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

FORM 10-Q

(Mark One)

☒ **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: 001-38324

Casa Systems, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**75-3108867**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
100 Old River Road Andover, Massachusetts (Address of principal executive offices)	**01810 (Zip Code)**

Registrant's telephone number, including area code: (978) 688-6706

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, $0.001 par value per share	CASA	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 Exchange 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	☐	Accelerated filer	☒
Non-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 ☒

As of October 23, 2020, the registrant had 83,524,202 shares of common stock, $0.001 par value per share, outstanding.

Table of Contents

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical fact contained in this Quarterly Report on Form 10-Q, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “might,” “should,” “expects,” “plans,” “anticipates,” “would,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this Quarterly Report on Form 10-Q are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this Quarterly Report on Form 10-Q and are subject to a number of risks, uncertainties and assumptions described in the “Risk Factors” section and elsewhere in this Quarterly Report on Form 10-Q. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include:

- our ability to anticipate technological shifts;
- our ability to generate positive returns on our research and development;
- changes in the rate of broadband service providers’ deployment of, and investment in, ultra-broadband network capabilities;
- the lack of predictability of revenue due to lengthy sales cycles and the volatility in capital expenditure budgets of broadband service providers;
- our ability to maintain and expand gross profit and net income;
- the sufficiency of our cash resources and needs for additional financing;
- our ability to further penetrate our existing customer base and obtain new customers;
- changes in our pricing policies, whether initiated by us or as a result of competition;
- the amount and timing of operating costs and capital expenditures related to the operation and expansion of our business;
- the extent of the effects of the COVID-19 pandemic on the Company, which is highly uncertain and will depend on future developments;
- the potential impact of the COVID-19 pandemic on our suppliers, our business operations and our customers;
- the actual or rumored timing and success of new product and service introductions by us or our competitors or any other change in the competitive landscape of our industry, including consolidation among our competitors or customers;
- our ability to successfully expand our business domestically and internationally, including our ability to integrate and generate potential synergies from our acquisition of NetComm Wireless Limited;
- insolvency or credit difficulties confronting our customers, which could adversely affect their ability to purchase or pay for our products and services, or confronting our key suppliers, which could disrupt our supply chain;
- our inability to fulfill our customers’ orders due to supply chain delays, access to key commodities or technologies or events that impact our manufacturers or their suppliers;
- future accounting pronouncements or changes in our accounting policies;
- stock-based compensation expense;

- our overall effective tax rate, including impacts caused by the relative proportion of foreign to U.S. income, the amount and timing of certain employee stock-based compensation transactions, changes in the valuation of our deferred tax assets and any new legislation or regulatory developments;
- increases or decreases in our expenses caused by fluctuations in foreign currency exchange rates;
- the costs and possible outcomes of any legal actions or proceedings against us, including those described under "Part II, Item 1—Legal Proceedings";
- general economic conditions, both domestically and in foreign markets;
- our ability to obtain and maintain intellectual property protection for our products; and
- our use of proceeds from our initial public offering.

Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events or otherwise.

PART I—FINANCIAL INFORMATION
Item 1. Financial Statements

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except per share amounts)
(Unaudited)

	September 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 156,191	$ 113,638
Accounts receivable, net of provision for doubtful accounts of $38 and $20 as of September 30, 2020 and December 31, 2019, respectively	65,968	93,100
Inventory	98,482	93,604
Prepaid expenses and other current assets	3,738	4,884
Prepaid income taxes	12,980	3,217
Total current assets	337,359	308,443
Property and equipment, net	31,081	35,910
Accounts receivable, net of current portion	156	575
Deferred tax assets	1,168	69
Goodwill	50,177	50,347
Intangible assets, net	36,869	41,148
Other assets	5,954	7,820
Total assets	$ 462,764	$ 444,312
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 38,763	$ 25,890
Accrued expenses and other current liabilities	34,368	34,567
Accrued income taxes	5,158	—
Deferred revenue	22,771	25,485
Current portion of long-term debt, net of unamortized debt issuance costs	1,893	8,524
Total current liabilities	102,953	94,466
Accrued income taxes, net of current portion	9,683	12,381
Deferred tax liabilities	8,259	8,993
Deferred revenue, net of current portion	3,326	4,583
Long-term debt, net of current portion and unamortized debt issuance costs	289,831	284,756
Other liabilities, net of current portion	834	569
Total liabilities	414,886	405,748
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Preferred stock, $0.001 par value; 5,000 shares authorized as of September 30, 2020 and December 31, 2019; no shares issued and outstanding as of September 30, 2020 and December 31, 2019	—	—
Common stock, $0.001 par value; 500,000 shares authorized as of September 30, 2020 and December 31, 2019; 85,246 and 84,828 shares issued as of September 30, 2020 and December 31, 2019, respectively; 83,524 and 84,333 shares outstanding as of September 30, 2020 and December 31, 2019, respectively	85	84
Treasury stock, at cost; 1,722 and 495 shares at September 30, 2020 and December 31, 2019, respectively	(4,826)	(1,795)
Additional paid-in capital	179,382	169,561
Accumulated other comprehensive loss	(1,306)	(2,222)
Accumulated deficit	(125,457)	(127,064)
Total stockholders' equity	47,878	38,564
Total liabilities and stockholders' equity	$ 462,764	$ 444,312

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(in thousands, except per share amounts)
(Unaudited)

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Revenue:				
Product	$ 93,741	$ 71,319	$ 239,627	$ 140,196
Service	12,006	10,497	33,093	29,208
Total revenue	105,747	81,816	272,720	169,404
Cost of revenue:				
Product	51,947	40,578	130,602	60,983
Service	1,206	2,024	3,741	5,404
Total cost of revenue	53,153	42,602	134,343	66,387
Gross profit	52,594	39,214	138,377	103,017
Operating expenses:				
Research and development	21,823	24,158	63,722	60,823
Selling, general and administrative	21,630	23,823	67,731	61,318
Total operating expenses	43,453	47,981	131,453	122,141
Income (loss) from operations	9,141	(8,767)	6,924	(19,124)
Other income (expense):				
Interest income	170	660	847	3,882
Interest expense	(3,771)	(5,240)	(12,706)	(15,662)
(Loss) gain on foreign currency, net	(6)	(869)	674	(458)
Other income, net	338	106	435	477
Total other income (expense), net	(3,269)	(5,343)	(10,750)	(11,761)
Income (loss) before provision for (benefit from) income taxes	5,872	(14,110)	(3,826)	(30,885)
Provision for (benefit from) income taxes	2,399	(5,612)	(5,433)	(8,339)
Net income (loss)	3,473	(8,498)	1,607	(22,546)
Other comprehensive income (loss)—foreign currency translation adjustment, net of tax	1,334	(1,180)	916	(1,113)
Other comprehensive income (loss)—gain on foreign currency hedge, net of tax	(527)	—	—	—
Comprehensive income (loss)	$ 4,280	$ (9,678)	$ 2,523	$ (23,659)
Net income (loss) attributable to common stockholders:				
Basic and diluted	$ 3,473	$ (8,498)	$ 1,607	$ (22,546)
Net income (loss) per share attributable to common stockholders:				
Basic	$ 0.04	$ (0.10)	$ 0.02	$ (0.27)
Diluted	$ 0.04	$ (0.10)	$ 0.02	$ (0.27)
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders:				
Basic	83,302	84,068	83,437	83,761
Diluted	85,466	84,068	85,370	83,761

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)
(Unaudited)

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balances at June 30, 2020	84,856	$ 85	1,722	$ (4,826)	$ 175,496	$ (2,113)	$ (128,930)	$ 39,712
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	389	—	—	—	390	—	—	390
Cash flow hedges	—	—	—	—	—	(527)	—	(527)
Foreign currency translation adjustment	—	—	—	—	—	1,334	—	1,334
Stock-based compensation	—	—	—	—	3,496	—	—	3,496
Net income	—	—	—	—	—	—	3,473	3,473
Balances at September 30, 2020	85,245	$ 85	1,722	$ (4,826)	$ 179,382	$ (1,306)	$ (125,457)	$ 47,878

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balances at January 1, 2020	84,333	$ 84	495	$ (1,795)	$ 169,561	$ (2,222)	$ (127,064)	$ 38,564
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	912	1	—	—	316	—	—	317
Foreign currency translation adjustment	—	—	—	—	—	916	—	916
Repurchases of treasury shares	—	—	1,227	(3,031)	—	—	—	(3,031)
Stock-based compensation	—	—	—	—	9,505	—	—	9,505
Net income	—	—	—	—	—	—	1,607	1,607
Balances at September 30, 2020	85,245	$ 85	1,722	$ (4,826)	$ 179,382	$ (1,306)	$ (125,457)	$ 47,878

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (continued)
(in thousands)
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balances at June 30, 2019	84,028	$ 84	$ 163,526	$ (1,091)	$ (92,906)	$ 69,613
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	176	—	304	—	—	304
Foreign currency translation adjustment, net of tax of $0	—	—	—	(1,180)	—	(1,180)
Stock-based compensation	—	—	2,735	—	—	2,735
Net loss	—	—	—	—	(8,498)	(8,498)
Balances at September 30, 2019	84,204	$ 84	$ 166,565	$ (2,271)	$ (101,404)	$ 62,974

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balances at January 1, 2019	82,961	$ 83	$ 156,939	$ (1,158)	$ (81,008)	$ 74,856
Exercise of stock options and common stock issued upon vesting of equity awards, net of shares withheld for employee taxes	1,243	1	1,467	—	—	1,468
Foreign currency translation adjustment, net of tax of $0	—	—	—	(1,113)	—	(1,113)
Effect of adopted accounting standards	—	—	—	—	2,150	2,150
Stock-based compensation	—	—	8,159	—	—	8,159
Net loss	—	—	—	—	(22,546)	(22,546)
Balances at September 30, 2019	84,204	$ 84	$ 166,565	$ (2,271)	$ (101,404)	$ 62,974

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

CASA SYSTEMS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Cash flows provided by (used in) operating activities:		
Net income (loss)	$ 1,607	$ (22,546)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:		
Depreciation and amortization	13,660	9,903
Stock-based compensation	9,498	7,450
Deferred income taxes	(1,834)	(14,894)
Increase in provision for doubtful accounts	18	510
Change in provision for excess and obsolete inventory	1,290	(826)
Gain on disposal of assets	11	—
Changes in operating assets and liabilities:		
Accounts receivable	27,537	33,533
Inventory	(6,617)	(25,427)
Prepaid expenses and other assets	3,004	(1,505)
Prepaid income taxes	(9,763)	—
Accounts payable	13,764	(5,557)
Accrued expenses and other current liabilities	973	(10,346)
Accrued income taxes	2,467	2,518
Deferred revenue	(3,971)	(5,883)
Net cash provided by (used in) operating activities	51,644	(33,070)
Cash flows used in investing activities:		
Purchases of property and equipment	(4,102)	(6,725)
Acquisition of a business, net of cash acquired	—	(109,431)
Net cash used in investing activities	(4,102)	(116,156)
Cash flows used in financing activities:		
Principal repayments of debt	(8,893)	(5,992)
Borrowings on revolving credit facility	6,500	—
Proceeds from exercise of stock options	957	2,478
Employee taxes paid related to net share settlement of equity awards	(639)	(1,009)
Payments of dividends and equitable adjustments	(661)	(2,375)
Repurchases of treasury stock	(3,031)	—
Net cash used in financing activities	(5,767)	(6,898)
Effect of exchange rate changes on cash and cash equivalents	763	(900)
Net increase (decrease) in cash, cash equivalents and restricted cash	42,538	(157,024)
Cash, cash equivalents and restricted cash at beginning of period	114,657	281,606
Cash, cash equivalents and restricted cash at end of period (1)	$ 157,195	$ 124,582
Supplemental disclosures of cash flow information:		
Cash paid for interest	$ 9,226	$ 14,467
Cash paid for income taxes	$ 2,306	$ 3,044
Supplemental disclosures of non-cash operating, investing and financing activities:		
Purchases of property and equipment included in accounts payable	$ 673	$ 511
Unpaid equitable adjustments included in accrued expenses and other current liabilities	$ 85	$ 961
Release of customer incentives included in accounts receivable and accrued expenses and other current liabilities	$ 132	$ 5,604

(1) See Note 2 of the accompanying notes for a reconciliation of the ending balance of cash, cash equivalents and restricted cash shown in these condensed consolidated statements of cash flows.

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

1. Nature of Business and Basis of Presentation

Casa Systems, Inc. (the “Company”) was incorporated under the laws of the State of Delaware on February 28, 2003. The Company is a global communications technology company headquartered in Andover, Massachusetts and has wholly owned subsidiaries in China, France, Canada, Ireland, Spain, Colombia, the Netherlands, Hong Kong, Australia, Germany, the United Kingdom and New Zealand.

The Company offers physical, virtual and cloud-native 5G infrastructure and customer premise networking equipment for public and private high-speed data and multi-service communications networks. The Company’s core and edge convergence technology enables communications service providers and enterprises to cost-effectively and dynamically increase network speed, add bandwidth capacity and new services, reduce network complexity, and reduce operating and capital expenditures.

The Company is subject to a number of risks similar to other companies of comparable size and other companies selling and providing services to the communications service provider industry. These risks include, but are not limited to, the level of capital spending by the communications service providers, a lengthy sales cycle, dependence on the development of new products and services, unfavorable economic and market conditions, risks associated with coronavirus (COVID-19), competition from larger and more established companies, limited management resources, dependence on a limited number of contract manufacturers and suppliers, the rapidly changing nature of the technology used by the communications service providers and reliance on resellers and sales agents. Failure by the Company to anticipate or to respond adequately to technological developments in its industry, changes in customer or supplier requirements, changes in regulatory requirements or industry standards, or any significant delays in the development or introduction of products could have a material adverse effect on the Company’s operating results, financial condition and cash flows.

On July 1, 2019, the Company acquired 100% of the equity interests in NetComm Wireless Limited (“NetComm”) for cash consideration of $161,963 Australian dollars (“AUD”) ($112,674 United States dollars (“USD”)), based on an exchange rate of USD $0.700 per AUD $1.00 on July 1, 2019) and NetComm became a wholly-owned subsidiary of the Company (the “Acquisition”). NetComm is a global leader in the development of fixed wireless and fiber-to-the-distribution-point broadband solutions, and with the Acquisition, the combined Company now offers a broad, highly competitive product portfolio for new 4G and 5G core, edge and customer premise equipment for public and private service provider and enterprise networks.

The Company is an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”), and may remain an emerging growth company until the last day of the fiscal year following the fifth anniversary of the initial public offering, subject to specified conditions. The JOBS Act provides that an emerging growth company can take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards. The Company has elected not to “opt out” of such extended transition period, which means that when a standard is issued or revised, and it has different application dates for public or private companies, the Company is required to adopt the new or revised standard at or prior to the time private companies are required to adopt the new or revised standard, provided that the Company continues to be an emerging growth company. The JOBS Act provides that the decision to take advantage of the extended transition period for complying with new or revised accounting standards is irrevocable.

The accompanying condensed consolidated balance sheet as of September 30, 2020, the condensed consolidated statements of operations and comprehensive income (loss) for the three and nine months ended September 30, 2020 and 2019, the condensed consolidated statements of cash flows for the nine months ended September 30, 2020 and 2019 and the condensed consolidated statements of stockholders’ equity for the three and nine months ended September 30, 2020 and 2019 are unaudited. The financial data and other information disclosed in these notes related to the three and nine months ended September 30, 2020 and 2019 are also unaudited. The accompanying condensed consolidated balance sheet as of December 31, 2019 was derived from the Company’s audited consolidated financial statements for the year ended December 31, 2019 included in the Company’s Annual Report on Form 10-K filed with the Securities and Exchange Commission (“SEC”) on February 27, 2020 (the “Annual Report on Form 10-K”). The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States (“GAAP”) regarding interim financial reporting. Certain information and note disclosures normally included in the consolidated financial statements prepared in accordance with GAAP have been condensed or omitted. Therefore, these condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes included in the Annual Report on Form 10-K. There have been no changes to the Company’s accounting policies from those disclosed in the Annual Report on Form 10-K that would have a material impact on the Company’s condensed consolidated financial statements.

The unaudited interim condensed consolidated financial statements have been prepared on a basis consistent with that used to prepare the audited annual consolidated financial statements and, in the opinion of management, include all adjustments, consisting of only normal recurring adjustments, necessary for a fair statement of the financial position, results of operations and cash flows for the interim periods, but are not necessarily indicative of the results of operations and cash flows to be anticipated for the full year ending December 31, 2020 or any future period.

The accompanying condensed consolidated financial statements include the accounts and results of operations of the Company and its wholly owned subsidiaries. All intercompany transactions and balances have been eliminated in consolidation.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting periods.

Significant estimates and judgments relied upon by management in preparing these condensed consolidated financial statements include revenue recognition, provision for doubtful accounts, reserves for excess and obsolete inventory, valuation of inventory and deferred inventory costs, the expensing and capitalization of software-related research and development costs, amortization and depreciation periods, the recoverability of net deferred tax assets, valuations of uncertain tax positions, warranty allowances, the valuation of equity instruments and stock-based compensation expense.

Although the Company regularly reassesses the assumptions underlying these estimates, actual results could differ materially from these estimates. Changes in estimates are recorded in the period in which they become known. The Company bases its estimates on historical experience and various other assumptions that it believes to be reasonable under the circumstances existing at the time such estimates are made.

The emergence of COVID-19 around the world, and particularly in the United States and China, presents various risks to the Company, not all of which the Company is able to fully evaluate or even to foresee at the current time, and could have a material effect upon the estimates and judgments relied upon by management in preparing these condensed consolidated financial statements. While the COVID-19 pandemic did not significantly adversely affect the Company's financial results and business operations in the quarter ended September 30, 2020, economic and health conditions in the United States and across most of the globe changed rapidly during, and are continuing to change after the end of the quarter. Globally, all aspects of the Company's business remain fully operational. However, increasing demand for certain of the Company's products has increased pressure on its supply chain which could impact continued availability of inventory requirements. The Company will continue to monitor its business very closely for any effects of COVID-19 for as long as necessary on an ongoing basis.

Cash, Cash Equivalents and Restricted Cash

Cash and cash equivalents include all highly liquid investments maturing within three months from the date of purchase. As of September 30, 2020 and December 31, 2019, the Company's cash and cash equivalents consisted of investments in certificates of deposit and money market mutual funds.

Restricted cash as of September 30, 2020 and December 31, 2019 consisted of a certificate of deposit of $1,004 and $1,019, respectively, pledged as collateral for a stand-by letter of credit required to support a contractual obligation.

The following table is a reconciliation of cash, cash equivalents and restricted cash included in the accompanying condensed consolidated balance sheets that sum to the total cash, cash equivalents and restricted cash included in the accompanying condensed consolidated statements of cash flows:

	September 30, 2020	September 30, 2019
Cash and cash equivalents	$ 156,191	$ 123,570
Restricted cash included in other assets	1,004	1,012
	$ 157,195	$ 124,582

Accounts Receivable

Accounts receivable are presented net of a provision for doubtful accounts, which is an estimate of amounts that may not be collectible. Accounts receivable for customer contracts with customary payment terms, which are one year or less, are recorded at invoiced amounts and do not bear interest. The Company generally does not require collateral, but the Company may, in certain instances based on its credit assessment, require full or partial prepayment prior to shipment.

In limited instances, for certain customers and/or for certain transactions, the Company provides extended payment terms that are considered significant financing components. These extended payment terms allow the customer to pay for the purchased equipment in monthly, other periodic or lump-sum payments over a period of one to five years. In certain circumstances, the receivables may be collateralized by the underlying assets over the payment period. Payments due beyond 12 months from the balance sheet date are recorded as non-current assets.

Accounts receivable as of September 30, 2020 and December 31, 2019 consisted of the following:

	September 30, 2020	December 31, 2019
Current portion of accounts receivable, net:		
Accounts receivable, net	$ 64,972	$ 91,273
Accounts receivable, extended payment terms	996	1,827
	65,968	93,100
Accounts receivable, net of current portion:		
Accounts receivable, extended payment terms	156	575
	$ 66,124	$ 93,675

The Company performs ongoing credit evaluations of its customers and, if necessary, provides a provision for doubtful accounts and expected losses. When assessing and recording its provision for doubtful accounts, the Company evaluates the age of its accounts receivable, current economic trends, creditworthiness of the customers, customer payment history, and other specific customer and transaction information. The Company writes off accounts receivable against the provision when it determines a balance is uncollectible and no longer actively pursues collection of the receivable. Adjustments to the provision for doubtful accounts are recorded as selling, general and administrative expenses in the condensed consolidated statements of operations and comprehensive income (loss).

As of September 30, 2020 and December 31, 2019, the Company concluded that all amounts due under extended payment terms were collectible and no reserve for credit losses was recorded. During the nine months ended September 30, 2020 and 2019, the Company did not provide a reserve for credit losses and did not write off any uncollectible receivables due under extended payment terms.

Concentration of Risks

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents and accounts receivable. Cash and cash equivalents consist of demand deposits, savings accounts, money market mutual funds, and certificates of deposit with financial institutions, which may exceed Federal Deposit Insurance Corporation limits. The Company has not experienced any losses related to its cash and cash equivalents and does not believe that it is subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

Significant customers are those that represent 10% or more of revenue or accounts receivable and are set forth in the following tables:

	Revenue Three Months Ended September 30,		Revenue Nine Months Ended September 30,	
	2020	2019	2020	2019
Customer A	*	*	*	15%
Customer B	13%	11%	*	*
Customer D	*	13%	*	12%
Customer E	32%	20%	27%	*

	Accounts Receivable, Net	
	September 30, 2020	December 31, 2019
Customer A	*	11%
Customer B	20%	*
Customer C	*	14%
Customer E	14%	*
Customer F	*	19%
Customer G	14%	*

* Less than 10% of total

Certain of the components and subassemblies included in the Company's products are obtained from a single source or a limited group of suppliers. In addition, the Company primarily relies on a limited number of third parties to manufacture certain components of its products. Although the Company seeks to reduce dependence on those limited sources of suppliers and manufacturers, the partial or complete loss of certain of these sources could have a material adverse effect on the Company's operating results, financial condition and cash flows and damage its customer relationships.

Goodwill and Acquired Intangible Assets

Goodwill represents the excess purchase price over the estimated fair value of net assets acquired as of the acquisition date. Goodwill has been recorded in connection with the acquisition of NetComm on July 1, 2019 (refer to Note 3). The Company tests goodwill for impairment on an annual basis and between annual tests when impairment indicators are identified, and goodwill is written down when impaired. As of September 30, 2020, the Company considered potential impairment indicators of goodwill and noted no indicators of impairment.

The Company performs its annual goodwill impairment test during its fourth quarter. For its annual goodwill impairment test, the Company operates under one reporting unit and the fair value of its reporting unit has been determined based on the Company's enterprise value. As part of the annual goodwill impairment test, the Company has the option to perform a qualitative assessment to determine whether further impairment testing is necessary. Examples of events and circumstances that might indicate that the reporting unit's fair value is less than its carrying amount include macro-economic conditions such as deterioration in the entity's operating environment or industry or market considerations; entity-specific events such as increasing costs, declining financial performance, or loss of key personnel; or other events such as a sustained decrease in the stock price on either an absolute basis or relative to peers. If, as a result of its qualitative assessment, it is more likely than not (i.e., greater than 50% chance) that the fair value of the Company's reporting unit is less than its carrying amount, the quantitative impairment test will be required. Otherwise, no further testing will be required.

The Company's intangible assets subject to amortization are amortized using the straight-line method over their estimated useful lives, ranging from three to ten years. The Company evaluates the recoverability of intangible assets periodically by taking into account events or circumstances that may warrant revised estimates of useful lives or that indicate the asset may be impaired. The Company considered potential impairment indicators of acquired intangible assets at September 30, 2020 and noted no indicators of impairment.

Derivative Instruments

The Company has transactions and balances denominated in currencies other than the U.S. dollar. Most of these transactions or balances are denominated in Euros and Australian dollars. The Company has historically entered into foreign exchange contracts to reduce its exposure to currency fluctuations. Historically, these transactions have not qualified for hedge accounting. However, in March 2020, the Company entered into two forward contracts, both of which were settled prior to September 30, 2020, to hedge against the impact of foreign currency fluctuations on certain forecasted operating expenses. These instruments qualified for hedge accounting as cash flow hedges, and were appropriately designated as such, thus permitting the application of special hedge accounting under ASC 815, *Derivatives and Hedging,* which states that changes in the market value of the hedging instrument are accounted for within stockholder's equity as accumulated other comprehensive loss, until such time as the hedged cash flows take place. Upon utilization of the hedge instrument for the designated cash flows, the appropriate amounts are reclassified from accumulated other comprehensive loss to the relevant line items within the Statement of Operations for the period. For further information, please refer to Note 9, "Derivative Instruments".

Impact of Recently Adopted Accounting Standards

In June 2018, the Financial Accounting Standards Board ("FASB") issued ASU 2018-07, *Compensation – Stock Compensation (Topic 718)* ("ASU 2018-07"), which expands the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. The Company adopted ASU 2018-07 as of January 1, 2020 and such adoption did not have a material effect on its condensed consolidated financial statements.

Impact of Recently Issued Accounting Standards

In February 2016, the FASB issued ASU 2016-02, *Leases* (Topic 842): *Amendments to FASB Accounting Standards Codification* ("ASU 2016-02"), which replaces the existing guidance for leases. ASU 2016-02 requires the identification of arrangements that should be accounted for as leases by lessees. In general, for lease arrangements exceeding a twelve-month term, the arrangements must now be recognized as assets and liabilities on the balance sheet of the lessee. Under ASU 2016-02, a right-of-use asset and lease obligation will be recorded for all leases, whether operating or financing, while the income statement will reflect lease expense for operating leases and amortization/interest expense for financing leases. The balance sheet amount recorded for existing leases at the date of adoption of ASU 2016-02 must be calculated using the applicable incremental borrowing rate at the date of adoption. This guidance will become effective for private companies, and emerging growth companies that choose to take advantage of the extended transition periods, for annual reporting periods beginning after December 15, 2020, and interim periods within fiscal years beginning after December 15, 2021. The Company has begun planning for adoption by implementing a new lease accounting software and by working to establish additional changes to internal processes to comply with all requirements upon adoption. The standard allows for, and the Company plans on using, a modified retrospective approach with comparatives under ASC 840, where entities would recognize a cumulative effect to retained earnings at the date of adoption without restating prior period balances or disclosure. Management is continuing to assess the impact of ASU 2016-02 on the Company's condensed consolidated financial statements and the accompanying notes thereto.

In June 2016, the FASB issued ASU 2016-13, Measurement of Credit Losses on Financial Instruments ("ASU 2016-13"). This guidance is intended to provide more decision-useful information about expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. The main provisions include presenting financial assets measured at amortized cost at the amount expected to be collected, which is net of an allowance for expected credit losses, and recording credit losses related to available-for-sale securities through an allowance for credit losses. The effective dates for the amendments in ASU 2016-13 were updated in ASU 2019-10, *Financial Instruments – Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842)*, and as such ASU 2016-13 will become effective for private companies, and emerging growth companies that choose to take advantage of the extended transition periods, for fiscal years beginning after December 15, 2022, including interim periods within those fiscal periods, and must be applied using a modified retrospective approach. The Company is currently evaluating the impact ASU 2016-13 will have on its consolidated financial statements.

Other

Other than the disclosures above, there have been no changes to the significant accounting policies disclosed in Note 2 "Summary of Significant Accounting Policies" to the Company's consolidated financial statements included in the Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

3. Business Acquisition

On July 1, 2019, the Company acquired 100% of the equity interests in NetComm for cash consideration of $161,963 AUD ($112,674 USD, based on an exchange rate of USD $0.700 per AUD $1.00 on July 1, 2019) and NetComm became a wholly-owned subsidiary of the Company. The Acquisition was accounted for under the acquisition method. The total purchase price is allocated to the tangible and intangible assets acquired and the liabilities assumed based on their estimated fair values. The excess of the purchase price over those fair values is recorded as goodwill. The fair value assigned to the tangible and intangible assets acquired and liabilities assumed are based on estimates and assumptions provided by management. Goodwill is not amortized but instead is tested for impairment at least annually.

NetComm is a global leader in the development of fixed wireless and fiber-to-the-distribution-point broadband solutions. With the Acquisition, the combined Company now offers a broad, highly competitive product portfolio for new 4G and 5G fixed wireless access products and customer premise equipment for public and private service provider and enterprise networks. This factor contributed to a purchase price in excess of fair value of NetComm's net tangible and intangible assets, leading to the recognition of goodwill.

The total purchase price was allocated to NetComm's net tangible and intangible assets based upon their estimated fair values as of the date of Acquisition. NetComm's cash and cash equivalents balance at the Acquisition date was $3,243; as such, total consideration net of cash acquired is $109,431. NetComm's existing debt of approximately $3,507 as of the Acquisition date has been accounted for as an assumed liability. All contractual accounts receivable as of July 1, 2019, which totaled $18,142, have been collected as of September 30, 2020. Based upon the purchase price and the valuation, the allocation of the total purchase price is as follows:

		Purchase Price Allocation
Assets acquired		
Fair value of tangible assets:		
Accounts receivable	$	18,142
Inventory		24,138
Prepaid expenses and other current assets		2,240
Property and equipment		8,010
Deferred tax assets		365
Other assets		13
Goodwill		50,177
Identifiable intangible assets		44,000
Total assets acquired	$	147,085
Liabilities assumed		
Accounts payable	$	(9,719)
Accrued expenses		(13,178)
Accrued income taxes		(140)
Deferred tax liabilities		(10,621)
Current portion of long-term debt		(3,507)
Other liabilities		(489)
Total liabilities assumed	$	(37,654)
Net assets acquired	$	109,431

The allocation of the purchase price and the estimated useful lives associated with certain assets is as follows:

		Amount	Estimated Useful Life
Net tangible assets	$	15,254	—
Identifiable intangible assets:			
Developed technology		25,000	7 years
Customer relationships		18,000	10 years
Trade name		1,000	3 years
Goodwill		50,177	—
Total purchase price	$	109,431	

Intangible assets of $44,000 have been allocated to identifiable intangible assets consisting of developed technology, amortized over seven years using a straight-line amortization method; customer relationships, amortized over ten years using a straight-line amortization method; and a trade name, amortized over three years using a straight-line amortization method. The weighted–average life of the identifiable intangible assets recognized from the Acquisition was 8.2 years.

The Acquisition accounting has resulted in goodwill of $50,177. Various factors contributed to the establishment of the goodwill, including: the strategic benefit of expanding the breadth of the Company's product offerings; the value of NetComm's highly trained work force; the expected revenue growth over time that is attributable to increased market penetration from future products and customers, and cross-selling by the sales force; and the synergies expected to result from reducing redundant infrastructure such as corporate costs and field operations. The goodwill acquired in the Acquisition is not deductible for tax purposes.

4. Goodwill and Intangible Assets

Intangible assets, net consisted of the following at September 30, 2020 and December 31, 2019:

	Cost	Accumulated Amortization	Net Balance
Developed Technology	$ 25,000	$ (4,464)	$ 20,536
Customer Relationships	18,000	(2,250)	15,750
Trade Name	1,000	(417)	583
Totals as of September 30, 2020	$ 44,000	$ (7,131)	$ 36,869

	Cost	Accumulated Amortization	Net Balance
Developed Technology	$ 25,000	$ (1,786)	$ 23,214
Customer Relationships	18,000	(900)	17,100
Trade Name	1,000	(166)	834
Totals as of December 31, 2019	$ 44,000	$ (2,852)	$ 41,148

As of September 30, 2020, amortization expense on existing intangible assets for the next five years and beyond is as follows:

Year Ending December 31,	
2020	$ 1,426
2021	5,704
2022	5,538
2023	5,371
2024	5,371
Thereafter	13,459
	$ 36,869

A summary of amortization expense recorded during the three and nine months ended September 30, 2020 and 2019 is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Product cost of revenue	$ 893	$ 893	$ 2,679	$ 893
Selling, general and administrative	533	533	1,600	533
Totals	$ 1,426	$ 1,426	$ 4,279	$ 1,426

5. Inventory

Inventory as of September 30, 2020 and December 31, 2019 consisted of the following:

	September 30, 2020	December 31, 2019
Raw materials	$ 43,269	$ 19,821
Work in process	—	17
Finished goods:		
Manufactured finished goods	47,658	69,503
Deferred inventory costs	7,555	4,263
	$ 98,482	$ 93,604

6. Property and Equipment

Property and equipment as of September 30, 2020 and December 31, 2019 consisted of the following:

	September 30, 2020	December 31, 2019
Computers and purchased software	$ 23,654	$ 22,294
Leasehold improvements	4,444	4,380
Furniture and fixtures	2,976	2,794
Machinery and equipment	41,121	40,002
Land	3,091	3,091
Building	4,765	4,765
Building improvements	7,243	6,776
Trial systems at customers' sites	5,836	6,039
	93,130	90,141
Less: Accumulated depreciation and amortization	(62,049)	(54,231)
	$ 31,081	$ 35,910

During the nine months ended September 30, 2020 and 2019, the Company transferred trial systems into inventory from property and equipment with values of $690 and $191, respectively, net of transfers of trial systems to cost of revenue. In addition, the Company transferred $766 and $650 of equipment into inventory from property and equipment during the nine months ended September 30, 2020 and 2019, respectively.

Depreciation and amortization expense on property and equipment totaled $2,968 and $2,369 for the three months ended September 30, 2020 and 2019, respectively, and $9,370 and $8,477 for the nine months ended September 30, 2020 and 2019, respectively.

7. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of September 30, 2020 and December 31, 2019 consisted of the following:

	September 30, 2020	December 31, 2019
Accrued compensation and related taxes	$ 17,486	$ 18,540
Accrued warranty	2,399	2,448
Dividends and equitable adjustments payable (see Note 12)	85	750
Accrued customer incentives	30	233
Other accrued expenses	14,368	12,596
	$ 34,368	$ 34,567

Accrued Warranty

Substantially all of the Company's products are covered by warranties for software and hardware for periods ranging from 90 days to one year. In addition, in conjunction with customers' renewals of maintenance and support contracts, the Company offers an extended warranty for periods typically of one to three years for agreed-upon fees. In the event of a failure of a hardware product or software covered by these warranties, the Company must repair or replace the software or hardware or, if those remedies are insufficient, and at the discretion of the Company, provide a refund. The Company's warranty reserve, which is included in accrued expenses and other current liabilities in the condensed consolidated balance sheets, reflects estimated material, labor and other costs related to potential or actual software and hardware warranty claims for which the Company expects to incur an obligation. The Company's estimates of anticipated rates of warranty claims and the costs associated therewith are primarily based on historical information and future forecasts. The Company periodically assesses the adequacy of the warranty reserve and adjusts the amount as necessary. If the historical data used to calculate the adequacy of the warranty reserve are not indicative of future requirements, additional or reduced warranty reserves may be required.

A summary of changes in the amount reserved for warranty costs for the nine months ended September 30, 2020 and 2019 is as follows:

	Nine Months Ended September 30, 2020	2019
Warranty reserve at beginning of period	$ 2,448	$ 926
Provisions	2,054	2,286
Acquired warranty reserve	—	1,867
Charges	(2,103)	(2,510)
Warranty reserve at end of period	$ 2,399	$ 2,569

8. Fair Value Measurements

The following tables present information about the fair value of the Company's financial assets and liabilities as of September 30, 2020 and December 31, 2019 and indicate the level of the fair value hierarchy utilized to determine such fair values:

	Fair Value Measurements as of September 30, 2020 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Certificates of deposit—restricted cash	$ —	$ 1,004	$ —	$ 1,004
Money market mutual funds	107,587	—	—	107,587
	$ 107,587	$ 1,004	$ —	$ 108,591
Liabilities:				
SARs	$ —	$ —	$ 257	$ 257
	$ —	$ —	$ 257	$ 257

	Fair Value Measurements as of December 31, 2019 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Certificates of deposit	$ —	$ 10,933	$ —	$ 10,933
Certificates of deposit—restricted cash	—	1,019	—	1,019
Money market mutual funds	53,763	—	—	53,763
Foreign currency forward contracts	—	23	—	23
	$ 53,763	$ 11,975	$ —	$ 65,738
Liabilities:				
SARs	$ —	$ —	$ 264	$ 264
Foreign currency forward contracts	—	50	—	50
	$ —	$ 50	$ 264	$ 314

During the nine months ended September 30, 2020 and 2019, there were no transfers between Level 1, Level 2 and Level 3.

There were no changes to the valuation techniques used to measure asset and liability fair values on a recurring basis during the nine months ended September 30, 2020 from those included in the Company's consolidated financial statements for the year ended December 31, 2019. The following table provides a summary of changes in the fair values of the Company's stock appreciation rights ("SARs") liability, for which fair value is determined by Level 3 inputs:

	Nine Months Ended September 30, 2020	2019
Fair value at beginning of period	$ 264	$ 1,387
Change in fair value	(7)	(709)
Exercises	—	—
Fair value at end of period	$ 257	$ 678

9. Derivative Instruments

The Company has certain international customers that are billed in foreign currencies. To mitigate the volatility related to fluctuations in the foreign exchange rates for accounts receivable denominated in foreign currencies, the Company enters into foreign currency forward contracts. As of September 30, 2020, no foreign currency forward contracts were outstanding. As of December 31, 2019, the Company had foreign currency forward contracts outstanding with notional amounts totaling 500 Euros and 900 USD related to the Company's Australian subsidiary which matured during the first quarter of 2020.

The Company's foreign currency forward contracts described above economically hedged certain risks but were not designated as hedges for financial reporting purposes, and accordingly, all changes in the fair value of the derivative instruments were recorded as unrealized foreign currency transaction gains or losses and were included in the condensed consolidated statements of operations and comprehensive income (loss) as a component of other income (expense). The Company records derivative instruments in the condensed consolidated balance sheet at their fair values. As of September 30, 2020, the Company recorded no asset relating to outstanding foreign currency forward contracts and as of December 31, 2019, had recorded an asset of $23 which was included in prepaid expenses and other current assets in the condensed consolidated balance sheets. As of September 30, 2020, the Company recorded no liability relating to outstanding foreign currency forward contracts and as of December 31, 2019, had recorded a liability of $50, related to outstanding foreign currency forward contracts, which was included in accrued expenses and other current liabilities in the condensed consolidated balance sheets.

The Company also faces exposure to foreign currency exchange rate fluctuations, as a certain portion of its expenses are denominated in currencies other than U.S. Dollars. In certain instances, we utilize forward contracts to hedge against foreign currency fluctuations. These contracts are used to minimize foreign gains or losses, as the gains or losses on the derivative are intended to offset the losses or gains on the underlying exposure. We do not engage in foreign currency speculation.

The Company's foreign currency risk management strategy is principally designed to mitigate the potential financial impact of changes in the value of transactions and balances denominated in foreign currencies resulting from changes in foreign currency exchange rates. The Company may enter into cash flow hedges which utilize foreign currency forward contracts to hedge specific forecasted transactions of the Company's foreign subsidiaries with the goal of protecting our budgeted expenses against foreign currency exchange rate changes compared to our budgeted rates.

During the three months ended September 30, 2020, the Company settled one cash flow hedge with notional amounts of 5,000 AUD to hedge certain Australian Dollar cash flows incurred during the period. The amount of gain reclassified from other comprehensive income (loss) for the three months ended September 30, 2020 was $527. The full amount of the fair value of the derivative on the settlement date of $725 has been recognized proportionately as $57 cost of goods sold, $353 research and development expense and $315 selling, general and administrative expense in the condensed consolidated statement of comprehensive income for the three months ended September 30, 2020.

During the nine months ended September 30, 2020, the Company settled two cash flow hedges with notional amounts of 8,500 AUD and 5,000 AUD to hedge certain Australian Dollar cash flows incurred during the period. The amount of gain reclassified from other comprehensive income (loss) for the nine months ended September 30, 2020 was $752. The full amount of the fair value of the derivatives on the settlement date of $1,613 has been recognized proportionately as $124 cost of goods sold, $890 research and development expense and $599 selling, general and administrative expense in the condensed consolidated statement of comprehensive income for the nine months ended September 30, 2020. The Company did not have any cash flow hedges outstanding as of September 30, 2020 and December 31, 2019.

10. Income Taxes

The Company's effective income tax rate was 40.9% and 39.8% for the three months ended September 30, 2020 and 2019, respectively, and was 142.0% and 27.0% for the nine months ended September 30, 2020 and 2019, respectively. The provision for (benefit from) income taxes was $2,399 and $(5,612) for the three months ended September 30, 2020 and 2019, respectively, and was $(5,433) and $(8,339) for the nine months ended September 30, 2020 and 2019, respectively. The change in the provision for (benefit from) income taxes for the nine months ended September 30, 2020 compared to the nine months ended September 30, 2019 was primarily due to the recognition of the benefit from the CARES Act, the recognition of a benefit from the final Regulations under IRC for Section 163(j) and the full valuation allowance against the deferred tax assets in the United States. The change to the income tax provision for the three months ended September 30, 2020 compared to the income tax benefit for the three months ended September 30, 2019 is primarily due to geographical mix of profits, the recognition of a benefit from the final regulations under IRC Section 163(j), as well as a full valuation allowance against the deferred tax assets in the United States.

The Company determines its estimated annual effective tax rate at the end of each interim period based on estimated pre-tax income (loss) and facts known at that time. The estimated annual effective tax rate is applied to the year-to-date pre-tax income (loss) at the end of each interim period with certain adjustments. The tax effects of significant unusual or extraordinary items are reflected as discrete adjustments in the periods in which they occur. The Company's estimated annual effective tax rate can change based on the mix of jurisdictional pre-tax income (loss) and other factors. However, if the Company is unable to make a reliable estimate of its annual effective tax rate, then the actual effective tax rate for the year to date period may be the best estimate. For each of the three and nine months ended September 30, 2020 and 2019, the Company determined that its annual effective tax rate approach would provide for a reliable estimate and therefore used this method to calculate its tax provision.

The effective income tax rate for the three and nine months ended September 30, 2020 and 2019 differed from the federal statutory rate primarily due to the benefit related to the carryback of taxable losses in the United States as well as geographical mix of earnings and related foreign tax rate differential, permanent differences, research and development tax credits, foreign tax credits, valuation allowance and withholding taxes. Permanent differences primarily included global intangible low-taxed income, Australian research and development expenditures claim and excess tax benefit from stock-based transactions.

On March 27, 2020, the Coronavirus Aid, Relief and Economic Security ("CARES") Act was enacted and signed into law. Accordingly, applicable provisions of the CARES Act were reflected in the tax provision for the three months ended March 31, 2020. The CARES Act, among other provisions, permits net operating losses ("NOLs") incurred in the years ended December 31, 2020, 2019 and 2018 to be carried back to reduce 100% of taxable income in the five preceding taxable years. The Company continues to evaluate certain aspects of these provisions but has determined that its NOL incurred in 2019 may be carried back to 2014, and accordingly recognized an estimated benefit of approximately $9,310 in the three months ended March 31, 2020, which was included in prepaid income taxes in the condensed consolidated balance sheet as of March 31, 2020 . On July 28, 2020, the U.S. Treasury Department and IRS collectively, released final regulation for Section 163(j). The Company has applied these final regulations under the Internal Revenue Code ("IRC") related to its 2019 tax year in its tax provision for the quarter ended September 30, 2020 and has recognized a benefit of approximately $1,240 in the three months ended September 30, 2020.

11. Debt

The aggregate principal amount of debt outstanding as of September 30, 2020 and December 31, 2019 consisted of the following:

	September 30, 2020	December 31, 2019
Term loan	$ 288,750	$ 291,000
Revolving credit facility	6,500	—
Mortgage loan	—	6,644
Total principal amount of debt outstanding	$ 295,250	$ 297,644

Current and non-current debt obligations reflected in the condensed consolidated balance sheets as of September 30, 2020 and December 31, 2019 consisted of the following:

	September 30, 2020	December 31, 2019
Current liabilities:		
Term loan	$ 3,000	$ 3,000
Mortgage loan	—	6,644
Current portion of principal payment obligations	3,000	9,644
Unamortized debt issuance costs, current portion	(1,107)	(1,120)
Current portion of long-term debt, net of unamortized debt issuance costs	$ 1,893	$ 8,524
Non-current liabilities:		
Term loan	$ 285,750	$ 288,000
Revolving credit facility	6,500	—
Non-current portion of principal payment obligations	292,250	288,000
Unamortized debt issuance costs, non-current portion	(2,419)	(3,244)
Long-term debt, net of current portion and unamortized debt issuance costs	$ 289,831	$ 284,756

As of September 30, 2020, aggregate minimum future principal payments of the Company's debt are summarized as follows:

Year Ending December 31,	
2020	$ 750
2021	9,500
2022	3,000
2023	282,000
Thereafter	—
	$ 295,250

Term Loan and Revolving Credit Facilities

On December 20, 2016, the Company entered into a credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, various lenders and JPMorgan Chase Bank, N.A. and Barclays Bank PLC providing for (i) a term loan facility of $300,000 and (ii) a revolving credit facility of up to $25,000 in revolving credit loans and letters of credit.

As of September 30, 2020 and December 31, 2019, $288,750 and $291,000 in principal amount, respectively, were outstanding under the term loan facility (the "Term Loans"). As of September 30, 2020, the Company had outstanding borrowings under the revolving credit facility of $6,500 that were drawn down during the three months ended September 30, 2020. As of December 31, 2019, the Company had no outstanding borrowings under the revolving credit facility. As of September 30, 2020 and December 31, 2019, the Company had also used $1,461 and $1,343 of availability under the revolving credit facility for two stand-by letters of credit, one which serves as collateral to one of the Company's customers pursuant to a contractual performance guarantee and one which serves as collateral for operating leases in Australia. In addition, the Company may, subject to certain conditions, including the consent of the administrative agent and the institutions providing such increases, increase the facilities by an unlimited amount so long as the Company is in compliance with specified leverage ratios, or otherwise by up to $70,000.

Borrowings under the facilities bear interest at a floating rate, which can be either a Eurodollar rate plus an applicable margin or, at the Company's option, a base rate (defined as the highest of (x) the JPMorgan Chase, N.A. prime rate, (y) the federal funds effective rate, plus one-half percent (0.50%) per annum and (z) a one-month Eurodollar rate plus 1.00% per annum) plus an applicable margin. The applicable margin for borrowings under the term loan facility is 4.00% per annum for Eurodollar rate loans (subject to a 1.00% per annum interest rate floor) and 3.00% per annum for base rate loans. The applicable margin for borrowings under the revolving credit facility is 1.75% per annum for Eurodollar rate loans and 0.75% per annum for base rate loans, subject to reduction based on the Company's maintaining of specified net leverage ratios. The interest rates payable under the facilities are subject to an increase of 2.00% per annum during the continuance of any payment default.

For Eurodollar rate loans, the Company may select interest periods of one, three or six months or, with the consent of all relevant affected lenders, twelve months. Interest will be payable at the end of the selected interest period, but no less frequently than every three months within the selected interest period. Interest on any base rate loan is not set for any specified period and is payable quarterly. The Company has the right to convert Eurodollar rate loans into base rate loans and the right to convert base rate loans into Eurodollar rate loans at its option, subject, in the case of Eurodollar rate loans, to breakage costs if the conversion is effected prior to the end of the applicable interest period. As of September 30, 2020, the interest rate on the Term Loans was 5.00% per annum, which was based on a six-month Eurodollar rate at the applicable floor of 1.00% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. As of December 31, 2019, the interest rate on the Term Loans was 5.80% per annum, which was based on a one-month Eurodollar rate of 1.80% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. As of September 30, 2020, the interest rate on the revolving credit facility was 2.12% per annum, which was based on a one-month Eurodollar rate of 0.37% per annum plus the applicable margin of 1.75% per annum for Eurodollar rate loans.

Upon entering into the term loan facility, the Company incurred debt issuance costs of $7,811, which were initially recorded as a reduction of the debt liability and are amortized to interest expense using the effective interest method from the issuance date of the Term Loan until the maturity date. Principal payments of $750 were made under the term loan facility during each of the three months ended September 30, 2020 and 2019, and principal payments of $2,250 were made under the term loan facility during each of the nine months ended September 30, 2020 and 2019. Interest expense, including the amortization of debt issuance costs, totaled $3,892 and $5,010 for the three months ended September 30, 2020 and 2019, respectively, and totaled $12,366 and $15,090 for the nine months ended September 30, 2020 and 2019, respectively.

The revolving credit facility also requires payment of quarterly commitment fees at a rate of 0.25% per annum on the difference between committed amounts and amounts actually borrowed under the facility and customary letter of credit fees. For the three months ended September 30, 2020 and 2019, interest expense related to the fee for the unused amount of the revolving credit facility totaled $11 and $13, respectively, and for the nine months ended September 30, 2020 and 2019, interest expense related to the fee for the unused amount of the revolving credit facility totaled $41 and $45, respectively.

The Term Loans mature on December 20, 2023, and the revolving credit facility matures on December 20, 2021. The Term Loans are subject to amortization in equal quarterly installments, which commenced on March 31, 2017, of principal in an annual aggregate amount equal to 1.0% of the original principal amount of the Term Loans of $300,000, with the remaining outstanding balance payable at the date of maturity.

Voluntary prepayments of principal amounts outstanding under the term loan facility are permitted at any time; however, if a prepayment of principal is made with respect to a Eurodollar loan on a date other than the last day of the applicable interest period, the Company is required to compensate the lenders for any funding losses and expenses incurred as a result of the prepayment. Prior to the revolving credit facility maturity date, funds borrowed under the revolving credit facility may be borrowed, repaid and reborrowed, without premium or penalty.

In addition, the Company is required to make mandatory prepayments under the facilities with respect to (i) 100% of the net cash proceeds from certain asset dispositions (including casualty and condemnation events) by the Company or certain of its subsidiaries, subject to certain exceptions and reinvestment provisions, (ii) 100% of the net cash proceeds from the issuance or incurrence of any additional debt by the Company or certain of its subsidiaries, subject to certain exceptions, and (iii) 50% of the Company’s excess cash flow, as defined in the credit agreement, subject to reduction upon its achievement of specified performance targets.

The facilities are secured by, among other things, a first priority security interest, subject to permitted liens, in substantially all of the Company’s assets and all of the assets of certain of its subsidiaries and a pledge of certain of the stock of certain of its subsidiaries, in each case subject to specified exceptions. The facilities contain customary affirmative and negative covenants, including certain restrictions on the Company’s ability to pay dividends, and, with respect to the revolving credit facility, a financial covenant requiring the Company to maintain a specified total net leverage ratio in the event that on the last day of any fiscal quarter the Company has utilized more than 30% of its borrowing capacity under the facility. The Company was in compliance with all covenants as of September 30, 2020. As of December 31, 2019, the Company’s net leverage ratio exceeded the maximum; however, as the Company’s utilization of the revolving credit facility did not exceed the 30% testing threshold on December 31, 2019, the Company was not in default of the revolving credit facility as a result of the Company’s net leverage ratio exceeding the maximum permitted amount. The Company was in compliance with all other applicable covenants of the facilities as of December 31, 2019.

Commercial Mortgage Loan

On July 1, 2015, the Company entered into a commercial mortgage loan agreement in the amount of $7,950 (the "Mortgage Loan"). Borrowings under the Mortgage Loan bore interest at a rate of 3.5% per annum and were repayable in 60 monthly installments of $46, consisting of principal and interest based on a 20-year amortization schedule. The remaining amount of unpaid principal under the Mortgage Loan was paid on the maturity date of July 1, 2020 utilizing the Company's revolving credit facility. Upon entering into the Mortgage Loan, the Company incurred debt issuance cost of $45, which was initially recorded as a direct deduction from the debt liability and was being amortized to interest expense using the effective interest method from issuance date of the loan until the maturity date.

The Company made principal payments under the Mortgage Loan of $6,483 and $78 during the three months ended September 30, 2020 and 2019, respectively, and $6,644 and $234 during the nine months ended September 30, 2020 and 2019, respectively. No interest expense was incurred during the three months ended September 30, 2020. Interest expense, including the amortization of debt issuance costs, totaled $62 during the three months ended September 30, 2019 and $120 and $188 during the nine months ended September 30, 2020 and 2019, respectively.

12. Stockholders' Equity

Special Dividends to Holders of Common and Preferred Stock

The board of directors, on five separate occasions, declared a special dividend to the holders of common stock and preferred stock of record at that time. The below table details the cash dividends declared to stockholders of each share type for each of the five special dividends, as well as the amount of dividends the Company paid in each of the nine months ended September 30, 2020 and 2019, respectively:

	Cash Dividend Declared per Share Type		Dividends Paid Nine Months Ended	
Dividend Declaration Date	Common	Series B and Series C Convertible Preferred	September 30, 2020	September 30, 2019
November 30, 2017	$ 0.5802	$ 5.8020	$ —	$ 865
May 10, 2017	1.1774	11.7744	—	—
December 27, 2016	2.3306	23.3058	—	—
June 17, 2016	0.5891	5.8910	—	—
November 30, 2014	0.3835	3.8346	—	—
Total dividends paid			$ —	$ 865

No dividend payments were payable as of September 30, 2020 and December 31, 2019.

In connection with these special dividends, the board of directors also approved cash payments to be made to holders of the Company's stock options, SARs and restricted stock units ("RSUs") as equitable adjustments to the holders of such instruments in accordance with the provisions of the Company's equity incentive plans. These equitable adjustment payments are equal to an amount per share multiplied by the net number of shares subject to outstanding equity awards after applying the treasury stock method. The below table provides details of these equitable adjustment payments:

			Equitable Adjustment Payments Nine Months Ended		Equitable Adjustment Liability(1)	
Dividend Declaration Dates	Equitable Adjustment per share	Year of Final Vesting	September 30, 2020	September 30, 2019	As of September 30, 2020	As of December 31, 2019
November 30, 2017	$ 0.5802	2021	$ 136	$ 380	$ 41	$ 177
May 10, 2017	1.1774	2021	176	577	6	182
December 27, 2016	2.3306	2020	295	1,175	38	335
June 17, 2016	0.5891	2020	54	243	—	37
November 30, 2014	0.3835	2018	—	1	—	—
Total			$ 661	$ 2,376	$ 85	$ 731

(1) Net of estimated forfeitures. Amounts are included in accrued expenses and other current liabilities in the accompanying condensed consolidated balance sheets.

Stock Repurchase Program

On February 21, 2019, the Company announced a stock repurchase program authorizing it to repurchase up to $75,000 of the Company's common stock. During the nine months ended September 30, 2020, the Company repurchased 1,227 shares, for a cost of $3,031, including commissions. There were no repurchases made during the three months ended September 30, 2020 or the three and nine months ended September 30, 2019. As of September 30, 2020, $70,208 remained authorized for repurchases of the Company's common stock under the stock repurchase program. The stock repurchase program has no expiration date and does not require us to purchase a minimum number of shares, and the Company may suspend, modify or discontinue the stock repurchase program at any time without prior notice.

13. Stock-based Compensation

2017 Stock Incentive Plan

The Company's 2017 Stock Incentive Plan (the "2017 Plan") provides for the Company to sell or issue common stock or restricted common stock, or to grant qualified incentive stock options, nonqualified stock options, SARs, performance-based stock units ("PSUs"), RSUs or other stock-based awards to the Company's employees, officers, directors, advisers and outside consultants. The total number of shares authorized for issuance under the 2017 Plan was 17,177 shares as of September 30, 2020, of which 10,810 shares remained available for future grant.

Stock Options

The following table summarizes the outstanding stock option activity and a summary of information related to stock options as of and for the nine months ended September 30, 2020:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at January 1, 2020	8,250	$ 7.73	5.65	$ 4,235
Granted	131	3.99		
Exercised	(514)	1.86		
Forfeited	(649)	8.89		
Outstanding at September 30, 2020	7,218	$ 7.98	5.11	$ 3,028
Options exercisable at September 30, 2020	6,440	$ 7.43	4.77	$ 2,985
Vested or expected to vest at September 30, 2020	7,180	$ 7.97	5.10	$ 3,025

The fair value of each option is estimated on the date of grant using the Black-Scholes option-pricing model using the following assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Risk-free interest rate	0.4%	1.6%	0.4%–0.7%	1.6%–2.5%
Expected term (in years)	6.1	6.1	6.1	6.1–6.2
Expected volatility	31.8%	29.0%	29.3%–31.8%	29.0%–30.6%
Expected dividend yield	0.0%	0.0%	0.0%	0.0%

The weighted-average grant-date fair value of options granted during the nine months ended September 30, 2020 and 2019 was $0.98 and $2.38 per share, respectively. Cash proceeds received upon the exercise of options were $955 and $2,478 during the nine months ended September 30, 2020 and 2019, respectively. The intrinsic value of stock options exercised during the nine months ended September 30, 2020 and 2019 was $1,480 and $6,719, respectively. The aggregate intrinsic value is calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock for those stock options that had exercise prices lower than the fair value of the Company's common stock.

Restricted Stock Units and Performance-Based Stock Units

A summary of RSU and PSU activity under the Company's 2011 Stock Incentive Plan (the "2011 Plan") and the 2017 Plan for the nine months ended September 30, 2020 is as follows:

	Number of Shares		Weighted-Average Grant Date Fair Value		Aggregate Fair Value
Unvested balance at January 1, 2020	1,653	$	11.38		
Granted	4,055		3.41		
Vested	(548)		11.01	$	2,279
Forfeited	(124)		9.92		
Unvested balance at September 30, 2020	5,036	$	5.03		

The Company withheld 150 and 77 shares of common stock in settlement of employee tax withholding obligations due upon the vesting of RSUs during the nine months ended September 30, 2020 and 2019, respectively.

The Company granted 983 PSUs in February 2020 to certain employees that vest over a three-year period based on the achievement of performance goals and continued performance of services. The performance goals consist solely of market-based vesting conditions, determined by the Company's level of achievement of pre-established parameters relating to the performance of the Company's stock price as set by the Board of Directors. Vesting may occur at any time during the three-year period.

Compensation expense is based on the estimated value of the awards on the grant date, and is recognized over the period from the grant date through the expected vest dates of each vesting condition, both of which were estimated based on a Monte Carlo simulation model applying the following key assumptions:

	Grant Date Assumptions
Risk-free interest rate	1.2%
Volatility	70.0%
Dividend yield	0.0%
Cost of equity	11.0%

The actual number of shares earned upon vesting will range up to a maximum of 983 shares if all targets are achieved. For the nine months ended September 30, 2020, no shares vested.

Stock Appreciation Rights

Over time, the Company has granted SARs that allow the holder the right, upon exercise, to receive in cash the amount of the difference between the fair value of the Company's common stock at the date of exercise and the price of the underlying common stock at the date of grant of each SAR. The SARs vest over a four-year period from the date of grant and expire ten years from the date of grant. As of September 30, 2020, 220 outstanding and fully vested SARs were exercisable with a weighted-average fair value of $1.17 per SAR. The fair value of the SAR liability as of September 30, 2020 and December 31, 2019 was $257 and $264, respectively, (see Note 8) and was included in accrued expenses and other current liabilities in the accompanying condensed consolidated balance sheets.

Stock-Based Compensation Expense

Stock-based compensation expense related to stock options, RSUs, SARs and PSUs for the three and nine months ended September 30, 2020 and 2019 was classified in the condensed consolidated statements of operations and comprehensive income (loss) as follows:

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Cost of revenue	$ 45	$ 47	$ 115	$ 171
Research and development expenses	592	673	1,679	1,316
Selling, general and administrative expenses	2,845	2,171	7,704	5,963
Total stock-based compensation	$ 3,482	$ 2,891	$ 9,498	$ 7,450

During the three months ended September 30, 2020 and 2019, the Company recognized stock-based compensation of $(14) and $156, respectively, as a change in fair value of the outstanding SAR liability and recognized $3,496 and $2,735, respectively, as additional paid-in capital. During the nine months ended September 30, 2020 and 2019, the Company recognized stock-based compensation expense of $(7) and $(709), respectively, as a change in the fair value of the outstanding SAR liability and recognized $9,505 and $8,159, respectively, as additional paid-in capital.

As of September 30, 2020, there was $23,774 of unrecognized compensation cost related to outstanding stock options, RSUs, SARs and PSUs, which is expected to be recognized over a weighted-average period of 2.54 years.

14. Net Income (Loss) per Share

Basic and diluted net income (loss) per share attributable to common stockholders was calculated as follows:

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Numerator:				
Net income (loss) attributable to common stockholders, basic and diluted	$ 3,473	$ (8,498)	$ 1,607	$ (22,546)
Denominator:				
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders, basic	83,302	84,068	83,437	83,761
Dilutive effect of stock options	1,125	—	1,207	—
Dilutive effect of restricted stock units	1,039	—	726	—
Weighted-average shares used to compute net income (loss) per share attributable to common stockholders, diluted	85,466	84,068	85,370	83,761
Net income (loss) per share attributable to common stockholders:				
Basic	$ 0.04	$ (0.10)	$ 0.02	$ (0.27)
Diluted	$ 0.04	$ (0.10)	$ 0.02	$ (0.27)

The following potential common shares, presented based on amounts outstanding at each period end, were excluded from the computation of diluted net income (loss) per share attributable to common stockholders for the periods presented because including them would have been anti-dilutive:

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Options to purchase common stock	4,156	8,475	4,156	8,475
Unvested restricted stock units	1,001	1,676	1,001	1,676
Unvested performance-based stock units	983	—	983	—

15. Revenue from Contracts with Customers

Disaggregation of revenue

The Company disaggregates its revenue by product and service in the condensed consolidated statements of operations and comprehensive income (loss). Performance obligations related to product revenue are recognized at a point in time, while performance obligations related to service revenue are recognized over time. The Company also disaggregates its revenue based on geographic locations of its customers, as determined by the customer's shipping address, summarized as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
North America:				
United States	$ 32,036	$ 26,761	$ 90,825	$ 56,749
Canada	6,428	6,480	15,170	18,391
Total North America	38,464	33,241	105,995	75,140
Europe, Middle East and Africa:	6,047	8,315	27,493	28,991
Asia-Pacific:				
Australia	38,889	19,280	86,848	19,280
Japan	6,565	10,664	17,765	20,531
Other	3,449	4,186	14,119	6,882
Total Asia-Pacific	48,903	34,130	118,732	46,693
Latin America	12,333	6,130	20,500	18,580
Total revenue(1)	$ 105,747	$ 81,816	$ 272,720	$ 169,404

(1) Other than the United States, Canada, Japan and Australia, no individual countries represented 10% or more of the Company's total revenue for any of the periods presented.

The Company also disaggregates its revenue based on product line summarized as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Product revenue:				
Wireless	$ 26,825	$ 20,698	$ 62,992	$ 22,353
Fixed telecom	34,005	17,459	75,756	17,504
Cable	32,911	33,162	100,879	100,339
Total product revenue	93,741	71,319	239,627	140,196
Service revenue	12,006	10,497	33,093	29,208
Total revenue	$ 105,747	$ 81,816	$ 272,720	$ 169,404

Costs to Obtain or Fulfill a Contract

As of September 30, 2020 and December 31, 2019, the Company had short-term capitalized contract costs of $112 and $585, respectively, which are included in prepaid expenses and other current assets and had long-term capitalized contract costs of $77 and $70, respectively, which are included in other assets in the accompanying condensed consolidated balance sheets. During the three months ended September 30, 2020 and 2019, amortization expense associated with capitalized contract costs was $76 and $286, respectively, and during the nine months ended September 30, 2020 and 2019 was $524 and $407, respectively, all of which were recorded to selling, general and administrative expenses in the accompanying condensed consolidated statements of operations and comprehensive income (loss).

Contract Balances

Contract liabilities consist of deferred revenue and include payments received in advance of performance under the contract. Such amounts are recognized as revenue when the Company satisfies its performance obligations, consistent with the above methodology. For the three and nine months ended September 30, 2020, the Company recognized $9,857 and $20,194, respectively, of revenue that was included in deferred revenue as of December 31, 2019. For the three and nine months ended September 30, 2019, the Company recognized $4,252 and $17,440, respectively, of revenue that was included in deferred revenue as of January 1, 2019.

The Company receives payments from customers based upon contractual billing terms. Accounts receivable are recorded when the right to consideration becomes unconditional. Contract assets include amounts related to the Company's contractual right to consideration for both completed and partially completed performance obligations that may not have been invoiced. As of September 30, 2020 and December 31, 2019, the Company included contract assets of $432 and $50, respectively, which is included in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheets.

Transaction price allocated to the remaining performance obligations

As of September 30, 2020, the aggregate remaining amount of revenue expected to be recognized related to unsatisfied or partially unsatisfied performance obligations is $26,098, which consists of deferred revenue. The Company expects approximately 87.3% of this amount to be recognized in the next twelve months with the remaining amounts to be recognized over the next two to five years.

Other Revenue Recognition Policies

The Company's customary payment terms are generally one year or less. If the Company provides extended payment terms that represent a significant financing component, the Company adjusts the amount of promised consideration for the time value of money using its discounted rate and recognizes interest income separate from the revenue recognized on contracts with customers. During the three months ended September 30, 2020, the Company recorded interest income of $10 and during the nine months ended September 30, 2020 and 2019, the Company recorded interest income of $57 and $76, respectively, all of which were recorded in the condensed consolidated statements of operations and comprehensive income (loss). No amounts were recorded in interest income during the three months ended September 30, 2019.

When a customer contract includes future trade-in rights, which are distinct performance obligations, the Company accounts for the customer contract by recognizing the revenue on the products transferred, deferring revenue allocated to the future product based on a relative standalone selling price, and recording an asset for the value of the trade-in product to be recovered from the customer upon delivery of the future product. The Company assesses and updates these estimates each reporting period, and updates to these estimates may result in either an increase or decrease in the amount of the future product liability and product return asset. The Company recognizes revenue allocated to the future product when the product has shipped or been delivered and control has transferred. As of September 30, 2020 and December 31, 2019, there were no future product liabilities or product return assets.

16. Segment Information

The Company operates as one operating segment. Operating segments are defined as components of an enterprise for which separate financial information is regularly evaluated by the Company's chief operating decision maker, or decision-making group, in deciding how to allocate resources and assess performance. The Company has determined that its chief operating decision maker is its President and Chief Executive Officer. The Company's chief operating decision maker reviews the Company's financial information on a consolidated basis for purposes of allocating resources and assessing financial performance. Since the Company operates as one operating segment, all required financial segment information can be found in these condensed consolidated financial statements.

The Company's property and equipment, net by location was as follows:

	September 30, 2020	December 31, 2019
United States	$ 22,714	$ 25,583
China	3,044	3,277
Australia	3,096	4,041
Other	2,227	3,009
Total property and equipment, net	$ 31,081	$ 35,910

17. Related Parties

Employment of Rongke Xie

Rongke Xie, who serves as Deputy General Manager of Guangzhou Casa Communication Technology LTD ("Casa China"), a subsidiary of the Company, is the sister of Lucy Xie, the Company's Senior Vice President of Operations and a member of the Company's board of directors. Casa China paid Rongke Xie $153 and $96 in total compensation in the nine months ended September 30, 2020 and 2019, respectively, for her services as an employee.

In March 2020, February 2019 and June 2018, the Company granted to Rongke Xie 90, 8 and 5 RSUs, respectively, which vest over four annual periods. The grant-date fair value of the awards totaled $400, which will be recorded as stock-based compensation expense over the vesting period of the awards. During the three months ended September 30, 2020 and 2019, the Company recognized selling, general and administrative expenses of $25 and $12 related to these awards, and during the nine months ended September 30, 2020 and 2019, the Company recognized selling, general and administrative expenses of $62 and $34 related to these awards.

18. Commitments and Contingencies

Indemnification

The Company has, in the ordinary course of business, agreed to defend and indemnify certain customers against third-party claims asserting infringement of certain intellectual property rights, which may include patents, copyrights, trademarks or trade secrets.

As permitted under Delaware law, the Company indemnifies its officers, directors and employees for certain events or occurrences that happen by reason of their relationship with or position held at the Company.

As of September 30, 2020 and December 31, 2019, the Company had not experienced any losses related to these indemnification obligations and no material claims were outstanding. The Company does not expect significant claims related to these indemnification obligations and, consequently, concluded that the fair value of these obligations is negligible, and no related liabilities were recorded in its condensed consolidated financial statements.

Litigation

On May 29, 2019 and July 3, 2019, two putative class action lawsuits, Shen v. Chen et al. and Baig v. Chen et al., were filed in the Massachusetts Superior Court against the Company, certain of its current and former executive officers and directors, Summit Partners, the Company's largest investor, and the underwriters from the Company's December 15, 2017 initial public offering (the "IPO") (collectively, the "defendants"). These complaints purport to be brought on behalf of all purchasers of the Company's common stock in and/or traceable to the IPO. The complaints generally allege that (i) each of the defendants violated Section 11 and/or Section 12(a)(2) of the Securities Act of 1933, as amended, (the "Securities Act"), because documents related to the Company's IPO including its registration statement and prospectus were materially misleading by containing untrue statements of material fact and/or omitting to state material facts necessary to make such statements not misleading and (ii) the individual defendants and Summit Partners acted as controlling persons within the meaning and in violation of Section 15 of the Securities Act. On August 13, 2019, the Court consolidated these actions and referred the consolidated actions to the Business Litigation Session of the Massachusetts Superior Court (the "BLS"). On September 3, 2019, the BLS accepted the consolidated action into its session for further proceedings. On November 12, 2019, the plaintiffs filed an amended shareholder class action complaint, purportedly on behalf of all purchasers of the Company's common stock in and/or traceable to the IPO, which contains substantially similar allegations and asserts the same claims as the two initial complaints, described above. Plaintiffs seek compensatory damages, costs and expenses, including counsel and expert fees, rescission or a rescissory measure of damages, and equitable and injunctive relief. On January 14, 2020, the defendants served motions to dismiss the amended complaint, which remain pending.

On August 9, 2019, a third putative class action lawsuit, Donald Hook v. Casa Systems, Inc. et al., was filed in the Supreme Court of New York, New York County, against the Company, certain of its current and former executive officers and directors, Summit Partners, and the underwriters from the IPO. The complaint purports to be brought on behalf of all purchasers of the Company's common stock in and/or traceable to the IPO and generally alleges that (i) each of the defendants violated Section 11 and/or Section 12(a)(2) of the Securities Act of 1933, as amended, or the Securities Act, because documents related to the IPO including its registration statement and prospectus were materially misleading by containing untrue statements of material fact and/or omitting to state material facts necessary to make such statements not misleading and (ii) the individual defendants and Summit Partners acted as controlling persons within the meaning and in violation of Section 15 of the Securities Act. On November 22, 2019, the plaintiff filed an amended complaint, purportedly on behalf of all purchasers of the Company's common stock in and/or traceable to the IPO, which contains substantially similar allegations as the initial complaint, described above, and asserts claims for violations of Sections 11 and 15 of the Securities Act. The plaintiff seeks compensatory damages, costs and expenses, including counsel and expert fees, rescission or a rescissory measure of damages, disgorgement, and equitable and injunctive relief. On January 21, 2020, the defendants served motions to dismiss the amended complaint, which remain pending.

On August 13, 2019, a fourth putative class action lawsuit, Panther Partners, Inc. v. Guo et al., was filed in the Supreme Court of New York, New York County, against the Company, certain of its current and former executive officers and directors, and the underwriters from the Company's April 30, 2018 follow-on offering of common stock, (the "Follow-on Offering"). The complaint purports to be brought on behalf of all purchasers of the Company's common stock in the Follow-on Offering and generally alleges that (i) each of the defendants, other than Abraham Pucheril, violated Section 11 of the Securities Act, and each of the defendants violated Section 12(a)(2) of the Securities Act, because documents related to the Company's Follow-on Offering, including its registration statement and prospectus, were materially misleading by containing untrue statements of material fact and/or omitting to state material facts necessary to make such statements not misleading and (ii) the individual defendants acted as controlling persons within the meaning and in violation of Section 15 of the Securities Act. On November 22, 2019, the plaintiff filed an amended class action complaint, purportedly on behalf of all purchasers of the Company's common stock in the Follow-on Offering, which contains substantially similar allegations and asserts the same claims as the initial complaint, described above. The plaintiff seeks compensatory damages, costs and expenses, including counsel and expert fees, rescission or a rescissory measure of damages, and equitable and injunctive relief. On January 21, 2020, the defendants served motions to dismiss the amended complaint, which remain pending.

No amounts have been accrued for any of the putative class action lawsuits referenced above as of September 30, 2020 as the Company does not believe the likelihood of a material loss is probable. Although the ultimate outcome of these matters cannot be predicted with certainty, the resolution of any of these matters could have a material impact on the Company's results of operations if a material loss becomes probable and estimable in a future period.

19. Subsequent Events

Facility Lease Renewal

On October 29, 2020, the Company exercised its option to extend its leased space in Lane Cove, New South Wales, Australia by renegotiating the lease (the "new Lease") with ESR Investment Nominees 3 (Australia) Pty Limited ACN 146 630 239. The leased space will continue to be used as office and research and development space. The term of the new Lease is 36 months and will commence upon expiration of the Company's current lease in the same building, which is scheduled to expire on January 31, 2021. Under the terms of the new Lease, the base rent, subject to certain adjustments, for all of the leased space covered by the new Lease will be approximately $86 AUD per month, (or $61 USD based on the exchange rate in effect on September 30, 2020), plus certain operating expenses and taxes, and shall increase on an annual basis as provided in the new Lease.

Related to the new Lease, the Company was required to execute a new bank guarantee in the amount of $549 AUD (or $387 USD based on the exchange rate in effect on September 30, 2020) to provide security by the Company of its obligations under the new Lease. The Company had previously executed a bank guarantee for the leased space at the beginning of the original lease in the amount of $892 AUD (or $629 USD based on the exchange rate in effect on September 30, 2020), which has now been terminated upon execution of the new Lease. The guarantees were executed utilizing availability on the Company's revolving credit facility, leaving $17,281 of availability upon execution of the new Lease.

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

The following discussion of our financial condition and results of operations should be read together with our condensed consolidated financial statements and related notes and other financial information included elsewhere in this Quarterly Report on Form 10-Q. The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Quarterly Report on Form 10-Q, particularly in the section titled "Risk Factors."

Overview

Our solutions are conceived, designed, and built to enable our broadband service provider customers to offer high bandwidth data services to their subscribers, and help them as they transform their networks to meet the growing demand for bandwidth and the introduction of new services. We offer physical, virtual and cloud-native 5G infrastructure and customer premise networking equipment for public and private high-speed data and multi-service communications networks. Our core and edge convergence technology enables communications service providers and enterprises to cost-effectively and dynamically increase network speed, add bandwidth capacity and new services, reduce network complexity, and reduce operating and capital expenditures.

We offer scalable solutions that can meet the evolving bandwidth needs of our customers and their subscribers. Our first installation in a service provider's network frequently involves deploying our broadband products in only a portion of the provider's network and, for our cable products, with only a fraction of the capacity of our products enabled at the time of initial installation. Over time, our customers have generally expanded the use of our solutions to other areas of their networks to increase network capacity. Capacity expansions are accomplished either by deploying additional systems, line cards, or the sale of additional channels through the use of software. Sales of software-based capacity expansions generate higher gross margins than hardware-based deployments.

On July 1, 2019, we completed the acquisition of NetComm Wireless Limited, or NetComm, a global leader in the development of fixed wireless and fiber-to-the-distribution-point broadband solutions. The combined company now offers a broad, highly competitive product portfolio of 4G and 5G core, edge and customer premise equipment for public and private services provider and enterprise networks.

COVID-19 Pandemic

The emergence of the coronavirus disease in 2019, or COVID-19, around the world, and particularly in the United States and China, and the accompanying responses of governments and businesses to the pandemic present various risks to us, not all of which we are able to fully evaluate or even to foresee at the current time. While the COVID-19 pandemic did not significantly adversely affect our financial results, business operations or liquidity in the quarter ended September 30, 2020, economic and health conditions in the United States and across most of the globe changed rapidly during, and are continuing to change after the end of the quarter. Globally to date, all aspects of our business remain fully operational, our work from home contingency plans have been implemented and are operating successfully. The pandemic has resulted in increased demand for certain of our products, and resulting order volumes have created additional pressure on our supply chain. To date, while the increased demand has not resulted in any material delays to our production cycle, we continue to work with our supply chain and contract manufacturers in an effort to ensure continued availability of all anticipated inventory requirements. However, we cannot at this time predict whether, or to what extent, our efforts will be successful. Additionally, we saw decreases in certain operating expenses, such as travel and trade show expense, during the three months ended September 30, 2020 due to the COVID-19 pandemic that we cannot ensure will be maintained. We intend to continue to monitor our business very closely for any effects of COVID-19 for as long as necessary on an ongoing basis.

Due to the above circumstances and as described generally in this Quarterly Report on Form 10-Q, our results of operations for the three and nine months ended September 30, 2020 are not necessarily indicative of the results to be expected for the full year. Management cannot predict the full impact of the COVID-19 pandemic on our sales channels, supply chain, manufacturing and distribution, or on economic conditions generally, including the effects on our current and potential customers, who may curtail spending on investments in current and/or new technologies, delay new equipment evaluations and trials, and possibly delay payments based on liquidity concerns, all of which could have a material impact on our business in the future. Similarly, our supply chain and our contract manufacturers could be affected, which could cause disruptions to our ability to meet customer demand. Although we have not been materially impacted to date, we cannot predict the extent to which this may impact the future results of our operations. If COVID-19 were to cause such impacts in the future, there would likely be a material adverse impact on our financial results, liquidity and capital resource needs. Thus, the ultimate extent of the effects of the COVID-19 pandemic on the Company is highly uncertain and dependent upon future developments, and such effects could exist for an extended period of time even after the pandemic might end.

Results of Operations

The following tables set forth our consolidated results of operations in dollar amounts and as percentage of total revenue for the periods shown:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Revenue:				
Product	$ 93,741	$ 71,319	$ 239,627	$ 140,196
Service	12,006	10,497	33,093	29,208
Total revenue	105,747	81,816	272,720	169,404
Cost of revenue(1):				
Product	51,947	40,578	130,602	60,983
Service	1,206	2,024	3,741	5,404
Total cost of revenue	53,153	42,602	134,343	66,387
Gross profit	52,594	39,214	138,377	103,017
Operating expenses:				
Research and development(1)	21,823	24,158	63,722	60,823
Selling, general and administrative(1)	21,630	23,823	67,731	61,318
Total operating expenses	43,453	47,981	131,453	122,141
Income (loss) from operations	9,141	(8,767)	6,924	(19,124)
Other income (expense), net	(3,269)	(5,343)	(10,750)	(11,761)
Income (loss) before provision for (benefit from) income taxes	5,872	(14,110)	(3,826)	(30,885)
Provision for (benefit from) income taxes	2,399	(5,612)	(5,433)	(8,339)
Net income (loss)	$ 3,473	$ (8,498)	$ 1,607	$ (22,546)

(1) Includes stock-based compensation expense related to stock options, stock appreciation rights, restricted stock units and performance-based stock units granted to employees, directors and non-employee consultants as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Cost of revenue	$ 45	$ 47	$ 115	$ 171
Research and development expense	592	673	1,679	1,316
Selling, general and administrative expense	2,845	2,171	7,704	5,963
Total stock-based compensation expense	$ 3,482	$ 2,891	$ 9,498	$ 7,450

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
	(as a percentage of total revenue)			
Revenue:				
Product	88.6%	87.2%	87.9%	82.8%
Service	11.4	12.8	12.1	17.2
Total revenue	100.0	100.0	100.0	100.0
Cost of revenue:				
Product	49.1	49.6	47.9	36.0
Service	1.1	2.5	1.4	3.2
Total cost of revenue	50.3	52.1	49.3	39.2
Gross profit	49.7	47.9	50.7	60.8
Operating expenses:				
Research and development	20.6	29.5	23.4	35.9
Selling, general and administrative	20.5	29.1	24.8	36.2
Total operating expenses	41.1	58.6	48.2	72.1
Income (loss) from operations	8.6	(10.7)	2.5	(11.3)
Other income (expense), net	(3.1)	(6.5)	(3.9)	(6.9)
Income (loss) before provision for (benefit from) income taxes	5.6	(17.2)	(1.4)	(18.2)
Provision for (benefit from) income taxes	2.3	(6.9)	(2.0)	(4.9)
Net income (loss)	3.3%	(10.4)%	0.6%	(13.3)%

Percentages in the table above are based on actual values. As a result, some totals may not sum due to rounding.

Three Months Ended September 30, 2020 Compared to the Three Months Ended September 30, 2019

	Three Months Ended September 30, 2020		2019		Change	
	Amount	% of Total	Amount	% of Total	Amount	%
	(dollars in thousands)					
Revenue:						
Product	$ 93,741	88.6%	$ 71,319	87.2%	$ 22,422	31.4%
Service	12,006	11.4%	10,497	12.8%	1,509	14.4%
Total revenue	$ 105,747	100.0%	$ 81,816	100.0%	$ 23,931	29.2%
Revenue by geographic region:						
North America	$ 38,464	36.4%	$ 33,241	40.6%	$ 5,223	15.7%
Europe, Middle East and Africa	6,047	5.7%	8,315	10.2%	(2,268)	(27.3)%
Asia-Pacific	48,903	46.2%	34,130	41.7%	14,773	43.3%
Latin America	12,333	11.7%	6,130	7.5%	6,203	101.2%
Total revenue	$ 105,747	100.0%	$ 81,816	100.0%	$ 23,931	29.2%

	Three Months Ended September 30, 2020	2019	Change Amount	%
Product revenue:				
Wireless	$ 26,825	$ 20,698	$ 6,127	29.6%
Fixed telecom	34,005	17,459	16,546	94.8%
Cable	32,911	33,162	(251)	-0.8%
Total product revenue	93,741	71,319	22,422	31.4%
Service revenue	12,006	10,497	1,509	14.4%
Total revenue	$ 105,747	$ 81,816	$ 23,931	29.2%

For the three months ended September 30, 2020, our Wireless and Fixed telecom product revenues increased by $6,127 and $16,546, respectively. The increase in product revenue was due, in part, to the COVID-19 pandemic and the ensuing shift in demand for bandwidth which generated increased demand for our Wireless and Fixed telecom access devices. Additional increases resulted from sales of new products and sales to new customers.

The increase in service revenue was primarily due to an increase in support renewal attach rates as well as lower discounts.

The increase in revenue in the Asia-Pacific region is driven by the aforementioned increase in Wireless and Fixed telecom revenues, and our high concentration of customers in that region. Regarding Latin America, the increase in revenue is due to revenue from a significant cable system upgrade by one of our largest customers in that region.

Cost of Revenue and Gross Profit

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Change Amount	Change %
	(dollars in thousands)			
Cost of revenue:				
Product	$ 51,947	$ 40,578	$ 11,369	28.0%
Service	1,206	2,024	(818)	(40.4)%
Total cost of revenue	$ 53,153	$ 42,602	$ 10,551	24.8%

	2020 Amount	2020 Gross Margin	2019 Amount	2019 Gross Margin	Change Amount	Change Gross Margin (bps)
	(dollars in thousands)					
Gross profit:						
Product	$ 41,794	44.6%	$ 30,741	43.1%	$ 11,053	150
Service	10,800	90.0%	8,473	80.7%	2,327	930
Total gross profit	$ 52,594	49.7%	$ 39,214	47.9%	$ 13,380	180

The increase in gross margin resulted from the combined net impact of product mix changes and the impact of purchase accounting adjustments in the three months ended September 30, 2019 associated with our acquisition of NetComm on July 1, 2019. Our Wireless and Fixed telecom products, which are more hardware based, generally provide lower gross margins than our cable products. Wireless and Fixed telecom comprised approximately 65% of our total product revenue for the three months ended September 30, 2020, as compared to approximately 54% for the three months ended September 30, 2019. In addition, gross margin for the three months ended September 30, 2019 was adversely impacted by the requirement to recognize inventory acquired at its fair value at the date of the acquisition, rather than at its historical cost. The result was that a one-time charge for an additional $3.2 million in costs of revenue was recognized.

The increase in service gross margin was due to a decrease in incurred professional services fees in addition to lower headcount in the three months ended September 30, 2020 as compared with the three months ended September 30, 2019.

Research and Development

	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Change Amount	Change %
	(dollars in thousands)			
Research and development	$ 21,823	$ 24,158	$ (2,335)	(9.7)%
Percentage of revenue	20.6%	29.5%		

The decrease in research and development expense was primarily due to a $1.5 million decrease in personnel costs driven by a reduction in headcount, combined with lower employee travel in 2020 due to COVID-19, a $0.3 million decrease in purchases of research and development materials and a $0.2 million decrease in deprecation as some older assets fully depreciated.

Selling, General and Administrative

	Three Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 21,630	$ 23,823	$ (2,193)	(9.2)%
Percentage of revenue	20.5%	29.1%		

The decrease in selling, general and administrative expense was primarily driven by a decrease in acquisition costs of $1.8 million related to the acquisition of NetComm on July 1, 2019, a decrease in employee travel of $1.7 million due to COVID-19 and a $0.6 million decrease in depreciation as some older assets fully depreciated. These decreases were partially offset by a $1.5 million increase in commissions due to increased revenues in the three months ended September 30, 2020 and a bad debt recovery of $0.7 million recognized in the three months ended September 30, 2019.

Other Income (Expense), Net

	Three Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Other income (expense), net	$ (3,269)	$ (5,343)	$ 2,074	(38.8)%
Percentage of revenue	(3.1)%	(6.5)%		

The change in other income (expense), net was primarily due to a $1.5 million decrease in interest expense due to decreases in both the outstanding principal balance and the interest rate on our term loan facility and a $0.9 million decrease in foreign exchange losses due to fluctuations in the Australian dollar and the China Renminbi exchange rates, partially offset by a $0.5 million decrease in interest income due to lower interest rates.

Provision for (benefit from) Income Taxes

	Three Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Provision for (benefit from) income taxes	$ 2,399	$ (5,612)	$ 8,011	(142.7)%
Effective tax rate	40.9%	39.8%		

The change to the income tax provision for the three months ended September 30, 2020 compared to the income tax benefit for the three months ended September 30, 2019 is primarily due to geographical mix of profits, the recognition of a benefit from final regulations under IRC Section 163(j), as well as a full valuation allowance against the deferred tax assets in the United States in the three months ended September 30, 2020.

Nine months Ended September 30, 2020 Compared to the Nine months Ended September 30, 2019

	Nine Months Ended September 30, 2020 Amount	2020 % of Total	2019 Amount	2019 % of Total	Change Amount	Change %
	(dollars in thousands)					
Revenue:						
Product	$ 239,627	87.9%	$ 140,196	82.8%	$ 99,431	70.9%
Service	33,093	12.1%	29,208	17.2%	3,885	13.3%
Total revenue	$ 272,720	100.0%	$ 169,404	100.0%	$ 103,316	61.0%
Revenue by geographic region:						
North America	$ 105,995	38.9%	$ 75,140	44.3%	$ 30,855	41.1%
Europe, Middle East and Africa	27,493	10.1%	28,991	17.1%	(1,498)	(5.2)%
Asia-Pacific	118,732	43.5%	46,693	27.6%	72,039	154.3%
Latin America	20,500	7.5%	18,580	11.0%	1,920	10.3%
Total revenue	$ 272,720	100.0%	$ 169,404	100.0%	$ 103,316	61.0%

	Nine Months Ended September 30, 2020	2019	Change Amount	Change %
Product revenue:				
Wireless	$ 62,992	$ 22,353	$ 40,639	181.8%
Fixed telecom	75,756	17,504	58,252	332.8%
Cable	100,879	100,339	540	0.5%
Total product revenue	239,627	140,196	99,431	70.9%
Service revenue	33,093	29,208	3,885	13.3%
Total revenue	$ 272,720	$ 169,404	$ 103,316	61.0%

The increase in product revenue for the nine months ended September 30, 2020, as compared with the nine months ended September 30, 2019, was primarily due to the completion of the NetComm acquisition effective July 1, 2019. Thus, revenue for the nine months ended September 30, 2020 includes revenue for the six months ended June 30, 2020 of $66.6 million, comprised of $24.8 million and $41.8 million of Wireless and Fixed telecom revenue, respectively, while the prior year period includes no NetComm revenue for the same six month period. In addition, the COVID-19 pandemic and the ensuing shift in demand for bandwidth has generated increased demand for our Wireless and Fixed telecom access devices. Further, the nine months ended September 30, 2020 included higher revenues from new products and increased sales to both new and existing customers across our Cable, Fixed telecom and Wireless products.

The increase in service revenue for the nine months ended September 30, 2020, as compared with the nine months ended September 30, 2019, was primarily due to an increase in support renewal attach rates as well as lower discounts.

The increase in revenue in the Asia-Pacific region is primarily due to the NetComm acquisition on July 1, 2019, which has a high concentration of customers in that region, as well as increased demand for our Wireless and Fixed telecom products.

Cost of Revenue and Gross Profit

	Nine Months Ended September 30, 2020	2019	Change Amount	Change %
	(dollars in thousands)			
Cost of revenue:				
Product	$ 130,602	$ 60,983	$ 69,619	114.2%
Service	3,741	5,404	(1,663)	(30.8)%
Total cost of revenue	$ 134,343	$ 66,387	$ 67,956	102.4%

	Nine Months Ended September 30,				Change	
	2020		2019			
	Amount	Gross Margin	Amount	Gross Margin	Amount	Gross Margin (bps)
	(dollars in thousands)					
Gross profit:						
Product	$ 109,025	45.5%	$ 79,213	56.5%	$ 29,812	(1,100)
Service	29,352	88.7%	23,804	81.5%	5,548	720
Total gross profit	$ 138,377	50.7%	$ 103,017	60.8%	$ 35,360	(1,010)

The decrease in product gross margin percentage was primarily due to the acquisition of NetComm, which sells hardware-based products that provide lower gross margins than our historical product offerings. In addition, this decrease is partially offset by the one-time charge described above of $3.2 million recognized in the nine months ended September 30, 2019 associated with accounting for the acquisition of NetComm on July 1, 2019.

The increase in service gross margin was due to a decrease of incurred professional services fees in addition to lower headcount.

Research and Development

	Nine Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Research and development	$ 63,722	$ 60,823	$ 2,899	4.8%
Percentage of revenue	23.4%	35.9%		

The increase in research and development expense was primarily due to the acquisition of NetComm, including a $2.2 million increase in personnel-related costs, net of the impact of headcount reductions made in the three months ended December 31, 2019 and reduced travel in 2020 due to COVID-19. In addition, there was a $0.5 million increase in purchases of research and development materials also due to the acquisition of NetComm.

Selling, General and Administrative

	Nine Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Selling, general and administrative	$ 67,731	$ 61,318	$ 6,413	10.5%
Percentage of revenue	24.8%	36.2%		

The increase in selling, general and administrative expense was primarily due to increased personnel-related costs of $5.1 million primarily due to the acquisition of NetComm and increased commissions resulting from increased revenues during the nine months ended September 30, 2020, offset by a reduction in travel expenses due to COVID-19. Other increases primarily related to our acquisition of NetComm including $2.9 million for professional services and $3.4 million for facilities and depreciation and amortization expenses. These increases were partially offset by a reduction of $3.3 million in acquisition costs related to the NetComm acquisition on July 1, 2019, a reduction of $1.0 million in trade show expenses in 2020 as a result of COVID-19 and a $0.5 million reduction in bad debt expense.

Other Income (Expense), Net

	Nine Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Other income (expense), net	$ (10,750)	$ (11,761)	$ 1,011	(8.6)%
Percentage of revenue	(3.9)%	(6.9)%		

The change in other income (expense), net was primarily due to a $3.0 million decrease in interest income due to a decrease in our portfolio of cash equivalents balances following our acquisition of NetComm on July 1, 2019, offset by a $3.0 million decrease in interest expense due to decreases in both the outstanding principal balance and the interest rate on our term loan facility. Foreign currency exchange loss (gain) resulted in an increase to other income of $1.1 million primarily due to fluctuations in the Australian dollar and the China Renminbi exchange rates.

Benefit from Income Taxes

	Nine Months Ended September 30,		Change	
	2020	2019	Amount	%
	(dollars in thousands)			
Benefit from income taxes	$ (5,433)	$ (8,339)	$ 2,906	(34.8)%
Effective tax rate	142.0%	27.0%		

The change in the benefit from income taxes for the nine months ended September 30, 2020 compared to the nine months ended September 30, 2019 was primarily due to the recognition of the benefit from the CARES Act, the recognition of a benefit from final regulations under IRC Section 163(j), as well as the full valuation allowance against the deferred tax assets in the United States in the three months ended September 30, 2020.

Liquidity and Capital Resources

Since our inception, we have primarily funded our operations through issuances of shares of our convertible preferred stock, our credit agreement from our term loan facility, our initial public offering and cash flows from operations.

On February 21, 2019, we entered into a definitive agreement to acquire 100% of the equity interests in NetComm. On July 1, 2019, we closed the acquisition of NetComm for cash consideration of $162.0 million Australian dollars, or AUD ($112.7 million United States dollars, or USD, based on an exchange rate of USD $0.700 per AUD $1.00 on July 1, 2019), using amounts included in restricted cash as of June 30, 2019. In addition, we recognized advisory fee expenses of $1.5 million which became due and payable upon the closing of the acquisition.

The following tables set forth our cash and cash equivalents and working capital as of September 30, 2020 and December 31, 2019 and our cash flows for the nine months ended September 30, 2020 and 2019:

	September 30, 2020	December 31, 2019
	(in thousands)	
Consolidated Balance Sheet Data:		
Cash and cash equivalents	$ 156,191	$ 113,638
Working capital	234,406	213,977

	Nine Months Ended September 30,	
	2020	2019
	(in thousands)	
Consolidated Cash Flow Data:		
Net cash provided by (used in) operating activities	$ 51,644	$ (33,070)
Net cash used in investing activities	(4,102)	(116,156)
Net cash used in financing activities	(5,767)	(6,898)

As of September 30, 2020, we had cash and cash equivalents of $156.2 million and net accounts receivable of $66.1 million. We maintain a $25.0 million revolving credit facility, under which we have drawn $6.5 million and $1.5 million of availability was used as collateral for two stand-by letters of credit, leaving availability of $17.0 million as of September 30, 2020.

Of our total cash and cash equivalents of $156.2 million as of September 30, 2020, $130.7 million was held by our foreign subsidiaries. The Tax Cuts and Jobs Act, or TCJA, established a modified territorial system requiring a mandatory deemed repatriation tax on undistributed earnings of foreign subsidiaries. As of September 30, 2020, we had $18.2 million of undistributed earnings in China that are not indefinitely reinvested. The remaining unremitted earnings of our foreign subsidiaries are either indefinitely reinvested or could be remitted with an immaterial tax cost.

We believe our existing cash and cash equivalents, anticipated cash flows from future operations and liquidity available from our revolving credit facility will be sufficient to meet our working capital and capital expenditure needs and debt service obligations for at least the next 12 months. Our future capital requirements may vary materially from those currently planned and will depend on many factors, including our rate of revenue growth, the timing and extent of spending on research and development efforts and other business initiatives, purchases of capital equipment to support our growth, the expansion of sales and marketing activities, expansion of our business through acquisitions or our investments in complementary products, technologies or businesses, the use of working capital to purchase additional inventory, the timing of new product introductions, market acceptance of our products and overall economic conditions. To the extent that current and anticipated future sources of liquidity are insufficient to fund our future business activities and requirements, we may be required to seek additional equity or debt financing. In the event additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us or at all.

Cash Flows

Operating Activities

Our primary source of cash from operating activities has been from cash collections from our customers. We expect cash flows from operating activities to be affected by increases and decreases in sales volumes and timing of collections and by purchases and shipments of inventory. Our primary uses of cash from operating activities have been for personnel costs and investment in our selling, general and administrative departments and research and development. Future cash outflows from operating activities may increase as a result of further investment in research and development and selling, general and administrative requirements, and increases in personnel costs as we continue to enhance our products and introduce new products in an effort to continue to expand our business.

During the nine months ended September 30, 2020, cash provided by operating activities was $51.6 million, primarily resulting from our net income of $1.6 million, net cash provided by changes in our operating assets and liabilities of $27.4 million and net non-cash adjustments of $22.6 million. The net cash provided by changes in our operating assets and liabilities during the nine months ended September 30, 2020 was primarily due to a $27.5 million decrease in accounts receivable due to collections during the period; an increase in accounts payable of $13.8 million due to timing of vendor payments; a $2.5 million increase in accrued income taxes; and a $3.0 million decrease in prepaid expenses and other assets. These sources of cash were partially offset by a $9.8 million increase in prepaid income taxes due primarily to a tax refund receivable from carryback of net operating losses that became permitted upon the enactment of the CARES Act during the nine months ended September 30, 2020; a $4.0 million decrease in deferred revenue due to the timing of revenue recognition; and a $6.6 million increase in inventory to meet future expected demand.

During the nine months ended September 30, 2019, cash used in operating activities was $33.1 million, primarily resulting from our net loss of $22.5 million, net cash used in changes in our operating assets and liabilities of $12.7 million and net non-cash adjustments of $2.1 million. The net cash used in changes in our operating assets and liabilities during the nine months ended September 30, 2019 was primarily due to a $25.4 million increase in inventory due to anticipated growth in our business; a $5.9 million decrease in deferred revenue due to the timing of revenue recognition; a $5.6 million decrease in accounts payable due to the timing of vendor payments; a $10.3 million decrease in accrued expenses primarily attributable to the timing of personnel-related bonus payments; and a $1.5 million increase in prepaid expenses and other assets mainly related to renewals of insurance contracts. These sources of cash were partially offset by a $33.5 million decrease in accounts receivable due to collections during the period and a $2.5 million increase in accrued income taxes.

Investing Activities

Our investing activities have consisted primarily of expenditures for lab and computer equipment and software to support the development of new products and increase our manufacturing capacity to meet customer demand for our products. In addition, our investing activities include expansion of and improvements to our facilities. As our business expands, we expect that we will continue to invest in these areas.

Net cash used in investing activities during the nine months ended September 30, 2020 was $4.1 million, consisting of purchases of property and equipment.

Net cash used in investing activities during the nine months ended September 30, 2019 was $116.2 million and consisted of the NetComm acquisition, net of cash acquired of $109.4 million and purchases of property and equipment of $6.7 million.

Financing Activities

Net cash used in financing activities during the nine months ended September 30, 2020 was $5.8 million, consisting of repurchases of common stock of $3.0 million; employee taxes paid related to net share settlement of equity awards of $0.6 million; dividend and equitable adjustment payments of $0.7 million; and debt principal repayments of $8.9 million. These payments were partially offset by proceeds from the exercise of stock options of $1.0 million, and borrowings under our revolving credit facility of $6.5 million.

Net cash used in financing activities during the nine months ended September 30, 2019 was $6.9 million and consisted of employee taxes paid related to net share settlement of equity awards of $1.0 million, dividend and equitable adjustment payments of $2.4 million and debt principal repayments of $6.0 million, which included payments of $3.5 million to satisfy debt acquired in the acquisition of NetComm. These payments were partially offset by proceeds from the exercise of stock options of $2.5 million.

Commercial Mortgage Loan

In July 2015, we entered into an $8.0 million commercial mortgage loan agreement, which matured on July 1, 2020. On July 1, 2020, we paid in full the remaining $6.5 million in unpaid principal and accrued interest under the mortgage loan with funds drawn upon our revolving credit facility. The annual interest rate on the loan was 3.5%, and the loan was repayable in 60 monthly installments of principal and interest based on a 20-year amortization schedule. The loan was secured by the land and building, which are our corporate offices, purchased in March 2015, and contained annual affirmative, negative and financial covenants, including maintenance of a minimum debt service ratio. The covenants were measured annually and we were in compliance with all the covenants of the mortgage loan as of December 31, 2019. As of December 31, 2019, the outstanding principal amount under the mortgage loan was $6.6 million.

Term Loan and Revolving Credit Facilities

On December 20, 2016, we entered into a credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, various lenders and JPMorgan Chase Bank, N.A. and Barclays Bank PLC, as joint lead arrangers and joint bookrunners, providing for:

- a term loan facility of $300.0 million; and
- a revolving credit facility of up to $25.0 million in revolving credit loans and letters of credit.

As of September 30, 2020 and December 31, 2019, we had borrowings of $288.8 million and $291.0 million, respectively, outstanding under the term loan facility. As of September 30, 2020 we had borrowings of $6.5 million under the revolving credit facility, which were drawn down to fund the repayment of our commercial mortgage loan. We had no outstanding borrowings under the revolving credit facility at December 31, 2019. As of September 30, 2020 and December 31, 2019, we had also used $1.5 million and $1.3 million under the revolving credit facility for two stand-by letters of credit, one which serves as collateral to one of our customers pursuant to a contractual obligations and one which is used as collateral for operating leases in Australia. In addition, we may, subject to certain conditions, including the consent of the administrative agent and the institutions providing such increases, increase the facilities by an unlimited amount so long as we are in compliance with specified leverage ratios, or otherwise by up to $70.0 million.

Borrowings under the facilities bear interest at a floating rate, which can be either a Eurodollar rate plus an applicable margin or, at our option, a base rate (defined as the highest of (x) the JPMorgan Chase, N.A. prime rate, (y) the federal funds effective rate, plus one-half percent (0.50%) per annum and (z) a one-month Eurodollar rate plus 1.00% per annum) plus an applicable margin. The applicable margin for borrowings under the term loan facility is 4.00% per annum for Eurodollar rate loans (subject to a 1.00% per annum interest rate floor) and 3.00% per annum for base rate loans. The applicable margin for borrowings under the revolving credit facility is 1.75% per annum for Eurodollar rate loans and 0.75% per annum for base rate loans, subject to reduction based on our maintaining of specified net leverage ratios. The interest rates payable under the facilities are subject to an increase of 2.00% per annum during the continuance of any payment default.

For Eurodollar rate loans, we may select interest periods of one, three or six months or, with the consent of all relevant affected lenders, twelve months. Interest will be payable at the end of the selected interest period, but no less frequently than every three months within the selected interest period. Interest on any base rate loan is not set for any specified period and is payable quarterly. We have the right to convert Eurodollar rate loans into base rate loans and the right to convert base rate loans into Eurodollar rate loans at our option, subject, in the case of Eurodollar rate loans, to breakage costs if the conversion is effected prior to the end of the applicable interest period. As of September 30, 2020, the interest rate on the term loans was 5.00% per annum, which was based on a six-month Eurodollar rate at the applicable floor of 1.00% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. As of December 31, 2019, the interest rate on our borrowings under the term loan facility was 5.80% per annum, which was based on a one-month Eurodollar rate of 1.80% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. As of September 30, 2020, the interest rate on the revolving credit facility was 2.12% per annum, which was based on a one-month Eurodollar rate of 0.37% per annum plus the applicable margin of 1.75% per annum for Eurodollar rate loans.

The revolving credit facility also requires payment of quarterly commitment fees at a rate of 0.25% per annum on the difference between committed amounts and amounts actually borrowed under the facility and customary letter of credit fees.

The term loan facility matures on December 20, 2023 and the revolving credit facility matures on December 20, 2021. The term loan facility is subject to amortization in equal quarterly installments, which commenced on March 31, 2017, of principal in an annual aggregate amount equal to 1.0% of the original principal amount of the term loans of $300.0 million, with the remaining outstanding balance payable at the date of maturity.

Voluntary prepayments of principal amounts outstanding under the term loan facility are permitted at any time; however, if a prepayment of principal is made with respect to a Eurodollar loan on a date other than the last day of the applicable interest period, we are required to compensate the lenders for any funding losses and expenses incurred as a result of the prepayment. Prior to the revolving credit facility maturity date, funds borrowed under the revolving credit facility may be borrowed, repaid and reborrowed, without premium or penalty.

In addition, we are required to make mandatory prepayments under the facilities with respect to (i) 100% of the net cash proceeds from certain asset dispositions (including casualty and condemnation events) by us or certain of our subsidiaries, subject to certain exceptions and reinvestment provisions, (ii) 100% of the net cash proceeds from the issuance or incurrence of any additional debt by us or certain of our subsidiaries, subject to certain exceptions, and (iii) 50% of our excess cash flow, as defined in the credit agreement, subject to reduction upon our achievement of specified performance targets.

The facilities are secured by, among other things, a first priority security interest, subject to permitted liens, in substantially all of our assets and all of the assets of certain of our subsidiaries and a pledge of certain of the stock of certain of our subsidiaries, in each case subject to specified exceptions. The facilities contain customary affirmative and negative covenants, including certain restrictions on our ability to pay dividends, and, with respect only to the revolving credit facility, a financial covenant requiring us to maintain a specified total net leverage ratio, in the event that on the last day of any fiscal quarter, we have utilized more than 30% of our borrowing capacity under the revolving credit facility (subject to certain exceptions). The term loan facility contains a cross-default provision, whereby, if repayment of borrowings under the revolving credit facility are accelerated due to a default of the net leverage ratio covenant, repayment of the outstanding term loan balance could also be accelerated. Because the financial covenant under the revolving credit facility only applies if outstanding utilization thereunder exceeds 30% of the total borrowing capacity on the last day of each fiscal quarter, this cross-default provision has the effect of limiting our ability to utilize more than 30% of our total borrowing capacity under the revolving credit facility of $25.0 million if both our net leverage ratio exceeds the maximum permitted by the agreement and we would not otherwise be able to reduce our outstanding utilization of the revolving credit facility to below the 30% testing threshold prior to the last day of any quarter. As of September 30, 2020, our net leverage ratio did not exceed the maximum. As of December 31, 2019, our net leverage ratio exceeded the maximum; however, as our utilization of the revolving credit facility did not exceed the 30% testing threshold on December 31, 2019, we were not in default of the revolving credit facility as a result of our net leverage ratio exceeding the maximum permitted amount. We were in compliance with all other applicable covenants of the facilities as of September 30, 2020 and December 31, 2019. We do not expect to require the use of the revolving credit facility to fund operations during the next 12 months.

Stock Repurchase Program

On February 21, 2019, we announced a stock repurchase program under which we were authorized to repurchase up to $75.0 million of our common stock. During the nine months ended September 30, 2020, we repurchased approximately 1.2 million shares for a total cost of approximately $3.0 million. During the three months ended September 30, 2020 and three and nine months ended September 30, 2019, we did not repurchase any shares. As of September 30, 2020, approximately $70.2 million remained authorized for repurchases of our common stock under the stock repurchase program. The stock repurchase program has no expiration date and does not require us to purchase a minimum number of shares, and we may suspend, modify or discontinue the stock repurchase program at any time without prior notice.

Contractual Obligations and Commitments

Our material contractual obligations include our term loan facility, revolving credit facility, operating leases and purchase agreements with our contract manufacturers and suppliers. Except as discussed above regarding our repayment of the commercial mortgage loan and related draw down under our revolving credit facility and our new lease in Australia signed subsequent to September 30, 2020, there have been no material changes to our contractual obligations and commitments from those disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Critical Accounting Policies and Significant Judgments and Estimates

We prepare our condensed consolidated financial statements in accordance with generally accepted accounting principles in the United States. The preparation of condensed consolidated financial statements also requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results could differ significantly from the estimates made by our management.

Other than our policies related to Derivative Instruments and Stock Compensation, as described in Note 2 of the above notes to the condensed consolidated financial statements, there have been no material changes to our critical accounting policies and estimates from those disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019.

Off-Balance Sheet Arrangements

As of September 30, 2020 and December 31, 2019, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of Regulation S-K, such as the use of unconsolidated subsidiaries, structured finance, special purpose entities or variable interest entities.

Recent Accounting Pronouncements

Refer to the "Summary of Significant Accounting Policies" footnote within our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for our analysis of recent accounting pronouncements that are applicable to our business.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Market risk is the risk of loss to future earnings, values or future cash flows that may result from changes in the price of a financial instrument. The value of a financial instrument may change as a result of changes in interest rates, exchange rates, commodity prices, equity prices and other market changes. We are exposed to market risk related to changes in foreign currency exchange rates and interest rates. We currently mitigate certain foreign currency exchange rate risks with derivative instruments and enter into exchange rate hedging arrangements to manage certain of the risks described below. We do not engage in foreign currency speculation.

Foreign Currency Exchange Risk

We have accounts receivables denominated in foreign currencies, and our operations outside of the United States incur their operating expenses in foreign currencies. To date, the majority of our product sales and inventory purchases have been denominated in U.S. dollars. For our subsidiaries in Ireland and Australia, the U.S. dollar is the functional currency. For each of our other foreign subsidiaries, the functional currency is the local currency. During the nine months ended September 30, 2020 and 2019, we incurred foreign currency transaction gains of $0.7 million and $0.5 million, respectively, primarily related to unrealized and realized foreign currency gains for accounts receivable denominated in foreign currencies and operating expenses that are denominated in local currencies. These foreign currency transaction losses were recorded as a component of other income (expense), net in our condensed consolidated statements of operations and comprehensive income (loss). We believe that a 10% change in the exchange rate between either the U.S. dollar and Euro or the U.S. dollar and Australian dollar would not materially impact our operating results or financial position.

Our foreign currency risk management strategy is principally designed to mitigate the potential financial impact of changes in the value of transactions and balances denominated in foreign currencies resulting from changes in foreign currency exchange rates. We enter into cash flow hedges, which utilize foreign currency forward contracts to hedge specific forecasted transactions of our foreign subsidiaries with the goal of protecting our budgeted revenues and expenses against foreign currency exchange rate changes compared to our budgeted rates. During the nine months ended September 30, 2020, we settled two cash flow hedges which were used to hedge specific operating cash flows denominated in Australian dollars. No cash flow hedges were outstanding as of September 30, 2020.

The success of our foreign currency risk management program depends upon forecasts of transaction activity denominated in various currencies. To the extent that these forecasts are overstated or understated during periods of currency volatility, we could experience unanticipated foreign currency gains or losses that could have a material impact on our results of operations. Furthermore, our failure to identify new exposures and hedge them in an effective manner may result in material foreign currency gains or losses.

Interest Rate Sensitivity

Our cash and cash equivalents as of September 30, 2020 and December 31, 2019 consisted of cash maintained in FDIC-insured operating accounts as well as investments in money market mutual funds and certificates of deposit. We also have policies requiring us to invest in high-quality issuers, limit our exposure to any individual issuer, and ensure adequate liquidity. Our primary exposure to market risk for our cash equivalents is interest income sensitivity, which is primarily affected by changes in the general level of U.S. interest rates. However, we do not believe a sudden change in the interest rates for our cash equivalents would have a material impact on our financial condition, results of operations or cash flows.

We have a credit agreement that provides us with a term loan facility of $300.0 million and a revolving credit facility of up to $25.0 million in revolving credit loans and letters of credit. Borrowings under the facilities bear interest at a floating rate, which can be either a Eurodollar rate plus an applicable margin or, at our option, a base rate (defined as the highest of (x) the JPMorgan Chase, N.A. prime rate, (y) the federal funds effective rate, plus one-half percent (0.50%) per annum and (z) a one-month Eurodollar rate plus 1.00% per annum) plus an applicable margin. The applicable margin for borrowings under the term loan facility is 4.00% per annum for Eurodollar rate loans (subject to a 1.00% per annum interest rate floor) and 3.00% per annum for base rate loans. The applicable margin for borrowings under the revolving credit facility is 1.75% per annum for Eurodollar rate loans and 0.75% per annum for base rate loans, subject to reduction based on our maintaining of specified net leverage ratios.

As of September 30, 2020, we had borrowings of $288.8 million outstanding under the term loan facility, bearing interest at a rate of 5.00% per annum, which was based on a six-month Eurodollar rate at the applicable floor of 1.00% per annum plus the applicable margin of 4.00% per annum for Eurodollar rate loans. Changes in interest rates could cause interest charges on our term loan facility to fluctuate. Based on the amount of borrowings outstanding as of September 30, 2020, an increase of 10% in the one-month Eurodollar rate as of September 30, 2020 would cause pre-tax decreases to our earnings and cash flows of approximately $0.3 million per year, assuming that such rate was to remain in effect for a year. A decrease in the one-month Eurodollar rate as of September 30, 2020 would have no impact on our earnings and cash flows, as the interest rate in effect at September 30, 2020 on the term loan facility was at the applicable floor of 1.00% per annum.

On July 1, 2020, we drew down on our revolving credit facility under our term loan agreement in the amount of $6.5 million. As noted in Note 11, *Debt*, borrowings under the revolving credit facility mature on December 21, 2021 and the applicable margin for borrowings under the revolving credit facility is 1.75% per annum for Eurodollar rate loans. The interest rate on the outstanding borrowings as of September 30, 2020, was 2.12%, which was based on a six-month Eurodollar rate of 0.37% per annum plus the applicable margin of 1.75% per annum for Eurodollar rate loans. An increase of 10% in the one-month Eurodollar rate would result in a pre-tax decrease to our earnings and cash flows of less than $0.1 million per year, assuming that such rate was to remain in effect for a year. A decrease of 10% in the one-month Eurodollar rate would result in a pre-tax increase to our earnings and cash flows of less than $0.1 million per year, assuming that such rate was to remain in effect for a year.

Inflation Risk

We do not believe that inflation has had a material effect on our business. However, if global demand for the base materials utilized in our suppliers' components were to significantly increase for the components we purchase from our suppliers to manufacture our products, our costs could become subject to significant inflationary pressures, and we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could harm our business, operating results and financial condition.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a- 15(e) and 15d- 15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act), as of the end of the period covered by this Quarterly Report on Form 10-Q. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and our management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q, our Chief Executive Officer and Chief Financial Officer have concluded that as of such date, our disclosure controls and procedures were effective.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during our most recently completed fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we are a party to various litigation matters and subject to claims that arise in the ordinary course of business including, for example, patent infringement lawsuits by non-practicing entities. In addition, third parties may from time to time assert claims against us in the form of letters and other communications.

On May 29, 2019 and July 3, 2019, two putative class action lawsuits, Shen v. Chen et al. and Baig v. Chen et al., were filed in the Massachusetts Superior Court against us, certain of our current and former executive officers and directors, Summit Partners, our largest investor, and the underwriters from our December 15, 2017 initial public offering, which we refer to as our IPO. We collectively refer to these parties as the defendants. These complaints purport to be brought on behalf of all purchasers of our common stock in and/or traceable to our IPO. The complaints generally allege that (i) each of the defendants violated Section 11 and/or Section 12(a)(2) of the Securities Act of 1933, as amended, or the "Securities Act", because documents related to our IPO including its registration statement and prospectus were materially misleading by containing untrue statements of material fact and/or omitting to state material facts necessary to make such statements not misleading and (ii) the individual defendants and Summit Partners acted as controlling persons within the meaning and in violation of Section 15 of the Securities Act. On August 13, 2019, the Court consolidated these actions and referred the consolidated actions to the Business Litigation Session of the Massachusetts Superior Court or the "BLS". On September 3, 2019, the BLS accepted the consolidated action into its session for further proceedings. On November 12, 2019, Plaintiffs filed an Amended shareholder class action complaint, purportedly on behalf of all purchasers of our common stock in and/or traceable to our IPO, which contains substantially similar allegations and asserts the same claims as the two initial complaints, described above. Plaintiffs seek compensatory damages, costs and expenses, including counsel and expert fees, rescission or a rescissory measure of damages, and equitable and injunctive relief. On January 14, 2020, the defendants served motions to dismiss the amended complaint, which remain pending.

On August 9, 2019, a third putative class action lawsuit, Donald Hook v. Casa Systems, Inc. et al., was filed in the Supreme Court of New York, New York County, against us, certain of our current and former executive officers and directors, Summit Partners, and the underwriters from our IPO. The complaint purports to be brought on behalf of all purchasers of our common stock in and/or traceable to our IPO and generally alleges that (i) each of the defendants violated Section 11 and/or Section 12(a)(2) of the Securities Act because documents related to our IPO including its registration statement and prospectus were materially misleading by containing untrue statements of material fact and/or omitting to state material facts necessary to make such statements not misleading and (ii) the individual defendants and Summit Partners acted as controlling persons within the meaning and in violation of Section 15 of the Securities Act. On November 22, 2019, Plaintiff filed an Amended Complaint, purportedly on behalf of all purchasers of our common stock in and/or traceable to our IPO, which contains substantially similar allegations as the initial complaint, described above, and asserts claims for violations of Sections 11 and 15 of the Securities Act. Plaintiff seeks compensatory damages, costs and expenses, including counsel and expert fees, rescission or a rescissory measure of damages, disgorgement, and equitable and injunctive relief. On January 21, 2020, the defendants served motions to dismiss the amended complaint, which remains pending to date.

On August 13, 2019, a fourth putative class action lawsuit, Panther Partners, Inc. v. Guo et al., was filed in the Supreme Court of New York, New York County, against us, certain of our current and former executive officers and directors, and the underwriters from our April 30, 2018 follow-on offering of common stock, which we refer to as our Follow-on Offering. The complaint purports to be brought on behalf of all purchasers of our common stock in our Follow-on Offering and generally alleges that (i) each of the defendants, other than Abraham Pucheril, violated Section 11 of the Securities Act, and each of the defendants violated Section 12(a)(2) of the Securities Act, because documents related to our Follow-on Offering, including our registration statement and prospectus, were materially misleading by containing untrue statements of material fact and/or omitting to state material facts necessary to make such statements not misleading and (ii) the individual defendants acted as controlling persons within the meaning and in violation of Section 15 of the Securities Act. On November 22, 2019, Plaintiff filed an amended class action complaint, purportedly on behalf of all purchasers of our common stock in our Follow-on Offering, which contains substantially similar allegations and asserts the same claims as the initial complaint, described above. Plaintiff seeks compensatory damages, costs and expenses, including counsel and expert fees, rescission or a rescissory measure of damages, and equitable and injunctive relief. On January 21, 2020, the defendants served motions to dismiss the amended complaint, which remain pending.

No amounts have been accrued for any of the putative class action lawsuits referenced above as of September 30, 2020, as we do not believe the likelihood of a material loss is probable. Although the ultimate outcome of these matters cannot be predicted with certainty, the resolution of any of these matters could have a material impact on our results of operations if a material loss becomes probable and estimable in a future period.

Item 1A. Risk Factors.

In addition to the other information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed in “Part I, Item 1A Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, or the 2019 10-K, which could materially affect our business, financial condition or future results. As a supplement to the risk factors identified in the 2019 10-K, below we have revised one of our risk factors (regarding a recent decision of the Delaware Supreme Court affecting the provision in our restated certificate of incorporation that provides that the federal district courts of the United States are the sole and exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act) and set forth a new risk factor (regarding the COVID-19 pandemic). The COVID-19 pandemic has heightened, and in some cases manifested, certain of the risks we normally face in operating our business, including those disclosed in the 2019 10-K, and the risk factor disclosure in the 2019 10-K is qualified by the information relating to COVID-19 that is described in this Quarterly Report on Form 10-Q, including the new risk factor set forth below. Other than as provided below, there have been no material changes from the risk factors previously disclosed in the 2019 10-K..

Risks Related to Our Business and Our Industry

The coronavirus outbreak could negatively impact our operations and have an adverse effect on our revenues and/or results of operations.

The emergence of the coronavirus disease in 2019, or COVID-19, around the world, and particularly in the United States and China, and the accompanying responses of governments and businesses to the pandemic present various risks to us, not all of which we are able to fully evaluate or even to foresee at the current time. While the COVID-19 pandemic did not materially adversely affect our financial results, business operations or liquidity in the quarter and nine months ended September 30, 2020, economic and health conditions in the United States and across most of the globe changed rapidly during, and are continuing to change after the end of the quarter. Globally to date, all aspects of our business remain fully operational, our work from home contingency plans have been implemented and are operating successfully, and we are working with our supply chain and contract manufacturers to ensure continued availability of all anticipated inventory requirements. We intend to continue to monitor our business very closely for any effects of COVID-19 for as long as necessary on an ongoing basis.

Due to the above circumstances and as described generally in this Quarterly Report on Form 10-Q, our results of operations for the three and nine months ended September 30, 2020 are not necessarily indicative of the results to be expected for the full year. Management cannot predict the full impact of the COVID-19 pandemic on our sales channels, supply chain, manufacturing and distribution, or on economic conditions generally, including the effects on our current and potential customers, who may curtail spending on investments in current and/or new technologies, delay new equipment evaluations and trials, and possibly delay payments based on liquidity concerns, all of which could have a material impact on our business in the future. Similarly, our supply chain and our contract manufacturers could be affected, which could cause disruptions to our ability to meet customer demand. For example, while we experienced increased order volumes for certain of our products during the three months ended June 30, 2020, we are continuing to see potential delays in the supply chain that may impact future delivery schedules. If COVID-19 were to cause such impacts in the future, there could likely be a material adverse impact on our financial results, liquidity and capital resource needs. This uncertainty makes it challenging for management to estimate the future performance of our businesses, particularly over the near to medium term. However, the impact of COVID-19 could have a material adverse impact on our results of operations over the near to medium term.

Risks Related to Our Common Stock

Our restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders. Our restated certificate of incorporation further provides that the federal district courts of the United States are the sole and exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. These choice of forum provisions could limit our stockholders’ ability to obtain a more favorable judicial forum for disputes with us or our directors, officers or employees.

Our restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. We do not intend to have this choice of forum provision apply to, and this choice of forum provision will not apply to, actions arising under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Our restated certificate of incorporation further provides that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall, to the fullest extent permitted by law, be the sole and exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended, or the Securities Act. On December 19, 2018, the Delaware Court of Chancery, in *Sciabacucchi v. Salzberg, et al*., C.A. No. 2017-0931-JTL (Del. Ch. Dec. 19, 2018), held that such federal forum selection provisions are invalid under Delaware law. Upon appeal, on March 18, 2020, the Delaware Supreme Court reversed the Court of Chancery's judgment in all respects, upholding the facial validity of such federal forum selection provisions.

These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find the choice of forum provisions contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could materially adversely affect our business, financial condition, results of operations and prospects.

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

Use of Proceeds

On December 14, 2017, the Securities and Exchange Commission, or the SEC, declared our registration statement on Form S-1 (File No. 333-221658) for our initial public offering effective. The net offering proceeds to us from the offering, after deducting underwriting discounts of $6.3 million and offering expenses payable by us totaling $4.1 million, were approximately $79.3 million. No offering discounts, commissions or expenses were paid directly or indirectly to any of our directors or officers (or their associates) or persons owning 10.0% or more of any class of our equity securities or to any other affiliates. There has been no material change in the planned use of proceeds from our initial public offering as described in our final prospectus filed with the SEC on December 15, 2017 pursuant to Rule 424(b)(4). As of September 30, 2020, we had not used any of the net offering proceeds and we have invested the proceeds into an investment portfolio with the primary objective of preserving principal and providing liquidity without significantly increasing risk.

Stock Repurchase Program

The following table sets forth information with respect to repurchases of shares of our common stock during the three-month period ended September 30, 2020:

Casa Systems, Inc. Purchase of Equity Securities

Period	Total Number of Shares Purchased (In thousands)	Average Price Paid per Share (1)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (2) (In thousands)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (In thousands)
July 1 - July 31, 2020	—	$ —	—	$ 70,208
August 1 - August 31, 2020	—	$ —	—	$ 70,208
September 1 - September 30, 2020	—	$ —	—	$ 70,208

(1) The calculation of average price included above excludes the cost of commissions.

(2) On February 21, 2019, we announced that our board of directors authorized the repurchase of up to $75.0 million of our common stock under a stock repurchase program. From inception through September 30, 2020, we repurchased approximately 1.7 million shares under the program. The stock repurchase program has no expiration date and does not require us to purchase a minimum number of shares. We may suspend, modify or discontinue the stock repurchase program at any time without prior notice.

Item 5. Other Information.

The information set forth under the caption "Facility Lease Renewal" within Note 19 to the Company's condensed consolidated financial statements set forth in Part I, Item 1 of this Quarterly Report on Form 10-Q is incorporated herein by reference.

Item 6. Exhibits.

Exhibit Index

Exhibit Number	Description
3.1	Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on December 19, 2017)
3.2	By-laws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-38324) filed on December 19, 2017)
10.1	Lease Annexure "A", dated October 29, 2020, between ESR Investment Nominees 3 (Australia) Pty Limited and NetComm Wireless Pty Ltd
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101)

* Furnished herewith.

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.

CASA SYSTEMS, INC.

Date: October 29, 2020	By: /s/ Jerry Guo **Jerry Guo** **President, Chief Executive Officer and Chairman** **(Principal Executive Officer)**
Date: October 29, 2020	By: /s/ Scott Bruckner **Scott Bruckner** **Chief Financial Officer** **(Principal Financial Officer)**

This is Annexure "A" to the Lease between ESR Investment Nominees 3 (Australia) Pty Limited (ACN 146 630 239) (Landlord) and Netcomm Wireless Pty Ltd (ACN 002 490 486) (Tenant) in respect of premises Part Folio Identifier 2/1095363 being Level 1, Suite 2.02 and Level 5, 18 - 20 Orion Road, Lane Cove New South Wales

Contents

Reference Schedule

ITEM	TERM		
1.	**Land (clause 1.1)**		
	Land:	The land described in Folio Identifier 2/1095363	
	Building:	All buildings located on the Land	
2.	**Landlord (clauses 1.1 and 19)**	Name:	ESR Investment Nominees 3 (Australia) Pty Limited (ACN 146 630 239)
		Address:	care of ESR Real Estate, Level 29, 20 Bond Street, Sydney, New South Wales 2000
		Email Address:	
		Attention:	Alex Cable/ Property manager
3.	**Tenant (clauses 1.1 and 19)**	Name:	Netcomm Wireless Pty Ltd ACN 002 490 486
		Address:	Level 5, 18 - 20 Orion Road, Lane Cove New South Wales 2066
		Email Address:	
		Attention:	
4.	**Premises (clause 1.1)**	Level 1, Suite 2.02, and Level 5, of 18 - 20 Orion Road, Lane Cove New South Wales	
5.	**Permitted Use (clauses 1.1 and 8)**	Commercial Offices and Laboratory The Tenant is required to obtain all the necessary approvals in connection with the Permitted Use and use of the Premises	
6.	**Term (clauses 1.1)**	Years:	Three (3) years
		Commencement Date:	1 February 2021
		Expiry Date:	31 January 2024
7.	**Option Term (clauses 1.1 and 23)**	Term of Option Term:	Not Applicable
		Commencing Date:	Not Applicable
		Terminating Date:	Not Applicable
8.	**Rent (clauses 1.1 and 2)**	Rent:	$319 per square metre plus GST per annum (subject to survey)
		Day of month on which Rent instalments are due: First	

9.	**Review (clauses 1.1 and 3)**		**Review Dates**	**Type or Review**
		During Term:	On each anniversary of the Commencement Date	Fixed Review annually on each anniversary of the Commencing Date by a fixed increase of 3.50% over the Rent for the immediately preceding year
		During Option Term:	On commencement of the Option Term	Not Applicable
			On each anniversary of commencement of the Option Term	Not Applicable the
10.	**Tenant's Contribution (clauses 1.1 and 4)**	Outgoings Year:	30 June	
11.	**Option Notice (clauses 1.1 and 23)**	Notice:	Not applicable	
12.	**Public Liability Insurance (clause 6)**	Insurance:	$20 million	
13.	**Guarantor (clauses 1.1 and 22)**	Guarantor:	Not applicable	
14.	**Access Hours (clause 1.1)**	Access Hours: Holidays	8am to 6pm Monday to Friday, excluding Public	
15.	**Bank Guarantee (clause 1.1 and 21)**	Bank Guarantee:	An amount equal to four (4) months' Rent, Car Park licence fee (if applicable), storage licence fee (if applicable) and Tenant's Contribution to Outgoings (plus GST) calculated based on Year 1 of the Lease	
		Security Deposit:	Not applicable	
16.	**Interest Rate (clauses 1.1, 5.6, 17.3, 17.8 and 22.4)**	Interest Rate:	3% above the Commonwealth Bank's Overdraft Reference Rate	
17.	**Car Parking (clauses 1.1)**	Car Parking Spaces:	Not applicable	
		Car Park Fee:	Not applicable	

1. Definitions and interpretation

1.1 Definitions

The following definitions, together with those in the Reference Schedule, apply unless the contrary intention appears. Item numbers referred to are those in the Reference Schedule. Other definitions are on the cover sheet of this Lease.

Access Hours means the hours described in Item 14.

Authority means any government department, local council, government or statutory authority, public or private utility or other public or private body, which has jurisdiction, powers, duties or a right to impose a requirement (including a requirement that its consent be obtained) or charge a fee in connection with the Premises, the Services or the Land.

Bank Guarantee means an irrevocable and unconditional undertaking in favour of the Landlord which:

(a) specifies that it provides security for the performance by the Tenant of its obligations under this Lease of the Premises from the Landlord;

(b) is otherwise on terms acceptable to the Landlord (acting reasonably); and

(c) contains an expiry date no earlier than 12 months after Expiry Date,

by a reputable Australian bank acceptable to the Landlord in its absolute discretion (or, at the Landlord's discretion, another financial institution) carrying on business in Sydney requiring the bank (or other financial institution) to pay on demand, whether by one or more requests, the amount in Item 15 (or any replacement or addition to it under clause 21).

Building means the building from time to time erected on the Land specified in Item 1.

Car Parking Fee means the amount set out in Item 17, subject to review in the same manner and at the same time as Rent.

Commencement Date means the commencing date specified on the cover sheet of this Lease.

Common Areas means those parts of the Land or the Building which the Landlord intends for common use.

Commonwealth Bank's Overdraft Reference Rate means the rate quoted by Commonwealth Bank of Australia for unsecured overdraft accommodation or if that rate (or any replacement of it) is no longer quoted by Commonwealth Bank of Australia, then by applying a published rate which in the opinion of the Landlord equates most closely to that rate.

Current Annual Rent has the meaning given in clause 3.11.

Dispute Notice has the meaning given in clause 3.2.

Expiry Date means the terminating date specified on the cover sheet of this Lease or the end of any period of holding over under clause 15, as appropriate.

Fixed Rent Review Date means each date in Item 9 where the words "Fixed Review" appear.

GST Amount means, in relation to a Taxable Supply, the amount of GST payable in respect of that Taxable Supply.

GST Law has the meaning given by the *A New Tax System (Goods and Services Tax) Act 1999*, or, if that Act does not exist, means any Act imposing or relating to the imposition or administration of a goods and services tax in Australia and any regulation made under that Act.

Guarantor means each person named in Item 13.

Handover Date means the date possession was first given to the Tenant whether under this or a preceding lease.

Hazardous Materials means any substance, gas, liquid, chemical, mineral or other physical or biological matter which is or may become toxic, flammable, inflammable or which is otherwise harmful to the environment or any life form or which may cause pollution, contamination or any hazard or increase in toxicity in the environment or may leak or discharge or otherwise cause damage to any person, property or the environment.

Incentive means anything the Landlord gives to or at the direction of the Tenant to induce it to sign this Lease, including any inducement, incentive or concession of any kind however named or structured, including any premium or capital payment, any period of abatement or reduction of rent, rent free period or other payments, the payment of or contribution to the cost of fitout of the Premises or the provision of a fitout of a quality or standard different or superior to that of the fitout of comparable premises.

Input Tax Credit has the meaning given by the GST Law and a reference to an Input Tax Credit entitlement of a party includes an Input Tax Credit for an acquisition made by that party but to which another member of the same GST Group is entitled under the GST Law.

Insolvency Event means the happening of any of these events:

(a) an application (not being a frivolous or vexatious application) is made to a court for an order or an order is made that a body corporate be wound up;

(b) an application (not being a frivolous or vexatious application) is made to a court for an order appointing a liquidator or provisional liquidator in respect of a body corporate, or one of them is appointed, whether or not under an order;

(c) a body corporate is deregistered or notice of intention to procure or an application for deregistration of the body corporate is made by any person or by the Australian Securities and Investments Commission;

(d) except to reconstruct or amalgamate while solvent on terms approved by the Landlord (acting reasonably), a body corporate enters into, or resolves to enter into, a scheme of arrangement or composition with, or assignment for the benefit of, all or any class of its creditors, or it proposes a reorganisation, moratorium or other administration involving any of them;

(e) a body corporate resolves to wind itself up, or otherwise dissolve itself, or gives notice of intention to do so, except to reconstruct or amalgamate while solvent on terms approved by the Landlord (acting reasonably) or is otherwise wound up or dissolved;

(f) a body corporate is or states that it is insolvent;

(g) as a result of the operation of section 459F(1) of the *Corporations Act 2001* (Cth), a body corporate is taken to have failed to comply with a statutory demand;

(h) a body corporate is, or makes a statement from which it may be reasonably deduced by the Landlord that the body corporate is, the subject of an event described in section 459C(2)(b) or section 585 of the *Corporations Act 2001* (Cth);

(i) a body corporate takes any step to obtain protection or is granted protection from its creditors, under any applicable legislation or an administrator is appointed to a body corporate;

(j) a person becomes an insolvent under administration as defined in section 9 of the *Corporations Act 2001* (Cth) or action is taken which could result in that event; or

(k) anything analogous or having a substantially similar effect to any of the events specified above happens under the law of any applicable jurisdiction and including deregistration or dissolution.

Institute means the Australian Property Institute Inc. (the division for the state in which the Premises are located).

Land means the land described in Item 1 and the Building and all other improvements erected on it from time to time.

Landlord's Property means all plant, equipment, fixtures, fittings, furniture, furnishings and other property which the Landlord provides in the Premises.

Lettable Area means the lettable area calculated by the Landlord's surveyor (and apportioned where necessary between industrial and commercial/office uses) using the method of measurement the Landlord notifies to the Tenant.

Loss of Bargain Damage means the amount being the difference between:

(a) all money which would have been received or recovered by the Landlord from the Tenant under this Lease for the period of the Term remaining after termination of this Lease had it been fully performed by the Tenant and after deducting the amount of the Incentive repayable by the Tenant under clause 17.7; and

(b) the money which the Landlord, using its reasonable endeavours, is likely to receive from the Premises from a replacement tenant for the period of the Term of this Lease remaining after the termination of this Lease after allowing for any actual or anticipated vacancy during the letting up period and any abatement, concession, incentive or inducement in any form which has been or may be paid, allowed or conceded by the Landlord to obtain that sum of those moneys,

where in each case that money is discounted back to a net present value calculated at the date of termination of this Lease by applying a discount rate equivalent to the rate (expressed as a percentage per annum) of the Commonwealth Bond 10 year Indicator Rate published in the Australian Financial Review or elsewhere on the date of that termination or, if that rate is not published at that date, by applying a published rate which in the opinion of the valuer referred to in clause 17.5 (acting as an expert and not as an arbitrator) equates most closely to it.

Make Good means to:

(a) without limiting the Tenant's obligations under paragraphs (b) to (o), remove (regardless of ownership and unless advised otherwise by the Landlord at least three (3) months before the end of the Term) all internal walls, partitions, alterations, additions, fixtures, joinery, racking, furniture, services fittings, furnishings, signage, cables, conduits and wires existing in the Premises at the Handover Date and whether installed by the Tenant, the Tenant's Employees and Agents, the Landlord or any other person, so that the Premises are in an open plan base building condition and configuration; and

(b) remove all Tenant's Property from the Premises; and

(c) properly repair any damage caused by the removal of things referred to in paragraphs (a) and (b) of this definition; and

(d) reinstate any part of the Premises which has been penetrated or altered by the Tenant or the Tenant's Employees and Agents; and

(e) reinstate the Services benefiting the Premises to achieve:

(i) the even distribution of Services throughout the Premises

(ii) a consistent approach to the design of Services in the Premises;

(iii) compliance with the statutory regulations and codes applicable to the Premises; and

(iv) leave them in good repair and condition; and

(f) put the ceiling support grid, supports, ceiling tiles and lighting into good repair and condition (including as to level); and

(g) pay the Landlord's costs of removing and replacing any floor coverings in the Premises that are not carpet (with new coverings approved by the Landlord); and

(h) make good any damage to the warehouse floor or any uncovered floor caused by the Tenant or the Tenant's Employees and Agents; and

(i) thoroughly clean the Premises, professionally clean the carpet or other floor coverings (including the warehouse floor or any uncovered floor), professionally clean all light fittings, replace all light globes/tubes and remove all rubbish, waste and materials brought onto or left in or about the Premises or the Building by the Tenant or the Tenant's Employees and Agents; and

(j) decontaminate and remediate any part of the Land, Landlord's property or the Tenant's fixtures which is or becomes contaminated or polluted or in need of decontamination or remediation pursuant to any Law as a result of the Tenant use or occupation of the Premises (including under any previous lease);

(k) wash down, properly prepare and paint (with at least 2 coats in a colour specified by the Landlord), stain, wallpaper or otherwise treat all surfaces inside and outside the Premises as directed by the Landlord so that they are reinstated to the condition they were in as at the Handover Date or are in base building condition, as required by the Landlord; and

(l) replace curtains, blinds and other furnishings and decorations which are, in the Landlord's opinion, acting reasonably, worn or damaged; and

(m) make good any damage caused to all surfaces inside the Premises , so that they are reinstated to the condition they were in as at the Handover Date; and

(n) dispose of waste resulting from removal of existing fitout in an environmentally sensitive manner where possible; and

(o) if required by the Landlord, leave, repair, and make good, part or all of the fitout in the Premises as directed by the Landlord so as to permit the re-use of the fitout by a future tenant; and

(p) if required by the Landlord, co-operate with an incoming tenant to enable fitout to be re- used.

Market Rent Review Date means each date in Item 9 where the words "Current Market Rent" appear.

Option Notice means a notice given by the Tenant to the Landlord exercising an option to enter into a new lease for an Option Term.

Option Term means the period described in Item 7 as being the **Option Term**, which begins at midnight at the beginning of the date specified in Item 7 as the **Commencing Date** and ends at midnight at the end of the date specified in Item 7 as the "Terminating Date".

Outgoings means all amounts paid or payable by the Landlord for an Outgoings Year in connection with the Land (other than the cost of capital works or structural works, subject to paragraph (n)), including:

(a) rates, land taxes (on a single holding basis) and other charges imposed by any Authority; and

(b) taxes (except income or capital gains tax), levies, imposts, deductions, charges, withholdings and duties imposed by any Authority; and

(c) insurance which the Landlord reasonably considers is appropriate (including for loss of rent); and

(d) cleaning the Land (except for those parts which are let) including the Common Areas and keeping it free of vermin and refuse and supplying items usually supplied in washrooms and toilets; and

(e) outdoor gardening and landscaping of the Land and areas near it and maintenance of the gardens and landscaped areas; and

(f) building staff, caretaking services, security and regulating traffic; and

(g) facilities and property management fees and expenses and administration expenses; and

(h) supplying, maintaining, repairing and replacing Services and upgrading them to comply with the requirements of Authorities and all laws or to satisfy the requirements of the Landlord; and

(i) charges for the supply of Services which are not separately metered to an occupier, including usage charges; and

(j) repairs and maintenance which no occupier is obliged to do; and

(k) the provision and upkeep of signs and directory boards and information systems; and

(l) the cost of auditing the amount of Outgoings for an Outgoings Year; and

(m) fair market rental and other costs with respect to any management office for the Building; and

(n) protecting the Building or the Land or any part thereof including the Services or any infrastructure from fire including fire protection services, fire protection equipment and fire protection infrastructure or anything related to or ancillary to those things; and,

if the Land has sections which are used for different purposes or an occupier of the Land incurs a cost solely in connection with its occupation of the Land, then the Landlord may apportion which proportion of the Outgoings will be referable to the section to which the Premises belong and this amount is to be the amount represented by "A" in the definition of Tenant's Contribution and the percentage represented by "TP" in that definition is to be the proportion (expressed as a percentage) which the area of the Premises bears to the area of that section.

Outgoings Year means the 12 month period ending on the date specified in Item 10 in each year or on another day specified in a notice which the Landlord gives to the Tenant.

Permitted Purpose means use by the Tenant to park one vehicle in each car parking space designated to the Tenant and for no other purpose.

Permitted Use means the use in Item 5.

PPSA means the *Personal Property Securities Act 2009* (Cth).

PPSA Lease has the meaning given by section 13 of the PPSA.

Premises means the premises described in Item 4. The Premises include the Landlord's Property.

Principal Contractor has the meaning given to 'principal contractor' in the WHS Regulation.

Reference Schedule means the reference schedule of this Lease.

Related Agreement means any document entered into by the Landlord and the Tenant (or parties related to the Tenant) in connection with this Lease.

Rent means the yearly amount in Item 8 as varied under this Lease.

Rent Day means the Commencement Date and, for each subsequent month, the day in Item 8.

Review Notice has the meaning given in clause 3.1.

Rules means the rules of the Land or the Building (as determined by the Landlord) set out in Schedule 1 as varied or added to under this Lease.

Security means any or all of:

(a) a charge, mortgage, lien or pledge; or

(b) a **security interest** as defined in the PPSA.

Security Deposit means a deposit by cash or bank cheque for the amount identified in Item 15.

Services means services such as water, sewerage, drainage, gas, electricity (including electricity generated from renewable and low-carbon sources), communications, fire fighting, air conditioning, lifts and escalators to or of the Premises or the Land which is provided by Authorities, the Landlord or any person authorised by the Landlord and includes all plant and equipment in connection with them.

Taxable Supply has the meaning given by the GST Law, excluding the reference to section 84-5 of the *A New Tax System (Goods and Services Act) 1999* (Cth).

Tenant's Business means the business carried on from the Premises.

Tenant's Contribution means for an Outgoings Year:

$$\frac{TP \ x\ N\ x\ A}{Y}$$

where:

TP = the proportion that the area of the Premises bears to the net lettable area of the Building or Buildings on the Land, as determined by the Landlord from time to time

N = the number of days of the Term in that Outgoings Year A = the Outgoings for that Outgoings Year
Y = the number of days in that Outgoings Year

Tenant's Employees and Agents means each of the Tenant's employees, officers, agents, contractors and invitees.

Tenant's Property means all property on the Premises which is not Landlord's Property or Services.

Tenant Service Request System means the Landlord’s web based system for general tenant and Landlord communication.

Term means the period from and including the Commencement Date to and including the Expiry Date.

Unremedied Breach means a breach by the Tenant in respect of which the Landlord has given the Tenant a notice requiring remedy of the breach within a reasonable period, and the Tenant failed to comply with the Landlord's notice.

Valuer means a person nominated in writing by the president (or other principal officer for the time being) of the Institute in accordance with clause 3.6 who, as at the date of the nomination, must:

(a) have practised as a valuer for not less than 5 years in the Sydney metropolitan area;

(b) be a member of the Institute; and

(c) be registered to practise as a valuer of the kind of premises for which rent review is required under this Lease.

WHS Act means the *Work Health and Safety Act 2011* (NSW);

WHS Laws means any occupational health and safety law, regulation or by-law that applies to any work carried out or to be carried out on the Premises and includes the provisions under the WHS Act and the WHS Regulation;

WHS Regulation means the *Work Health and Safety Regulations 2017* (NSW);

1.2 Interpretation

Unless the contrary intention appears:

(a) the singular includes the plural and vice versa;

(b) ***person*** includes a firm, a body corporate, an unincorporated association or an Authority;

(c) an agreement, representation or warranty:

(i) in favour of two or more persons, is for the benefit of them jointly and severally; and

(ii) on the part of two or more persons, binds them jointly and severally; and

(d) a reference to:

(i) **this Lease** in the cover sheet, any annexure or schedule to this Lease is a reference to the lease constituted by the cover sheet and each of those annexures and schedules; and

(ii) a **person** includes the person's executors, administrators, successors, substitutes (including persons taking by novation) and assigns; and

(iii) a **document** includes any variation or replacement of it; and

(iv) a **law** includes regulations and other instruments under it and amendments or replacements of any of them; and

(v) a **thing** includes the whole and each part of it collectively and each of them individually; and

(vi) a **financial rate** includes any replacement of that rate from time to time; and

(vii) a **group of persons** includes all of them collectively, any two or more of them collectively and each of them individually; and

(viii) the **president** of a body or Authority includes any person acting in that capacity; and

(ix) **Guarantor** is a reference to all of the persons named as Guarantor jointly and each of them severally. An agreement, representation, warranty or indemnity on the part of the Guarantor binds the persons named as Guarantor jointly and each of them severally; and

(e) **including** (in any form) or **such as** when introducing a list of items does not limit the meaning of the words to which the list relates to those items or to items of a similar kind.

2. Rent

2.1 Payment of Rent

The Tenant must pay the Rent by equal monthly instalments in advance on each Rent Day.

2.2 Broken periods

If an instalment is for a period of less than one month, then that instalment is that proportion of one twelfth of the Rent which the number of days in the period bears to the number of days in the month in which that period begins.

2.3 Set Rent increases

The Rent increases on and from each Fixed Rent Review Date by the percentage associated with that Fixed Rent Review Date in Item 9.

3. Not used.

4. Outgoings and other payments for Services

4.1 Tenant’s percentage

The Tenant's percentage of Outgoings is the proportion (expressed as a percentage) that the area of the Premises bears to the area of the Building (as determined by the Landlord).

4.2 Tenant's Contribution to Outgoings

The Tenant must pay the Tenant's Contribution for each Outgoings Year within 14 days after notice is given under clause 4.6.

4.3 Payments on account of Tenant's Contribution

The Landlord may give the Tenant a notice for each Outgoings Year stating the Landlord's estimate of the Outgoings and the Tenant's Contribution for that Outgoings Year. The Landlord may revise the estimate at any time.

4.4 Payment by instalments

If the Landlord gives a notice under clause 4.3, the Tenant must pay instalments in advance on each Rent Day on account of the Tenant's Contribution. Each instalment is the Landlord's estimate of the Tenant's Contribution for the Outgoings Year divided by the number of Rent Days (excluding the Commencing Date) in that Outgoings Year.

4.5 Subsequent Outgoings Years

In each Outgoings Year after the first, until the Landlord gives the Tenant a notice of the Landlord's estimate for that Outgoings Year, the Tenant must pay on each Rent Day, on account of the Tenant's Contribution, an instalment equal to that payable on the previous Rent Day.

4.6 Notice of actual Outgoings

As soon as possible after the end of an Outgoings Year, the Landlord must give to the Tenant a notice giving reasonable details of the actual Outgoings.

4.7 Adjustments

On the next Rent Day after the Landlord gives the Tenant a notice of either estimated (including any revision) or actual Outgoings, the Tenant must pay the Landlord (or the Landlord must credit the Tenant with) the difference between what the Tenant has paid on account of the Tenant's Contribution for the Outgoings Year to which the notice applies and what the notice says is payable.

4.8 Change of Area

If the Landlord, acting reasonably, is satisfied that the area of the Land (as determined by the Landlord) or the Premises has changed, the Landlord may notify the Tenant of the revised area and the parties will be bound by the revised area from the date of such notice. If requested by the Tenant, the Landlord will provide a plan evidencing any alteration to the Premises area.

4.9 Services to Premises

(a) The Tenant must pay on time for all Services used in the Premises including 100% of the cost of Services separately metred to the Premises or designated to the Premises or consumed in the Premises and immediately pay all costs incurred by the Landlord in installing meters or submeters to the Premises (which the Landlord may do in its discretion).

(b) The Tenant must maintain any meters or submeters installed in the Premises.

5. Payment Requirements

5.1 Method of payment

The Tenant must make payments under this Lease to the Landlord (or to a person nominated by the Landlord in a notice to the Tenant) by the method which the Landlord reasonably requires (including by direct debit or other electronic funds transfer) without set-off, counterclaim, withholding or deduction.

5.2 No demand

The Landlord need not make demand for any amount payable by the Tenant unless this Lease says that demand must be made.

5.3 Rent Day

If the Tenant must pay an amount on the next Rent Day and there is no next Rent Day, then the Tenant must pay that amount within 7 days after the Landlord demands it.

5.4 Expiry or termination

Expiry or termination of this Lease does not affect the Tenant's obligations to make payments under this Lease for periods before then.

5.5 GST indemnity

(a) Capitalised expressions which are not defined in this Lease but which have a defined meaning in the GST Law have the same meaning in this clause.

(b) If GST is payable on a Taxable Supply made under, by reference to or in connection with this Lease, the party providing the Consideration for that Taxable Supply must also pay the GST Amount as additional Consideration. This clause does not apply to the extent that the Consideration for the Taxable Supply is expressly stated to be GST inclusive.

(c) Any reference in the calculation of any indemnity, reimbursement or similar amount to a cost, expense or other liability incurred by a party, must exclude the amount of any Input Tax Credit entitlement of that party in relation to the relevant cost, expense or other liability. A party will be assumed to have an entitlement to a full Input Tax Credit unless it demonstrates otherwise prior to the date on which the Consideration must be provided.

(d) The GST Amount is payable on the earlier of:

(i) the first date on which all or any part of the Consideration for the Taxable Supply is provided; and

(ii) the date 7 days after the date on which a Tax Invoice is issued in relation to the Taxable Supply.

(e) This clause will continue to apply after expiration or termination of this Lease.

5.6 Interest on overdue money

If the Tenant does not pay any amount payable by it under this Lease on time, it must pay interest on that amount on demand by the Landlord from when it becomes due for payment until it is paid in full. The Tenant must pay the interest at the end of each month without demand. Interest is calculated from the due date for payment on daily balances at the rate set out in Item 16.

6. Insurances

6.1 Tenant to take out insurance

The Tenant must:

(a) in connection with the Premises, effect no later than the Commencement Date and maintain throughout the Term with independent and reputable insurers and on terms approved by the Landlord (who may not unreasonably withhold its approval) in the name of the Tenant and noting the interest of the Landlord as a 'Joint Loss Payee':

(i) public liability insurance for at least the amount in Item 12 in respect of each occurrence (as varied by notice from time to time from the Landlord (acting reasonably) to the Tenant);

(ii) plate glass insurance for replacement value;

(iii) insurance to cover loss or damage to the Tenant's Property and for an amount equal to the value of the Tenant's Property;

(iv) workers compensation insurance; and

(v) other insurances which are required by law or which, in the Landlord's reasonable opinion, a prudent tenant of the Premises would effect, including those in connection with Tenant's works on the Premises;

(b) on each renewal date of the insurances required to be effected under clause 6.1(a) and otherwise when asked to do so, give the Landlord evidence that it has complied with clause 6.1(a) and, if requested by the Landlord, do all things reasonably required to assist the Landlord in any review of insurance arrangements undertaken by or on behalf of the Landlord;

(c) notify the Landlord if:

(i) an insurance policy required by this clause 6.1 is cancelled; or

(ii) an event occurs which may give rise to a claim under or which may affect rights under an insurance policy in connection with the Premises, the Land, the Building or property in them; or

(iii) if the Tenant becomes aware that the insurer is or may be the subject of an Insolvency Event; and

(d) ensure that all insurance policies taken out under this clause 6 are on an occurrence, not a claims made, basis.

6.2 Effect on insurances

The Tenant may not, without the Landlord's approval, do or fail to do anything which may:

(a) affect rights under any insurance required to be effected under clause 6.1; or

(b) affect the right to make any claim under any such insurances; or

(c) increase an insurance premium payable by the Landlord in connection with the Premises, the Land, the Building or property in them; or

(d) conflict with any laws or the requirements of any Authority or with any requirement of the Landlord's insurer(s) relating to fire or fire safety or prevention or with any insurance policy in respect of the Premises, the Land, the Building or property in them.

The Tenant must pay the actual cost to the Landlord of giving its approval under this clause 6.2 and also any additional or excess premiums payable.

6.3 Landlord to maintain insurance

The Landlord will maintain the following insurances:

(a) public liability insurance for an amount reasonably determined by the Landlord from time to time in respect of each occurrence; and

(b) industrial special risks policy covering loss or damage to the Premises (including loss of gross rent for up to 24 months).

7. Indemnities and Releases

7.1 Exclusion of Landlord's liability

The Tenant occupies the Premises and uses the Building and the Land at its own risk.

7.2 Indemnities

The Tenant is liable for and indemnifies the Landlord against liability, loss or damage arising from, and cost incurred in connection with, any of the following:

(a) damage, loss, injury or death caused or contributed to by the wilful or negligent act or omission or by the default of the Tenant or of the Tenant's Employees and Agents; and

(b) the Landlord doing anything which the Tenant must do under this Lease but has not done or which the Landlord considers the Tenant has not done properly; and

(c) any breach of any environmental laws by the Tenant or by the Tenant's Employees and Agents; and

(d) any breach of any work, health and safety laws by the Tenant or by the Tenant's Employees and Agents; and

(e) any breach by the Tenant of this Lease; and

(f) any breach of a warranty given by the Tenant under this Lease; and

(g) any accident on or about the Land or the Building not caused by the Landlord,

except to the extent caused by the negligent act or negligent omission or by the default of the Landlord or its employees, contractors or agents.

7.3 Release of Landlord

The Tenant releases the Landlord from, and agrees that the Landlord is not liable for, liability or loss arising from, and cost incurred in connection with, any of the following:

(a) damage, loss, injury or death unless it is caused by the Landlord's wilful or negligent act or omission or by the default of the Landlord; and

(b) anything the Landlord is permitted or required to do under this Lease; and

(c) subject to the Landlord having complied with its obligations in clause 13.3, a Service not being available, being interrupted or not working properly; and

(d) subject to the Landlord having complied with its obligations in clause 13.3, the Landlord's plant and equipment not working properly; and

(e) any fire, bomb threat or other emergency drill or the Tenant evacuating the Land or the Building because of any fire, bomb threat or other emergency; and

(f) the operation of any statute, regulation or notice issued by an Authority; and

(g) any strike, accident, riot, industrial action or civil disturbance; and

(h) the Landlord being required to investigate, test, evaluate, monitor, remediate, secure or manage any contamination or environmental matter concerning the Land or the Building.

7.4 Independent obligation

Each indemnity is independent from the Tenant's other obligations and continues during this Lease and after it expires or is terminated. The Landlord may enforce an indemnity before incurring expense.

8. Use

8.1 Permitted Use

The Tenant must use the Premises only for the Permitted Use.

8.2 Tenant to satisfy itself

The Tenant represents to the Landlord that it has satisfied itself that the Premises, the Land, the Building and the Services are suitable for the Permitted Use.

8.3 No warranty as to use

The Landlord gives no warranty (either present or future) as to the suitability of the Premises or the use to which the Premises may be put. The Tenant:

(a) accepts this Lease with full knowledge of and subject to any prohibitions or restrictions on the use of the Premises from time to time under any laws or the requirements of any Authority; and

(b) must obtain, maintain and comply at its cost with any consent or approval from any Authority necessary or appropriate for the Permitted Use under any requirement or law; and

(c) must not by any act or omission cause or permit any consent or approval referred to in clause 8.3(b) to lapse or be revoked.

8.4 Work Health & Safety

The Tenant agrees:

(a) that it is the controller of the Premises and that it will comply at its own expense with all obligations which the Tenant has under the WHS Laws as a controller of premises and employer, including its obligation to conduct a risk assessment of its activities within the Premises; and

(b) to notify the Landlord of any risks to the health and safety of persons using:

(i) the Premises; or

(ii) the Landlord's Property;

immediately after becoming aware of such risks.

8.5 Appointment of Lessee as Principal Contractor

(a) Without limiting or in any way affecting the Lessee's obligations under this Lease, or otherwise at Law, where any work is to be undertaken at the Premises (whether during the Term or any licence period before the Commencing Date), for the purposes of the WHS Regulations, the Landlord:

(i) appoints the Tenant and the Tenant accepts its appointment as the Principal Contractor; and

(ii) authorises the Tenant as Principal Contractor to manage or control the workplace to the extent necessary to discharge the duties of a Principal Contractor under the WHS Regulations.

(b) Where clause 8.5(a) applies:

(i) the Tenant must perform the functions and discharge the duties of Principal Contractor; and

(ii) the Tenant's appointment as Principal Contractor for the Work continues until the End Date.

Despite clause 8.5(a), the Tenant may ask the Lessor to consent to the appointment of a third party as the Principal Contractor in place of the Lessee for certain Work and if the Lessor consents to that appointment, the Lessee must immediately ensure the third party is formally appointed as the Principal Contractor.

8.6 Access

Subject to the provisions of this Lease, any law or requirement of an Authority and Item 14, the Tenant may have access to and operate its business from, the Premises during the Access Hours for the Term (and any holding over under clause 15), 24 hours a day, 7 days a week, 52 weeks a year.

9. Tenant's Additional Obligations

9.1 Compliance with requirements

The Tenant must:

(a) comply on time with all laws and the requirements of Authorities in connection with the Premises, the Tenant's Business, the Tenant's Property and the use or occupation of the Premises (including obtaining and complying with all permits or approvals), but the Tenant need not carry out structural work unless it is required in connection with the Tenant’s particular use or occupation of the Premises or the act, negligence or default of the Tenant or of the Tenant's Employees and Agents;

(b) inform the Landlord of damage to the Land, the Building or the Premises or of a faulty Service immediately after it becomes aware of it using the Landlord’s electronically based Tenant Service Request System or such other method as the Landlord shall from time to time notify to the Tenant; and

(c) observe the recommended maximum load weights throughout the Land, the Building and the Premises; and

(d) participate in any fire, bomb threat or other emergency drill of which the Landlord gives reasonable notice; and

(e) evacuate the Premises, the Land or the Building immediately and in accordance with the Landlord's directions when informed of any actual or suspected fire, bomb threat or other emergency; and

(f) promptly, when asked by the Landlord, do everything necessary for the Tenant to do to enable the Landlord to exercise its rights under this Lease; and

(g) comply with all Rules of which it has notice. The Tenant acknowledges that it has notice of the Rules in Schedule 1; and

(h) on or before the date on which the Tenant executes this Lease, procure the Guarantor to give the guarantee and indemnity set out in clause 22 by signing this Lease as guarantor. This clause 9.1(h) is an essential term of this Lease.

9.2 Other activities by the Tenant

The Tenant must not:

(a) alter the Landlord's Property or remove it from the Premises without the Landlord's approval; or

(b) store, bring onto, use or release Hazardous Materials on the Premises or in the Common Areas, the Land or the Building except as necessary for the Permitted Use; or

(c) manufacture, produce or carry on any activity which creates or leads to the creation of any Hazardous Materials except as necessary for the Permitted Use; or

(d) permit the Premises, the Land, the Building or the environment to be contaminated, polluted or affected by any Hazardous Materials; or

(e) do or not do anything which would result in any Authority issuing any notice, direction or order requiring any clean up, decontamination, remedial action or making good under any law; or

(f) do or not do anything which would constitute a violation or contravention of any law relating to the environment or occupational health and safety; or

(g) do anything in or around the Land or the Building which in the Landlord's reasonable opinion may be annoying, dangerous or offensive; or

(h) do anything to overload or interfere with the Common Areas, facilities to the Land or the Building or Services nor use them for anything other than their intended purpose; or

(i) allow anything to endanger or threaten the Land, the Building, the Premises or occupants of the Land or the Building.

9.3 Consequential activities

If the Tenant may not do something in connection with this Lease, then it may not do anything which may result in it happening.

9.4 Tenant's Employees and Agents

The Tenant must ensure that the Tenant's Employees and Agents comply, if applicable, with the Tenant's obligations under this Lease.

9.5 Directory boards and property branding boards

If the Landlord at the Tenant's request provides the Tenant with identification of the Tenant's Business on any sign or directory board installed by the Landlord in or near any entrances to the Land or the Building, the Tenant must pay to the Landlord on demand the Landlord's costs of doing so.

9.6 Advertisements and signs

The Tenant must not, without the Landlord's prior approval (given or withheld in its absolute discretion), and without any relevant approval of an Authority:

(a) affix or display any advertisement, logo, notice, sign or other device on, to or in the Building; or

(b) use the name of or any picture, likeness or image of the Building for any advertisement or purpose other than as the address and place of business of the Tenant (and then only while the Tenant is in occupation of the Premises).

10. Cleaning the Premises

10.1 Tenant to keep clean

The Tenant must:

(a) keep the Premises and everything in them clean, tidy and free of refuse and vermin and comply with the Landlord's reasonable directions in that regard; and

(b) enter into and keep in force during the Term a contract to clean the Premises with a contractor approved by the Landlord and ensure that the contractor complies with the Landlord's reasonable directions in connection with its conduct in the Land or the Building and other contractors working in the Land or the Building.

11. Repair and Tenant's Works

11.1 Landlord's approval

The Tenant may not carry out any works (including installing fixtures or fittings or making alterations) to or in the Premises without the Landlord's prior written approval (such approval not to be unreasonably withheld). If the Landlord gives approval, it may when giving it, impose conditions. The Tenant must comply with those conditions.

11.2 Tenant's works

The Tenant must ensure that any works which it does, including works under clause 11.4, are done:

(a) by contractors and consultants who

(i) are suitably qualified, competent and experienced in carrying out such works; and

(ii) comply with any experience or competency criteria specified by the Landlord; and

(iii) comply with the requirements under the work health and safety laws; and

(iv) have a current public liability insurance policy for at least the amount in Item 12 (or such other amount as the Landlord reasonably considers necessary from time to time); and

(v) are either nominated by or approved by the Landlord who may not unreasonably withhold its approval; and

(b) in a proper and workmanlike manner and without disturbance or disruption to other tenants or occupants of the Land or the Building; and

(c) in accordance with any plans, specifications and schedule of finishes required and approved by the Landlord (who may not unreasonably withhold its approval) which must be accompanied by certifications to the Landlord's satisfaction from architects, engineers or other consultants nominated by the Landlord; and

(d) in accordance with all laws and the requirements of Authorities and the Tenant must promptly obtain and give to the Landlord any certificate or certificates required by any

Authority approving the occupancy of the Premises by the Tenant and any works completed by the Tenant; and

(e) in accordance with the Landlord's reasonable requirements and directions from time to time.

The Tenant must stop carrying out the works if requested by the Landlord if the Landlord believes they are in breach of any provision of this Lease, including clause 9.2.

11.3 Repair of items

The Tenant acknowledges that at the Commencement Date (or earlier occupation date, if applicable), the Premises were in good repair and condition.

11.4 Repair and replacement

The Tenant must:

(a) keep the Premises and the Tenant's Property in good repair and condition, excluding fair wear and tear and having regard to their condition at the Handover Date; and

(b) promptly replace worn or damaged items in or attached to the Premises (including any glass, Tenant's Property with items of similar quality as at the Handover Date (or earlier occupation date, if applicable), subject to fair wear and tear, structural works or major part component replacement (unless caused or contributed to by the Tenant); and

(c) promptly make good any damage caused by the Tenant or the Tenant's Employees and Agents to the Premises, the Land or the Building.

12. Transfer and Other Dealings

12.1 Prohibited dealings

The Tenant may only transfer this Lease, sublet, licence or otherwise part with possession of the Premises in accordance with clause 12.2.

12.2 Transfer conditions

The Tenant may only transfer this Lease or sublet or licence or otherwise part with possession of the Premises if, before it does so:

(a) at least one month prior to the proposed transfer, sublease, licence or other dealing, it gives the Landlord written notice of the proposed dealing; and

(b) it satisfies the Landlord (acting reasonably) that the proposed transferee, sub-tenant, licensee or other person taking possession (each called in this clause the **new tenant**) is financially sound and capable of performing the Tenant's obligations under this Lease and will be conducting the Permitted Use; and

(c) the Landlord provides its written consent to the transfer, sublease or licence; and

(d) the Tenant is not released from its obligations under this Lease; and

(e) the proposed new tenant signs a document relating to the transfer or other dealing in a form reasonably required by the Landlord; and

(f) any guarantee or guarantee and indemnity, bank guarantee or other security reasonably required by the Landlord is provided; and

(g) the Landlord has obtained any consents it has agreed to obtain; and

(h) the Tenant is not in default or any default has been waived in writing by the Landlord; and

(i) the Tenant and the proposed new tenant comply with all the Landlord's reasonable requirements; and

(j) in the case of a proposed sublease, if the rent payable by the new tenant under the sublease is at a rate per square metre which is less than the rate then payable by the Tenant under this Lease, the Tenant must provide to the Landlord a written acknowledgement in a form satisfactory to the Landlord of that fact and that the rent payable by the new tenant under the sublease cannot be used as evidence in the assessment of the Rent payable under this Lease.

12.3 Change in control of Tenant: company

If:

(a) the Tenant is a company which is not listed or is wholly owned by a company which is not listed on the Australian Securities Exchange; and

(b) there is a proposed change in the shareholding of the Tenant or its holding company so that a different person or group of persons from that existing at the date on which the Tenant acquired its interest in this Lease will control the composition of the board of directors or more than 50% of the shares giving a right to vote at general meetings,

then that proposed change in control is treated as a proposed transfer of this Lease, the person or group of persons acquiring control is treated as the proposed new tenant and clause 12.2 (except for clause 12.2(d)) applies.

12.4 Change in control of Tenant: unit trust

If:

(a) the Tenant is the trustee of a unit trust which is not listed on the Australian Securities Exchange; and

(b) there is a proposed change in the ownership of units in the unit trust so that a different person or group of persons from that existing at the date on which the Tenant acquired its interest in this Lease will effectively control the unit trust,

then that proposed change in control is treated as a proposed transfer of this Lease, the person or group of persons acquiring control is treated as the proposed new tenant and clause 12.2 (except for clause 12.2(d)) applies.

12.5 Securities

(a) The Tenant:

(i) must not create or allow to exist a Security over the Tenant's interest in this Lease; and

(ii) must not, without the Landlord's written approval, create or allow to exist a Security over the Tenant's Property which is not a Permitted Security.

(b) The Landlord must not unreasonably withhold the Landlord's approval to a request under clause 12.5(a)(ii) for a Security being created over the Tenant's Property if the Security being created is:

(i) a general security agreement over the Tenant's assets (excluding this Lease); and

(ii) granted by the Tenant in the ordinary course of business in good faith as a means of securing a bank overdraft facility or financing the Tenant's Property (as the case may be).

(c) An approval provided by the Landlord under clause 12.5(a)(ii):

(i) may be subject to conditions stipulated by the Landlord; and

(ii) will be conditional on the Tenant executing a waiver deed in the form required by the Landlord.

(d) In this clause 12.5, Permitted Security means:

(i) the interest of a supplier who delivers stock or other goods to the Tenant, in that stock or other goods; or

(ii) a Security taken over property to the extent that it secures all or part of its purchase price; or

(iii) the interest of a lessor or bailor under a PPSA Lease; or

(iv) any Security advised to the Landlord by notice from the Tenant before entering into this Lease and agreed to by the Landlord in writing,

(v) but does not include any security in this Lease.

12.6 Prohibited Persons and Transactions

The Tenant represents and warrants that neither the Tenant nor any of its affiliates, nor any of their respective partners, members, shareholders or other equity owners, and none of their respective employees, officers, directors, representatives or agents is, nor will they become, a person or entity with whom U.S. persons or entities are restricted from doing business under regulations of the Office of Foreign Asset Control (***"OFAC"***) of the Department of the Treasury (including those named on OFAC's Specially Designated and Blocked Persons List) or under any statute, executive order (including the September 24, 2001, Executive Order Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism), or other governmental action and is not and will not transfer this Lease to, contract with or otherwise engage in any dealings or transactions or be otherwise associated with such persons or entities.

12.7 Force majeure

Other than for the Tenant's obligations under this Lease that can be performed by the payment of money (including payment of Rent and maintenance of insurance), whenever a period of time is prescribed in this Lease for action to be taken by either party, such party shall not be liable or responsible for, and there shall be excluded from the computation of any such period of time, any delays due to strikes, riots, acts of God, shortages of labour or materials, war, terrorist acts or activities, governmental laws, regulations, or restrictions, or any other causes of any kind whatsoever which are beyond the control of such party.

13. Landlord's Additional Obligations and Rights

13.1 Services

(a) The Landlord will ensure that all base building components including plumbing, fixtures and fittings, air conditioning and mechanical ventilation, motorised roller shutters, doors and lights are fully operational at the Commencement Date.

(b) The Tenant acknowledges that as at the Commencement Date, all base building essential services meet the Australian Standards that were required as at the time of construction of the Premises including but not limited to the following: fire hose reels, air conditioning systems, power supplies, exit doors, exit signs, fire detectors, fire doors, fire hydrants, smoke alarms and sprinkler systems. The Landlord has no obligation to ensure that any services to be installed by the Tenant as part of its fitout meet the Australian Standards.

13.2 Quiet enjoyment

Subject to the Landlord's rights, while the Tenant complies with its obligations under this Lease, it may occupy the Premises during the Term without undue interference by the Landlord or by any person rightfully claiming under the Landlord.

13.3 Air conditioning

Subject to the indemnities and releases made by Tenant in favour of Landlord as set forth in clauses 7.2 and 7.3, the Landlord must take reasonable action to keep:

(a) the air conditioning available to any part of the Premises used as offices at all times on weekdays between 8:30am and 5:00pm; and

(b) the Landlord's air conditioning plant and equipment in any part of the Premises used as offices in good working order.

The Tenant may not claim compensation or damages or terminate this Lease or stop or reduce payments under it because a Service is not available or is interrupted or fails or any part of the Landlord's Property breaks down.

13.4 Landlord's Rights

The Landlord may:

(a) carry out any works on the Land or in or to the Building (including alterations and redevelopment), or close or otherwise use the Common Areas, if the Landlord takes reasonable steps (except in emergencies) to minimise interference with the Tenant's use and occupation of the Premises; and

(b) exclude or remove any person from the Premises, the Land or the Building; and

(c) restrict access to Common Areas if the Landlord takes reasonable steps (except in emergencies) to minimise interference with the Tenant's use and occupation of the Premises; and

(d) permit functions, displays and other activities in the Land or the Building; and

(e) install and use public address and emergency systems throughout the Land or the Building (including the Premises); and

(f) change the direction or flow of pedestrian or vehicular traffic into, out of or through the Premises, the Land or the Building; and

(g) change the name, logo of or signage of the Building; and

(h) close the Land or the Building in an emergency; and

(i) install, use, maintain, replace, repair, alter and add to the Services (or any part of them) from, to, servicing or in the Premises, if the Landlord takes reasonable steps (except in emergencies) to minimise interference with the Tenant's use and occupation of the Premises; and

(j) enter the Premises to carry out fire compliance upgrade or other essential works,and the Tenant may not make any claim or abate any payment or terminate this Lease if the Landlord exercises any of its rights under this clause 13.4.

13.5 Landlord may enter

(a) The Landlord may, with its architects, consultants, workmen, sustainability engineers, auditors and others authorised by the Landlord, enter the Premises at reasonable times on reasonable notice to see if the Tenant is complying with its obligations under this Lease or to do anything which either party must or may do under this Lease or which is necessary to comply with any law or the requirements of any Authority. In doing so, the Landlord will take reasonable steps to minimise interference with the Tenant's use and occupation of the Premises.

(b) If the Landlord decides there is an emergency, the Landlord may enter at any time without notice.

13.6 Prospective tenants or purchasers

After giving reasonable notice, the Landlord may during the Term:

(a) enter the Premises to show prospective purchasers through the Premises and display from the Premises a sign indicating that the Premises is for sale; and

(b) show prospective tenants through the Premises and display from the Premises a sign indicating that the Premises is available for lease.

13.7 Enforcing rights

The Tenant acknowledges that the Landlord may enforce its rights against the Tenant whether or not the Landlord enforces its rights against other tenants or occupiers of the Land or the Building.

13.8 To deal with the Land

(a) The Landlord may:

(i) subdivide the Land (excluding the Premises); or

(ii) grant easements or other rights over it or the Premises,

unless this would have a substantial adverse effect on the Tenant's use or occupation of the Premises.

(b) The Tenant:

(i) must promptly sign all plans and other documents reasonably required by the Landlord to enable the Landlord to exercise its rights under clause 13.8(a); and

(ii) must not make any objection, claim for compensation or abatement of Rent or any other money payable under this Lease in relation to any such dealing; and

(iii) acknowledges that the Landlord may for:

(A) the purpose of the provision of public or private access to the Land or the Premises;

(B) the purpose of rectifying any encroachment;

(C) the support of structures in the future erected on or from adjoining land;

(D) the purpose of satisfying any condition of any approval issued by any Authority in respect of the development of the Land; or

(E) any Service,

dedicate land or transfer, grant or create or take the benefit of any easement or other right to or from, or enter into any arrangement or agreement with, any owners, tenants or occupiers or others having an interest in any land (including the Land) near the Premises or with any Authority (under any valid and enforceable requirement of that Authority) as the Landlord thinks fit.

(c) This Lease will be taken to be subject to that easement or other right as envisaged by this clause 13.8 and the Tenant will promptly on request by the Landlord provide its consent to that easement or other right in the form reasonably required by the Landlord.

13.9 Change of landlord

If the Landlord deals with its interest in the Land (including by transfer or the grant of a head lease or concurrent lease) so that another person becomes landlord, the Landlord is released from any obligation under this Lease arising after it ceases to be landlord. If requested by the Landlord, the Tenant must, at the Landlord's expense, sign the documents which that other person reasonably requires to give it a direct contractual relationship with the Tenant.

13.10 Conversion of title

The Landlord may convert the title to the Building to strata (or similar) title and the Tenant must do anything the Landlord reasonably requires concerning the conversion, including executing any application, consent, plan, instrument or other document reasonably required by the Landlord in connection with the conversion, provided that the conversion does not:

(a) materially diminish the Tenant's rights under this Lease; or

(b) result in a substantial increase in costs to the Tenant.

13.11 Strata legislation and by-laws

If the Premises are, or pursuant to clause 13.10 become, a lot in a strata plan, the Tenant must comply with and must ensure that the Tenant's Employees and Agents comply with:

(a) all relevant strata legislation; and

(b) the by-laws of the strata scheme and any strata management statement or other instrument registered in connection with the strata scheme.

13.12 Landlord may rectify

The Landlord may do anything which the Tenant should have done under this Lease but which it has not done or which the Landlord considers the Tenant has not done properly. The Tenant must promptly pay all reasonable expenses and costs incurred by the Landlord under this clause 13.10.

13.13 Agents

The Landlord may appoint agents or others to exercise any of its rights or perform any of its duties under this Lease. Communications from the Landlord override those from the agents or others if they are inconsistent.

13.14 Common Areas

Subject to this Lease and the Rules, the Tenant and the Tenant's Employees and Agents may use the Common Areas for the purposes for which they are intended.

13.15 Rules

The Landlord may vary the Rules or make Rules which do not materially derogate from the Tenant's express rights under this Lease in connection with the operation, use and occupation of the Premises, the Land or the Building. The Landlord must give the Tenant a notice about the Rules which the Landlord makes or changes.

13.16 Authority

Any right of the Landlord under this Lease may be exercised by a person authorised by the Landlord.

14. Expiry or Termination

14.1 Tenant to vacate

The Tenant must vacate the Premises on the earlier of the Expiry Date and the date on which this Lease is terminated and, before vacating the Premises, unless otherwise required by the Landlord, the Tenant must have completed the Make Good of the Premises prior to the day which is the earlier of the Expiry Date or the date on which the Premises are vacated by the Tenant.

14.2 If Tenant's Property not removed

(a) If the Tenant does not Make Good as required under clause 14.1 then, without affecting any of its other rights, the Landlord may remove and store any fixtures, fittings, furnishings, cables, conduits, wires and other Tenant's Property and the Landlord may also Make Good.

(b) The Tenant must pay the Landlord on demand:

(i) all costs and expenses incurred in doing the works detailed in clause 14.2(a); and

(ii) a fee equivalent to the aggregate of the Rent and Outgoings divided by 365 for each day that it does not Make Good (calculated at the rate provided for in clause 15.1(b)).

14.3 Forfeiture of Tenant's Property

(a) The Landlord may elect not to do any of the things mentioned in clause 14.2, in which case unless the Tenant does those things by the day which is the earlier of the Expiry Date or the date on which the Premises are vacated by the Tenant, then to the extent possible at law, on the Landlord giving notice to the Tenant, title to the Tenant's Property which is not removed from the Premises by the Tenant and which the Landlord has specified in its notice will be forfeited to the Landlord and become the property of the Landlord.

(b) The Tenant:

(i) warrants to the Landlord that as at the Expiry Date, no third party will have any interest or Security in or claim in respect of the items referred to in clause 14.3(a); and

(ii) must do all things necessary (if any) to complete the transfer of ownership to the Landlord if the Landlord seeks by notice to effect a transfer of ownership in those items to the Landlord.

14.4 Delivery of Keys

On the day on which the Tenant must vacate the Premises, the Tenant must give the Landlord the keys, access cards and similar devices for the Building (if any) and the Premises held by the Tenant, the Tenant's Employees and Agents and any other person they have given them to.

15. Holding Over

15.1 Monthly tenancy

If the Tenant continues to occupy the Premises after the Expiry Date with the Landlord's prior written approval, it does so under a monthly tenancy:

(a) which either party may terminate on one month's notice ending on any day; and

(b) at a rent which is an amount payable at the Lease Expiry Increased by 3.5% and Tenant's Contribution payable by the Tenant for the preceding period of 12 months).

The amount and rate of that rent for the monthly tenancy may be reviewed at the times and in the manner which the Landlord determines to be appropriate in its absolute discretion, and any provision in this Lease relating to a mechanism for the calculation of or any limitation on or right of review of any Rent does not apply to this clause 15.1.

15.2 Conditions of monthly tenancy

Subject to clause 15.1, the monthly tenancy is on the same terms as this Lease except for those changes which:

(a) are necessary to make this Lease appropriate for a monthly tenancy (but any bond or bank guarantee required under this Lease may not be reduced); or

(b) the Landlord requires as a condition of giving its approval to the holding over, including an increase in rent.

16. Damage to the Premises

16.1 Damage to the Premises

Clauses 16.2 to 16.8 will apply if:

(a) the Premises are damaged so that they are substantially unfit for the use of the Tenant or substantially inaccessible; and

(b) the damage has not been caused (in whole or in part) by the act, neglect or default of the Tenant.

16.2 Abatement of Rent and Tenant's Contribution

The Tenant is not liable to pay Rent and the Tenant's Contribution to Outgoings for the period that the Premises cannot be used or are inaccessible. If the Premises are still useable but the useability is diminished because of the damage, the Tenant's liability to pay Rent and Tenant's Contribution to Outgoings is reduced in proportion to the reduction in useability.

16.3 Dispute

Any dispute under this clause 16 as to the amount by which the Rent and the Tenant's Contribution will reduce will be determined by a Valuer who:

(a) is appointed in accordance with clause 3.6; and

(b) acts as an expert and not as an arbitrator.

The parties must each pay one half of the Valuer's costs.

16.4 Restoration notice

If:

(a) the Tenant wants the Landlord to repair the damage and gives the Landlord a damage notice within 21 days after the Premises are damaged; and

(b) within 3 months after receiving the damage notice, the Landlord does not give the Tenant a restoration notice stating that the Landlord intends to repair the damage,

then the Tenant may terminate this Lease by giving one month's notice to the Landlord.

16.5 Tenant may terminate

If the Landlord does not repair the damage within a reasonable time after giving the restoration notice, the Tenant may give the Landlord a notice of intention to terminate, stating that the Tenant will terminate this Lease if the Landlord does not repair the damage within a reasonable time after receiving the termination notice. Unless the Landlord, after receiving that notice of intention to terminate, proceeds with reasonable expedition and diligence to commence or carry out the necessary works, the Tenant may terminate this Lease by giving not less than one month’s notice to the Landlord. At the end of that second notice, this Lease will be at an end.

16.6 Landlord may terminate

If, in the Landlord's opinion, it is impractical or undesirable to repair the damage, then the Landlord may terminate this Lease by giving one month's notice to the Tenant.

16.7 Termination on destruction

If the Premises are totally destroyed, then either party may terminate this Lease by giving one month's notice to the other.

16.8 Release

Each party releases the other party from liability or loss arising from and costs incurred in connection with the termination of this Lease under this clause 16 but not from any breach of this Lease existing at the date of termination.

17. Default

17.1 Essential terms

Each obligation of the Tenant to pay money and to provide security to the Landlord and its obligations under clauses 6, 8, 11 and 12 are essential terms of this Lease. Other obligations under this Lease may also be essential terms.

17.2 Landlord's right to terminate

The Landlord may terminate this Lease by giving the Tenant notice or by re-entry if the Tenant:

(a) repudiates its obligations under this Lease; or

(b) has not paid any money payable to the Landlord under this Lease for 7 days after its due date (whether demanded or not); or

(c) does not comply with an essential term of this Lease; or

(d) does not comply with an obligation under this Lease (which is not an essential term) and, in the Landlord's reasonable opinion:

(i) the non-compliance can be remedied, but the Tenant does not remedy it to the Landlord's reasonable satisfaction within a reasonable time after the Landlord gives the Tenant notice to remedy it; or

(ii) the non-compliance cannot be remedied or compensated for; or

(iii) the non-compliance cannot be remedied but the Landlord can be compensated and the Tenant does not pay the Landlord compensation satisfactory to the Landlord for the breach within 14 days after the Landlord gives the Tenant notice to pay it; or

(e) an Insolvency Event occurs in respect of the Tenant or a guarantor of the Tenant's performance under this Lease.

17.3 Recovery of money

If this Lease is terminated either under clause 17.2 or 17.10, without limiting its other rights under this Lease, the Landlord may in its discretion:

(a) at any time treat the event giving rise to that termination as a repudiation of this Lease by the Tenant; and

(b) recover from the Tenant:

(i) all arrears of money payable by the Tenant and any interest on that money calculated at the rate specified in Item 16, calculated in each case to that date of termination; and

(ii) all costs (including the Landlord's administration costs) incurred by the Landlord in rectifying any breaches by the Tenant of this Lease; and

(iii) all costs incurred by the Landlord in recovering any money or enforcing any security and, where applicable, in having a determination made under clause 17.3(b)(iv); and

(iv) the Loss of Bargain Damage calculated in accordance with clause 17.5 and interest calculated in accordance with clause 17.8; and

(v) all costs incurred by the Landlord for legal fees and expenses, marketing, agency fees and to Make Good.

17.4 Tenant acknowledgements

The Tenant agrees that:

(a) a fundamental assumption in the calculation of any Incentive was that this Lease would continue until the Expiry Date; and

(b) by entering into this Lease the Tenant represented and warranted to the Landlord that if there was no default of the Landlord entitling the Tenant to terminate before the Expiry Date, this Lease would continue until the Expiry Date; and

(c) the Landlord will suffer loss if this Lease is terminated before the Expiry Date, for reasons other than the default of the Landlord, including that any Incentive was calculated on the basis of the assumption set out in clause 17.4(a) and that the Landlord relied on the representation and warranty set out in clause 17.4(b); and

(d) the Loss of Bargain Damage (together with the repayment of part of any Incentive in accordance with clause 17.6) represents a genuine pre-estimate of the loss which will be suffered by the Landlord, including in relation to any Incentive and the early termination of this Lease if it does not continue until the Expiry Date for any reason other than the Landlord's default, without limiting any other loss or damage which the Landlord may recover in connection with early termination of this Lease and, in particular, the other provisions of this clause 17.

17.5 Loss of Bargain Damage

The Landlord may notify the Tenant of the Landlord's determination of the Loss of Bargain Damage. If the Tenant disputes the Landlord's notice determining the Loss of Bargain Damage by delivering a dispute notice within 14 days after receiving the Landlord's notice, or if required by the Landlord, then the Loss of Bargain Damage must be calculated by a Valuer appointed by the Landlord who is to determine as an expert and not as an arbitrator the Loss of Bargain Damage and who is to include in making that determination amounts for changes in market conditions which in that Valuer's opinion are proper and whose determination must be in writing and will be final and binding on the parties.

17.6 Forfeiture of Incentive

(a) The Landlord may forfeit payments of, or allowances towards, the Incentive if the Tenant is in Unremedied Breach of this Lease.

(b) The extent to which the Incentive will be forfeited under clause 17.6(a) will be equal to the period of time during which the Tenant is in Unremedied Breach, to the effect that, if the Tenant is (for example) in Unremedied Breach for a period of one month:

(i) the Tenant will forfeit the right to one month's reduction of rent under the Incentive; or

(ii) the Tenant will forfeit the right to one months' abatement of rent under the Incentive.

17.7 Not Used.

17.8 Landlord's rights not limited

The rights and entitlements conferred on the Landlord by this clause 17 or their exercise:

(a) do not restrict or prevent the Landlord from recovering loss or damage from the Tenant or from any security provided by or on behalf of the Tenant or from exercising any other right or remedy which the Landlord has or may acquire; and

(b) are not adversely affected by:

(i) granting the Tenant any concession, indulgence, forbearance or time to pay; or

(ii) any compounding or compromise reached or attempted to be reached with the Tenant; or

(iii) any acceptance of any moneys by the Landlord whether paid by the Tenant or by any other person; or

(iv) any postponement, non-exercise or alteration of any right or remedy available to the Landlord; or

(v) any alteration to this Lease agreed in writing by the Landlord; or

(vi) the conversion of the term of this Lease to a monthly tenancy under clause 17.10; or

(vii) the Landlord re-taking possession of the whole or any part of the Premises by any means.

17.9 Conversion to monthly tenancy

If any of the events specified in clause 17.2 occurs, the Landlord may by notice to the Tenant convert this Lease into a monthly tenancy which may be terminated by the Landlord on one month's notice to the Tenant expiring on any date. That monthly tenancy is to be on the same terms and conditions as this Lease (except for the term and any option to renew) and in particular the provisions of clauses 17.3 to 17.9 inclusive will apply as if this Lease had been terminated without being first converted to a monthly tenancy.

17.10 Confidential information

All information given to the Tenant by the Landlord in connection with the Incentive is the Landlord's confidential information and the Tenant may not disclose it to any person without the Landlord's prior approval.

17.11 Landlord's entitlement continues

This clause 17:

(a) continues after termination of this Lease; and

(b) does not limit any other right which the Landlord may have under this Lease following its termination; and

(c) does not permit the Landlord to recover again any amount which has been recovered from the Tenant whether as Loss of Bargain Damage or otherwise.

18. Costs, Charges and Expenses

(a) The Landlord and the Tenant must each pay their own costs of and incidental to the negotiation, preparation and execution of this Lease.

(b) The Tenant must promptly pay in connection with this Lease and any document or matter in connection with it:

(i) for everything it must do; and

(ii) all stamp duty and registration fees; and

(iii) on demand, the Landlord's reasonable costs, charges and expenses (including legal costs) including those for:

(A) negotiating, preparing, executing, stamping and registering any actual or proposed transfer, sublease, licence or surrender or termination of this Lease; and

(B) obtaining any consents which the Landlord must obtain before giving approvals, considering requests for approvals and considering any information provided with respect to any proposed dealing permitted by this Lease (even if the proposed dealing for which approval is requested does not proceed); and

(c) all costs, charges and expenses in connection with works which the Tenant carries out, including those incurred by the Landlord and the Landlord's consultants in considering, approving and supervising the works and those of modifying or varying the Premises, the Land or the Building because of the works (including under clause 11); and

(d) all costs, charges and expenses in connection with the construction and subsequent removal and Make Good of any works requested by the Tenant in connection with any transfer, sublease or licence of the whole or any part of the Premises, including those incurred by the Landlord and the Landlord's consultants in considering, approving and supervising the works and those of modifying or varying the Premises, the Land or the Building because of the works (including under clause 11); and

(e) on demand, the Landlord's costs in relation to any event specified in clause 17.2 occurring, the actual or contemplated enforcement of, or actual or contemplated exercise, preservation or consideration of any rights, powers or remedies under this Lease.

19. Notices

19.1 Address for service

A notice, request, demand, consent, approval or other communication to or by a party or between the parties to this Lease must be:

(a) in writing; and

(b) left at the address or sent to the email address of the party in Item 2 or Item 3 (as relevant), as varied by notice.

19.2 Method of service

A notice or approval is taken to be given if sent by email, at the time that it is sent unless the sender is aware that transmission is impaired.

20. Miscellaneous

20.1 Waiver and variation

A provision of or a right under this Lease may not be waived or varied except in writing signed by whoever is to be bound.

20.2 No waiver

If the Landlord:

(a) accepts rent or any other money on any account (before or after termination); or

(b) fails to exercise or delays exercising any right under this Lease including under clause 17; or

(c) gives any concession or indulgence to the Tenant; or

(d) attempts to mitigate its loss,

it is not a waiver of any breach or of the Landlord's rights under this Lease. An attempt by the Landlord to mitigate its loss is not a surrender of this Lease.

20.3 Approvals

The Landlord may withhold or give conditionally or unconditionally its approval in its absolute discretion unless this Lease expressly says otherwise.

20.4 Exclusion of statutory provisions

(a) The covenants, powers and provisions implied in leases by sections 84, 84A, 86 and the short form covenants contained in Part 2 Schedule 4 of the Conveyancing Act 1919 (NSW) do not apply to this Lease.

(b) The provisions of the Civil Liabilities Act 2002 do not apply to this Lease and the Lessor and Lessee agree that the rights, obligations and liabilities under this Lease are not limited and are not otherwise intended to be affected by the operation of the Civil Liabilities Act 2002.

20.5 Prior breaches

Expiry or termination of this Lease does not affect any rights in connection with a breach of this Lease before then.

20.6 Caveats

The Tenant may not:

(a) lodge a caveat on the title to the Land, except a caveat noting the Tenant's interest under this Lease (if this Lease is not registered but must be to ensure that it is enforceable against the Landlord's successors in title); or

(b) allow a caveat lodged by a person claiming through the Tenant to remain on that title.

If the Tenant lodges a caveat permitted by this clause 20.6, it must do everything necessary to permit registration of any dealing if its rights under this Lease are not diminished. The Tenant must withdraw that caveat on the earlier of registration and expiry or termination of this Lease.

20.7 Warranties and undertakings

(a) The Tenant warrants that it:

(i) has relied only on its own enquiries in connection with this Lease and not on any representation or warranty by the Landlord or any person acting or seeming to act on the Landlord's behalf; and

(ii) was made aware of the Rules when signing this Lease.

(b) The Tenant must comply on time with undertakings given by or on behalf of the Tenant in connection with this Lease.

20.8 Counterparts

This Lease may consist of a number of counterparts and the counterparts taken together constitute one and the same instrument.

20.9 Severability

If the whole or any part of a provision of this Lease is void, unenforceable or illegal in a jurisdiction, it is severed for that jurisdiction. The remainder of this Lease has full force and effect and the validity or enforceability of that provision in any other jurisdiction is not affected. This clause 20.9 has no effect if the severance alters the basic nature of this Lease or is contrary to public policy.

20.10 Further assurances

The Tenant must do all things reasonably required by the Landlord to give effect to the terms of this Lease including, in relation to any Security in favour of the Landlord, anything necessary for the purposes of:

(a) ensuring that Security is enforceable, perfected and otherwise effective; or
(b) enabling registration, or giving notification, in connection with that Security so that Security has priority; or

(c) exercising rights in connection with that Security.

20.11 PPSA

(a) The Tenant waives its right to receive any verification statement (or notice of any verification statement) in respect of any financing statement or financing change statement relating to any Security in favour of the Landlord created under this Lease.

(b) Neither party is permitted to disclose any information under section 275(4) of the PPSA, unless section 275(7) of the PPSA applies.

(c) The Landlord and Tenant contract out of the Tenant's right to receive any notice under section 130 and section 135 of the PPSA and the right to receive any statement and account under section 132 of the PPSA.

21. Bank Guarantee and Security Deposit

21.1 Tenant to deliver Bank Guarantee and Security Deposit

(a) On or before the date on which the Tenant executes this Lease, if particulars of a Bank Guarantee or Security Deposit appear in Item 15 the Tenant must deliver that Bank Guarantee or Security Deposit to the Landlord. The Bank Guarantee or Security Deposit will be security for the performance by the Tenant under this Lease.

(b) The Tenant must at all times ensure that the Bank Guarantee is kept current and enforceable.

(c) The Tenant must pay the Security Deposit by way of bank cheque to the Landlord or as the Landlord directs.

21.2 Landlord may call on Bank Guarantee

(a) If the Landlord, acting in good faith, believes that the Tenant has not complied with any of its obligations under this Lease, whether this Lease is registered or not, the Landlord may without notice to the Tenant call on the Bank Guarantee and apply any money received towards money (including damages) payable by the Tenant in connection with this Lease or any Related Agreement as the Landlord determines.

(b) The Landlord may call and the bank is entitled to pay under the Bank Guarantee without reference to the Tenant and despite any contrary objection, claim or direction by the Tenant or any other part to a Related Agreement. The Landlord and Tenant agree that it is not a precondition to the exercise of the Landlord’s rights under this clause 21 that a Court determines whether an actual default has occurred.

(c) The rights under this clause 21 are in addition to the other rights and remedies of the Landlord in relation to any default of the Tenant in connection with this Lease.

(d) Once the actual amounts referred to under clauses 21.2(b) has been finally determined, the Landlord will:

(i) give the Tenant relevant details of that loss or damage or expenditure or the amount payable (including, where appropriate, copies of the invoices and receipts for the amounts expended or calculations of the amount payable); and

(ii) subject to the Tenant complying with clause 21.3(a), promptly reimburse to the Tenant any amount called on the Bank Guarantee which is in excess of the amount referred to in clause 21.2(d)(i).

21.3 Replacement or additional Bank Guarantee

If the Landlord:

(a) calls on the Bank Guarantee or the amount of the required Bank Guarantee is increased, then no later than 7 days after the Landlord gives the Tenant a notice asking for it, the Tenant must deliver to the Landlord a replacement or additional Bank Guarantee so that the Landlord holds a guarantee for the amount in Item 15; or

(b) sells or transfers the Land, the Tenant must do whatever the Landlord reasonably requires to give the purchaser or transferee the benefit of the Bank Guarantee or provide to the purchaser or transferee new Bank Guarantee in favour of the purchaser or transferee in exchange for the return of the Bank Guarantee previously provided.

21.4 Return of Bank Guarantee

Subject to clause 21.2, the Landlord will return every Bank Guarantee to the Tenant promptly following the later of (as appropriate):

(a) the date which is three months after:

(i) if this Lease ends on the Expiry Date, the Expiry Date; and

(ii) if this Lease ends on a date other than the Expiry Date, the date this Lease ends; and

(b) the date on which the Tenant has complied with all of its obligations under this Lease, including under clause 14; and

(c) receipt by the Landlord of a replacement Bank Guarantee in accordance with clause 21.3; and

(d) receipt by the Landlord of a replacement Bank Guarantee where a new lease has been granted by the Landlord under clause 23.

21.5 Landlord's right to claim Security Deposit

(a) If the Tenant does not comply with any of its obligations under this Lease, whether this Lease is registered or not, then the Landlord may, without notice to the Tenant, apply the Security Deposit (or any part of it) in order to:

(i) cover the Landlord for any loss or damage suffered or anticipated to be suffered by the Landlord; or

(ii) cover the Landlord for the expenditure incurred or anticipated to be incurred; or

(iii) pay the Landlord any amounts payable by the Tenant under this Lease, or which will be payable by the Tenant under this Lease,

arising from the non-compliance by the Tenant with this Lease, even though the amount of the Security Deposit applied by the Landlord may exceed any actual loss or damage suffered by or any amount expended by or any amount payable to the Landlord.

(b) Once the amounts referred to under clauses 21.5(a)(i) to 21.5(a)(iii) have been finally determined, the Landlord will:

(i) give the Tenant relevant details of that loss or damage or expenditure or the amount payable (including, where appropriate, copies of the invoices and receipts for the amounts expended or calculations of the amount payable); and

(ii) subject to the Tenant complying with clause 21.6(a), promptly reimburse to the Tenant any amount called on the Security Deposit which is in excess of the amount referred to in clause 21.5(b)(i).

21.6 Reinstatement or replacement of Security Deposit

If the Landlord:

(a) applies the Security Deposit (or any part of it) under clause 21.5 or the amount of the required Security Deposit is increased, then no later than 7 days after the Landlord gives the Tenant a notice asking for it, the Tenant must deliver to the Landlord a cheque in order to reinstate the Security Deposit so that the Landlord holds a guarantee for the amount in Item 15; or

(b) sells or transfers the Land, the Tenant must do whatever the Landlord reasonably requires to give the purchaser or transferee the benefit of the Security Deposit.

21.7 Repayment of Security Deposit

Subject to clause 21.5, the Landlord will return the Security Deposit to the Tenant promptly following the later of (as appropriate):

(a) the date which is three months after:

(i) if this Lease ends on the Expiry Date, the Expiry Date; and

(ii) if this Lease ends on a date other than the Expiry Date, the date this Lease ends; and

(b) the date on which the Tenant has complied with all of its obligations under this Lease, including under clause 14.

21.8 Essential term

The Tenant's obligations under this clause 21 are essential terms of this Lease.

22. Guarantee and Indemnity

22.1 Consideration

The Guarantor gives this guarantee and indemnity in consideration of the Landlord agreeing to enter into this Lease at the request of the Guarantor. The Guarantor acknowledges the receipt of valuable consideration from the Landlord for the Guarantor incurring obligations and giving rights under this guarantee and indemnity.

22.2 Guarantee

The Guarantor unconditionally and irrevocably guarantees to the Landlord the due and punctual performance and observance by the Tenant of its obligations:

(a) under this Lease, even if this Lease is not registered or is found not to be a lease or is found to be a lease for a term less than the Term; and

(b) in connection with its occupation of the Premises, including the obligations to pay money.

22.3 Indemnity

As a separate undertaking, the Guarantor unconditionally and irrevocably indemnifies the Landlord against all liability or loss arising from, and any costs, charges or expenses incurred in connection with:

(a) the Tenant's breach of this Lease; or

(b) the Tenant's occupation of the Premises, including a breach of the obligations to pay money; or

(c) a representation or warranty by the Tenant in this Lease being incorrect or misleading when made or taken to be made; or

(d) a liquidator disclaiming this Lease.

It is not necessary for the Landlord to incur expense or make payment before enforcing that right of indemnity.

22.4 Interest

The Guarantor agrees to pay interest on any amount payable under this guarantee and indemnity from when the amount becomes due for payment until it is paid in full. The Guarantor must pay accumulated interest at the end of each month without demand. Interest is calculated on daily balances at the rate set out in Item 16.

22.5 Enforcement of rights

The Guarantor waives any right it has of first requiring the Landlord to commence proceedings or enforce any other right against the Tenant or any other person before claiming under this guarantee and indemnity.

22.6 Continuing security

This guarantee and indemnity is a continuing security and is not discharged by any one payment.

22.7 Guarantee not affected

The liabilities of the Guarantor under this guarantee and indemnity as a guarantor, indemnifier or principal debtor and the rights of the Landlord under this guarantee and indemnity are not affected by anything which might otherwise affect them at law or in equity including, but not limited to, one or more of the following:

(a) the Landlord granting time or other indulgence to, compounding or compromising with or releasing the Tenant or any other Guarantor; or

(b) acquiescence, delay, acts, omissions or mistakes on the part of the Landlord; or

(c) any transfer of a right of the Landlord; or

(d) the termination, surrender or expiry of, or any variation, assignment, subletting, licensing, extension or renewal of or any reduction or conversion of the Term of this Lease; or

(e) the invalidity or unenforceability of an obligation or liability of a person other than the Guarantor; or

(f) any change in the Tenant's occupation of the Premises; or

(g) this Lease not being registered; or

(h) this Lease not being effective as a lease; or

(i) this Lease not being effective as a lease for the Term; or

(j) any person named as Guarantor not executing or not executing effectively this guarantee and indemnity; or

(k) a liquidator disclaiming this Lease.

22.8 Suspension of Guarantor's rights

The Guarantor may not:

(a) raise a set-off or counterclaim available to it or the Tenant against the Landlord in reduction of its liability under this guarantee and indemnity; or

(b) claim to be entitled by way of contribution, indemnity, subrogation, marshalling or otherwise to the benefit of any security or guarantee held by the Landlord in connection with this Lease; or

(c) make a claim or enforce a right against the Tenant or its property; or

(d) prove in competition with the Landlord if a liquidator, provisional liquidator, receiver, administrator or trustee in bankruptcy is appointed in respect of the Tenant or the Tenant is otherwise unable to pay its debts when they fall due,

until all money payable to the Landlord in connection with this Lease or the Tenant's occupation of the Premises is paid.

22.9 Reinstatement of guarantee

If a claim that a payment to the Landlord in connection with this Lease or this guarantee and indemnity is void or voidable (including a claim under laws relating to liquidation, administration, insolvency or protection of creditors) is upheld, conceded or compromised, then the Landlord is entitled immediately as against the Guarantor to the rights to which it would have been entitled under this guarantee and indemnity if the payment had not occurred.

22.10 Costs

The Guarantor agrees to pay or reimburse the Landlord on demand for:

(a) the Landlord's costs, charges and expenses in making, enforcing and doing anything in connection with this guarantee and indemnity including, but not limited to, legal costs and expenses on a full indemnity basis; and

(b) all stamp duties, fees, taxes and charges which are payable in connection with this guarantee and indemnity or a payment, receipt or other transaction contemplated by it.

Money paid to the Landlord by the Guarantor must be applied first against payment of costs, charges and expenses under this clause 22.10 then against other obligations under this guarantee and indemnity.

22.11 Landlord may assign

The Landlord may assign its rights under this guarantee and indemnity.

23. Option for a New Lease

23.1 Conditions to exercise

The Landlord must grant a new lease under this clause 23 on the Expiry Date to commence on the next day only if:

(a) the Tenant gives the Landlord and the Landlord receives an Option Notice within the period specified in Item 11;

(b) when the Tenant gives that Option Notice, and from that time until the Expiry Date, the Tenant is not in breach of this Lease or if in breach, that breach has been waived in writing by the Landlord;

(c) the Tenant delivers to the Landlord before the Expiry Date a guarantee of or a guarantee of and an indemnity in connection with the Tenant's obligations under the new lease by the same person, or another person acceptable to the Landlord, on the same terms as any given in connection with the Tenant's obligations under this Lease; and

(d) the Tenant delivers to the Landlord before the Expiry Date or promptly upon written notice from the Landlord:

(i) a replacement Bank Guarantee for a sum equivalent to the number of months' Rent and Outgoings and GST on those sums specified in Item 15; or

(ii) an additional sum of money which when added to the Security Deposit held by the Landlord will be equivalent to the number of months' Rent and Outgoings and GST on those sums specified in Item 15.

23.2 Conditions of new lease

The new lease is to be on terms similar to this Lease except that:

(a) if particulars of more than one new lease are specified in Item 7, the particulars of the first new lease specified are deleted from Item 7; and

(b) if the particulars of the new lease are the only particulars specified in Item 7, this clause 23 and Item 7 are deleted; and

(c) the rent from the commencement date of the new lease is to be decided under clauses 2.3 or 3 (as applicable) as if that date was a Rent Review; and

(d) the term, the commencement date, the expiry date and the rent review dates are to be those first specified in Item 7; and

(e) the new lease must reflect any variations to this Lease which become effective during the Term.

24. Privacy

24.1 Definitions and interpretation

In this clause:

APP means a Australian Privacy Principles;

Personal Information has the meaning given to this term in the *Privacy Act*; and

Privacy Act means the *Privacy Act 1988* (Cth) and any guidelines issued by the Federal Privacy Commissioner under the Privacy Act.

24.2 Privacy

(a) The Tenant agrees that the Landlord may use Personal Information provided to the Landlord by the Tenant.

(b) The Tenant must, at the Landlord's request, assist the Landlord to discharge its obligations under APP 1.5 by including a notice which satisfies the requirements of APP 1.3 at the time the Tenant provides Personal Information to the Landlord about other individuals, including the Tenant's employees or contractors.

25. Limitation of liability

25.1 Limitation

(a) In this clause 25:

(i) **Trustee** means **ESR Investment Nominees 3 (Australia) Pty Ltd ACN 146630 239**;

(ii) **Trust** means the **PHL N Orion Road Trust No 1 ABN 33 171 600 676**; and

(iii) **Trust Deed** means the trust deed *establishing* the Trust, as varied from time to time.

(b) Each party to this Lease other than the Trustee acknowledges that the Trustee enters into this Lease only in its capacity as trustee of the Trust and in no other capacity.

(c) Subject to Clause 25.1(e):

(i) a liability arising under or in connection with this Lease is limited to and can be enforced against the Trustee only to the extent to which it can be satisfied out of the property of the Trust. The limitation of the Trustee's liability applies despite any other provision of this Lease and extends to all liabilities and obligations of the Trustee in any way connected with any representation, warranty, conduct, omission, agreement, or transaction related to this Lease;

(ii) no party to this Lease may sue the Trustee in any capacity other than as trustee in respect of the Trust, including seeking the appointment to the Trustee of a receiver (except in relation to property of the Trust), a liquidator, administrator or any similar person or proving in any liquidation, administration or arrangement of or affecting the Trustee (except in relation to the Trust); and

(iii) each party to this Lease other than the Trustee waives its rights and releases the Trustee from any personal liability in respect of any loss which it may suffer as a consequence of a failure of the Trustee to perform its obligations under this Lease, which cannot be paid or satisfied out of any property held by the Trustee.

(d) The provisions of Clause 25.1(c) do not apply to any obligation or liability of the Trustee to the extent arising as a result of the Trustee's fraud, gross negligence or wilful default or where the Trustee's right of indemnity is otherwise reduced by operation of law.

(e) No act or omission of the Trustee (including any related failure to satisfy its obligations or breach of representations or warranty under this Lease) will be considered fraud, gross negligence or wilful default of the Trustee for the purposes of Clause 25.1(c) to the extent to which the act or omission was caused by any act of omission of any other person.

26. Not used

27. Environmental Sustainability

27.1 Environmental Sustainability Commitments

(a) The Landlord and the Tenant are each committed to managing and operating the Building to promote energy efficiency and minimise the environmental impact of the use and occupation of the Building.

(b) As part of their commitment in clause 27.1(a), the Landlord and the Tenant will cooperate with each other and act in good faith to:

(i) positively contribute to the working environment of the occupants of the Building, and

(ii) promote the efficient use of resources in the management and operation ofthe Building; and

(iii) improve and be accountable for energy efficiency in the Building wherever possible.

(c) In order to achieve the outcomes in clause 27.1(a), the Tenant will, wherever practicable and reasonable, cooperate with the Landlord's initiatives to reduce energy consumption, water and waste and increase recycling, having regard to the extent of any works required to do so, the cost of these works and the extent of interference to occupiers of the Building arising from any such works.

27.2 Effect of breach

A breach of this clause 25 by either party will not constitute a breach of this Lease.

Schedule 1 - Rules

The provisions of the Lease apply to these Rules.

1. The Tenant must not:

(a) smoke in the Premises or in any part of the Building or within 20 metres of any exit or entrance to the Premises or the Building;

(b) put up signs, notices, advertisements, blinds or awnings, antennae or receiving dishes or install vending or amusement machines without the Landlord's approval;

(c) hold auction, bankrupt or fire sales in the Premises;

(d) keep an animal or bird on the Premises;

(e) use a business name which includes words connecting the business name with the Building without the Landlord's approval;

(f) remove floor coverings from where they were originally laid in the Premises without the Landlord's approval;

(g) do anything to the floor coverings in the Premises which affects any guarantee in connection with them if the Landlord has given the Tenant a notice setting out the relevant terms of the guarantee;

(h) use any method of heating, cooling or lighting the Premises other than those provided or approved by the Landlord;

(i) use the escalators or passenger lifts to carry goods or equipment;

(j) operate a musical instrument, radio, television or other equipment that can be heard outside the Premises;

(k) throw anything out of any part of the Premises or the Building or down liftwells;

(l) move heavy or bulky objects through the Building without the Landlord's approval;

(m) obstruct or interfere with:

  (i) windows in the Premises except by internal blinds or curtains approved by the Landlord; or

  (ii) any air vents, air conditioning ducts or skylights in the Premises;

(n) interfere with directory boards provided by the Landlord; or

(o) park or permit or suffer any of the Tenant's Employees and Agents to park or leave any motor or other vehicle in any place in which the Landlord may from time to time prohibit parking; and

(p) store or permit any item to be left outside the Premises without the prior approval in writing of the Landlord.

2. The Tenant must:

(a) put up signs in the Premises prohibiting smoking if required by the Landlord;

(b) if the Landlord approves the Tenant's use of a business name which is connected with the Building, terminate any right it has to use that business name on the date it must vacate the Premises;

(c) secure the Premises when they are unoccupied and comply with the Landlord's directions about Building security;

(d) if there are directory boards, submit the form in which it requires its name and description to appear on them to the Landlord for its approval, make whatever changes the Landlord reasonably requires and pay the Landlord on demand the cost of placing that information on the directory boards;

(e) comply with any directions of the Landlord in connection with the disposal of or recycling of rubbish;

(f) use reasonable endeavours to support any sustainability initiatives of the Landlord;

(g) co-operate with and assist the Landlord by providing to the Landlord all information that the Landlord reasonably requests to enable the Landlord to:

  (i) prepare any report required by law or which the Landlord, in relation to a legal obligation, requires prepared; and

  (ii) provide any information required by law; and

(h) conduct and complete any environmental assessment for the Premises or the Building.

Signing Page

Executed as a deed

We certify this Lease to be correct for the purposes of the *Real Property Act 1900* (NSW).

Dated

LANDLORD

Executed by **ESR Investment Nominees 3 (Australia) Pty Ltd ACN 146 630 239** in accordance with section 127(1) of the *Corporations Act 2001*:

Signature of Director	Signature of Director/Secretary
Name of Director (Block Letters)	Name of Director/Secretary (Block Letters)

TENANT

Executed by **Netcomm Wireless Pty Ltd ACN 002 490 486** in accordance with section 127(1) of the *Corporations Act 2001*, in the presence of:

Signature of Director	Signature of Director/Secretary
Name of Director (Block Letters)	Name of Director/Secretary (Block Letters)

Exhibit 31.1

**CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Jerry Guo, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Casa Systems, 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 the 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.

Date: October 29, 2020

By: /s/ Jerry Guo
Jerry Guo
President, Chief Executive Officer and Chairman

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Scott Bruckner, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Casa Systems, 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 the 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.

Date: October 29, 2020

By: /s/ Scott Bruckner
Scott Bruckner
Chief Financial Officer

Exhibit 32.1

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 this Quarterly Report on Form 10-Q of Casa Systems, Inc. (the “Company”) for the period ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Jerry Guo, as President, Chief Executive Officer and Chairman of the Company, hereby certify, as of the date hereof, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge, the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

Date: October 29, 2020

By: /s/ Jerry Guo
Jerry Guo
President, Chief Executive Officer and Chairman

Exhibit 32.2

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 this Quarterly Report on Form 10-Q of Casa Systems, Inc. (the “Company”) for the period ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Scott Bruckner, as Chief Financial Officer of the Company, hereby certify, as of the date hereof, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge, the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated.

Date: October 29, 2020	By:	/s/ Scott Bruckner
		Scott Bruckner
		Chief Financial Officer