance (each, an “Effect”) that, individually or taken together with all other Effects that have occurred prior to, and are continuing as of, the date of determination of the occurrence of the Material Adverse Effect, has, or would reasonably be expected to have, a material adverse effect on the business, properties, management, financial position, or results of operations of the Company and its Subsidiaries taken as a whole provided, however, that none of the following Effects shall constitute a Material Adverse Effect or be taken into account in determining whether a Material Adverse Effect has occurred or is reasonably expected to occur: (i) any change in general economic conditions or the credit, financial, securities or other capital markets, including changes in interest and exchange rates; (ii) any change in the general conditions in the industry or in any industry sector in which the Company and its Subsidiaries, taken as a whole, have material operations or materially participate; (iii) any change or prospective change in the Company’s stock price or trading volume or the credit rating of the Company, in and of itself (it being understood that the underlying factors giving rise to or contributing to such change may be taken into account unless such underlying factors are otherwise excepted from this definition); (iv) any natural or man-made disaster or similar force majeure event (including any hurricane, tornado, tsunami, flood, volcanic eruption, earthquake, nuclear incident, epidemic or pandemic (including related to the coronavirus disease (COVID-19) and resulting quarantine restrictions), and weather conditions), or any act of terrorism, sabotage, outbreak of hostilities or military action or war (whether or not declared), or national or international calamity, or any escalation or worsening thereof; (v) any change or prospective change in general legal, regulatory, legislative, tax or political conditions after the date of this Agreement; (vi) any change or prospective change in GAAP or applicable law (or any interpretation or enforcement of the foregoing) or any other accounting principles, practices or policies that the Company or any of its Subsidiaries is required to adopt; and (vii) any failure, in and of itself, by the Company to meet any analyst projections or any internal or published projections, forecasts, budgets, guidance, estimates or predictions in respect of revenue, earnings or other financial or operating metrics for any period (it being understood that the underlying factors giving rise to or contributing to such change may be taken into account unless such underlying factors are otherwise excepted from this definition).

“NASDAQ” shall mean the Nasdaq Global Market (or its successor).

“Organizational Document” shall mean, as applicable, an entity’s agreement or certificate of limited partnership, limited liability company agreement, certificate of formation, certificate or articles of incorporation, bylaws or other similar organizational documents.

“Per Share Purchase Price” shall mean the greater of (i) the average of the daily volume-weighted average sales price per share of Common Stock on NASDAQ, as such daily volume-weighted average sales price per share is reported by Bloomberg L.P., calculated to four decimal places and determined without regard to after-hours trading or any other trading outside the regular trading session trading hours, for each of the ten (10) consecutive trading days ending on and including the trading day immediately preceding the Closing Date or (ii) the closing price per share of Common Stock on NASDAQ on the trading day immediately preceding the Closing Date.

“Person” shall mean any individual, corporation, limited liability company, limited or general partnership, joint venture, association, joint-stock company, trust, unincorporated organization, government, any agency or political subdivisions thereof or other “Person” as contemplated by Section 13(d) of the Exchange Act.

“Representatives” shall mean, with respect to any Person, such Person’s Affiliates and such Person’s and each such Affiliate’s respective directors, officers, employees, managers, trustees, principals, stockholders, members, general or limited partners, agents and other representatives.

“Securities Act” shall mean the Securities Act of 1933, as amended, and all of the rules and regulations promulgated thereunder.

“Subject Shares” shall mean 3,306,924 shares of Common Stock.

“Subsidiary” means, with respect to any Person, any other Person of which at least a majority of the securities or ownership interests having by their terms ordinary voting power to elect a majority of the board of directors or other persons performing similar functions is directly or indirectly owned or controlled by such Person and/or by one or more of its Subsidiaries.

“Taxes” shall mean any and all taxes, levies, fees, imposts, duties and charges of whatever kind (including any interest, penalties or additions to the tax imposed in connection therewith or with respect thereto) imposed by any Governmental Entity, including, without limitation, taxes imposed on, or measured by, income, franchise, profits or gross receipts, and any ad valorem, value added, sales, use, service, real or personal property, capital stock, license, payroll, withholding, employment, social security, workers’ compensation, unemployment compensation, utility, severance, production, excise, stamp, occupation, premium, windfall profits, transfer and gains taxes and customs or duties.

Agreement	Preamble
Closing	2.2(a)
Closing Date	2.2(a)
Company	Preamble
Consent	3.6
Delaware Court	9.5(b)
DGCL	Preamble
Intellectual Property	3.1
IT Systems	3.18
OFAC	3.19(a)
Personal Data	3.18
Purchaser	Preamble
Purchaser Adverse Effect	4.3
Sanctioned Jurisdiction	3.19(a)
Sanctions	3.19(a)
SEC	3.7(a)
SEC Documents	3.7(a)

2. Authorization, Purchase and Sale of the Securities.

2.1 Authorization, Purchase and Sale.

(a) Subject to and upon the terms and conditions of this Agreement, the Company will issue and sell to the Purchaser, and the Purchaser will purchase from the Company, at the Closing, the Subject Shares for the Aggregate Purchase Price.

## 2.2 Closing.

(a) The closing of the purchase and sale of the Subject Shares (the “Closing”) shall take place at the offices of Orrick, Herrington & Sutcliffe LLP, 405 Howard St, San Francisco, California 94105, on the next Business Day following the date on which all of the conditions set forth in Section 6 have been satisfied or duly waived, or at such other place or such other date as mutually agreed to by the parties hereto (the date on which the Closing occurs, the “Closing Date”).

(b) At the Closing:

(i) the Company shall deliver to the Purchaser evidence that the Subject Shares have been issued in book-entry form; and

(ii) the Purchaser shall deliver, or cause to be delivered, to the Company the Aggregate Purchase Price by wire transfer of immediately available funds to an account or accounts that the Company shall designate at least two (2) Business Days prior to the Closing Date.

3. Representations and Warranties of the Company. The Company hereby represents and warrants, as of the date hereof and as of the Closing Date, to the Purchaser as follows:

3.1 Organization and Power. The Company and each of its Subsidiaries have been duly organized and are validly existing and in good standing under the laws of their respective jurisdictions of organization, are duly qualified to do business and are in good standing in each jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such qualification, and have all power and authority necessary to own or hold their respective properties and to conduct the businesses in which they are engaged, except where the failure to be so qualified or in good standing or have such power or authority would not, individually or in the aggregate, have or reasonably be expected to have a Material Adverse Effect.

3.2 Authorization. The Company has full right, power and authority to execute and deliver this Agreement and to perform its obligations hereunder and all action required to be taken for the due and proper authorization, execution and delivery by it of this Agreement and the due and proper authorization of the consummation by it of the transactions contemplated thereby has been duly and validly taken and, assuming due execution and delivery by the Purchaser, constitutes a valid and binding agreement of the Company enforceable against the Company in accordance with its terms, subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar Laws of general applicability relating to or affecting creditors’ rights and to general equity principles. This Agreement has been duly authorized, executed and delivered by the Company.

3.3 The Subject Shares. The Subject Shares have been duly authorized and, when issued in accordance with the terms of this Agreement, will be validly issued, fully paid and non-assessable, and the issuance of the Subject Shares will not be subject to any preemptive or similar rights.

3.4 Capitalization. The Company has the following authorized capitalization: 70,000,000 shares of Common Stock; all the outstanding shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable and are not subject to any preemptive or similar rights; there are no outstanding rights (including, without limitation, preemptive rights), warrants or options to acquire, or instruments convertible into or exchangeable for, any shares of capital stock or other equity interest in the Company or any of its Subsidiaries, or any contract, commitment, agreement, understanding or arrangement of any kind relating to the issuance of any capital stock of the Company or any such subsidiary, any such convertible or exchangeable securities or any such rights, warrants or options, except as disclosed in the SEC Documents; and all the outstanding shares of capital stock or other equity interests of each subsidiary owned, directly or indirectly, by the Company have been duly and validly authorized and issued, are fully paid and non-assessable and are owned directly or indirectly by the Company, free and clear of any lien, charge, encumbrance, security interest, restriction on voting or transfer or any other claim of any third party.

3.5 No Conflict. The execution, delivery and performance by the Company of this Agreement, and the consummation of the transactions contemplated by this Agreement will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its Subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which the Company or any of its Subsidiaries is bound or to which any of the property or assets of the Company or any of its Subsidiaries is subject, (ii) result in any violation of the provisions of the charter or bylaws or similar constitutive or organizational documents of the Company or any of its Subsidiaries or (iii) result in the violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except, in the case of clauses (i) and (iii), as would not have or would not reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

3.6 Consents. No consent, approval, authorization, order, registration or qualification of or with (any of the foregoing being a “Consent”), any court or arbitrator or governmental or regulatory authority is required for the execution, delivery and performance by the Company of this Agreement, the sale of the Subject Shares and the consummation of the transactions contemplated by this Agreement, except for such consents, approvals, authorizations, orders and registrations or qualifications as may have been obtained under the Securities Act and such as may be required under applicable state securities laws, by the rules and regulations of NASDAQ or due to the jurisdiction of formation of Purchaser or its Affiliates in connection with the issuance of Subject Shares.

3.7 SEC Documents; Financial Statements.

(a) Each of the documents filed by the Company with U.S. Securities and Exchange Commission (the “SEC”) since January 1, 2019 (the “SEC Documents”), as of its respective filing date, complied in all material respects with the requirements of the Exchange Act, and the rules and regulations of the SEC promulgated thereunder applicable to such SEC Document, and, except to the extent that information contained in any SEC Document has been revised or superseded by a later filed SEC Document filed and publicly available prior to the date of this Agreement, none of the SEC Documents contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(b) The consolidated financial statements and the related notes thereto of the Company and its consolidated Subsidiaries included or incorporated by reference in the SEC Documents present fairly in all material respects the financial position of the Company and its consolidated Subsidiaries as of the dates indicated and the results of their operations and the changes in their cash flows at the specified dates and for the periods specified. Such consolidated financial statements have been prepared in conformity with U.S. GAAP applied on a consistent basis throughout the periods covered thereby, except as disclosed therein; and the other financial information included or incorporated by reference in the SEC Documents has been derived from the accounting records of the Company and its consolidated Subsidiaries and presents fairly in all material respects the information shown thereby.

3.8 Litigation. Except as disclosed in the SEC Documents, there are no legal, governmental or regulatory investigations, actions, suits or proceedings pending to which the Company or any of its Subsidiaries is or may be a party or to which any property of the Company or any of its Subsidiaries is or may be the subject that, individually or in the aggregate, if determined adversely to the Company or any of its Subsidiaries, would have or reasonably be expected to have a Material Adverse Effect. No such investigations, actions, suits or proceedings are, to the Company's knowledge, threatened or contemplated by any governmental or regulatory authority or threatened by others.

3.9 Title to Properties. The Company and its Subsidiaries have good and marketable title in fee simple (in the case of real property) to, or have valid rights to lease or otherwise use, all items of real and personal property that are material to the respective businesses of the Company and its Subsidiaries, in each case free and clear of all liens, encumbrances, claims and defects and imperfections of title except those that (i) do not materially interfere with the use made and proposed to be made of such property by the Company and its Subsidiaries or (ii) would not have or would not reasonably be expected to have reasonably be expected, individually or in the aggregate, a Material Adverse Effect.

3.10 Intellectual Property. Except as would not have or would not reasonably be expected to have a Material Adverse Effect or as disclosed in the SEC Documents: (i) the Company and its Subsidiaries own or possess adequate rights to use all uniform resource locators (URLs), patents, patent applications, trademarks, service marks, trade names, trademark registrations, service mark registrations, copyrights, licenses, inventions and know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), and any other intellectual property necessary for the conduct of their respective businesses as they are currently conducted (collectively, "Intellectual Property"); (ii) there are no third parties who have established or, to the Company's knowledge, will be able to establish rights to any Intellectual Property, except for, and to the extent of, the ownership rights of the owners of the Intellectual Property which the SEC Documents disclose is licensed to the Company; (iii) to the Company's knowledge, there is no infringement, misappropriation or other violation by third parties of any Intellectual Property; (iv) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the Company's or its Subsidiaries' rights in or to any Intellectual Property, and the Company and its Subsidiaries are unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (v) there is no pending or threatened action, suit, proceeding or claim by others challenging the validity, enforceability or scope of any Intellectual Property, and the Company or any of its Subsidiaries is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (vi) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others that the Company or any of its Subsidiaries infringes, misappropriates or otherwise violates any patent, trademark, trade name, service mark, copyright, trade secret or other intellectual property rights of others, and the Company and its Subsidiaries are unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (vii) the Company and its Subsidiaries have complied in all material respects with the terms of any agreement pursuant to which Intellectual Property has been licensed to the Company or any of its Subsidiaries, and all such agreements are in full force and effect; and (viii) there is no patent or patent application that contains claims that interfere with the issued or pending claims of any of the Intellectual Property or that challenges the validity, enforceability or scope of any of the Intellectual Property.

3.11 No Integration. Neither the Company nor any of its affiliates (as defined in Rule 501(b) of Regulation D) has, directly or through any agent, sold, offered for sale, solicited offers to buy or otherwise negotiated in respect of, any security (as defined in the Securities Act), that is or will be integrated with the sale of the Subject Shares in a manner that would require registration of the Subject Shares under the Securities Act.

3.12 No General Solicitation or Directed Selling Efforts. None of the Company or any of its affiliates or any other person acting on its or their behalf has solicited offers for, or offered or sold, the Subject Shares by means of any form of general solicitation or general advertising within the meaning of Rule 502(c) of Regulation D or in any manner involving a public offering within the meaning of Section 4(a)(2) of the Securities Act.

3.13 Securities Law Exemptions. Assuming the accuracy of the representations and warranties of the Purchaser, it is not necessary, in connection with the issuance and sale of the Subject Shares to the Purchaser, to register the Subject Shares under the Securities Act.

3.14 Absence of Certain Changes. Since December 31, 2019, except as specifically disclosed in a subsequent SEC Document (i) there has not been any change in the capital stock (other than the exercise of equity awards or grants of equity awards or forfeiture of equity awards), long-term debt, notes payable or current portion of long-term debt of the Company or any of its Subsidiaries, or any dividend or distribution of any kind declared, set aside for payment, paid or made by the Company on any class of capital stock, or any adverse change, or any development involving a prospective adverse change, in or affecting the business, properties, management, financial position, stockholders' equity, or results of operations of the Company and its subsidiaries taken as a whole and (ii) neither the Company nor any of its Subsidiaries has entered into any transaction or agreement that is material to the Company and its Subsidiaries taken as a whole or incurred any liability or obligation, direct or contingent, that is material to the Company and its Subsidiaries taken as a whole, in each case except as would not, in the aggregate, reasonably be expected to have a Material Adverse Effect.

3.15 No Defaults. Neither the Company nor any of its Subsidiaries is: (i) in violation of its charter or bylaws or similar constitutive or organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which the Company or any of its Subsidiaries is bound or to which any of the property or assets of the Company or any of its Subsidiaries is subject; or (iii) in violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except, in the case of clauses (ii) and (iii) above, for any such default or violation that would not or would not reasonably be expected to, individually or in the aggregate, have a Material Adverse Effect.

3.16 Brokers. The Company has not retained, utilized or been represented by any broker or finder in connection with the transactions contemplated by this Agreement whose fees the Purchaser could be required to pay.

3.17 NASDAQ. Shares of the Common Stock are registered pursuant to Section 12(b) of the Exchange Act and are listed on NASDAQ, and there is no action pending by the Company or any other Person to terminate the registration of the Common Stock under the Exchange Act or to delist the Common Stock from NASDAQ, nor has the Company received any notification that the SEC or NASDAQ is currently contemplating terminating such registration or listing. No stockholder approval is required under NASDAQ rules or regulations in connection with the issuance of the Subject Shares.

3.18 IT Systems. Except as would not have or reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect, the information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases operated by or on behalf of the Company and its Subsidiaries (collectively, "IT Systems") are adequate for, and operate and perform in all material respects as required in connection with the operation of the business of the Company and its subsidiaries as currently conducted, free and clear of all material bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants, to the Company's knowledge. The Company and its Subsidiaries have implemented and maintained commercially reasonable controls, policies, procedures, and safeguards to maintain and protect their material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and data (including all personal, personally identifiable, sensitive, confidential or regulated data or information ("Personal Data")) used in connection with their businesses (whether belonging to Company, its Subsidiaries or a third party). To the Company's knowledge, there have been no breaches, violations, outages or unauthorized uses of or accesses to same, that would reasonably be expected to have a Material Adverse Effect. Since January 1, 2019, the Company and its Subsidiaries have been in material compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Personal Data and to the protection of such IT Systems and Personal Data from unauthorized use, access, misappropriation or modification, except where the failure to so comply would not reasonably be expected to have a Material Adverse Effect.

3.19 Compliance with Sanctions and Anti-Money Laundering Laws.

(a) Except as would not have or reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect, for the past five (5) years, the Company and its Subsidiaries and their respective directors, officers, employees, and, to the Company's knowledge, agents and Affiliates have been in compliance with the sanctions administered or enforced by the U.S. government (including the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC") or the U.S. Department of State), the United Nations Security Council, the European Union, or Her Majesty's Treasury ("Sanctions"), and all laws concerning or relating to money laundering or terrorism financing in the jurisdictions in which the Company and its Subsidiaries operate. Neither the Company nor its Subsidiaries, nor any of their respective directors, officers or, to the Company's knowledge, agents or Affiliates is (i) the subject or target of Sanctions, (ii) located, organized or resident in a jurisdiction that itself is the subject or target of Sanctions (a "Sanctioned Jurisdiction"); or (iii) directly or indirectly owned or controlled by any Person or Persons described in the foregoing clauses (i) and (ii).

(b) The Company will not directly or indirectly use the proceeds of the offering of the Subject Shares, or lend, contribute or otherwise make available such proceeds to any Subsidiary or other Person (i) to fund or facilitate any activities of or business in or with any Sanctioned Jurisdiction or with any person that, at the time of such funding or facilitation, is the subject or target of Sanctions, or (ii) in any other manner that would result in a violation of Sanctions by any party hereto.

3.20 No Other Representations and Warranties. Except for the representations and warranties contained in Section 3 and any schedules or certificates delivered in connection herewith, the Company makes no other representation or warranty, express or implied, written or oral, and hereby, to the maximum extent permitted by applicable Law, disclaims any such representation or warranty, whether by the Company or any other Person, with respect to the Company or with respect to any other information (including, without limitation, pro forma financial information, financial projections or other forward-looking statements) provided to or made available to the Purchaser or any of their respective Representatives in connection with the transactions contemplated hereby.

4. Representations and Warranties of the Purchaser. The Purchaser hereby represents and warrants, as of the date hereof and as of the Closing Date, to the Company as follows:

4.1 Organization. The Purchaser is a legal entity duly organized, validly existing and in good standing under the Laws of the jurisdiction of its organization.

4.2 Authorization. The Purchaser has full right, power and authority to execute and deliver this Agreement and to perform its obligations hereunder and all action required to be taken for the due and proper authorization, execution and delivery by it of this Agreement and the due and proper authorization of the consummation by it of the transactions contemplated thereby has been duly and validly taken and, assuming due execution and delivery by the Company, constitutes a valid and binding agreement of such Purchaser enforceable against such Purchase in accordance with its terms, subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar Laws of general applicability relating to or affecting creditors' rights and to general equity principles.

4.3 No Conflict. The execution, delivery and performance of this Agreement by the Purchaser, the issuance of the Subject Shares in accordance with this Agreement, and the consummation of the other transactions contemplated hereby and thereby do not and will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Purchaser or any of its Subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Purchaser or any of its Subsidiaries is a party or by which the Purchaser or any of its Subsidiaries is bound or to which any of the property or assets of the Purchaser or any of its Subsidiaries is subject, (ii) result in any violation of the provisions of the charter or bylaws or similar constitutive or organizational documents of the Purchaser or any of its Subsidiaries or (iii) result in the violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except, in the case of each of clauses (i) and (iii), as would not, individually or in the aggregate, reasonably be expected to materially delay or hinder the ability of the Purchaser to perform its obligations under this Agreement (a “Purchaser Adverse Effect”).

4.4 Consents. No Consent of any court or arbitrator or governmental or regulatory authority is required for the execution, delivery and performance by the Purchaser in connection with (i) the execution, delivery or performance of this Agreement and the consummation of the transactions contemplated hereby or (ii) the issuance of the Subject Shares in accordance with this Agreement, except for such consents, approvals, authorizations, orders and registrations or qualifications as may have been obtained under the Securities Act and such as may be required under applicable state securities laws in connection with the issuance of the Subject Shares and such Consents the failure of which to make or obtain would not, individually or in the aggregate, reasonably be expected to have a Purchaser Adverse Effect.

4.5 Brokers. The Purchaser has not retained, utilized or been represented by any broker or finder in connection with the transactions contemplated by this Agreement whose fees the Company could be required to pay.

4.6 Purchase Entirely for Own Account. The Purchaser is acquiring the Subject Shares for its own account solely for the purpose of investment, not as nominee or agent, and not with a view to, or for sale in connection with, any distribution of the Subject Shares in violation of the Securities Act, and the Purchaser has no present intention of selling, granting any participation in, or otherwise distributing the same, in violation of the Securities Act. The Purchaser has no present agreement, undertaking, arrangement, obligation or commitment providing for the disposition of the Subject Shares. Purchaser is able to bear the economic risk of holding the Shares for an indefinite period (including total loss of its investment), and has sufficient knowledge and experience in financial and business matters so as to be capable of evaluating the merits and risk of its investment.

4.7 Investor Status. The Purchaser certifies and represents to the Company that it is an “accredited investor” as defined in Rule 501 of Regulation D promulgated under the Securities Act. Purchaser was not organized solely for the purpose of acquiring the Subject Shares and is not required to be registered as a broker-dealer under Section 15 of the Exchange Act.

4.8 Information. The Purchaser and its advisors, if any, have been furnished with all materials relating to the business, finances and operations of the Company and materials relating to the offer and sale of the Subject Shares that have been requested by it. The Purchaser and its advisors, if any, have been afforded the opportunity to ask questions of the Company. Neither such inquiries nor any other due diligence investigations conducted by the Purchaser or its advisors, if any, or its representatives shall modify, amend or affect the Purchaser's right to rely on the Company's representations and warranties contained herein. The Purchaser understands that its investment in the Subject Shares involves a high degree of risk. The Purchaser has sought such accounting, legal and tax advice as it has considered necessary to make an informed investment decision with respect to its acquisition of the Subject Shares.

4.9 No General Solicitation. Neither the Purchaser, nor any of its officers, directors, employees, agents, holders of capital stock or partners has either directly or indirectly, including through a broker or finder (a) engaged in any general solicitation, or (b) published any advertisement in connection with the offer and sale of the Stock.

4.10 Trading of Company Securities. Between the time any of the Purchaser's investment professionals learned about the offering contemplated by this Agreement and the public announcement of the offering, neither the Purchaser nor any Person acting on behalf of or pursuant to any understanding with such Purchaser, directly or indirectly executed any purchases or sales, including short sales, of the securities of the Company.

4.11 Compliance with Sanctions and Anti-Money Laundering Laws. The Purchaser represents that any consideration to be paid for the Subject Shares pursuant to this Agreement does not, to the Purchaser's knowledge, constitute the proceeds of criminal activity or derive from activity that is or was a violation of applicable Sanctions. The Purchaser represents that neither the Purchaser nor any of its directors, officers or, to the Purchaser's knowledge, any of its nominees or Affiliates is (i) the subject or target of Sanctions, (ii) located, organized or resident in a Sanctioned Jurisdiction, or (iii) directly or indirectly owned or controlled by any Person or Persons described in the foregoing clauses (i) and (ii).

4.12 Securities Not Registered.

(a) The Purchaser understands that none of the Subject Shares have been approved or disapproved by the SEC or by any state securities commission nor have the Subject Shares been registered under the Securities Act, by reason of their issuance by the Company in a transaction exempt from the registration requirements of the Securities Act, and that the Subject Shares being acquired by the Purchaser are "restricted securities" under applicable federal securities laws and must continue to be held by the Purchaser unless a subsequent disposition thereof is registered under the Securities Act or is exempt from such registration. Such Purchaser agrees: (A) that the Purchaser will not sell, assign, pledge, give, transfer or otherwise dispose of the Subject Shares or any interest therein, or make any offer or attempt to do any of the foregoing, except pursuant to a registration of the Subject Shares under the Securities Act and all applicable state or local securities laws, or in a transaction that is exempt from the registration provisions of the Securities Act and all applicable state or local securities laws, (B) that any certificates representing the Subject Shares will bear a legend making reference to the foregoing restrictions and (C) that the Company shall not be required to give effect to any purported transfer of the Subject Shares except upon compliance with the foregoing restrictions.

(b) The Purchaser understands that the Subject Shares shall be subject to the restrictions contained herein.

(c) The Purchaser understands that the Subject Shares, and any securities issued in respect thereof or in exchange therefor, will bear the following legends:

“THIS SECURITY WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”), AND THIS SECURITY MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM.

THE HOLDER OF THIS SECURITY AGREES FOR THE BENEFIT OF THE COMPANY THAT (A) THIS SECURITY MAY BE OFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) PURSUANT TO ANY EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT, INCLUDING RULE 144 OR REGULATION S UNDER THE SECURITIES ACT (IF AVAILABLE), (II) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, OR (III) TO THE COMPANY OR ANY OF ITS SUBSIDIARIES, IN EACH OF CASES (I) THROUGH (III) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES, AND (B) THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY SUBSEQUENT PURCHASER OF THIS SECURITY FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE.

THE SALE, PLEDGE, HYPOTHECATION, OR TRANSFER OF THE SECURITIES REPRESENTED HEREBY IS SUBJECT TO, AND IN CERTAIN CASES PROHIBITED BY, THE TERMS AND CONDITIONS OF A CERTAIN STOCKHOLDER AGREEMENT BY AND BETWEEN ADVANTEST AMERICA, INC. AND THE COMPANY AS AMENDED FROM TIME TO TIME. COPIES OF SUCH AGREEMENT MAY BE OBTAINED UPON WRITTEN REQUEST TO THE SECRETARY OF THE CORPORATION.”

4.13 Financing. The Purchaser has, or by the Closing will have, an amount of cash sufficient to enable it to consummate the transactions contemplated hereunder on the terms and conditions set forth in this Agreement.

4.14 Non-Reliance. Neither the Purchaser nor any of its Representatives has relied or is relying on any representation or warranty, express or implied, written or oral, made by the Company or any of its Representatives, except those representations and warranties expressly set forth in Section 3 or in any schedule or certificate delivered in connection herewith. Neither the Company nor any of its Representatives will have or be subject to any liability or indemnification obligation to the Purchaser or any other Person resulting from any other express or implied representation or warranty with respect to the Company, unless any such information is expressly included in a representation or warranty contained in Section 3 or in any schedule or certificate delivered in connection herewith.

5. Covenants.

5.1 Rule 144 Reporting. With a view to making available the benefits of certain rules and regulations of the SEC that may permit the sale of the Subject Shares to the public without registration, the Company agrees to use its reasonable best efforts to, (i) from the Closing Date through the one year anniversary thereof and (ii) at any time (including, for the avoidance of doubt, at any time following the one-year anniversary of the Closing Date) during which the Purchaser is deemed to be an affiliate of the Company for purposes of Rule 144 or such similar provision:

(a) make and keep public information regarding the Company available, as those terms are understood and defined in Rule 144 under the Securities Act (or any similar provision then in effect);

(b) file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act, other than Form 8-K reports; provided that this Section 5.1(b) shall cease to apply (x) if the Common Stock is no longer registered pursuant to Section 12(b) of the Exchange Act or (y) upon the date on which the Purchaser shall have sold all the Subject Shares; and

(c) furnish (i) to the extent accurate, forthwith upon request, a written statement of the Company that it has complied with the reporting requirements of Rule 144 under the Securities Act (or any similar provision then in effect) and (ii) unless otherwise available via the SEC's EDGAR filing system, to the Purchaser forthwith upon request a copy of the most recent annual or quarterly report of the Company, and such other reports and documents so filed as the Purchaser may reasonably request in availing itself of any rule or regulation of the SEC allowing the Purchaser to sell any such securities without registration.

5.2 Trading of Company Securities. During the periods between the date hereof and the Closing, neither the Purchaser nor any of its Affiliates shall sell short any securities of the Company or derivatives thereof.

5.3 Repurchase Option. Until the Lock-Up Expiration Date (as defined in the Stockholder Agreement), in the event that a Governmental Entity determines that Purchaser may not hold the Subject Shares following the Closing, the Purchaser shall promptly notify the Company, and the Company shall have an option to elect to either (a) repurchase all (and not less than all) of the Subject Shares from the Purchaser a per share price equal to the Repurchase Price (as defined below), or (b) use reasonable best efforts to facilitate a (i) private placement of the Subject Shares to prospective purchasers reasonably acceptable to the Company or (ii) registered underwritten offering of the Subject Shares, which shall include formal participation by the Company's management in a customary "road show" (including an "electronic road show") or other similar marketing effort by the Company. The Company may exercise such purchase or resale option and thereby repurchase or resell, as applicable, all (but not less than all) of the Subject Shares by notifying the Purchaser in writing twenty (20) days of the Company being notified by Purchaser. In the case of an private placement or registered underwritten offering, the Purchaser shall be responsible for all reasonable, documented, out-of-pocket costs and expenses and shall have the right to make the final pricing decision with respect to the Subject Share to be resold in connection therewith. In the case of a registered underwritten offering, the Purchaser shall complete, execute, acknowledge and deliver such customary selling stockholder questionnaires and other documents, certificates, instruments, representations and warranties and indemnities as may be reasonably requested by the Company or the underwriters in connection with the filing of a registration statement; and the Company and the underwriters shall not be liable to the Purchaser for any loss, claim, damage or liability to the extent that it arises out of or is based upon an untrue statement or omission made in connection with such registration statement, solely in reliance upon and direct in conformity with written information furnished by the Purchaser expressly for use in connection with such registration. The parties shall use reasonable best efforts to complete a private placement or registered underwritten offering, pursuant to Section 5.3(b), within ninety (90) days after the date on which the Company gives notice. If the Company gives the Purchaser notice that it desires to purchase the Subject Shares pursuant to Section 5.3(a), then payment for the Subject Shares shall be by wire transfer, against delivery of such Subject Shares at a place agreed upon between the parties and at the time of the scheduled closing therefor, which shall be no later than ten (10) days after the date on which the Company gives such notice. To the extent that the Company has not exercised its right to repurchase or resell as to all of the Subject Shares before expiration of such twenty (20) day period, or if a private placement or registered underwritten offering is not completed within such ninety (90) day period, then the Purchaser shall be free to sell or otherwise Transfer the Subject Shares, subject to any restrictions, requirements, or conditions imposed by the relevant Governmental Entity. The term "Repurchase Price" shall mean the greater of (i) the average of the daily volume-weighted average sales price per share of Common Stock on NASDAQ, as such daily volume-weighted average sales price per share is reported by Bloomberg L.P., calculated to four decimal places and determined without regard to after-hours trading or any other trading outside the regular trading session trading hours, for each of the ten (10) consecutive trading days ending on and including the trading day immediately preceding the closing date of the Company's purchase of Subject Shares or (ii) the closing price per share of Common Stock on NASDAQ on the trading day immediately preceding such date. This Section 5.3 shall immediately expire on the date that the Company's common stock is no longer traded on NASDAQ, the Nasdaq Capital Market, the Nasdaq Global Select Market, the NYSE American or the New York Stock Exchange (or any successors to any of the foregoing).

6. Conditions Precedent.

6.1 Mutual Conditions of Closing. The obligations of the Company and the Purchaser to consummate the transactions to be consummated at the Closing is subject to the satisfaction, or mutual written waiver, of the following conditions precedent:

(a) There shall not be any Law or Governmental Order in effect that enjoins, prohibits or materially alters the terms of the transactions contemplated by this Agreement, and no action, suit, investigation or proceeding pending by a Governmental Entity of competent jurisdiction that seeks such a Governmental Order; and

(b) The issue and sale of the Subject Shares shall be exempt from the requirement to file a prospectus or registration statement and there shall be no requirement to deliver an offering memorandum under applicable securities Law relating to the sale of the Subject Shares.

6.2 Conditions to the Obligation of the Purchaser to Consummate the Closing. The obligation of the Purchaser to consummate the transactions to be consummated at the Closing, and to purchase and pay for the Subject Shares pursuant to this Agreement, is subject to the satisfaction, or due waiver in writing by the Purchaser, of the following conditions precedent:

(a) the Company shall have performed and complied in all material respects with all of the covenants and agreements contained in this Agreement that are required to be performed or complied with by it on or prior to the Closing Date;

(b) the representations and warranties of the Company contained in this Agreement shall be true and correct in all material respects as of the Closing Date (except in the case of representations and warranties that are made as of a specified date, which shall be true and correct in all respects as of such specified date);

(c) the Subject Shares shall represent less than 10.00% of the outstanding Common Stock of the Company; and

(d) the Company shall have delivered to the Purchaser a certificate, dated the Closing Date and executed by a duly authorized officer, to the effect that the conditions set forth in Sections 6.2(a), (b) and (c) have been satisfied.

6.3 Conditions to the Obligation of the Company to Consummate the Closing. The obligation of the Company to consummate the transactions to be consummated at the Closing, and to issue and sell to the Purchaser the Subject Shares pursuant to this Agreement, is subject to the satisfaction of the following conditions precedent:

(a) the Purchaser shall have performed and complied in all material respects with all of the covenants and agreements contained in this Agreement that are required to be performed or complied with by it on or prior to the Closing Dates; and

(b) the representations and warranties of the Purchaser contained in this Agreement shall be true and correct in all material respects (other than those representations and warranties contained in Sections 4.1, 4.2 and 4.5 which shall be true and correct in all respects) as of the Closing Date (except in the case of representations and warranties that are made as of a specified date, which shall be true and correct in all respects as of such specified date).

7. Legends; Securities Act Compliance. The Subject Shares or the notice sent to any holder of the Subject Shares in book-entry form will bear a legend conspicuously thereon as provided in Section 4.12.

8. Termination.

8.1 Conditions of Termination. Notwithstanding anything to the contrary contained herein, this Agreement may be terminated: (a) at any time before the Closing by either the Company, on the one hand, or the Purchaser, on the other hand, if any of the conditions to Closing to which such party is entitled to the benefit of shall have become permanently incapable of fulfillment and shall not have been waived in writing (to the extent permitted by applicable Law); or (b) at any time after the date that is ninety (90) days after the date of this Agreement by either the Company, on the one hand, or the Purchaser, on the other hand, if the Closing shall not have occurred on or before such date; provided, however, that the right to terminate this Agreement pursuant to the preceding clause (a) or clause (b) shall not be available to a party if the inability to satisfy any of the conditions to Closing was due primarily to the failure of such party to perform any of its obligations under this Agreement.

8.2 Effect of Termination. In the event of any termination pursuant to Section 8.1, this Agreement shall become null and void and have no further effect, with no liability on the part of the Company or the Purchaser, or their respective Affiliates or Representatives, with respect to this Agreement, except (a) for the terms of this Section 8.2 and Section 9, which shall survive the termination of this Agreement, and (b) that nothing in this Section 8.2 shall relieve any party hereto from liability or damages incurred or suffered by any other party resulting from any intentional (x) breach of any representation or warranty of such first party or (y) failure of such first party to perform a covenant thereof. As used in the foregoing sentence, “intentional” shall mean an act or omission by such party which such party actually knew, or reasonably should have known, would constitute a breach of this Agreement by such party.

9. Miscellaneous Provisions.

9.1 Survival. The representations and warranties set forth in Sections 3.1, 3.2, 3.3, 3.4, 4.1, 4.2 and 4.3 shall survive the execution and delivery of this Agreement and the Closing until the date that is six (6) months following the Lock-Up Expiration Date (as defined in the Stockholder Agreement) and the other representations and warranties contained in this Agreement shall survive the execution and delivery of this Agreement and the Closing for a period of one (1) year following the Closing Date, regardless of any investigation made by or on behalf of the Company or the Purchaser. The covenants made in this Agreement shall survive the Closing indefinitely until fully performed in accordance with their terms and remain operative and in full force and effect in accordance with their terms regardless of acceptance of any of the Subject Shares and payment therefor and repayment, conversion or repurchase thereof.

9.2 Interpretation. The term “or” when used in this Agreement is not exclusive. The words “hereof,” “herein” and “hereunder” and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement, and section and subsection references are to this Agreement unless otherwise specified. The headings in this Agreement are included for convenience of reference only and will not limit or otherwise affect the meaning or interpretation of this Agreement. Whenever the words “include,” “includes” or “including” are used in this Agreement, they will be deemed to be followed by the words “without limitation.” The phrases “the date of this Agreement,” “the date hereof” and terms of similar import, unless the context otherwise requires, will be deemed to refer to the date set forth in the first paragraph of this Agreement. The meanings given to terms defined herein will be equally applicable to both the singular and plural forms of such terms. All matters to be agreed to by any party hereto must be agreed to in writing by such party unless otherwise indicated herein. Except as otherwise specified herein, references to agreements, policies, standards, guidelines or instruments, or to statutes or regulations, are to such agreements, policies, standards, guidelines or instruments, or statutes or regulations, as amended or supplemented from time to time (or to successors thereto). All references herein to the Subsidiaries of a Person shall be deemed to include all direct and indirect Subsidiaries of such Person, unless otherwise indicated or the context otherwise requires. The parties hereto agree that they have been represented by counsel during the negotiation and execution of this Agreement and, therefore, waive the application of any Law, holding or rule of construction providing that ambiguities in an agreement or other document will be construed against the party drafting such agreement or document.

9.3 Notices. All notices, requests, consents, and other communications under this Agreement shall be in writing and shall be deemed delivered (a) three (3) Business Days after being sent by registered or certified mail, return receipt requested, postage prepaid, (b) one (1) Business Day after being sent via a reputable nationwide overnight courier service guaranteeing next business day delivery; or (c) on the date of delivery if delivered personally or via email, in each case to the intended recipient as set forth below:

(a) if to the Company, addressed as follows:

PDF Solutions, Inc.  
2858 De La Cruz Blvd.  
Santa Clara, California 95050  
Attention: General Counsel  
Email: legal.department@pdf.com

*with a copy (which shall not constitute notice) to:*

PDF Solutions, Inc.  
2858 De La Cruz Blvd.  
Santa Clara, California 95050  
Attention: Chief Financial Officer

(b) if to the Purchaser, to:

Advantest America, Inc.  
3061 Zanker Road  
San Jose, CA 95134  
Attention: Doug Lefever  
Email: doug.lefever@advantest.com

*with a copy (which shall not constitute notice) to:*

Skadden, Arps, Slate, Meagher & Flom LLP  
525 University Avenue, Suite 1400  
Palo Alto, CA 94301  
Attention: Michael Mies  
Email: michael.mies@skadden.com

Any party may change the address to which notices, requests, consents or other communications hereunder are to be delivered by giving the other parties notice in the manner set forth in this Section 9.3.

9.4 Severability. In the event that any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement will continue in full force and effect and the application of such provision to other persons or circumstances will be interpreted so as reasonably to effect the intent of the parties hereto. The parties further agree to replace such void or unenforceable provision of this Agreement with a valid and enforceable provision that will achieve, to the extent possible, the economic, business and other purposes of such void or unenforceable provision.

9.5 Governing Law; Jurisdiction; WAIVER OF JURY TRIAL.

(a) This Agreement, and all claims or causes of action (whether in contract, tort or statute) that may be based upon, arise out of or relate to this Agreement, or the negotiation, execution or performance of this Agreement, shall be governed by and enforced and construed in accordance with the Laws of the State of Delaware (including its statute of limitations), regardless of the Laws that might otherwise govern under applicable principles of conflicts of law thereof.

(b) Each of the parties hereto irrevocably (i) agrees that any legal suit, action or proceeding brought by any party hereto arising out of or based upon this Agreement shall be instituted in the Court of Chancery of the State of Delaware (provided, that if jurisdiction is not then available in such court, then any such legal suit, action or proceeding shall be brought in any federal court located in the State of Delaware or in any other Delaware state court) (any of the foregoing Delaware courts, a "Delaware Court"); (ii) waives, to the fullest extent it may effectively do so, any objection which it may now or hereafter have to the laying of venue of any such proceeding; and (iii) submits to the non-exclusive jurisdiction of a Delaware Court in any such suit, action or proceeding.

(c) EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES ALL RIGHT TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM (WHETHER BASED ON CONTRACT, TORT OR OTHERWISE) ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE ACTIONS OF THE PURCHASER OR THE COMPANY IN THE NEGOTIATION, ADMINISTRATION, PERFORMANCE AND ENFORCEMENT HEREOF.

9.6 Delays or Omissions; Waiver. No delay or omission to exercise any right, power, or remedy accruing to a party upon any breach or default of another party under this Agreement shall impair any such right, power, or remedy of such party, nor shall it be construed to be a waiver of any such breach or default, or an acquiescence therein, or of or in any similar breach or default thereafter occurring; nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. No waiver of any term, provision or condition of this Agreement, whether by conduct or otherwise, in any one or more instances, shall be deemed to be, or be construed as, a further or continuing waiver of any such term, provision or condition or as a waiver of any other term, provision or condition of this Agreement. Any agreement on the part of a party or parties hereto to any waiver shall be valid only if set forth in an instrument in writing signed on behalf of such party or parties, as applicable. Any delay in exercising any right under this Agreement shall not constitute a waiver of such right.

9.7 Specific Performance. The parties hereto agree that the obligations imposed on them in this Agreement are special, unique and of an extraordinary character, and that irreparable damages for which money damages, even if available, would not be an adequate remedy, would occur in the event that the parties hereto do not perform the provisions of this Agreement in accordance with its specified terms or otherwise breach such provisions. The parties hereto acknowledge and agree that the parties shall be entitled to an injunction, specific performance and other equitable relief to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof, this being in addition to any other remedy to which they are entitled, at law or in equity; and the parties hereto further agree to waive any requirement for the securing or posting of any bond or other security in connection with the obtaining of any such injunctive or other equitable relief. Each of the parties hereto agrees that it will not oppose the granting of an injunction, specific performance and other equitable relief as provided herein on the basis that (x) any party has an adequate remedy at law or (y) an award of specific performance is not an appropriate remedy for any reason at law or equity.

9.8 Assignment. (i) The Purchaser may not assign its rights or obligations under this Agreement other than to one of its Affiliates without the prior written consent of the Company and (ii) the Company may not assign its rights or obligations under this Agreement without the prior written consent of the Purchaser. Subject to the preceding sentence, this Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties to this Agreement and their respective successors and permitted assigns. Any purported assignment other than in compliance with the terms hereof shall be void ab initio.

9.9 No Third-Party Beneficiaries. This Agreement does not create any rights, claims or benefits inuring to any Person that is not a party hereto nor create or establish any third-party beneficiary hereto. Without limiting the foregoing, the representations and warranties in this Agreement are the product of negotiations among the parties hereto and are for the sole benefit of the parties hereto. In some instances, the representations and warranties in this Agreement may represent an allocation among the parties hereto of risks associated with particular matters regardless of the knowledge of any of the parties hereto. Consequently, Persons other than the parties hereto may not rely upon the representations and warranties in this Agreement as characterizations of actual facts or circumstances as of the date of this Agreement or as of any other date.

9.10 Counterparts. This Agreement may be executed and delivered (including by facsimile or electronic transmission) in any number of counterparts, and by the different parties hereto in separate counterparts, each of which when executed shall be deemed an original, but all of which taken together shall constitute a single instrument.

9.11 Entire Agreement; Amendments. This Agreement and the documents and instruments and other agreements among the parties hereto as contemplated by or referred to herein, including the Exhibits hereto, constitute the entire agreement between the parties hereto respecting the subject matter hereof and supersede all prior agreements, negotiations, understandings, representations and statements respecting the subject matter hereof, whether written or oral. No modification, alteration or change in any of the terms of this Agreement shall be valid or binding upon the parties hereto unless made in writing and duly executed by the Company and the Purchaser.

9.12 No Personal Liability of Directors, Officers, Owners, Etc. No director, officer, employee, incorporator, equityholder, managing member, member, general partner, limited partner, principal or other agent of the Purchaser or the Company shall have any liability for any obligations of the Purchaser or the Company, as applicable, under this Agreement or for any claim based on, in respect of, or by reason of, the respective obligations of the Purchaser or the Company, as applicable, under this Agreement. Each party hereby waives and releases all such liability. This waiver and release is a material inducement to each party's entry into this Agreement.

*[Remainder of the Page Intentionally Left Blank]*

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly appointed officers as of the date first above written.

**COMPANY:**

PDF SOLUTIONS, INC.

By: /s/JOHN KIBARIAN

Name: John K. Kibarian

Title: President and Chief Executive Officer

**PURCHASER:**

ADVANTEST AMERICA, INC.

By: /s/DOUGLAS LEFEVER

Name: Douglas Lefever

Title: President and Chief Executive Officer

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**EXHIBIT A**

**Form of Stockholder Agreement**

[Attached]

**STOCKHOLDER AGREEMENT**

**by and between**

**PDF SOLUTIONS, INC.**

**and**

**ADVANTEST AMERICA, INC.**

**Dated as of July 30, 2020**

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## STOCKHOLDER AGREEMENT

This STOCKHOLDER AGREEMENT (this "Agreement") is dated as of July 30, 2020, by and between PDF Solutions, Inc., a Delaware corporation (the "Company"), and Advantest America, Inc., a Delaware corporation (the "Stockholder"). Capitalized terms used herein without definition shall have the meanings set forth in the Securities Purchase Agreement (as defined below).

### RECITALS

WHEREAS, reference is made to that certain Securities Purchase Agreement, dated as of July 29, 2020 (as amended from time to time, the "Securities Purchase Agreement"), by and between the Company and the Stockholder;

WHEREAS, upon consummation of the transactions contemplated by the Securities Purchase Agreement, the Stockholder holds 3,306,924 shares (the "Subject Shares") of the Company's common stock, par value \$0.00015 ("Common Stock"); and

WHEREAS, it is a condition to the consummation of the transactions contemplated by the Securities Purchase Agreement that the parties hereto enter into this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants expressed herein, the parties hereby agree as follows:

### ARTICLE I

#### DEFINITIONS

"Affiliate" shall mean, with respect to any person, any other person that directly, or indirectly through one or more intermediaries, controls, is controlled by or is under common control with, such specified person and for these purposes the term "control" shall mean the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such entity, whether through the ownership of voting securities (or other ownership interest), by contract or otherwise.

"Board" shall mean the Board of Directors of the Company.

"Business Day" shall mean any day, other than a Saturday, Sunday and any day which is a legal holiday under the laws of the State of New York or California or is a day on which banking institutions located in the State of New York or California are authorized or required by Law or other governmental action to close.

"Governmental Entity" shall mean any United States or non-United States federal, state or local government, or any agency, bureau, board, commission, department, tribunal or instrumentality thereof or any court, tribunal, or arbitral or judicial body, including NASDAQ.

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“Law” shall mean any applicable law, statute, code, ordinance, rule, regulation, or agency requirement of or undertaking to or agreement with any Governmental Entity, including common law.

“NASDAQ” shall mean Nasdaq Global Market (or its successor).

“SEC” shall mean the Securities and Exchange Commission.

“Securities Act” shall mean the Securities Act of 1933, as amended from time to time.

“Subsidiary” shall mean, with respect to any person, any other person of which at least a majority of the securities or ownership interests having by their terms ordinary voting power to elect a majority of the board of directors or other persons performing similar functions is directly or indirectly owned or controlled by such person and/or by one or more of its Subsidiaries.

## ARTICLE II

### LOCK-UP

Section 2.01 Subject to the provisions of this Article II, until the date that is the fifth anniversary of the date of this Agreement (the “Lock-Up Expiration Date”), the Stockholder agrees that it shall not, without the Company’s prior written consent, (a) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, make any short sale relating to, or otherwise transfer or dispose of, any of the Subject Shares, or publicly disclose the intention to make any offer, sale, pledge or disposition (provided, however, that the Stockholder shall be permitted to pledge and grant a security interest in, and to publicly disclose the intention to make a pledge of and grant a security interest in, the Subject Shares (including proceeds thereof) in connection with financing arrangements), or (b) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Subject Shares, whether any such transaction described in clauses (a) and (b) is to be settled by delivery of shares of Common Stock, any other security, in cash or otherwise (any such action, a “Transfer”).

Section 2.02 Notwithstanding anything contained in this Article II to the contrary, the Stockholder shall be permitted to Transfer all or any portion of the Subject Shares prior to the Lock-Up Expiration Date (a) to any Affiliate of the Stockholder (an “Affiliate Permitted Transfer”) or (b) in order to maintain the Stockholder’s equivalent percentage beneficial ownership in the Common Stock at 9.9% of the Company’s outstanding shares of Common Stock. No Affiliate Permitted Transfer of any Subject Shares shall be permitted unless and until the prospective transferee agrees (i) to become a party to this Agreement and be bound by all the terms and conditions hereof by executing and delivering to the Company, a joinder to this Agreement in customary form, and (ii) that, if such transferee ceases to be an Affiliate of the Stockholder, such transferee shall re-Transfer the Subject Shares back to the Stockholder or an Affiliate of the Stockholder.

Section 2.03 The restrictions on Transfer set forth in Section 2.01 shall immediately terminate and be of no force or effect upon the first to occur of any of the following (each, a “Termination Event”):

(a) if two (2) or more members of the Board are elected against the recommendation of the Board or appointed in settlement with an activist stockholder of the Company;

(b) the termination of the Amendment #1 to the Software License and Related Services Agreement (PDF doc #8406), dated as of July 29, 2020, by and between the Company and the Stockholder (the "Cloud Deal Agreement") pursuant to its terms due to the Company's breach of any representation, warranty, covenant or agreement of the Company in the Cloud Deal Agreement;

(c) the public announcement by the Company that it has entered into an agreement with one or more third parties providing for a merger, consolidation, stock or asset sale, or other business combination that, if consummated, would result in the acquisition of at least 50% of the outstanding voting securities or assets representing at least 50% of the consolidated assets of the Company and its Subsidiaries (measured by fair market value); or

(d) the commencement by a third party of a tender offer or exchange offer which, if consummated, would result in the acquisition of beneficial ownership of at least 50% of the outstanding voting securities of the Company, and in connection with which the Company files with the SEC a Schedule 14D-9 with respect to such offer that does not recommend that the Company's stockholders reject such offer.

Section 2.04 From the date of this Agreement until the earlier of (i) the Lock-Up Expiration Date or (ii) the later of a Termination Event and the date on which the Subject Shares may be Transferred pursuant to Rule 144 (or any similar rule or rules then in effect) of the SEC:

(a) To the extent the Transfer of Subject Shares is permitted by this Article II, Subject Shares are transferable only pursuant to (i) public offerings registered under the Securities Act, (ii) Rule 144 (or any similar rule or rules then in effect) of the SEC if such rule is available, and (iii) subject to the provisions of Section 2.04(b) below, an exemption from registration under the Securities Act and applicable state securities or Blue Sky laws.

(b) In connection with the Transfer of any Subject Shares other than a Transfer described in clause (i) or (ii) of Section 2.04(a) above, the holder thereof shall deliver to the Company (i) written notice at least ten (10) days prior to such proposed Transfer describing in reasonable detail the proposed Transfer, and (ii) if requested by the Company in writing, prior to the consummation of such Transfer, an opinion of counsel reasonably acceptable to the Company to the effect that such Transfer of Subject Shares may be effected without registration of such Subject Shares under the Securities Act and applicable state securities or Blue Sky laws. The Company shall comply with its obligations under Section 5.1 of the Securities Purchase Agreement.

Section 2.05 Following the earlier of the Lock-Up Expiration Date or a Termination Event, for so long as the Subject Shares constitute at least 2.00% of the Company's outstanding shares of Common Stock, if the Stockholder desires to sell (or otherwise Transfer) any Subject Shares (a "Proposed Transfer"), the Stockholder shall first notify the Company (the "Transfer Notice") of the number of Subject Shares proposed to be sold or otherwise Transferred by the Stockholder (the "Offered Shares"). The Company shall have an option for a period of twenty (20) days from the date the Transfer Notice is given to elect to either (a) repurchase all (and not less than all) of the Offered Shares from the Stockholder at a per share price equal to the Purchase Price (as defined below), or (b) use reasonable best efforts to facilitate a (i) private placement of the Offered Shares to prospective purchasers reasonably acceptable to the Company or (ii) registered underwritten offering of the Offered Shares, which shall include formal participation by the Company's management in a customary "road show" (including an "electronic road show") or other similar marketing effort by the Company. The Company may exercise such purchase or resale option and, thereby, purchase or resell all (but not less than all) of the Offered Shares by notifying the Stockholder in writing before expiration of such twenty (20) day period. In the case of an private placement or registered underwritten offering, the Stockholder shall be responsible for all reasonable, documented, out-of-pocket costs and expenses and shall have the right to make the final pricing decision with respect to the Offered Shares to be resold in connection therewith. In the case of a registered underwritten offering, the Stockholder shall complete, execute, acknowledge and deliver such customary selling stockholder questionnaires and other documents, certificates, instruments, representations and warranties and indemnities as may be reasonably requested by the Company or the underwriters in connection with the filing of a registration statement; and the Company and the underwriters shall not be liable to the Stockholder for any loss, claim, damage or liability to the extent that it arises out of or is based upon an untrue statement or omission made in connection with such registration statement, solely in reliance upon and in direct conformity with written information furnished by the Stockholder expressly for use in connection with such registration. The parties shall use reasonable best efforts to complete a private placement or registered underwritten offering, pursuant to Section 2.05(b), within ninety (90) days after the date on which the Company gives notice. If the Company gives the Stockholder notice that it desires to purchase the Offered Shares pursuant to Section 2.05(a), then payment for the Offered Shares shall be by wire transfer, against delivery of the Offered Shares to be purchased at a place agreed upon between the parties and at the time of the scheduled closing therefor, which shall be no later than ten (10) days after the date the Transfer Notice is given. To the extent that the Company has not exercised its right to repurchase or resell as to all of the Offered Shares before expiration of such twenty (20) day period, or if a private placement or registered underwritten offering is not completed within such ninety (90) day period, then the Stockholder shall be free to sell or otherwise Transfer the Offered Shares; *provided, however*, that in the event such Offered Shares are not sold within ninety (90) days of the date the Stockholder is free to sell or otherwise Transfer the Offered Shares, they shall once again be subject to the right of first refusal provided herein. The foregoing right of first offer shall not apply to any Transfer of (i) the Subject Shares to an Affiliate of the Stockholder, *provided* that such Affiliate agrees to be bound by this Section 2.05 by executing and delivering to the Company a joinder to this Agreement in customary form, or (ii) Subject Shares constituting less than 1.00% of the Company's outstanding shares of Common Stock in any six (6)-month period. The term "Purchase Price" shall mean the greater of (i) the average of the daily volume-weighted average sales price per share of Common Stock on NASDAQ, as such daily volume-weighted average sales price per share is reported by Bloomberg L.P., calculated to four decimal places and determined without regard to after-hours trading or any other trading outside the regular trading session trading hours, for each of the ten (10) consecutive trading days ending on and including the trading day immediately preceding the closing date of the Company's purchase of Offered Shares or (ii) the closing price per share of Common Stock on NASDAQ on the trading day immediately preceding such date. This Section 2.05 shall immediately expire on the date that the Company's common stock is no longer traded on NASDAQ, the Nasdaq Capital Market, the Nasdaq Global Select Market, the NYSE American or the New York Stock Exchange (or any successors to any of the foregoing).

Section 2.06 Removal of Legends.

(a) The parties hereto acknowledge that, pursuant to the Securities Purchase Agreement, the Subject Shares and any securities issued in respect thereof or in exchange therefor will bear the following legends:

“THIS SECURITY WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”), AND THIS SECURITY MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM.

THE HOLDER OF THIS SECURITY AGREES FOR THE BENEFIT OF THE COMPANY THAT (A) THIS SECURITY MAY BE OFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) PURSUANT TO ANY EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT, INCLUDING RULE 144 OR REGULATION S UNDER THE SECURITIES ACT (IF AVAILABLE), (II) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, OR (III) TO THE COMPANY OR ANY OF ITS SUBSIDIARIES, IN EACH OF CASES (I) THROUGH (III) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES, AND (B) THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY SUBSEQUENT PURCHASER OF THIS SECURITY FROM IT OF THE RESALE RESTRICTIONS REFERRED TO IN (A) ABOVE.

THE SALE, PLEDGE, HYPOTHECATION, OR TRANSFER OF THE SECURITIES REPRESENTED HEREBY IS SUBJECT TO, AND IN CERTAIN CASES PROHIBITED BY, THE TERMS AND CONDITIONS OF A CERTAIN STOCKHOLDER AGREEMENT BY AND BETWEEN ADVANTEST AMERICA, INC. AND THE COMPANY AS AMENDED FROM TIME TO TIME. COPIES OF SUCH AGREEMENT MAY BE OBTAINED UPON WRITTEN REQUEST TO THE SECRETARY OF THE CORPORATION.”

(b) Notwithstanding the foregoing, certificates or book entries evidencing the Subject Shares shall not contain any legend: (i) following the Lock-Up Expiration Date; (ii) following the later of any Termination Event and the date on which the Subject Shares may be Transferred pursuant to Rule 144 (or any similar rule or rules then in effect) of the SEC; (iii) while a registration statement covering the resale of such security is effective under the Securities Act, (iv) following any sale of such Subject Shares pursuant to Rule 144, (v) if such Subject Shares are eligible for sale under Rule 144, without the requirement for the Company to be in compliance with the current public information required under Rule 144 as to such Subject Shares and without volume or manner-of-sale restrictions; or (vi) if such legend is not required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the SEC). The Company shall cause its counsel to issue a legal opinion to the transfer agent of such Subject Shares during the time any of the aforescribed conditions apply, to effect the removal of the legend hereunder. Notwithstanding any other provision of this Agreement, the legend set forth in the final paragraph of Section 2.06(a) shall be set forth on all certificates or book entries evidencing the Subject Shares until such time as this Agreement does not restrict Transfer of the Subject Shares. The Company agrees that following such time as (x) the last paragraph of the legend set forth in Section 2.06(a) is no longer required under this Section 2.06(b), it will, no later than five (5) trading days following the written request by the Stockholder to the Company, deliver or cause to be delivered to the Stockholder a certificate or evidence of book entry representing such shares that is free from the last paragraph of the legend set forth in Section 2.06(a), and (y) no portion of the legend set forth in Section 2.06(a) is any longer required under this Section 2.06(b), it will, no later than five (5) trading days following the written request by the Stockholder to the Company, deliver or cause to be delivered to the Stockholder a certificate or evidence of book entry representing such shares that is free from all restrictive and other legends (however, in each of case (x) and (y) the Company shall use reasonable best efforts to deliver such shares within three (3) trading days).

## ARTICLE III

### VOTING

Section 3.01 The Stockholder agrees to vote, or cause to be voted, the Subject Shares, from time to time and at all times (unless the Company otherwise consents in writing), in whatever manner recommended the Board as reflected in any Company proxy or information statement in connection with such vote. The Stockholder shall be present in person or represented by proxy at all meetings of stockholders of the Company so that the Subject Shares may be counted for the purpose of determining the presence of a quorum at such meetings.

Section 3.02 The provisions set forth in the first sentence of Section 3.01 shall be inoperative and of no force or effect upon the occurrence of any Termination Event and further such provisions shall not apply in the event that any of the following matters are proposed at any annual or special meeting of the Company's stockholders:

- (a) any issuance of Company securities subject to NASDAQ Rule 5635(b);
- (b) the approval of any merger, consolidation, or amalgamation of the Company, or other similar business combination that changes the identity or nature of the Company to be competitive with the Stockholder or its parent or controlled Affiliates;
- (c) any amendment to the Company's certification of incorporation that would disproportionately and adversely affect the Stockholder;
- (d) any voluntary or involuntary bankruptcy, dissolution, insolvency, reorganization, rehabilitation or similar event of the Company.

or

## ARTICLE IV

### STANDSTILL

Section 4.01 Until the date that is the fifth anniversary of the date of this Agreement, the Stockholder agrees that, unless specifically invited in writing by the Company or consented to in writing by the Company in response to a confidential written request by the Stockholder, the Stockholder will not in any manner, directly or indirectly:

(a) effect or seek, offer or propose (whether publicly or otherwise) to effect, or announce any intention to effect or cause or participate in or in any way assist, facilitate or encourage any other person to effect or seek, offer or propose (whether publicly or otherwise) to effect or participate in, (1) any acquisition of any securities (or beneficial ownership thereof), or rights or options to acquire any securities (or beneficial ownership thereof), or any material portion of the assets, indebtedness or businesses of the Company or any of its Subsidiaries, (ii) any tender or exchange offer, merger or other business combination involving the Company, any of the Subsidiaries or assets of the Company or the Subsidiaries constituting a significant portion of the consolidated assets of the Company and its Subsidiaries, (3) any recapitalization, restructuring, liquidation, dissolution or other extraordinary transaction with respect to the Company or any of its Subsidiaries, or (4) any "solicitation" of "proxies" (as such terms are used in the proxy rules of the SEC) or consents to vote any voting securities of the Company or any of its Subsidiaries;

(b) form, join or in any way participate in a "group" (as defined in the Act) with respect to the Company or otherwise act in concert with any person in respect of any such securities;

(c) otherwise act, alone or in concert with others, to seek representation on or to control the management, the Board, or policies of the Company or to obtain representation on the Board;

(d) take any action which would, or would reasonably be expected to, force the Company to make a public announcement regarding any of the types of matters set forth in clause (i) above;

(e) disclose any intention, plan or arrangement inconsistent with the foregoing;

(f) enter into any discussions, negotiations, understandings or arrangements with any third party with respect to any of the foregoing;

or

(g) publicly request that the Company, directly or indirectly, amend or waive any provision of this paragraph (including this sentence).

Section 4.02 The restrictions set forth in Section 4.01 shall be inoperative and of no force or effect upon the first to occur of any of (a) any Termination Event or (b) the first day on which Common Stock is no longer listed on NASDAQ or any other U.S. securities exchange.

## ARTICLE V

### GENERAL

Section 5.01 Termination of Agreement. This Agreement shall terminate and have no further force and effect upon the earliest of: (a) the liquidation, dissolution or indefinite cessation of the business operations of the Company; (b) the execution by the Company of a general assignment for the benefit of creditors or the appointment of a receiver or trustee to take possession of the property and assets of the Company; (c) the date on which the Stockholder no longer owns any Subject Shares; and (d) the effective date of a written agreement of the parties hereto terminating this Agreement. Upon termination of this Agreement, neither party shall have any further obligations or liabilities under this Agreement; provided, that nothing in this Section 5.01 shall relieve any party of liability for any willful material breach of this Agreement occurring prior to termination.

Section 5.02 Interpretation. The term “or” when used in this Agreement is not exclusive. The words “hereof,” “herein” and “hereunder” and words of similar import when used in this Agreement will refer to this Agreement as a whole and not to any particular provision of this Agreement, and section and subsection references are to this Agreement unless otherwise specified. The headings in this Agreement are included for convenience of reference only and will not limit or otherwise affect the meaning or interpretation of this Agreement. Whenever the words “include,” “includes” or “including” are used in this Agreement, they will be deemed to be followed by the words “without limitation.” The phrases “the date of this Agreement,” “the date hereof” and terms of similar import, unless the context otherwise requires, will be deemed to refer to the date set forth in the first paragraph of this Agreement. The meanings given to terms defined herein will be equally applicable to both the singular and plural forms of such terms. All matters to be agreed to by any party hereto must be agreed to in writing by such party unless otherwise indicated herein. Except as otherwise specified herein, references to agreements, policies, standards, guidelines or instruments, or to statutes or regulations, are to such agreements, policies, standards, guidelines or instruments, or statutes or regulations, as amended or supplemented from time to time (or to successors thereto). All references herein to the Subsidiaries of a person shall be deemed to include all direct and indirect Subsidiaries of such person, unless otherwise indicated or the context otherwise requires. The parties hereto agree that they have been represented by counsel during the negotiation and execution of this Agreement and, therefore, waive the application of any Law, holding or rule of construction providing that ambiguities in an agreement or other document will be construed against the party drafting such agreement or document.

Section 5.03 Notices. All notices, requests, consents, and other communications under this Agreement shall be in writing and shall be deemed delivered (a) three (3) Business Days after being sent by registered or certified mail, return receipt requested, postage prepaid, (b) one (1) Business Day after being sent via a reputable nationwide overnight courier service guaranteeing next business day delivery; or (c) on the date of delivery if delivered personally or via email, in each case to the intended recipient as set forth below:

- (a) if to the Company, addressed as follows:

PDF Solutions, Inc.  
2858 De La Cruz Blvd.  
Santa Clara, California 95050  
Attention: General Counsel  
Email: legal.department@pdf.com

*with a copy (which shall not constitute notice) to:*

PDF Solutions, Inc.  
2858 De La Cruz Blvd.  
Santa Clara, California 95050  
Attention: Chief Financial Officer

- (b) if to the Stockholder, to:

Advantest America, Inc.  
3061 Zanker Road  
San Jose, CA 95134  
Attention: Doug Lefever  
Email: doug.lefever@advantest.com

*with a copy (which shall not constitute notice) to:*

Skadden, Arps, Slate, Meagher & Flom LLP  
525 University Avenue, Suite 1400  
Palo Alto, CA 94301  
Attention: Michael Mies  
Email: michael.mies@skadden.com

Any party may change the address to which notices, requests, consents or other communications hereunder are to be delivered by giving the other parties notice in the manner set forth in this Section 5.03.

Section 5.04 Severability. In the event that any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement will continue in full force and effect and the application of such provision to other persons or circumstances will be interpreted so as reasonably to effect the intent of the parties hereto. The parties further agree to replace such void or unenforceable provision of this Agreement with a valid and enforceable provision that will achieve, to the extent possible, the economic, business and other purposes of such void or unenforceable provision.

Section 5.05 Governing Law; Jurisdiction; WAIVER OF JURY TRIAL.

(a) This Agreement, and all claims or causes of action (whether in contract, tort or statute) that may be based upon, arise out of or relate to this Agreement, or the negotiation, execution or performance of this Agreement, shall be governed by and enforced and construed in accordance with the Laws of the State of Delaware (including its statute of limitations), regardless of the Laws that might otherwise govern under applicable principles of conflicts of law thereof.

(b) Each of the parties hereto irrevocably (i) agrees that any legal suit, action or proceeding brought by any party hereto arising out of or based upon this Agreement shall be instituted in the Court of Chancery of the State of Delaware (provided, that if jurisdiction is not then available in such court, then any such legal suit, action or proceeding shall be brought in any federal court located in the State of Delaware or in any other Delaware state court) (any of the foregoing Delaware courts, a "Delaware Court"); (ii) waives, to the fullest extent it may effectively do so, any objection which it may now or hereafter have to the laying of venue of any such proceeding; and (iii) submits to the non-exclusive jurisdiction of a Delaware Court in any such suit, action or proceeding.

(c) EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES ALL RIGHT TO TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM (WHETHER BASED ON CONTRACT, TORT OR OTHERWISE) ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE ACTIONS OF THE STOCKHOLDER OR THE COMPANY IN THE NEGOTIATION, ADMINISTRATION, PERFORMANCE AND ENFORCEMENT HEREOF.

Section 5.06 Delays or Omissions; Waiver. No delay or omission to exercise any right, power, or remedy accruing to a party upon any breach or default of another party under this Agreement shall impair any such right, power, or remedy of such party, nor shall it be construed to be a waiver of any such breach or default, or an acquiescence therein, or of or in any similar breach or default thereafter occurring; nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. No waiver of any term, provision or condition of this Agreement, whether by conduct or otherwise, in any one or more instances, shall be deemed to be, or be construed as, a further or continuing waiver of any such term, provision or condition or as a waiver of any other term, provision or condition of this Agreement. Any agreement on the part of a party or parties hereto to any waiver shall be valid only if set forth in an instrument in writing signed on behalf of such party or parties, as applicable. Any delay in exercising any right under this Agreement shall not constitute a waiver of such right.

Section 5.07 Specific Performance. The parties hereto agree that the obligations imposed on them in this Agreement are special, unique and of an extraordinary character, and that irreparable damages for which money damages, even if available, would not be an adequate remedy, would occur in the event that the parties hereto do not perform the provisions of this Agreement in accordance with its specified terms or otherwise breach such provisions. The parties hereto acknowledge and agree that the parties shall be entitled to an injunction, specific performance and other equitable relief to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof, this being in addition to any other remedy to which they are entitled, at law or in equity; and the parties hereto further agree to waive any requirement for the securing or posting of any bond or other security in connection with the obtaining of any such injunctive or other equitable relief. Each of the parties hereto agrees that it will not oppose the granting of an injunction, specific performance and other equitable relief as provided herein on the basis that (x) any party has an adequate remedy at law or (y) an award of specific performance is not an appropriate remedy for any reason at law or equity.

Section 5.08 No Third-Party Beneficiaries. This Agreement does not create any rights, claims or benefits inuring to any person that is not a party hereto nor create or establish any third-party beneficiary hereto. Without limiting the foregoing, the representations and warranties in this Agreement are the product of negotiations among the parties hereto and are for the sole benefit of the parties hereto. In some instances, the representations and warranties in this Agreement may represent an allocation among the parties hereto of risks associated with particular matters regardless of the knowledge of any of the parties hereto. Consequently, persons other than the parties hereto may not rely upon the representations and warranties in this Agreement as characterizations of actual facts or circumstances as of the date of this Agreement or as of any other date.

Section 5.09 Counterparts. This Agreement may be executed and delivered (including by facsimile or electronic transmission) in any number of counterparts, and by the different parties hereto in separate counterparts, each of which when executed shall be deemed an original, but all of which taken together shall constitute a single instrument.

Section 5.10 Entire Agreement; Amendments. This Agreement and the documents and instruments and other agreements among the parties hereto as contemplated by or referred to herein constitute the entire agreement between the parties hereto respecting the subject matter hereof and supersede all prior agreements, negotiations, understandings, representations and statements respecting the subject matter hereof, whether written or oral. No modification, alteration or change in any of the terms of this Agreement shall be valid or binding upon the parties hereto unless made in writing and duly executed by the Company and the Stockholder.

**[Signature Page Follows]**

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly appointed officers as of the date first above written.

**COMPANY:**

PDF SOLUTIONS, INC.

By: /s/ JOHN KIBARIAN

Name: John K. Kibarian

Title: President and Chief Executive Officer

**STOCKHOLDER:**

ADVANTEST AMERICA, INC.

By: /s/ DOUGLAS LEFEVER

Name: Douglas Lefever

Title: President and Chief Executive Officer

[Signature Page to Stockholder Agreement]

CERTAIN INFORMATION INDICATED WITH [\*\*\*] IN THIS DOCUMENT HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED



PDF doc # 8116  
Effective Date: March 25, 2020

**THIS SOFTWARE LICENSE & RELATED SERVICES AGREEMENT** (THE “SLA” OR “THIS AGREEMENT”) IS EFFECTIVE AS OF THE DATE ABOVE AND IS ENTERED INTO BY AND BETWEEN **PDF SOLUTIONS, INC.**, A DELAWARE (USA) CORPORATION (“PDF” OR “LICENSOR”), AND THAT CORPORATION IDENTIFIED IN THE SIGNATURE BLOCK AT THE END OF THIS SLA (“OTHER COMPANY” OR “LICENSEE”) (EACH, A “PARTY” AND COLLECTIVELY, THE “PARTIES”).

**WHEREAS**, PDF has developed and licenses commercially certain software and Licensee may desire to license such software in connection with its design, manufacture, test, assembly, and/or packaging of semiconductors;

**WHEREAS**, the Parties desire to enter into this SLA to establish the foundation by which Other Company may from time to time license PDF’s software, generally subject to these terms and conditions, with the specific product, license scope, fees, payment terms, etc. set forth in one or more future Order Forms (as defined below) and/or engage PDF to provide software-related professional engineering services, as set forth in Order Form(s) from time to time hereunder.

**NOW THEREFORE**, the Parties, in consideration of the mutual promises contained herein, hereby agree as follows:

1. **Order Forms.** The Agreement sets the terms and conditions that shall govern all the license of Software (including via SaaS if so agreed by the Parties), the lease or sell-through of related hardware (to the extent applicable), and Services to be provided by PDF (to the extent applicable) from time to time hereunder. If attached hereto, upon signature hereon, Other Company hereby purchases from PDF, and PDF agrees to grant, subject to Other Company’s payment of the applicable fees (if any), those certain Licenses to the Software and related Services set forth on Exhibit I (the initial “Order Form”). Additional orders, or if no Exhibit I is attached to this SLA, future orders may be placed by Licensee and made part of this Agreement by the Parties from time to time upon PDF’s acceptance of an authorized purchase order (“PO”) issued to PDF by Licensee that references a valid PDF quote number (each, an “Order Form”); provided that the content and terms of each such Order Form are as set forth on the referenced PDF quote, including, without limitation, the specific Software products licensed, the number of users/tools permitted to use/connect to the Software, applicable time periods including start and end dates, which, with respect to a license indicate the term-based license period for such Software (such Software License, a “TBL,” and such period, the “TBL Period”), and the payment terms applicable to each order. For clarification, PDF’s quotes are made considering all items listed therein and are not changeable by Licensee’s PO. Thus, notwithstanding anything to the contrary, by issuing a PO for any product(s) or service(s) set forth on a quote, Licensee agrees to purchase all products and services set forth on such quote. The PO may not change or add to any terms of the quote or this Agreement, and any additional or different terms included in or referenced by such PO are hereby expressly rejected by the Parties. With respect to any licensing or acquisition of Software or related Services from PDF by an Affiliate of Other Company, PDF will quote to and invoice the Affiliate, who agrees to pay PDF as set forth in the PO issued by the Affiliate, however, Other Company hereby agrees (i) to be responsible for compliance with the Agreement and payment by such Affiliate; and, (ii) that PDF’s remedy for any non-compliance or non-payment will be jointly and severally against both such Affiliate and Other Company. An Affiliate’s issuance to PDF of a PO that references PDF’s quotation hereunder, constitutes such Affiliate’s agreement to be bound by the terms and conditions hereof. “Affiliate” as used herein means an entity that is controlled by Other Company, controls Other Company, or is under common control with Other Company. Control means that more than fifty percent (50%) of the controlled entity’s shares or ownership interest representing the right to make decisions for such entity are owned or controlled, directly or indirectly, by the controlling entity. An entity is considered to be an Affiliate so long as such ownership or control exists.

2. **Order Forms and Licenses.** With respect to each Order Form, and subject to the terms and conditions of this Agreement and to payment of the applicable fees in each such case, PDF grants to Licensee a revocable, fully-paid up, non-transferable, non-exclusive right (without the right to sublicense) during the term set forth on each such Order Form (e.g., a perpetual license or during the TBL Period) to permit Licensed Users and Authorized Contractors, as shall be defined in the Order Form, to:

- (i) Install and access (in the event of SaaS, only through the Cloudsite), copy, and use the product listed on such Order Form in accordance with the specific License set forth for each such product on the Order Form and, in any event, solely regarding wafers or components designed, tested, assembled, and/or manufactured by or for Licensee; and
- (ii) access, copy, and use the Documentation solely in support of permitted use of the Software.

3. **Hosting of the Software by a 3rd Party Provider.** PDF hereby consents to Licensee hosting the Software at/by a 3rd party provider, subject to Licensee providing PDF with the name and location of such 3rd party provider. In such case, the location of such 3rd party provider’s servers on which the Software is installed is deemed to be contained within the definition of Licensee’s “Designated Site.” If Licensee desires to re-host the Software, internally on servers with different host IDs, etc., or at a different 3rd party provider from where the Software was originally installed, PDF agrees to provide replacement license file(s) at no cost to Licensee, subject to Licensee being current on all M&S obligations (if any) for Software then under license from PDF. In all other cases, including if the Licensee is not current on such M&S, Licensee shall pay to PDF a fee of two thousand five hundred USD (\$2,500) for each new license file requested by Licensee and fulfilled by PDF, which the Parties agree to document on an Order Form. In the event of unauthorized disclosure or use by any such 3rd party of PDF’s Confidential Information, and notwithstanding any general limitation of liability, Licensee hereby agrees to hold PDF harmless for loss or damage arising therefrom.

4. **Eval Software.** From time to time hereunder, as mutually agreed by the Parties, PDF may grant to Licensee short-term licenses to Eval Software at no charge, which (i) Eval Software is subject to the general terms and conditions of this Agreement with the specific term, site, TPID/CPU/hostID (as applicable) and maximum number of concurrent Licensed Users set forth in the license file issued by PDF for such Eval Software; and (ii) shall only be used by Licensee for evaluation purposes.

5. **Related Services.** If included on an Order Form and subject to payment of the applicable fees, PDF will provide at a mutually agreed upon time:

- (i) installation services, consisting of the initial addition of the Software to Licensee's computing environment at the Designated Site(s), other agreed installation site, and/or if with respect to PDF's tool-specific software, on a Designated Tool, along with successful demonstration of output reports using sample data;
- (ii) training on the Software to the Licensed Users;
- (iii) other services as specified in an Order Form (e.g., integration or engineering services); and,
- (iv) M&S Services, which in the case of TBLs, shall run with the License Term, and which, in the case of a perpetual license that requires installation/integration services, the initial period for which, notwithstanding anything to the contrary, shall start no later than two (2) months after initial delivery of the first license file for such Software.

To support Licensee's order of the types of services listed in (i) – (iii) above (each, a “Service,” and, collectively, the “Services”), Licensee will provide computer input/output facilities, assistance and computer time as reasonably requested as necessary for PDF to perform such services. All M&S Services shall be performed by PDF from PDF's locations only. Licensee shall pay PDF the fees for Services and M&S Services, if any, set forth in the applicable Order Form, including, if set forth therein, reimbursement to PDF for actual reasonable travel and other out-of-pocket expenses incurred by PDF in connection with providing such services. For the avoidance of doubt, PDF is under no obligation to support Eval Software in any way, or to provide any improvements, enhancements, modifications, updates or releases to or for Eval Software.

6. **License Restrictions.** As each such scenario applies, Licensee (including its employees and contractors) shall not, and shall have no right to: (i) reverse engineer or decompile any Licensed Materials, or otherwise attempt to derive or modify the source code of, or any processes, techniques, methods, specifications, protocols, algorithms, interfaces, data structures or other information embodied or used in, any Licensed Materials (except as may be required by law for interoperability); (ii) disclose or make accessible any Licensed Materials to any person or entity that is not a Licensed User or Authorized Contractor; (iii) rent, lease, loan, sell or otherwise distribute any Licensed Materials or provide data processing services using Licensed Materials to a third party; (iv) transfer tool-limited or tool-type-limited Software from the tool or tool-type, as applicable, on which it was originally installed or for which it was licensed (as set forth in the applicable Order Form), respectively; or, (v) use any 3<sup>rd</sup>-party programs delivered to Licensee by PDF hereunder with any program other than the Software or other than in accordance with this Agreement, including any additional terms and conditions applicable to such 3<sup>rd</sup>-party programs that are set forth under that section entitled “3<sup>rd</sup>-Party Specific License Terms” at <http://www.pdf.com/definitions>.

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**11. Duration; Term.** This SLA enters into force on the Effective Date above and continues until (a) terminated by either Party upon fifteen (15) day advance written notice to the other Party delivered to the address/email set forth in the signature blocks below; (b) Licensee undergoes a Change of Control, in which case it terminates effective as of the date of the closing of such Change of Control, unless PDF consents in writing to the transfer of this Agreement and all then-valid Licenses hereunder to the surviving corporation; or (c) Licensee commits a breach of Sections 6 or 7, which is not cured within 2 days of written notice by PDF, in which case it terminates effective as of the second day following the date of notice by PDF. Upon any termination of this Agreement (i) by PDF for Licensee's breach or Change of Control, the rights and obligations of the Parties and all then-valid Licenses under Order Forms shall terminate, or (ii) by either Party for any other reason, the rights and obligations of the Parties shall terminate but all then-valid Licenses under Order Forms shall continue; except in each case, that (X) Sections 6 - 11 herein as well as supporting definitions incorporated by reference shall survive such termination; and, (Y) Licensee's liability and obligation to pay all fees or other amounts under all Order Forms will also survive such termination and be immediately due. Notwithstanding any license duration set forth in an Eval Software license file, either Party may terminate an Eval Software license, for any or no reason, upon written notice (email sufficient) to the other Party.

**12. Regulatory.**

- (i) *Export Control.* Other Company acknowledges that the certain of the software, technology, services and/or other products that PDF makes available to Other Company (collectively “Products”) are subject to export controls under the laws and regulations of the United States, including the Export Administration Regulations<sup>1</sup> and the sanctions administered by the Office of Foreign Assets Control. Other Company confirms that it will not: (A) Export, re-export, transfer or provide Products to any country or region that is subject to a United States Government export embargo (currently: North Korea, Cuba, Iran, Sudan, Syria and the Crimea Region), or to any entity or person located in any such embargoed country or region; (B) export, re-export, transfer or provide Products to any entity or person on a U.S. government list of prohibited or restricted parties or for which a U.S. export license would be required; or (C) use, or allow any third party to use, any of the Products in any activities related to: (i) the development, production, storing or testing of nuclear, chemical or biological weapons or missiles, (ii) any other military end-use, or (iii) any military end-user.
- (ii) *Anti-bribery Regulation.* The Parties acknowledge that the proposed transactions are subject to various anti-bribery laws, including without limitation the U.S. Foreign Corrupt Practices Act<sup>2</sup> (“FCPA”), prohibiting giving or offering money or an item of value for the personal benefit of a government official, political leader, or political party to influence official action or obtain an improper advantage. Each Party confirms that it will comply with the FCPA and other applicable anti-bribery laws.

**13. Misc.** This Agreement will be: (i) in the case that Other Company is registered or located in the jurisdiction of the People’s Republic of China, governed by the laws of Hong Kong, and PDF and Licensee consent to the exclusive jurisdiction and venue of the Hong Kong International Arbitration Centre (“HKIAC”), in accordance with its HKIAC Administered Arbitration Rules (“HKIAC Rules”) in force when the Notice of Arbitration is submitted; the arbitral tribunal shall consist of three (3) arbitrators, with each Party nominating one arbitrator, and the Parties shall mutually agree on (or in the absence of such agreement, HKIAC shall appoint) the arbitral chair, who shall have a nationality other than that of the Parties. The seat of arbitration shall be Hong Kong, the arbitration proceedings shall be conducted in English, and the arbitral award shall be final and binding on both Parties; and (ii) in the case that Other Company is registered or located in any other jurisdiction, then governed by the laws of the state of California without regard to any rules governing conflicts of laws, and PDF and Licensee consent to the exclusive jurisdiction and venue in the state and federal courts sitting in Santa Clara County, California. Notwithstanding the foregoing, either Party may seek injunctive or other equitable relief under this Agreement in any court of competent jurisdiction. The Parties agree that the United Nations Convention on Contracts for the International Sale of Goods (1980) is specifically excluded from and shall not apply to this Agreement. This Agreement incorporates by reference those generally-applicable definitions and additional terms and conditions at <http://www.pdf.com/definitions> and in the “General Support & Maintenance Terms” at <http://www.pdf.com/support>. Other than with respect to the additional terms incorporated herein by reference, which may be updated by PDF as set forth in such incorporated terms and conditions, this Agreement may only be amended by a writing signed by an authorized representative of each Party. Notwithstanding anything to the contrary, no terms and conditions included on or referenced in any PO shall be construed to be an amendment of this Agreement, unless specifically so stated and signed by both Parties. This Agreement may be executed in one or more counterparts and electronically/digitally or by exchange of electronic images of a Party’s signature (whether by fax, scanned image sent via email, etc.), each of which is deemed an original and all of which together shall constitute one and the same Agreement.

**WHEREUPON**, the Parties have caused their duly authorized representatives to execute this SLA.

**PDF SOLUTIONS, INC.**  
 2858 De La Cruz Boulevard  
 Santa Clara, CA 95050 (USA)  
 +1-408-280-7900  
[legal.department@pdf.com](mailto:legal.department@pdf.com)

**ADVANTEST CORPORATION**  
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 Chiyoda-Ku, Tokyo 100-0005  
 Japan

Email: \_\_\_\_\_

By: /s/ ADNAN RAZA

By: /s/ DOUGLAS LEFEVER

Printed Name: Adnan Raza

Printed Name: Doug Lefever

Title: EVP, Finance and CFO

Title: President and CEO

Date: Jun 29, 2020

Date: 6-29-2020

<sup>1</sup> 15 C.F.R. Parts 730-774.  
<sup>2</sup> 15 U.S.C. §§ 78m, 78dd-1 - 78dd-3.

THIS AMENDMENT #1 TO SLA (the “**Amendment**”) is effective as of the date above and is entered into by and between:

PDF Solutions, Inc. (“**PDF**”), a corporation headquartered at 2858 De La Cruz Boulevard, Santa Clara, CA 95050; and,

Advantest America, Inc. (“**Licensee**”), a company headquartered at 3061 Zanker Road, San Jose, CA 95134.

WHEREAS the Parties have previously entered into that certain Software License & Related Services Agreement (PDF doc #8116), dated as of March 25, 2020 (the “**Agreement**”), which provides general terms and conditions for the license of PDF Software and provision of related Services to Licensee;

WHEREAS the Parties are in parallel with this Amendment entering into that certain Amended and Restated Master Development Agreement (PDF doc #8437), dated as of even date herewith (the “**Development Agreement**”), which provides general terms and conditions for collaborative development by the Parties of Integrated Products pursuant to SOWs entered into by the Parties thereunder (as such terms are defined therein);

WHEREAS the Parties are in parallel with this Amendment entering into that certain Commercialization and Support Services Agreement (PDF doc #8277), dated as of even date herewith (the “**Reseller Agreement**”), which provides general terms and conditions for resale by one Party of the other Party’s Technology included in an Integrated Product pursuant to Addenda entered into by the Parties thereunder (as such terms are defined therein);

WHEREAS the Parties desire to establish an exclusive commercial partnership as set forth herein;

WHEREAS the Parties contemplate that the Parties will collaborate on, and PDF will initially host, develop, and maintain, an Advantest-specific cloud layer on the Exensio platform as described herein (the “**AC Project**”);

WHEREAS the Parties now wish to license Software and provide related Services under the Agreement and amend the Agreement regarding such Software and Services as set forth herein;

NOW, THEREFORE, in consideration of the mutual promises contained herein, the Parties hereby agree as follows:

1. Attachments. This Amendment consists of the Agreement which is incorporated by this reference and the following, which are attached to this Amendment:

A1 Exhibit 1 (“ <b>AC Quote</b> ”)	Additional Order Form: PDF Quotation [***]
A1 Appendix A SOW #1 (“ <b>SOW #1</b> ”)	Exensio CloudSite Deployment and Apps Support Statement of Work
A1 Appendix A SOW #2 (“ <b>SOW #2</b> ”)	DEX Services Configuration Statement of Work
A1 Appendix B ASC #1 (“ <b>ASC #1</b> ”)	Standard Applications Service Commitment
A1 Appendix B ASC #2 (“ <b>ASC #2</b> ”)	DEX Applications Service Commitment
A1 Appendix C (“ <b>Configuration Table</b> ”)	Initial CloudSite Configuration
A1 Appendix D (“ <b>Price Table</b> ”)	Additional Item/Resource Price List
A1 Appendix E (“ <b>Approved List</b> ”)	Approved List of DEX Sites
A1 Appendix F (“ <b>Capability/Scalability Targets</b> ”)	Agreed Capability/Scalability KPIs

2. Advantest Cloud. The “**Advantest Cloud**” is the combination of two parts, one contributed by each of the Parties, as follows. The first part of the Advantest Cloud are “**Advantest Customizations**,” which are Advantest Technology (as such term is defined in the Development Agreement; Development of the Advantest Customizations shall be governed by SOW #2 of the Development Agreement), comprised of: (a) certain of Licensee’s proprietary applications (and included APIs) and any enhancement, modification, addition, add-on module, or other code meant to improve the functionality or usability of Licensee’s proprietary applications (“**Advantest Improvements**”) thereto that enable access to each application through the Exensio CloudSite and provide for interoperability with Exensio as agreed by the Parties for each such application, and (b) Licensee-specific content added to PDF’s proprietary database schema (e.g., new data tables, etc.). The second part of the Advantest Cloud is the “**PDF Exensio Platform**,” which is PDF Technology (as such term is defined in the Development Agreement), comprised of PDF’s Exensio Software (and included APIs) and generic database schema, templates/filter plans, and related scripts, and Improvements to each to enable interoperability with the Advantest Customizations.
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4. KPI Targets. The Parties agree that while the combination of the two parts of the Advantest Cloud is the ultimate objective of the AC Project, Licensee will receive value from the Exensio CloudSite and Software before full realization of the Advantest Cloud and, as such, notwithstanding anything to the contrary, the “**Term**” for the Software on the AC Quote will start on the date any such Software is first made available to Licensee, with payments beginning only after PDF meets the KPI Targets set forth in the Capability/Scalability Targets. The Capability/Scalability Targets are designed to demonstrate that the Exensio CloudSite and Software will support the Advantest Cloud vision. PDF will undertake the activities set forth in A1 Appendix F and demonstrate the achievement of each KPI Target to Licensee as met. The KPI Targets will each be deemed accepted by Licensee:
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In this case, [\*\*\*] of the Exensio FE are limited to [\*\*\*] and Authorized Users but are not included in the AC Quote and shall only be authorized by the Parties on an Integrated Product-by-Integrated Product basis under the Reseller Agreement, with additional per [\*\*\*] fees payable to the Selling Party in accordance therewith (as such terms are defined in the Reseller Agreement).

In the case of [\*\*\*] in either of (a) or (b) above, the Parties shall mutually agree on a method to authorize, manage, count, and report to PDF such [\*\*\*] access to the Exensio BE or any Exensio product listed in the AC Quote before any such access is granted by Licensee. All cloud resources (e.g., storage and data transfer) of CloudSites hosted by PDF, including back-ups requested by Licensee and additional cloud instances hosted by PDF for Authorized End Customers, if any, that are used in connection with (b), (c), or (d) above count toward the cloud resources specified in the Configuration Table and included in the total price in the AC Quote.

Without limiting any other provision hereunder, Licensee (including its Affiliates and [\*\*\*]) and Authorized End Customers (including Authorized Users), and automated processes of each, may make use of the Licensed Materials, in accordance with the license grant and the foregoing requirements, and subject to all then applicable U.S. export and re-export laws, from any geographic location wherever situated to facilitate, enable, and support any and all interactions with, to, from, or between Licensee and its Affiliates and [\*\*\*] and automated processes of either, by means of any website or any other technology, means, or methods now known or hereafter devised to connect thereto.

6. Approved DEX Sites and PDF Resources; Expected Ramp. The DEX Services will ramp over time at locations that are mutually-agreed and set forth on the Approved List (each, a “**DEX Site**”) [\*\*\*] (as defined in ASC #2). Licensee may change the DEX Sites on the Approved List up to [\*\*\*] in each [\*\*\*] period, upon notice to PDF, at which new Approved Site PDF will install a DEX Node within [\*\*\*] of [\*\*\*]. Notwithstanding Section 3 of the Agreement, Licensee may re-host [\*\*\*] at DEX Sites up to [\*\*\*]; fees for re-hosting more times will be mutually agreed as needed. With respect to PDF resources to support the AC Project, PDF shall provide PDF Personnel (as defined below) for software development to achieve goals of the AC Project. For clarity, the software development services set forth in the below chart are governed by SOW #2 of the Development Agreement. “**PDF Personnel**” means PDF’s or Affiliates’ employees or agents of, or any contractors used in connection with any performance under this Agreement. The Parties’ expectation of total PDF Personnel needed for the AC Project (expressed in numbers of FTEs per quarter) and the projected work assignments are generally as follows:

AC Project Phase <i>(time period in Project Term)</i>		Projected FTEs for AC Project					
		Projected Total FTEs	Projected Services Detail				
			Apps Engineers		Software Developers		
			Data Integ.	Apps Support	Feature Dev.	Solution Defin.	Solution Dev.
Deployment Ramp and Solution Definition Focus	1st 3-mos 1st year	[***]	[***]	[***]	[***]	[***]	[***]
Deployment Ramp and Solution Definition Focus	2nd 3-mos 1st year	[***]	[***]	[***]	[***]	[***]	[***]
Advanced Support and Solution Development Focus	3rd 3-mos 1st year	[***]	[***]	[***]	[***]	[***]	[***]
Advanced Support and Solution Development Focus	4th 3-mos 1st year	[***]	[***]	[***]	[***]	[***]	[***]
Advanced Support and Solution Development Focus	2nd year	[***]	[***]	[***]	[***]	[***]	[***]
Advanced Support Focus	3rd year	[***]	[***]	[***]	[***]	[***]	[***]
Advanced Support Focus	4th year	[***]	[***]	[***]	[***]	[***]	[***]
Advanced Support Focus	5th year	[***]	[***]	[***]	[***]	[***]	[***]

PDF shall provide the services hereunder in good faith, using at least the same level, quality and degree of care as used in performing such services for its other customers, but in no event less than a reasonable level, quality and degree of care. For reference, (i) “**FTE**” means 2,000 hours per year or 500 hours per quarter, and (ii) the amounts in the AC Quote for the VAS Bundle are computed at the [\*\*\*], which means that it would take [\*\*\*] engineers at the [\*\*\*] rate to equal the same FTE in the table above. Starting [\*\*\*] and within the first full week of each month thereafter during the AC Project, and in between such intervals at Licensee’s request, if PDF Personnel bill/charge time to the AC Project for applications support or software developer services during the just-ended prior month, PDF shall provide a report (“**FTE Report**”) of the hours worked by PDF Personnel on the AC Project in the immediately prior month along with the rate for each such individual (i.e. at the [\*\*\*] rates for additional engineering resources set forth in the Price Table). Licensee may request any PDF Personnel discontinue work on the AC Project by notifying PDF of Licensee’s objection to such individual on the basis of not being qualified to perform the assigned work or otherwise adversely impacting the AC Project in any material respect, setting forth in such written objection the factual basis for such lack of qualification or such significant adverse impact. In the event of such an objection, the Parties shall discuss such objection in good faith and such individual will not thereafter work on the AC Project or bill time if so agreed in writing by the Parties.

7. Payment Schedule. The total price on the AC Quote is a single package deal, fully-committed upon full execution by the Parties of this Amendment, subject only to (i) Section 8 of the Agreement and (ii) Section 11 (Service Failure Credits) of this Amendment. The total amount paid by Licensee for the complete AC Project may include additional fees if, for example, the DEX Sites are installed earlier than [\*\*\*], Licensee elects to add [\*\*\*] or CloudSite resources, or the Parties agree to add Engineering Services resources, etc. PDF shall invoice such fees and Licensee shall pay such fees on the following schedule:

Item	Invoice Schedule
TBL Software, Storage, Data Transfer Usage, and Hosted Management Services	<ul style="list-style-type: none"> <li>• Fees for the [***], invoiced 100% of the total [***] amount for such items upon System Acceptance;</li> <li>• Fees for each subsequent [***] period after System Acceptance invoiced 100% of the total [***] amount for such items plus the amount for additional resources used and not previously billed through each such invoice date on the date that is [***] before the start of each such subsequent period; and</li> <li>• Fees for additional resources used but not previously billed, invoiced 100% of such total amounts on the date that is (a) [***] prior to the end of the Project Term and (b) the end of the Project Term.</li> </ul>
DEX Services	<ul style="list-style-type: none"> <li>• Fees for the [***], invoiced [***] of the total [***] amount (upon completed installation of the DEX Node at each DEX Site [***] from such date through the end of [***]) or, if sooner:</li> <li>• [***] of the total [***] amount on the date that is [***] after the last signature on this Amendment ([***] from such date through the end of the [***]);</li> <li>• [***] of the total [***] amount on the date that is [***] after the last signature on this Amendment ([***] from such date through the end of the [***]); and</li> <li>• [***] of the total [***] amount on the date that is [***] after the last signature on this Amendment ([***] from such date through the end of the [***]).</li> <li>• Fees for each subsequent [***] period invoiced [***] of the total [***] amount for such items on the date that is [***] before the start of each such subsequent period.</li> </ul>
Engineering Services (Apps)	<ul style="list-style-type: none"> <li>• Fees for the [***], invoiced 100% of the total [***] amount for [***] upon System Acceptance;</li> <li>• Fees for each subsequent [***] period after System Acceptance, invoiced 100% of the total [***] amount for [***] on the date that is [***] before the start of each such subsequent period;</li> <li>• Fees for additional FTEs assigned by the Parties but not previously billed, invoiced 100% upon such assignment.</li> </ul>

At the end of the Project Term but only after System Acceptance by notice to PDF no less than [\*\*\*] prior to the end of the Project Term, Licensee shall have the right to renew the Project Term for all of the Exensio Bundle, Hosted Management Services, VAS Bundle, and DEX Services contained in the AC Quote, with the renewal term to be no more than [\*\*\*] ("**Renewal Term**"), in which case PDF may increase fees for such Software and Services, to be effective at the commencement of the Renewal Term; provided that (i) PDF notifies Licensee, in writing, of such increase at least [\*\*\*] prior to the end of the Project Term; and (ii) in no event shall any increase in any fees exceed (a) [\*\*\*] of the [\*\*\*] charges in effect for the last expiring [\*\*\*] Project Term if Licensee is renewing the Term for a minimum period of [\*\*\*], (b) [\*\*\*] of the charges in effect for the last expiring [\*\*\*] of the Project Term if Licensee is renewing the Term for a minimum of [\*\*\*], and (c) [\*\*\*] of the charges in effect for the last expiring [\*\*\*] of the Project Term if Licensee is renewing the Term for [\*\*\*]. Prior to the commencement of the Renewal Term, the Parties agree to negotiate in good faith the terms of at least one renewal period subsequent to the Renewal Term (including pricing, pricing increases and any updates to the lists of Advantest Named Competitors and PDF Named Competitors).

8. Disputed Amounts. With respect to the Software and Services included in the AC Project, Licensee may reasonably and in good faith dispute an invoiced amount within [\*\*\*] after Licensee's receipt of an invoice, provided Licensee promptly pays the undisputed portion of the invoice and notifies PDF of such dispute. The Parties will negotiate in good faith to resolve any payment dispute within [\*\*\*] of Licensee's notice of dispute. If any undisputed amount invoiced in accordance with the above schedule is more than [\*\*\*] overdue, PDF may, without limiting its rights or remedies, suspend access to Software and all Services until such undisputed amounts are paid in full. PDF will provide Licensee's CFO written notice (email sufficient) that Licensee's account is overdue at least [\*\*\*] prior to suspending Software access and/or Services. Notwithstanding the foregoing, PDF shall only suspend or disable the minimum portion of the Software and/or Services necessary to remediate the issue giving rise to the suspension until the outstanding accounts are resolved; provided that PDF shall not be permitted to suspend or disable any Software or Services due to a good faith dispute regarding an amount invoiced hereunder.

9. Disaster Recovery. With respect to the Software hereunder, Licensee may make a reasonable number of copies of the Software (including older versions thereof) and validate the stability and functionality of such Software (and versions thereof) in connection with its disaster recovery efforts and to facilitate its or its customers' business continuity plans.
10. Steering Committee. Licensee and PDF shall establish a "**Steering Committee**" to oversee and manage the AC Project. The Steering Committee shall include up to [\*\*\*] management officials from each of PDF and Licensee. Each Party may change the individuals serving on the Steering Committee and shall advise the other Party of any such change prior to the next Steering Committee meeting. The Steering Committee is responsible for [\*\*\*]. The Steering Committee shall meet no less than [\*\*\*] or as mutually determined to be appropriate. In the event the Parties need [\*\*\*] between scheduled Steering Committee meetings, ad hoc executive meetings may be scheduled. At Licensee's option, Licensee may request (a) that PDF provide Licensee with [\*\*\*], (b) [\*\*\*], as may be determined by the Steering Committee from time to time during the Project Term.
11. Service Failures Credit. With respect to the Exensio CloudSite and Hosted Management Services included on the AC Quote and those service commitments set forth on SOW #1, if Licensee experiences, due to no fault of its own systems/users or any acts of nature affecting users of internet/cloud services in general, more than [\*\*\*] service level failures of those defined as [\*\*\*] in SOW #1 affecting [\*\*\*] without resolution or downgrade for more than [\*\*\*] each and no more than [\*\*\*] total, as verified/duplicated by PDF, in excess of both Scheduled and Unscheduled Downtime ("**Critical Service Failures**"), during a trailing [\*\*\*] period, then PDF shall pay to Licensee a penalty of [\*\*\*] per [\*\*\*] of such excess downtime, not to exceed [\*\*\*] per incident per each [\*\*\*] period of the Project Term or [\*\*\*] cumulative total over the Project Term, which amount will be offset against (i.e. credited toward) the total due to PDF in the next invoice after such penalty is assessed. This penalty credit will be PDF's only liability for such failures and Licensee's only remedy therefor. If [\*\*\*] Service Failures exceed [\*\*\*] in excess of both Scheduled and Unscheduled Downtime in any [\*\*\*] period (a "**Catastrophic Service Failure**"), Licensee shall have the right to terminate the Agreement upon written notice to PDF and shall retain all other remedies available under the Agreement; provided, however, that if Licensee fails to notify PDF of an alleged breach of contract due to excess downtime within [\*\*\*] after the end of [\*\*\*] period in which it occurs, then Licensee hereby waives all rights to pursue it under the Agreement.
12. Exclusivity. Due to the significant Background Technology that each Party brings to the Advantest Cloud as envisioned by the Parties, during the Project Term, (a) Licensee shall [\*\*\*] with any third party [\*\*\*] and (b) PDF shall not [\*\*\*] with any Advantest Named Competitor [\*\*\*]. "**Advantest Named Competitor**" means any of the following entities or their Affiliates: [\*\*\*]. For the avoidance of doubt, nothing herein shall (or shall be interpreted to) restrict PDF from offering, licensing, or otherwise commercializing, without restriction, any PDF Property and any PDF-Owned Developed Technology, including any base (i.e. "generic") Exensio products, APIs included therein, related schemas, and scripts, and any Improvements to any of the foregoing during the Project Term.
13. Security. As part of the Services described in the AC Quote, PDF and its subcontractors shall provide those administrative, physical, and technical safeguards for protection of the security, confidentiality, and integrity of Licensee data as described in the Agreement, this Amendment, and attachments. PDF represents and warrants that these technical safeguards reflect standard commercial practices. PDF further represents and warrants that it will not substantially modify the administrative, physical, and technical safeguards for protection of the security, confidentiality, and integrity of Licensee data to decrease protections of Licensee data. Further, PDF will perform a SOC 2 Type 1 review no later than [\*\*\*], and thereafter perform an annual SOC 2 Type 2 review of the CloudSite using a certified auditor and provide Licensee with a SOC 2 Security, Availability & Confidentiality Report upon each audit completion. PDF also represents and warrants that data in Licensee's CloudSite is logically segregated from other PDF customers' environments on its and its subcontractor(s) systems. Both Parties agree to comply with all applicable privacy and data security laws governing the respective activities of the Parties under the Agreement and this Amendment. Further, PDF will: (a) be responsible for compliance with the Agreement and this Amendment by PDF Personnel; (b) be responsible for the security, accuracy, quality and legality of access by PDF and/or its subcontractors as part of the Services of Licensee's data, including with respect to applicable laws; (c) have limits in place on which PDF Personnel can access Licensee's data to those with a legitimate business need to know to further the AC Project and further as required by applicable law; and (d) after System Acceptance, promptly commence the ISO 27001 certification process and will use its best commercial efforts to become ISO 27001 certified within [\*\*\*] of [\*\*\*]. PDF has not directly purchased and shall not directly purchase or knowingly use during the Project Term any products or services, and any PDF Personnel included on an FTE Report will not directly or otherwise knowingly use products, from Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, or any of their respective Affiliates (collectively, "**Restricted Technology**"). The Parties will work in good faith and collaborate as reasonably requested during the Project Term to develop their own policies and practices to mitigate risk associated with the use of Restricted Technology by each Party's contractors.

14. License File [\*\*\*]. Subject to Licensee's [\*\*\*] of [\*\*\*] services [\*\*\*], establishment and maintenance of an [\*\*\*] with such [\*\*\*], and Licensee's payment of all costs associated with establishing and maintaining such [\*\*\*], [\*\*\*] for an [\*\*\*] for the [\*\*\*]. Upon reasonable notice to PDF, Licensee (or its designee) will have the right to review and test the [\*\*\*] at the PDF's site. Within [\*\*\*] of the Effective Date of this Amendment, PDF will enter into [\*\*\*] providing for [\*\*\*] the license files [\*\*\*] upon the [\*\*\*]. A [\*\*\*] will be [\*\*\*] the following (each, a "[\*\*\*]"): (i) PDF has [\*\*\*]; (ii) [\*\*\*] PDF for the [\*\*\*]; (iii) the [\*\*\*] for PDF; (iv) any other [\*\*\*] involving PDF's [\*\*\*] within [\*\*\*]; (v) PDF has [\*\*\*], specifically; (vi) PDF has [\*\*\*] an Advantest Named Competitor that [\*\*\*]. Subject to payment by Licensee to [\*\*\*] as/when due in accordance herewith, Licensee's [\*\*\*] license file and the Software shall be limited to the specific license grants herein, hosted by Licensee or [\*\*\*]. Licensee agrees not to exercise the foregoing [\*\*\*] until [\*\*\*] of a [\*\*\*].
15. Reseller Activities. To enable Authorized End Customers to access Integrated Products, the Parties intend to enter into one or more Addenda under the Reseller Agreement as such Integrated Products are defined and developed under the Development Agreement. The Parties shall negotiate the revenue share between the Parties for either Party's license of such Integrated Products related to the AC Project, and other product-specific terms and conditions, in good faith.
16. Insurance Requirements. PDF agrees to procure and maintain during the Project Term, at PDF's own cost and expense, the following minimum liability limits:
- Worker's Compensation and Employer's Liability insurance within statutory limits;
  - Public Liability and Property Damage Liability insurance under the comprehensive general liability form, with limits of liability of no less than [\*\*\*], including contractual liability coverage for the indemnity obligations of this Agreement, and a Products/Completed Operations Endorsement;
  - Excess Liability insurance, under the umbrella form, with a limit of liability of no less than [\*\*\*] each occurrence.
  - Technology errors & omissions covering negligent acts and omissions in connection with the Service of at least [\*\*\*] per claim and annual aggregate with respect to the following coverages: Network Security Liability, Privacy and Confidential Data Liability, Data Breach Expenses, Regulatory Fines and Penalties and Data Recovery expenses. For the avoidance of doubt, coverage must respond for breaches of security; data theft, destruction, deletion, or corruption, including unauthorized access, unauthorized use of Confidential Information, transmission of a computer virus or other type of malicious code; and any act rendering the failure of technology-based services, infringement on intellectual property, and violations of federal, state, or foreign security and/or privacy laws or regulations. This policy must provide coverage for wrongful acts, claims, and lawsuits anywhere in the world under the Agreement and must be kept in force during and up to [\*\*\*] after the term of the Project Term.

- PDF shall provide a waiver of subrogation against Licensee, regarding the insurance specified above other than technology errors & omissions Insurance, except with regards to losses arising from the sole negligence or willful misconduct of Licensee. PDF shall include Advantest America, Inc. as an additional insured under the Commercial General Liability policy. In addition, PDF's insurance must be designated as primary. PDF shall endeavor to provide Advantest with at least thirty (30) days of advance written notice of the expiration, cancellation, or termination of any insurance policy providing any of the above coverage. PDF agrees that it shall not accept a purchase order or perform any services under this Agreement until such time as it may have in force insurance in the forms and of the types specified herein. Appropriate certificates or other evidence of such insurance coverage shall be provided to Advantest promptly, upon request.
- Licensee reserves the right to request other reasonable forms of insurance by giving PDF written notice of said additional requirements. The procurement and maintenance of insurance specified in this Section shall not limit or affect any liability which the PDF might have by virtue of this Agreement or otherwise.

17. The Agreement is amended to include at Section 14 thereof:

- (i) *Alternative Contracts.* Notwithstanding any inconsistent or additional terms and conditions which may be contained in a purchase order, invoice, voucher, website, "shrink-wrap" or "click-wrap" or other agreement forms which may accompany PDF's Software, only the terms and conditions of this Amendment shall prevail. Therefore, even if such document is acknowledged or accepted by Licensee and regardless of any statement to the contrary which may be contained therein, the inconsistent or additional terms and conditions shall have no force or effect on this Amendment.
- (ii) *Assignment.* Licensee may not assign its rights or delegate its duties under this Amendment either in whole or in part without the prior written consent of PDF which shall not be unreasonably delayed or withheld. Any attempted assignment or delegation without such consent will be void. Notwithstanding the foregoing, prior written consent shall not be required in the event of Licensee's assignment of this Amendment, in whole or in part, to an Affiliate, or in the event of an assignment related to a merger or a sale of substantially all of Licensee's assets; provided that Licensee provides notice of such assignment as soon as reasonably practicable and upon such assignment or sale the rights granted herein shall apply only to the use of the Software as it existed prior to such assignment or sale.

18. Limitations of Liability. With respect to the AC Project, Section 9 of the Agreement is amended to be read as applying to [\*\*\*] liability [\*\*\*] (i.e., [\*\*\*] total liability is limited) and to a maximum of [\*\*\*] for claims arising in any [\*\*\*] period; provided, however, that [\*\*\*] recoverable damages for breaches of confidentiality or license restrictions shall not be subject to such maximum. In addition, PDF's recoverable damages for breaches of license restrictions is limited to [\*\*\*] in total for the initial Project Term (i.e., excluding any Renewal). Notwithstanding the foregoing, in the event of a direct or indirect change of control of PDF to an Advantest Named Competitor, whereafter PDF or its successor materially fails to fulfill its obligations hereunder, then Licensee's recoverable damages for such breaches is limited to [\*\*\*] in total for the initial Project Term (i.e., excluding any Renewal).

19. Public Announcement. The Parties will each issue a mutually-agreed press release contemporaneously to announce entering into this Amendment. The Parties will also work together to set up and participate in direct phone/video meetings with mutually-agreed key potential customers of Exensio. Each Party agrees that it will not, without the prior written consent of the other in each instance: (i) use in any advertising, publicity or otherwise any name, trade name, trademark, service mark or symbol owned by the other Party or (ii) represent directly or indirectly that any product or service has been approved or endorsed by the other Party.

20. Misc. This Amendment incorporates by this reference the terms and conditions of the Agreement, which together with the additional and/or changed terms contained constitute the Parties' complete agreement with respect to the subject matter hereof. Capitalized terms used in this Amendment and the attachments hereto that are not otherwise defined herein or therein shall have the meanings specified in the Agreement. All notices provided or required hereunder must be in writing, for which email to the address specified in the signature block for each Party below is sufficient. Except for as expressly set forth herein, the terms and conditions of the Agreement remains unchanged. This Amendment may be executed by electronic/digital signature, fax copies, or scanned copies (images exchanged via electronic mail) in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument. In case of discrepancy between the terms and provisions of the Agreement and those of this Amendment the terms and provisions of this Amendment shall prevail, including those provisions of this Amendment which specifically amend the Agreement.

[Signatures follow on the next page.]

WHEREUPON, the Parties have caused their duly authorized representatives to execute this Amendment as of the Effective Date.

**PDF SOLUTIONS, INC.**  
2858 De La Cruz Boulevard  
Santa Clara, CA 95050 (USA)  
(408) 280-7900  
[legal.department@pdf.com](mailto:legal.department@pdf.com)

**ADVANTEST AMERICA, INC.**  
3061 Zanker Road  
San Jose, CA 95134  
(408) 456-3600  
Email:

By: /s/ JOHN K. KIBARIAN  
Printed Name: John K. Kibarian  
Title: President & CEO  
Date: July 29, 2020

By: /s/ DOUGLAS LEFEVER  
Printed Name: Douglas Lefever  
Title: President & CEO  
Date: July 29, 2020

[Signature Page to Amendment No. 1 to the Software License & Related Services Agreement]



**A1 Exhibit 1: Additional Order Form (“AC Quote”)**

Created Date [\*\*\*]

PDF Quote Number [\*\*\*]

Pricing Expiration Date [\*\*\*]

Quote Name [\*\*\*]-Advantest-USA: Exensio CloudSite and DEX Sites

Opportunity Owner [\*\*\*]  
Email

PO placement Email ar@pdf.com

**The PDF Quote Number referenced above must be included on all purchase orders.**

Account Name Advantest America, Inc.

Designated Site(s) Ship To Name Customer's (& Affiliates') facilities and DEX Sites Advantest America, Inc.

Product	Term Description	Start Date	End Date	Product Unit/ License	Quantity	Unit Price (USD)	Subtotal	Net Price (USD)
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	Included in Exensio Bundle / Term Start: Fixed / Term in Months: 60	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]

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[***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] Cloud	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] Cloud	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] Cloud	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] Cloud	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] Cloud	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
[***] Cloud	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Exensio [***] TBL	[***] / Term Start: Fixed / Term in Months: [***]	[***]	[***]	[***] License	[***]	[***]	[***]	[***]
Hosted Management	Includes [***] TBs (production) and [***] TB (Sandbox) [***] storage, as described in SOW #1	[***]	[***]	Per Year	[***]	[***]	[***]	[***]

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Quote ID

Services	and ASC #1 (PDF doc #8406) / Term in Months: [***]							
VAS Bundle	[***] Apps Engineer yearly FTE including VAS9 and VAS12 below / Term in Months: [***]	[***]	[***]	Fixed Fee	[***]	[***]	[***]	[***]
VAS9 Application Engineering Services	As described in SOW #1 (PDF doc #8406) / Term Start: Fixed / Term in Months: [***]	[***]	[***]	Fixed Fee	[***]	[***]	[***]	[***]
VAS12 Exensio Yield Data Source Integration	As described in SOW #1 (PDF doc #8406) / Term Start: Fixed / Term in Months: [***]	[***]	[***]	Fixed Fee	[***]	[***]	[***]	[***]
DEX Services	for 3 DEX Sites, as defined in SOW #2 and ASC #2 (PDF doc #8406) / Term Start: Fixed / Term in Months: [***]	[***]	[***]	Per Year	[***]	[***]	[***]	[***]
DEX Services	for [***] DEX Sites, as defined in SOW #2 and ASC #2 (PDF doc #8406) / Term Start: Fixed / Term in Months: [***]	[***]	[***]	Per Year	[***]	[***]	[***]	[***]
DEX Services	for [***] DEX Sites, as defined in SOW #2 and ASC #2 (PDF doc #8406) / Term Start: Fixed / Term in Months: [***]	[***]	[***]	Per Year	[***]	[***]	[***]	[***]
DEX Services	for [***] DEX Sites, as defined in SOW #2 and ASC #2 (PDF doc #8406) / Term in Months: [***]	[***]	[***]	Per Year	[***]	[***]	[***]	[***]
DEX Services	for [***] DEX Sites, as defined in SOW #2 and ASC #2 (PDF doc #8406) / Term in Months: [***]	[***]	[***]	Per Year	[***]	[***]	[***]	[***]
							Total Price	\$[***]

Software License Grant(s)

"Limited [\*\*\*] License" means a license (a) during the Term (as defined in the General Notes below) for [\*\*\*] to access and use the included Exensio [\*\*\*] TBL, and Exensio [\*\*\*] TBL, and Exensio [\*\*\*] TBL up to the included quantity of [\*\*\*], and (b) during the Term (as defined in the General Notes below) for [\*\*\*] to access and use the included Exensio [\*\*\*] TBL, Exensio [\*\*\*] TBL, and Exensio [\*\*\*] TBL on up to the included quantity of [\*\*\*] Licenses.

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"[\*\*\*] License" means a license during the Term for Licensee to [\*\*\*] the Software [\*\*\*], and collect data [\*\*\*], the stated quantity of [\*\*\*] and upload (or have uploaded) such data to a DEX Node at a DEX Site, and for [\*\*\*] to access and use the [\*\*\*] interface included therewith.

[\*\*\*] for Exensio [\*\*\*] TBL, and Exensio [\*\*\*] TBL means the limited right during the Term for the stated quantity of [\*\*\*] and [\*\*\*] to [\*\*\*] access and use the Software; provided, however, that use of any of Exensio [\*\*\*] TBL, Exensio [\*\*\*] TBL, Exensio [\*\*\*] TBL, and Exensio [\*\*\*] TBL also utilize a [\*\*\*] to Exensio [\*\*\*] TBL; provided, further, that use of Exensio [\*\*\*] TBL also utilizes a [\*\*\*] to Exensio [\*\*\*] TBL. [\*\*\*] accessing the Software through the PDF CloudSite require an active [\*\*\*] Profile and shall be authorized and credentialed as mutually agreed by PDF and Customer.

[\*\*\*]" for [\*\*\*] TBL means a license during the Term for the stated quantity of [\*\*\*] or [\*\*\*] to [\*\*\*] access and use the Software (which is, if the [\*\*\*] provided by PDF is [\*\*\*], limited to the [\*\*\*] and only in connection with Exensio Software under valid license to Customer; in both cases, in compliance with applicable [\*\*\*] limitations. [\*\*\*] accessing the [\*\*\*] TBL shall be authorized and credentialed as mutually agreed by PDF and Customer.

"[\*\*\*] License" means the limited right during the Subscription Term for [\*\*\*] up to the stated quantity of [\*\*\*] Licenses to [\*\*\*] access and use, for [\*\*\*] purposes only, licensed Exensio Software only via the CloudSite; provided, however, that if the [\*\*\*] Cloud software provided by PDF is [\*\*\*] such software is only the [\*\*\*].

#### Billing and Payment Terms and Quote Specific Notes (If Applicable)

Governing Contract	The products and services quoted herein are subject to the existing agreement (as amended, if applicable) referenced hereafter, and an amendment to be entered into by Customer and PDF. PDF doc# 0000008116
Payment Terms	As per agreement in place between the parties
Billing Terms	See the amendment.
Quote Specific Note(s)	The amendment to be entered into is Amendment #1 to the SLA (PDF doc #8406).

#### Purchase Order Checklist:

- A. Please email completed **PO to [AR@PDF.COM](mailto:AR@PDF.COM)** and to the Opportunity Owner listed above.
- B. The following required information must be written on the PO document:
  1. **PDF Quote Number** (this **must** match the Quote Number on the PDF Quote)
  2. **Purchasing Entity Name** (this **must** match the entity name on the PDF Quote)
- C. The following delivery and billing info can be written on the PO or in an accompanying document when submitting the PO to PDF. If this information is missing, order fulfillment may be delayed
  - **License Server Host ID:** Contact your PDF sales associate for any help needed in identifying the host/server/tool ID. PO cannot be processed without the relevant License Server information
  - **License Delivery Email Address** (used to deliver electronic license keys, where applicabl [Shipping Address for Dongles](#) and/or Media (where applicable)
  - **Accounts payable Electronic Billing Email Address\*** (where you will receive invoices by default [Account payable phone number](#) (for any billings questions)
  - **Physical Billing Address\*** (backup, in case of electronic invoicing problems or delays)
  - \*Note: PDF uses Email Invoicing as the default method for customers to receive invoices. You must include a valid email address to where invoices will be sent from PDF.

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## Notes:

Capitalized terms used herein and not defined herein have the meanings given them in the Governing Contract or, if none is in effect, at <https://www.pdf.com/definitions>

Unless provided otherwise in the Governing Contract, the Services that PDF will provide if M&S is itemized above are defined at <http://www.pdf.com/support>. If not itemized above, M&S is not provided for Software identified as perpetual. M&S Services are included in Software identified as TBL.

If a start date for Software is stated above, then (a) the "Term" of Software identified as TBL starts on such date, unless first access to digitally download the Software executable and delivery of the first license files is later, in which case, the start date is the later date and continues for the stated Term; and, (b) the "Subscription Term" for Software identified as Cloud starts on such date, unless access to the CloudSite is first made available to Customer by PDF on a later date, in which case, the start date is the later date and continues for the stated Term. The "Term" of Software identified as perpetual begins upon delivery of the license files for such Software and continues unless terminated as provided in the Governing Contract.

Customer has no right to receive, and PDF shall not deliver to Customer, an executable for any Software identified as Cloud. Exensio® ALPST™ tool licenses include mapping and driver software for only the tool type(s) specified above. Additional mapping and driver software, e.g., for additional tool-types authorized by PDF, may be purchased separately from PDF.

Certain PDF Software may be delivered together with a dongle or GPIB interface card or other hardware (including, in some cases, servers), which, if included, remain PDF property and are loaned/licensed to Licensee only for use in connection with validly licensed PDF Software during the applicable term for such Software, unless identified as a pass-through, in which case, ownership of such hardware passes to Customer upon payment therefore. PDF passes through all manufacturer warranties and purchased support for such hardware and has no liability, and makes no warranty, for such hardware or related support. Upon PDF's request, all loaned/licensed hardware provided by PDF in connection with use of licensed Software shall be returned to PDF at the end of the License Term.

Customer acknowledges that certain PDF Software requires other PDF Software or third-party software or hardware to operate or function as intended in the Documentation and that Licensee's data may not load into PDF Software without substantial engineering work; if such required additional software, hardware, or services is not itemized herein (for example, no right to access or use any Oracle® database or related modules is granted by PDF unless Embedded Oracle® is expressly itemized above), Customer acknowledges it is solely responsible for acquiring such necessary software, hardware, and/or services to use the PDF Software as intended in the Documentation and releases PDF from any liability therefor. Such items may usually be purchased separately from PDF.

The total fees set forth in the table above are a single-package fee and Customer's (or, if applicable Licensee's paying agent's) issuance and PDF's acceptance of a purchase order for any item listed herein (regardless of total amount) that references this Quote constitutes Licensee's agreement and a binding contract for Customer to purchase and PDF to provide all items listed herein with additional purchase orders to come, if applicable, in accordance with the billing terms or schedule, if any, set forth above. All purchase orders are subject to PDF acceptance. The products/services and pricing in this quote are guaranteed only through the Pricing Expiration Date set forth above. However, at any time before the one year anniversary of the Quote Issue Date set forth above, PDF may in its discretion accept Customer's (or, if applicable, Licensee's paying agent's) purchase order issued after such date, in which case this Quote is deemed valid through the date of such acceptance. The "Order Date" of this Quote is the date PDF accepts the first purchase order for any product or service offered hereon.

Unless otherwise agreed in a signed writing by the Parties prior to the Service-Period Expiration Date (as defined below), all Services listed above (for clarification, not including Hosted Management Services or any Software identified as Cloud) must be used (in the case of services to be scheduled by Customer, on a mutually-agreeable date) on or prior to the earlier to occur of the following (for each line item, a "Service-Period Expiration Date"):

1. the latest "end date" set forth above of any Software identified as TBL or Cloud;
2. the "end date" specified for each such Service line item above; or,
3. if no end date is specified for a Service line item, the one year anniversary of the Order Date.

The total fees for Services quoted herein are due regardless of when (or in the case of Services to be scheduled by Customer, if) the services are used by Customer, unless in the case of Services to be scheduled by Customer, such delay is due solely to PDF's inability to accommodate Customer's request submitted at least 120 days prior to such Service-Period Expiration Date, in which case, the applicable Service-Period Expiration Date will be extended once by 120 days. Customer is not entitled to any refund of fees for Services that have not been used in accordance herewith.

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**A1 Appendix A SOW #1: Exensio CloudSite Deployment and Apps Support Statement of Work**

PDF Solutions Personnel assigned to the work under this SOW have the required level of skills and experience for their particular role/title. The Services and estimated delivery periods are on condition of Licensee’s timely performance of the tasks and inputs set forth in Column “B” of the Activities Table in Section 1 below. In the event that Licensee delays in performing such obligations (or updates its original inputs) and such delay is not attributable to PDF, the estimated delivery periods will be adjusted reasonably, with a default of automatic postponement day-for-day for such delay unless the Parties agree otherwise in writing (email sufficient). The schedule is subject to detailing and updating from time-to-time upon agreement between the Parties. For the avoidance of doubt, PDF shall have no obligation hereunder for services (including deliverables) that are not expressly set forth in Column “C” of the Activities Table.

**1. Activities Table**

<b>- A - Project Task (Phase)</b>	<b>- B - Licensee Dependencies: Data, Activities or Other Inputs Required From Licensee</b>	<b>- C - PDFS Activities and Deliverables (based on Licensee inputs per column B)</b>	<b>- D - Estimated Delivery Period (based on PKO and timely Licensee performance of inputs)</b>
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]

## 2. VAS Descriptions

### [\*\*\*] Data [\*\*\*] Integration [\*\*\*]

- a) [\*\*\*] for data integration.
- b) Analyze the [\*\*\*] and [\*\*\*] of the [\*\*\*] to be [\*\*\*].
- c) [\*\*\*] the [\*\*\*] between the [\*\*\*] (e.g., [\*\*\*], etc.) where often this [\*\*\*] is not [\*\*\*] in each [\*\*\*] and [\*\*\*] or [\*\*\*].
- d) [\*\*\*] the [\*\*\*] configuration. Often this is not [\*\*\*] in each [\*\*\*]; therefore, requires [\*\*\*] or [\*\*\*].
- e) If [\*\*\*] and [\*\*\*], determine the [\*\*\*] and create a [\*\*\*] to [\*\*\*] this [\*\*\*] into the [\*\*\*].
- f) [\*\*\*] as needed and setting up the [\*\*\*] of the [\*\*\*] on the [\*\*\*] to make them ready to be [\*\*\*] by the [\*\*\*].
- g) [\*\*\*] and [\*\*\*] the required [\*\*\*] to be used to [\*\*\*] and [\*\*\*] the [\*\*\*] by the [\*\*\*].
- h) [\*\*\*] the access to the [\*\*\*] to be [\*\*\*] (directly from the [\*\*\*], on the same [\*\*\*] or [\*\*\*], from the [\*\*\*], etc.).
- i) [\*\*\*] the [\*\*\*] of [\*\*\*] to a [\*\*\*] area. [\*\*\*] the [\*\*\*] movement whenever possible.

- j) [\*\*\*] and [\*\*\*] tool and other [\*\*\*] tools (e.g., [\*\*\*], etc.). Take [\*\*\*] of [\*\*\*] and [\*\*\*] the [\*\*\*] to increase the [\*\*\*].
- k) [\*\*\*] the [\*\*\*] on a [\*\*\*] of [\*\*\*] of all the [\*\*\*] upon [\*\*\*] into a [\*\*\*] the [\*\*\*] tools and [\*\*\*] work as expected with this [\*\*\*].
- l) [\*\*\*] the [\*\*\*] and [\*\*\*] to [\*\*\*] to the [\*\*\*] or [\*\*\*] in the [\*\*\*] which require [\*\*\*] to the [\*\*\*].

**2.1.1. [\*\*\*] Summary**

Initial [***]	Data [***]	Data [***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

Other [***]	Data [***]	Data [***]
[***]	[***]	[***]
[TBD]		

**[\*\*\*] Support**

- [\*\*\*] required [\*\*\*] for [\*\*\*] and [\*\*\*].
- [\*\*\*] and [\*\*\*] to support [\*\*\*] requirements.
- [\*\*\*] and [\*\*\*] of [\*\*\*] data [\*\*\*] and [\*\*\*] data [\*\*\*] in support of the [\*\*\*].
- [\*\*\*] training on the [\*\*\*].
- [\*\*\*] ongoing [\*\*\*] support to [\*\*\*].
- [\*\*\*] ongoing [\*\*\*] support and [\*\*\*] of [\*\*\*] of [\*\*\*] (subject to ASC #1 Section 3).

### 3. Change Orders

In the event Licensee seeks to add to or change the Services as set forth herein, Licensee shall state the request in writing and include a written specification of the requirements detailing such proposed addition or change. PDF and Licensee shall jointly determine whether such requested change will have a significant impact on Services, schedule, risk, effort, materials or cost. Unless PDF waives in writing the need for an amendment, (i) PDF will submit a proposed amendment in response to the requested change to document Licensee's proposed changes to the schedule, services, dependencies, specifications, allocation of risk, fees and expenses and/or other terms and conditions, and (ii) the requested change (or ultimate version thereof) shall not be effective or binding upon the Parties unless they agree to a written amendment signed by an authorized management representative of each Party.

### 4. Project Review and Tracking

The PDF Project manager will perform the following tasks to ensure project is in order:

Review [\*\*\*] and [\*\*\*] and make changes or additions, as appropriate  
[\*\*\*] and [\*\*\*] against the [\*\*\*] with [\*\*\*]  
[\*\*\*] regularly scheduled [\*\*\*] meetings, on a [\*\*\*] and [\*\*\*] basis as agreed with [\*\*\*]  
[\*\*\*] regular [\*\*\*] to [\*\*\*]  
[\*\*\*] and [\*\*\*] the [\*\*\*] activities of [\*\*\*]



**A1 Appendix A SOW #2: DEX Services Configuration Statement of Work**

PDF Solutions Personnel assigned to the work under this SOW have the required level of skills and experience for their particular role/title. The Services and estimated delivery periods are on condition of Licensee’s timely performance of the tasks and inputs set forth in Column “B” of the Activity Tables below. In the event that Licensee delays in performing such obligations (or updates its original inputs) and such delay is not attributable to PDF, the estimated delivery periods will be adjusted reasonably, with a default of automatic postponement day-for-day for such delay unless the Parties agree otherwise in writing (email sufficient). The schedule is subject to detailing and updating from time-to-time upon agreement between the Parties. For the avoidance of doubt, PDF shall have no obligation hereunder for services (including deliverables) that are not expressly set forth in Column “C” of the Activity Tables.

**1. Activities Table**

- A - Project Task (Phase #)	- B - Licensee Dependencies: Data, Activities or Other Inputs Required From Licensee	- C - PDF Activities and Deliverables (based on Licensee inputs per column B)	- D - Estimated Delivery Period (based on Project Start and timely Licensee performance of inputs)
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]

## 2. Change Orders

In the event Licensee seeks to add to or change the Services as set forth herein, Licensee shall state the request in writing and include a written specification of the requirements detailing such proposed addition or change. PDF and Licensee shall jointly determine whether such requested change will have a significant impact on Services, schedule, risk, effort, materials or cost. Unless PDF waives in writing the need for an amendment, (i) PDF will submit a proposed amendment in response to the requested change to document Licensee's proposed changes to the schedule, services, dependencies, specifications, allocation of risk, fees and expenses and/or other terms and conditions, and (ii) the requested change (or ultimate version thereof) shall not be effective or binding upon the Parties unless they agree to a written amendment signed by an authorized management representative of each Party.

## 3. Project Review and Tracking

The PDF Project manager will perform the following tasks to ensure project is in order:

- Review [\*\*\*], and [\*\*\*] and make changes or additions, as appropriate
- [\*\*\*] and [\*\*\*] against the [\*\*\*] with [\*\*\*]
- [\*\*\*] regularly scheduled [\*\*\*] meetings, on a [\*\*\*] and [\*\*\*] basis as agreed with [\*\*\*]
- [\*\*\*] regular [\*\*\*] to [\*\*\*]
- [\*\*\*] and [\*\*\*] the [\*\*\*] activities of [\*\*\*]

## A1 Appendix B ASC #1: Application Services Commitment for Standard Exensio CloudSite

### 1. Definitions (applicable to this ASC #1)

- **“CloudSite”** means the infrastructure managed by PDF and used by PDF to provide the Hosted Services, including the application and database Software for the Hosted Services, the virtualization environment(s), the operating system(s), fileserver(s) and any other server software used to provide or secure the Hosted Services, and the computer hardware on which those application(s), database(s), virtualization environment(s), operating system(s), fileserver(s) and any other server software is installed.
- **“Error Correction”** means either (i) a software modification or addition that, when made or added to the Software, corrects an Software Error, or (ii) a procedure or routine that, when observed in the operation of the Software, eliminates or reduces the practical adverse effect of a Software Error on Licensee.
- **“Hosted Services”** means the PDF Software licensed by Licensee, which will be made available by PDF to Licensee as a service via the Internet in accordance with the agreement between PDF and Licensee.
- **“Licensee Information”** means any data, documentation, or user information provided by Licensee that resides in the CloudSite infrastructure.
- **“Response Hours”** means 24 hours a day, seven days a week, except with respect to support of a Sandbox, in which case it means 9:00 AM - 6:00 PM Pacific Time.
- **“Response Time”** means the time PDF will take to send its initial or follow-up response to each support inquiry.
- **“Sandbox”** means a duplicate, non-production environment for Exensio Software provided by PDF via the CloudSite for the purposes of evaluating feasibility and / or functionality of Software and the Exensio data integration environment.
- **“Scheduled Downtime”** means periods where the Hosted Services are unavailable and where Licensee has received prior notice of such unavailability as described below.
- **“Service Restoration”** means the period of time until the Hosted Services are restored to a usable state.
- **“Software Error”** means a material failure of the Exensio Cloud Software to operate in accordance with the functional specifications for such Software set forth in the applicable PDF Solutions documentation for such Software.
- **“Unscheduled Downtime”** means periods where major functionality of the Hosted Services are unavailable with no workaround possible and where Licensee has not received prior notice of such unavailability as described below.
- **“Update”** means any revision, update, release, enhancement or other modification to the Software that PDF generally makes available to licensees of the Software, including those licensed on a time-based model that receive M&S Services from PDF. Update does not include any optional, separately priced features/modules or software product with substantially new or additional significant features that may be developed by PDF in the future and made generally available to its customers as a separate product.

### 2. Hosted Management Services

**CloudSite Environment Set-up and Configuration** — PDF will set-up and configuration the CloudSite as defined in the Configuration Table and the agreed deployment plan in SOW #1. In addition, PDF will:

- Apply OS updates and security patches for the CloudSite
- Install third-party software included with the Hosted Services
- Create groups and users to support the application
- Create database schema/objects and Concurrent User accounts tables/entries

**Access to the CloudSite** — PDF will give Licensee access to the CloudSite through an SSO website at <https://exensio.pdf.com> or another customized URL specific to the Licensee's CloudSite installation. Licensee shall not, and shall make no attempt to, interfere in any manner with the Hosted Services or the CloudSite.

**Availability Commitments (not applicable to Sandbox)** – PDF shall make the Hosted Services available to Licensee during the Project Term of a valid License under an Order Form, except for either Scheduled or Unscheduled Downtime, or other events outside the reasonable control of PDF (e.g., force majeure, general Internet outages, etc.). PDF shall provide advance notice to the CloudSite Designated Contact of any Scheduled Downtime at least 1 week in advance for initial notification and 48 hours in advance, for a reminder notification; however, PDF and the CloudSite Designated Contact may agree in writing (email is sufficient) to a shorter advance notice for a Scheduled Downtime, in the CloudSite Designated Contact's discretion. The purpose of such Scheduled Downtime is for system software, equipment or network maintenance and updates, as required.

Scheduled and Unscheduled Downtime shall not exceed the following:

■ **Unscheduled Downtime:**

- No more than [\*\*\*] in each calendar month.

■ **Scheduled Downtime:**

- No more than [\*\*\*] over a trailing [\*\*\*] period.

**System Health Monitoring (not applicable to Sandbox)** — PDF will provide the following for monitoring of the CloudSite health:

- Comprehensive monitoring and collection of system usage and performance data
- Periodic analysis of the system data collected, with appropriate action to keep the system healthy and prevent problems from occurring
- Monthly reporting of Licensee's basic system performance metrics, including backend data loading

**Database Administration and Maintenance** — PDF will provide the following to administer and maintain the database:

- Installation and configuration of database engines on the CloudSite
- Allocation and set-up of Licensee's specific table spaces
- Set-up of the database auto-backup
- Continuous monitoring of the health and performance of the database
- Periodic maintenance and tuning (e.g., disk usage, memory, processes)
- Resolution of support inquiry issues related to the database engine software
- Application of patches and updates

**Data Integration Maintenance** — PDF will provide the following maintenance of data integration for data types integrated by PDF:

- Set-up access to the raw data files to be processed (upload from Licensee side to the CloudSite)
- Copying/moving raw data files to a staging area and automation of the file movement where possible
- Set-up auto loaders and summarization tool and other special tools (e.g. DpLoad, UpStat, dbTOOLS, etc.), taking advantage of parallel data loading and distributing the load to increase the data loading performance
- Maintenance of format files and needed adjustments to handle changes to the data files or changes in the Exensio back-end tools that require updates to the format files

**Integration Monitoring (not applicable to Sandbox)** — PDF will perform periodic monitoring and maintenance of the backend data loading and processing. This includes:

- Monitor pre-processor logs and results of the pre-processing of raw data files, and fix or report any issues that are uncovered (corrupted data files, incomplete, wrong format, etc.).
- Monitor the flow and throughput of data files in the staging area to maintain data loading, and take/suggest appropriate action (e.g., keep the backlog size reasonable) to reduce backlog and improve throughput
- Monitor the staging area for any not-processed raw data files, investigate to uncover and fix the cause of any data loading failure, and reload failed data files.
- Archive (or delete) the processed data files in the staging area, as set by the plan
- Monitor the database summary tables that are used to log status of data processing fix issues identified in the logs, and reprocess affected data
- Monitor the execution and logs of the back-end tools and resolve any issues reported in the log files
- Manipulate and fix data loaded into the database that may be corrupted during the data loading process, remove the “bad” data from the database or fix the data using supported database tools provided with the Exensio system and create new tools/scripts/SQLs to fix issues or to perform special data manipulation functions
- Archive/export/import Exensio data using the export/archive tool to archive the aged data as specified by the plan and reload/import the exported data when needed.

**System Updates** — From time to time, the Hosted Services may be updated to the latest commercially available version to take advantage of newly added features and resolved issues (e.g., bug fixes). Updates will be performed during Scheduled Downtime and announced in advance. With the exception of required updates for system stability and system and application security, which will be identified as a “Required Update”, the Licensee may opt to defer an Update to a future Scheduled Downtime that is within one month of PDF’s original release date by entering a support case in PDF customer support portal. The scope of the Updates will be included in notification of the Scheduled Downtime. Updates include:

- Updates to the server side tools and utilities
- Updates to the database schema
- Updates to the analysis client

**Support Inquiries** — PDF’s support portal at <https://csupport.pdf.com> is the primary point of contact for all Hosted Services support inquiries. A phone support line will be provided as well in cases where Licensee has no internet access. Support inquiries initiated by phone, will be added by PDF to the support portal, which initiates the response time for measurement. PDF support staff will receive, log, and respond to inquiries from the Licensee concerning Software Errors or deficiencies in the Hosted Services. All support inquiries will be assigned a tracking number that will be used to communicate with the Licensee and to track the progress of each support inquiry. PDF shall be responsible for receipt, logging, tracking, diagnosing, and resolving support inquiries that require developer or administrator-level expertise. Licensee shall be responsible for assessing [\*\*\*] support inquiries prior to submitting a support inquiry to PDF. Support cases submitted must have steps to reproduce and, as possible, data and information to reproduce the issue either on PDF hardware (if data is provided in support case), or on the CloudSite directly. PDF shall document the resolution of support cases in the support portal.

**Case Priority** — Licensee and the PDF support staff contact assigned to the support inquiry by PDF will work together to assign a priority level when the support inquiry is initiated, in accordance with the Priority Level descriptions below. The Priority Level describes the impact that the problem is having on the Licensee’s ability to effectively use either the Software or the Hosted Services. The Priority Level initially assigned can be modified, if circumstances warrant it, and if the appropriate representatives of the Licensee and PDF agree. If Licensee and the PDF contact do not agree to the Priority Level, PDF will escalate resolution to next level manager until resolved. If highest level manager is not able to agree with Licensee on the Priority Level, it will default to the lowest priority unless Licensee provides evidence meeting the criteria for a higher priority. Response times may be impacted by availability of Licensee internal support, if required, to assist in investigation or resolution, which time, if any, will not count toward PDF’s response time.

Priority Level	Licensee Impact	Response & Response Time <sup>1</sup> (from [***)	Target Resolution [***) (not applicable to Sandbox)
HIGHEST	Hosted Services are unavailable outside of a Scheduled Downtime, or a Software Error renders the Software inoperative or causes it to fail catastrophically, in either case with no workarounds possible.	<i>Response:</i> PDF will assign resources until an Error Correction has been provided. <i>Initial response time:</i> <ul style="list-style-type: none"> <li>• generally, within [***)</li> <li>• Sandbox, within [***) during Support Hours</li> </ul> <i>Follow up (not applicable to Sandbox) response time:</i> status update at least every [***) after initial response. PDF shall make good faith effort to provide more frequent status updates if requested by Licensee.	[***) to [***) suitable workaround to downgrade to HIGH, MED, or LOW priority.
HIGH	Major functionality of the Hosted Services are unavailable or a Software Error materially affects the performance of critical functions of the Software but does not qualify as “Highest” Priority, however in either case a workaround is possible.	<i>Response:</i> PDF will use commercially reasonable efforts to develop and provide an Error Correction. <i>Initial response time:</i> <ul style="list-style-type: none"> <li>• generally, within [***)</li> <li>• Sandbox, within [***) during Support Hours</li> </ul> <i>Follow up (not applicable to Sandbox) response time:</i> status update at least [***) per [***) (at PDF headquarters) after initial response. PDF shall make good faith effort to provide more frequent status updates if requested by Licensee.	[***) to [***) suitable workaround to downgrade to MED or LOW.
MED	Minor functionality of the Hosted Services are unavailable or a Software Error that does not materially affect the performance of critical functions of the Software, and in either case a workaround does not exist.	<i>Response:</i> PDF will use commercially reasonable efforts to provide an Error Correction in the next Update. <i>Initial response time:</i> <ul style="list-style-type: none"> <li>• generally, within [***)</li> <li>• Sandbox, within [***) during Support Hours</li> </ul> <i>Follow up (not applicable to Sandbox) response time:</i> status update at least [***) per [***) after initial response. PDF shall make good faith effort to provide more frequent status updates if requested by Licensee.	[***) or [***) suitable workaround to downgrade to LOW.
LOW (not applicable to Sandbox)	Minor functionality of the Hosted Services are unavailable but a trivial workaround exists. Cosmetic issue related to CloudSite.	<i>Initial response:</i> within [***)	Included as part of roadmap planning of Hosted Services or CloudSite improvements, in PDF’s sole discretion.

[\*\*\*)

**Escalation Procedures (not applicable to Sandbox)** — In the event a HIGHEST priority level issue arises as defined and reported above, the following escalation procedure, if needed in Licensee’s reasonable discretion, shall apply:

- First escalation: [\*\*\*)
- Second escalation: [\*\*\*)
- Third escalation: [\*\*\*)

**Security** — PDF will use commercially reasonable efforts to implement and deploy reasonable security features, procedures and technologies that will, in PDF's reasonable judgment, provide sufficient protection to data hosted in connection with the Hosted Services, i.e. in the CloudSite from unauthorized access according to the following security processes:

- Strict implementation of security rules related to creating and authorizing [\*\*\*] access, in an auditable way, based on industry-accepted security standards.
  - Administrative access shall be restricted to a limited number of closely managed groups per PDF governance policy
  - Follow industry-accepted policies regarding user accounts, passwords and access control.
  - All access to the system will be tracked and audited.
- Industry-accepted security standard technologies, tools and techniques, with the latest patches, updates, and latest virus and malware protections implemented.
- In addition to the commercial cloud provider in-transit and at rest data encryption, PDF will encrypt data when transferred to/from the CloudSite using encrypted transport protocols such as Transport Layer Security (TLS), Secure File Transport Protocol (SFTP), IPSEC, and other commercially available point-to-point security protocols and will keep the raw data files encrypted while at rest in the cloud (AES-256 bit).
- Data transfer to the CloudSite will be done using the following:
  - Offline data transfer solutions that allow customers to move data to the CloudSite in a fast and secure way using an encrypted external HDD securely shipped to the commercial cloud vendor.
  - Periodic (configurable) data transfer solution that utilizes secure and encrypted method (SSH, IPSec VPN or other mutually agreeable solution) to copy data to the cloud.
- Hosted Services are deployed in the Exensio CloudSite such that the application and Licensee Information is completely contained within the CloudSite environment. No Licensee Information is transferred from the CloudSite to PDF systems for troubleshooting, development, or any other purpose.

**Licensee Information, Inactive User Profiles, Termination and Data Retention** — PDF will use Licensee Information to provide the Hosted Services for Licensee, including, for example, maintenance, administration, monitoring and capacity planning of the system, and to fulfill authorized requests from the Licensee. User Profiles not logged into for six (6) months in the CloudSite are archived and no longer active, and may be deleted permanently by PDF after nine (9) months. Upon termination of the Hosted Services period (i.e. under a valid Order Form) or the definitive written and signed agreement between Licensee and PDF for any reason in accordance with the terms thereof, (a) PDF shall return to Licensee, or purge from its electronic or other storage facilities or records (including the CloudSite infrastructure), all Licensee Information that is in its possession or control; and (b) all Licensee and [\*\*\*] access to the Hosted Services shall be immediately suspended.

### 3. Responsibilities of the Licensee

Licensee and its users will be solely responsible for providing all Licensee Information. Licensee shall not install any software on the CloudSite without first consulting PDF and shall not request PDF to install any software on the CloudSite that could significantly degrade system performance. This is required to maintain high-performance throughout the CloudSite. For version Updates, Licensee may provide a library location of Exensio Templates that provide major functionality and, in its sole discretion, PDF may provide additional QA/Update check services for these Templates using the Sandbox. Additional QA/Update check services for these Templates, is in PDF sole discretion at an additional fee, subject to an amendment to be entered into by the Parties. Licensee is responsible for maintaining a connection to <https://exensio.pdf.com> or other customized URL specific to the Licensee's CloudSite installation to be able to access the Hosted Services.

## A1 Appendix B ASC #2: Application Services Commitment for DEX Sites

### 1. Definitions (applicable only to this ASC #2)

- **“DEX Node”** means the set of hardware, software, operating system, storage, power supplies and associated cables and connections which are provided by and remain wholly owned by PDF for the purpose of providing the DEX Services. A DEX Node may be physically located at Licensee site or a third-party site as mutually agreed by PDF and Licensee.
- **“DEX Services”** means data transfer and other services described in Section 12.
- **“Error Correction”** means either (i) a software modification or addition that, when made or added to the Software, corrects and Software Error, or (ii) a procedure or routine that, when observed in the operation of the Software, eliminates or reduces the practical adverse effect of a Software Error on Licensee.
- **“Licensed [\*\*\*]”** means a [\*\*\*] Licensee [\*\*\*] Exensio [\*\*\*] TBL or Exensio [\*\*\*] TBL under valid license has been [\*\*\*] to collect, process, and transport Licensee Information to the DEX Node.
- **“Licensee Information”** means any Licensee proprietary data from, or rules generated by Exensio Software for, Licensed [\*\*\*] that is uploaded to or downloaded from the DEX Node.
- **“Response Hours”** means 24 hours a day, seven days a week.
- **“Response Time”** means the time PDF will take to send its initial or follow-up response to each support inquiry.
- **“Scheduled Downtime”** means periods where the Hosted Services are unavailable and where Licensee has received prior notice of such unavailability as described below.
- **“Service Restoration”** means the period of time until the Hosted Services are restored to a usable state.
- **“Software Error”** means a material failure of the Exensio Cloud Software to operate in accordance with the functional specifications for such Software set forth in the applicable PDF Solutions documentation for such Software.
- **“Unscheduled Downtime”** means periods where major functionality of the Hosted Services are unavailable with no workaround possible and where Licensee has not received prior notice of such unavailability as described below.
- **“Update”** means any revision, update, release, enhancement or other modification to the DEX Node. Update does not include any optional, separately priced features/modules or software product with substantially new or additional significant features that may be developed by PDF in the future and made generally available to its customers as a separate product.

### 2. DEX Services

**Access to DEX Node** — PDF will not provide Licensee any access to the DEX Node. PDF shall have sole access to the DEX Node via login over an encrypted and secured internet connection. Licensee shall not, and shall make no attempt to, access or interfere in any manner with the DEX Node or DEX Services.

**Data Transfer** — PDF will transport mutually-agreed Licensee Information collected from the DEX Node from or to the DEX Site and Exensio Software under valid license and from or to the DEX node and Licensed [\*\*\*]. PDF shall provide capacity to exchange up to [\*\*\*] per Licensed [\*\*\*] per [\*\*\*] on average, with a peak limited capacity of up to [\*\*\*] per Licensed [\*\*\*] per [\*\*\*], and no more than [\*\*\*] Licensed [\*\*\*] per DEX Site. With respect to data delivery from DEX Nodes to/from Exensio CloudSite, PDF will provide no less than [\*\*\*] % successfully transferred to/from each DEX Site within a trailing [\*\*\*] period for [\*\*\*] and no less than [\*\*\*] % successfully transferred to/from each DEX Site within a trailing [\*\*\*] period of [\*\*\*] within a trailing [\*\*\*] period.

**Service Availability Commitments** — PDF shall make the DEX Services available during the Project Term, except for Scheduled Downtime, or other events outside the reasonable control of PDF (e.g., force majeure, general public Internet outages, OSAT network connectivity between Licensed [\*\*\*] and DEX Nodes, power disruption of the *hosting* / OSAT facility, lack of permission from OSAT to enter OSAT facility for regular or exceptional maintenance events), PDF shall provide advance notice to the DEX Designated Contact of any Scheduled Downtime at least 1 week in advance for initial notification and 48 hours in advance, for a reminder notification. The purpose of such Scheduled Downtime is for system software, equipment or network maintenance and updates, as required. Scheduled Downtime per DEX Site shall not exceed more than [\*\*\*] over a trailing [\*\*\*] period.

**Support Inquiries** — PDF’s support portal at <https://csupport.pdf.com> is the primary point of contact for all support inquiries. PDF support staff will receive, log, and respond to inquiries from the Licensee concerning Software Errors or deficiencies in the DEX Services. All support inquiries will be assigned a tracking number that will be used to communicate with the Licensee and to track the progress of each support inquiry. PDF shall be responsible for receipt, logging, tracking, diagnosing, and resolving support inquiries that require developer or administrator-level expertise. Licensee shall be responsible for assessing [\*\*\*] support inquiries prior to submitting a support inquiry to PDF. Support cases submitted must have steps to reproduce and, as possible, data and information to document the issue. PDF shall document the resolution of support cases in the support portal.

**Support Case Priority** — Licensee and the PDF support staff contact assigned to the support inquiry by PDF will work together to assign a priority level when the support inquiry is initiated, in accordance with the Priority Level descriptions below. The Priority Level describes the impact that the problem is having on the Licensee’s ability to effectively use DEX Services. The Priority Level initially assigned can be modified, if circumstances warrant it, and if the appropriate representatives of the Licensee and PDF agree. If Licensee and the PDF contact do not agree to the Priority Level, PDF will escalate resolution to next level manager until resolved. If highest level manager is not able to agree with Licensee on the Priority Level, it will default to the lowest priority unless Licensee provides evidence meeting the criteria for a higher priority. Response times may be impacted by availability of Licensee internal support, if required, to assist in investigation or resolution, which time, if any, will not count toward PDF’s response time.

Priority Level	Licensee Impact	Response & Response Time* (from [***])
HIGHEST	DEX Services are unavailable outside of a Scheduled Downtime, with no workarounds possible.	<ul style="list-style-type: none"> <li>• <u>Response</u>: PDF will assign resources until an Error Correction has been provided.</li> <li>• <u>Initial response time</u>: generally, within [***].</li> <li>• <u>Follow up response time</u>: status update at least every [***] after initial response. PDF shall make good faith effort to provide more frequent status updates if requested by Licensee.</li> </ul>
HIGH	Major functionality of the DEX Services are unavailable, but does not qualify as “Highest” Priority and a workaround is possible.	<ul style="list-style-type: none"> <li>• <u>Response</u>: PDF will use commercially reasonable efforts to develop and provide an Error Correction.</li> <li>• <u>Initial response time</u>: generally, within [***].</li> <li>• <u>Follow up response time</u>: status update at least [***] per [***] (at PDF headquarters) after initial response. PDF shall make good faith effort to provide more frequent status updates if requested by Licensee.</li> </ul>
MED	Minor functionality of the DEX Services are unavailable, and in either case a workaround does not exist.	<ul style="list-style-type: none"> <li>• <u>Response</u>: PDF will use commercially reasonable efforts to provide an Error Correction in the next Update.</li> <li>• <u>Initial response time</u>: generally, within [***]</li> <li>• <u>Follow up response time</u>: status update at least [***] per [***] after initial response. PDF shall make good faith effort to provide more frequent status updates if requested by Licensee.</li> </ul>
LOW	Minor functionality of the DEX Services are unavailable but a trivial workaround exists.	<ul style="list-style-type: none"> <li>• <u>Initial response</u>: within [***].</li> </ul>

\*In any case, time during any Scheduled Downtime does not count toward the above response times.

**Escalation Procedures** — In the event a HIGHEST priority level issue arises as defined and reported above, the following escalation procedure, if needed in Licensee’s reasonable discretion, shall apply:

- First Level: [\*\*\*].
- Second Level: [\*\*\*]
- Third Level: [\*\*\*]
- Fourth Level: [\*\*\*]

**System Health Monitoring** — PDF shall comprehensively monitoring and collect system usage and performance data, as well as periodic monitoring of the [\*\*\*] and [\*\*\*] collected, with appropriate action to keep the system healthy. PDF will provide [\*\*\*] reports of various performance metrics, including [\*\*\*] metrics.

**Resolution of queued data** — On a regular basis, approximately [\*\*\*] per [\*\*\*], PDF will respond to any exceptions related to unknown file types, files sources, file destinations and propose a resolution or mitigation. PDF will delete queued data that are not able to be dispositioned within [\*\*\*].

**Security** —PDF will use commercially reasonable efforts to implement and deploy reasonable security features, procedures and technologies that will, in PDF’s reasonable judgment, provide sufficient protection to data in connection with the DEX Services from unauthorized access according to the following security processes:

- Strict implementation of security rules related to creating and authorized PDF [\*\*\*] access, in an auditable way, based on industry-accepted security standards.
  - Administrative access shall be restricted to a small number of closely managed groups per PDF governance policy
  - Multi-factor authentication of all authorized PDF [\*\*\*].
  - All access to the system is tracked and audited.
- State-of-the-art security technologies, tools and techniques, with the latest patches, updates, and latest virus and malware protections implemented.

PDF will encrypt data and use encrypted protocols when Licensee Information is transferred from the DEX Node to/from DEX nodes or to/from Exensio CloudSite or Exensio CloudSite Storage.

**Service Updates** — From time to time, the DEX Services may be updated to the latest commercially available version to take advantage of newly added features and resolved issues (e.g., bug fixes). Updates will be performed during Scheduled Downtime and announced in advance. The scope of the Updates will be included in notification of the Scheduled Downtime.

**Licensee Information, Archiving and Backup** – PDF will use Licensee Information to provide the DEX Services for Licensee, including, for example, maintenance, administration, monitoring and capacity planning of the system, and to fulfill authorized requests from the Licensee. There will be no persistent storage (not to exceed [\*\*\*] per [\*\*\*] received) of Licensee Information on the DEX Node beyond that which is required to perform the DEX Services. Licensee Data that is sent by any service to the DEX Node will not be “backed-up” or duplicated outside of the DEX Node. For clarity, DEX Node and DEX Services are not provided for archival or persistent storage of any data whatsoever.

**3. Responsibilities of the Licensee**

Licensee and its users will be solely responsible for providing all Licensee Information. Licensee shall not install any software on the DEX Node and will provide notification to PDF of any change to the DEX Designated Contact using the support portal.

## A1 Appendix C: Initial CloudSite Configuration Table

Item	Unit	Quantity Production CloudSite	Quantity Sandbox CloudSite	Unit Description
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	Included in Sandbox [**]	[**]
[**]	[**]	As specified in Hosted Management Services Quote Line Item		[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	As specified in ASC #2		[**]

1 As used herein:

- [\*\*] Storage: [\*\*] structured data storage [\*\*] used for [\*\*] data accessed [\*\*], with [\*\*] recovery.
- [\*\*] Storage: [\*\*] structure data storage [\*\*] with [\*\*] access, used for [\*\*] data accessed [\*\*].

**A1 Appendix D: Additional Item/Resource Price Table**

Item / Resource	Unit	Unit Price
Additional [***]	[***]	[***]
Additional DEX Site	[***]	[***]
Additional [***]2	[***]	[***]
[***] Licenses	[***]	[***]
Engineering Services – Application Engineers	[***]	[***]

1 As used herein:

- [\*\*\*] Storage: [\*\*\*] performance structured data storage [\*\*\*] used for [\*\*\*] data accessed [\*\*\*], with [\*\*\*] recovery.
- [\*\*\*] Storage: [\*\*\*] performance structure data storage [\*\*\*] with [\*\*\*] access, used for [\*\*\*]data accessed [\*\*\*].

2 [\*\*\*] and Authorized Users that connect only to the Exensio BE (i.e. this price does not apply to Authorized Users connecting to the Exensio FE). The bundle includes [\*\*\*]each of Exensio [\*\*\*] TBL, and Exensio [\*\*\*] TBL, each subject to the same license grant/restrictions as set forth in the AC Quote.

**A1 Appendix E: Approved List (DEX Sites and Dedicated Developers)**

DEX Sites		
Name	3rd party?	Location (Country)
***	***	***

## A1 Appendix F: Capability/Scalability Targets

All KPIs to be measured with one mutually-agreed initial dataset sampled from production data for the Initial Data Types in Section 2.2 of SOW#1, including format and source, with a total size not to exceed [\*\*\*] (“**Initial Dataset**”) and on the Exensio CloudSite using a [\*\*\*] cluster (“**Cluster A**”) and, where applicable to show scaling, a [\*\*\*] cluster (“**Cluster B**”).

- A - Target Achievement (Phase #)	- B - Licensee Dependencies: Data, Activities or Other Inputs Required From Licensee	- C - PDFS Activities and Deliverables (based on Licensee inputs per column B)	- D - Estimated Delivery Period (based on Project Start and timely Licensee performance of inputs)
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]

**[\*\*\*] Risk Definitions:**

- Critical: The threat event could be expected to have multiple severe or catastrophic adverse effects on organizational operations, assets, individuals, and other organizations.
- High: The threat event could be expected to have severe or catastrophic adverse effects on organizational operations, assets, individuals, and other organizations
- Moderate: The threat event could be expected to have serious adverse effects on organizational operations, assets, individuals, and other organizations
- Low: The threat event could be expected to have limited adverse effects on organizational operations, assets, individuals, and other organizations
- Informational: The threat event could be expected to have negligible effects on organizational operations, assets, individuals, and other organizations

CERTAIN INFORMATION INDICATED WITH [\*\*\*] IN THIS DOCUMENT HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED

## AMENDED AND RESTATED MASTER DEVELOPMENT AGREEMENT

**THIS AMENDED AND RESTATED MASTER DEVELOPMENT AGREEMENT** (this “Agreement”), effective as of July 06, 2020 (the “Effective Date”), is entered into by and between PDF Solutions, Inc., a Delaware corporation, with a principal place of business at 2858 De La Cruz Boulevard, Santa Clara, CA 95050 (“PDF”), and Advantest America, Inc., a Delaware corporation, with a principal place of business at 3061 Zanker Road, San Jose, CA 95134 (“Advantest”) (PDF and Advantest each, a “Party,” collectively, the “Parties”), and amends and restates, effective *ab initio* as of the Effective Date, in its entirety that certain Development Agreement, dated as of July 06, 2020, entered into by and between PDF and Advantest (the “Original Development Agreement”).

WHEREAS, the Parties desire to develop Integrated Products combining certain Technology owned by PDF and Technology owned by Advantest pursuant to the terms hereof; and

WHEREAS, PDF and Advantest wish to enter into this Agreement to amend and restate the Original Development Agreement to facilitate the development of Integrated Products set forth in this Agreement.

NOW, THEREFORE, the Parties agree, in consideration of the mutual promises herein and other good and valuable consideration, as follows:

### 1. Definitions

In addition to any other definitions set forth in this Agreement, the following terms shall have the following meanings:

“Advantest Dedicated Developed Technology” means any Developed Technology that is Created by Personnel of PDF for Advantest under an SOW, is stated in such SOW to be “Advantest Dedicated Developed Technology”, to the extent that it does not include or use any PDF Technology.

“Advantest Named Competitor” means any of the following entities or their Affiliates: [\*\*\*]

“Advantest-Owned Developed IP” is defined in Section 4.2.2.

“Advantest-Owned Developed Technology” means (i) any Developed Technology that is (or to the extent it is) Derivative Technology of Background Technology of Advantest, (ii) any other Developed Technology solely Created by Personnel of Advantest (including, for the avoidance of doubt, any Derivative Technology of (aa) any such Developed Technology, (bb) any Advantest Dedicated Developed Technology, and/or (cc) any Jointly Developed Technology, if such Derivative Technology in each case of (aa), (bb), and (cc) is Created by Personnel of Advantest (and no Personnel of PDF), but in all such cases excluding any PDF Dedicated Developed Technology), and (iii) any Advantest Dedicated Developed Technology. For the avoidance of doubt, “Advantest-Owned Developed Technology” shall not include any PDF-Owned Developed Technology or Jointly Developed Technology.

“Advantest Property” means and includes, individually and collectively, (i) any Advantest Technology, (ii) all Intellectual Property Rights in and to any and all Background Technology of Advantest, (iii) all other Intellectual Property Rights owned, co-owned, acquired, licensed, or obtained by Advantest or any of Advantest’s Affiliates prior to the Effective Date or thereafter outside any Development, (iv) any Advantest-Owned Developed IP, and (v) Advantest’s equal one-half (1/2) undivided co-ownership of any Joint IP. For the avoidance of doubt, “Advantest Property” shall not include any Background Technology of PDF.

“Advantest Technology” means, individually and collectively, all (i) Background Technology of Advantest, including any Contribution of Advantest, (ii) Advantest-Owned Developed Technology, and (iii) other Technology acquired, licensed or obtained by Advantest or its Affiliates after the Effective Date outside of any Development.

“Affiliate” of a Party means any other person or entity that, directly or indirectly, controls, is controlled by or is under common control with such Party; “control” means the power, directly or indirectly, to direct or cause the direction of the management and policies of another person or entity, whether through ownership of voting securities, by contract or otherwise, but only during such time while such control exists.

“Background Technology” of a Party means any Technology that is owned, acquired, or Created by or for such Party or any Affiliate of such Party prior to the Effective Date, or thereafter outside of any Development.

“Commercialization Agreement” means any commercialization agreement and/or support agreement that the Parties or their Affiliates may enter into in conjunction with the commercialization of any Integrated Product, as may be specified in the applicable SOW.

“Contribution” of a Party means Technology and Information of any kind, in any form, format, and manner, that such Party discloses, provides, or makes available to the other Party under or in connection with this Agreement, or uses for or in, or in the course of, any Development, except for any Technology and Information that (i) such Party has received or obtained from the other Party or any of its Personnel, or (ii) constitutes Developed Technology.

“Create” means, with respect to any Technology, the development, design, discovery, invention, authoring, or creation thereof.

“Derivative Technology” of any Technology means any improvement, customization, adaptation, modification, evolution, derivative work, or derivation of or from or to or based on such Technology, including application programming interfaces (APIs) included therein. For the avoidance of doubt, Derivative Technology of any Technology includes any Developed Technology Created in connection with any Development that consists of any rules or dependent actions included or used in such Technology, or any part or iteration thereof, and/or implements any suggestions, ideas, reports, error identifications, feedback, or comments (whether provided by a Party, its Affiliates, its Personnel, or a third party) directed or relating to such Technology, under or in connection with this SOW, or any part or iteration thereof.

“Developed Technology” means, individually and collectively, all Technology Created by either Party’s Personnel alone, or by both Parties’ Personnel jointly, as part of or as a result of any Development pursuant to an SOW. For the avoidance of doubt, Developed Technology does not include any Background Technology, even if such Background Technology is used or included in the Creation of any Developed Technology.

“Development” has the meaning set forth in Section 2.1.

“Development Completion” means, with regard to an Integrated Product, the date on which the Parties give their express prior written approval of a completed Integrated Product pursuant to the Acceptance Process described in Section 2.4.7.

“Development Plan” has the meaning set forth in Section 2.2.

“Information” means, individually and collectively, any Material, data, and information of any kind, in any form, format, and manner, related to Technology and/or otherwise.

“Integrated Product” means an integrated product consisting of components of both the PDF Technology and Advantest Technology as integrated or combined (including via newly developed application programming interfaces (APIs)) as agreed by the Parties pursuant to an SOW and finally approved by each Party for commercialization as provided in such SOW or otherwise in a signed agreement between the Parties.

“Intellectual Property Right” means any of the following, anywhere in the world and under any law: (i) any patent and patent application (including any provisional application, any utility and any design patent and patent application, any continuation, continuation-in-part, divisional, reissue, reexamination, substitution, and extension, and any national, foreign, and international counterpart and equivalent), other right in or to any invention or any invention disclosure, or any right in or to or arising from any utility model, and any right of priority related thereto, (ii) any copyright, mask work right, and any right similar thereto, whether arising from statute, regulation, common or judicial law, treaty or otherwise, and any registration, application for registration, and renewal thereof or related thereto, (iii) any right in or to or arising from any trade secret, know-how, or confidential information, (iv) any right in or to or arising from any data, database, computer program, application, system, or code, (v) any attribution, integrity, and other moral right, (vi) any Mark, and (vii) any other intellectual or industrial property right, whether existing now or being recognized or created in the future.

“Jointly Developed Technology” means, individually and collectively, any and all (i) Developed Technology that is neither Advantest-Owned Developed Technology nor PDF-Owned Developed Technology and is Created jointly by the Personnel of both Parties under or in connection with any Development, and (ii) New NRE Developed Technology.

“Mark” means any trademark, service mark, trade name, corporate name, business name, domain name, logo, slogan, trade dress, design, and other designations of source or origin, and any registration, application for registration, extension, and renewal thereof or related thereto, and any common law rights therein or thereto, and all goodwill symbolized by any of the foregoing or associated therewith.

“Material” means, individually and collectively, any material, document, item, and other tangible property of any kind.

“Milestone” is defined in Section 2.2.

“New NRE Developed Technology” means any Developed Technology (but excluding any Background Technology of either Party or any Derivative Technology of any such Background Technology) that is Created by Personnel of PDF for Advantest under an SOW to the extent expressly identified in such SOW as “New NRE Developed Technology”, if (and then only to the extent) the Development thereof is described in writing to an executive level of PDF (i.e. CEO or EVP, Product & Solutions) and is expressly agreed to be provided on such basis by PDF at an executive level by entrance into an SOW that identifies it, and is paid for by Advantest pursuant to such SOW.

“New NRE Developed Technology IP” means, individually and collectively, any New NRE Developed Technology and any Intellectual Property Rights existing in or covering solely such New NRE Developed Technology (excluding, for the avoidance of doubt, any Intellectual Property Rights existing in or covering also any Advantest-Owned Developed Technology, any PDF-Owned Developed Technology, any Background Technology, or any Jointly Developed Technology other than such NRE Developed Technology).

“Owned Developed Technology” means: (i) with regard to Advantest, any and all Advantest-Owned Developed Technology, or (ii) with regard to PDF, any and all PDF-Owned Developed Technology.

“PDF Dedicated Developed Technology” means any Developed Technology that is Created by Personnel of Advantest for PDF under an SOW, is stated in such SOW to be “PDF Dedicated Developed Technology”, to the extent that it does not include or use any Advantest Technology.

“PDF-Owned Developed IP” is defined in Section 4.2.1.

“PDF-Owned Developed Technology” means (i) any Developed Technology that is (or to the extent it is) Derivative Technology of Background Technology of PDF, (ii) any other Developed Technology solely Created by Personnel of PDF (including, for the avoidance of doubt, any Derivative Technology of (aa) any such Developed Technology, (bb) any PDF Dedicated Developed Technology, and/or (cc) any Jointly Developed Technology, if such Derivative Technology in each case of (aa), (bb), and (cc) is Created by Personnel of PDF (and no Personnel of Advantest), but excluding in all such cases any Advantest Dedicated Developed Technology or New NRE Developed Technology), and (iii) any PDF Dedicated Developed Technology. For the avoidance of doubt, “PDF-Owned Developed Technology” shall not include any Advantest-Owned Developed Technology or Jointly Developed Technology.

“PDF Property” means and includes, individually and collectively, (i) any PDF Technology, (ii) all Intellectual Property Rights in and to any and all Background Technology of PDF, (iii) all other Intellectual Property Rights owned, co-owned, acquired, licensed, or obtained by PDF or any of PDF’s Affiliates prior to the Effective Date or thereafter outside of any Development, (iv) any PDF-Owned Developed IP, and (v) PDF’s equal one-half (1/2) undivided co-ownership of any Joint IP. For the avoidance of doubt, “PDF Property” shall not include any Background Technology of Advantest.

“PDF Technology” means, individually and collectively, all (i) Background Technology of PDF, including any Contribution of PDF, (ii) PDF-Owned Developed Technology and (iii) other Technology acquired, licensed or obtained by PDF or its Affiliates after the date hereof outside any Development.

“Personnel” means, with regard to a Party, any employee or agent of, or any contractor used in connection with any performance under this Agreement by, such Party or any of its Affiliates.

“Project Manager” has the meaning set forth in Section 2.9.

“Schedule” means each numbered schedule attached after the signature page of this Agreement or any SOW, including any exhibits thereto, each of which shall be deemed to be a part of this Agreement.

“Section” means any of the numbered sections of this Agreement.

“SOW” means *Schedule 2* attached hereto (as may be modified by the Parties), and any one or more additional specific statements of work substantially in the form set forth in *Schedule 1* (as may be modified by the Parties), each of which shall expressly reference this Agreement and be entered into and signed by each Party through its authorized representative.

“Specifications” means, individually and collectively, the specifications and requirements for an Integrated Product including the specifications for an Integrated Product relative to each Party’s Contributions as set forth in, or determined by the Project Managers, pursuant to an SOW.

“Technology” means, individually and collectively, any technology, invention, creation, development, discovery, process, method, equipment, practice, work, know-how, information, software, code, data, device, product, design, application, implementation, conception, idea, and other intangible property of any kind.

“Term” means the period of time commencing on the Effective Date and ending upon the termination or expiration of this Agreement.

“Third Party Property” means any Technology or Intellectual Property Rights therein owned by any individual, entity, or other person other than a Party or an Affiliate of a Party. For the avoidance of doubt, “Third Party Property” may include open source software.

## 2. Development

2.1 Development Undertaking. During the SOW Term (as set forth in the applicable SOW), the Parties shall cooperate to Create Integrated Products through one or more development phases as specifically set forth in one or more SOWs (each development work or phase set forth in an SOW, a “Development”). Upon completion of the Integrated Product in each phase, the Parties may intend to make each such Integrated Product commercially available to end customers under specific revenue sharing and support arrangements to be decided and agreed by the Parties in a Commercialization Agreement negotiated in good faith by the Parties.

2.2 SOWs. An agreed development plan and development schedule to achieve the objectives of each Development (each, a “Development Plan”) shall be set forth in one or more SOWs, including, among other things, specific milestones to be achieved by each Party thereunder (each, a “Milestone”), in accordance with the terms and provisions of this Agreement. Each SOW constitutes a separate agreement comprising its terms and conditions as well as the terms and conditions of this Agreement as related to such SOW. The terms of this Agreement shall be deemed to be incorporated by reference into each SOW, and together each SOW and this Agreement will constitute a single agreement with respect to the subject matter thereof. No amendment to an SOW shall be valid or effective unless and to the extent such amendment expressly refers to this Agreement and identifies such SOW, is signed by each Party through its authorized representative therefor, and the change, modification, addition, or variation is expressly set forth in such amendment. Any valid and effective amendment of an SOW shall be deemed to be a part of such SOW. In the event of a conflict between a provision in an SOW and a provision in this Agreement, the provision in the SOW shall prevail, unless this Agreement expressly states otherwise and except with respect to Sections 1, 4, 5, 6, 7, 8 and 9, which may only be changed by specific amendment to this Agreement (which, for clarity, may be set forth in the applicable SOW).

2.3 Project Management and Coordination. The Project Managers shall be responsible for the day-to-day management of the integration development activities of the Parties under an SOW, and shall determine the extent to which the Parties shall meet to discuss and resolve development issues as they arise. The Project Managers shall also determine the date and place of each such meeting. The Parties agree that the Project Managers shall be charged with cooperating fully with one another and coordinating all meetings and integration development activities so as to consider the most efficient, economical, convenient and timely approach to completing the project in accordance with the requirements of such SOW.

2.4 Development Terms. With regard to each Development under an SOW:

2.4.1 Each Party shall use commercially reasonable efforts to perform the activities and tasks set forth for such Party in such SOW and this Agreement.

2.4.2 Each Party shall provide and deliver, at their sole cost, such Contributions that are set forth to be delivered or provided by such Party to the other Party in such SOW. Otherwise, each Party is free to determine, in its sole discretion, whether and to what extent to deliver or provide any Contribution.

2.4.3 Each Party agrees to keep the other Party reasonably informed regarding activities and tasks undertaken by such Party in connection with such Development, including delivering periodic status and progress reports as agreed, including reporting any difficulties, problems or issues confronted or arising in connection with such Development or a Contribution in a timely manner and on a regular basis as set forth in this Agreement. Such reports shall be facilitated and delivered by the Parties' respective Project Managers.

2.4.4 Each Party agrees to promptly disclose and provide to the other Party any documented software requirements and any documented software designs that are Created by such Party's Personnel and comprise Developed Technology or include or use any Confidential Information of such other Party or any Affiliate of such other Party. Such disclosures shall be facilitated and delivered by the Parties' respective Project Managers.

2.4.5 Each Party shall make commercially reasonable efforts to identify and resolve problems arising in connection with a Development.

2.4.6 To the extent applicable (as set forth in the applicable Development Plan or Specifications), each Party shall promptly, but in any event, within [\*\*\*] (provided that such Party may extend such time as reasonably necessary) conduct testing, inspection, and review of any Contribution provided to such Party at the end of each Milestone, if any, for conformance with the applicable Specifications and other requirements under this Agreement and the applicable SOW and approve such Contribution or identify any non-conformance. Approval of such Contribution shall not be unreasonably withheld by such Party. The Development of each Integrated Product shall be complete only upon both Parties' unconditional approval of each stage (which shall not be unreasonably withheld) in an express prior written statement of approval after all agreed changes have been made by each Party thereto in accordance with the process set forth in this Section 2.4.7 (the "Acceptance Process"), without prejudice to Section 2.6.

2.5 Development Sites. Advantest will carry out its development tasks primarily at its premises and PDF will carry out its development tasks primarily at its premises. The Project Managers shall determine where and when additional development activities shall take place, and the applicable Development Plan may also provide for one Party to conduct certain development tasks at the premises of the other Party.

2.6 Corrections. Notwithstanding the Development Completion of each Integrated Product hereunder, if and to the extent PDF or Advantest identify any non-conformance, errors, malfunctions, or defects in an Integrated Product prior to commercialization and entrance into the Commercialization Agreement therefor, the Parties shall cooperate, and each take such steps, as necessary to promptly correct and rectify any such non-conformance, error, malfunction, and defect. The provisions in this Agreement and an SOW related to a Development shall apply to such cooperation and corrective steps related to such Development to the extent such provisions are, by their nature, applicable to such cooperation or step.

2.7 Time of Performance. Each Party will use commercially reasonable efforts to complete its respective Development activities and tasks and to deliver the deliverables for which it is responsible within the times and timeframes set forth in this Agreement and the applicable SOW and Development Plan.

2.8 Employees and Contractors. Except as may be set forth in an SOW, each Party may utilize any employees, agents, or contractors for any Development as determined by such Party in its sole discretion; *provided, however*, that such Party is obligated and responsible for causing each of its Personnel to perform the same obligations as such Party has under Sections 2, 3 and 4 as applicable to such Personnel; *provided further*, that PDF shall not subcontract any portion of any Development, or provide access to Advantest Confidential Information, to any Advantest Named Competitor. Each Party shall be liable for all acts, omissions, performance, and non-performance of any Personnel of such Party used by such Party for any Development.

2.9 Communications, Meetings and Meeting Reports. Each Party will designate one individual to serve as its contact person for each Development (each, a "Project Manager") by written notice to the other Party. Each Party may replace a Project Manager, at any time in its sole discretion by providing written notice (including in the applicable SOW). The Parties agree that the Project Managers shall meet or hold a conference call from time to time, but not less often than once every [\*\*\*], to update both Parties on the status of such Development. The Project Managers shall agree on the agenda for each meeting at least three (3) business days in advance of such meeting. The attendees at such meetings shall be at the discretion of each Party. A [\*\*\*] report in a form that is satisfactory to both Parties shall be generated by one or both Project Managers (as agreed by the Project Managers), which report shall (i) include the agenda for such meeting, (ii) summarize the status of such Development, and (iii) identify any issues relating to such Development. The report shall be sent to both Parties in connection with each meeting, which report shall be deemed to be confirmed by both Parties to be accurate unless a Party notifies the other Party of any inaccuracy in writing within [\*\*\*] of receipt of such report. If a Party identifies an inaccuracy with respect to a report, the Project Manager shall work diligently to revise and recirculate the report.

2.10 Costs and Expenses. Except as may be set forth in an SOW, each Party shall bear its own costs and expenses in connection with all of its performance related to a Development, without any right of any payment, reimbursement, or compensation for any performance or deliverable related to a Development against the other Party, subject only to any right or remedies of such Party provided under this Agreement or applicable law.

2.11 Disputed Amounts. The Party owing any fees or payment under any SOW (the “Payor”) to the other Party (the “Payee”) may reasonably and in good faith dispute any such fees invoiced by the Payee to the Payor within [\*\*\*] days after Payor’s receipt of such invoice, provided that the Payor promptly pays the undisputed portion of such invoice and notifies the Payee of such dispute within such [\*\*\*] days. The Parties will negotiate in good faith to resolve such payment dispute within [\*\*\*] days of Payor’s notice of such dispute. If any such undisputed portion is unpaid more than [\*\*\*] after the Payor’s receipt of such invoice, the Payee may, without limiting its rights or remedies, suspend all of its services under such SOW until such undisputed portion is paid in full. The Payee will provide the Payor’s CFO written notice (email sufficient) that the Payor’s account is overdue at least [\*\*\*] days prior to suspending such services. Notwithstanding the foregoing, the Payee shall only suspend the minimum portion of such services necessary to remediate the issue giving rise to the suspension until the outstanding accounts are resolved; *provided* that the Payee shall not be permitted to suspend such services due to a good faith dispute regarding an amount invoiced hereunder.

### 3. Support & Training

3.1 Support. PDF and Advantest shall cooperate to jointly provide customer support as more specifically set forth in the applicable Commercialization Agreement. As to any demo product under a Development Plan, unless otherwise provided in an SOW, upon identification of an issue, resolving the issue will be assigned to PDF or Advantest depending upon whether the issue arises from PDF Technology or Advantest Technology, as applicable, and first line support related to PDF Technology will be performed by PDF and if related to Advantest Technology will be performed by Advantest. In the event of a conflict between the terms of this Agreement or the applicable Commercialization Agreement relating to the Parties’ support obligations, the terms of such Commercialization Agreement shall control.

3.2 Training. The Parties will cross-train each other’s Personnel in the usage of their products to an extent that they are competent in the operation of each Integrated Product, as set forth in the applicable SOW or Commercialization Agreement.

### 4. Ownership and Rights

#### 4.1 Limited Development Licenses.

4.1.1 Advantest License Grant to PDF. With respect to each Development under an SOW, Advantest hereby grants to PDF a limited, worldwide, revocable, non-assignable (except as provided in Section 9.4), non-transferable right and license during the term, without the right to grant sublicenses (except to the extent necessary to permit PDF’s Personnel to perform services for the sole purpose of such Development) or the right to grant any sublicense right, free of any royalty, license fee or other payment, under all Intellectual Property Rights owned by Advantest or any of its Affiliates in the applicable Contribution of Advantest and/or in Advantest-Owned Developed Technology, to use, and to have PDF’s Personnel use on PDF’s behalf, such Contributions of Advantest and such Advantest-Owned Developed Technology solely for such Development; *provided* that: (i) the license under this Section 4.1.1 does not grant any right or license to commercialize, or to use for commercialization, any such Contribution, Advantest-Owned Developed Technology, or any other Advantest Property; (ii) the license under this Section 4.1.1 shall expire and terminate automatically upon the earliest of the following: (1) with regard to each such Contribution or Advantest-Owned Developed Technology, upon the Development Completion of all Development for which use of such Contribution or Advantest-Owned Developed Technology is necessary, (2) the termination or expiration of such SOW (without affecting the license under this Section 4.1.1 for any Development under any other SOW) or (3) the termination or expiration of this Agreement.

4.1.2 PDF License Grant to Advantest. With respect to each Development under an SOW, PDF hereby grants to Advantest a limited, worldwide, revocable, non-assignable (except as provided in Section 9.4), non-transferable right and license during the term, without the right to grant sublicenses (except to the extent necessary to permit Advantest's Personnel to perform services for the sole purpose of such Development) or the right to grant any sublicense right, free of any royalty, license fee or other payment, under all Intellectual Property Rights owned by PDF or any of its Affiliates in the applicable Contribution of PDF and/or in PDF-Owned Developed Technology, to use, and to have Advantest's Personnel use on Advantest's behalf, such Contributions of PDF and such PDF-Owned Developed Technology solely for such Development; *provided* that: (i) the license under this Section 4.1.2 does not grant any right or license to commercialize, or to use for commercialization, any such Contribution, PDF-Owned Developed Technology, or any other PDF Property; (ii) the license under this Section 4.1.2 shall expire and terminate automatically (subject to the last sentence of this Section 4.1.2) upon the earliest of the following: (1) with regard to each such Contribution or PDF-Owned Developed Technology, upon the Development Completion of all Development for which use of such Contribution or PDF-Owned Developed Technology is necessary, (2) the termination or expiration of such SOW (without affecting the license under this Section 4.1.1 for any Development under any other SOW) or (3) the termination or expiration of this Agreement.

#### 4.2 Ownership of Developed Technology.

4.2.1 PDF-Owned Developed Technology. As between the Parties, PDF shall solely own all rights, title, and interest in and to any and all PDF-Owned Developed Technology and all Intellectual Property Rights to the extent existing or to exist solely in and to any PDF-Owned Developed Technology (individually and collectively, "PDF-Owned Developed IP"), which, for the avoidance of doubt, shall exclude any Advantest Property.

4.2.2 Advantest-Owned Developed Technology. As between the Parties, Advantest shall solely own all rights, title, and interest in and to any and all Advantest-Owned Developed Technology and all Intellectual Property Rights to the extent existing or to exist solely in and to any Advantest-Owned Developed Technology (individually and collectively, "Advantest-Owned Developed IP"), which, for the avoidance of doubt, shall exclude any PDF Property.

4.2.3 Newly Developed Technology. Except as may otherwise be set forth in an SOW: (i) any Jointly Developed Technology, and all Intellectual Property Rights existing in or covering solely such Jointly Developed Technology (excluding, for the avoidance of doubt, any Intellectual Property Rights existing in or covering also any Advantest-Owned Developed Technology, any PDF-Owned Developed Technology, or any Background Technology), shall be owned jointly and equally by the Parties, with each Party owning an undivided one-half equal co-ownership right (collectively, “Joint IP”); (ii) all Jointly Developed Technology not qualifying as Non-Confidential Information shall be Confidential Information of both Parties under Section 5, with each Party deemed to be both the Disclosing Party and the Receiving Party of such Jointly Developed Technology, other than any Information included in such Jointly Developed Technology that was Confidential Information of a Party before being included in such Jointly Developed Technology, which shall remain Confidential Information of only such Party; (iii) any Joint IP shall be available for use and utilization by either Party and its Affiliates and may be licensed by each Party to its Affiliates and Personnel solely for use or utilization on behalf of or for, and to perform services for the benefit of, such Party or its Affiliates; and (iv) neither Party shall be permitted to assign and transfer (except to the same extent as this Agreement under Section 9.4), otherwise license, file or prosecute any patent application, or enforce any of the Intellectual Property Rights included in the Joint IP against any infringer thereof without the prior written consent of the other Party. Notwithstanding the foregoing, except as expressly permitted in the following sentence, PDF and its Affiliates shall not license, transfer or otherwise make available to any Advantest Named Competitor any New NRE Developed Technology IP without the prior written consent of Advantest in each instance. In the event of a merger of PDF or a Restricted Affiliate with, direct or indirect change of control of PDF or a Restricted Affiliate to, or a sale or transfer of all or substantially all of the assets or business of PDF to, an Advantest Named Competitor: (a) if PDF or any Restricted Affiliate undergoes (1) a direct or indirect change of control to an Advantest Named Competitor or (2) a merger with an Advantest Named Competitor that is a holding company without any operations, then PDF and any Restricted Affiliates that undergo such merger or change of control (and any related direct or indirect change of control) that are in existence immediately prior to the consummation of such merger or change of control shall be permitted to continue to use and have access to such New NRE Developed Technology IP; and (b) if PDF undergoes a sale or transfer of all or substantially all of the assets or business of PDF to an Advantest Named Competitor, (1) if the Advantest Named Competitor that is the successor to PDF is a holding company without any operations, such successor shall be permitted to continue to use and have access to such New NRE Developed Technology IP, and (2) if the Advantest Named Competitor that is the successor to PDF has operations, then PDF shall be required to destroy or transfer all copies of any New NRE Developed Technology to, and assign any co-ownership or license that it has in, any New NRE Developed Technology IP to, an Affiliate of PDF without operations prior to the consummation of such sale or transfer; and (c) if PDF or a Restricted Affiliate undergoes a merger with an Advantest Named Competitor that has operations, then PDF or such Restricted Affiliate shall be required to destroy or transfer all copies of any New NRE Developed Technology to, and assign any co-ownership or license that it has in any New NRE Developed Technology IP to, an Affiliate of PDF without operations prior to the consummation of such merger. “Restricted Affiliate” means an Affiliate of PDF with operations that has ownership of or a license to any New NRE Developed Technology IP at the time of such change of control to an Advantest Named Competitor.

#### 4.3 Reservation of Rights and Ownership.

4.3.1 As between each Party and its Affiliates on the one hand and the other Party and its Affiliates on the other hand, PDF shall solely own, and shall retain and continue to own all (and the other Party shall not own or co-own any) rights, title, and interest in and to any and all PDF Property. PDF and its Affiliates do not, and PDF and its Affiliates shall not be deemed to, and nothing in this Agreement shall be implied or interpreted that PDF or any of its Affiliates does, assign, transfer, convey, license (except as set forth in Section 4.1.2), grant any encumbrance or security interest, or agree to any claim, in or to any right, title, or interest in or to any PDF Property. If and to the extent that Advantest, any of its Affiliates, or any Personnel of Advantest, acquires or owns as a result of this Agreement or any performance hereunder any right, title, interest, ownership, co-ownership, license (except as set forth in Section 4.1.2), encumbrance, security interest, or claim in or to any PDF Property, Advantest agrees to assign and hereby assigns, and agrees to cause its Affiliates and Personnel to assign, to PDF all such rights, title, interest, ownership, co-ownership, license (except as set forth in Section 4.1.2), encumbrance, security interest, or claim, without payment or right to payment. Advantest shall, and shall cause such Affiliates and Personnel to, execute any document or take any reasonable action as requested by PDF to effect any such assignment. For the avoidance of doubt, subject to Section 4.2.3 with regard to any Joint IP, PDF and its Affiliates or other designees shall have the sole right to file and prosecute any application for, and obtain and retain, any patent or other registration for any Technology and any Intellectual Property Right included in the PDF Property, and to make or initiate any claim, action, proceeding, and other steps to enforce any Intellectual Property Right included in the PDF Property, and retain all judgments, awards, settlements, and other payments and value therefrom, all as decided by PDF and its Affiliates or other designees in their sole discretion, and all without any right or claim against Advantest or its Affiliates or Personnel for paying or sharing all or part of any cost or expense therefor and without any right or claim by Advantest or its Affiliates or Personnel to all or part of any such judgments, awards, settlements, or other payments or value.

4.3.2 As between each Party and its Affiliates on the one hand and the other Party and its Affiliates on the other hand, Advantest shall solely own, and shall retain and continue to own all (and the other Party shall not own or co-own any) rights, title, and interest in and to any and all Advantest Property. Advantest and its Affiliates do not, and Advantest and its Affiliates shall not be deemed to, and nothing in this Agreement shall be implied or interpreted that Advantest or any of its Affiliates does, assign, transfer, convey, license (except as set forth in Section 4.1.1), grant any encumbrance or security interest, or agree to any claim, in or to any right, title, or interest in or to any Advantest Property. If and to the extent that PDF, any of its Affiliates, or any Personnel of PDF, acquires or owns as a result of this Agreement or any performance hereunder any right, title, interest, ownership, co-ownership, license (except as set forth in Section 4.1.1), encumbrance, security interest, or claim in or to any Advantest Property, PDF agrees to assign and hereby assigns, and agrees to cause its Affiliates and Personnel to assign, to Advantest all such rights, title, interest, ownership, co-ownership, license (except as set forth in Section 4.1.1), encumbrance, security interest, or claim, without payment or right to payment. PDF shall, and shall cause such Affiliates and Personnel to, execute any document or take any reasonable action as requested by Advantest to effect any such assignment. For the avoidance of doubt, subject to Section 4.2.3 with regard to any Joint IP, Advantest and its Affiliates or other designees shall have the sole right to file and prosecute any application for, and obtain and retain, any patent or other registration for any Technology and any Intellectual Property Right included in the Advantest Property, and to make or initiate any claim, action, proceeding, and other steps to enforce any Intellectual Property Right included in the Advantest Property, and retain all judgments, awards, settlements, and other payments and value therefrom, all as decided by Advantest and its Affiliates or other designees in their sole discretion, and all without any right or claim against PDF or its Affiliates or Personnel for paying or sharing all or part of any cost or expense therefor and without any right or claim by PDF or its Affiliates or Personnel to all or part of any such judgments, awards, settlements, or other payments or value.

4.3.3 Each Party agrees to assign and hereby assigns, and agrees to cause its Affiliates and Personnel to assign, to the other Party an undivided equal one-half (1/2) co-ownership interest in and to any Jointly Developed Technology and Joint IP, without payment or right to payment. At the other Party's request, each Party further agrees to provide copies of or access to documentation, software and other Technology as may be reasonably necessary for the other Party to use such Jointly Developed Technology or Joint IP.

4.3.4 Notwithstanding anything to the contrary herein, (i) nothing in this Agreement is intended to or shall be deemed to transfer any Background Technology, or Intellectual Property Rights in or to any Background Technology, of a Party or its Affiliates, and (ii) the act of implementing or combining the Technology owned by one Party into the Technology owned by the other Party is not intended to, and shall not be deemed to, transfer, any right, title, or interest with respect to any Intellectual Property Rights of such Party in and to such Party's Technology to such other Party or any third party.

4.4 Further Assurances. Each Party shall provide any information and documents, sign any documents and affidavits, provide any testimony, or render any other assistance, upon request of the other Party, as is reasonable and necessary for the other Party to secure and perfect all such other Party's ownership, rights, title and interest under the foregoing provisions of this Section 4. The Party providing assistance shall be promptly reimbursed by such other Party for any reasonable and necessary expenses related to any requested assistance under this Section 4.4; *provided, however*, that no attorneys' fees or legal costs or expenses of the Party providing assistance shall be reimbursable except solely for reasonable attorneys' fees if and to the extent such other Party agreed to such reimbursement in advance in writing. Each Party shall promptly notify the other Party of any suspected or threatened infringement of any Intellectual Property Right covering each Integrated Product. Each Party making an assignment or granting a license under this Section 4 to the other Party free of any obligation or liability of such other Party or any of such other Party's Affiliates or Personnel to make or give any payment or value.

4.5 No Rights to Marks. Each Party retains any and all rights, title and interest in and to its Marks. Nothing in this Agreement or any performance hereunder grants, expressly or implicitly, the right to use, and neither Party may use, any Mark of the other Party without an express written trademark license agreement entered into by the Parties.

4.6 Third Party Property. Except as set forth in the applicable SOW, neither Party shall include any Third Party Property in the Integrated Product, without the express written approval of the other Party, which shall not be unreasonably withheld, delayed or conditioned.

## 5. Confidentiality.

5.1 Confidential Information. During the Term of this Agreement, each Party (the "Disclosing Party") may disclose or make available to the other Party (the "Receiving Party"), or the Receiving Party may obtain, Information of the Disclosing Party that is confidential and proprietary to the Disclosing Party, including if conspicuously marked "confidential" or "secret" or otherwise indicating its status as Confidential Information (individually and collectively, "Confidential Information" but excluding any Information that is Non-Confidential Information). "Non-Confidential Information" means any Information that, and to the extent it: (i) was already a publicly known at the time it was disclosed to or obtained by the Receiving Party; (ii) becomes publicly known after it was disclosed or obtained by the Receiving Party through no fault of the Receiving Party or any person acting for or on its behalf but only after the moment it becomes so publicly known; (iii) was already known to the Receiving Party other than under an obligation of confidentiality, non-disclosure, restriction, or non-use at the time it was disclosed to or obtained by the Receiving Party; or (iv) is developed by or for the Receiving Party independently without use of, and without any developer's knowledge of, Confidential Information of any kind of the Disclosing Party. For the avoidance of doubt, (a) if a Party (as the Receiving Party) incorporates the Confidential Information of the other Party (as the Disclosing Party) into such Party's Owned Developed Technology in accordance with the terms of this Agreement, the subsequent use and commercialization of such Owned Developed Technology by such Party shall not constitute a violation of this Section 5, *provided* that the other Party's Confidential Information is not disclosed or made accessible to any third party as a result of such use or commercialization and (b) nothing in this Section 5 shall be deemed to, or shall be implied or interpreted to, assign, transfer, convey, license, grant any encumbrance or security interest, or agree to any claim, in or to any right, title, or interest in or to the other Party's Intellectual Property Rights or Technology.

5.2 Confidentiality. The Receiving Party shall keep in confidence and not disclose or disseminate to any third party and not use any Confidential Information of the Disclosing Party without the written consent of the Disclosing Party for a period of [\*\*\*] years after the end of the Term; *provided* that the Receiving Party may (i) use Confidential Information provided by the Disclosing Party to it under this Agreement solely during the Term and solely for the purposes for which, and under the terms, if any, under which, it was provided; (ii) during the Term, disclose Confidential Information to, and permit use of such Confidential Information by, Personnel of the Receiving Party if and to the extent: (a) such Personnel then and continues (as long as such Personnel has, has access to or uses such Confidential Information) to be subject to a non-disclosure agreement or confidentiality obligation at least as stringent as the terms set forth in this Section 5, and (b) such Personnel has the need to receive and use such Confidential Information on behalf of the Receiving Party for the purpose for which, and under the terms, if any, under which, it was provided by the Disclosing Party to the Receiving Party; and (iii) use and disclose any Confidential Information of the Disclosing Party solely for the purpose of, and only as necessary for, enforcing any right of the Receiving Party under this Agreement. The Receiving Party shall protect the confidentiality of all Confidential Information of the Disclosing Party to the same degree as it protects the confidentiality of its own Confidential Information and in any event a reasonable degree of care.

5.3 Disclosure Obligation. If the Receiving Party is required to disclose any Confidential Information of the Disclosing Party in an administrative or judicial proceeding, the Receiving Party may do so only (i) if the Receiving Party promptly notifies the Disclosing Party of such requirement (unless applicable law prohibits such notice), (ii) reasonably assists the Disclosing Party, at the Disclosing Party's expense and reasonable request, with exercising or asserting legal rights or remedies to prevent such disclosure and/or to obtain a protective order against such disclosure, and (iii) limits the disclosure to such Confidential Information that the Receiving Party is required to disclose in accordance with applicable law.

5.4 Non-Disclosure Agreement. The Parties entered into that certain Bilateral Nondisclosure Agreement dated May 29, 2019 (the "NDA"). As of the Effective Date, all Confidential Information (as defined in the NDA) of a Party shall be deemed to be Confidential Information of such Party hereunder, except solely if and to the extent any such Confidential Information has since become Non-Confidential Information, and be governed by this Agreement and no longer the terms of the NDA; *provided, however*, that any rights, remedies or liability accrued under the NDA before the Effective Date with regard to any Confidential Information covered thereunder shall continue to be effective.

## 6. Indemnity.

6.1 Indemnity by Advantest. Advantest shall, at its sole cost, defend PDF, its Affiliates, and each of its or their directors, officers, employees, independent contractors, agents, successors and assigns (the "PDF Indemnitees") against any pending or threatened claim, action, suit, litigation, arbitration or other proceeding brought by a third party (collectively, "Action"), and indemnify and hold harmless from and against all liabilities, expenses, costs, losses, fines, penalties, judgments, settlements, claims, awards or damages (collectively, "Losses") related to such Action (but which shall include reasonable attorneys' fees, witness's fees and defense costs for such Action only if Advantest is obligated to defend a PDF Indemnitee under this Section 6.1 against such Action and fails to provide such defense), to the extent caused by or resulting or arising from: (i) any infringement or misappropriation, or allegation of an infringement or misappropriation, of a third party's Intellectual Property Right as a result of any Background Technology of Advantest or any Developed Technology provided by Advantest to PDF, except for any use thereof prohibited under this Agreement; or (ii) any violation of law, negligence, or willful misconduct by any Advantest Indemnitee (as defined in Section 6.2).

6.2 Indemnity by PDF. PDF shall, at its sole cost, defend Advantest, its Affiliates, and each of its or their directors, officers, employees, independent contractors, agents, successors, and assigns (the "Advantest Indemnitees") against any pending or threatened Action, and indemnify and hold harmless from and against all Losses related to such Action (but which shall include reasonable attorneys' fees, witness's fees and defense costs for such Action only if PDF is obligated to defend an Advantest Indemnitee under this Section 6.2 against such Action and fails to provide such defense), caused by or resulting or arising from: (i) any infringement or misappropriation, or allegation of an infringement or misappropriation, of a third party's Intellectual Property Right as a result of any Background Technology of PDF or any Developed Technology provided by PDF to Advantest, except for any use thereof prohibited under this Agreement; or (ii) any violation of law, negligence, or willful misconduct by any PDF Indemnitee.

6.3 **Procedure.** The Party entitled to indemnity under the foregoing Section 6.1 or 6.2, as applicable (the “Indemnified Party”) shall (i) promptly notify the Party obligated to provide such indemnity under such Section 6.1 or 6.2, as applicable (the “Indemnitor”) in writing of the pending or threatened Action subject to such indemnity (the “Indemnified Action”) as soon as reasonably practicable after the Indemnified Party first becomes aware of such Indemnified Action, (ii) give the Indemnitor sole control of any defense and settlement of such Indemnified Action, and (iii) give, and shall cause the PDF Indemnitees (if Advantest is the Indemnitor under Section 6.1) or the Advantest Indemnitees (if PDF is the Indemnitor under Section 6.2) (the “Indemnitees”) to give, to the Indemnitor reasonable assistance requested by the Indemnitor in connection with any such defense or settlement; *provided* that the Indemnitor shall pay any reasonable and necessary out-of-pocket costs incurred by the Indemnitees for such assistance. The Indemnitor shall not make, without the Indemnified Party’s express prior written consent, any admission, settlement or concession that may interfere or negatively impact any right, title or interest of an Indemnitee or obligate an Indemnitee other than the obligation to pay any Losses for which the Indemnitor is obligated to indemnify the Indemnitee. The Indemnitor will not be liable for the settlement of an Indemnified Action by an Indemnitee without the Indemnitor’s prior written consent unless the Indemnitor breaches its duty to defend hereunder regarding such Action. If any Indemnified Action against the Indemnitees involves Losses subject to indemnity hereunder as well as other Losses, the Indemnitor shall nonetheless be fully responsible for defending, indemnifying and holding the Indemnitees harmless to the extent of those Losses that are subject to indemnity hereunder and shall provide reasonable cooperation to the Indemnitees’ counsel with respect to such other Losses asserted in the same Action.

6.4 **Remedies.** Should a Party’s Contribution (including Background Technology) or any Developed Technology Created by its Personnel (“Implicated Property”), or any part thereof (for purposes of this Section 6.4, the “Providing Party”), become or be subject to a threat of a claim for infringement or misappropriation by a third party, the Providing Party may, at its own expense and option, either (i) procure for the other Party the right or license to continue using such Implicated Property, (ii) create a work-around to the alleged infringement or misappropriation with non-infringing Technology or (iii) modify the Implicated Property so that it becomes non-infringing (but providing substantially equivalent functionality). If none of these options is reasonably practical, the other Party may require that the Providing Party cease using the Implicated Property in connection with the applicable Development and that the Parties discuss the impact thereof on such Development, including, if necessary, whether and how to continue such Development.

6.5 **Sole Remedy.** The indemnities set forth in Section 6.1 and Section 6.2 shall be each Party’s sole remedy and obligation, as applicable, with respect to any and all claims of infringement or misappropriation of third parties’ Intellectual Property Rights under this Agreement.

## 7. **Warranties; Liability.**

7.1 **Advantest Warranties.** Advantest represents, warrants, and covenants as follows: (i) Advantest has not entered, and will not enter during the Term of this Agreement, into any agreement, contract, term sheet or promise that violate any of its obligations, representations, and warranties under this Agreement; (ii) Advantest has all rights, title and interest to perform all obligations of, and make all assignments, licenses, and grants made or to be made by, Advantest under this Agreement (*provided* that the foregoing shall not be deemed to be a warranty or representation of non-infringement of a third party’s Intellectual Property Rights); (iii) Advantest will perform all of its obligations under this Agreement in compliance with any applicable law; (iv) Advantest has full power and authority to enter into and perform under this Agreement; and (v) Advantest will not disclose or use any confidential Information of any third party in breach of any confidentiality, non-use or secrecy obligation to any third party regarding such Information.

7.2 PDF Warranties. PDF represents, warrants, and covenants as follows: (i) PDF has not entered, and will not enter during the Term of this Agreement, into any agreement, contract, term sheet or promise that would violate any of its obligations, representations, and warranties under this Agreement; (ii) PDF has all rights, title and interest to perform all obligations of, and make all assignments, licenses, and grants made or to be made by, PDF under this Agreement (*provided* that the foregoing shall not be deemed to be a representation of non-infringement of a third party's Intellectual Property Rights); (iii) PDF will perform all of its obligations under this Agreement in compliance with any applicable law; (iv) PDF has full power and authority to enter into and perform under this Agreement; and (v) PDF will not disclose or use any confidential Information of any third party in breach of any confidentiality, non-use or secrecy obligation to any third party regarding such Information.

7.3 DISCLAIMER. OTHER THAN THE WARRANTIES AND REPRESENTATIONS EXPRESSLY SET FORTH IN SECTIONS 7.1 AND 7.2 RESPECTIVELY, NEITHER PARTY MAKES ANY, AND EACH PARTY HEREBY DISCLAIMS ALL, WARRANTIES AND REPRESENTATIONS, WHETHER EXPRESS, IMPLIED, OR STATUTORY, REGARDING SUCH PARTY'S PERFORMANCE AND CONTRIBUTIONS UNDER THIS AGREEMENT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, TITLE OR WORKMANSHIP.

7.4 EXCLUSION AND LIMITATION OF LIABILITY. EXCEPT IN CONNECTION WITH (1) A PARTY'S INDEMNITY OBLIGATIONS, OR SUCH PARTY'S LIABILITY FOR BREACH OF ITS INDEMNITY OBLIGATIONS, UNDER SECTION 6 (Indemnity), (2) ANY INFRINGEMENT OR MISAPPROPRIATION BY A PARTY OF ANY INTELLECTUAL PROPERTY RIGHT OF THE OTHER PARTY, OR (3) ANY VIOLATION OF SECTION 4 (Ownership and Rights) OR SECTION 5 (Confidentiality): (i) IN NO EVENT SHALL EITHER PARTY BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, PUNITIVE, SPECIAL OR LIQUIDATED DAMAGES OF ANY KIND UNDER OR IN CONNECTION WITH THIS AGREEMENT; AND (ii) IF A PARTY IS LIABLE FOR ANY DAMAGES UNDER ANY SOW, THE TOTAL AND AGGREGATE DAMAGES FOR WHICH SUCH PARTY IS LIABLE UNDER SUCH SOW SHALL BE LIMITED TO [\*\*\*] U.S. DOLLARS (US[\*\*\*]).

## 8. Term and Termination.

8.1 Term. This Agreement shall be in effect from the Effective Date for a term commencing on the Effective Date and ending on the later of (i) the expiration or termination of all SOWs hereunder and (ii) [\*\*\*] years from the Effective Date, unless this Agreement is earlier terminated in accordance with Section 8.2 or by a mutual written agreement of the Parties.

8.2 Termination. This Agreement or any SOW entered into hereunder may be terminated as follows:

8.2.1 A Party may terminate an SOW at any time prior to the Development Completion by providing written notice of termination to the other Party if: (i) any of the material goals, tasks, targets, or completion of part of the applicable Development identified in the SOW to be achieved or completed by a given Milestone is not achieved or completed by such Milestone to such terminating Party's satisfaction and is not so achieved and completed within [\*\*\*] days after such terminating Party notifies such other Party of such failure, in which case such termination shall be effective automatically, without need for any further notice, at the end of such [\*\*\*] day period, or (ii) without cause, if such terminating Party decides, in its sole discretion, that it is not feasible or commercially reasonable or desirable for it to continue such Development under such SOW.

8.2.2 A Party may terminate an SOW by providing the other Party with written notice of termination in the event of material breach of such SOW by such other Party, which material breach shall be identified in such written notice, and which termination shall become effective at the end of [\*\*\*] days of such written notice of termination unless such other Party fully cured such material breach within such [\*\*\*] day period. Termination of an SOW shall not, by itself, terminate this Agreement or any other SOW.

8.2.3 A Party may terminate this Agreement by providing the other Party with written notice of termination in the event of material breach of this Agreement, which material breach is not limited to breach of the terms of a particular SOW, by such other Party, which material breach shall be identified in such written notice, and which termination shall become effective at the end of [\*\*\*] days of such written notice of termination unless such other Party fully cured such material breach within such [\*\*\*] day period.

8.2.4 A Party may terminate an SOW by written notice of termination effective immediately if the other Party materially breaches such SOW (including the terms of this Agreement as incorporated into such SOW) after such Party had previously issued two notices of termination under Section 8.2.2 that became ineffective as a result of a cure by such other Party.

8.2.5 A Party may terminate this Agreement by providing the other Party at least [\*\*\*] days' prior written notice of termination in the event that the other Party is in material violation of applicable law, including as set forth in Section 9.3.

8.2.6 A Party may terminate this Agreement by written notice of termination effective immediately if the other Party discontinues its business operations, takes steps to dissolve or cease to exist, admits its inability to pay its debts as they become due, files or is or becomes subject to a petition in bankruptcy (or similar reorganization proceeding) or makes a general assignment for the benefit of its creditors, or becomes subject to the appointment of a receiver.

8.2.7 A Party may terminate this Agreement by providing the other Party at least [\*\*\*] days' prior written notice of termination in the event that there are no active SOWs hereunder.

8.3 Termination By Advantest. This Agreement may be terminated by Advantest immediately upon written notice to PDF upon the merger of PDF or an Involved Affiliate with, direct or indirect change of control of PDF to, or the sale or transfer of all or a substantial portion of all of the assets or business of PDF to, an Advantest Named Competitor. "Involved Affiliate" means an Affiliate of PDF that, at the time of such change of control, controls the Development, or owns or controls the material Contributions of SOW for the Development, under an SOW in effect at the time of such change of control.

8.4 Effect of End of Term; Survival. In the event of a termination of an SOW (whether as a result of the termination of such SOW alone or as a result of the termination of this Agreement) by PDF under Section 8.2 or by Advantest under Section 8.3, PDF is entitled to, and Advantest shall pay PDF with [\*\*\*] days after the effective date of such termination (the "Termination Effective Date"), (1) all payments owed to PDF under such SOW before or on the Termination Effective Date (including for any milestones reached by the Termination Effective Date) to the extent such payments have not been paid to PDF before or on the Termination Effective Date, and (2) with regard to any other payment to PDF under such SOW that is not owed before or on the Termination Effective Date but would have been the next payment owed to PDF if such SOW had continued (including the payment upon reaching the next following milestone), the amount of such payment pro-rated by a share equivalent to the number of days (or estimated number of days) between the Termination Effective Date and the date on which such payment would have been (or would be estimated to have been) owed to PDF under such SOW. Upon the end of the Term, except as otherwise provided in the applicable Commercialization Agreement: (i) Advantest shall return, deliver, or provide to PDF all Material and Information included in PDF Property, and irretrievably delete any copies and manifestations of such Material and Information remaining despite such return, delivery, or provision, in the possession or control of Advantest or any of its Affiliates or Personnel, and (ii) PDF shall return, deliver, or provide to Advantest all Material and Information included in Advantest Property, and irretrievably delete any copies and manifestations of such Material and Information remaining despite such return, delivery, or provision, in the possession or control of PDF or any of its Affiliates or Personnel. This obligation to return or destroy information shall not apply to software and information that is stored in backup or other disaster recovery systems, archives, or other storage systems that make it impractical to destroy such information; *provided, however*, that for so long as a Party retains the Information it shall be obligated to maintain the protections described in Section 5. All provisions in Sections 4, 5, 6, 7.3, 7.4, this Section 8.4, and Section 9, and the definitions in Section 1 as relevant for such provisions, shall survive the termination or expiration of this Agreement.

## 9. Miscellaneous

9.1 Remedies; Injunctive Relief. Each Party recognizes that any actual or potential violation, breach, non-performance of, or default under, any provision in Sections 4 (Ownership and Rights) and/or 5 (Confidentiality) or an infringement or other violation of either Party's Intellectual Property Rights may cause irreparable injury to the other Party for which such other Party may have no adequate remedy at law. Therefore, each Party agrees that the other Party shall be entitled to seek injunctive relief or specific performance, without any requirement to post any bond, to enforce any obligation, agreement, covenant, term, or condition, or to prove actual damages or that monetary damages are not an adequate remedy, under Sections 4 and/or 5. Such remedies are not exclusive and are in addition to all other remedies available to such other Party, all as such other Party elects in its sole discretion.

9.2 Relationship of the Parties; No Third-Party Beneficiaries. The relationship between the Parties is that of independent contractors. Nothing contained in this Agreement constitutes, and shall not be construed as constituting or creating, any agency, partnership joint venture, including for United States federal income tax purposes, or other form of joint enterprise, employment, or fiduciary relationship between the Parties, and neither Party shall have any right to obligate or bind the other Party in any manner whatsoever. Nothing herein contained shall give or is intended to give any rights of any kind to any third persons.

9.3 Export Control and Legal Compliance. Each Party shall comply with all applicable law, including all applicable import and export laws, rules and regulations with respect to the transfer of any Technology, including export controls under the laws and regulations of the United States, including the Export Administration Regulations, 15 C.F.R. Parts 730-774. Each Party will comply strictly with all such United States export controls, and shall not export, re-export, transfer, divert or disclose any Technology to any destination, end-use or end-user that is prohibited or restricted under such United States export control laws and regulations, except as specifically authorized by the Department of Commerce. If requested by a Party, the other Party agrees to sign written assurances and other export-related documents as may be required to comply with U.S. export regulations. Each Party shall at all times strictly comply with all applicable laws, regulations, and governmental orders, now or hereafter in effect, relating to the performance of its activities under this Agreement, and not engage in any practices or activities that is prohibited or in violation of any such law, regulation or governmental order, including the United States Foreign Corrupt Practices Act and all other applicable anti-corruption and anti-bribery laws.

9.4 Assignment and Transfer. Neither Party may transfer this Agreement either in whole or in part or assign its rights or delegate its obligations hereunder, or grant any security interest, lien, or encumbrance in or to this Agreement or any right under this Agreement, without the prior written consent of the other Party; *provided, however*, that no consent shall be required in connection with any transfer of this Agreement to an Affiliate of such Party or in connection with any merger, reorganization, or consolidation of such Party or any of its Affiliates, or the sale or transfer of all or substantially all of the assets or business of such Party. Any attempted transfer, assignment, or delegation in contravention of the foregoing shall be null and void. This Agreement shall be binding upon and inure to the benefit of the permitted successors and assigns of the Parties.

9.5 Interpretation. In this Agreement and SOW: (i) any provision in the caption and recitals of this Agreement are part of this Agreement; (ii) any reference to any provision of a statute shall be construed as a reference to that provision as amended, re-enacted or extended at the relevant time; (iii) where this Agreement states that a Party “shall” or “will” perform in some manner or otherwise act or omit to act, it means that such Party is legally obligated to do so in accordance with this Agreement; (iv) the principle *ejusdem generis* shall not apply to any provision in this Agreement or any SOW, schedule or exhibit attached hereto; (v) the term “including” means “including without limitation” and is intended by way of example and not limitation; (vi) the provisions of this Agreement shall not be interpreted against the drafter, and for purposes of any interpretation, both Parties shall be deemed to be drafters of this Agreement; (vii) all headings are intended solely for the convenience of the Parties, and none will be deemed to affect the meaning or construction of any provision hereof; (viii) words of any gender used in this Agreement are intended to include any other gender, and words in the singular number include the plural, and vice versa, unless the context clearly indicates otherwise; (ix) the word “or” is not exclusive; (x) the words “herein,” “hereof,” “hereby,” “hereto,” and “hereunder” refer to this Agreement as a whole; and (xi) references to an agreement, instrument, or other document means such agreement, instrument, or other document as amended, supplemented, and modified from time to time to the extent permitted by the provisions thereof.

9.6 Entire Agreement; Amendment; Waiver.

9.6.1 This Agreement, together with each SOW, constitutes the sole and entire agreement of the Parties with respect to the subject matter contained herein and therein and supersede all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter. For the avoidance of doubt, this Agreement is intended to govern the Parties rights and obligations with respect to the collaboration and Development of Integrated Products. Any disputes or claims for indemnification with respect to any Integrated Product pertaining to the Development of such Integrated Product shall be governed exclusively by the terms of this Agreement. To the extent that any dispute or claim for indemnification with respect to any Integrated Product pertaining to the marketing, commercialization, and support of such Integrated Product, such dispute or claim shall be governed by the terms of the Commercialization Agreement and not this Agreement. Nothing in this Agreement is intended to limit or modify the Parties respective rights or obligations under the Commercialization Agreement or any other agreements between the Parties or their Affiliates.

9.6.2 No term or provision of this Agreement may be amended, waived, changed, replaced, or removed except solely by a written amendment expressly identified as being an amendment to this Agreement and expressly identifying such term or provision if such written amendment is signed by each Party through its authorized representative therefor; any other amendment, waiver, change, replacement, or removal of any term or provision of this Agreement shall be invalid and unenforceable. No waiver of all or part of any right or remedy by a Party shall be valid or effective unless it is made in writing by an authorized representative of such Party and is expressly identified as being waived in such writing. A failure of either Party to exercise any right provided for herein shall not be deemed to be a waiver of any right hereunder; nor shall any single or partial exercise of any right, remedy, power, or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power, or privilege.

9.7 Governing Law and Forum. THE VALIDITY, ENFORCEABILITY, AND PERFORMANCE OF THIS AGREEMENT, AND THE CONSTRUCTION AND INTERPRETATION OF ANY TERM AND ANY PROVISION IN THIS AGREEMENT, AND ANY DISPUTE UNDER OR RELATED TO THIS AGREEMENT, SHALL BE GOVERNED BY U.S. FEDERAL LAW AS APPLICABLE AND THE LAWS OF THE STATE OF CALIFORNIA, WITHOUT REGARD OF ANY CONFLICT OF LAWS PROVISION THAT WOULD RESULT IN THE APPLICATION OF THE LAW OF ANY OTHER JURISDICTION. WITH RESPECT TO ANY DISPUTE, EACH PARTY CONSENTS AND SUBMITS TO THE EXCLUSIVE JURISDICTION OF, WAIVING ANY OBJECTIONS TO PERSONAL JURISDICTION IN, COMPETENT STATE AND FEDERAL COURTS IN THE STATE OF CALIFORNIA FOR ANY LITIGATION OR PROCEEDING, AND TO THE EXCLUSIVE VENUE OF SUCH LITIGATION OR PROCEEDING IN THE COUNTY OF SANTA CLARA, CALIFORNIA.

9.8 Severability. If any provision of this Agreement is held to be invalid, illegal or unenforceable in any jurisdiction, such invalidity, illegality, or unenforceability shall not affect any other term or provision of this Agreement or invalidate or render unenforceable such term or provision in any other jurisdiction and the meaning of said provision will be construed, to the extent feasible, so as to render the provision enforceable, and if no feasible interpretation shall save such provision, it will be severed from the remainder of this Agreement, as appropriate. The remainder of this Agreement shall remain in full force and effect unless the severed provision is essential and material to the rights or benefits received by either Party hereunder. On such determination that any term or other provision is invalid, illegal, or unenforceable, the Parties shall use their best efforts to negotiate, in good faith, to modify this Agreement so as to effect the original intent of the Parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the greatest extent possible.

9.9 Notices. Any notice, request, consent, claim, demand, or other communication to be given or delivered to a Party under or by reason of a provision of this Agreement shall be in writing and shall be deemed to have been given to such Party when delivered personally to such Party, or emailed or sent to such Party by United States Postal Service (USPS), United Postal Service (UPS), Federal Express (FedEx) express service, or reputable express courier service, with return receipt or signature/reply confirmation, as applicable, and with the charges prepaid, to the following address and attention of such Party, or another address notified hereunder by such Party at least thirty (30) days' in advance for notices, demands, or other communications, to:

PDF:

PDF Solutions, Inc.  
Attn: CFO/General Counsel  
2858 De La Cruz Boulevard  
Santa Clara, CA 95050 (USA)  
[legal.department@pdf.com](mailto:legal.department@pdf.com)

Advantest:

Advantest America, Inc.  
Attn: CFO  
3061 Zanker Road  
San Jose, CA 95134

9.10 Counterparts. The Parties may execute this Agreement in multiple counterparts, each of which constitutes an original as against the Party that signed it, but all of which together constitute one and the same agreement. This Agreement is effective upon delivery of one executed counterpart from each Party to the other Party. The signatures of all parties need not appear on the same counterpart. The delivery of signed counterparts by facsimile or email transmission in portable document format (.pdf) or .tiff format that includes a copy of the sending Party's signature(s), or by electronic signature, is as effective as signing and delivering the counterpart in person.

[Signature page follows.]

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PDF Solutions and Advantest CONFIDENTIAL INFORMATION

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IN WITNESS WHEREOF, the Parties have signed and entered into this Agreement as of the Effective Date.

**PDF SOLUTIONS, INC.**

/s/ Kimon Michaels

By:

Name: Kimon Michaels

Title: EVP, Products & Solutions

Date: July 29, 2020

**ADVANTEST AMERICA, INC.**

/s/ Douglas Lefever

By:

Name: Douglas Lefever

Title: President and CEO

Date: July 29, 2020

[Signature Page to Amended and Restated Master Development Agreement]

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**Schedule 1  
Form of SOW**

**Statement of Work # [\_\_]**

This Statement of Work No. \_\_\_\_ (this “SOW”) is an SOW entered into as of \_\_\_\_\_, 20\_\_ (the “SOW Effective Date”) by and between PDF Solutions (“PDF”) and Advantest America, Inc. (“Advantest”) under the Amended and Restated Master Development Agreement between PDF and Advantest dated as of \_\_\_\_\_, 2020 (the “Agreement”). Any “Exhibit” attached to this SOW after the signature page of this SOW is incorporated into and a part of this SOW.

- 1. Definitions.** All terms not defined herein have the same meanings as set forth in the Agreement for the purpose of this SOW as well as the application of provisions of the Agreement to this SOW. **[In addition, each of the following capitalized terms have the meaning associated with such term in the following definitions under this SOW and for the purpose of this SOW: [ADD ANY SPECIFIC DEFINITIONS USED ONLY IN THIS SOW].]**
- 2. Scope of Development.**
  - a. The Development under this SOW relates to the following: \_\_\_\_\_.
  - b. The Development shall be performed in accordance with the activities schedule set forth in Exhibit A to this SOW (the “Activities Schedule”). For each task in the course of the Development under this SOW (set forth in Column A of the Activities Schedule) (“Project Task”), PDF agrees to perform the activities and deliver any deliverables set forth in Column C of the Activities Schedule for such Project Task within the estimated delivery period set forth in Column D of the Activities Schedule, provided that PDF’s performance of such activities and delivery of any such deliverables within such estimated delivery periods are on condition of Advantest’s timely performance of the tasks and inputs set forth in Column B of the Activities Schedule. In the event that Advantest fails to perform, or delays in performing, such tasks or inputs, or updates its original inputs, and such delay is not caused by PDF, the estimated delivery periods will be adjusted reasonably, with a default of automatic postponement day-for-day for such delay unless the Parties agree otherwise in writing (including by e-mail). The Activities Schedule is subject to detailing and updating from time-to-time upon written agreement between the Parties. For the avoidance of doubt, PDF shall have no obligation hereunder for activities or deliverables that are not expressly set forth in Column C of the Activities Table for a specific Project Task.
- 3. Contributions.**
  - a. PDF agrees to provide the following Contributions (if any): \_\_\_\_\_.
  - b. Advantest agrees to provide the following Contributions (if any): \_\_\_\_\_.
- 4. Acceptance.** **[ADD ADDITIONAL PROVISIONS REGARDING ACCEPTANCE.]**

5. **Payments.** [ADD ADDITIONAL PAYMENT PROVISIONS.]

6. **Term and Termination.** Unless terminated earlier, this SOW shall commence on the SOW Effective Date and continue to be in effect [ADD DEFINITE TERM OR OTHER PROVISION REGARDING THE TERM OF THIS SOW] (“SOW Term”). This SOW may be terminated by either Party as stated in the Agreement[ and [ADD ANY SPECIAL TERMINATION RIGHTS FOR THIS SOW, IF ANY, SUCH AS CROSS-DEFAULT AMONG DIFFERENT SOWS]].

7. **Project Managers.** [ADD DETAILS OF PROJECT MANAGERS IF KNOWN.]

8. **Change Orders.** In the event that a Party seeks to add to or change the scope of the Development, or the performance thereof or activities therefor, under this SOW, such Party shall state the request in writing to the other Party and include therein a written specification of the requirements detailing such proposed addition or change. The Parties shall jointly determine whether such requested change will have a significant impact on the Development, activities, schedule, risk, effort, materials, or cost. Unless the Parties, in mutual agreement, waive in writing the need for an amendment to this SOW, (i) such Party will submit a proposed amendment to this SOW documenting such requested addition or change and the additions or changes to the Development, activities, schedule, dependencies, specifications, allocation of risk, fees and expenses, and/or other terms and conditions, and (ii) the requested addition or change (or ultimate version thereof) shall not be effective or binding upon the Parties unless and to the extent such addition or change is set forth in a written amendment to this SOW agreed to by the Parties and signed by each Party through an authorized management representative of such Party.

9. **Modifications to Agreement.** Solely for purposes of this SOW: [IDENTIFY ANY PROVISIONS THAT ARE INTENDED TO BE AMENDED IN THE AGREEMENT FOR PURPOSES OF THIS SOW, IF ANY.]

10. [ADD ANY OTHER PROVISIONS TO BE INCLUDED IN THIS SOW, SUCH AS THE PRICE PER UNIT OF ANY DEVELOPED PRODUCT DEVELOPED UNDER THIS SOW]

11. **Miscellaneous.** All terms and conditions of the Agreement shall apply to, and be deemed to be incorporated by reference into, this SOW as if expressly set forth herein. Subject to Section [9] of this SOW, in the event of a conflict, deviation or discrepancy between a provision, term, or condition in this SOW and a provision, term, or condition in the Agreement, the provision, term, or condition in (i) this SOW shall prevail with respect to Sections 2 and 3 of the Agreement and (ii) the Agreement shall prevail with respect to any other Sections of the Agreement.

IN WITNESS WHEREOF, each Party has executed this SOW as of the SOW Effective Date.

PDF SOLUTIONS, INC.

ADVANTEST AMERICA, INC.

\_\_\_\_\_  
By:  
Name:  
Title:  
Date:

\_\_\_\_\_  
By:  
Name:  
Title:  
Date:

**Exhibit A  
Activities Schedule**

<p align="center"><b>- A - Project Task (Phase)</b></p>	<p align="center"><b>- B - Advantest Dependencies: Data, Activities or other Inputs Required from Advantest</b></p>	<p align="center"><b>- C - PDF Activities and Deliverables (based on Advantest Dependencies per column B)</b></p>	<p align="center"><b>- D - Estimated Delivery Period</b>  <i>(based on timely performance of Advantest Dependencies)</i></p>
1.			
2.			

Schedule 2

CERTAIN INFORMATION INDICATED WITH [\*\*\*] IN THIS DOCUMENT HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED



PDF doc #8277

## MASTER COMMERCIAL TERMS AND SUPPORT SERVICES AGREEMENT

This Master Commercial Terms and Support Services Agreement (this “Agreement”), is effective as of July 29, 2020 (the “Effective Date”), by and between Advantest America, Inc., a Delaware corporation, with a principal place of business at 3061 Zanker Road, San Jose, CA 95134 (“Advantest”) and PDF Solutions, Inc., a Delaware corporation, with a principal place of business at 2858 De La Cruz Boulevard, Santa Clara, CA 95050 (“PDF”). PDF and Advantest are referred to herein individually as a “Party” and collectively as the “Parties.”

### RECITALS

WHEREAS, Advantest and PDF have entered into that certain Amended and Restated Master Development Agreement dated as of July 06, 2020 (the “Development Agreement”) together with SOW #1 thereto (“[\*\*\*] SOW”) to collaborate and develop an Integrated Product consisting of a [\*\*\*] (the combination of the [\*\*\*] (as defined in the [\*\*\*] SOW) with Exensio for [\*\*\*] as developed by the Parties under the Development Agreement and [\*\*\*] SOW, the “[\*\*\*] System”); and

WHEREAS, Advantest and PDF now wish to enter into this Agreement to set forth certain agreed upon terms to commercialize the [\*\*\*] System and to set forth a structure for agreeing on the commercialization, as well as the Parties’ respective support responsibilities, of the [\*\*\*] System and any other Integrated Products hereunder.

NOW, THEREFORE, in consideration of the premises set forth above and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

#### 1. DEFINITIONS

In addition to any other definitions set forth in this Agreement, the Development Agreement and the [\*\*\*] SOW, the following terms are defined as follows:

“Addendum” means any document entitled an “Addendum” to this Agreement, including Addendum 1 entered into on even date herewith, which incorporates this Agreement and/or amends the terms hereof with respect to an Integrated Product through an amendment to this Agreement in accordance with Section 10.8.

“Affiliate” has the meaning ascribed to it in the Development Agreement.

“Commercialize” means the marketing, promoting, offering, and selling (in the form of granting Customer Licenses) of Integrated Products and Support Services.

“Customer” means any corporation, company, or other entity to which an Integrated Product is licensed in accordance with the terms hereof.

“Customer Agreement” means, with regard to a Customer, the enforceable agreement(s) with such Customer pursuant to which such Customer is granted any Customer License to an Integrated Product or is entitled to receive Support Services.

“Customer License” means all time-based licenses and use rights granted to a Customer in such Customer’s Customer Agreement in or to an Integrated Product, including the Customer Sublicense.

“Customer Sublicense” means the sublicense to a Customer to use each Party’s Licensed Technology included in an Integrated Product, granted to a Customer as part of the Customer License to such Integrated Product in accordance with Section 2.3.

“Error” means, with regard to software Contribution included in an Integrated Product, a material failure to conform to the specifications of such software delivered by the contributing Party to the other Party under the Development Agreement, and any material improper execution or termination of the functioning of such software.

“Future Integrated Product” means a solution developed by the Parties pursuant to an SOW under the Development Agreement that combines Background Technology of Advantest or Advantest-Owned Developed Technology together with, or to interoperate with (e.g., through APIs), Background Technology of PDF or PDF-Owned Developed Technology, whether directly integrated with a Tool System, and, if so integrated, whether integrated with such Tool System before or after such Tool System is sold to an end user.

“Integrated Product” means, for the purpose of this Agreement, (i) the [\*\*\*] System, and (ii) any Future Integrated Product only as of the Parties’ entering into an Addendum for such Future Integrated Product.

“Licensed Mark” means a Party’s Mark that such Party identifies in writing to the other Party for use with the promotion, marketing, and offer of Integrated Products. PDF’s Licensed Mark’s shall include any “Exensio,” “[\*\*\*],” and “[\*\*\*]” and any variations, translations, and transliterations thereof, but for the avoidance of doubt, specifically excludes “[\*\*\*]” used without “[\*\*\*].”

“Licensed Technology” means, with respect to PDF, the PDF Technology included in an Integrated Product and, with respect to Advantest, the Advantest Technology included in an Integrated Product.

“Sales Price” means, with regard to a Customer, the net (i.e., after any discount by the Selling Party and Taxes specified in Section 4.4.2 payable thereon) fees for the Integrated Product (however named/listed by the Selling Party in the Customer Agreement) set forth in the Customer Agreement.

“Subscription Year” means the initial, and each subsequent, full or partial one (1) year period of a Customer License, with the initial such one (1) year period commencing on the starting date of the Customer License, each subsequent such one (1) year period commencing on an anniversary of such starting date, and the last such one (1) year period ending upon the termination or expiration of such Customer License.

“Term” has the meaning set forth in Section 6.1 of this Agreement.

“Tool” means a single unit of equipment combining the hardware, firmware, and software consisting of a Tool System with which a Customer will have the right to use an Integrated Product.

“Tool System” means any proprietary integrated control/operating systems for tools/testers manufactured by Advantest, including parametric, functional, and system level test (SLT) test systems, lithography, and metrology tools.

## 2. COMMERCIALIZATION

2.1 **Commercialization of Integrated Products.** The Parties will decide and document in Addenda for each Integrated Product, whether such Integrated Product will be sold by one or both Parties and which of them will be responsible for Commercializing (in each case, the Party Commercializing is the “Selling Party” and the other Party in each case is the “Non-Selling Party”). In each case, such Selling Party shall make commercially reasonable efforts to Commercialize Integrated Products and the Support Services in accordance with this Agreement to Customers in accordance with the terms and conditions of this Agreement. In any event, the Selling Party does not have any right under this Agreement to market, promote, offer, sell, license, sublicense, commercialize, exploit, or represent in any way anywhere any product, service, Technology, or Intellectual Property Right of the Non-Selling Party, other than its Licensed Technology that is the subject of an Addendum as part of such Integrated Product. For the avoidance of doubt, except as expressly set forth in this Agreement or an Addendum, nothing herein shall prevent or be deemed to prevent or restrict a Party from, marketing, promoting, offering, selling licensing, commercializing, or exploiting, alone or with any other product, the Party’s respective products, services, Technology, and Intellectual Property Rights, including any versions of the Exensio System by PDF, and any Tool System by Advantest, other than as included in an Integrated Product.

### 2.2 Licenses.

2.2.1 The Non-Selling Party hereby grants the Selling Party a limited, worldwide, non-sublicensable (except as included in the Customer Sublicense as set forth herein), non-transferable, non-assignable license, during the Term, terminable and revocable upon termination of this Agreement, to sell Customer Licenses to Integrated Products, including Customer Sublicenses to the Non-Selling Party’s Technology included therein (subject to Section 6.3.3(a)), in the course of the Commercialization of such Integrated Product under this Agreement, conditioned on the Selling Party’s payment to the Non-Selling Party of the applicable License Fees under this Agreement.

2.2.2 In each case, the Non-Selling Party hereby grants the Selling Party a limited, worldwide, non-sublicensable, non-transferable, non-assignable license, during the Term, terminable and revocable upon termination of this Agreement, to use the the Non-Selling Party's Licensed Marks solely in connection with Commercializing Integrated Products, provided that: (i) for reasons of quality control and otherwise, each Integrated Product meets the quality standards as developed by the Parties under the Development Agreement; and (ii) the Selling Party shall use any Non-Selling Party's Licensed Mark with such proprietary notices and in accordance with any written guidelines provided by the Non-Selling Party to the Selling Party in advance of such Commercialization, which guidelines may be updated by the Non-Selling Party from time to time upon reasonable written notice to the Selling Party.

2.2.3 Each Party hereby reserves all rights and ownership in and to each of its Marks and does not assign, transfer, convey, or agree to assign, transfer, or convey, any ownership, rights, title, or interest in or to any of its Mark, and does not grant any rights or licenses, expressly or implicitly, in or to any of its Marks (other than the express license in Section 2.2.2 to any Licensed Mark during the Term). Each Party (as the Selling Party) shall not: (i) use the Non-Selling Party's Marks other than a Licensed Mark as expressly permitted under this Section 2.2.3 or adopt any Mark of the Non-Selling Party or any Mark confusingly similar thereto; (ii) in any way modify, edit, change, amend, translate, transliterate, or customize any Mark of the Non-Selling Party, or combine any of the Non-Selling Party's Marks with, or use any of the Non-Selling Party's Marks to give the appearance of any combined Mark with, any other Mark; (iii) register or file any application to register any the Non-Selling Party's Mark, or any modification, translation, or transliteration thereof, or any Mark confusingly similar with any of them; (iv) claim or assert any ownership or right in or to any Non-Selling Party's Mark (other than Selling Party's express license under Section 2.2.2), or challenge the Non-Selling Party's ownership or rights in or to any of the Non-Selling Party's Marks, or the validity or enforceability of any of the Non-Selling Party's Marks; or (v) assist, instigate, or support any third party with any of the foregoing under clauses (i) through (iv).

2.3 **Customer Agreements.** For Integrated Products, the Selling Party will be responsible for negotiating and entering into a Customer Agreement with each Customer and granting such Customer the Customer License and agreeing to provide to, and performing for, such Customer all Support Services. The Non-Selling Party shall not be a party to, and shall have no contractual rights or obligations under, any Customer Agreement; *provided that*, for the avoidance of doubt, such lack of contractual privity is not intended to and shall not be deemed to limit or modify such Non-Selling Party's (1) obligation to provide Second Line Support Services under Section 3.3 of this Agreement or (2) rights to enforce its Intellectual Property Rights with respect to any infringement thereof by any Customer or other third party. The Parties agree that each Customer Agreement will match the effective term of the Customer Licenses to each such Customer, such that an enforceable agreement will continuously be in effect governing such Customer's use of the applicable Integrated Product. The Selling Party shall ensure that each Customer Agreement includes terms and conditions that are consistent with, and do not affect the rights or obligations of a Party under, this Agreement, including (i) a Customer Sublicense with terms consistent with the resale terms specific to the Non-Selling Party's Licensed Technology that the Non-Selling Party provides to the Selling Party in connection with entering into Addendum 1 or another Addendum, and (ii) provisions consistent with the terms and conditions in this Agreement. Within [\*\*\*] calendar days after entering into a Customer Agreement, the Selling Party shall deliver to the Non-Selling Party (a) a copy of the Customer Agreement (subject to consent of the Customer or redaction thereof to protect any of such Customer's confidential information that is prohibited from being shared with the Non-Selling Party), and (b) a written notice identifying the Integrated Product(s) covered by such Customer Agreement and setting forth the duration of all Customer Licenses included therein and the number of the Tools for which such Customer is entitled to use such Integrated Product(s) during such Customer Licenses.

### 3. SUPPORT SERVICES

3.1 **Scope.** During the Term and thereafter (solely to the extent required pursuant to Section 6.3), the Parties shall provide to a Customer the support services for Integrated Products, at such support levels, as set forth in Sections 3.2 and 3.3 (collectively, the “Support Services”). If on-site Support Services are required as set forth herein, the Parties obligation is only for the site(s) designated for installation of the Integrated Product in the Customer Agreement with such Customer, as set forth in the applicable Addendum or otherwise agreed by the Parties in advance in writing (the “Designated Sites”). The Selling Party shall contract with each Customer directly for all Support Services, and the Non-Selling Party will provide all Second Line Support Services either to the Selling Party or, if desired by the Selling Party, to Customers as a subcontractor of the Selling Party.

3.2 **First Line Support Services.** For Integrated Products subject to a Customer License, the Selling Party shall perform and provide to each Customer: first line Support Services (“First Line Support Services”), which shall (i) be generally consistent with the support provided for its products similar to its Licensed Technology in the past, (ii) include 24/7 telephone support (through multiple regions, as necessary) to the Customer if the Integrated Product is an essential component of a Customer’s production capability, (iii) identify and diagnose whether an Error or other problem with the Integrated Product experienced by a Customer is occurring due to the Selling Party’s Licensed Technology or the Non-Selling Party’s Licensed Technology, and (iv) seek to remedy Errors and, if the Selling Party is Advantest, other problems arising from or related to any aspect or part of or pertaining to an Integrated Product affecting a Tool. If the Selling Party, in its reasonable discretion, determines that the Error or other problem with respect to a Tool due to an Integrated Product is occurring due to the Non-Selling Party’s Licensed Technology, the Selling Party shall contact the Non-Selling Party and the Non-Selling Party shall promptly provide Second Line Support Services (as defined below) to such Customer.

### 3.3 Second Line Support Services.

3.3.1 For Integrated Products subject to a Customer License, the Non-Selling Party shall perform second line Support Services (“Second Line Support Services”) with respect to the Non-Selling Party’s Licensed Technology, which shall consist generally of remedying Errors in such Licensed Technology identified as part of the First Line Support Services. If the Non-Selling Party determines that an Error arises exclusively from or is exclusively related to any aspect or part of, or pertains to, an Integrated Product other than its Licensed Technology, the Selling Party shall be responsible for remedying and correcting, and shall promptly take the action necessary to remedy and correct, such Error. PDF and Advantest each acknowledge and agree that, as part of Second Line Support Services, it may be necessary for the Non-Selling Party to access the Customer’s network, system, and computers to assess or remedy an Error or problem in its Licensed Technology licensed to such Customer. The Selling Party shall (i) cause each Customer to consent to such access to its network by the Non-Selling Party (e.g., as a subcontractor to the Selling Party), at such time(s) arranged for such access between the Non-Selling Party and such Customer and (ii) notify the Non-Selling Party in writing of any of the Customer’s policies, practices or other requirements applicable to the Non-Selling Party’s access thereto (“Customer Policies”). The Non-Selling Party shall comply with all such Customer Policies and shall promptly notify the Selling Party if the Non-Selling Party determines that it is unable to effectively provide the Second Line Support Services in a manner that complies with such Customer Policies, after which the Parties shall confer and determine in good faith the best course of action to provide the required Second Line Support Services to such Customer. In the event that (a) the Parties mutually agree that the Non-Selling Party is unable to effectively provide the Second Line Support Services in a manner which complies with applicable Customer Policies and are unable to identify an alternative means of remotely providing the requisite Second Line Support Service or (b) a Customer does not permit the Non-Selling Party to access its network remotely and the Parties agree reasonably and in good faith that on-site support is required to address a critical Error in its Licensed Technology, the Non-Selling Party will dispatch the required Personnel to such Customer’s Designated Site(s) to perform the necessary Second Line Support Services to remedy and correct such critical Errors.

3.3.2 In the event that the Non-Selling Party fails to provide the Second Line Support Services to a Customer to remedy an Error in material breach of such Party’s obligations under Section 3.3.1, including after written notice of such breach (with reasonable detail demonstrating such breach) by the Selling-Party to the Non-Selling Party, the Parties shall discuss and agree reasonably and in good faith how such Second Line Support Services to remedy such Error shall be provided to such Customer, which at a minimum shall include at a minimum (i) the Selling Party’s right to use any SDKs and APIs included with the Non-Selling Party’s Licensed Technology to provide work-arounds, bug fixes, and enhancements to remedy any such Errors, which right each Party hereby grants to the other Party upon the occurrence of any such breach without cure, and (ii) reasonable training by the Non-Selling Party, at its sole expense, to the Selling Party’s Personnel as reasonably agreed by the Parties to enable such Personnel to provide such Second Line Support Services on behalf of the Non-Selling Party to such Customer(s). The Selling Party shall use commercially reasonable efforts to mitigate any damages to such Customer, including by seeking to timely provide and perform all such Second Line Support Services.

3.3.3 In the case of each Addendum hereunder and solely where the Selling Party is Advantest, and then subject to the Selling Party's [\*\*\*] of [\*\*\*] services [\*\*\*] to the Non-Selling Party, establishment and maintenance of [\*\*\*] with such [\*\*\*], and the Selling Party's payment of all costs associated with establishing and maintaining such [\*\*\*], then at the request of the Selling Party, the Non-Selling Party in each case hereby agrees to [\*\*\*] of the Non-Selling Party's Technology included in an Integrated Product that is the subject of an Addendum hereunder if such software is not available in a PDF-hosted cloud instance, along with [\*\*\*] to [\*\*\*] it in accordance with the terms of this Agreement and the applicable Addendum ("[\*\*\*] **Materials**"). Within [\*\*\*] days of the Selling Party's request in the case of each Addendum and payment by the Selling Party as set forth in the foregoing, the Non-Selling Party will enter into [\*\*\*] providing for [\*\*\*] the [\*\*\*] Materials to the Non-Selling Party upon [\*\*\*]. [\*\*\*]: (i) the Non-Selling Party has [\*\*\*] in which the Non-Selling Party is the [\*\*\*]; (ii) an [\*\*\*] by the Non-Selling Party for the [\*\*\*]; (iii) the [\*\*\*] the Non-Selling Party; (iv) any other [\*\*\*] the Non-Selling Party's [\*\*\*]; (v) the Non-Selling Party has [\*\*\*], in general, or [\*\*\*], specifically; (vi) the Non-Selling Party has [\*\*\*]. Subject to [\*\*\*] by the Non-Selling Party to the [\*\*\*] as/when due in accordance herewith, the Selling Party's [\*\*\*] such [\*\*\*] Materials, which use thereof shall be limited to the specific license grants herein, including any Addenda hereunder. The Selling Party agrees not to exercise the foregoing right and license until the occurrence of [\*\*\*]. For the avoidance of doubt, in the event of a [\*\*\*] of such items hereunder, the Selling Party shall be responsible for [\*\*\*] hereunder in compliance with the terms and conditions of this Agreement and applicable Addenda.

3.4 **Parties' Support Services.** Each Party shall dedicate the Personnel reasonably necessary to provide its Support Services set forth herein, as may be further specified in the applicable Addendum.

3.5 **Training.** Each Party shall provide, at its sole expense and without charge to the other Party, ongoing training deemed necessary in the providing Party's discretion to the other Party's Personnel during the Term on the procedures and methods necessary to provide the First Line Support Services relative to its Licensed Technology to be Commercialized hereunder. Each Party shall provide training for these purposes at a location, date, and time to be mutually agreed on by the Parties. The Party performing the installation of the Integrated Product for a Customer shall provide reasonable instruction to such Customer necessary for such Customer's operation of the Integrated Product, including the Non-Selling Party's Licensed Technology therein.

3.6 **Responsibility for Personnel.** Each Party, respectively, shall remain responsible and liable for: (i) the supervision, coordination, and performance of that Party's Personnel in connection with each Party's provision of Support Services; and (ii) all acts and omissions of such Party's Personnel, each of which shall be ascribed to the respective Party to the same extent as if such acts or omissions were by that respective Party itself. Any noncompliance by any Party's Personnel with the provisions of this Agreement will constitute such Party's breach hereof.

#### 4. FEES

4.1 **License Fees.** In consideration for the licenses under Section 2.2, and the grant of the Customer Sublicense to a specific Customer thereunder, and the Non-Selling Party's agreement to provide the Second Line Support Services pursuant to Section 3.3 for Integrated Products licensed to such Customer, the Selling Party shall pay to the Non-Selling Party the license fee for each Customer License as set forth in (i) Addendum 1 for the [\*\*\*] System, or (ii) in any Addendum for a Future Integrated Product (the "License Fee"). The Selling Party shall provide a purchase order to the Non-Selling Party at the end of each [\*\*\*] in which any Customer Licenses were in effect for the total License Fees due hereunder.

4.2 **Payments.** Except as otherwise set forth in this Agreement, the Selling Party shall pay all amounts owed to the Non-Selling Party within [\*\*\*] after the Non-Selling Party's invoice thereof is received by the Selling Party. All payments shall be made by the Selling Party at its cost in U.S. Dollar currency in irrevocable immediately available funds by bank transfer or in other form as agreed by the Parties. Failure to pay any amount not disputed in good faith and owed to the Non-Selling Party when due shall accrue late fees equal to [\*\*\*] of the total unpaid for each full or partial [\*\*\*] after the due date of such amount until payment of such amount by the Selling Party to the Non-Selling Party in accordance with this Section 4.2.

4.3 **Audit.** The Selling Party shall keep complete and accurate reasonable records of any and all Commercialization, Customer Agreements, Tools (on which any Integrated Product is installed), and Sales Price with respect to each Customer for no less than the duration of such Customer Agreement and a period of [\*\*\*] after the end of each such Customer Agreement. The Non-Selling Party (or any representative thereof) may audit such records to verify the Selling Party's compliance with this Agreement, the License Fees, and the calculation of the License Fees, owed under Section 4.1, provided that the Non-Selling Party may not audit such records more than [\*\*\*] during any [\*\*\*] period. The Non-Selling Party shall bear the cost of such audit, unless such audit discloses an underpayment of License Fees of [\*\*\*] or more, in which case the Selling Party shall reimburse the Non-Selling Party for any reasonable costs actually incurred of such audit.

#### 4.4 Taxes.

4.4.1 The Selling Party or any other applicable withholding agent shall be entitled to deduct and withhold taxes from the amounts payable pursuant to this Agreement to the Non-Selling Party the amounts required to be deducted and withheld under the Internal Revenue Code of 1986, as amended, or any provision of state, local or foreign tax law, with respect to the making of such payment; provided that the Selling Party shall use reasonable efforts to provide notice of any intention to withhold to the Non-Selling Party at least [\*\*\*] prior to the payment thereof and shall use commercially reasonable efforts to cooperate in reducing the amount of any such withholding and provide the Non-Selling Party with reasonable documentation of such withholding. To the extent that amounts are so withheld and timely paid to the appropriate tax authority, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to the Non-Selling Party in respect of whom such deduction and withholding was made.

4.4.2 Taxes specified in this Section 4.4.2 shall mean, if included in the gross price of an Integrated Product, sales or excise taxes, duties or other similar governmental charges (including any tax such as a value added or similar tax, and excluding any taxes based on, or in lieu of, income) relating to the sale of an Integrated Product, as adjusted for rebates and refunds.

4.5 **Disputed Amounts.** The Selling Party may reasonably and in good faith dispute any amount of any License Fees invoiced by the Non-Selling Party to the Selling Party within [\*\*\*] after the Selling Party's receipt of such invoice, provided that the Selling Party promptly pays the undisputed portion of such invoice and notifies the Non-Selling Party of such dispute within such [\*\*\*]. The Parties will negotiate in good faith to resolve such payment dispute within [\*\*\*] of Selling Party's notice of such dispute. If any such undisputed portion is unpaid more than [\*\*\*] after the Selling Party's receipt of such invoice, the Non-Selling Party may, without limiting its rights or remedies, suspend all Second-Line Support Services relating to such dispute until such undisputed portion is paid in full. The Non-Selling Party will provide the Selling Party's CFO written notice (email sufficient) that the Selling Party's account is overdue at least [\*\*\*] prior to suspending such Second-Line Support Services. Notwithstanding the foregoing, the Non-Selling Party shall only suspend the minimum portion of the Second-Line Support Services necessary to remediate the issue giving rise to the suspension until the outstanding accounts are resolved; *provided* that the Non-Selling Party shall not be permitted to suspend Second-Line Support Services due to a good faith dispute regarding an amount invoiced hereunder.

## 5. CONFIDENTIALITY

The provisions of Section 6 of the Development Agreement are incorporated herein by reference to be applicable *mutatis mutandis* also under and for the purpose of this Agreement as if expressly set forth herein.

## 6. TERM AND TERMINATION

6.1 **Term.** This Agreement shall be deemed to have commenced on the Effective Date and shall continue in effect until termination or expiration of this Agreement pursuant to Section 6.2 (the "Term").

6.2 **Termination.** This Agreement may be terminated at any time:

6.2.1 By a Party without cause by providing [\*\*\*] prior written notice of termination to the other Party if such terminating Party decides, in its sole discretion, that it is not feasible or commercially reasonable or desirable for it to continue this Agreement;

6.2.2 By a Party with cause by written notice of termination to the other Party if the other Party materially breaches this Agreement as reasonably identified in such written notice of termination, which termination shall be effective at the end of [\*\*\*] days after such written notice of termination is given unless such breach is cured before the end of such [\*\*\*] day period;

6.2.3 By a Party with cause by written notice of termination effective immediately if the other Party: (i) is dissolved or liquidated or takes any corporate action for such purpose; (ii) becomes insolvent or is generally unable to pay its debts as they become due; (iii) becomes the subject of any voluntary or involuntary bankruptcy proceeding under any domestic or foreign bankruptcy or insolvency law; (iv) makes or seeks to make a general assignment for the benefit of its creditors; or (v) applies for, or consents to, the appointment of a trustee, receiver, or custodian for a substantial part of its property; or

6.2.4 By a Party by written notice of termination effective immediately: (i) if the other Party breaches any provision, or violates any of its obligations or duties under, Section 5, Section 10.2.1, Section 10.2.2, or Section 10.2.3, (ii) if and to the extent its continued performance of this Agreement would, or may in its reasonable opinion, contravene any local, state, national or international regulation or law, or (iii) if and to the extent such Party determines in its reasonable opinion that any actual or anticipated change in any Trade Restrictions presents a material adverse compliance risk to its continued performance under this Agreement. For the avoidance of doubt, a termination of this Agreement under this Section 6.2.4 shall be deemed a termination for cause by such Party.

6.2.5 By Advantest immediately upon written notice to PDF upon the merger of PDF with, direct or indirect change of control of PDF to, or the sale or transfer of all or a substantial portion of all of the assets or business of PDF to, an Advantest Named Competitor. A termination under this Section 6.2.5 shall be deemed to be a termination for convenience by Advantest.

### 6.3 Effect of Termination or Expiration.

6.3.1 General Effect of Termination or Expiration. On the expiration or termination of this Agreement for any reason, except as set forth otherwise in Section 6.3.2 or Section 6.3.3:

(a) All rights, licenses, and authorizations granted by a Party (including the Selling Party's right to Commercialize Integrated Products, the licenses under Section 2.2, and the right to grant Customer Sublicenses or additional Customer Sublicenses, to extend any Customer Sublicense to additional instances of the Integrated Product or for use of Integrated Products with additional or other Tools or at additional or other Designated Sites) to the other Party, and all services and obligations owed by a Party to the other Party (including any Support Services) under this Agreement will immediately terminate, and each Party shall immediately cease all use of and other activities with respect to the other Party's Confidential Information relating to this Agreement and promptly return all physical embodiments of any Confidential Information provided by the Disclosing Party.

(b) All amounts owed by a Party to the other Party of any kind under this Agreement (if any) shall be payable and due (i) no later than [\*\*\*] days after the effective date of the expiration or termination, or (ii) the date on which such payment is due under this Agreement, whichever is earlier.

(c) Any Customer Agreement, including any Customer Sublicense, shall not terminate or be otherwise effected by such expiration or termination; provided that the Selling Party shall not have the right to renew past the then-current Customer License (but without limiting any renewal rights or options of such Customer thereunder) any Customer Sublicense contained therein.

6.3.2 Effect of Advantest's Termination for Convenience or PDF's Termination for Cause. In the event that Advantest terminates this Agreement for convenience under Section 6.2.1 or PDF terminates for cause under Section 6.2.2, Section 6.2.3 or Section 6.2.4, PDF has the right, as determined in its sole discretion, to provide after such termination any or all Support Services for its Licensed Technology under Customer Licenses at such time for any Customer, in which case (i) PDF shall give written notice thereof (identifying the Customer(s) and such Support Services) to Advantest, (ii) PDF shall have the right to negotiate and discuss, and enter into agreements for, such provision of Support Services for such PDF Licensed Technology with such Customer(s) on terms mutually agreed by PDF with such Customer, and (iii) the Parties shall meet and confer to discuss the disposition of other then outstanding Customer Agreements, which may involve an assignment of such Customer Agreement to PDF.

6.3.3 Effect of PDF's Termination for Convenience or Advantest's Termination for Cause. In the event that PDF terminates this Agreement for convenience under Section 6.2.1 or Advantest terminates this Agreement for cause under Section 6.2.2, Section 6.2.3, Section 6.2.4 or Section 6.2.5 the following provisions apply:

(a) If and to the extent Advantest is required, under the terms of a Customer Agreement as in effect at the time of such termination, to grant additional Customer Sublicenses to such Customer, or to extend any Customer Sublicense to additional instances of an Integrated Product of such Customer or for use of an Integrated Product with additional or other Tools of such Customer or at additional or other Designated Sites of such Customer, Advantest's rights under Section 2.2.1 continue to the extent of such requirement, limited to the maximum time such Customer Sublicense must be granted under terms of such Customer Agreement, and PDF shall, in such event, provide a mechanism for Advantest to issue license files for PDF Licensed Technology for such Integrated Products.

(b) The Non-Selling Party shall, as required under the terms of a Customer Agreement as in effect at the time of such termination, continue to provide Second Line Support Services for its Licensed Technology in accordance with Section 3.3 for the remainder of the Customer License, subject to and in consideration for the Selling Party's continued payment of ongoing License Fees with regard to such Customer in accordance with Section 4 throughout the term of such continuing Second Line Support Services obligation of the Non-Selling Party.

(c) In the event that the Non-Selling Party fails to provide the Second Line Support Services to a Customer for its Licensed Technology in breach of its obligations under Section 6.3.3(b), including after written notice of such breach (including reasonable detail demonstrating such breach) by the Selling Party to the Non-Selling Party, the Selling Party shall have the right and the obligation to use commercially reasonable efforts to provide such Second Line Support Services to such Customer for the time for which the Non-Selling Party would otherwise be obligated to do so under this Section 6.3.3(c), for which case only the Non-Selling Party hereby grants, subject only to the foregoing pre-condition, the Selling Party a non-exclusive, worldwide, royalty-free, non-transferable, non-assignable, non-sublicensable, limited license to use, reproduce, and modify (only using any SDK or API included in its Licensed Technology) its Licensed Technology licensed to such Customer as reasonably necessary for the Selling Party to provide the Second Line Support Services to such Customer.

(d) The Non-Selling Party shall provide reasonable training, at its sole expense, to the Selling Party's Personnel as reasonably required to enable the Selling Party's Personnel to provide Second Line Support Services under Section 6.3.3(c).

6.4 **Notice of Obsolescence.** PDF acknowledges and agrees that, if PDF stops, materially limits, or discontinues the use, update, or maintenance of any significant feature or functionality of any module within the Exensio System any time before the expiration of the Term, PDF shall provide Advantest at least [\*\*\*] prior written notice before PDF's stopping, materially limiting, or discontinuing the use, update, or maintenance of any such feature or functionality.

6.5 **Surviving Terms.** The provisions set forth in the following sections, and any other right, obligation, or provision under this Agreement that, by its nature, should survive termination or expiration of this Agreement, will survive any expiration or termination of this Agreement: this Section 6.5, Section 1 ("Definitions"), Section 5 ("Confidentiality"), Section 6.3 ("Effect of Termination or Expiration"), [Section 6.4 ("Notice of Obsolescence"),] Section 7 ("Representations and Warranties"), Section 8 ("Limitations of Liability"), Section 9 ("Indemnity"), and Section 10 ("Miscellaneous").

## 7. REPRESENTATIONS AND WARRANTIES

7.1 **Mutual Representations and Warranties.** Each Party represents, warrants, and covenants to the other Party that:

7.1.1 It will provide the Support Services it is obligated to provide and perform under this Agreement in a professional manner through qualified Personnel;

7.1.2 It is duly organized, validly existing, and in good standing as a corporation or other entity under the laws and regulations of the jurisdiction of its incorporation or other organization;

7.1.3 It has the full right, power, and authority to enter into and perform its obligations and grant the rights, licenses, and authorizations it grants and is required to grant under this Agreement;

7.1.4 The execution of this Agreement by its representative whose signature is set forth at the end of this Agreement has been duly authorized by all necessary corporate or organizational action of such Party;

7.1.5 It has not granted and will not grant any licenses or other contingent or non-contingent right, title, or interest under or relating to Intellectual Property Rights, or will not be under any obligation, that does or will conflict with or otherwise adversely affect this Agreement, including any Party's representations, warranties, or obligations or rights or licenses hereunder; and

7.1.6 When executed and delivered by both Parties, this Agreement will constitute the legal, valid, and binding obligation of such Party, enforceable against such Party in accordance with its terms.

7.2 **Warranty Disclaimer.** EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH IN SECTION 7.1 OF THIS AGREEMENT, NEITHER PARTY MAKES ANY, AND EACH PARTY HEREBY DISCLAIMS ALL, WARRANTIES AND REPRESENTATIONS OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, WORKMANSHIP, SAFETY, ABSENCE OF ERRORS, ACCURACY, COMPLETENESS OF RESULTS, THE PROSPECTS OR LIKELIHOOD OF SUCCESS (FINANCIAL, REGULATORY, OR OTHERWISE) OF THE INTEGRATED PRODUCT OR THE VALIDITY, SCOPE, OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT.

## 8. LIMITATIONS OF LIABILITY

8.1 **EXCLUSION OF DAMAGES.** EXCEPT IN CONNECTION WITH ANY INFRINGEMENT OR MISAPPROPRIATION BY A PARTY OF ANY INTELLECTUAL PROPERTY RIGHT OF THE OTHER PARTY, AND EXCLUDING LIABILITY UNDER, OR FOR BREACH OF, SECTION 5 ("CONFIDENTIALITY") OR SECTION 9 ("INDEMNITY"), IN NO EVENT WILL EITHER PARTY BE LIABLE UNDER OR IN CONNECTION WITH THIS AGREEMENT OR ITS SUBJECT MATTER UNDER ANY LEGAL OR EQUITABLE THEORY, INCLUDING BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, AND OTHERWISE, FOR ANY: (I) LOSS OF USE, DATA, BUSINESS, REVENUE, PROFIT, GOODWILL, OR REPUTATION; (II) BUSINESS INTERRUPTION, INCREASED COSTS, OR DIMINUTION IN VALUE; OR (III) CONSEQUENTIAL, INCIDENTAL, INDIRECT, EXEMPLARY, SPECIAL, ENHANCED, OR PUNITIVE DAMAGES, IN EACH CASE REGARDLESS OF WHETHER SUCH PERSONS WERE ADVISED OF THE POSSIBILITY OF SUCH LOSSES OR DAMAGES OR SUCH LOSSES OR DAMAGES WERE OTHERWISE FORESEEABLE, AND NOTWITHSTANDING THE FAILURE OF ANY AGREED OR OTHER REMEDY OF ITS ESSENTIAL PURPOSE.

8.2 **CAP ON MONETARY LIABILITY.** EXCEPT AS MAY BE SET FORTH IN AN ADDENDUM OR IN CONNECTION WITH (1) ANY INFRINGEMENT OR MISAPPROPRIATION BY A PARTY OF ANY INTELLECTUAL PROPERTY RIGHT OF THE OTHER PARTY, (2) BREACH OF SECTION 5 (“CONFIDENTIALITY”), OR (3) THE PARTIES’ INDEMNIFICATION OBLIGATIONS UNDER SECTION 9 (“INDEMNITY”) OR SECTION 10.2.5, IN NO EVENT WILL THE COLLECTIVE AGGREGATE LIABILITY OF A PARTY ARISING OUT OF OR RELATED TO THIS AGREEMENT UNDER ANY LEGAL OR EQUITABLE THEORY, INCLUDING BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, AND OTHERWISE, SEPARATELY FOR EACH ADDENDUM, IN CONNECTION WITH ANY INTEGRATED PRODUCT UNDER AN ADDENDUM, EXCEED THE GREATER OF (a) [\*\*\*] AND (b) [\*\*\*] TIMES THE TOTAL LICENSE FEES PAID OR PAYABLE BY EITHER PARTY UNDER SUCH ADDENDUM IN THE PRECEDING [\*\*\*] PERIOD. THE FOREGOING LIMITATIONS SHALL APPLY EVEN IF THE CUSTOMER’S REMEDIES UNDER THIS AGREEMENT FAIL OF THEIR ESSENTIAL PURPOSE.

## 9. INDEMNITY

9.1 **Indemnification Obligations.** Each Party (the “Indemnitor”) shall, at its sole cost, defend the other Party (the “Indemnified Party”), its Affiliates, and its or their directors, officers, employees, independent contractors, agents, successors, and assigns (together with the Indemnified Party, the “Indemnitees”) against any pending or threatened claim, action, suit, litigation, arbitration or other proceeding brought by a third party (collectively, “Action”), and indemnify and hold harmless from and against all liabilities, expenses, costs, losses, fines, penalties, judgments, settlements, claims, awards, or damages (collectively, “Losses”) related to such Action (but which shall include reasonable attorneys’ fees, witness’s fees and defense costs for such Action only if the Indemnitor is obligated to defend an Indemnitee under this Section 9.1 against such Action and fails to provide such defense), to the extent caused by or resulting or arising from: (i) with the Selling Party as the Indemnitor and the Non-Selling Party as the Indemnified Party, any breach by the Selling Party of any representation, warranty, covenant, or obligation under any Customer Agreement, except to the extent that such breach by the Selling Party is caused by a breach by the Non-Selling Party or its Personnel under this Agreement; (ii) with the Non-Selling Party as the Indemnitor and the Selling Party as the Indemnified Party, any infringement or misappropriation, or allegation of infringement or misappropriation, of a third party’s Intellectual Property Right by an Integrated Product, or by the Commercialization of an Integrated Product in accordance with this Agreement, or by the use of an Integrated Product for the purpose intended by the Parties under this Agreement, in each case to the extent that such infringement or misappropriation, or allegation thereof, is caused by the Non-Selling Party’s Licensed Technology included in such Integrated Product or the use thereof for the purpose intended by the Parties under this Agreement; or (iii) any violation of law, negligence, or willful misconduct by the Indemnitor or its Personnel.

9.2 **Indemnification Procedure.** The Indemnified Party shall: (i) promptly notify the Indemnitor in writing of the pending or threatened Action subject to such indemnity (the "Indemnified Action") as soon as reasonably practicable after the Indemnified Party first becomes aware of such Indemnified Action; (ii) give the Indemnitor sole control of any defense and settlement of such Indemnified Action; and (iii) give, and shall cause the Indemnitors of PDF (if Advantest is the Indemnitor) or the Indemnitors of Advantest (if PDF is the Indemnitor) to give, to the Indemnitor reasonable assistance requested by the Indemnitor in connection with any such defense or settlement; *provided* that the Indemnitor shall pay any reasonable and necessary out-of-pocket costs incurred by the Indemnitors for such assistance. The Indemnitor shall not make, without the Indemnified Party's express prior written consent, any admission, settlement or concession that may interfere or negatively impact any right, title or interest of an Indemnitor or obligate an Indemnitor other than the obligation to pay any Losses for which the Indemnitor is obligated to indemnify the Indemnitor. The Indemnitor will not be liable for the settlement of an Indemnified Action by an Indemnitor without the Indemnitor's prior written consent unless the Indemnitor breaches its duty to defend hereunder regarding such Indemnified Action. If any Indemnified Action against the Indemnitors involves Losses subject to indemnity hereunder as well as other Losses, the Indemnitor shall nonetheless be fully responsible for defending, indemnifying and holding the Indemnitors harmless to the extent of those Losses that are subject to indemnity hereunder and shall provide reasonable cooperation to the Indemnitors' counsel with respect to such other Losses asserted in the same Action.

## 10. MISCELLANEOUS

10.1 **Relationship of the Parties; No Third-Party Beneficiaries.** The relationship between the Parties is that of independent contractors. Nothing contained in this Agreement constitutes, and shall not be construed as constituting or creating, any agency, partnership, joint venture, or other form of joint enterprise, employment, or fiduciary relationship between the Parties, including for United States federal income tax purposes, and neither Party shall have any right to obligate or bind the other Party in any manner whatsoever. Nothing herein contained shall give or is intended to give any rights of any kind to any third persons.

### 10.2 Compliance with Applicable Law.

10.2.1 **General Compliance.** In the exercise of their respective rights and the performance of their respective obligations under this Agreement, each Party shall comply with all applicable law, regulations, and governmental orders. Without limiting the generality of this Section 10.2.1, each Party will obtain and will maintain in full force and effect throughout the continuance of this Agreement all licenses, permits, authorizations, approvals, government filings, and registrations necessary or appropriate for the exercise of its rights and the performance of its obligations hereunder.

10.2.2 United States Trade Restrictions. Without limiting the generality of Section 10.2.1, the Parties hereby acknowledge and agree as follows:

(a) The Integrated Products, and any part thereof and any information related thereto, is or may be subject to export controls, including those under the laws and regulations of the United States, such as the Export Administration Regulations, 15 C.F.R. Parts 730-774. In the exercise of its rights, and the performance of its obligations under this Agreement, the Parties shall comply strictly with all such export control laws and regulations applicable to the Integrated Products or any part thereof or any information related thereto, and shall not export, re-export, transfer, divert or disclose the Integrated Products, or any part thereof or any information related thereto, directly or indirectly, to any destination, end-use, or end-user restricted or prohibited under such export controls.

(b) Each Party's ability to perform under this Agreement is subject to its own continued compliance with applicable U.S., Japanese, and other applicable export controls, as well as with applicable sanctions laws, rules and regulations, including those administered by the U.S. Department of the Treasury's Office of Foreign Assets Control prohibiting or restricting dealings with certain targeted territories and parties (collectively, the "Trade Restrictions"). Any refusal or failure by a Party to perform, in whole or in part, its obligations hereunder on account of compliance with any Trade Restrictions will not constitute a breach of any obligation under this Agreement by such Party, and the other Party hereby waives any and all claim against such Party for any legal recourse, including injunctive or declarative relief, loss, cost or expense, including consequential damages, that the other Party may have, incur, or be subject to by virtue of such refusal or cancellation.

10.2.3 Anti-Corruption and Anti-Bribery.

(a) Without limiting the generality of Section 10.2.1, each Party agrees that it shall comply fully with any applicable foreign or domestic anti-corruption and anti-bribery laws and regulations (as amended from time to time), including the United States Foreign Corrupt Practices Act 1977, the UK Bribery Act 2010, any foreign or domestic laws to the extent applicable to it, including the Irish Criminal Justice (Corruption Offences) Act 2018 and any laws intended to implement the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transaction ("Applicable Anti-Corruption Laws"). Without limiting the generality of the foregoing obligation, each Party agrees that it shall not offer, pay, promise to pay, or authorize the payment or giving of, monies or any other thing of value, directly or indirectly, to any current or former Government Official, anyone acting on behalf of a Governmental Entity, or any employee, director or consultant of a non-government client or potential client, for the purpose of securing any improper or unfair advantage or obtaining or retaining business in connection with the activities contemplated hereunder.

(b) The term “Government Entity” means: (i) any agency, instrumentality, subdivision or other body of any national, regional, local or other government (including any telecommunications or broadcasting authority, any parliament or other legislative body, any military or law enforcement agency, etc.); (ii) any commercial or similar entities owned or controlled by such government, including any state-owned and state-operated companies; (iii) any political party; or (iv) any public international organization.

(c) The term “Government Official” includes: (i) officers, employees or representatives of any national, regional, local or other Governmental Entity (as defined above); (ii) any individual who, although temporarily or without payment, holds a public position, employment, or function; (iii) officers, employees or representatives of companies in which a Governmental Entity owns an interest; (iv) any private person acting in an official capacity for or on behalf of any Governmental Entity (such as a consultant retained by a government agency); (v) candidates for political office at any level; (vi) political parties and their officials; (vii) royal family members, including ones who may lack formal authority, but could otherwise be influential in advancing either Party’s business interests; and (viii) officers, employees or representatives of public international organizations (such as the United Nations, World Bank, and International Monetary Fund).

#### 10.2.4 Notification

(a) The Selling Party shall provide written notice to the Non-Selling Party no less than [\*\*\*] in advance of any proposed Customer Agreement identifying therein the prospective Customer, with assurance that the proposed license, sale, or other provision of the Integrated Product to such Customer is permitted hereunder.

(b) Customer-Specific Refusal and Termination Right. Notwithstanding any assurances provided by the Selling Party under 10.2.4(a), the Non-Selling Party has the right, in its sole discretion, immediately to exclude a Customer or prospective Customer from the license under Section 2.2.1 and the right thereunder to grant a Customer Sublicense thereunder to such Customer, or to require the Selling Party to terminate such Customer Sublicense with regard to such Customer if the Non-Selling Party reasonably determines that such Customer or prospective Customer presents a compliance risk to the Non-Selling party under any Trade Restriction.

10.2.5 Indemnity. Without limiting the rights and obligations under Section 9 (“Indemnity”) of this Agreement, each Party shall protect, indemnify, and hold harmless the other Party and its Affiliates from and against any claim, investigation, action, suit, litigation, arbitration, or other proceeding, and all liabilities, expenses, costs, reasonable attorneys’ fees and defense costs, losses, fines, penalties, judgments, settlements, claims, awards, or damages proceeding related to or arising from any third party claim based on: (i) the other Party’s breach of any representation, warranty, covenant, or obligation under this Section 10.2; or (ii) the other Party’s failure or omission to comply with any applicable Trade Restrictions and/or Applicable Anti-Corruption Laws.

10.3 **Public Announcements**. Without limiting the rights granted in Section 2.2.2, neither Party shall issue or release any announcement, statement, press release, or other publicity or marketing materials relating to this Agreement or, unless expressly permitted under this Agreement, otherwise use the other Party’s Marks without the prior written consent of the other Party (email sufficient), which shall not be unreasonably delayed or withheld.

10.4 **Notices.** Any notice, request, consent, claim, demand, waiver, or other communication to be given or delivered to a Party under or by reason of a provision of this Agreement shall only have legal effect if in writing and shall be deemed to have been delivered to such Party when delivered personally to such Party, or emailed or sent to such Party by United States Postal Service (USPS), United Postal Service (UPS), Federal Express (FedEx) express service, or reputable express courier service, with return receipt or signature/reply confirmation, as applicable, and with the charges prepaid, to the following address and attention of such Party, or another address notified hereunder by such Party at least [\*\*\*] in advance for notices, demands, or other communications, to:

<b>If to Advantest:</b>	Advantest America, Inc. Attn: CFO 3061 Zanker Road San Jose, CA 95134 (USA)
<b>If to PDF:</b>	PDF Solutions, Inc. Attn: CFO/General Counsel 2858 De La Cruz Boulevard Santa Clara, CA 95050 (USA) <a href="mailto:Legal.Department@pdf.com">Legal.Department@pdf.com</a>

10.5 **Interpretation.** For the purposes of this Agreement and any Addendum: (i) any provision in the caption and recitals of this Agreement are part of this Agreement; (ii) any reference to any provision of a statute shall be construed as a reference to that provision as amended, re-enacted or extended at the relevant time; (iii) where this Agreement states that a Party “shall” or “will” perform in some manner or otherwise act or omit to act, it means that such Party is legally obligated to do so in accordance with this Agreement; (iv) the principle *ejusdem generis* shall not apply to any provision in this Agreement or any Addendum, schedule or exhibit attached hereto; (v) the term “including” means “including without limitation” and is intended by way of example and not limitation; (vi) the provisions of this Agreement shall not be interpreted against the drafter, and for purposes of any interpretation, both Parties shall be deemed to be drafters of this Agreement; (vii) all headings are intended solely for the convenience of the Parties, and none will be deemed to affect the meaning or construction of any provision hereof; (viii) words of any gender used in this Agreement are intended to include any other gender, and words in the singular number include the plural, and vice versa, unless the context clearly indicates otherwise; (ix) the word “or” is not exclusive; (x) the words “herein,” “hereof,” “hereby,” “hereto,” and “hereunder” refer to this Agreement as a whole; and (xi) references to an agreement, instrument, or other document means such agreement, instrument, or other document as amended, supplemented, and modified from time to time to the extent permitted by the provisions thereof.

10.6 **Entire Agreement.** This Agreement, together with any Addendum or other written agreement entered into by the Parties pursuant to this Agreement, constitutes the sole and entire agreement of the Parties with respect to the subject matter contained herein and therein and supersede all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject matter. For the avoidance of doubt, this Agreement is intended to govern the Parties rights and obligations with respect to the commercialization of Integrated Products. Any disputes or claims for indemnification with respect to any Integrated Product pertaining to the commercialization (including marketing and support) of such Integrated Product shall be governed exclusively by the terms of this Agreement. To the extent that any dispute or claim for indemnification with respect to any Integrated Product pertaining to the Development of such Integrated Product, such dispute or claim shall be governed by the terms of the Development Agreement and not this Agreement. Nothing in this Agreement is intended to limit or modify the Parties respective rights or obligations under the Development Agreement or any other agreements between the Parties or their Affiliates.

10.7 **Assignment and Transfer.** Neither Party may transfer this Agreement either in whole or in part or assign its rights or delegate its obligations hereunder, or grant any security interest, lien, or encumbrance in or to this Agreement or any right under this Agreement, without the prior written consent of the other Party; *provided, however*, that no consent shall be required in connection with any transfer of this Agreement to an Affiliate of such Party or in connection with any merger, reorganization, or consolidation of such Party or any of its Affiliates, or the sale or transfer of all or substantially all of the assets or business of such Party. Any attempted transfer, assignment, or delegation in contravention of the foregoing shall be null and void. This Agreement shall be binding upon and inure to the benefit of the permitted successors and assigns of the Parties.

10.8 **Amendment and Modification; Waiver.** No term or provision of this Agreement may be amended, waived, changed, replaced, or removed except solely by a written amendment expressly identified as being an amendment to this Agreement and expressly identifying such term or provision if such written amendment is signed by each Party through its authorized representative therefor; any other amendment, waiver, change, replacement, or removal of any term or provision of this Agreement shall be invalid and unenforceable. No waiver of all or part of any right or remedy by a Party shall be valid or effective unless it is made in writing by an authorized representative of such Party and is expressly identified as being waived in such writing. A failure of either Party to exercise any right provided for herein shall not be deemed to be a waiver of any right hereunder; nor shall any single or partial exercise of any right, remedy, power, or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power, or privilege.

10.9 **Severability.** If any provision of this Agreement is held to be invalid, illegal or unenforceable in any jurisdiction, such invalidity, illegality, or unenforceability shall not affect any other term or provision of this Agreement or invalidate or render unenforceable such term or provision in any other jurisdiction and the meaning of said provision will be construed, to the extent feasible, so as to render the provision enforceable, and if no feasible interpretation shall save such provision, it will be severed from the remainder of this Agreement, as appropriate. The remainder of this Agreement shall remain in full force and effect unless the severed provision is essential and material to the rights or benefits received by either Party hereunder. On such determination that any term or other provision is invalid, illegal, or unenforceable, the Parties shall use their best efforts to negotiate, in good faith, to modify this Agreement so as to effect the original intent of the Parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the greatest extent possible.

10.10 **Governing Law and Forum.** THE VALIDITY, ENFORCEABILITY, AND PERFORMANCE OF THIS AGREEMENT, AND THE CONSTRUCTION AND INTERPRETATION OF ANY TERM AND ANY PROVISION IN THIS AGREEMENT, AND ANY DISPUTE UNDER OR RELATED TO THIS AGREEMENT, SHALL BE GOVERNED BY U.S. FEDERAL LAW AS APPLICABLE AND THE LAWS OF THE STATE OF CALIFORNIA, WITHOUT REGARD OF ANY CONFLICT OF LAWS PROVISION THAT WOULD RESULT IN THE APPLICATION OF THE LAW OF ANY OTHER JURISDICTION. WITH RESPECT TO ANY DISPUTE, EACH PARTY CONSENTS AND SUBMITS TO THE EXCLUSIVE JURISDICTION OF, WAIVING ANY OBJECTIONS TO PERSONAL JURISDICTION IN, COMPETENT STATE AND FEDERAL COURTS IN THE STATE OF CALIFORNIA FOR ANY LITIGATION OR PROCEEDING, AND TO THE EXCLUSIVE VENUE OF SUCH LITIGATION OR PROCEEDING IN THE COUNTY OF SANTA CLARA, CALIFORNIA.

10.11 **Remedies and Injunctive Relief.** Each Party recognizes that any actual or potential violation, breach, non-performance of, or default under, any provision in Section 2.2 (Licenses) and/or Section 5 (Confidentiality) of this Agreement and/or an infringement or other violation of either Party's Intellectual Property Rights may cause irreparable injury to the other Party for which such other Party may have no adequate remedy at law. Therefore, each Party agrees that the other Party shall be entitled to seek injunctive relief or specific performance, without any requirement to post any bond, to enforce any obligation, agreement, covenant, term or condition, or to prove actual damages or that monetary damages are not an adequate remedy, under Sections 2.2 and/or 5. Such remedies are not exclusive and are in addition to all other remedies available to such other Party, all as such other Party elects in its sole discretion.

10.12 **Counterparts.** The Parties may execute this Agreement in multiple counterparts, each of which constitutes an original as against the Party that signed it, but all of which together are deemed to be one and the same agreement. This Agreement is effective upon the delivery of one executed counterpart from each Party to the other Party. The signatures of all parties need not appear on the same counterpart. The delivery of signed counterparts by facsimile or email transmission in portable document format (.pdf) or .tiff format that includes a copy of the sending Party's signature(s), or by electronic signature, is as effective as signing and delivering the counterpart in person.

[Signature page follows.]

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement by their duly authorized representatives as of the Effective Date.

**ADVANTEST AMERICA, INC.**

By: /s/ Douglas Lefever  
Name: Douglas Lefever  
Title: President and CEO  
Date: July 29, 2020

**PDF SOLUTIONS, INC.**

By: /s/ Adnan Raza  
Name: Adnan Raza  
Title: CFO, and EVP, Fin.  
Date: July 29, 2020

[Signature Page to Master Commercial Terms and Support Services Agreement]

## CERTIFICATIONS

I, John K. Kibarian, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PDF Solutions, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ John K. Kibarian

John K. Kibarian  
*President and Chief Executive  
Officer  
(principal executive officer)*

Date: November 6, 2020

## CERTIFICATIONS

I, Adnan Raza, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PDF Solutions, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ Adnan Raza  
Adnan Raza  
*Executive Vice President, Finance  
and Chief Financial Officer  
(principal financial and accounting  
officer)*

Date: November 6, 2020

**CERTIFICATION PURSUANT TO  
18 U.S.C. SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of PDF Solutions, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2020, as filed with the Securities and Exchange Commission on November 6, 2020 (the "Report"), I, John K. Kibarian, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

By: /s/ John K. Kibarian  
John K. Kibarian  
*President and Chief Executive  
Officer*  
*(principal executive officer)*

Date: November 6, 2020

**CERTIFICATION PURSUANT TO  
18 U.S.C. SECTION 1350,  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of PDF Solutions, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2020, as filed with the Securities and Exchange Commission on November 6, 2020 (the "Report"), I, Adnan Raza, Executive Vice President, Finance and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

By: /s/ Adnan Raza

Adnan Raza  
Executive Vice President, Finance  
and Chief Financial Officer  
*(principal financial and accounting  
officer)*

Date: November 6, 2020