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

Form 10-Q

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

For the quarterly period ended March 31, 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 001-15751

eMAGIN CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**56-1764501**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

700 South Drive, Suite 201, Hopewell Junction, NY 12533
(Address of principal executive offices) (Zip Code)

(845) 838-7900
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $.001 Par Value Per Share	EMAN	NYSE American

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, 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	☐	Smaller Reporting Company	☑
Accelerated filer	☐	Emerging growth company	☐
Non-accelerated filer	☑		

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 April 30, 2020, there were 53,818,852 common shares at $0.001 par value per share of the registrant outstanding.

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STATEMENT REGARDING FORWARD-LOOKING INFORMATION

This Quarterly Report on Form 10-Q, or Report, contains forward-looking statements that are based on our management's belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "intends," "plans," "anticipates," "believes," "estimates," "predicts," "potential," "continue" or the negative of these terms or other comparable terminology. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which are, in some cases, beyond our control and which could materially affect our results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed in the section entitled "Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, and in this Report on Form 10-Q. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this Report and the documents that we reference in this Report and have filed with the Securities and Exchange Commission, or the SEC, as exhibits to this Report, completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

In particular, forward-looking statements in this Report include statements about:

- our ability to generate sufficient cash flows and obtain the additional financing we need in order to continue as a going concern;
- our ability to generate additional revenue or secure additional external financing when, or if, required, in order to continue our current operations;
- our ability to manufacture our products on a timely basis and at a competitive cost;
- our ability to successfully remediate manufacturing issues that have resulted in production delays and successfully integrate new equipment on our manufacturing line;
- our ability to achieve our yield improvement initiatives;
- our ability to meet our obligations as they become due over the next twelve months;
- our needs for additional financing, as well as our ability to obtain such additional financing on reasonable terms and the interest rate and expense we incur on any debt financing;
- our anticipated cash needs and our estimates regarding our capital requirements;
- our ability to maintain our relationships with customers and vendors;
- our ability to protect our intellectual property;
- our ability to successfully develop and market our products to customers;
- our ability to generate customer demand for our products in our target markets;
- the development of our target markets and market opportunities, including the consumer market;
- technological developments in our target markets and the development of alternate, competing technologies in them;
- the rate of acceptance of AR/VR systems and products in the consumer and commercial marketplace;
- our potential exposure to product liability claims;
- our ability to meet customers' delivery schedules;
- market pricing for our products and for competing products;
- the concentration of a significant ownership percentage in our Company in a relatively small number of stockholders and the ability of one or more of such stockholders to exert substantial control over our affairs;
- changes in demand by original equipment manufacturer ("OEM") customers for advanced microdisplays, limited availability of suppliers and foundries, high costs of raw materials, pricing pressure brought by the marketplace or governmental customers and other factors that impact the commercial, military and consumer markets in which we operate;
- increasing competition;
- provisions in certain of our organizational documents, commercial agreements and our military contracts that may prevent or delay an acquisition of, partnership with, or investment in, our Company and our ability to develop original equipment manufacturer and mass production partnerships;
- our ability to maintain our operations as a result of potential employee, customer and supplier disruptions caused by the Covid-19 pandemic; and
- our efforts to settle purchase commitments remaining from our consumer night vision business.

The forward-looking statements in this Report represent our views as of the date of this Report. We anticipate that subsequent events and developments may cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. Therefore, these forward-looking statements do not represent our views as of any date other than the date of this Report.

In this Report, references to “eMagin Corporation,” “eMagin,” “the Company,” “we,” “us,” and “our company” refer to eMagin Corporation and our wholly owned subsidiary, Virtual Vision, Inc. References to “Consumer Night Vision Business” refers to our consumer night vision products business.

eMagin® is a registered trademark of eMagin Corporation. dPd™ is an unregistered trademark of eMagin. All rights reserved. All other trademarks used in this Report are the property of their respective owners.

ITEM 1. Financial Statements

eMAGIN CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except share data)
(unaudited)

	March 31, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 3,138	$ 3,515
Accounts receivable, net	3,737	3,966
Unbilled accounts receivable	470	155
Inventories	8,821	8,832
Prepaid expenses and other current assets	1,344	1,130
Total current assets	17,510	17,598
Equipment, furniture and leasehold improvements, net	7,926	8,100
Operating lease right - of - use assets	3,545	3,729
Intangibles and other assets	133	160
Total assets	$ 29,114	$ 29,587
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,577	$ 1,302
Accrued compensation	1,566	1,778
Revolving credit facility, net	2,191	2,891
Common stock warrant liability	43	23
Other accrued expenses	1,485	1,401
Deferred revenue	294	277
Operating lease liability - current	791	775
Other current liabilities	351	342
Total current liabilities	8,298	8,789
Finance lease liability - long term	20	24
Operating lease liability - long term	2,863	3,067
Total liabilities	11,181	11,880
Commitments and contingencies		
Shareholders' equity:		
Preferred stock, $.001 par value: authorized 10,000,000 shares:		
Series B Convertible Preferred stock, (liquidation preference of $5,659) stated value $1,000 per share, $.001 par value: 10,000 shares designated and 5,659 issued and outstanding as of March 31, 2020 and December 31, 2019.	—	—
Common stock, $.001 par value: authorized 200,000,000 shares, issued 53,980,918 shares, outstanding 53,818,852 shares as of March 31, 2020 and issued 50,250,378 shares, outstanding 50,088,312 shares as of December 31, 2019.	54	50
Additional paid-in capital	260,358	258,767
Accumulated deficit	(241,979)	(240,610)
Treasury stock, 162,066 shares as of March 31, 2020 and December 31, 2019.	(500)	(500)
Total shareholders' equity	17,933	17,707
Total liabilities and shareholders' equity	$ 29,114	$ 29,587

See notes to Condensed Consolidated Financial Statements.

eMAGIN CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except share and per share data)
(unaudited)

	Three Months Ended March 31,	
	2020	**2019**
Revenues:		
Product	$ 5,634	$ 5,507
Contract	1,097	605
Total revenues, net	6,731	6,112
Cost of revenues:		
Product	4,790	4,426
Contract	507	350
Total cost of revenues	5,297	4,776
Gross profit	1,434	1,336
Operating expenses:		
Research and development	980	1,597
Selling, general and administrative	1,798	1,939
Total operating expenses	2,778	3,536
Loss from operations	(1,344)	(2,200)
Other income (expense):		
Change in fair value of common stock warrant liability	(20)	794
Interest expense, net	(17)	(33)
Other income, net	12	—
Total other (expense) income	(25)	761
Loss before provision for income taxes	(1,369)	(1,439)
Income taxes	—	—
Net loss	$ (1,369)	$ (1,439)
Loss per share, basic and diluted	$ (0.03)	$ (0.03)
Weighted average number of shares outstanding:		
Basic and Diluted	51,638,598	45,161,273

See notes to Condensed Consolidated Financial Statements.

eMAGIN CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF SHAREHOLDER'S EQUITY
(In thousands, except share data)
(unaudited)

	Preferred Shares	Preferred Stock	Common Shares	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Treasury Stock	Total Shareholders' Equity
Balance, December 31, 2019	**5,659**	**$ —**	**50,250,378**	**$ 50**	**$ 258,767**	**$ (240,610)**	**$ (500)**	**$ 17,707**
Stock based compensation	—	—	—	—	43	—	—	43
Public offering of common shares, net of offering costs	—	—	3,730,540	4	1,548	—	—	1,552
Net loss	—	—	—	—	—	(1,369)	—	(1,369)
Balance, March 31, 2020	**5,659**	**$ —**	**53,980,918**	**$ 54**	**$ 260,358**	**$ (241,979)**	**$ (500)**	**$ 17,933**

	Preferred Shares	Preferred Stock	Common Shares	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Treasury Stock	Total Shareholders' Equity
Balance, December 31, 2018	**5,659**	**$ —**	**45,323,339**	**$ 45**	**$ 254,736**	**$ (236,312)**	**$ (500)**	**$ 17,969**
Stock based compensation	—	—	—	—	193	—	—	193
Net loss	—	—	—	—	—	(1,439)	—	(1,439)
Balance, March 31, 2019	**5,659**	**$ —**	**45,323,339**	**$ 45**	**$ 254,929**	**$ (237,751)**	**$ (500)**	**$ 16,723**

See notes to Condensed Consolidated Financial Statements

eMAGIN CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(unaudited)

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Cash flows from operating activities:		
Net loss	$ (1,369)	$ (1,439)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	482	510
Change in fair value of common stock warrant liability	20	(794)
Stock-based compensation	43	193
Amortization of operating lease right-of-use assets	184	155
Changes in operating assets and liabilities:		
Accounts receivable	229	(510)
Unbilled accounts receivable	(315)	155
Inventories	11	(245)
Prepaid expenses and other current assets	(214)	29
Deferred revenues	17	57
Operating lease liabilities	(192)	(159)
Accounts payable, accrued expenses, and other current liabilities	181	(263)
Net cash used in operating activities	(923)	(2,311)
Cash flows from investing activities:		
Purchase of equipment	(306)	(188)
Net cash used in investing activities	(306)	(188)
Cash flows from financing activities:		
Borrowings (repayments) under revolving line of credit, net	(700)	2,597
Proceeds from public offering, net	1,552	—
Net cash provided by financing activities	852	2,597
Net (decrease) increase in cash and cash equivalents	(377)	98
Cash and cash equivalents, beginning of period	3,515	3,359
Cash and cash equivalents, end of period	$ 3,138	$ 3,457
Cash paid for interest	$ 22	$ 32
Cash paid for income taxes	$ —	$ —

See notes to Condensed Consolidated Financial Statements.

Note 1 – Description of the Business and Summary of Significant Accounting Policies

The Business

eMagin Corporation (the "Company") designs, develops, manufactures and markets OLED (organic light emitting diode)–on-silicon microdisplays and virtual imaging products which utilize OLED microdisplays. The Company's products are sold mainly in North America, Asia, and Europe.

Basis of Presentation

In the opinion of management, the accompanying unaudited interim condensed consolidated financial statements of eMagin Corporation and its subsidiary reflect all adjustments, including normal recurring accruals, necessary for a fair presentation. All significant intercompany balances and transactions have been eliminated in consolidation. Certain information and footnote disclosure normally included in annual financial statements prepared in accordance with accounting principles generally accepted in the United States of America have been condensed or omitted pursuant to instructions, rules and regulations prescribed by the SEC. The Company believes that the disclosures provided herein are adequate to make the information presented not misleading when these unaudited consolidated financial statements are read in conjunction with the audited consolidated financial statements contained in the Company's Annual Report on Form 10-K for the year ended December 31, 2019. The results of operations for the periods ended March 31, 2020 are not necessarily indicative of the results to be expected for the full year. The consolidated financial statements as of December 31, 2019 are derived from audited financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

Use of estimates

In accordance with accounting principles generally accepted in the United States of America ("GAAP"), management utilizes certain estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments related to, among others, allowance for doubtful accounts, warranty reserves, inventory reserves, stock-based compensation expense, deferred tax asset valuation allowances, litigation and other loss contingencies. Management bases its estimates and judgments on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from those estimates.

Intangible Assets – Patents

Acquired patents are recorded at purchase price as of the date acquired and amortized over the expected useful life which is generally the remaining life of the patent.

The total intangible amortization expense was $2.0 thousand and $9.0 thousand for the three months ended March 31, 2020 and 2019 respectively.

Product warranty

The Company generally offers a one-year product replacement warranty. The standard policy is to repair or replace the defective products. The Company accrues for estimated returns of defective products at the time revenue is recognized based on historical activity as well as for specific known product issues. The determination of these accruals requires the Company to make estimates of the frequency and extent of warranty activity and estimate future costs to replace the products under warranty. If the actual warranty activity and/or repair and replacement costs differ significantly from these estimates, adjustments to cost of revenue may be required in future periods.

The following table provides a summary of the activity related to the Company's warranty liability included in other current liabilities, (in thousands):

	Three Months Ended March 31,	
	2020	2019
Beginning balance	$ 300	$ 423
Warranty accruals and adjustments	38	(78)
Warranty claims	(7)	(24)
Ending balance	$ 331	$ 321

Net Loss per Common Share

Basic loss per share is computed using the weighted average number of common shares outstanding during the period, and excludes any dilutive effects of common stock equivalent shares such as stock options, warrants, and convertible preferred stock. Diluted loss per share is computed using the weighted average number of common shares outstanding and potentially dilutive common stock equivalent shares outstanding during the period. Common stock equivalent shares are excluded from the computation if their effect is anti-dilutive.

The Company's Series B Convertible Preferred stock ("Preferred Stock – Series B") is considered a participating security as the preferred stock participates in dividends with the common stock, which requires the use of the two-class method when computing basic and diluted earnings per share. The Preferred Stock – Series B is not required to absorb any net loss. Although the Company paid a one-time special dividend in 2012, the Company does not expect to pay dividends on its common or preferred stock in the near future.

For the three months ended March 31, 2020 and 2019, the Company reported a net loss and as a result, basic and diluted loss per common share are the same. Therefore, in calculating net loss per share amounts, shares underlying the potentially dilutive common stock equivalents were excluded from the calculation of diluted net income per common share because their effect was anti-dilutive.

The following table sets forth the potentially dilutive common stock equivalents for the three months ended March 31, 2020 and 2019 that were not included in diluted EPS as their effect would be anti-dilutive:

	Three Months Ended March 31,	
	2020	2019
Options	5,183,360	5,160,445
Warrants	19,295,773	9,055,773
Convertible preferred stock	7,545,333	7,545,333
Total potentially dilutive common stock equivalents	32,024,466	21,761,551

Fair Value of Financial Instruments

Cash, cash equivalents, accounts receivable, short-term investments and accounts payable are stated at cost, which approximates fair value, due to the short-term nature of these instruments. The asset based lending facility (the "ABL Facility") is also stated at cost, which approximates fair value because the interest rate is based on a market based rate plus a margin.

We have categorized our assets and liabilities that are valued at fair value on a recurring basis into a three-level fair value hierarchy in accordance with GAAP. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets and liabilities (Level 1) and lowest priority to unobservable inputs (Level 3).

Assets and liabilities recorded in the balance sheets at fair value are categorized based on a hierarchy of inputs as follows:

Level 1 – Unadjusted quoted prices in active markets of identical assets or liabilities.
Level 2 – Quoted prices for similar assets or liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument.
Level 3 – Unobservable inputs for the asset or liability.

The common stock warrant liability is currently the only financial asset or liability recorded at fair value on a recurring basis, and is considered a Level 3 liability. The fair value of the common stock warrant liability is included in current liabilities on the Condensed Consolidated Balance Sheets, as the warrants are currently exercisable.

The following table shows the reconciliation of the Level 3 warrant liability measured and recorded at fair value on a recurring basis, using significant unobservable inputs (in thousands):

	Estimated Fair Value	
Balance as of January 1, 2020	$	23
Fair value of warrants issuance during period		-
Change in fair value of warrant liability, net		20
Balance as of March 31, 2020	$	43

The fair value of the liability for common stock purchase warrants at issuance and at March 31, 2020 was estimated using the Black Scholes option pricing model based on the market value of the underlying common stock at the measurement date. The remaining contractual term of the warrants ranging from 2.2 to 2.8 years, at risk-free interest rates of 0.5%, with no expected dividends, and expected volatility of the price of the underlying common stock of 73.1%.

Concentrations

The Company purchases principally all of its silicon wafers, which are a key ingredient in its OLED production process, from two suppliers located in Taiwan and Korea.

For the three months ended March 31, 2020, three customers accounted for 19.5%, 14.9%, and 10.2% of net revenues, respectively. For the three months ended March 31, 2019, one customer accounted for 11.0% of net revenues. As of March 31, 2020, three customers accounted for 34.2%, 16.1%, and 10.2% of the Company's consolidated accounts receivable balance.

Liquidity and Going Concern

The accompanying consolidated financial statements have been prepared on a going concern basis, which assumes that the Company will continue to operate as a going concern and which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. For the three months ended March 31, 2020, the Company incurred a net loss of $1.4 million and used cash in operating activities of $0.9 million. As of March 31, 2020, the Company had $3.1 million of cash, $2.2 million of outstanding indebtedness and borrowing availability of $0.9 million under its ABL Facility. For the three months ended March 31, 2020, the Company raised $1.6 million, net of offering expenses, through the sale of shares under its At The Market ("ATM") facility entered into in November 2019. For the year ended December 31, 2019, the Company incurred a net loss of $4.3 million and used cash in operating activities of $5.1 million.

The COVID-19 pandemic has significantly increased economic and demand uncertainty. It is likely that the current outbreak and continued spread of COVID-19 will cause the economic slowdown to continue, and it is possible that it could cause a global recession. There is a significant degree of uncertainty and lack of visibility as to the extent and duration of the current slowdown or any recession. If either were prolonged, demand for the Company's products will be significantly harmed. The Company is currently seeing delays in product shipments and is expecting slowing economic conditions to adversely affect its business in the second half of 2020. Given the significant economic uncertainty and volatility created by the pandemic, it is difficult to predict the nature and extent of the impact on demand for the Company's products. These expectations are subject to change without warning and investors are cautioned not to place undue reliance on them. Unanticipated consequences of the pandemic and resulting economic uncertainty could adversely affect the Company's liquidity and capital resources in the future as well as its ability to continue as a going concern.

Due to continuing losses, the Company's financial position, the COVID-19 pandemic, and uncertainty regarding the Company's ability to borrow under its ABL Facility, or continue to raise funds under its ATM facility, the Company may not be able to meet its financial obligations as they become due without additional financing or sources of capital. Management is prepared to reduce expenses and raise additional capital, but there can be no assurance that the Company will be successful in sufficiently reducing expenses or raising capital to meet its operating needs.

The Company's ABL Facility expires on December 31, 2020, and renews automatically for another year unless terminated pursuant to its terms. Although preliminary renewal discussions with the lender are positive there is no assurance the lender will renew or extend this facility, or continue to make funds available during 2020 and beyond at present availability levels, or at all. Therefore, in accordance with applicable accounting guidance, and based on the Company's current financial condition and availability of funds, there is substantial doubt about the Company's ability to continue as a going concern through twelve months from the date these financial statements were issued.

The Company has taken actions to increase revenues and to reduce expenses and is considering financing alternatives. In addition, the Company has entered into its ATM Facility. There can be no assurance, however, that the Company will be successful in sufficiently increasing revenues, mitigating the impacts of COVID-19, reducing expenses or securing additional financing to meet its operating needs. The Company's plans with regard to these matters include the following actions: 1) focus production and engineering resources on improving manufacturing yields and increasing production volumes, 2) continuing a Work Status Reduction program that began in October 2019 wherein senior management work status was reduced by approximately 20%, 3) reduce headcount and not replace departed employees, 4) reduce discretionary and other expenses, and 5) considering financing and/or strategic alternatives.

Based on the Company's current projections, operational and yield improvements, and the anticipated availability of the ABL Facility, the Company estimates it will have sufficient liquidity to fund operations through the end of the first quarter of 2021. However, there can be no assurance the Company's plans will be achieved, or that the Company will be able to continue to borrow under its ABL Facility, continue to raise funds under its ATM facility, secure additional financing, and/or pursue strategic alternatives on terms acceptable to the Company, or at all. The Company's common stock is listed on the NYSE American, and it is subject to its continued listing requirements, including maintaining certain share prices and a minimum amount of shareholder's equity. If the Company is unable to comply with the NYSE American continued listing requirements, including its trading price requirements, our common stock may be suspended from trading on and/or delisted from the NYSE American.

Recently adopted accounting pronouncements

The Company's accounting policies are the same as those described in Note 1 to the Company's consolidated financial statements in its Annual Report on Form 10-K for the year ended December 31, 2019.

In August 2018, the FASB issued ASU No. 2018-13, Fair Value Measurement (Topic 820) a guidance that adds, amends, and removes certain disclosure requirements related to fair value measurements. Among other changes, this standard requires certain additional disclosure surrounding Level 3 assets, including changes in unrealized gains or losses in other comprehensive income and certain inputs in those measurements. This new guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. The Company adopted the guidance on January 1, 2020, on a prospective basis and such adoption did not have a material impact on our financial statements.

Recently issued accounting pronouncements

In December 2019, the FASB issued ASU 2019-12, Income Taxes (Topic 740) as part of its initiative to reduce complexity in accounting standards. This standard simplify the accounting for income taxes. This new guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. This standard may be adopted early, while certain additional disclosure requirements in this standard can be adopted on its effective date. In addition, certain changes in the standard require retrospective adoption, while other changes must be adopted prospectively. The Company does not expect the adoption of this ASU to have a significant impact on the consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses (Topic 326) and subsequently issued amendments. The guidance affects the Company's accounts receivable, and it requires the measurement of expected credit losses to be based on relevant information from past events, including historical experiences, current conditions and reasonable and supportable forecasts that affect collectability. This new guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2022. Based on the composition of the Company's receivables, current market conditions and historical credit loss activity, the Company does not expect the adoption of this ASU to have a significant impact on the consolidated financial statements.

Note 2 – Revenue Recognition

All of the Company's revenues are earned from contracts with customers and are classified as either Product or Contract revenues. Contracts include R&D activities performed pursuant to written agreements and purchase orders, as well as arrangements that are implied by customary practices or law.

Product revenue is generated primarily from contracts to produce, ship and deliver OLED microdisplays. eMagin's performance obligations are satisfied, control of our products is transferred, and revenue is recognized at a single point in time when control transfers to our customer for product shipped. Our customary terms are FOB our factory and control is deemed to transfer upon shipment. The Company has elected to treat shipping and other transportation costs charged to customers as fulfillment activities and are recorded in both revenue and cost of sales at the time control is transferred to the customer. As customers are invoiced at the time control transfers and the right to consideration is unconditional at that time, the Company does not maintain contract asset balances for product revenue. Additionally, the Company does not maintain contract liability balances for product revenues, as performance obligations are satisfied prior to customer payment for product. The Company generally offers a one-year product warranty, for replacement of product only, and does not allow returns. The Company offers industry standard payment terms that typically require payment from our customers from 30 to 60 days after title transfers.

The Company also recognizes revenues under the over time method from certain research and development ("R&D") activities (contract revenues) under both firm fixed-price contracts and cost-type contracts. Progress and revenues from research and development activities relating to firm fixed-price contracts and cost-type contracts are generally recognized on an input method of accounting as costs are incurred. Under the input method, revenue is recognized based on efforts expended to date (e.g., the costs of resources consumed or labor hours worked, or machine hours used) relative to total efforts intended to be expended. Contract costs include all direct material, labor and subcontractor costs and an allocation of allowable indirect costs as defined by each contract, as periodically adjusted to reflect revised agreed upon rates. These rates are subject to audit by the other party. Any changes in estimate related to contract accounting are accounted for prospectively over the remaining life of the contract. Under the over time method, billings may not correlate directly to the revenue recognized. Based upon the terms of the specific contract, billings may be in excess of the revenue recognized, in which case the amounts are included in deferred revenues as a liability on the Condensed Consolidated Balance Sheets. Likewise, revenue recognized may exceed customer billings in which case the amounts are reported as unbilled receivables. Unbilled revenues are expected to be billed and collected within one year. The incidental costs related to obtaining product sales contracts are non-recoverable from customers and, accordingly, are expensed as incurred.

Disaggregation of Revenue

The Company sells products directly to military contractors and OEM's and they use our displays in a diverse range of applications encompassing the military and commercial, including medical and industrial, market sectors. Revenues are classified as either military, commercial, consumer or multiple based on management's knowledge of the customer's products and markets served by displays or the R&D contract work. Revenues classified as multiple are for sales to customers that incorporate the Company's displays in products that could be used for either military or commercial applications. R&D activities are performed for both military customers and U.S. Government defense related agencies and consumer companies. Product and contract revenues are disclosed on the Consolidated Statements of Operations.

Additional disaggregated revenue information for three months ended March 31, 2020 and 2019 were as follows (in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
North and South America	$ 3,540	$ 3,398
Europe, Middle East, and Africa	2,701	2,327
Asia Pacific	490	387
Total	$ 6,731	$ 6,112

	Three Months Ended March 31,	
	2020	2019
Military	$ 4,799	$ 4,447
Commercial, including industrial and medical	313	336
Consumer	688	422
Multiple	931	907
	$ 6,731	$ 6,112

Accounts Receivable from Customers

Accounts receivable, net of allowances, associated with revenue from customers were approximately $3.7 million and $4.0 million for the three months ended March 31, 2020 and December 31, 2019, respectively.

Contract Assets and Liabilities

Unbilled Accounts Receivables (Contract Assets) - Pursuant to the over time revenue recognition model, revenue may be recognized prior to the customer being invoiced. An unbilled accounts receivable is recorded to reflect revenue that is recognized when the cost based input method is applied and such revenue exceeds the amount invoiced to the customer. Unbilled receivables are disclosed on the Condensed Consolidated Balance Sheet.

Customer Advances and Deposits (Contract Liabilities) - The Company recognizes a contract liability when it has billed and received consideration from the customer pursuant to the terms of a contract but has not yet recognized the related revenue. These billings in excess of revenue are classified as deferred revenue on the Condensed Consolidated Statements of Operations.

Total contract assets and liabilities consisted of the following amounts (in thousands):

	March 31, 2020	December 31, 2019
Unbilled Receivables (contract assets)	$ 470	$ 155
Deferred Revenue (contract liabilities)	$ (294)	$ (277)

For the three months ended March 31, 2020 and 2019 the Company recognized $30 thousand and $38 thousand of revenue related to its contract liabilities that existed at December 31, 2019 and 2018, respectively.

Remaining Performance Obligations

The Company has elected the practical expedient, which allows disclosure of remaining performance obligations only for contracts with an original duration of greater than one year. Such remaining performance obligations primarily relate to engineering and design services. For the three months ended March 31, 2020, the aggregate amount of the transaction price allocated to remaining performance obligations was $1.0 million. The Company expects to recognize revenue on all of its remaining performance obligations over the next 12 months.

Note 3 – Accounts Receivable, net

The majority of the Company's commercial accounts receivable are due from OEM's. Credit is extended based on an evaluation of a customer's financial condition and, generally, collateral is not required.

Accounts receivable consisted of the following (in thousands):

	March 31, 2020	December 31, 2019
Accounts receivable	$ 3,876	$ 4,105
Less allowance for doubtful accounts	(139)	(139)
Accounts receivable, net	$ 3,737	$ 3,966

Note 4 – Inventories, net

The components of inventories are as follows (in thousands):

	March 31, 2020	December 31, 2019
Raw materials	$ 2,707	$ 2,788
Work in process	1,986	1,561
Finished goods	5,038	5,248
Total inventories	9,731	9,597
Less inventory reserve	(910)	(765)
Total inventories, net	$ 8,821	$ 8,832

Note 5 – Line of Credit

(in thousands)	March 31, 2020	December 31, 2019
Revolving credit facility	$ 2,191	$ 2,891

On December 21, 2016, the Company entered into the ABL Facility with a lender that provides for up to a maximum amount of $5 million based on a borrowing base equivalent to 85% of eligible accounts receivable plus the lesser of $2 million or 50% of eligible inventory. The interest on the ABL Facility is equal to the Prime Rate plus 3% but may not be less than 6.5% with a minimum monthly interest payment of $2 thousand. The Company is also obligated to pay the lender a monthly administrative fee of $1 thousand and an annual facility fee equal to 1% of the maximum amount borrowable under the facility.

The ABL Facility will automatically renew on December 31, 2020 for a one-year term unless written notice to terminate the agreement is provided by either party.

The ABL Facility is secured by a lien on all receivables, property and the proceeds thereof, credit insurance policies and other insurance relating to the collateral, books, records and other general intangibles, inventory and equipment, proceeds of the collateral and accounts, instruments, chattel paper, and documents. Collections received on accounts receivable are directly used to pay down the outstanding borrowings on the credit facility.

The ABL Facility contains customary representations and warranties, affirmative and negative covenants and events of default. The Company is required to maintain a minimum tangible net worth of $13 million and a minimum working capital balance of $4 million at all times. For the three months ended March 31, 2020, the Company had $2.2 million in borrowings outstanding, had unused borrowing availability of $0.9 million and was in compliance with all financial debt covenants.

Note 6 – Stock Compensation

The Company uses the fair value method of accounting for share-based compensation arrangements. The fair value of stock options is estimated at the date of grant using the Black-Scholes option valuation model. Stock-based compensation expense is reduced for estimated forfeitures and is amortized over the vesting period using the straight-line method.

The following table summarizes the allocation of non-cash stock-based compensation to our expense categories for the three months ended March 31, 2020 and 2019 (in thousands):

	Three Months Ended March 31,	
	2020	2019
Cost of revenues	$ 6	$ 8
Research and development	17	24
Selling, general and administrative	20	161
Total stock compensation expense	$ 43	$ 193

At March 31, 2020, total unrecognized compensation costs related to stock options was approximately $0.2 million, net of estimated forfeitures. Total unrecognized compensation cost will be adjusted for future changes in estimated forfeitures and is expected to be recognized over a weighted average period of approximately 0.4 years.

The following key assumptions were used in the Black-Scholes option pricing model to determine the fair value of stock options granted:

	Three Months Ended March 31,	
	2020	2019
Dividend yield	0 %	0 %
Risk free interest rates	2.48 %	2.48 %
Expected volatility	41.7 to 49.2 %	41.7 to 49.2 %
Expected term (in years)	3.5 to 4.8	3.5 to 4.8

The Company does not expect to pay dividends in the near future. Therefore, the Company used an expected dividend yield of 0%. The risk-free interest rate used in the Black-Scholes option pricing model is based on applicable yield available at the date of the option grant on U.S. Treasury securities with an equivalent term. Expected volatility is based on the weighted average historical volatility of the Company's common stock for the equivalent term. The expected term of the options represents the period that the Company's stock-based awards are expected to be outstanding and was determined based on historical experience and vesting schedules of similar awards.

A summary of the Company's stock option activity for three months ended March 31, 2020 is presented in the following table (unaudited):

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (In Years)	Aggregate Intrinsic Value
Outstanding at December 31, 2019	5,404,985	$ 2.40		
Options granted	—	—		
Options exercised	—	—		
Options forfeited	—	—		
Options cancelled or expired	(221,625)	3.46		
Outstanding at March 31, 2020	5,183,360	$ 2.40	3.27	$ —
Vested or expected to vest at March 31, 2020 (1)	5,180,131	$ 2.40	3.27	$ —
Exercisable at March 31, 2020	5,021,954	$ 2.40	3.27	$ —

(1) The expected to vest options are the result of applying the pre-vesting forfeiture rate assumptions to total unvested options.

The aggregate intrinsic value in the table above represents the difference between the exercise price of the underlying options and the quoted price of the Company's common stock. The aggregate intrinsic value of options exercised was zero for the three months ended March 31, 2020. The Company issues new shares of common stock upon exercise of stock options.

Note 7 – Income Taxes

The Company's effective tax rate is calculated quarterly based upon current assumptions relating to the full year's estimated operating results and various tax-related items. The Company's effective tax rate was 0% for the three months ended March 31, 2020 and 2019. The difference between the effective tax rate of 0% and the U.S. federal statutory rate of 21% for the three months ended March 31, 2020 and 2019 was primarily due to recognizing a full valuation allowance on deferred tax assets.

The Company determined that, based on all available evidence, both positive and negative, including the Company's latest forecasts and cumulative losses in recent years, it was more likely than not that none of its deferred tax assets would be realized and therefore it continued to record a full valuation allowance as of March 31, 2020.

The Company's net operating loss carry-forward amounts expire through 2037 and are subject to certain limitations that may occur due to a change in the ownership provisions under Section 382 of the Internal Revenue Code and similar state provisions.

Due to the Company's operating loss carry-forwards, all tax years remain open to examination by the major taxing jurisdictions to which the Company is subject. In the event that the Company is assessed interest or penalties at some point in the future, it will be classified in the financial statements as tax expense.

On March 27, 2020, the President of the United States signed the Coronavirus Aid Relief and Economic Security Act ("CARES Act"). The CARES Act provides several provisions that effect businesses from an income tax perspective. Due to the history of the tax losses, most of the CARES Act provisions have no current benefit to the Company. The Company can, however, benefit from one provision which allows for the immediate refund of the Alternative Minimum Tax Credit ("AMT Credit"). The Company has filed an amendment to claim the AMT Credit and is anticipating a refund of $212 thousand. This tax receivable was recorded during 2017, in Prepaid Expenses and Other Current Assets on the condensed consolidated balance sheet as of March 31, 2020.

Note 8 – Commitments and Contingencies

Equipment Purchase Commitments

The Company has committed to equipment purchases of approximately $0.2 million at March 31, 2020.

Litigation

From time to time, the Company may become subject to various legal proceedings that are incidental to the ordinary conduct of is business. In March 2019, the Company received a demand letter seeking payment of $0.9 million of outstanding invoices relating to purchased inventory from Suga Electronics Limited, ("Suga"), a contract manufacturer located in China, which manufactured product sold by our consumer night vision business. The Company has responded to the demand letter, and requested that Suga provide substantiation of purchased inventory. On August 1, 2019 the Company was notified by Suga that they intend to pursue arbitration. During September and October, 2019, Company held preliminary discussions with Suga to attempt to reach a settlement, however in November 2019 the Company received a formal request for arbitration which Suga filed with the International Chamber of Commerce ("ICC"). The Company retained local counsel in Hong Kong to represent it before the ICC and in December 2019 filed an answer to Suga's request for arbitration including a counterclaim seeking repayment of amounts previously paid to Suga. An arbitrator has been appointed and arbitral proceedings for the consideration of the claims and counterclaims are expected to run through the first quarter of 2021. The parties are permitted to settle at any point during the arbitration proceedings.

As disclosed in the financial statements of our Annual Report on Form 10-K for the year ended December 31, 2018, during the quarter ended June 30, 2018, the Company made a decision to exit the Consumer Night Vision Business and accrued approximately $1.0 million related to invoices received for inventory purchased by Suga in anticipation of future production. While the Company believes that it has adequately accrued for the losses and is in discussions to resolve related claims by the contract manufacturers, there is the risk that additional losses or litigation related expenses may be incurred above the amounts accrued for as of March 31, 2020 if the Company fails to resolve these claims in a timely and/or favorable manner.

Note 9 – Warrants

The Company accounts for common stock warrants pursuant to applicable accounting guidance contained in ASC 815, "Derivatives and Hedging - Contracts in Entity's Own Equity" and makes a determination as to their treatment as either equity instruments or a warrant liability based on an analysis of the underlying warrant agreements.

	Issued	Outstanding	Exercise Price	Expire
2015 Warrant Issuance	383,500	383,500	2.05	Jun 2021
2016 Warrant Issuance	2,947,949	2,947,949	2.60	Feb 2022
2017 Warrant Issuance (1)(2)	100,000	100,000	2.25	Mar 2022
2017 Warrant Issuance (1)	1,650,000	1,650,000	2.45	Nov 2022
2018 Warrant Issuance (1)	4,004,324	3,974,324	1.55	Jul 2023
2019 Warrant Issuance	240,000	240,000	0.55	Apr 2024
2019 Warrant Issuance (3)	4,000,000	4,000,000	0.49	Oct 2024
2019 Warrant Issuance (4)	6,000,000	6,000,000	0.78	Oct 2024
		19,295,773		

(1) Warrants are subject to liability accounting.
(2) Issued in conjunction with an unsecured line of credit as described in Note 9: Debt / Line of Credit.
(3) Immediately exercisable pre-funded warrants at an exercise price of $0.01 per share.
(4) Private Placement unregistered warrants exercisable six months following issuance.

Equity classified warrants

The 2015, 2016, and 2019 warrants share similar terms, and the exercise price of the Warrant Shares are subject to adjustment in the event of any stock dividends and splits, reverse stock splits, stock dividends, recapitalizations, reorganizations or similar transactions. The Warrants will be exercisable on a “cashless” basis in certain circumstances, including in the event a registration statement is not in effect at time of exercise. The warrant agreements contain a clause specifying that in the event there is no effective registration in effect for the underlying warrant shares to be issued at time of exercise, in no circumstance will the Company be required to net cash settle the warrants.

Based on the Company’s analysis of the terms and conditions of the warrants, the Company has concluded that they meet the conditions outlined in applicable accounting guidance to be classified as equity instruments. As a result, the Company has accounted for the exercise price paid by investors for purchase of the pre-funded warrants as additional paid in capital on the accompanying Balance Sheets.

Liability classified warrants

The 2017 and 2018 warrants have alternative settlement provisions that, at the option of the holder, provide for physical settlement or if, at the time of settlement there is no effective registration statement, a cashless exercise as defined in the warrant agreement.

Based on analysis of the underlying warrant agreement and applicable accounting guidance, the Company concluded that these registered warrants require the issuance of registered securities upon exercise and do not sufficiently preclude an implied right to net cash settlement. Accordingly, these warrants were classified in the accompanying Consolidated Balance Sheet as a current liability upon issuance and will be revalued at each subsequent balance sheet date.

The fair value of the liability for common stock purchase warrants is estimated using the Black Scholes option pricing model based on the market value of the underlying common stock at the measurement date, the contractual term of the warrant, risk-free interest rates, expected dividends and expected volatility of the price of the underlying common stock.

Based on the Black Sholes method the fair value of the Company's warrants are as follows (in thousands):

	March 31, 2020	December 31, 2019
2018 January and February Issuance		
Fair Value	$ 39	$ 22
2017 May issuance		
Fair Value	4	1
	$ 43	$ 23

	Three Months Ended March 31, (in thousands)	
Change in Fair Value of common stock warrant liability [1]	$ (20)	$ 794

(1) The combined changes in fair value is reflected as income from change in the fair market value of common stock warrant liability.

Note 10 – Leases

The Company leases office and manufacturing facilities in Hopewell Junction, NY under a non-cancelable operating lease agreement. The lease for these facilities, as amended, expires in May 2024 and does not contain a renewal option. The lease agreement does not contain any residual value guarantees, or material restrictive covenants.

The Company also leases an office facility for its design group in Santa Clara, California. During the fourth quarter of 2019, the Company signed a two-year extension of this lease that expires on October 31, 2021. The lease agreement does not contain any residual value guarantees or material restrictive covenants.

The Company's operating leases generally do not provide an implicit rate, and therefore the Company uses its incremental borrowing rate as the discount rate when measuring operating lease liabilities. The incremental borrowing rate represents an estimate of the interest rate the Company would incur at lease commencement to borrow an amount equal to the lease payments on a collateralized basis over the term of a lease within a particular currency environment. The Company used incremental borrowing rates as of January 1, 2019 for operating leases that commenced prior to that date.

The components of lease expense were as follows (in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Finance Lease Cost:		
Amortization of right-of-use assets	$ 4	$ -
Interest on lease liabilities	1	-
Operating lease cost	246	246
Short-term lease cost	15	14
Total Lease Cost	**$ 266**	**$ 260**
<u>**Other Information**</u>		
Cash paid for amounts included in the measurement lease liabilities:		
Operating cash flows from operating leases	$ 266	$ 250
Financing cash flows from finance leases	$ 5	$ -
Right-of-use assets obtained in exchange for new finance lease liabilities	$ -	$ -
Right-of-use assets obtained in exchange for new operating lease liabilities	$ -	$ -

	March 31, 2020	December 31, 2019
Finance lease right-of-use assets	$ 36	$ 40
Operating lease right-of-use assets	$ 3,545	$ 3,729
Finance lease liability, current	$ 16	$ 16
Finance lease liability, non-current	$ 20	$ 24
Operating lease liabilities, current	$ 791	$ 775
Operating lease liabilities, non-current	$ 2,863	$ 3,067
Weighted average remaining lease terms - finance leases	2.08 years	2.33 years
Weighted average remaining lease terms - operating leases	4.17 years	4.42 years
Weighted average discount rate - finance leases	10.91%	10.91%
Weighted average discount rate - operating leases	8.48%	8.48%

Future annual minimum lease payments and finance lease commitments as of March 31, 2020 were as follows (in thousands):

	Operating Leases	Finance Leases
2020 (excluding the three months ended March 31, 2020)	$ 798	$ 15
2021	1,054	20
2022	1,014	6
2023	1,022	-
2024	426	-
Total undiscounted future minimum lease payments	4,314	41
Less imputed interest	660	5
Lease liability	**$ 3,654**	**$ 36**

Note 11 – Shareholders' Equity

Equity Raises

On February 13, 2020, the Company entered into an amendment to its ATM facility, dated November 22, 2019, with H. C. Wainwright & Co., LLC ("Wainwright"). The amendment modifies the agreement to increase the aggregate offering price up to $2.5 million related to shares that the Company may offer and sell through Wainwright from time to time. The Company intends to use the net proceeds from sales made under the ATM offering for working capital and other general corporate purposes. During the quarter ended March 31, 2020 the Company raised $1.6 million, net of offering expenses, through the sale of shares under the ATM facility.

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

The following discussion should be read in conjunction with our financial statements and notes thereto. Our fiscal year ends December 31. This Report contains certain forward-looking statements including, among others, anticipated trends in our financial condition and results of operations and our business strategy. These forward-looking statements are based largely on our current expectations and are subject to a number of risks and uncertainties. Please see "Statement Regarding Forward-Looking Information" and Part II, Item 1A, "Risk Factors". Actual results could differ materially from these forward-looking statements. Important factors to consider in evaluating such forward-looking statements include changes in external factors or in our internal budgeting process which might impact trends in our results of operations, unanticipated working capital or other cash requirements, changes in our business strategy or an inability to execute our strategy due to unanticipated changes in the industries in which we operate, and various competitive market factors that may prevent us from competing successfully in the marketplace. Forward-looking statements do not represent our views as of any date other than the date of this Report.

Business

We design, develop, manufacture and market organic light emitting diode, or OLED miniature displays, which we refer to as OLED-on silicon microdisplays, virtual imaging products that utilize OLED microdisplays, and related products. We also perform research in the OLED field. Our virtual imaging products integrate OLED technology with silicon chips to produce high-resolution microdisplays which, when viewed through a magnifying headset, create virtual images that appear comparable in size to that of a computer monitor or a large-screen television. Our products enable our original equipment manufacturer, or OEM, customers in the military and commercial markets to develop and market improved or new electronic products.

We believe that our OLED microdisplays offer a number of significant advantages over comparable liquid crystal microdisplays, including higher contrast, greater power efficiency, less weight, more compact size, and negligible image smearing. Using our active matrix OLED technology, many computer and electronic system functions can be built directly into the OLED microdisplays silicon backplane, resulting in compact, high resolution and power efficient systems. Already proven in military and commercial systems, our product portfolio of OLED microdisplays deliver high-resolution, virtual images that perform effectively even in extreme temperatures and high-vibration conditions.

We have been deemed to be an essential business in New York State and have continued to produce and ship products during the COVID-19 pandemic. We have implemented employee health and safety measures per Centers for Disease Control and Prevention, or CDC, guidelines and continued to supply products to our customers as well as maintain continuity in our supply chain and expect to continue our operations throughout the duration of the pandemic and beyond. To date we have experienced disruptions in supply, had two employees test positive for the COVID-19 virus and had to close our facilities for cleaning purposes. There is no assurance that our operations will not be disrupted in the future by additional impacts of the COVID-19 virus on either our internal operations or those of our suppliers or customers. In addition, please review the various risk factors relating to the COVID-19 pandemic discussed in Part II, Item 1A of this Report.

During the fourth quarter of 2018, equipment issues led to lower yields and decreased production volumes, which resulted in a lower gross margin and reduced display revenues. Although we began implementing remedial production measures during the fourth quarter of 2018, manufacturing issues continued into the second quarter of 2019, resulting in shipments for the second quarter of fiscal 2019 that were less than forecast and yields and production volumes that were below pre-fourth quarter 2018 levels. As a result, early in the third quarter of 2019 we began accelerating the implementation of remedial measures. There can be no assurance as to the ongoing effectiveness of any remedial measures we have implemented or that yields and production volumes will return to the levels previously achieved.

As a result of these efforts, production yields in the second half of 2019 improved over yields experienced in the first half of 2019 and production volumes were up over 50% during the second half of 2019 as compared to the first half of 2019 reflecting greater second half demand, which increased revenues and reduced unit costs. As a result of the improvements in manufacturing efficiency and throughput, our on time delivery of customer orders reached levels of over 95% during the third and fourth quarter of 2019 and continued through the first quarter of 2020. During the first quarter of 2020, our yields were consistent with the second half of 2019; however, our gross margin declined slightly over the year ago period, due to lower production volumes. Our backlog at March 31, 2020 was $13.3 million compared to backlog of $11.7 million at December 31, 2019 reflecting increased bookings during the quarter.

During the fourth quarter of 2019, we also implemented spending reductions and controls to reduce our overall cost structure. These measures lowered our overall spending as evidenced by the reduction during the second quarter of our research and development, or R&D, and Selling, General and Administrative, or SG&A, expenses both year-over-year and sequentially quarter-to-quarter. These measures included a work status reduction, or Work Status Reduction, with the objective of reducing expenses and saving cash. Pursuant to the Work Status Reduction, the work status of each of our executive officers was reduced by twenty percent (20%) and the work status of certain of our vice presidents was reduced by either twenty percent (20%) or ten percent (10%). We also negotiated reductions in service fees, which are expected to further reduce our expenses going forward.

During the quarter, we shipped a significant amount of product for the ENVG-B program. The improved design of the wafers for the next generation F-35 HMD systems was recently completed with first shipments planned for later in the year. In addition, we received awards for two-multiyear U.S. helicopter helmet programs, one of which is for a new program with deliveries starting in the second quarter and the other, an upgrade, which will begin shipping in the fourth quarter. Finally, we received an order from a European military customer for displays used in shoulder fired weapon systems. Our USA-based design and manufacturing, combined with in-house advanced backplane design, and the promise of our Direct Patterning Display (dPd™) technology continues to give us a competitive advantage more than ever before in these markets.

Consumer, medical, and military customers are increasingly turning to eMagin because of our technological leadership in display brightness and resolution. This leadership in brightness is further demonstrated by our proprietary dPd™ capability. Unlike traditional OLEDs that produce colors by using a white source with filters that eliminate about 80% of the emitted light, with dPd™, we make full color displays by directly depositing each of the primary color materials (RGB) on respective sub-pixels, without the use of filters. This advanced technology gives us an increase in brightness of over 10X versus the competition and we are on track to achieve 10,000 cd/m^2 by Q4 2020, and expect to achieve a brightness level of over 28,000 cd/m^2 ready for mass production of full color displays by 2023. We achieved the highest monochrome brightness levels in the market years ago and are continuing our leadership with color displays. Display brightness is critical for AR/VR devices because of optics inefficiency and the need to eliminate motion artifacts. This is especially important for Heads Up Display's (HUDs) used in bright, daylight environments.

Liquidity and Going Concern

As explained below under Liquidity and Capital Resources, the accompanying consolidated financial statements have been prepared on the going concern basis, which assumes we will continue to operate as a going concern and which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. However due to continuing losses, our financial position, and uncertainty regarding our ability to borrow under the ABL Facility, or continue to raise funds under our at the market facility, or ATM, facility, we may not be able to meet our financial obligations as they become due without additional financing or sources of capital.

For the three months ended March 31, 2020, we incurred a net loss of $1.4 million and used cash in operating activities of $0.9 million. At March 31, 2020, we had $3.1 million of cash, net working capital of $9.2 million, $2.2 million of outstanding indebtedness and borrowing availability of $0.9 million under the ABL Facility. For the three months ended March 31, 2020, we raised $1.6 million, net of offering expenses, through the sale of shares under our At The Market ("ATM") facility entered into in November 2019. This is in comparison with cash and working capital of $3.5 million and $8.8 million, respectively, $2.9 million debt outstanding and borrowing availability under the ABL Facility of $1.2 million at December 31, 2019. Net cash used in operating activities for the year ended March 31, 2020 was $0.9 million, compared to $2.3 million for the year ended March 31, 2019. Our backlog at March 31, 2020 was $13.3 million compared to backlog of $11.7 million at December 31, 2019.

The COVID-19 pandemic has significantly increased economic and demand uncertainty. It is likely that the current outbreak and continued spread of COVID-19 will cause the economic slowdown to continue, and it is possible that it could cause a global recession. There is a significant degree of uncertainty and lack of visibility as to the extent and duration of the current slowdown or any recession. If either were prolonged, demand for our products will be significantly harmed. We are currently seeing delays in product shipments and are expecting slowing economic conditions to adversely affect our business in the second half of 2020. Given the significant economic uncertainty and volatility created by the pandemic, it is difficult to predict the nature and extent of the impact on demand for our products. These expectations are subject to change without warning and investors are cautioned not to place undue reliance on them. Unanticipated consequences of the pandemic and resulting economic uncertainty could adversely affect our liquidity and capital resources in the future as well as our ability to continue as a going concern.

We have taken actions to increase revenues and to reduce expenses and are considering financing alternatives, but there can be no assurance that we will be successful in sufficiently increasing revenues, mitigating the impacts of COVID-19, reducing expenses or securing additional financing to meet our operating needs. The Company's plans with regard to these matters include the following actions: 1) focus production and engineering resources on improving manufacturing yields and increasing production volumes, 2) continuing a Work Status Reduction program that began in October 2019 wherein senior management work status was reduced by approximately 20%, 3) reduce headcount and not replace departed employees, 4) reduce discretionary and other expenses, and 5) considering financing and/or strategic alternatives.

Based on our current projections, operational and yield improvements, and the anticipated availability of the ABL Facility, we estimate we will have sufficient liquidity to fund operations through the end of the first quarter of 2021. However, there can be no assurance our plans will be achieved, or that we will be able to continue to borrow under our ABL Facility, continue to raise funds under our ATM facility, secure additional financing, and/or pursue strategic alternatives on terms acceptable to us, or at all. Our common stock is listed on the NYSE American, and we are subject to its continued listing requirements, including maintaining certain share prices and a minimum amount of shareholder’s equity. If we are unable to comply with the NYSE American continued listing requirements, including its trading price requirements, our common stock may be suspended from trading on and/or delisted from the NYSE American.

In addition, even if we successfully generate additional funds through the sale of additional equity securities, borrowings or alternative financing, there can be no assurances that the revenue or capital infusion will be sufficient to enable the Company to develop its business to a level where it will be profitable or generate positive cash flow. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we incur additional debt, a substantial portion of its operating cash flow may be dedicated to the payment of principal and interest on such indebtedness, thus limiting funds available for our operational business activities. The terms of any debt securities issued could also impose significant restrictions on our operations. In addition, broad market and industry factors may seriously harm the market price of our common stock, regardless of its operating performance, and may adversely impact its ability to raise additional funds.

Critical Accounting Policies

Please refer to the information provided under the heading "Critical Accounting Policies and Estimates" included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on March 11, 2020, for a discussion of our critical accounting policies. There were no material changes to such policies in the quarter ended March 31, 2020. New accounting policies adopted during the quarter are described in Note 1, "Summary of Significant Accounting Policies," to our unaudited consolidated financial statements included in this Report.

Results of Operations

Comparative results of operations for the three months ended March 31, 2020 and 2019 (in thousands):

Revenues

	Three Months Ended March 31,		
	2020	2019	Change
Product	$ 5,634	$ 5,507	$ 127
Contract	1,097	605	492
Total revenue, net	$ 6,731	$ 6,112	$ 619

Revenues for the three months ended March 31, 2020 and 2019 were $6.7 million and $6.1 million, respectively.

Product revenue is comprised primarily of sales of displays as well as sales of other hardware. For the three months ended March 31, 2020 product revenue increased by $0.1 million, from the comparable prior year period. The increase in display revenues during the three months ended March 31, 2020 was primarily due to changes in the mix of display types, resulting in displays shipped at higher average selling prices, as compared to the three months ended March 31, 2019. Revenues in 2019 were impacted by manufacturing challenges that began in the fourth quarter of 2018 and continued through the second quarter of 2019, which affected yields and throughput and resulted in lower than planned shipments during the first six months of 2019.

Contract revenue is comprised of revenue from R&D and non-recurring engineering contracts. For the three months ended March 31, 2020, contract revenue increased by $0.5 million, from the comparable prior year period. The increase in contract revenue was primarily due a project to design a display for a Tier One customer in the consumer space.

Cost of Revenues

	Three Months Ended March 31,		
	2020	2019	Change
Product	$ 4,790	$ 4,426	$ 364
Contract	507	$ 350	157
Total cost of revenues	$ 5,297	$ 4,776	$ 521

Total cost of revenues is comprised of costs of product and contract revenues. Cost of product revenue includes materials, labor and manufacturing overhead, warranty costs and depreciation related to our products. Total cost of revenues for the three months ended March 31, 2020 increased by $0.5 million, from the comparable prior year period due to increased revenues in three months ended March 31, 2020.

The following table outlines product and contract total gross profit and related gross margins for the three months ended March 31, 2020 and 2019 (dollars in thousands):

	Three Months Ended March 31,	
	2020	2019
Product revenues gross profit	$ 844	$ 1,081
Product revenues gross margin	15 %	20 %
Contract revenues gross profit	$ 590	$ 255
Contract revenues gross margin	54 %	42 %
Total gross profit	$ 1,434	$ 1,336
Total gross margin	21 %	22 %

Total gross profit is a function of revenues less cost of revenues. Gross profit for the three months ended March 31, 2020 increased $0.1 million, from the comparable prior year period primarily reflecting increased contract revenue gross profit in the three months ended March 31, 2020. Total gross margin was 21% and 22% for the three months ended March 31, 2020 and 2019, respectively.

The product gross profit for the three months ended March 31, 2020 decreased from the comparable prior year period because of lower production volumes in the three months ended March 31, 2020 compared to the prior year period, and the resultant decrease of product costs capitalized into finished good inventory. The decrease in product gross margins for the three months ended March 31, 2020, were impacted by the lowered production volumes as compared to the prior year period.

Contract gross margin is dependent upon the mix of internal versus external third party costs and materials, with the external third party costs and materials causing a lower gross margin and reducing the contract gross profit. For the three months ended March 31, 2020, contract revenue gross profit was $0.6 million compared to $0.3 million for the prior year period. Increased contract revenue gross profit in the three months ended March 31, 2020 was primarily due to the increase in contract revenues related to design work for a Tier One customer.

Operating Expenses

	Three Months Ended March 31,		
	2020	**2019**	**Change**
Research and development expense	$ 980	$ 1,597	$ (617)
Percentage of net revenue	15 %	26 %	
Selling, general and administrative expense	$ 1,798	$ 1,939	$ (141)
Percentage of net revenue	27 %	32 %	
Total operating expenses	$ 2,778	$ 3,536	$ (758)
Percentage of net revenue	41 %	58 %	

Research and Development

R&D expenses are company funded and are primarily compromised of salaries and related benefits, development materials and other costs specifically allocated to the development of new technologies, microdisplay products, OLED technologies and production processes. R&D related costs associated with fulfilling contracts are categorized as contract cost of revenues. R&D expenses were $1.0 million and $1.6 million for the three months ended March 31, 2020 and 2019 respectively. The decrease in R&D costs in the first quarter of 2020 reflects increased allocations of R&D expenses to contracts related to the increases in contract revenues.

Selling, General and Administrative

SG&A expenses consist primarily of personnel expenses, professional services fees, as well as other marketing, general corporate and administrative expenses. SG&A expenses were $1.8 million and $1.9 million for the three months ended March 31, 2020 and 2019, respectively. The decrease was primarily due to lower spending salaries resulting from a 20% work status reduction implemented in October 2019 and reductions in non-cash compensation related to a reduction in the amount of stock options granted to the Board of Directors that took effect in December 2019.

Other Income (Expense)

Other income (expense), net consists of changes in the fair value of warrant liability as well as interest income earned on cash balances. Income or expenses related to the change in fair value of warrant liability were $20 thousand and $0.8 million, for the three months ended March 31, 2020 and 2019, respectively. This non-cash income or expense is associated with changes in the liability related to registered warrants issued in May 2017 and January 2018. We are required to revalue warrants classified on our balance sheet as a liability at the end of each reporting period and reflect a gain or loss from the change in fair value in the period in which the change occurred. We calculate the fair value of the warrants outstanding using the Black-Scholes model.

Liquidity and Capital Resources

For the three months ended March 31, 2020, we had $3.1 million in cash, working capital of $9.2 million and borrowings outstanding and borrowing availability under the ABL Facility of $2.2 million and $0.9 million, respectively. This is in comparison with $3.5 million in cash, working capital and $8.8 million and borrowings outstanding and borrowing availability under the ABL Facility of $2.9 million and $1.2 million, respectively, at December 31, 2019.

For the three months ended March 31, 2020 cash used in operating activities were $0.9 million, which was attributable to a net loss of $1.4 million and changes in operating assets and liabilities of $0.3 million, partially offset by non-cash income and expenses of $0.7 million. Cash used in operating activities for the three months ended March 31, 2019 was $2.3 million.

For three months ended March 31, 2020 cash used in investing activities was $0.3 million related to equipment purchases primarily to improve manufacturing yields and production capacity and to advance the Company's dPd™ technology. As of March 31, 2020, we had outstanding commitments to purchase approximately $0.2 million in capital expenditures, and expect to make additional capital expenditures during the remainder of 2020 to improve our manufacturing and R&D capabilities. Cash used in investing activities during the three months ended March 31, 2019 was $0.2 million for equipment purchases.

For the three months ended March 31, 2020, cash provided by financing activities was $0.9 million, from equity financing with net proceeds of $1.6 million offset by net repayments of $0.7 million under our credit facility. Net cash provided by financing activities during the three months ended March 31, 2019 was $2.6 million.

Going concern

For the three months ended March 31, 2020, we incurred a net loss of $1.4 million and used cash in operating activities of $0.9 million. At March 31, 2020, we had cash and cash equivalents of $3.1 million, net working capital of $9.2 million, $2.2 million of debt outstanding under our ABL Facility and borrowing availability of $0.9 million.

Due to continuing losses, the Company's financial position, uncertainty related to the COVID-19 pandemic described above, and uncertainty regarding the Company's ability to borrow under its ABL Facility, or continue to raise funds under its ATM facility, the Company may not be able to meet its financial obligations as they become due without additional financing or sources of capital. Management is prepared to reduce expenses and raise additional capital, but there can be no assurance that the Company will be successful in sufficiently reducing expenses or raising capital to meet its operating needs.

The Company's ABL Facility expires on December 31, 2020 and renews automatically for another year unless terminated pursuant to its terms. Although preliminary renewal discussions with the lender are positive there is no assurance the lender will renew or extend this facility, or continue to make funds available during 2020 and beyond at present availability levels, or at all. Therefore, in accordance with applicable accounting guidance, and based on the Company's current financial condition and availability of funds, there is substantial doubt about the Company's ability to continue as a going concern through twelve months from the date these financial statements were issued.

The Company has taken actions to increase revenues and to reduce expenses and is considering financing alternatives, but there can be no assurance that the Company will be successful in sufficiently increasing revenues, mitigating the impact of COVID-19, reducing expenses or securing additional financing to meet its operating needs. The Company's plans with regard to these matters include the following actions: 1) focus production and engineering resources on improving manufacturing yields and increasing production volumes, 2) continuing a Work Status Reduction program that began in October 2019 wherein senior management work status was reduced by approximately 20%, 3) reduce headcount and not replace departed employees, 4) reduce discretionary and other expenses, and 5) considering financing and/or strategic alternatives.

Equity Raises

On February 13, 2020, we amended our ATM facility, dated November 22, 2019, with Wainwright. The amendment modifies the agreement to increase the aggregate offering price up to $2.5 million related to shares that we may offer and sell through Wainwright from time to time. The Company intends to use the net proceeds from sales made under the ATM offering for working capital and other general corporate purposes. During the quarter ended March 31, 2020, we raised $1.6 million, net of offering expenses, through the sale of shares under the ATM facility.

ABL Facility

On December 21, 2016, we entered into an asset based revolving credit facility with a lender that provides for up to a maximum amount of $5 million based on a borrowing base equivalent of 85% of eligible accounts receivable plus the lesser of $2 million or 50% of eligible inventory. The interest on the ABL Facility is equal to the Prime Rate plus 3% but may not be less than 6.5% with a minimum monthly interest payment of $2,000. We are obligated to pay the lender a monthly administrative fee of $1,000 and an annual facility fee equal to 1% of the maximum amount borrowable under the facility. The ABL Facility will automatically renew on December 31, 2020 for a one-year term unless written notice to terminate the Financing Agreement is provided by either party.

The ABL Facility is secured by a lien on all receivables, property and the proceeds thereof, credit insurance policies and other insurance relating to the collateral, books, records and other general intangibles, inventory and equipment, proceeds of the collateral and accounts, instruments, chattel paper, and documents. The ABL Facility contains customary representations and warranties, affirmative and negative covenants and events of default, including a provision that we maintain a minimum tangible net worth of $13 million and a minimum working capital balance of $4 million. As of March 31, 2020, we had $2.2 million in borrowings, had unused borrowing availability of $0.9 million and were in compliance with all financial debt covenants.

Off-Balance Sheet Arrangements

We have no off balance sheet arrangements that are reasonably likely to have a current or future effect on our financial condition, revenues, results of operations, liquidity or capital expenditures.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

Not applicable.

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, evaluated the effectiveness of our disclosure controls and procedures as defined in Rule 13a-15 under the Securities Exchange Act of 1934, as amended (the "Exchange Act") as of the end of the period covered by this Report on Form 10-Q.

Our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the objectives of our disclosure control system are met. Because of inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, if any, within a company have been detected. Based on our evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of the period covered by this Report, our disclosure controls and procedures were effective.

Changes in Internal Control Over Financial Reporting

During the quarter ended March 31, 2020, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. As a result of the COVID-19 pandemic, the majority of our finance and administrative workforce began working remotely in March 2020. These changes to the working environment did not have a material effect on our internal controls over financial reporting during the most recent quarter. We are continually monitoring and assessing the COVID-19 pandemic on our internal controls to minimize the impact on their design and operating effectiveness.

PART II - OTHER INFORMATION

ITEM 1. Legal Proceedings

From time to time, we may become subject to various legal proceedings that are incidental to the ordinary conduct of our business. In March 2019, we received a demand letter seeking payment of $0.9 million of outstanding invoices relating to purchased inventory from Suga Electronics Limited, or Suga, a contract manufacturer located in China, which manufactured product sold by our consumer night vision business. We have responded to the demand letter, and requested that Suga provide substantiation of purchased inventory. On August 1, 2019 we were notified by Suga that they intend to pursue arbitration. During September and October, 2019, we held preliminary discussions with Suga to attempt to reach a settlement, however in November 2019 we received a formal request for arbitration which Suga filed with the International Chamber of Commerce or ICC. We retained local counsel in Hong Kong to represent it before the ICC and in December 2019 filed an answer to Suga's request for arbitration including a counterclaim seeking repayment of amounts previously paid to Suga. An arbitrator has been appointed and arbitral proceedings for the consideration of the claims and counterclaims are expected to run through the first quarter of 2021. The parties are permitted to settle at any point during the arbitration proceedings.

As disclosed in the financial statements in our Annual Report on Form 10-K for the year ended December 31, 2018, during the quarter ended June 30, 2018, we made a decision to exit the consumer night vision business and accrued approximately $1.0 million related to invoices received for inventory purchased by Suga in anticipation of future production. While we believe that we have adequately accrued for the losses and are in discussions to resolve related claims by the contract manufacturers, there is the risk that additional losses or litigation related expenses may be incurred above the amounts accrued for as of September 30, 2019, if we fail to resolve these claims in a timely and/or favorable manner

ITEM 1A. Risk Factors

We operate in a rapidly changing environment that involves a number of risks that could materially affect our business, financial condition or future results, some of which are beyond our control. In addition to the other information set forth in this Report and the risks discussed below, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in our 2019 Form 10-K. In addition to our discussion in the MD&A, and other sections of this report, to address effects of the COVID-19 pandemic, we have provided an additional risk factor regarding COVID-19 below. The impact of COVID-19 can also exacerbate other risks discussed in the "Risk Factors" sections of our 2019 Form 10-K and this Report, which could in turn have a material adverse effect on us. The "Risk Factors" section in our 2019 Form 10-K otherwise remains current in all material respects. The risks discussed below and in the "Risk Factors" section in our 2019 Form 10-K do not identify all risks that we face—our operations could also be affected by factors that are not presently known to us or that we currently consider to be immaterial to our operations. Due to risks and uncertainties, known and unknown, our past financial results may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods.

The COVID-19 pandemic has affected our business and could materially adversely affect our financial condition and results of operations and ability to continue as a going concern.

The novel strain of the coronavirus identified in China in late 2019 (COVID-19) has globally spread throughout Asia, Europe, the Middle East, and North America and has resulted in authorities imposing, and businesses and individuals implementing, numerous unprecedented measures to try to contain the virus, such as travel bans and restrictions, quarantines, shelter-in-place/stay-at-home and social distancing orders, and shutdowns. These measures have impacted and may further impact our workforce and operations, the operations of our customers, and those of our respective vendors, suppliers, and partners.

The COVID-19 pandemic has impacted our business. We experienced closures of sections of our plant that lasted between one and two weeks after two of our employees tested positive for COVID-19. During the closures, we were unable to complete certain manufacturing stages and unable to ship some of our products. We have also experienced production disruptions related to the unwillingness or inability of certain of our equipment repair vendors to travel to our facility, the temporary loss of services of employees quarantined due to COVID-19 and delays in the supply of raw materials caused by disruptions due to COVID-19 at one of our vendors. Any period of interrupted access to our manufacturing facilities or our workforce, or similar limitations for our vendors and suppliers, can impact our ability to meet customer demand and could have a material adverse effect on our financial condition and results of operations, particularly if prolonged. In addition, if we are unable to continue regularly scheduled maintenance of our manufacturing equipment, our manufacturing capabilities may be negatively impacted and we may experience further unscheduled closures and/or production disruptions, which could have a material adverse effect on our financial condition and results of operations.

Due to the measures implemented to contain the COVID-19 outbreak, our suppliers, located both inside and outside of the United States, may have limited supplies of, or may be unable to produce, the components we use to manufacture our products. Any significant disruption in the supply of such components could impair our ability to satisfy customer orders, which could have a material adverse effect on our financial condition and results of operations. In addition, there has been an increase in demand, both inside and outside of the United States, for the personal protective equipment, or PPE, we use in our manufacturing facilities in order to maintain a safe working environment. If we are unable to obtain the required PPE, we may have to temporarily close certain sectors of our facilities until the needed supplies are obtained, which could have a material adverse effect on our financial condition and results of operations.

Certain of our customers have experienced, and may continue to experience, disruptions in their operations and supply chains, which can result in delayed, reduced, or canceled orders, or collection risks, and which may adversely affect our results of operations. We have been notified that certain of our customers are requesting delays in product deliveries due to plant closures related to COVID-19. In April, the US Defense Department announced a three-month slowdown in equipment procurement related to COVID-19. Due to shelter-in-place and similar measures, which restrict, and in some cases prohibit, elective medical procedures, in the future we may also experience delayed, reduced or canceled orders from our customers in the medical market sector. Any existing or future delays, reductions or cancellation of orders from our customers military, commercial or consumer market customers may adversely affect our results of operations.

Escalating trade tensions between the U.S. and China have led to increased tariffs and trade restrictions and have affected customer ordering patterns. The U.S. has imposed restrictions on the export of U.S.-regulated products and technology to our international customers, including those located in China. As a result of the COVID-19 pandemic, we believe there is a risk that U.S. laws and regulations governing the export of goods and technology, including the EAR and ITAR, may be revised to impose even tighter restrictions, which could negatively impact our ability to successfully market and sell our non-military products to customers located in China. Existing and future restrictions could also potentially interfere with our ability to pursue manufacturing in China and our efforts to partner with consumer companies who might seek to build displays using our technology at high volume manufacturing facilities located in China.

The spread of COVID-19 has caused us to modify our business practices (including employee travel, employee work locations, cancellation of physical participation in meetings, events and conferences, and social distancing measures), and we may take further actions as may be required by government authorities or that we determine are in the best interests of our employees, customers, partners, vendors, and suppliers. Work-from-home and other measures introduce additional operational risks, including cybersecurity risks, and have affected the way we conduct our activities, which could have an adverse effect on our operations. Due to the increase in employees working from home and accessing our network and systems remotely, we face increased risk of security breaches and other disruptions which could compromise our information technology systems, and expose to liability, theft of sensitive data or damage to our reputation. There is no certainty that such measures will be sufficient to mitigate the risks posed by the virus, and future employee virus or workforce disruptions could lead to unavailability of key personnel and harm our ability to perform critical functions. In addition, our ability to attract, recruit and retain highly skilled and qualified technical and consulting personnel or other employees may be impacted by COVID-19 travel restrictions, and other COVID-19 health concerns related to relocation on the part of potential employees and their families.

The pandemic has significantly increased economic and demand uncertainty. It is likely that the current outbreak and continued spread of COVID-19 will cause the economic slowdown to continue, and it is possible that it could cause a global recession. There is a significant degree of uncertainty and lack of visibility as to the extent and duration of the current slowdown or any recession. If either were prolonged, demand for our products will be significantly harmed. We are currently seeing delays in product shipments. Slowing economic conditions could adversely affect our business in the second half of 2020. Given the significant economic uncertainty and volatility created by the pandemic, it is difficult to predict the nature and extent of the impact on demand for our products. These expectations are subject to change without warning and investors are cautioned not to place undue reliance on them. Unanticipated consequences of the pandemic and resulting economic uncertainty could adversely affect our liquidity and capital resources in the future as well as our ability to continue as a going concern.

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

None.

ITEM 3. Defaults Upon Senior Securities

None.

ITEM 4. Mine Safety Disclosures

Not applicable.

ITEM 5. Other Information

None.

ITEM 6. Exhibits

3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to an appendix to the Company's Definitive Proxy Statement filed on September 21, 2006).
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation (incorporated by reference to an appendix to the Company's Definitive Proxy Statement filed on October 26, 2010).
3.3	Bylaws of the Company (incorporated by reference to exhibit 99.3 to the Company's Definitive Proxy Statement filed on June 14, 2001).
4.1	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 of the Registrant's current report on Form 8-K filed on December 23, 2008).
4.2	Form of Letter Agreement (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on August 24, 2016).
4.3	Form of common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's current report on Form 8-K filed on December 18, 2015).
4.4	Form of Common Stock Purchase Warrant issued to the Warrant Holders in the Transaction (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on August 24, 2016).
4.5	Common Stock Purchase Warrant issued on March 24, 2017 to the holder of an unsecured line of credit (incorporated by reference to exhibit 4.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017 filed on November 9, 2017).
4.6	Form of Common Stock Purchase Warrant issued to the Warrant Holders in conjunction with an issuance of common shares on May 19, 2017 (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on May 24, 2017).
4.8	Description of Registrants Securities
10.1	Consulting Agreement, dated as of January 28, 2020, by and between the Company and Jeffrey Lucas. (incorporated by reference to exhibit 99.1 of the Registrant's Current Report on Form 8-K filed on January 28, 2020).
10.2	At Market Offering Agreement, between eMagin Corporation and H.C. Wainwright & Co., LLC (incorporated by reference to exhibit 10.1 to the Company's Current Report on Form 8-K filed on February 13, 2020).
31.1	Certification by Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (1)
31.2	Certification by Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (1)
32.1	Certification by Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. (2)
32.2	Certification by Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. (2)
101.INS	XBRL Instance Document (1)
101.SCH	XBRL Taxonomy Extension Schema Document (1)
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document (1)
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document (1)
101.LAB	XBRL Taxonomy Extension Label Linkbase Document (1)
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document (1)

(1) Filed herewith.
(2) 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.

Date: May 14, 2020

eMAGIN CORPORATION

By: /s/ Andrew G. Sculley

Andrew G. Sculley
Chief Executive Officer
Principal Executive Officer

eMagin Corporation

Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934

The following is a summary of the rights and preferences of the common stock and preferred stock of eMagin Corporation, a Delaware corporation (the "Company"), and certain provisions of the Company's amended and restated certificate of incorporation (the "certificate of incorporation"), amended and restated bylaws (the "bylaws") and certificate of designations (the "certificate of designations") of the Company's Series B Convertible Preferred Stock (the "Series B Preferred Stock"), and applicable provisions of the Delaware General Corporation Law (the "DGCL"). This summary does not purport to be complete and is qualified in its entirety by the provisions of our certificate of incorporation, bylaws and the certificate of designations, each of which is included as an exhibit to the Annual Report on Form 10-K of which this exhibit forms a part, and the DGCL.

In this description, the terms "the Company," "we," "our" and "us" means eMagin Corporation.

General

We are authorized to issue 200,000,000 shares of common stock, $0.001 par value per share, and 10,000,000 shares of preferred stock, $0.001 par value per share, of which 10,000 shares have been designated as Series B Preferred Stock. Our Series B Preferred Stock is not registered pursuant to Section 12 of the Exchange Act of 1934, as amended (the "Exchange Act") nor listed on any securities exchange, however we include a summary of certain terms of the Series B Preferred Stock as relevant to holders of our common stock.

Common Stock

Dividend Rights

Subject to the preferences applicable to holders of shares of our preferred stock, holders of common stock are entitled to receive ratably dividends, if any, when and as declared by our board of directors out of any funds of the Company of the legally available therefor.

Under the bylaws, our board of directors has the power to declare dividends or distributions out of contributed surplus, and to determine that any dividend shall be paid in cash or shall be satisfied in paying up in full shares to be issued to the shareholders credited as fully paid or partly paid or partly in one way or partly in the other. Our board of directors may also pay any fixed cash dividend whenever the position of the Company justifies such payment.

Liquidation and Preemptive Rights

Subject to the preferences applicable to holders of shares of our preferred stock, in the event of our voluntary or involuntary liquidation, dissolution or winding up, the holders of shares of our common stock will be entitled to share equally in any of the assets available for distribution after we have paid in full all of our debts.

Holders of common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of our outstanding Series B Preferred Stock and the shares of any other series of preferred stock that we may designate and issue in the future.

Voting Rights

The holders of shares of our common stock are entitled to notice of any shareholders' meeting in accordance with our bylaws and to one vote for each share held of record on all matters submitted to a vote of the shareholders.

Election and Removal of Directors

Except in the case of vacancies, each director is elected by the affirmative vote of a majority of the votes cast as the general meeting of our shareholders.

Our bylaws provide that any vacancies on the board of directors not filled at any general meeting will be deemed casual vacancies and the board of directors, so long as a quorum of directors remains in office, will have the power at any time and from time to time, to appoint any individual to be a director so as to fill a casual vacancy. A director so appointed will hold office only until the next following annual general meeting. If not reappointed at such annual general meeting, the director will vacate office at the conclusion of the annual general meeting.

Special Meetings of Shareholders

Special general meetings of our shareholders may be called (i) by our board of directors or (ii) when requisitioned by shareholders pursuant to the provisions of the Exchange Act.

Restrictions on Transfers of Shares of Common Stock

Our board of directors may in its absolute discretion, and without providing a reason, refuse to register the transfer of a share, which is not fully paid up. Our board of directors may also refuse to register a transfer unless the shares of common stock are (i) listed on an appointed stock exchange (of which the NYSE is one) or (ii) (A) a duly executed instrument of transfer is provided to us or our transfer agent accompanied by the certificate (if any has been issued) in respect of the shares to which it relates and by such other evidence as our board of directors may reasonably require to show the right of the transferor to make.

Transfer Agent and Registrar

Continental Trust Company, N.A. is the transfer agent and registrar for the common stock.

Listing

The common stock is quoted on the NYSE American under the trading symbol “EMAN”.

Preferred Stock

We may issue shares of our preferred stock from time to time, in one or more series. Our board of directors will determine the rights, preferences and privileges of the shares of each wholly unissued series, and any qualifications, limitations or restrictions thereon, including dividend rights, conversion rights, preemptive rights, terms of redemption or repurchase, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of any series. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of the Company and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock.

Series B Preferred Stock

On December 19, 2008, we filed a Certificate of Designations with the State of Delaware, which designates 10,000 shares of our preferred stock as Series B Preferred Stock, of which 5,659 shares are issued and outstanding.

Dividends

The Series B Preferred Stock rank senior to our common stock as to payment of dividends and distribution of assets upon our liquidation, dissolution, or winding up, whether voluntary or involuntary. The holders of the Series B Preferred Stock are not entitled to receive dividends unless our board of directors declares a dividend for holders of the common stock and then the dividend shall be equal to the amount that such holder would have been entitled to receive if the holder converted its preferred stock into shares of common stock. The Series B Preferred Stock are not entitled to interest payments.

Conversion

Each share of Series B Preferred Stock has a stated value of $1,000 and has a conversion price of $0.75 per share. The Series B Preferred Stock does not pay interest.

Voting Rights

Each share of Series B Preferred Stock has voting rights equal to (i) the number of shares of common stock issuable upon conversion of such shares of Series B Preferred Stock at such time (determined without regard to the shares of common stock so issuable upon such conversion in respect of accrued and unpaid dividends on such share of Series B Preferred Stock) when the Series B Preferred Stock votes together with the common stock or any other class or series of our capital stock and (ii) one vote per share of preferred stock when such vote is not covered by the immediately preceding clause. Each holder of Series B Preferred Stock is entitled to notice of any shareholders' meeting in accordance with our bylaws and may vote with holders of common stock upon the election of directors and upon any other matter submitted to a vote of shareholders, except those matters required by law to be submitted to a vote of holders of our preferred stock or Series B Preferred Stock voting separately as a class or series, and except as provided in the certificate of designations for the Series B Preferred Stock. The affirmative vote or consent of the holders of a majority of the outstanding shares of Series B Preferred Stock (the "majority holders'), voting separately as a class, will be required for (1) any amendment, alteration, or repeal, whether by merger or consolidation or otherwise, of our certificate of incorporation if the amendment, alteration, or repeal materially and adversely affects the powers, preferences, or special rights of the Series B Preferred Stock, (2) the creation and issuance of any Senior Dividend Stock or Senior Liquidation Stock (each, as defined in the certificate of designations), (3) the redemption of or payment of dividends on, any class or series of our capital stock or (4) any sale, lease or conveyance of all or substantially all of our assets, or any merger, consolidation, or business combination with any other person or any liquidation, dissolution or winding up of the Company.

In addition, the terms of the certificate of designations also provide that so long as any shares of Series B Preferred Stock are outstanding, we may not offer, sell or issue, or enter into any agreement, arrangement or understanding to offer, sell or issue, any common stock or common stock equivalent (other than offerings that are underwritten on a firm commitment basis and registered with the SEC under the Securities Act of 1933, as amended) or engage in certain other financings and/or capital raises without the approval of majority holders. These and other rights granted to holders of the Series B Preferred Stock pursuant to the certificate of designations and the securities purchase agreement governing the sale of the Series B Preferred Stock enable the holders thereof to exert substantial control over our affairs and potentially exercise their control in a manner adverse to the interest of holders of our common stock.

The General Corporation Law of the State of Delaware, the state of our incorporation, provides that the holders of Series B Preferred Stock will have the right to vote separately as a class (or, in some cases, as a series) on an amendment to the certificate of incorporation if the amendment would change the par value, the number of authorized shares of the class or the powers, preferences or special rights of the class or series so as to adversely affect the class or series, as the case may be. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

Liquidation Rights

In the event of our liquidation, dissolution, or winding up, the Series B Preferred Stock is entitled to receive liquidation preference before the common stock. We may at our option redeem the Series B Preferred stock by providing the required notice to the holders of the Series B Preferred Stock and paying an amount equal to $1,000 multiplied by the number of shares for all of such holder's shares of outstanding Series B Preferred Stock to be redeemed.

Delaware Law and Certain Charter and Bylaw Provisions

Provisions of Delaware law, our certificate of incorporation and our bylaws may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable. These provisions may also prevent or delay attempts by stockholders to replace or remove our current management or members of our board of directors. These provisions include:

- limitations on the removal of directors;
- advance notice requirements for stockholder proposals and nominations;
- the inability of stockholders to act by written consent or to call special meetings;
- the ability of our board of directors to make, alter or repeal our bylaws; and
- the authority of our board of directors to issue preferred stock with such terms as our board of directors may determine.

In addition, we are subject to the provisions of Section 203 of the DGCL. Section 203 prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A "business combination" includes mergers, asset sales and other transactions resulting in a financial benefit to the interested stockholder. Subject to certain exceptions, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within the prior three years did own, 15% or more of the corporation's voting stock.

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Andrew G. Sculley, certify that:

1. I have reviewed this quarterly report on Form 10-Q of eMagin Corporation.

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 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 quarterly 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 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 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 function):

a) All significant deficiencies and material weaknesses in the design or operation of internal controls 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 controls over financial reporting.

By: /s/ Andrew G. Sculley

Andrew G. Sculley
Chief Executive Officer
(Principal Executive Officer)

Dated: May 14, 2020

EXHIBIT 31.2

**CERTIFICATION OF PRINCIPAL FINANCIAL AND ACCOUNTING OFFICER
PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, Mark A. Koch, certify that:

1. I have reviewed this quarterly report on Form 10-Q of eMagin Corporation.

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 quarterly 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 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 quarterly 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 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 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 function):

a) All significant deficiencies and material weaknesses in the design or operation of internal controls 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 controls over financial reporting.

Dated: May 14, 2020

By: /s/ Mark A. Koch
Mark A. Koch
Acting Chief Financial Officer
(Principal Accounting and 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 the Quarterly Report of eMagin Corporation (the “Company”) on Form 10-Q for the quarter ended March 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Andrew G. Sculley, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

The foregoing certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. section 1350 and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

By: /s/ Andrew G. Sculley

Andrew G. Sculley
Chief Executive Officer
(Principal Executive Officer)

Dated: May 14, 2020

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 the Quarterly Report of eMagin Corporation (the "Company") on Form 10-Q for the quarter ended March 31, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Mark A. Koch, Acting Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

The foregoing certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. section 1350 and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any filing of the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

By: /s/ Mark A. Koch
Mark A. Koch
Acting Chief Financial Officer
(Principal Accounting and Financial Officer)

Dated: May 14, 2020