RESEARCH FRONTIERS INC
Form 10-K
March 14, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d) of

THE SECURITIES AND EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2018   Commission File Number 000-14893

RESEARCH FRONTIERS INCORPORATED

(Exact name of registrant as specified in its charter)

DELAWARE	11-2103466
(State or other jurisdiction of	(I.R.S. Employer
incorporation or organization)	Identification No.)

240 CROSSWAYS PARK DRIVE	
WOODBURY, NEW YORK	11797-2033
(Address of principal executive offices)	(Zip Code)

Registrant’s telephone number, including area code (516) 364-1902

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

Title of Class	Name of Exchange on Which Registered
Common Stock, $0.0001 Par Value	The NASDAQ Stock Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes [ ] No [X]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes [ ] No [X]

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 [X] No [ ]

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes [X] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [X]

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. (Check one):

Large accelerated filer [ ] Accelerated filer [ ] Non-accelerated filer [ ]

Smaller reporting company [X] Emerging growth company [ ]

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30, 2018 (the last business day of the registrant's most recently completed second fiscal quarter), computed based on the closing sale price of $0.82 was $15,329,487. In making this computation, all direct and indirect shares known to be owned by directors and executive officers of the Company and all direct and indirect shares known to be owned by other persons holding in excess of 5% of the Company's common stock have been deemed held by "affiliates" of the Company, and awards of restricted stock subject to vesting are assumed to have been fully issued and outstanding. Nothing herein shall prejudice the right of the Company or any such person to deny that any such director, executive officer, or stockholder is an "affiliate."

On March 13, 2019, the registrant had 28,666,831 shares of Common Stock outstanding.

PART I

ITEM 1. BUSINESS

Forward-Looking Statements

Information included in this Annual Report on Form 10-K may contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not statements of historical facts, but rather reflect our current expectations concerning future events and results. We generally use the words "believes," "expects," "intends," "plans," "anticipates," "likely," "will" and similar expressions to identify forward-looking statements. Such forward-looking statements, including those concerning our expectations, involve risks, uncertainties and other factors, some of which are beyond our control, which may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. These risks, uncertainties and factors include, but are not limited to, those factors set forth in this Annual Report on Form 10-K under "Item 1A. – Risk Factors" below. Except as required by applicable law, including the securities laws of the United States, we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. You are cautioned not to unduly rely on such forward-looking statements when evaluating the information presented in this Annual Report on Form 10-K.

General:

As used herein, "we," "us," "our," the "Company" or "Research Frontiers" means Research Frontiers Incorporated unless otherwise indicated. Research Frontiers operates in a single business segment which is engaged in the development and marketing of technology and devices to control the flow of light (see Note 1). We develop and license our patented suspended particle device ("SPD-Smart") light-control technology to other companies that manufacture and/or market the: (i) SPD-Smart chemical emulsion, (ii) light-control film made from the chemical emulsion, (iii) the light-control panels made by laminating the film, (iv) electronics to power end-products incorporating the film, or (v) lamination services for, and the end-products themselves such as "smart" windows, skylights and sunroofs. Research Frontiers currently has over 40 companies that, in the aggregate, are licensed to primarily serve four major SPD-Smart application areas (aerospace, architectural, automotive and marine products) in every country of the world. In addition, in 2013 we launched our VariGuard business unit that markets and sells SPD-Smart products directly to customers for specialty uses such as the protection of artwork and light-sensitive documents in museums and private collections.

The Company has entered into a number of license agreements covering its light control technology. During 2018, four licensees accounted for 35%, 13%, 11% and 10%, respectively, of fee income recognized for the year. During 2017, four licensees accounted for 35%, 15%, 10% and 9%, respectively, of fee income recognized during the year. During 2016 four licensees accounted for 30%, 27%, 15% and 7%, respectively, of fee income recognized for the year.

Research Frontiers was incorporated in New York in 1965 to continue early work that Dr. Edwin Land, founder of Polaroid Corporation, and others had done in the area of light-control beginning in the 1930s. Research Frontiers was reincorporated in Delaware in 1989. Since 1965, Research Frontiers has actively worked to develop and license its own SPD technology, which it protects using patents, trade secrets and know-how. Although patent and trade secret protection is not a guarantee of commercial success, Research Frontiers currently has 226 patents that have been issued worldwide. In addition, the Company has current patent applications in the US and other countries that if granted, would add a significant number of additional patents to its portfolio. The Company has and continues to devote significant resources to develop, license and protect its intellectual property position.

SPD-Smart products use microscopic light-absorbing nanoparticles that are typically suspended in a film. These particles align when an electrical voltage is applied, thus permitting light to pass through the film. Adjustment of the voltage to the SPD film gives users the ability to quickly, precisely and consistently regulate the amount of light, glare and heat passing through the window, skylight, sunroof, window shade or other SPD-Smart end-product. This SPD film can be incorporated between two layers of glass or plastic, or combinations of both, to produce a laminate that has enhanced energy efficiency, light-control and security performance properties.

Research Frontiers believes that the SPD industry is in the initial phase of growth. SPD light-control technology may have commercial applicability in many products where variable light-control is desired. Some existing product applications for SPD-Smart glass or plastic include the following:

Automotive:
sunroofs, sunvisors, side windows and rear windows;

Aerospace and marine:
windows, doors, partitions, sunvisors, and skylights.

Architectural:
commercial and residential windows, doors, skylights, and partitions for new construction, replacement, and retrofit applications;

In addition to the product applications listed above, SPD-SmartGlass technology may also offer potential benefits in the development of new flat panel displays, light conservation panels, neonatal incubators, consumer electronics, eyewear, self-dimming automotive rear-view mirrors and other reflective information displays. However, such products need additional product design, engineering or testing before the commercial potential of such SPD-SmartGlass products can be determined.

Some of our licensees consider the stage of development, product introduction strategies and timetables, and other plans to be proprietary or secret. Unless required to disclose such information, the Company may limit its disclosure of licensees' activities until such licensees, or their customers, make their own public announcements of planned or actual product launches.

Some of the early sales and uses of SPD technology were to low volume commercial installations and some have involved concept and test installations by licensees and their customers. Recent progress with regard to market development and commercialization activity has been the result of focused and active efforts by Research Frontiers and its key licensees who have invested in product development and improvements, production facilities, increased production capacity, durability, performance testing, quality control and assurance, and marketing programs.

Beginning in late 2011, higher volume sales of SPD products commenced with the launch by Daimler AG of the Magic Sky Control™ all glass roof option on their Mercedes-Benz SLK (subsequently renamed SLC). In early 2012, sales of the Magic Sky Control™ all glass roof option commenced on their Mercedes-Benz SL. In mid-2014, sales of the Magic Sky Control™ all glass roof option commenced on the new S-Class Coupe with other Mercedes-Benz S-Class variants began offering the Magic Sky Control™ all glass roof option in 2015 and 2016.

Research Frontiers believes that with the normal progression of product and manufacturing improvements, and as licensees become more experienced at the lamination, fabrication and installation of SPD-Smart products for various applications, the adoption rates for SPD-Smart products will grow and accelerate, which we expect will increase the stream of royalty income for the Company. Research Frontiers believes the largest and most predictable near and intermediate term market for its technology will be automotive glass.

As part of their marketing and branding programs, many of our licensees have developed their own trademarks for SPD-Smart emulsion, film, and end-products and these are listed in their respective press releases, product brochures, advertising and other promotional materials. Research Frontiers uses the following trademarks: SPD-Smart™, SPD-SmartGlass™, VaryFast™, SPD-CleanTech™, SPD Clean Technology™, SmartGlass™, The View of the Future - Everywhere you Look™, Powered by SPD™, Powered by SPD-CleanTech™, Powered by SPD Clean Technology™, SG Enabled™, SPD Green and Clean™, SPD On-Board™, Speed Matters™, VariGuard™, VariGuard SmartGlass™ and Visit SmartGlass.com - to change your view of the world™.

In each of the last three fiscal years the Company devoted substantially all of its time to the development of one class of products, namely SPD-Smart light-control technology, and therefore revenue analysis by class is not provided herein. Information about our operations and those of our licensees is included below and in our financial statements and notes thereto.

The Company does not believe that future sales will be seasonal in any material respect. The Company does not currently directly manufacture products on its own but rather depends on activities of its licensees and vendors. Due to the nature of the Company's business operations and the fact that the Company is not presently a manufacturer, there is no backlog of orders for the Company's products.

The Company believes that compliance with federal, state and local provisions which have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment, will not have a material effect upon the capital expenditures, earnings and competitive position of the Company. The Company has no material capital expenditures for environmental control facilities planned for the remainder of its current fiscal year or its next succeeding fiscal year.

Employees:

On March 13, 2019, the Company had nine full-time employees, three of whom are technical personnel, and the rest of whom perform legal, finance, marketing, investor relations, and administrative functions. Of these employees, two have obtained doctorates in chemistry, one has a master's degree in chemistry, and one has extensive industrial experience in electronics and electrical engineering. Two employees also have additional postgraduate degrees in business administration, and one has a doctorate in jurisprudence. Also, the Company's suppliers and licensees have people on their teams with advanced degrees in a number of areas relevant to the commercial development of products using the Company's technology. The success of the Company is dependent upon, among other things, the services of its senior management, the loss of which could have a material adverse effect upon the prospects of the Company.

Smart Glass Industry Trends:

There are favorable converging global trends in the major near-term markets for smart glass and SPD-Smart products. The potential for smart glass products is significant and is expected to attain economies of scale with increasing high-volume production. This increased production is also expected to bring down end product costs and expand market opportunities.

In both public and private sectors across the world, there are substantial efforts targeted toward the promotion and use of energy efficient smart glass materials, including those used in automobiles, windows and other architectural glazings, aircraft and boats. Products using SPD-Smart technology continue to be exhibited at trade shows, conferences, and industry events, with such products not only being exhibited by our licensees but also by their customers and by OEMs. While there can be no assurance that these trends will continue, to the extent that they do continue, each is expected to have a beneficial effect on future interest in SPD-Smart technology.

In June 2018, Global Info Research issued a report Global Smart Glass Market 2018 by Manufacturers, Regions, Type and Application, Forecast to 2023. This market research report concludes that the smart glass market is expected to grow at a compounded annual rate of 19.2% over the next five years from $3.4 billion in 2017 to $9.8 billion by 2023.

In September 2017, MarketsandMarkets issued *Smart Glass Market by Technology (Suspended Particle Display, Electrochromic, Liquid Crystal, Photochromic, Thermochromic), Application (Architecture, Transportation, Consumer Electronics), and Geography - Global Forecast to 2023*. This market research report concludes that the smart glass market is expected to grow from USD $2.8 Billion in 2016 to reach USD $8.35 Billion by 2023, with a growth rate of 16.6% between 2017 and 2023. The study concluded that:

Key factors driving the growth of this market are the growing demand for smart glass in automobile applications, strong government support through mandates and legislations for energy-efficient construction, and optimal energy saving through smart glass applications.

Suspended Particle Devices (SPD) technology is expected to grow at the highest growth rate during the forecast period. Furthermore, the transportation market segment is expected to dominate the smart glass market during the forecast period.

A higher cost of smart glass is the major factor restraining the growth of the market. Manufacturers find it difficult to quantify the return on investment to end users and, hence, its application has been mainly across the high-end and luxury verticals. However, with the opening of large-volume manufacturing facilities, the manufacturers are expected to achieve economy of scale, which, in turn, will lower the cost. With the increasing volume of production, the cost of smart glass is estimated to reduce by 30%–40%.

Automotive Market:

In the automotive industry, global trends include the introduction of larger sunroofs and panoramic roof panels in transportation vehicles, and a higher percentage of these vehicles having a sunroof or using more glass in the roof.

SPD-SmartGlass has also been shown in armored automotive glass applications, recreational vehicles, and a new market is also beginning to develop for personalized custom conversions of automobiles for owners who wish to express themselves through the design of the cars they own and/or drive.

Aircraft Market:

In the aircraft industry, there is a trend towards larger windows with more passenger control and functionality. In the "transport category" (primarily large commercial passenger aircraft) segment, the world's two largest aircraft manufacturers are both promoting the size of the windows in new aircraft platforms already being delivered (e.g. Boeing 787 and Airbus A350). In the "general aviation" category (primarily business jets, private or chartered smaller aircraft) this trend is true as well. For example, Gulfstream is promoting the size of the windows on their G650 platform, and Bombardier highlights the size of the cabin window on the upcoming Global 7000 and 8000 platforms. Several OEMs either already offer, or have announced their interest to include, electronically dimmable windows in their aircraft – including Boeing, Airbus, Bombardier, Embraer, Textron-Beechcraft, HondaJet, Airbus Helicopter, Bell Helicopter, Dassault, Epic and One Aviation.

Electronically dimmable windows for aircraft may use SPD technology, or may use other smart window technologies such as liquid crystal or electrochromic technology. A window system using electrochromic technology was introduced in the Boeing 787. There have been concerns raised that this aircraft's electronically dimmable windows are not dark enough for long haul flights, transmit too much heat into the cabin, and have a switching speed that is too slow.

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The Company believes its SPD technology offers important performance advantages over other technologies including faster, more uniform response time, superior heat-rejection when the aircraft is parked on the ramp, superior acoustic insulation, an automated dimming system to continuously maintain a constant level of light in the cabin in real-time, and weight-savings. Leading companies manufacturing electromechanical pleated window shades have products that incorporate SPD-Smart windows into their designs, and Tier 1 suppliers of other cabin systems (e.g. cabin management systems) are featuring SPD-Smart electronically dimmable windows in mockups.

SPD technology is also the only commercially available light-control smart window technology known to have passed the stringent safety and durability tests required by the aviation industry and to have received a Supplemental Type Certificate (STC) from the Federal Aviation Administration. Today, SPD-Smart electronically dimmable windows are flying on over 40 models of various aircraft including those used in commercial aviation, general aviation and military aviation. SPD-Smart products have been selected by aircraft manufacturers as standard equipment on new production platforms including the Honda Aircraft HondaJet, Textron-Beechcraft King Air 250, 350i and C90GTx, Epic Aircraft E1000, and One Aviation Eclipse 700.

Architectural Market:

The architectural community is actively increasing the use of daylight harvesting, green building technologies and building automation systems to more effectively capture and control natural light as part of energy reduction strategies to offset cooling/heating costs and electricity used by artificial lighting. In addition to design, aesthetic and other benefits, the expanded use of glass also supports a growing body of research which finds that the presence of and control over incoming natural light improves an individual's well-being and productivity. Products using SPD-Smart light-control technology – sunroofs, windows, skylights, partitions and others – can play an important role in supporting these converging global trends.

For architectural applications, various market forces and the distinctive features of SPD-SmartGlass are having a positive influence on interest for SPD-Smart products. Many architects are specifying more glass in their designs to satisfy building occupants' desire for greater connectedness with the outside environment. In addition, there is increasing interest in improving energy efficiency in both commercial and residential buildings. Various studies indicate that buildings in the United States and Europe now account for an estimated 39-40% of total energy use and upwards of 70% or more of electricity consumption. Many architects and building owners are striving for sustainable, "green" buildings that are highly energy-efficient, reduce environmental impact, and improve occupant health and well-being. In addition, the design community is increasingly interested in advanced daylighting systems in buildings that lower electrical lighting usage and reduce heating and cooling loads. Because of this, the ability to control light, glare and heat in these building applications is very important and advanced solutions often are needed to optimize operating efficiencies. SPD-Smart architectural products instantly and precisely provide shading, glare control and heat management solutions for offices and homes, especially when these products are available for new construction, replacement and retrofit projects. These products include insulated glass units, single-panel retrofits, unusually shaped glazings, and products with advanced fabrications such as those with ballistic- and blast-resistant capabilities.

In 2015, Research Frontiers' patented SPD-SmartGlass technology was selected as the exclusive smart glass for the USA Pavilion at the World's Fair, Expo Milano 2015. The USA Pavilion featured 312 large panels of SPD-SmartGlass manufactured under license from Research Frontiers by Isoclima S.p.A. Each panel measures approximately 1 meter by 3 meters, making the total surface area in the roof more than 10,000 square feet. This is the largest known installation of smart glass in the world for a roof application and was seen by over 6 million people.

Marine Market:

In the marine application, where light-control needs are especially important, many yacht manufacturers currently employ less than ideal glazing solutions as they try to satisfy various shading and solar control objectives. For example, some report having to use as many as five different types of glass in a typical yacht to satisfy diverse glazing needs. SPD-Smart marine products can reduce the number of different types of glass used in these yachts because of its increased functionality, superior performance and versatility. SPD-Smart marine products provide an innovation that allows these operators to manage incoming light, glare and heat while achieving privacy or maintaining one's view as desired.

Historical Background and Recent Developments:

1. SPD-Smart Film Production

Hitachi Chemical

An important material used in SPD-Smart end-products is SPD light-control film that varies the tint of glass or plastic. In early 2007, our licensee Hitachi Chemical began producing their initial SPD-Smart light-control film on their first factory line. During the second half of 2009, Hitachi Chemical announced that they had begun mass production on their new, larger capacity production line and expanded their annual production capacity to 400,000 square meters (over 4.3 million square feet).

Hitachi Chemical's production line is dedicated exclusively to the production of SPD-Smart film. In July 2009, Hitachi Chemical launched its website dedicated to its SPD-Smart light control film and during 2009, Hitachi Chemical outlined in its press releases and public presentations that it plans to "accelerate the use of SPD film, which holds significant potential for growth" and noted that "SPD film is positioned as one of the key emerging products promoted by Hitachi Chemical to become a future leading product for the company."

Hitachi Chemical expanded its SPD film product portfolio by initiating commercial production of a "lighter" version of its film. Both the SPD "dark" and "light" versions of the films provide a high range of visible light transmission. The best-selling SPD "dark" film has a range of approximately 0.5% to 55.0%. This leads to contrast ratios (the ratio of clear to dark light transmission) of up to 110:1. The commercialization of both "dark" and "light" versions of SPD-film provides greater design and performance options for end-product applications.

Gauzy Ltd.

In October 2018, Gauzy Ltd. announced that it will be producing SPD-Smart light control film for the entire SPD-SmartGlass industry. The announcement came at a ceremony to celebrate the inauguration of Gauzy's production line to produce SPD-Smart light control film in Tel Aviv-Jaffo.

Gauzy has announced that it's Tel-Aviv film production line has a capacity to produce up to 364 thousand square meters of film per year per shift, and that it's initial production will be 1.2 meters wide, and in 2019 they will be expanding this to 1.5 meters wide rolls and in 2020 to 1.8 meters wide rolls.

In February 2019, Gauzy Ltd. announced its second production facility in Stuttgart, Germany to produce SPD-Smart light control film for the entire SPD-SmartGlass industry, and that this state-of-the-art facility with specially-designed coating and curing areas that will give Gauzy the capacity to coat over one million square meters of SPD film per year. Gauzy expects the new facility to be in production by the summer of 2019.

Customers for Hitachi Chemical's and Gauzy's SPD-Smart film are end-product licensees of Research Frontiers. These licensees receive the film, laminate it between glass or plastic substrates, and then fabricate end-products which are sold into various industries. Most end-product licensees pay Research Frontiers a royalty on the sale of these end-products that typically range from 10-15%.

Others

Other companies are currently licensed by Research Frontiers to sell SPD-Smart light-control film to other licensees of Research Frontiers. None of these other companies has yet announced commercial SPD film products for sale.

2. *SPD-Smart Automotive Products:*

Research Frontiers and its licensees are currently working with multiple automotive manufacturers to introduce SPD-Smart windows, sunroofs and roof systems on both concept and production vehicles. Research Frontiers' end-product licensees in this sector include American Glass Products, Asahi Glass, Custom Glass, Daimler AG, DuPont, Hanamac, Isoclima, Pilkington Glass, Pittsburgh Glass Works, Saint-Gobain Vision Systems, Tint-It JSC and Advnanotech. The Company's automotive glass licensees account for the majority of all glass produced for the automotive market throughout the world.

Automotive OEMs:

In 2011, Daimler AG began using SPD-SmartGlass technology in its Magic Sky Control™ panoramic glass roof as an option on its new Mercedes-Benz 2012 SLK. In 2012, Daimler AG began offering its Magic Sky Control™ panoramic glass roof as an option on its new Mercedes-Benz 2013 SL. These SPD products allow drivers and passengers to change the tint of the car roof from dark to clear quickly with a touch of a button. The SLK and SL are the first large-scale series production vehicles to offer SPD-SmartGlass. The Research Frontiers licensees involved with the production of the Magic Sky Control™ roof for the SLK and SL include Hitachi Chemical, which manufactures the SPD-Smart light-control film in Japan. Automotive glass companies Nippon Sheet Glass in Japan and its subsidiary, Pilkington, in the UK and Germany then process and laminates Hitachi's SPD film into the glass for the Magic Sky Control™ roof.

In late 2014, Daimler AG began offering its Magic Sky Control™ as an option on the new Mercedes-Benz S-Class Coupe. In 2015 other S-Class variants (i.e. Standard Wheel base W222, Long Wheel Base V222, Maybach S600 X222 and the Maybach Pullman Limousine) began offering Magic Sky Control™ as an option. The all-new Mercedes-Benz S-Class is the third large-scale serial production vehicle to offer Magic Sky Control™ using SPD-Smart technology. The Research Frontiers licensees involved with the production of the Magic Sky Control™ roof for the S-Class include Hitachi Chemical, which manufactures the SPD-Smart light-control film and Asahi Glass Corporation which then process and laminates Hitachi's SPD film into the glass for the Magic Sky Control™ roof.

The S-Class Coupe offers the largest panoramic Magic Sky Control™ roof ever put into serial production. The surface area of the panoramic roof using SPD-SmartGlass technology on the S-Class is approximately three times the size of the roof glass used on the current SLC and SL roadster. With the addition (announced in August 2017) of the new 2018 S450 and S450 4MATIC S-Class Sedans, a total of 14 Mercedes-Benz model variants now offer this remarkable panoramic smart glass roof:

S 450 S-Class Sedan

S 450 4MATIC S-Class Sedan

S 560 4MATIC S-Class Sedan

AMG S 63 S-Class Sedan

Mercedes-Maybach S 560 4MATIC

S550 4MATIC S-Class Coupe

AMG S63 S-Class Coupe

AMG S65 S-Class Coupe

SLC 300 Roadster

AMG SLC 43 Roadster

SL 450 Roadster

SL 550 Roadster

AMG SL63 Roadster

AMG SL65 Roadster (Standard Equipment)

A key factor in the broad adoption of SPD technology in various automotive windows is its cost. Typically, the cost for new technology products decrease as production volumes increase. The price per square foot of SPD-SmartGlass reported by our licensees has gone down over time in the automotive market. Royalties from the Magic Sky Control panoramic roofs generate a royalty of 10% of the selling price of these roofs by our licensees to Daimler. The roofs on the S-Class is approximately two to three times the surface area of the roofs on the SLC and SL vehicles.

Research Frontiers believes that the addition of the S-Class car model is also significant since it applies our SPD-Smart light-control technology to the broader class of vehicles by moving beyond roadsters to coupes and passenger sedans. Historically, since its debut over 40 years ago, the S-Class represents the premier platform to introduce new technologies to the customer, which in many cases expand to the other less expensive model lines within the Mercedes-Benz brand.

In November 2015 at the Los Angeles Auto Show, Mercedes-Benz launched a refreshed Mercedes-Benz SL. The press release from Mercedes-Benz it stated, “Another feature which has been retained is the unique optional extra MAGIC SKY CONTROL: when closed, the panoramic vario-roof automatically changes from dark to transparent or vice-versa within just a few seconds.” The MAGIC SKY CONTROL feature is a carry-over from the previous model. Other new features include a new front end, new headlamps, more powerful engines, a new transmission, among many others.

In January 2016 at the North American International Auto Show in Detroit, Mercedes-Benz premiered the new Mercedes-Benz SLC. The press release from Mercedes-Benz when the SLC was first announced stated, “A feature that continues to be unique to the SLC is the panoramic vario-roof with Magic Sky Control – this glass roof is lightened or darkened at the touch of a button. This means that it provides an open-air feeling at any time, but when required gives welcome shade under a hot sun.” The Magic Sky Control feature, using Research Frontiers SPD-SmartGlass technology, is a carry-over from the SLC’s predecessor model, the SLK roadster.

Other automakers continue to develop and evaluate the use of SPD technology in their windows systems. Such window systems include sunroofs, side-windows, rear-windows and front-window visors. Some automakers and their suppliers have incorporated SPD-SmartGlass in concept vehicles, with some of these concept vehicles being exhibited at major auto shows:

March 2019:

At the 2019 Geneva Auto Show Mercedes-Benz SLC roadster, SL roadster, S-Class Sedan and Maybach vehicles in serial production which was presented using the Company’s SPD-SmartGlass technology.

In addition, two new production cars by McLaren Automotive featured SPD-SmartGlass technology in their roofs: the McLaren 720S Spyder and MacLaren Speedtail. The McLaren 720S Spyder is currently in production and the McLaren Speedtail is expected to be in production in 2019 with delivery to customers to begin in January 2020.

January 2019:

At least four different companies showcased SPD-Smart products at CES 2019 in the automotive and consumer electronics industries.

November 2018:

Two concept electric vehicles debuted at the 2018 Los Angeles Auto Show featured SPD-SmartGlass. These two vehicles are scheduled to be in production in 2020.

At electronics 2018 in Munich in November, Texas Instruments demonstrated a control unit reference design (TIDA-020013) created to more intelligently and efficiently power SPD-SmartGlass electronically dimmable glass using a standard 12-volt automotive battery. The interactive demonstration is paired with gesture control to lighten or tint glass with the SPD-SmartGlass technology.

The SPD-SmartGlass sunroof application, supplied to Texas Instruments by VariGuard, gives occupants more control over the lighting in their car, removes unwanted heat, light and glare, and increases the driving range of electric vehicles. It also miniaturizes the electronics package and reduces the cost of the entire system to the auto maker, while also improving power efficiency. Engineers can use the TI reference design to accelerate their own designs using electronically dimmable glass. The design includes TI’s highly efficient power management circuits and a 32-bit C2000™ real-time MCU to help generate the necessary signal to drive and control substantial surface areas.

January 2018:

A number of different companies showcased SPD-Smart products at CES 2018. In the automotive industry, Fisker debuted its new Fisker E-Motion with a unique and innovative four-segment SPD SmartGlass roof. In addition to use in its large curved panoramic roof, Fisker says that it plans to offer SPD-SmartGlass technology on the side windows of this new electric vehicle.

Continental Corporation (“Continental”) also showcased their Intelligent Glass Control system using SPD technology at CES 2018 to demonstrate how it makes cars safer, more private and comfortable, lighter and more energy-efficient.

January 2017:

Corning introduced a concept car that features an SPD-SmartGlass panoramic roof and rear glass at the 2017 Consumer Electronics Show. This large roof and curved rear glass is made using SPD-SmartGlass light-control film laminated between Corning’s Gorilla® Glass, a special chemically-strengthened thin and lightweight glass.

At the 2017 Consumer Electronics Show, Continental Corporation (“Continental”) showcased an advanced version of its SPD-equipped vehicle that it originally showcased at the 2016 Consumer Electronics Show. This vehicle has enhanced and more sophisticated electronics, Continental indicated that its Intelligent Glass Control system increases passenger comfort and lowers CO2 emissions by keeping the interior of the vehicle cooler. As a result, smaller, more efficient and lighter air conditioning units could be used. Calculations showed a reduction in CO2 emissions of four grams per kilometer. Continental also estimates that their Intelligent Glass Control system can increase the driving range of electric vehicles by 5.5%

January 2016:

Continental Corporation showcased its “Intelligent Glass Control” system on a demonstration vehicle at a special event at the Consumer Electronics Show (CES) in Las Vegas. This vehicle, a Ford Mondeo station wagon, used SPD-SmartGlass technology to enable the glass in all eleven side and rear windows and in the top sunvisor portion of the windshield to change its transparency and darken instantly through electric control signals.

March 2015:

The Lincoln Motor Company, the luxury automotive brand of the Ford Motor Company, introduced the Lincoln Continental Concept car using an SPD-SmartGlass electronically tinting sunroof. This Lincoln Continental Concept car featuring SPD-SmartGlass also made its Asian debut at Auto Shanghai in April 2015.

September 2012:

BMW debut at the Paris Motor Show its new BMW Concept Active Tourer. This vehicle's entire composite glass roof uses patented SPD-SmartGlass technology.

March 2012:

Mercedes-Benz debuted at the Geneva International Motor Show its public evaluation of the Limited Edition Viano Pearl. This vehicle displays the capabilities and conceptual use of SPD-SmartGlass on the side glass of vehicles from Mercedes-Benz.

December 2011:

Toyota debuted its FS Hybrid Concept at the 2011 Tokyo Motor Show in Tokyo, Japan. The FS Hybrid Concept demonstrated the use of SPD-Smart™ technology in side glass.

September 2011:

Audi debuted its A2 concept car at the Frankfurt International Auto Show in Frankfurt, Germany. The A2 is an electric-powered passenger car equipped with a large SPD-Smart™ panoramic glass roof.

3. Automotive Aftermarket:

While the highest volume market for which SPD-Smart technology is being developed is new car production by the world's automakers, the aftermarket upgrade market also presents opportunities in the automotive market. Research Frontiers licensee American Glass Products (AGP) is offering its Vario Plus Sky SPD-SmartGlass to the automotive aftermarket as well as to the automotive OEM market for serial production. In May of 2017 Hanamac International Ltd. acquired a license from Research Frontiers Inc. to produce and sell SPD-SmartGlass automotive windows for the South Korean aftermarket. In March of 2013 Research Frontiers announced that it had added two new licensees, Tint-It JSC and Advnanotech, both of whom are targeting the automotive aftermarket in Russia.

4. Recreational Vehicles//Motor Homes/Busses and Motorcoaches:

January 2019:

Vision Systems exhibited their SPD-SmartGlass technology for the coach marketplace at UMA Expo.

Most motorcoach windows use heavily tinted windows to manage excessive light, glare or heat. While this reduces somewhat the time the shade has to be down, it remains ineffective for many conditions. Also, it limits passengers' experience of views during dusk, nighttime and dawn hours. This is due to the fact that when outside light levels are low, a heavily tinted window blocks or degrades elements of the scene outside. During these hours, the high optical clarity of SPD-SmartGlass in the "clear" state eliminates this problem.

Features of Vision Systems' SPD-SmartGlass electronically dimmable window ("EDW") for motorcoaches include:

Different zones of an EDW can be independently controlled.
All EDWs can be controlled centrally with a master control, or automatically with light sensors.
The level of noise in the motorcoach is reduced.
The EDWs automatically turn to the darkest state when the motorcoach engine is off, keeping the interior cooler and offering lower air-conditioning consumption and greater energy savings.
An ergonomic SPD-Smart dimmable motorcoach sun visor increases safety.
The electronics are integrated into the EDW, which facilitates OEM and aftermarket installations.

May 2017:

At Caravan Salon in Dusseldorf, Germany, premium recreational vehicle supplier Lippert Components, and Knaus, a leading manufacturer of leisure vehicles in Europe, both featured the world premiere of dimmable windows using SPD-SmartGlass technology. These electronically dimmable smart windows, which dramatically improve the recreational vehicle passenger experience, were supplied by Vision Systems, a licensee of Research Frontiers.

September 2014:

Global Caravan Technologies, Inc. unveiled the CR-1 Carbon which features the MagicView™ roof and MagicView™ windshield with SPD-SmartGlass. This special glass which totals 28 square feet, was jointly developed with Research Frontiers' licensee Vision Systems. SPD nanotechnology on this vehicle allows infinitely variable control of privacy between blackout and clear and can be controlled by any smart-phone or other smart-devices. In addition to controlling the level of light and glare coming into the RV, the MagicView™ SPD-SmartGlass on RVs offers many other advantages. This technology provides unsurpassed thermal insulation: SPD-SmartGlass substantially rejects solar heat from entering RVs through windows. The SPD-SmartGlass achieves its maximum dark state when the RV is parked/turned off and no power is consumed.

January 2012:

Vision Systems announced that Notin, manufacturer of motorhomes and campers, selected Visions Systems' Nuance brand of SPD-SmartGlass for the skylight of Notin's Angara luxury motorhome. In October 2013 at Busworld 2013, Vision Systems showcased a new sun visor using SPD-Smart light-control film technology and a light sensor to automatically and dynamically adjust the sun visor to deal with changing light and glare conditions. Vision Systems indicated that they have been working for almost two years with a major automotive OEM to test the ease of installation, reliability, design and performance of their new sun visor in real world conditions. They further indicated that customer reaction regarding the effectiveness and ease of use of this product has been excellent. The fact that this feature can be installed in the aftermarket should bring these benefits to a wider range of drivers.

5. Rail Transport:

September 2018:

Innotrans, the leading international trade fair for transport technology, was the stage for the world premier of new EDW solutions using SPD-SmartGlass technology. AGC, and Vision Systems launched their respective latest generations of SPD-SmartGlass EDWs for the rail industry. In addition, Continental also new electronic control products for SPD-SmartGlass EDWs at the show.

Vision Systems at InnoTrans

Some of the products using SPD-SmartGlass for the train industry being showcased this week in Berlin include:

- EDWs with integrated control system electronics (on the passenger window EDW itself), for rapid installation in both new train car production, and retrofitting existing train cars.
- SPD-SmartGlass solutions for the driver cabin, to eliminate glare on the dashboard with side and back window EDWs, and/or SPD sun visors integrated into the windshield.
- "Info-Vision" window, which integrates an electroluminescent display into SPD-SmartGlass windows. This combines the benefits of the EDW with information available directly on the window, such as time to destination, remaining distance, temperature, service options, and train schedules.

In addition to the above information, Vision Systems confirmed at Innotrans that they were working on other high-volume train projects with major commuter train manufacturers and operators.

AGC at InnoTrans

AGC, a leading Tier 1 supplier of transparencies to the rail industry for over 50 years is also prominently featuring SPD-SmartGlass EDWs. In a recent article entitled AGC at Innotrans with smart glass for transportation, it was noted; "AGC's booth will feature AGC's smart glasses for transportation… Wonderlite light control glazing, that switches from clear to dark at the simple touch of a button." Wonderlite is AGC's brand name for its SPD-SmartGlass EDWs.

Global Rail News published an article about Continental at Innotrans, noting; "The level of transparency… of the glass can be adjusted via a control system, which can be programmed to respond to external conditions, such as sensor data on sunlight intensity."

Continental at InnoTrans

Continental unveil a number of new innovations, including an intelligent technology for darkening glass panes and a range of individual surface designs…. The 'Intelligent Glass Control' (IGC) system by Continental provides passengers with the flexibility to adjust the amount of light and the color of their window or other glazed areas to suit their needs.

The technology, which was originally developed for the automotive industry, relies on a film sandwiched between two panes of glass and connected to an electronic control unit (ECU).

September 2017:

Vision Systems announced to the press in September 2017 that it had just signed contract to supply SPD-Smart Nuance windows for a new proposed special Shinkansen bullet train which will be put in service for the 2020 Tokyo Olympics.

May 2017:

AGC Asahi Glass announced its light control glass, WONDERLITETM, was adopted for JR East luxury sleeper train, Train Suite Shiki-shima ("Shiki-shima"), which began service on May 1. JR East's luxury sleeper train Shiki-shima, conceptualized as a train for 'enjoying changes in time and space', has been designed with individualized themes for each compartment. Of particular note, the front carriage, containing a special area for enjoying panoramic views of Japan's landscape, has been outfitted with WONDERLITETM light control glass, which makes it possible to adjust passing sunlight simply with a switch.

September 2016:

Vision Systems, with their customers/strategic partners, exhibited many different types of SPD-Smart products at InnoTrans 2016. Products included:

(a) A full-scale train cabin mockup equipped with many SPD-Smart passenger windows

(b) SPD-Smart windows with integrated transparent information displays

(c) SPD-Smart contrast enhancement filters for displays

(d) SPD-Smart windows with multi-zone switching capabilities

(e) Train passenger SPD-Smart windows

(f) Aftermarket driver cabin SPD-Smart windows

September 2014:

In September 2014, Poma (a leading supplier of cable transport systems) showcased at Innotrans 2014 its Cabine H2 cable car. The windows in this cable transport vehicle used Research Frontiers licensee Vision Systems' "Nuance" SPD solution. Innotrans 2014 is the largest international trade fair for rail transport technology with over 160,000 visitors and is held every two years in Berlin, Germany. At this fair Bombardier, featured their "FLEXITY 2" tram platform using an electronically dimmable window produced by Vision Systems. In addition, AGC, one of the largest producers of flat glass in the world, featured its "WONDERLITE" SPD-SmartGlass train window.

6. *Automotive Armored Glass Market:*

Within the automotive market, a potentially additional sector is the armored glass market. Armored glass (sometimes referred to as "transparent armor" and "bullet-resistant glass") encompasses the military, non-military government, and civilian markets. In addition, SPD-Smart technology in this market not only provides the benefits of light-control and UV blockage, it also enhances security by introducing darker tints and privacy. A number of the Company's licensees including American Glass Products, GKN, Isoclima and Pittsburgh Glass Works are recognized industry leaders in the armored glass market.

7. *SPD-Smart Aircraft Products:*

Five aircraft manufacturers have announced that they have selected SPD-Smart dimmable window products as standard or optional equipment for their production aircraft:

Honda Aircraft Company:

The new HondaJet, with first delivery in December 2015, comes with SPD-Smart electronically dimmable windows as standard equipment on all passenger windows.

Textron-Beechcraft has SPD-Smart electronically dimmable windows as standard equipment on all models of its King Air aircraft:

The King Air 250, with first delivery during 2015

The King Air 350i, with first delivery during 2015

The King Air C90GTx, with first deliveries during the first quarter of 2016

ONE Aviation announced the selection of SPD-Smart electronically dimmable windows for its upcoming Eclipse 700 platform.

Epic Aircraft has selected SPD-Smart electronically dimmable windows for its upcoming Epic E1000 aircraft.

Dassault Aviation:

The Falcon 5X was scheduled to come with SPD-Smart electronically dimmable skylights as standard equipment. Subsequently, however, Dassault announced in December 2017 that they were terminating the Falcon 5X program and announced the launch of a new Falcon program featuring the same cross section as the Falcon 5X. This aircraft is scheduled to enter into service in 2022. No decision regarding the use of SPD-Smart electronically dimmable windows has been made for this new program.

Other aircraft manufacturers and their suppliers continue to develop and evaluate the use of SPD technology in their window systems. Aircraft manufacturers and SPD product suppliers have incorporated SPD-Smart electronically dimmable windows in mockups, with some of these mockups being exhibited at major aviation shows:

October 2018:

Vision Systems presented their second-generation SPD-Smart EDWs, branded Nuance V2, with enhanced optics and a lower cost at the NBAA business aviation show. The solutions on display at Vision Systems' NBAA included:

Multizone: This Nuance V2 solution allows independent control of light and glare through different “zones” of an SPD-Smart EDW, to any level of tint.

Variable light control with diffused light / privacy control: This SPD-Smart solution enables instant and precise dimming from clear to very dark, plus an opaque white or dark feature for privacy and enjoying soft, diffused daylight through the EDW.

Interactive: Vision System's Info-Vision is the first smart information window integrating SPD-Smart and electroluminescent technologies. This economical innovation, for use in windows and cabin dividers, provides passengers with travel and other information right on the window. The tint of the Info-Vision EDW can automatically adjust in real-time, providing optimal contrast and readability.

Cabin Divider: The Nuance V2 cabin divider enables adjustable levels of privacy between classes and allow flight attendants the ability to view multiple cabins whenever needed.

April 2018:

Fokker Services, in partnership with InspecTech Aero Service, featured their Element EDW brand of SPD-Smart EDWs at the AIX commercial aviation show in Hamburg, Germany:

An Airbus A320 mockup was demonstrated, which includes two Element EDWs integrated into a sidewall. The EDWs replace the inboard "scratch lens" (the surface closest to the passenger), resulting in benefits including improved optical clarity, and the perception of larger windows as the scratch lens panel has a larger surface area than the structural window.

Fokker showcased a Boeing 737 cabin mockup which includes Element EDWs.

April 2018:

At the AIX show in Hamburg, Vision Systems unveiled the world premiere of Vision System's Info-Vision, the first smart information window integrating both SPD-Smart and electroluminescent technologies. This economical innovation, for use in windows and cabin dividers, provides passengers with travel information right on the panel. The tint of the Info-Vision window or divider can automatically adjust in real-time, providing optimal contrast and readability. Other SPD-Smart EDW solutions from Vision Systems featured at AIX in Hamburg include:

Second-generation Nuance V2 and Nuance V2 Ultra-Dark: enhanced optics and lower cost.

Nuance Smart-Shell: a retrofit EDW product covering cockpit side windows.

Nuance Energia: a dimmable sun visor integrating a transparent photovoltaic film for self-power.

October 2017:

PPG Aerospace, in partnership with Vision Systems, launched a new product at the National Business Aviation Association Convention and Exhibition in Las Vegas, Nevada. Nuance V2 Ultra Clear is a new product responding to the industry requests for aircraft cabin shading systems that allow for brighter cabin interiors, while providing for more effective shading. This Electronically Dimmable Window (EDW) solution uses patented SPD-Smart light control technology developed by Research Frontiers.

July 2017:

ONE Aviation announced the selection of the ALTEOS EDW by PPG for its new Eclipse 700 aircraft. The Eclipse 700 aircraft is an upgraded version of their Eclipse 500/550. The Alteos EDW utilizes the NUANCE V2 shading product by Vision Systems that uses SPD-Smart light-control technology from Research Frontiers. As ONE Aviation stated in the announcement, “A priority at ONE Aviation is to maximize ease of use and passenger comfort. The PPG ALTEOS system provides both with simple and effective control of window shading.”

May 2017:

Vision Systems, and PPG Aerospace, announced that they have reached a commercial agreement to work together on developing new applications utilizing Vision Systems’ EDW shading solutions for aircraft. These solutions use Research Frontiers’ SPD-Smart EDW technology and also combine the considerable experience that both PPG Aerospace and Vision Systems have in supplying the aircraft industry with EDW systems. As stated in their press release, “The agreement provides a framework for PPG and Vision Systems to pursue opportunities in commercial, regional, military and general aviation applications that capitalize on each company’s expertise.”

October 2016:

At the MRO Europe conference Fokker Services, a division of GKN Aerospace, launched “Element EDW,” a new electronically dimmable window system for commercial airliners. Developed in collaboration with Research Frontiers licensee InspecTech Aero Service, this “smart transparency” controls and manages both beneficial and undesirable outside elements coming into aircraft cabins through passenger windows.

Vision Systems exhibited SPD-Smart EDWs at Aircraft Interiors Expo Asia and at the National Business Aviation Association (NBAA) Business Aviation Convention & Exhibition. These products improve the airline passenger experience by controlling light, glare, heat and noise entering the cabin.

May 2016:

Easier SPD-Smart EDW control switches from InspecTech Aero Service were featured at the EBACE aircraft show on the newly redesigned King Air 350i and 250 that were on display by Textron-Beechcraft. Also, at EBACE it was reported that the King Air C90GTx (the third King Air to offer SPD-Smart EDWs as standard equipment) has received FAA certification, Textron highlighted the improved EDWs on their newly redesigned aircraft as an important cabin enhancement.

Vision Systems debuted an Acti-Vision interactive aircraft window at the EBACE aircraft show that not only dims but brings the passenger important information such as flight status, moving map, satellite imagery, and even tourist information about what the passenger is looking at out the window via a transparent video touchscreen built into the window.

April 2016:

Vision Systems introduced a solution for the light and glare issues commonly experienced in aircraft cockpits at the Aircraft Interiors Expo. Vision Systems' Nuance Smart Shell, using Research Frontiers SPD-Smart EDW technology, is designed for lateral cockpit windows, which account for a large percentage of light and glare entering cockpits, and are extremely difficult to shade. The Nuance Smart Shell EDW covers the entire window surface area and brings dynamic solar control to aircraft cockpits – providing automated management of intense high-altitude light and glare, and protection from harmful UV radiation.

April 2015:

Vision Systems demonstrated its Nuance Touchless SPD-Smart EDW at the 2015 Aircraft Interiors Expo in Hamburg, Germany. The new system allows passengers to use gestures, much like those used to operate a smart phone, to control the tint of their aircraft windows, but without ever having to touch the window or any other aircraft interior component.

Isoclima showcased its CromaLite brand of SPD-Smart electronically dimmable windows at the Aircraft Interiors Expo in Hamburg, Germany.

March 2015:

Vision Systems unveiled its SPD-Smart Opti-Visor electronically dimmable sun visor for the aircraft market at the Helicopter Association International Heli-Expo in Orlando, Florida.

December 2014:

At the 2014 MEBA show in Dubai, U.A.E., Vision Systems unveiled a new generation of its Energia photovoltaic autonomous SPD-Smart dimmable window – the new product is capable of producing more energy than the prior generation.

October 2014:

Epic Aircraft featured SPD-Smart windows in the mock-up of their upcoming E1000 aircraft. The mock-up was unveiled at 2014 NBAA in Orlando, Florida.

May 2014:

At the 2014 EBACE show in Geneva, Switzerland, Vision Systems unveiled a new SPD-Smart dimmable window product that offers passengers the ability to independently control the tint of different "zones" within the same window. At the same show, Vision Systems announced an improvement in the optical performance of its Nuance SPD-Smart dimmable windows – a product offering wider amplitude between clear and dark.

April 2014:

BAE Systems featured SPD-Smart electronically dimmable windows in their cabin management system mock-up at the 2014 Hamburg Airshow. The windows can be controlled by the BAE system.

Vaupell featured an SPD-Smart electronically dimmable window in their commercial airliner window assembly at the 2014 Hamburg Airshow.

October 2013:

At the 2013 AIX Americas show, Vision Systems' strategic partner Vaupell announced they are offering the industry a complete SPD-Smart light-control window system – Vision Systems' SPD-Smart Noctis window and control system, integrated with Vaupell's window assembly. This product offering was showcased at Vaupell's AIX Americas booth. Vision Systems and Vaupell entered into a strategic partnership to develop and offer SPD-Smart Noctis and Nuance windows to OEMs, including Vaupell's longstanding customer Boeing.

At the 2013 NBAA, Vision Systems unveiled Energia – the world's first self-powered dimmable window for aircraft cabins. Energia adds the many practical, technical, and financial benefits of solar power to the instant switching speed, wide range of light transmission, and relief from light, glare and heat that SPD-Smart aircraft windows already provide. Energia operates without using the aircraft's electrical system because it integrates a transparent photovoltaic layer that is capable of producing its own energy – from the sun, or from artificial light sources. Energia facilitates the installation of dimmable windows on new production and aftermarket aircraft. It is completely independent of the cabin's wiring, and no modifications to the aircraft's existing electrical system are required. Energia was developed in collaboration with Sunpartner Technologies, Vision Systems partner and the inventor and manufacturer of the transparent photovoltaic panel. In March 2014, Vision Systems announced that Energia had been selected as a finalist in the prestigious 2014 Crystal Cabin Award.

In a press release at the 2013 NBAA in Las Vegas, GKN stated: "In addition to the Global 7000/8000, the aircraft transparencies operation equips the Beechcraft KingAir, the Lear 35/45 and 60 – and the complete Embraer aircraft family. The company's latest passenger windows are the largest and most effective on the market and GKN Aerospace is developing new dimmable cabin management technology that will include full cabin blackout – providing passengers with new levels of comfort and environmental control during their journey."

June 2013

At the Paris Air Show, Vision Systems announced it will open its first-ever U.S. SPD-SmartGlass factory, investing nearly $1.2 million in capital expenditures to serve customers with strong U.S. operations. The new factory was highlighted by Florida Governor Rick Scott and Vision Systems President and CEO Carl Putman, with Research Frontiers President and CEO Joseph M. Harary and others in attendance for this special announcement. This announcement of a further expansion to the United States indicates an acceleration of existing and projected business in North and South America where major aircraft OEMs and customers of Vision Systems are located, including HondaJet and Gulfstream.

May 2013:

Eurocopter featured SPD-Smart windows, and SPD-Smart cabin partitions, in the mock-up of their EC175 helicopter. The mock-up was unveiled at EBACE 2013 in Geneva, Switzerland.

April 2013:

Vision Systems debuted its new SPD-Smart window with integrated electronics and controls directly on the window at the 2013 Hamburg Air Show. Developed with strategic partner Vaupell, a world leader in the production of aircraft interior subassemblies for commercial aerospace applications, it became the first dimmable window with integrated electronics and control panel directly on the aesthetically attractive window reveal.

October 2012:

Honda Aircraft Company featured HondaJet SPD-Smart cabin windows at the 2012 National Business Aviation Association (NBAA) Annual Meeting & Convention. The HondaJet’s passenger windows will use SPD technology as standard equipment. SPD-Smart Nuance windows for the HondaJet went into production at Vision Systems’ new Melbourne, Florida factory.

InspecTech announced enhancements to its electronics architecture used to control their iShade to enable the SPD-Smart electronically dimmable windows to switch to their clearest state in the event of a power loss – that was a request made by certain OEMs. InspecTech's iShades now offer "the best of both worlds" - when unpowered on the ramp, the windows automatically switch to their darkest, maximum heat-rejecting state, and when in the air, they instantly switch to the clear state in the event of a loss of power.

InspecTech announced improvements to its iShade iQ including a higher light transmission, greater contrast ratio, unprecedented optical clarity, superior acoustic and thermal insulation properties, and lighter weight.

March 2012:

At the 2012 Aircraft Interiors Expo in Hamburg, Germany, Isoclima S.p.A. announced that Isoclima's CromaLite brand of SPD-Smart aerospace windows made their world premiere. CromaLite is Isoclima's SPD-Smart solar control glazing product and enables users to efficiently control the transmitted solar radiation in both the visible and the solar range. Dr. Alberto Bertolini, Executive Director of Isoclima, commented: "Our CromaLite brand of SPD-Smart window offers many valuable light-control benefits: instant shading, glare control, UV rejection, the desire for passenger comfort, and keeping aircraft cool when they are on the ground. We are very excited by the reactions we have received from OEMs and cabin designers who are here at the Aircraft Interiors Expo and are excited about our growing portfolio of SPD-Smart CromaLite solutions for the transportation and architectural markets."

Vision Systems announced that the company has invested over $750,000 to expand its existing factory in France to add a production facility dedicated to the manufacture of its SPD-Smart Nuance and Noctis aerospace and transportation windows and cabin dividers.

November 2011:

Bombardier Aerospace featured SPD-Smart aircraft windows in their CSeries aircraft cabin mock-up at the 2011 Dubai Airshow, equipping the business class windows in its mock-up with SPD-Smart aerospace windows.

Vision Systems exhibited its Nuance and Noctis brands of SPD-Smart aircraft cabin windows at the Dubai Airshow in Dubai, United Arab Emirates. Nuance and Noctis SPD-Smart aerospace windows offer instant and precise light-control at every level which provides OEMs and private aircraft owners a solar protection solution that enhances flying comfort and supports fuel efficiency. These electronically dimmable aircraft and helicopter window shades and cabin dividers are impact-resistant, completely silent, available in flat and curved surfaces, and can be controlled by the cabin management system or by passengers. Vision Systems' Noctis SPD-Smart product line offers enhanced blackout solar protection and complete privacy. Also, at the November 2011 Dubai Airshow, Vision Systems announced that Bombardier Aerospace was featuring Vision Systems' SPD-Smart aircraft windows in Bombardier's CSeries aircraft cabin mock-up. Bombardier equipped the business class windows in its mock-up with Vision Systems' SPD-Smart Noctis aerospace windows. Developed for the 100- to 149-seat market segment, the CSeries family of aircraft is Bombardier's all new mainline transport solution.

April 2011:

InspecTech announced a new model of its SPD-Smart iShade window, branded iShade iQ. This model, in addition to the light, glare and heat control, also reduces noise levels in the cabin.

January 2011:

Research Frontiers and GKN Aerospace Transparency Systems publicly announced the expansion of the scope of the former license agreement to include the sale of SPD-Smart windows, window shades, interior partitions, cabin dividers and other products for aircraft. The earlier license agreement with GKN focused on SPD-Smart products for armored transportation applications. GKN Aerospace is the world-leading supplier of cockpit transparencies and passenger cabin windows.

Key performance requirements for aircraft light-control windows:

Level of darkness:

Solar radiation onboard aircraft is extreme and requires a dimmable window that creates an environment dark enough for passengers to sleep, even during daylight hours. Research Frontiers licensees now offer SPD-Smart windows that can be set to block over 99.96% of incoming light, to meet the needs of OEMs and their customers.

Switching speed:

Whenever a passenger wants relief from glare, SPD-Smart aircraft windows offer immediate response. Due to instant switching, an infinite number of light-transmission states can be selected by the passenger or flight crew, from clear to blackout, and any level of view-preserving tint in between.

Heat-blocking:

Aircraft cabins can become hot when the aircraft is parked because of solar heat streaming through windows. The result is an uncomfortably warm cabin upon boarding or the need to use jet fuel or auxiliary power units before boarding to cool down the cabin. SPD-Smart aircraft windows automatically switch to their maximum heat-blocking state, even when the aircraft is parked unpowered, and the cabin remains cool.

Additional challenges stated by OEMs and their customers that have been successfully met by SPD-Smart dimmable aircraft windows include:

Noise-blocking: the ability to reduce the amount of noise transmitted through windows

Curved shapes: the ability to offer curved windows to meet interior design needs

Weight-reduction: the ability to fabricate dimmable windows using lightweight plastics and thin chemically strengthened glass

FAA certification: the ability to demonstrate full compliance with all FAA requirements

8. SPD-Smart Architectural Products:

Research Frontiers and its licensees are currently working with multiple architectural customers to introduce SPD-Smart products including windows, skylights, partitions and doors. The architectural markets for these products are highly fragmented and in general have a high sensitivity to price. In the near term, the Company expects SPD-SmartGlass products primarily will be commercialized in specialty applications and/or sectors that value its distinctive performance attributes including fast switching speed regardless of window size, a very wide range of visible light transmission, infinite light-control between its dark and clear states, and availability in unusual shapes and sizes. Research Frontiers' end-product licensees in this sector include: Advnanotech (ADV), American Glass Products (AGP), Asahi Glass, Cricursa Cristales Curvados, ID Research Pty Ltd. ("i-Glass"), Innovative Glass, LTI SmartGlass, NSG UMU Products Co., Ltd Prelco, Isoclima, Traco (a business unit of Alcoa), Mecanica de Vidros Industria E Comercio ("MDV"), and Tint-It JSC.

In January 2017, Research Frontiers and NSG UMU Products Co., Ltd. announced that UMU Products has acquired a license from Research Frontiers Inc. to produce and sell SPD-SmartGlass architectural intelligent products throughout the United States, Canada, Mexico, Japan, the People's Republic of China and Taiwan. The non-exclusive license grants UMU Products, a subsidiary of world-leading glass manufacturer Nippon Sheet Glass, the right to manufacture and sell SPD-SmartGlass products including windows, doors, solar shading screens, curtainwalls, skylights and other intelligent smart glass architectural products.

In September 2016, Smartglass International announced that its Solar SmartGlass brand of SPD-SmartGlass has been selected for both new construction and retrofit projects. An example of a retrofit project is the University of Edinburgh's historic McEwan Hall. The interior of this hall, built in 1897, is being refurbished. In an article on the Smartglass International website, the company indicates that its Solar SmartGlass "…will be retrofitted to the internal building walls to protect the beautiful paintings and features for many more years to come. The glass will increase the functionality of the space by allowing instant control over the amount of light entering the hall. Smartglass International will create bespoke solar switchable panels that will be fitted inside each of the 13 circular oculi, each more than 2 metres in diameter."

At its annual stockholders meeting in June 2015, Research Frontiers announced a small strategic investment in Zuli Inc. a manufacturer of smartplugs. At this meeting, Joseph Harary demonstrated how the Zuli Smartplug integrates with SPD SmartGlass products. Mr. Harary indicated that “Using a Zuli Smartplug, you can walk into a room with your smartphone, and have the lights automatically turn on, temperature adjust, and the glass in your windows instantly go from an energy-saving dark tint, to clear so you can see the magnificent views outside your home. Now, walk into another room and have those lights and windows adjust too, while the Zuli Smartplug automatically shuts off your devices in the room you left to save energy.”

In March 2015, Research Frontiers’ patented SPD-SmartGlass technology was selected as the exclusive smart glass for the USA Pavilion at this year’s World’s Fair, Expo Milano 2015 from May through October 2015. The USA Pavilion 312 large panels of SPD-SmartGlass manufactured under license from Research Frontiers by Isoclima S.p.A. Each panel measures approximately 1 meter by 3 meters, making the total surface area in the roof more than 10,000 square feet. This is the largest known installation of smart glass in the world for a roof application and was seen by over six million people.

SPD-Smart windows, skylights, doors and partitions offer various benefits in architectural applications. During 2009, independent tests were conducted by DSET Laboratories, a division of Atlas Material Testing Technology, in accordance with ASTM and ASHRAE testing and calculation protocols. These test results demonstrate that SPD-Smart windows have excellent solar heat rejection and control capabilities. In January 2011 a study published by the Department of Engineering at the University of Cambridge concluded that SPD-Smart light-control windows are exceptionally energy efficient, reducing solar heat gain by as much as 90%. The Cambridge study indicated that the real-world testing “confirms theoretical predictions that SPD glass holds great energy saving potential and is a technology that can really help to reduce energy wastage of glass facades.” In addition to SPD-Smart technology, the Cambridge study discussed alternative dynamic glazing technologies that could be used in windows (e.g. electrochromics) and reported that SPD-Smart technology did not have the disadvantages that limited the potential of these alternative technologies. For example, the study cited that an electrochromic window that is 2.4 square meters can take up to 30 minutes to change from clear to dark.

In November 2011, Research Frontiers’ licensee Innovative Glass Corporation was awarded two 2010 Crystal Achievement Awards for their smart window product line using our SPD-Smart light-control technology. In October 2010, their SPD-SmartGlass product was awarded WFX’s (Worship Facilities Conference & Expo) New Product award for Best Building System Material Product/Window. Innovative Glass has completed or is working on a variety of SPD-SmartGlass projects in the commercial, residential and institutional markets. Innovative Glass also periodically exhibits its SPD-SmartGlass architectural products at Glass Expo Northeast in Hauppauge, New York. Glass Expo Northeast is the region’s largest conference and trade show dedicated to the architectural glass and metal industry.

Research Frontiers licensee SmartGlass International has announced completion of several high visibility SPD-SmartGlass installations. During February 2012, the company announced installation of SPD-SmartGlass at

CERN, the European Organization for Nuclear Research, which is one of the world's largest and most respected centers for scientific research. SmartGlass International installed SPD-SmartGlass in CERN's Globe of Science and Innovation that will house a permanent exhibition and is intended to serve as a venue for a wide range of activities, conferences and other events, In February 2011, SmartGlass International announced it supplied retrofit SPD-SmartGlass to five London television studios of the Associated Press. The SPD-SmartGlass used in these projects harvests daylight when it's needed, improves occupant comfort by providing controllable solar shading during peak light conditions, and preserves views. Just prior to this installation, it was announced that SmartGlass International installed retrofit SPD-SmartGlass panels at the set of "Daybreak," the breakfast anchor program from ITV, one of the UK's largest commercial television networks.

In 2014, Research Frontiers added Teknoglass Solutions LLP and Diamond Glass. Teknoglass Solutions LLP acquired a license from Research Frontiers Inc. to make and sell SPD-SmartGlass architectural smart window products in the United Kingdom and Republic of Ireland. Diamond Glass acquired a license from Research Frontiers Inc. to make and sell SPD-SmartGlass architectural smart window products throughout Europe. In November of 2013 Research Frontiers announced that it had a new licensee, MDV, who is targeting the architectural market in Brazil. In March of 2013 Research Frontiers announced that it had added two new licensees, Tint-It JSC and Advnanotech, both of whom are targeting the architectural market (in addition to the automotive aftermarket discussed previously) in Russia.

9. SPD-Smart Marine Products:

Research Frontiers and its licensees are currently working with marine customers to introduce SPD-Smart products including windows, doors and partitions. When our patented SPD-Smart light-control technology is used in yacht windows and other products, users can quickly and precisely control and "tune" the amount of light, glare and heat coming through their windows, while preserving their view. Diamond Sea Glaze Manufacturing commenced marketing activities for products using SPD technology during the second quarter of 2011 but did not renew its license for SPD-SmartGlass technology for the marine market which terminated at the end of December 2017.

In October 2016 Vision Systems announced at the Monaco Yacht Show and 2016 IBEX new relationships for offering SPD-SmartGlass products with Taylor Made Systems, ProCurve Glass, and Yachtglass. In addition, the Monaco Yacht Show hosted the world premiere of the "Edition 1" model of the "ARROW460 – Granturismo," which has SPD-Smart dimmable glazing products throughout the Silver Arrows Marine motor yacht supplied by Vision Systems and designed by Mercedes-Benz Design.

In November 2015, Silver Arrows Marine in conjunction with Mercedes-Benz Style (a design arm of Mercedes-Benz) unveiled a new yacht called the ARROW460 – Granturismo featuring an SPD-SmartGlass electronically dimmable roof. The roof, which is supplied by licensee Vision Systems, will be able to be electrically risen, creating a "glass pergola" effect on the yacht. First customer deliveries of this production yacht are planned to start in early 2016. Vision Systems presented its products at the 2015 Marine Equipment Trade Show in Amsterdam in November 2015 and at the Monaco Yacht Show in September 2015.

In November 2013, Hatteras Yachts unveiled their new flagship motor yacht, the 100 Raised Pilothouse with dual SPD-SmartGlass skylights in the galley as standard equipment at the 2013 Fort Lauderdale Boat Show.

In February 2013, licensee Isoclima demonstrated its VebLite brand of SPD-SmartGlass for marine applications at SEATEC 2013 in Italy. SEATEC 2013 is a leading international exhibition of technology and design for boats, megayachts and ships.

In November 2012, licensee Isoclima exhibited its VebLite brand of SPD-SmartGlass for marine applications at the Marine Equipment Trade (METS) Show 2012 in The Netherlands. VebLite is Isoclima's SPD-Smart solar control and privacy glazing product that functions like a venetian blind. It has multiple segments that provide instantly customizable shading fully controlled by the passenger and can be operated individually to create the effect of a shade being raised or lowered or moved to the side. This precisely controls where incoming heat and glare enter a yacht or boat through a window or rooflite, and also controls privacy levels.

In addition to exhibiting its SPD-Smart marine products at METS 2012, licensee Vision Systems' SPD-Smart Nuance dimmable marine window was named the category winner in the prestigious METS 2012 Design Award METS (DAME) competition for interior equipment, furnishing, materials and electrical fittings used in cabins. DAME is considered the world's most prestigious design competition for new marine equipment and accessories. In METS' news release about the DAME award, it was noted "The Jury felt that Nuance is a major innovation that will benefit designers and owners greatly - with comparatively little increase in cost."

In October 2011, Cheoy Lee Shipyards unveiled the Alpha 76 Express, its most advanced production yacht, which is fully-equipped with the latest yacht design features including SPD-SmartGlass supplied by Research Frontiers licensee Diamond Sea Glaze. The Alpha has approximately 150 square feet of SPD-SmartGlass at various places throughout the vessel and it is the first large-scale production yacht to make such extensive use of SPD-SmartGlass. In October 2012, Cheoy Lee Shipyards exhibited two yachts – the Alpha 76 Express and the Alpha 76 Flybridge – at the 2012 Fort Lauderdale International Boat Show with SPD-SmartGlass.

10. *VariGuard SmartGlass Business Unit:*

In May of 2013 Research Frontiers announced the formation of its VariGuard SmartGlass business unit. This business unit allows the Company to directly address market opportunities for SPD technology outside the scope of its current license agreements or the focus of its licensees. VariGuard SmartGlass is a developmental activity for the Company and its revenues are currently immaterial relative to the Company's licensing activities.

The VariGuard SmartGlass business unit markets and sells SPD-Smart products directly to customers for specialty uses such as the protection of artwork and light-sensitive documents in museums and private collections. The business uses an optimized fabrication designed specifically for its exhibition panels. The production of these panels is outsourced to current licensees that have experience producing SPD laminates.

Excessive light-exposure is a leading cause of irreversible damage to many precious objects, particularly works on paper, textiles and watercolor. Presently, no display system is able to provide these artifacts with any protection against visible light damage. VariGuard SmartGlass provides the world's first and only display panels that limit an artifact's light-exposure only to when the artifact is being viewed. This provides unequalled protection for light-sensitive artifacts by substantially reducing an artifact's overall lux-hour exposure when compared to conventional display panels.

VariGuard SmartGlass marketing and exhibition activities include:

October 2018: In an inauguration ceremony presided over by the King and Queen of Sweden, the country's Nationalmuseum reopened after a five-year $132 million renovation. The Nationalmuseum selected ArtRatio's display case, engineered using VariGuard SmartGlass, to allow visitors to experience these objects while at the same time providing unprecedented protection against irreversible damage from exposure to light.

Some of the works being protected by the ArtRatio display case include:

Book of Hours, St. Christopher carrying the Christ Child, watercolour and gold on parchment, Spain, c1400.
Book of Hours, Arrest of Christ, watercolour and gold on parchment, France, c1500.
Ivory object, Christ on the Cross, France, c1350.
Book of Hours, St. Catherine and Kneeling Donor, watercolour and gold on parchment, Netherlands, c1430.
Book, The Hours of Giraldi-Guicciardini: The Rising of Lazarus; Death Carrying a Scythe; 1500-1525, Watercolour, gold on parchment, Italy.

Many objects in the collection date from the Middle Ages and are highly susceptible to permanent damage from exposure to UV, visible and infrared light.

<u>Nationalmuseum Comments:</u>

"*The ArtRatio smart glass table works wonderfully, does its job of protecting our manuscripts and looks great in the room as well!"* Carina Pia Fryklund – Curator, Department of Prints and Drawings, Nationalmuseum

"With VariGuard SmartGlass we can now show very light sensitive illuminations in a gallery where we also let daylight coming in." Joakim Werning – Exhibition Designer, Nationalmuseum

January 2018: VariGuard SmartGlass showcased its SPD-SmartGlass products at the West Coast Art and Framing Expo at Omega Moulding's booth #431.

December 2017: To raise awareness of the unprecedented benefits of VariGuard SmartGlass, the company has launched an advertising campaign targeting the display case and custom framing industries. The first phase of the campaign utilizes publications from leading conservation institutions in the US (Journal of the American Institute of Conservation), UK (Institute of Conservation) as well the leading institution for the picture framing industry (Picture Framing Magazine).

May 2017: VariGuard SmartGlass showcased its SPD-SmartGlass products at the 45th annual meeting of the American Institute for Conservation of Historic and Artistic Works (AIC) in Chicago at booth #107.

September 2015: The Church History Museum, operated by The Church of Jesus Christ of Latter-day Saints, installed 22 exhibit cases containing VariGuard SmartGlass panels to protect light sensitive documents and artifacts. VariGuard panels provide a better viewing experience (by allowing substantially higher gallery illumination levels), while simultaneously reducing damaging visible light-exposure to artifacts.

August 2015: The Smithsonian's National Postal Museum selected VariGuard SmartGlass panels to protect the 1856 British Guiana One Cent Magenta, the world's most famous rare postage stamp.

May 2015: VariGuard SmartGlass exhibited its products at the American Institute for Conservation of Historic and Artistic Works ("AIC") 43rd annual meeting in Miami, FL. Seth Van Voorhees, President of the VariGuard SmartGlass business unit commented: "Our display panels offer the highest level of protection against UV and visible light damage in the industry and they are being used in cases, frames and wall cases to protect various light sensitive artifacts in museums internationally. Reinforcing the benefits of VariGuard panels and how they limit light exposure, the Smithsonian National Postal Museum presented a paper at this meeting entitled "(Year of Light) Lighten Up: Enhancing Visitor Experiences," which will discuss the positive impact that VariGuard panels have in protecting valuable artifacts and enhancing the visitor experience.

January 2015: VariGuard SmartGlass exhibited its display panels at a Washington Conservation Guild meeting focused on innovative new conservation technologies at the Smithsonian Institution's S. Dillon Ripley Center in Washington, DC.

November 2014: VariGuard SmartGlass was invited to present at a meeting of the Washington Conservation Guild which was entitled: "Outsmarting Light: SmartGlass Technology in Exhibitions". At this meeting, results of the light conservation benefits of its light control panels at the National Postal Museum were reported. This study quantified the dramatic reduction (>86%) in light exposure that artifacts experienced in cases using VariGuard SmartGlass display panels versus traditional glass display panels.

June 2014: VariGuard SmartGlass business unit announced that the Smithsonian's National Postal Museum will use VariGuard SmartGlass panels based on SPD-SmartGlass technology at the "Behind the Badge" exhibition in Washington, DC. This exhibit showcases the work of one of the nation's oldest federal law enforcement agencies and VariGuard panels are featured in display cases that showcase historic light-sensitive artifacts.

January 2014: VariGuard SmartGlass announced that Omega Moulding will distribute its patented light control SmartGlass products for frames and display cases in the United States and Canada. That month Omega Moulding showcased the benefits of VariGuard SmartGlass products at the 15th Annual West Coast Art and Frame Expo and National Conference in Las Vegas, NV.

May 2013: VariGuard SmartGlass featured its panels in several framing applications at Museum Expo 2013 at the Baltimore Convention Center in Baltimore, MD.

More information about VariGuard SmartGlass can be found on its independent website at www.VariGuard.com.

Marketing Activities and Licensee Support:

In addition to supporting the efforts of its licensees, the Company also recognizes the need to develop the SPD industry as a whole. As such, the Company continues to plan and execute complementary programs that build awareness and interest in smart glass generally and demand for SPD-Smart products specifically. In 2018, 2017 and 2016 these programs include presentations at various general industry conferences, participation in panel presentations and discussions hosted by academia, development of trade association educational materials, and presentations to architects, designers, and other influential specifiers. For example, in 2018, the Company was invited to speak at the 12th International CTI Conference – Automotive Glazing Europe and at the 3rd Annual 2018 Disruptive Growth & Healthcare Conference on the subject of disruptive automotive technologies. In 2017 and 2016 the Company participated in clean tech, emerging growth and automotive glass conferences in Europe, and during 2016 the Company presented at the Autonomous Vehicle Interior Design & Technology Symposium in Novi, Michigan and was the keynote speaker, and event chairman, at the annual CTI Automotive Glazing USA Conference in Rochester, Michigan.

The Company’s market development department has a number of other initiatives in place. To help guide and prioritize its technical and marketing investments, the Company periodically retains outside strategic marketing and other consultants to help generate increased short- and medium-term market penetrations for each of the major markets for the Company’s light-control technology, and to provide support and guidance to the Company’s licensees worldwide.

The Company has emerged as a leading resource for market research information on the subject of smart glass. Research Frontiers lectures and presents at industry conferences in areas of energy efficiency, daylight harvesting and sustainability. The Company has published independent test data about SPD-SmartGlass, shared the results of its research studies and test data with industry and the media, posted various reference materials to the Company’s website for global dissemination, and published presentations, data and bylined articles.

Research Frontiers maintains an active role with various standards-setting organizations, including ASTM International which has an active committee developing standards for smartglass.

In addition to Research Frontiers providing overarching support of licensees' sales efforts by developing the SPD industry as a whole, leveraging its prominence as a leading resource on the topic of smart glass, and maintaining an active role with standards organizations, Research Frontiers also supports licensees' marketing and sales efforts directly. Activities include advising and assisting with branding strategies and advertising campaigns, website development and other marketing materials, joint presentations to prospective customers, and additional support. As a focal point of interest in smart glass, resulting in many consumer and business inquiries, Research Frontiers has an active referral program to generate customer leads for its licensees.

As part of this mission to develop the industry and to support our licensees' acquiring SPD projects, Research Frontiers completed the construction of the SPD-SmartGlass Design Center. This Center is also configured as an interactive and energy-efficient "smart" executive office and conference room and is located at the Company's corporate headquarters in Woodbury, New York. The SPD-SmartGlass Design Center features leading-edge SPD-Smart windows of different sizes (some floor-to-ceiling) and framing materials. It has a multi-functional electronic controller system for manual, remote, and automatic SPD-SmartGlass switching, and windows that can be controlled remotely over the internet or using a smart phone. This interactive area also contains other types of smart glass, such as those using liquid crystal and electrochromic technologies, allowing users to operate and experience first-hand the differences in performance characteristics of different types of smart glass. Additional showcases of SPD-SmartGlass are being established in other geographic locations to make it convenient for even more people to experience the benefits of SPD-SmartGlass technology.

Research Frontiers' Design Center is the only known public forum where designers, specifiers and end-users can compare performance between SPD-Smart technology and products using other light-control technologies. Research Frontiers believes that the growth of the smart glass industry will accelerate as more information is made available through direct comparisons. Research Frontiers believes that SPD products will be strongly preferred over competing technologies once a direct comparison is available to potential buyers. Research Frontiers continues to encourage its competitors to participate in public forums where consumers of electronically tintable products can see the relative performance of products that are available.

Licensees of Research Frontiers:

The Company's licensees are currently categorized into four main areas: materials for making films (emulsions), film, lamination of film to glass or plastic, and end-products. Emulsion makers produce and combine the necessary materials (i.e. SPD particles and various liquids and special polymers) from which SPD-Smart films are made. The film makers coat a thin layer of emulsion between two sheets of plastic film, each of which has a transparent conductive coating. This emulsion is then partly solidified to form an SPD film that allows users to control the amount of light, glare and heat passing through this film. The end-product licensees then integrate this film into a variety of SPD-Smart products or make electronic systems to control such SPD-Smart products. Some of these end-product licensees do their own lamination of the SPD light-control film to glass or plastic, and some outsource this lamination to other companies. The names of this growing list of licensees, and the year that their license agreements were entered into, are contained in the Exhibit section of this Annual Report on Form 10-K.

Licensees of Research Frontiers that incorporate SPD technology into end-products will pay Research Frontiers a royalty of 5-15% of net sales of licensed products under license agreements currently in effect and may also be required to pay Research Frontiers fees and minimum annual royalties. Licensees that sell components (such as SPD emulsion or film) or lamination services to other licensees of Research Frontiers do not pay a royalty on such sale or service, and Research Frontiers will collect a royalty from the licensee incorporating these components into their own SPD-Smart end-products. Research Frontiers' license agreements typically allow the licensee to terminate the license after some period of time and give Research Frontiers only limited rights to terminate before the license expires. The licenses granted by the Company are non-exclusive and generally last as long as Research Frontiers' patents remain in effect. Due to their bankruptcy filings or other termination of their general business activities or for other reasons, the Company does not believe that Polaroid Corporation, Kerros Limited, ThermoView Industries, BRG Group, SPD Technologies, SPD Systems, and Film Technologies International are pursuing business activities with respect to SPD technology. MDV has indicated that they will not renew their license after 2019. The Company and SPD Control Systems agreed to terminate their license agreement in December 2014 which resulted in a grant back to Research Frontiers of certain rights in SPD Control Systems' intellectual property. Some of the Company's other licensees are currently inactive with respect to SPD technology, but may hereafter become active again. To date, the Company has not generated sufficient revenue from its licensees to profitably fund its operations.

The Company plans to continue to exploit its SPD-Smart light-control technology by entering into additional license and other agreements with end-product manufacturers such as manufacturers of flat glass, flat panel displays and automotive products, and with other interested companies who may wish to acquire rights to manufacture and sell the Company's proprietary emulsions and films. Although the Company believes based upon the status of current negotiations that additional license agreements with third parties will be entered into, there can be no assurance that any such additional license agreements will be consummated, or of the extent to which any current or future licensee of the Company will produce or sell commercial products using the Company's technology or generate meaningful revenue from sales of such licensed products.

The Company's plans also call for further development of its technology and the provision of additional technological and marketing assistance to its licensees to develop commercially viable SPD-Smart products and expand the markets for such products. The Company cannot predict when or if new license agreements will be entered into or the extent to which commercial products will result from its existing or future licensees because of general economic conditions and the risks inherent in the developmental process and because commercialization is dependent upon the efforts of its licensees as well as on the continuing research and development efforts of the Company.

Competitive Technologies:

The Company believes that SPD light-control technology, in which particles move under the influence of an electric field, has certain performance advantages over other "smart glass" technologies.

The Company believes that pricing and product performance are the two main factors critical to the adoption of smart glass products. Because the non-SPD smart glass technologies listed below do not have published, consistent pricing or cost data that can be relied upon, the Company cannot accurately report its price position relative to these other technologies. In terms of product performance, the Company believes that SPD-SmartGlass technology offers numerous advantages over other smart glass technologies as discussed below.

Variable light transmission technologies can be classified into two basic types: "active" technologies that can be controlled electrically by the user either automatically or manually, and "passive" technologies that can only react to ambient environmental conditions such as changes in lighting or temperature. One type of passive variable light transmission technology is photochromic technology; such devices change their level of transparency in reaction to external ultra-violet radiation. As compared to photochromic technology, the Company's SPD technology permits the user to adjust the amount of light passing through the viewing area of the device, rather than the viewing area of the photochromic device merely reacting to external radiation without control by the user. In addition, the reaction time necessary to change from light to dark with SPD-Smart technology can be almost instantaneous, as compared to the much slower reaction time for photochromic devices. Also, unlike SPD technology, photochromic technology does not function well at the high and low ends of the temperature range in which smart windows and other devices are normally expected to operate, nor does photochromic technology perform well in vehicles or other enclosed settings where existing glass is blocking incoming ultra-violet light which is required for photochromic devices to operate.

Similarly, thermochromic smart windows are passive systems which change their light transmission properties as sunlight heats or cools the glass. Because the light transmission properties of thermochromic systems are not controlled by the user, their ability to adapt to the specific needs of occupants is very limited. For example, thermochromic glazings will remain tinted on hot days even when occupants desire more daylight to enter the building or when they want to preserve their views. SPD-Smart windows, which require very low amounts of power to operate, allow for much greater control of incoming light, glare and heat and can be adjusted to any level of light transmission from dark to clear at any time. In addition, SPD-Smart windows can block up to 99.5% of incoming light, a level many times darker than thermochromic systems. The added advantage offers much higher levels of privacy and control over incoming solar energy. Companies involved in thermochromic technology include Pleotint, Suntek and Ravenbrick.

Active, user-controllable technologies, sometimes referred to as “smart” technologies, are generally more useful than passive technologies because they allow the user to actually control the state of the window. This control is achieved with a manual adjustment, or automatically when coupled with a timer or sensing device such as a photocell, motion detector, thermostat or other intelligent building system.

There are three main types of active devices which are compared below:

Electrochromic devices (EC)

Liquid crystal devices (LC)

Suspended-particle devices (SPD)

Electrochromic Technology:

Electrochromic windows and rear-view mirrors use a direct current voltage to alter the molecular structure of electrochromic materials (which can be in the form of either a liquid, gel or solid film) causing the material to darken. When compared to electrochromic devices, SPD technology is expected to have numerous potential performance and manufacturing advantages, including some or all of the following:

significantly faster response time, especially compared to larger electrochromic glazings

ability to precisely “tune” an infinite number of intermediate light-transmission states

consistent and uniform switching speed regardless of size of glazing area

more reliable performance over a wider temperature range

higher contrast ratios and the capability of achieving darker shaded states for large area product applications

unpowered state is dark, maximizing solar heat gain benefits when the room, office or vehicle is not in use

lower electrical current drain

higher estimated battery life in applications where batteries are used

no “iris effect” (where light transmission changes first occur at the outer edges of a window or mirror and then work their way toward the center) when changing from clear to dark and back again

SPD technology is a film-based technology that can be applied to plastic, acrylic, and chemically strengthened glass as well as glass, and which can be applied to curved as well as flat surfaces

available in single panels for retrofitting existing windows, skylights and doors

Many companies with substantially greater resources than Research Frontiers such as 3M, Gentex Corp., Pilkington, PPG Industries, Saint-Gobain and other large corporations have pursued or are pursuing projects in the electrochromic area. While some of these companies have reportedly discontinued or substantially curtailed their work on electrochromics due to technical problems and issues relating to the expense of these technologies, at least four companies (Gentex, PPG Industries, View (formerly known as Soladigm), and Sage Electrochromics) are currently working to commercialize electrochromic window products. In May 2012, Saint-Gobain acquired Sage Electrochromics and combined all of their respective electrochromic manufacturing and developmental efforts.

Liquid Crystal Technology:

To date, the main types of liquid crystal smart windows have been produced by Taliq Corp. (a subsidiary of Raychem Corp. which has since discontinued its liquid crystal operations and licensed its technology to others), Asahi Glass Co., Gauzy, Nippon Sheet Glass, Saint-Gobain Glass, iGlass Projects Pty Limited, Polytronix, Inc., DMDisplays, and 3M (which has also reportedly discontinued its liquid crystal film making operations). The first four companies listed above are also licensees of Research Frontiers Inc. for SPD-Smart technology. Liquid crystal windows only change from a cloudy, opaque milky-white to a clear state, are hazy when viewed at an angle and have no useful intermediate states. As compared to liquid crystal windows, SPD smart windows are expected to have some or all of the following advantages:

have less direct and off-angle haze

In its intermediate tinted states provides shading without loss of view

operates over a wider temperature range

uses less power

higher contrast ratios

reduction in the amount of light transmitted rather than simply scatter it

permits an infinite number of intermediate states between a transparent state and a dark blue state, rather than typically just two states.

offers superior solar heat gain control

In the flat panel display market, further development (such as the achievement of faster switching speeds sufficient for full-motion video applications) is required if the Company expects to compete against display technologies that are currently being used commercially such as liquid crystal displays (“LCDs”) and organic light-emitting diodes (“OLEDs”). Some of the advantages that SPD displays might have include the ability to make displays without using sheet polarizers or alignment layers, and lower light loss and a corresponding reduction in backlighting requirements. However, such products need additional product design, engineering or testing before an evaluation of the commercial potential of such SPD-SmartGlass products can be determined and when, or if, its licensees may begin to penetrate the flat panel display market.

LCDs and other types of displays, liquid crystal windows, as well as electrochromic self-dimmable rear-view mirrors, are already on the market, whereas products incorporating SPD technology (as well as electrochromic windows) have only begun to appear in the marketplace. Therefore, the long-term durability and performance of SPD-Smart displays have not yet been fully ascertained. The companies that manufacture LCD and other display devices, liquid crystal windows, and electrochromic self-dimmable rear-view mirrors and windows, have substantially greater financial resources and manufacturing experience than the Company. There is no assurance that comparable systems having the same advantages of the Company’s SPD technology could not be developed by competitors at a lower cost or that other products could not be developed which would render the Company’s products difficult to market or otherwise render our products obsolete.

Research and Development:

As a result of the Company’s research and development efforts, the Company believes that its SPD technology is now, or with additional development will become, usable in a number of commercial products. Such products may include one or more of the following fields: “smart” windows, doors, skylights and partitions; variable light transmission eyewear such as sunglasses and goggles; self-dimmable automotive sunroofs, windows, sunvisors, and mirrors; display cases/frames; and instruments and other information displays that use digits, letters, graphic images, or other symbols to supply information, including scientific instruments, aviation instruments, automobile dashboard displays and, if certain improvements can be made in various features of the Company’s SPD technology that increases switching speed to the levels needed for video applications, portable computer displays and flat panel television displays.

Even though the Company’s SPD technology has much faster switching speeds than electrochromic technology, current switching speeds are not fast enough for such video applications. The Company believes that most of its research and development efforts have applicability to products that may incorporate the Company’s technology. At its current state of development, the Company’s technology has been judged sufficiently advanced by various of its licensees and their customers for them to proceed with the development, introduction and sale of SPD-Smart products. However, the Company is continuously investing in research and development because it believes that further improvements will result in accelerated and increased market penetration. The Company intends to continue its research and development efforts for the foreseeable future to improve its SPD light-control technology and thereby assist our licensees in the product development, sales and marketing of various existing and new SPD-Smart products.

During the past few years, the Company and/or its licensees have made significant advances relating to materials to enable (1) improved stability of SPD emulsions, (2) a wider range of light transmission, (3) improved film adhesion and cohesion and (4) increased durability of SPD films/laminates, and (5) cost reductions. These advances have resulted in two patents being issued to the Company in the US Patent Office and the corresponding patent applications are pending.

The Company has devoted most of the resources it has heretofore expended to research and development activities with the goal of producing commercially viable SPD products and has developed working prototypes of SPD-Smart products for several different applications, with primary emphasis on smart windows for various industries. In addition to working with the Company’s licensees, Research Frontiers has also expanded its efforts to also work directly with some of our licensees’ major customers.

Research Frontiers’ main goals in its research and development include:

- developing wider ranges of light transmission and quicker switching speeds
- developing different colored particles
- reducing the voltage required to operate SPDs
- obtaining data and developing improved materials regarding environmental stability and longevity
- quantifying the degree of energy savings expected by users of the Company’s technology including the degree that SPD technology can control heat and its contribution to energy savings directly and through daylight harvesting strategies in sustainable building designs
- continually striving to improve the performance and reducing material/production costs associated with making SPD-Smart products

Excluding non-cash expenses of approximately $9,000, $12,000, and $16,000, associated with the grant of stock options and restricted stock to the Company’s technical personnel, Research Frontiers incurred approximately $854,000, $788,000, and $1,402,000 during the years ended December 31, 2018, 2017, and 2016 respectively, for research and development costs. Research Frontiers plans to engage in substantial continuing research and development activities to invest in future improvements in SPD light-control technology and to expand for its licensees the capabilities of SPD-Smart technology and the markets for SPD-Smart products.

Patents and Proprietary Information:

Research Frontiers continues to make substantial investments to develop, license and protect its intellectual property position. The Company has 23 United States and 203 foreign patents in force. The Company's United States patents expire at various dates from 2020 through 2036, while its foreign patents expire at various dates from 2019 through 2036.

The Company has current US and foreign patent applications that, if granted, would add a significant number of additional patents to its portfolio. The Company believes that its SPD light-control technology is adequately protected by its patent position and by its proprietary technological know-how. However, the validity of the Company's patents has never been contested in any litigation. The Company also possesses know-how and relies on trade secrets and nondisclosure agreements to protect its technology. The Company generally requires any employee, consultant, or licensee having access to its confidential information to execute an agreement whereby such person agrees to keep such information confidential.

Rights Plan:

In February 2013, the Company's Board of Directors adopted a Stockholders' Rights Plan (the "Rights Plan") and declared a dividend distribution of one right (a "Right") for each outstanding share of Company common stock to stockholders of record at the close of business on March 3, 2003 ("Record Time") and authorized the issuance of one Right in respect of each share of Common Stock issued after the Record Time and prior to the Separation Time.

"Separation Time" shall mean the earlier of the Close of Business on the tenth Business Day (or such later date as the Board of Directors may from time to time fix by resolution adopted prior to the Separation Time that otherwise would have occurred) following but not including (i) the date on which any Person commences a tender or exchange offer that, if consummated, would result in such Person's becoming an Acquiring Person, and (ii) the date of the first event causing a Flip-in Date to occur; provided that if any tender or exchange offer referred to in clause (i) of this paragraph is cancelled, terminated or otherwise withdrawn prior to the Separation Time without the purchase of any shares of Common Stock pursuant thereto, such offer shall be deemed, for purposes of this paragraph, never to have been made.

Subject to certain exceptions listed in the Rights Plan, if a person or group has acquired beneficial ownership of, or commences a tender or exchange offer for, 15% or more of the Company's common stock, unless redeemed by the Company's Board of Directors, each Right entitles the holder (other than the acquiring person) to purchase from the Company $80 worth of common stock for $40. If the Company is merged into, or 50% or more of its assets or earning power is sold to, the acquiring company, the Rights will also enable the holder (other than the acquiring person) to purchase $80 worth of common stock of the acquiring company for $40. The Rights will expire at the close of business on February 11, 2023, unless the Rights Plan is extended by the Company's Board of Directors or unless the Rights are earlier redeemed by the Company at a price of $.0001 per Right. The Rights are not exercisable during the time when they are redeemable by the Company.

The above description highlights some of the features of the Company's Rights Plan and is not a complete description of the Rights Plan. A more detailed description and copy of the Rights Plan has been filed with the SEC and is available from the Company upon request.

Subsequent Event:

On March 14, 2019 VariGuard SmartGlass Inc. acquired a license from Research Frontiers Inc. to make and sell SPD-SmartGlass products worldwide. The non-exclusive license grants VariGuard SmartGlass Inc. the right to manufacture and sell: (i) SPD-SmartGlass products used in panels, frames, cases, wall cases, appliances or other similar products to protect light-sensitive documents, artwork or other objects, (ii) SPD-SmartGlass products used in panels, frames, cases, wall cases, appliances or other similar products to provide "hide and reveal" functionality, and (iii) SPD-SmartGlass products used in a medical device to provide control and management of visible light. The license agreement provides for earned royalties of between 10% to 15% depending upon the product sold. In addition to other employees at VariGuard SmartGlass Inc., two of the Company's officers (Seth L. Van Voorhees, Michael R. LaPointe) are principals at VariGuard SmartGlass Inc. and as consequence, this transaction is a related party relationship which has been reviewed and approved by the Company's Board of Directors pursuant to the requirements of Delaware corporate law and the Company's Code of Ethics. Dr Van Voorhees and Mr. LaPointe will also remain as full-time employees at the Company.

Available Information:

Our principal executive offices are located at 240 Crossways Park Drive, Woodbury, New York 11797, our telephone number is (516) 364-1902, and our Internet website address is www.SmartGlass.com. We make available free of charge on or through our Internet website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements on Schedule 14A, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after we electronically file such materials with, or furnish them to, the SEC.

ITEM 1A. RISK FACTORS

In addition to the other information in this Annual Report on Form 10-K, you should carefully consider the following factors in evaluating us and our business. This Annual Report contains, in addition to historical information, forward-looking statements that involve risks and uncertainties, some of which are beyond our control. Should one or more of these risks and uncertainties materialize or should underlying assumptions prove incorrect, our actual results could differ materially. Factors that could cause or contribute to such differences include, but are not limited to, those discussed below, as well as those discussed elsewhere in this Annual Report, including the documents incorporated by reference.

There are risks associated with investing in companies such as ours who are primarily engaged in research and development. In addition to risks which could apply to any company or business, you should also consider the business we are in and the following:

Source and Need for Capital.

As of December 31, 2018, we had approximately $3.0 million in cash and cash equivalents.

As we take steps in the commercialization and marketing of our technology or respond to potential opportunities and/or adverse events, our working capital needs may change. We anticipate that if our cash and cash equivalents are insufficient to satisfy our liquidity requirements, we will require additional funding to sustain our ongoing operations and to continue our SPD technology research and development activities.

We have funded most of our activities through sales of our common stock to investors, and upon the exercise of options and warrants. Eventual success of the Company and generation of positive cash flow will be dependent upon the extent of commercialization of products using the Company's technology by the Company's licensees and payments of continuing royalties on account thereof. We can give no assurances that we will generate sufficient revenues in the future (through sales of our common stock, exercise of options and warrants, royalty fees, or otherwise) to satisfy our liquidity requirements or sustain future operations, or that additional funding, if required, will be available when needed or, if available, on favorable terms.

History of Operating Losses.

We have experienced net losses from operations, and we may continue to incur net losses from operations in the future. We have incurred substantial costs and expenses in researching and developing our SPD technology. As of December 31, 2018, we had a cumulative net loss of $111,690,934 since our inception. Our net loss was $2,686,128 in 2018, $2,413,859 in 2017 and $4,238,410 in 2016, (which includes non-cash accounting charges in 2018, 2017, and 2016 and of $69,309, $76,299, and $67,531 respectively, resulting from the expensing of grants of restricted stock and stock options).

We may not generate sufficient cash flows to cover our operating expenses.

As noted above, we have incurred recurring losses since inception and expect to continue to incur losses as a result of costs and expenses related to our research and continued development of our SPD technology and our corporate general and administrative expenses. Our limited capital resources and operations to date have been substantially funded through sales of our common stock, exercise of options and warrants and royalty fees collected. As of December 31, 2018, we had working capital of approximately $3.3 million, cash of approximately $3.0 million, shareholders' equity of approximately $3.1 million and an accumulated deficit of approximately $111.7 million. In the event that we are unable to generate sufficient cash from our operating activities or raise additional funds, we may be required to delay, reduce or severely curtail our operations or otherwise impede our on-going business efforts, which could have a material adverse effect on our business, operating results, financial condition and long-term prospects.

We have never declared a cash dividend and do not intend to declare a cash dividend in the foreseeable future.

We have never declared or paid cash dividends on our common stock. Payment of dividends on our common stock is within the discretion of our Board of Directors and will depend upon our future earnings, capital requirements, financial condition and other relevant factors. We do not anticipate declaring or paying any cash dividends on our common stock in the foreseeable future.

We do not directly manufacture products using SPD technology. We currently depend upon the activities of our licensees and their customers in order to be profitable.

We do not directly manufacture products using SPD technology. We currently depend upon the activities of our licensees in order to be profitable. Although a variety of products have been sold by our licensees, and because it is up to our licensees to decide when and if they will introduce products using SPD technology, we cannot predict when and if our licensees will generate substantial sales of such products. Our SPD technology is currently licensed to over 40 companies. Other companies are also evaluating SPD technology for use in various products. In the past, some companies have evaluated our technology without proceeding further. While we expect that our licensees would be primarily responsible for manufacturing and marketing SPD-Smart products and components, we are also engaging in market development activities to support our licensees and build the smart glass industry. We cannot control whether or not our licensees will develop SPD products. Some of our licensees appear to be more active than others, some appear to be better capitalized than others, and some licensees appear to be inactive. There is no guarantee when or if our licensees will successfully produce any commercial product using SPD technology in sufficient quantities to make the Company profitable.

SPD-Smart products have only recently been introduced.

Products using SPD technology have only recently begun to be introduced into the marketplace. Developing products using new technologies can be risky because problems, expenses and delays frequently occur, and costs may or may not come down quickly enough for such products using new technologies to rapidly penetrate mass market applications.

SPD-Smart products face intense competition, which could affect our ability to increase our revenues.

The market for SPD-Smart products is intensely competitive and we expect competition to increase in the future. We compete based on the functionality and the quality of our product. Many of our current and potential competitors have significantly greater financial, technical, marketing and other resources than we have. In addition, many of our competitors have well-established relationships with our current and potential customers and have extensive knowledge of our industry. If our competitors develop new technologies or new products, improve the functionality or quality of their current products, or reduce their prices, and if we are unable to respond to such competitive developments quickly either because our research and development efforts do not keep pace with our competitors or because of our lack of financial resources, we may be unable to compete effectively.

Declining production of automobiles, airplanes, boats and real estate could harm our business.

Our licensees' commercialization efforts of SPD-Smart products could be negatively impacted if the global production of automobiles, airplanes, boats and real estate construction declines significantly. If such commercialization is reduced, our revenues, results of operations and financial condition could be negatively impacted.

Limited source of SPD film.

Our end-product licensees require a source of SPD film to manufacture finished products. Currently, Hitachi Chemical and Gauzy Ltd. are the sole source of commercial quantities of SPD-film. There are several other companies that are licensed to manufacture SPD-film, but they have not begun commercial production of this film. Our end-product licensees' ability to sell SPD products could be negatively impacted if there was a prolonged disruption in SPD-film availability. Such a disruption could also negatively impact our revenues, results of operations and financial condition.

We are dependent on key personnel.

Our continued success will depend, to a significant extent, on the services of our directors, executive management team, key personnel and certain key scientists. If one or more of these individuals were to leave the Company, there is no guarantee that we could replace them with qualified individuals in a timely or economically satisfactory manner or at all. The loss or unavailability of any or all of these individuals could harm our ability to execute our business plan, maintain important business relationships and complete certain product development initiatives, which would have a material adverse effect on our business, results of operations and financial conditions.

Dependence on SPD-Smart technology.

Because SPD technology is the only technology we work with, our success depends upon the viability of SPD technology which has yet to be fully proven. We have not fully ascertained the performance and long-term reliability of our technology, and therefore there is no guarantee that our technology will successfully be incorporated into all of the products which we are targeting for use of SPD technology. We expect that different product applications for SPD technology will have different performance and reliability specifications. We expect that our licensees will primarily be responsible for reliability testing, but that we may also continue to do reliability testing so that we can more effectively focus our research and development efforts towards constantly improving the performance characteristics and reliability of products using SPD technology.

Our patents and other protective measures may not adequately protect our proprietary intellectual property, and we may be infringing on the rights of others.

Our intellectual property, particularly our proprietary rights in our SPD technology, is critical to our success. We have received various patents, and filed other patent applications, for various applications and aspects of our SPD technology. In addition, we generally enter into confidentiality and invention agreements with our employees and consultants. Such patents and agreements and various other measures we take to protect our intellectual property from use by others may not be effective for various reasons generally applicable to patents and their granting and enforcement. In addition, the costs associated with enforcing patents, confidentiality and invention agreements or other intellectual property rights may be expensive. Our inability to protect our proprietary intellectual property rights or gain a competitive advantage from such rights could harm our ability to generate revenues and, as a result, our business and operations.

An unremediated material weakness in our internal control over financial reporting could adversely affect our reputation, business or stock price.

As described under “Item 9A - Controls and Procedures,” we previously identified a control deficiency constituting a material weakness in our internal control over financial reporting related to our controls over the method for accounting for warrants issued in connection with a registered offering of common stock. This control deficiency did not result in a material adjustment to our financial statements for the period ended September 30, 2018. Management is in the process of implementing remediation procedures to address the control deficiency that led to the material weakness. The remediation plan includes, but is not limited to, the implementation of additional review procedures regarding the method for accounting for warrants issued in connection with a registered offering of common stock. The enhanced review/evaluation procedures and documentation standards were put in place starting in the fourth quarter of 2018.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None

ITEM 2. PROPERTIES

The Company currently occupies approximately 9,500 square feet of space at an annual rental which in 2018 was approximately $182,000 for its executive office, research facility and SPD-Smart Glass Design Center at 240 Crossways Park Drive, Woodbury, New York 11797 under a lease expiring March 31, 2025. The Company believes that its space, including its laboratory facilities, is adequate for its present needs.

ITEM 3. LEGAL PROCEEDINGS

Research Frontiers Inc. v. E Ink Corporation et al

On July 12, 2013, Research Frontiers Inc. initiated a lawsuit against E Ink Corporation; E Ink Holdings, Inc. (f/k/a Prime View International Co., Ltd.); Amazon.com, Inc.; Sony Electronics Inc.; Sony Corporation; Barnes & Noble, Inc.; and Barnesandnoble.com LLC in the United States District Court for the District of Delaware for patent infringement.

Research Frontiers seeks an injunction in addition to monetary damages and pre-judgment interest and other relief. In this lawsuit, Research Frontiers asserts infringement by the named defendants of United States Patent No. 6,606,185, entitled “SPD Films and Light Valves Comprising Liquid Suspensions of Heat-Reflective Particles of Mixed Metal Oxides and Methods of Making Such Particles,” and United States Patent No. 5,463,491, entitled “Light Valve Employing a Film Comprising an Encapsulated Liquid Suspension, and Method of Making Such Film.”

On December 2, 2013 Research Frontiers amended its complaint and asserted an additional claim of United States No. 6,271,956 entitled “Method and Materials for Enhancing the Adhesion of SPD Films, and Light Valves Comprising Same.” No hearing or trial dates have been set.

On August 2014, the US Patent and Trademark Office Board declined a petition by E Ink Corporation to invalidate certain claims (1-2, 14-20, 22-27, and 29) of the 6,606,185 patent.

On November 1, 2015, the Claim Construction Hearing was held before Magistrate Judge Christopher J. Burke. On December 13, 2016 the Court issued its decision on this hearing. On January 31, 2017 Research Frontiers and the Defendants in the lawsuit entered into a joint stipulation to permit immediate appeal of the claim construction ruling. On December 15, 2017 the United States Court of Appeals for the Federal Circuit ruled in E Ink's favor regarding the claim construction ruling. An update about the status of the litigation is available on the court docket.

ITEM 4. MINE SAFETY DISCLOSURES

N/A

PART II

ITEM 5. MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

(a) Market Information

(1) The Company's common stock is traded on the NASDAQ Capital Market under the symbol "REFR". As of March 12, 2019, there were 28,666,831 shares of common stock outstanding.

(2) The following table sets forth the range of the high and low selling prices (as provided by the National Association of Securities Dealers) of the Company's common stock for each quarterly period within the past two fiscal years:

Quarter Ended:	Low	High
March 31, 2017	1.25	2.15
June 30, 2017	0.98	1.55
September 30, 2017	1.01	1.35
December 31, 2017	0.86	1.46
March 31, 2018	0.85	1.37
June 30, 2018	0.60	1.20
September 30, 2018	0.78	1.83
December 31, 2018	1.10	1.95

These quotations may reflect inter-dealer prices, without retail mark-up, mark-down, or commission, and may not necessarily represent actual transactions.

(b) Approximate Number of Security Holders

As of March 12, 2019, there were approximately 326 holders of record of the Company's common stock and the closing price of our common stock was $2.13 per share. The Company estimates that there are approximately 7,000 beneficial holders of the Company's common stock.

(c) Dividends

The Company has not declared or paid cash dividends on its common stock for the two most recent fiscal years and does not expect to declare or pay any cash dividends in the foreseeable future. There are no restrictions on the payment of dividends.

(d) Issuer Purchases of Equity Securities

None.

ITEM 6. SELECTED FINANCIAL DATA

The following table sets forth selected data regarding the Company's operating results and financial position. The data for fiscal years 2018, 2017 and 2016 should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and our audited consolidated financial statements and notes thereto, which are contained in this Annual Report on Form 10-K.

	Year ended December 31,				
	2018	2017	2016	2015	2014
Statement of Operations Data:					
Fee income	$1,488,642	$1,509,070	$1,236,097	$2,007,482	$1,598,799
Operating expenses (1)	3,043,460	3,127,979	4,086,408	4,742,166	4,425,718
Research and development (1)	863,401	799,702	1,417,634	1,588,491	1,621,964
Total Expenses	3,906,861	3,927,681	5,504,042	6,330,657	6,047,682
Operating loss	(2,418,219)	(2,418,611)	(4,267,945)	(4,323,175)	(4,448,883)
Warrant market adjustment	(278,044)				
Net investment income	10,135	4,752	29,535	43,319	35,161
Net loss	$(2,686,128)	$(2,413,859)	$(4,238,410)	$(4,279,856)	$(4,413,722)
Basic and diluted net loss per common share	$(0.10)	$(0.10)	$(0.18)	$(0.18)	$(0.19)
Weighted average number of common shares outstanding	25,956,232	24,043,846	24,043,846	24,007,974	23,663,229

	As of December 31,				
	2018	2017	2016	2015	2014
Balance Sheet Data:					
Total current assets	$3,711,822	$2,364,985	$4,588,974	$8,674,234	$10,367,561
Total assets	4,058,566	2,881,113	5,274,196	9,544,017	12,564,854
Total shareholders' equity	3,099,490	2,567,366	4,904,926	9,075,805	12,082,170

(1) Reflects non-cash charges of $60,079, $64,709, $51,093, $578,723, and $823,584 to operating expenses, and non-cash charges of $9,230, $11,590, $16,438, $146,293, and $219,333 to research and development expenses relating to the issuance of stock and stock options in 2018, 2017, 2016, 2015, and 2014, respectively which increased the Company's net loss for 2018, 2017, 2016, 2015, and 2014, by $69,309, $76,299, $67,531, $725,016, and $1,042,917, respectively.

ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements

Information included in this Annual Report on Form 10-K may contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not statements of historical facts, but rather reflect our current expectations concerning future events and results. We generally use the words “believes,” “expects,” “intends,” “plans,” “anticipates,” “likely,” “will” and similar expressions to identify forward-looking statements. Such forward-looking statements, including those concerning our expectations, involve risks, uncertainties and other factors, some of which are beyond our control, which may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. These risks, uncertainties and factors include, but are not limited to, those factors set forth in this Annual Report on Form 10-K under “Item 1A. – Risk Factors” above. Except as required by applicable law, including the securities laws of the United States, we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. You are cautioned not to unduly rely on such forward-looking statements when evaluating the information presented in this Annual Report on Form 10-K.

In reviewing Management’s Discussion and Analysis of Financial Condition and Results of Operations, you should refer to our consolidated financial statements and the notes related thereto.

Critical Accounting Policies

The following accounting policies are important to understanding our financial condition and results of operations and should be read as an integral part of the discussion and analysis of the results of our operations and financial position. For additional accounting policies, see Note 2 to our consolidated financial statements, “Summary of Significant Accounting Policies.”

The Company adopted ASC 606, the new revenue recognition standard, beginning January 1, 2018. The comparative prior periods have not been adjusted and continue to be reported under ASC 605. The Company determined that its license agreements provide for three performance obligations: (i) Grant of Use, (ii) Technical Support, and (iii) New Improvements.

The best method for determining standalone selling price of our Grant of Use performance obligation is through a comparison of the average royalty rate for comparable license agreements as compared to our license agreements. Based on the royalty rate comparison referred to above, any pricing above and beyond the average royalty rate would relate to the Technical Support and New Improvements performance obligations.

We recognize revenue when or as the performance obligations in the contract are satisfied. For performance obligations that are fulfilled at a point in time, revenue is recognized at the fulfillment of the performance obligation. Since the IP is determined to be a functional license, the value of the Grant of Use is recognized in the first period of the contract term in which the license agreement is in force. Since the costs incurred to satisfy the Technical Support and New Improvements performance obligations are incurred evenly throughout the year, the value of the Technical Support and New Improvements services are recognized throughout the contract period as these performance obligations are satisfied.

The Company operates in a single business segment which is engaged in the development and marketing of technology and devices to control the flow of light. Our revenue source comes from the licensing of this technology and all of these license agreements have similar terms and provisions.

The Company has entered into license agreements covering products using the Company’s SPD technology. When royalties from the sales of licensed products by a licensee exceed its contractual minimum annual royalties, the excess amount is recognized by the Company as fee income in the period that it was earned. Certain of the fees are accrued by, or paid to, the Company in advance of the period in which they are earned resulting in deferred revenue.

Royalty receivables are stated less allowance for doubtful accounts. The allowance represents estimated uncollectible receivables usually due to licensees’ potential insolvency. The allowance includes amounts for certain licensees where risk of default has been specifically identified. The Company evaluates the collectability of its receivables on at least a quarterly basis and records appropriate allowances for uncollectible accounts when necessary.

The Company expenses costs relating to the development or acquisition of patents due to the uncertainty of the recoverability of these items. All of our research and development costs are charged to operations as incurred. Our research and development expenses consist of costs incurred for internal and external research and development. These costs include direct and indirect overhead expenses.

The Company has historically used the Black-Scholes option-pricing model to determine the estimated fair value of each option grant. The Black-Scholes model includes assumptions regarding dividend yields, expected volatility, expected lives, and risk-free interest rates. These assumptions reflect our best estimates, but these items involve uncertainties based on market conditions generally outside of our control. As a result, if other assumptions had been used in the current period, stock-based compensation expense could have been materially impacted. Furthermore, if management uses different assumptions in future periods, stock-based compensation expense could be materially impacted in future years.

On occasion, the Company may issue to consultants either options or warrants to purchase shares of common stock of the Company at specified share prices. These options or warrants may vest based upon specific services being performed or performance criteria being met. In accounting for equity instruments that are issued to other than employees for acquiring, or in conjunction with selling, goods or services, the Company is required to record consulting expenses based upon the fair value of such options or warrants on the earlier of the service period or the period that such options or warrants vest as determined using a Black-Scholes option pricing model and are marked to market quarterly using the Black-Scholes option valuation model.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the financial statements, and reported amounts of revenues and expenses during the reporting periods. Actual results could differ from these estimates. An example of a critical estimate is the full valuation allowance for deferred taxes that was recorded based on the uncertainty that such tax benefits will be realized in future periods.

Results of Operations

Overview

The majority of the Company’s fee income comes from the activities of several licensees participating in the automotive market. The Company currently believes that the automotive market will be the largest source of its royalty income over the next several years. The Company’s royalty income from this market may be influenced by numerous factors including various trends affecting demand in the automotive industry and the rate of introduction of new technology in OEM product lines. In addition to these macro factors, the Company’s royalty income from the automotive market could also be influenced by specific factors such as whether the Company’s SPD-SmartGlass technology appears as standard equipment or as an option on a particular vehicle, the number of additional vehicle models that SPD-SmartGlass appears on, the size of each window on a vehicle and the number of windows on a vehicle that use SPD-SmartGlass, fluctuations in the total number of vehicles produced by a manufacturer, and in the percentage of cars within model like produced with SPD-SmartGlass, and changes in pricing or exchange rates. Certain license fees, which are paid to the Company in advance of the accounting period in which they are earned resulting in the recognition of deferred revenue for the current accounting period, which will be recognized as fee income in future periods. Also, licensees offset some or all of their royalty payments on sales of licensed products for a given period by applying these advance payments towards such earned royalty payments.

In 2018 and 2017, the Company received royalty revenues from sales of the Magic Sky Control option on the S-Class Coupe, Maybach and S-Class Sedan, and SL and SLK/SLC roadsters in excess of the minimum annual royalty levels for the two licensees supplying products using the Company’s technology to Daimler. As such, royalties from these five car models was accretive to the Company’s royalty revenue. Production efficiencies are expected to continue and accelerate with the introduction of the higher vehicle production volumes for various car models going forward, and the Company expects that lower pricing per square foot of the Company’s technology could expand the market opportunities, adoption rates, and revenues for its technology in automotive and non-automotive applications. The Company expects to generate additional royalty income from the near-term introduction of additional new car and aircraft models from other OEM’s (original equipment manufacturers), continued growth of sales of products using the Company’s technology for the marine industry in yachts and other watercraft, in trains, in museums, and in larger architectural projects.

Because the Company’s license agreements typically provide for the payment of royalties by a licensee on product sales within 45 days after the end of the quarter in which a sale of a licensed product occurs (with some of the Company’s more recent license agreements providing for payments on a monthly basis), and because of the time period which typically will elapse between a customer order and the sale of the licensed product and installation in a home, office building, automobile, aircraft, boat or any other product, there could be a delay between when economic activity between a licensee and its customer occurs and when the Company gets paid its royalty resulting from such activity.

Year ended December 31, 2018 Compared to the Year ended December 31, 2017

The Company's fee income from licensing activities for the year ended December 31, 2018 was $1,488,642 as compared to $1,509,070 for the year ended December 31, 2017 representing a $20,428 decrease between these two periods. This decrease in revenues was principally the result of the adoption of ASC 606 (described in the notes to consolidated financial statements 2(d)) which is a different revenue recognition standard. In 2018, the Company adopted the new ASC 606 revenue recognition guidance which applies to revenues reported beginning with the first quarter of 2018. We would have reported higher fee income of $1,553,468, representing a $64,826 increase in the reported fee income for the year ended December 31, 2018 had we continued to use the accounting guidance used prior to the adoption of ASC 606.

Operating expenses decreased by $84,519 for the year ended December 31, 2018 to $3,043,460 from $3,127,979 for the year ended December 31, 2017. This decrease was the result of lower professional fees ($31,000), lower payroll and related costs ($25,000) and lower patent ($25,000), insurance ($16,000) and travel and entertainment costs ($21,000) partially offset by higher film costs ($26,000). Included in operating expenses are approximately $60,000 and $65,000 of non-cash compensation charges for the years ended December 31, 2018 and 2017, respectively.

Research and development expenditures increased by $63,699 to $863,401 for the year ended December 31, 2018 from $799,702 for the year ended December 31, 2017. This increase was the result of higher payroll and related costs ($63,000) as well as higher material costs ($21,000) partially offset by lower insurance costs ($15,000). Included in research and development expenses are approximately $9,000 and $12,000 of non-cash compensation charges for the years ended December 31, 2018 and 2017, respectively.

In connection with the issuance of certain warrants during the third quarter of 2018, the Company allocated $223,370 as a warrant liability upon the issuance of these warrants on August 13, 2018 and recorded a non-cash accounting expense of $278,044 to mark these to their market value as of December 31, 2018.

The Company's net investment income for the year ended December 31, 2018 was $10,135 as compared to $4,752 for the year ended December 31, 2017. The difference was primarily due to higher cash balances available for investment.

No income tax benefit or expense was recorded for the years ended December 31, 2018 and 2017.

As a consequence of the factors discussed above, the Company's net loss was $2,686,128 ($0.10 per common share) for the year ended December 31, 2018 as compared to $2,413,859 ($0.10 per common share) for the year ended December 31, 2017.

Year ended December 31, 2017 Compared to the Year ended December 31, 2016

The Company's fee income for the year ended December 31, 2017 was $1,509,070, as compared to $1,236,097 for the year ended December 31, 2016. A substantial majority of this increase was principally the result of increase fees earned during 2017 from licensees focused in automotive, marine, display and architectural industries which was partially offset by slightly lower level of fee income from licensees focused in the aircraft industry (which the Company believes to be temporary).

Operating expenses decreased by $958,429 for the year ended December 31, 2017 to $3,127,979 from $4,086,408 for the year ended December 31, 2016. A substantial majority of this decrease was the result of cost reduction initiatives undertaken by the Company that resulted in lower payroll and related costs ($200,000), marketing and investor relations costs ($125,000) and patent costs ($177,000), as well as lower bad debt expenses ($425,000). Included in operating expenses is approximately $64,000 and $51,000 of non-cash compensation charges for the years ended December 31, 2017 and 2016, respectively.

Research and development expenditures decreased by $617,932 to $799,702 for the year ended December 31, 2017 from $1,417,634 for the year ended December 31, 2016. A substantial majority of this decrease was the result of cost reduction initiatives undertaken by the Company that resulted lower payroll and related costs ($555,000) as well as lower material costs ($23,000). Included in research and development expenses are approximately $12,000 and $16,000 of non-cash compensation charges for the years ended December 31, 2017 and 2016, respectively.

The Company's net investment income for the year ended December 31, 2017 was $4,752 as compared to $29,535 for the year ended December 31, 2016. The difference was primarily due to lower interest earned from cash balances available for investment.

No income tax benefit or expense was recorded for the years ended December 31, 2017 and 2016.

As a consequence of the factors discussed above, the Company's net loss was $2,413,859 ($0.10 per common share) for the year ended December 31, 2017 as compared to $4,238,410 ($0.18 per common share) for the year ended December 31, 2016.

Financial Condition, Liquidity and Capital Resources

The Company has primarily utilized its cash, cash equivalents, short-term investments, and the proceeds from its investments to fund its research and development, for marketing initiatives, and for other working capital purposes. The Company's working capital and capital requirements depend upon numerous factors, including, but not limited to, the results of research and development activities, competitive and technological developments, the timing and costs of patent filings, and the development of new licensees and changes in the Company's relationship with existing licensees. The degree of dependence of the Company's working capital requirements on each of the foregoing factors cannot be quantified; increased research and development activities and related costs would increase such requirements; the addition of new licensees may provide additional working capital or working capital requirements, and changes in relationships with existing licensees would have a favorable or negative impact depending upon the nature of such changes.

During 2018, the Company's cash and cash equivalents balance increased by $1,231,569 principally as a result of cash proceeds of $3,314,292 from the sale of common stock and warrants and the exercise of options and warrants, partially offset by cash used for operations of $2,071,060 and cash used for the purchase of property and equipment of $11,663. At December 31, 2018 the Company had cash and cash equivalents of $2,969,416, working capital of $3,254,160 and total shareholders' equity of $3,099,490.

Our quarterly projected cash flow shortfall, based on our current operations, adjusted for any non-recurring cash expenses for the next 12 months, is approximately $450,000 per quarter. We may eliminate some operating expenses in the future, which will further reduce our cash flow shortfall if needed. We expect to have sufficient working capital for the next 18-24 months of operations.

During 2017, the Company's cash and cash equivalents balance increased by $46,244 principally because of proceeds from the sale of investments of $1,523,333 partially offset by cash used for operations of $1,470,540 and cash used for the purchase of property and equipment of $6,549. At December 31, 2017 the Company had working capital of $2,051,238 and total shareholders' equity of $2,567,366.

During 2016, the Company's cash and cash equivalents balance decreased by $4,020,707 principally because of cash used for operations of $4,005,443 and cash used for the purchase of property and equipment of $11,715. At December 31, 2016 the Company had cash and short-term investments of $3,214,936 working capital of $4,219,704 and total shareholders' equity of $4,904,926.

The Company expects to use its cash to fund its research and development of SPD light valves, its expanded marketing initiatives, and for other working capital purposes. The Company believes that its current cash and cash equivalents would fund its operations until at least the fourth quarter of 2020. There can be no assurances that expenditures will not exceed the anticipated amounts or that additional financing, if required, will be available when needed or, if available, that its terms will be favorable or acceptable to the Company. Eventual success of the Company and generation of positive cash flow will be dependent upon the extent of commercialization of products using the Company's technology by the Company's licensees and payments of continuing royalties on account thereof. To date the Company has not generated sufficient revenue from its licensees to fully fund its operations.

Inflation

The Company does not believe that inflation has a significant impact on its business.

Contractual Obligations

The Company occupies premises under an operating lease agreement which expires on March 31, 2025 and requires minimum annual rent which rises over the term of the lease to approximately $222,000, plus tenant's share of applicable taxes. These lease obligations are summarized over time as of December 31, 2018:

	Payments due by period				
	<1 year	1-3 years	4-5 years	>5 years	Total
Operating lease obligations	$191,000	$400,000	$424,000	$278,000	$1,293,000

Off-Balance Sheet Arrangements

The Company has no variable interest entities or other off-balance sheet obligation arrangements.

Related Party Transactions

None.

Forward Looking Statements

The information set forth in this Report and in all publicly disseminated information about the Company, including the narrative contained in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” above, includes “forward-looking statements” within the meaning of 21E of the Securities Exchange Act of 1934, as amended, and is subject to the safe harbor created by that section. Readers are cautioned not to place undue reliance on these forward-looking statements as they speak only as of the date hereof and are not guaranteed.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURE ABOUT MARKET RISK

At times, the Company invests available cash and cash equivalents in money market funds or in short-term U.S. treasury securities with maturities that are generally one year or less. Although the rate of interest paid on such investments in money market funds may fluctuate over time, each of the Company’s investments in U.S. treasury securities is made at a fixed interest rate over the duration of the investment. Accordingly, the Company does not believe it is materially exposed to changes in interest rates as it generally holds these treasury securities until maturity.

The Company does not currently have any sales, purchases, assets or liabilities determined in currencies other than the U.S. dollar, and as such, is not subject to foreign currency exchange risk.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The consolidated financial statements listed in Item 15(a)(1) and (2) are included in this Report beginning on page F-1.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

As of the end of the period covered by this Annual Report on Form 10-K, the Company carried out an evaluation, under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures pursuant to Exchange Act Rule 13a-15(e) and 15d-15(e). Based upon that evaluation, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures are effective in timely alerting them to material information relating to the Company (including its consolidated subsidiary) required to be included in the Company's periodic SEC filings. Our officers have concluded that as of December 31, 2018 our disclosure controls and procedures are designed, and are effective, to ensure that information required to be disclosed by our company in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the commission's rules and forms, and are also effective to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our chief executive officer and chief financial officer, to allow timely decisions regarding required disclosure. There were no changes in the Company's internal control over financial reporting during the year ended December 31, 2018 has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Our internal control system is designed to provide reasonable assurance to our management and Board of Directors regarding the preparation and fair presentation of published financial statements. Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control-Integrated Framework, issued by the Committee of Sponsoring Organizations of the Treadway Commission, or the COSO Framework. Based on the evaluation of our disclosure controls and procedures as of December 31, 2018, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were not effective at the reasonable assurance level solely as a result of the material weakness in our internal control over financial reporting discussed below.

In connection with the preparation of our consolidated financial statements as of and for the quarter ended September 30, 2018, we identified a material weakness in our internal control over financial reporting related to our controls over the method for accounting for warrants issued in connection with a registered offering of common stock. This control deficiency did not result in a material adjustment to our financial statements for the period ended September 30, 2018. Management is in the process of implementing remediation procedures to address the control deficiency that led to the material weakness. The remediation plan included, but is not limited to, the implementation of additional review procedures regarding the method for accounting for warrants issued in connection with a registered offering of common stock. The enhanced review/evaluation procedures and documentation standards were put in place starting in the fourth quarter of 2018.

Changes in Internal Control Over Financial Reporting

The Company adopted ASC 606, the new revenue recognition standard, beginning January 1, 2018. The Company established a new accounting policy and internal controls regarding the application of each of the five-steps associated with ASC 606 revenue recognition including: 1) Identification of the contract; 2) Identification of the performance obligations; 3) Determination of the transaction price; 4) Allocation of the transaction price and 5) Recognition of revenue. There were no changes to controls during the year ended December 31, 2018 that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The Company has adopted a code of ethics applicable to its Chief Executive Officer, Chief Operating Officer, Treasurer and Chief Financial Officer, any Vice President and other employees of the Company with important roles in the financial reporting process. This Code of Ethics was adopted by the entire Board of Directors of the Company, including all of its Audit Committee members, in March 2004 in accordance with the requirements of the Sarbanes Oxley Act. The code of ethics is available on the Company's website at www.SmartGlass.com and was also filed as an exhibit to the Company's Annual Report on Form 10-K for the year ended December 31, 2003. The Company intends to satisfy the disclosure requirement under Item 10 of Form 8-K regarding any amendment to, or waiver from, a provision of this code of ethics by posting such information on the website specified above.

The other information required by this Item 10 is incorporated by reference to the Company's definitive Proxy Statement to be filed with the Commission on or before April 30, 2019.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item 11 is incorporated by reference to the Company's definitive Proxy Statement to be filed with the Commission on or before April 30, 2019. Notwithstanding anything to the contrary set forth herein or in any of the Company's past or future filings with the SEC that might incorporate by reference the Company's definitive Proxy Statement, in whole or in part, the report of the compensation committee and the stock price performance graph contained in such definitive Proxy Statement shall not be incorporated by reference into this Annual Report on Form 10-K or in any other such filings.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item 12 is incorporated by reference to the Company's definitive Proxy Statement to be filed with the Commission on or before April 30, 2019.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE.

The information required by this Item 13 is incorporated by reference to the Company's definitive Proxy Statement to be filed with the Commission on or before April 30, 2019.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item 14 is incorporated by reference to the Company's definitive Proxy Statement to be filed with the Commission on or before April 30, 2019.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES AND REPORTS ON FORM 8-K

(a)(1) and (2) Financial Statements and Financial Statement Schedules

The following consolidated financial statements of Research Frontiers Incorporated are filed under "Item 8. Financial Statements and Supplemental Data" of this Report.

All other schedules have been omitted because they are not applicable, or not required, or the required information is disclosed elsewhere in this Annual Report.

(a)(3) Exhibits

3.1 Restated Certificate of Incorporation of the Company. Previously filed as Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 1994, and incorporated herein by reference.

3.2 Amended and Restated Bylaws of the Company. Previously filed as Exhibit 99.2 to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2007, and incorporated herein by reference.

4.1	Form of Common Stock Certificate. Previously filed as an Exhibit to the Company's Registration Statement on Form S-18 (Reg. No. 33-5573NY), declared effective by the Commission on July 8, 1986, and incorporated herein by reference.
4.2	Rights Agreement dated as of February 18, 2003 between Research Frontiers Incorporated and Continental Stock Transfer & Trust Company, as Rights Agent, which includes as Exhibit A thereto the Form of Rights Certificate. Previously filed as an Exhibit to the Company's Registration Statement on Form 8-A dated February 13, 2013, and incorporated herein by reference.

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10.1A*	Employment Agreement effective as of January 1, 2009 between the Company and Joseph M. Harary. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated April 30, 2009 and incorporated herein by reference.
10.1B*	Amendment to Employment Agreement effective as of June 12, 2014 between the Company and Joseph M. Harary. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated June 13, 2014 and incorporated herein by reference.
10.1C*	Employment Agreement effective as of January 1, 2014 between the Company and Seth L. Van Voorhees Previously filed as an Exhibit to the Company's Current Report on Form 10-K dated December 31, 2013 and incorporated herein by reference.
10.2*	Amended and Restated 1992 Stock Option Plan. Previously filed as Exhibit 4 to the Company's Registration Statement on Form S-8 (Reg. No. 33-86910) filed with the Commission on November 30, 1994, and incorporated herein by reference.
10.3*	1998 Stock Option Plan, as amended. Previously filed as an Exhibit to the Company's Definitive Proxy Statement dated April 30, 1998 filed with the Commission on April 29, 1998, 1994, and incorporated herein by reference.
10.31*	2008 Equity Incentive Plan. Previously filed as an Exhibit to the Company's Definitive Proxy Statement dated April 30, 2008 filed with the Commission on April 29, 2008, and incorporated herein by reference.
10.4*	Form of Stock Option Agreement between the Company and recipients of stock options issued pursuant to the Company's Stock Option Plans. Previously filed as part of Exhibits 4.1, 4.2, and 4.3 to the Company's Registration Statement on Form S-8 (Reg. No. 33-53030) filed with the Commission on October 6, 1992, and incorporated herein by reference.
10.5	Lease Agreement dated November 7, 1986, between the Company and Industrial & Research Associates Co. Previously filed as an exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1986 and incorporated herein by reference.
10.5.1	First Amendment to Lease dated November 26, 1991 between the Company and Industrial and Research Associates Co. Previously filed as an Exhibit to Amendment No. 1 to the Company's Registration Statement on Form S-1 (Reg. No. 33-43768) declared effective by the Commission on December 17, 1991, and incorporated herein by reference.
10.5.2	Second Amendment to Lease dated March 11, 1994 between the Company and Industrial and Research Associates Co. Previously filed as an exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1993 and incorporated herein by reference.
10.5.3	Third Amendment to Lease dated July 14, 1998 between the Company and Industrial and Research Associates Co. Previously filed as an exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1998 and incorporated herein by reference.
10.5.4	

Fourth Amendment to Lease dated January 13, 2004 between the Company and Industrial and Research Associates Co. Previously filed as an exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2003 and incorporated herein by reference.

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10.5.5	Fifth Amendment to Lease dated February 21, 2014 between the Company and CLK-HP 230-240 CROSSWAYS PARK LLC and LAKE PARK 230-240 CROSSWAYS PARK LLC. Previously filed as an exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2013 and incorporated herein by reference.
10.6	License Agreement effective as of August 2, 1995 between the Company and General Electric Company. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated August 2, 1995 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.7	License Agreement effective as of April 29, 1996 between the Company and Glaverbel, S.A. Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 1996 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.8	License Agreement effective as of January 18, 1997 between the Company and Material Sciences Corporation. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated March 3, 1997 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.9	License Agreement effective as of March 31, 1997 between the Company and Hankuk Glass Industries, Inc. Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 1997 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.10	License Agreement effective as of August 8, 1997 between the Company and Orcolite, a Unit of Monsanto Company. Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 1997 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.11	License Agreement effective as of June 25, 1999 between the Company and Dainippon Ink and Chemicals, Incorporated. Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 1999 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.12	License Agreement effective as of August 9, 1999 between the Company and Hitachi Chemical Co., Ltd. Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 1999 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.13	License Agreement effective as of December 3, 1999 between the Company and Global Mirror GmbH & Co. KG. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1999 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.

10.14	License Agreement effective as of December 13, 1999 between the Company and Global Mirror GmbH & Co. KG. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1999 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.15	License Agreement effective as of March 21, 2000 between the Company and ThermoView Industries, Inc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 1999 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.16	License Agreement effective as of May 23, 2000 between the Company and Polaroid Corporation. Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2000 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.17	License Agreement effective as of February 16, 2001 between the Company and AP Technoglass Co. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.18	License Agreement effective as of March 21, 2001 between the Company and InspecTech Aero Service, Inc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.19	License Agreement effective as of March 28, 2001 between the Company and Film Technologies International, Inc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.20	License Agreement effective as of November 29, 2001 between the Company and Avery Dennison Corporation. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.21	License Agreement effective as of February 4, 2002 between the Company and BOS GmbH & Co. KG. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2001 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.

10.22	License Agreement effective as of March 11, 2002 between the Company and Isoclima S.p.A. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2001 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.23	License Agreement effective as of July 2, 2002 between the Company and Isoclima S.p.A. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.24	License Agreement effective as of August 19, 2002 between the Company and Razor’s Edge Technologies, Inc. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.25	License Agreement effective as of October 7, 2002 between the Company and American Glass Products (Glass Technology Investment Ltd.). Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.26	License Agreement effective as of October 7, 2002 between the Company and SPD Systems, Inc. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.27	License Agreement effective as of October 24, 2002 between the Company and Cricursa Cristales Curvados S.A. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.28	License Agreement effective as of December 9, 2002 between the Company and BRG Group, Ltd. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.29	License Agreement effective as of December 13, 2002 between the Company and Laminated Technologies Inc. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2002 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.30	License Agreement effective as of April 17, 2003 between the Company and Custom Glass Corporation. Previously filed as an Exhibit to the Company’s Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant’s request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.31	

License Agreement effective as of May 2, 2003 between the Company and Air Products and Chemicals, Inc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.

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10.32	License Agreement effective as of May 30, 2003 between the Company and Kerros Limited. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.33	License Agreement effective as of June 6, 2003 between the Company and Traco, Inc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.34	License Agreement effective as of June 16, 2003 between the Company and Saint-Gobain Glass France S.A. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.35	License Agreement effective as of August 1, 2003 between the Company and Vision (Environmental Innovation) Limited. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.36	License Agreement effective as of November 13, 2003 between the Company and Innovative Glass Corporation. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.37	License Agreement effective as of December 11, 2003 between the Company and Leminur Limited. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K/A for the fiscal year ended December 31, 2003 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.38	License Agreement effective as of March 25, 2004 between the Company and Pilkington plc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2004 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.39	License Agreement effective as of April 5, 2004 between the Company and SmartGlass Ireland Ltd. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2004 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.40	License Agreement effective as of April 8, 2004 between the Company and Prelco Inc. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2004 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.

10.41	License Agreement effective as of April 13, 2004 between the Company and E. I. Dupont De Nemours and Company. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2004 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.42	License Agreement effective as of September 3, 2004 between the Company and Nippon Sheet Glass Co., Ltd. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2004 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.43	License Agreement effective as of October 25, 2005 between the Company and SPD Control Systems Corporation. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated October 31, 2005 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.44	License Agreement effective as of March 30, 2006 between the Company and Dainippon Ink and Chemicals. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated April 4, 2006 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.45	License Agreement effective as of May 11, 2006 between the Company and Asahi Glass Company. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated May 15, 2006 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.46	License Agreement effective as of March 19, 2007 between the Company and SmartGlass International Ltd. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated March 19, 2007 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.47	License Agreement effective as of October 16, 2007 between Research Frontiers Incorporated and Glass Wholesalers, Ltd. d/b/a Craftsman Fabricated Glass, Ltd. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated October 18, 2007 and incorporated herein by reference.
10.48	License Agreement effective as of December 14, 2007 between Research Frontiers Incorporated and AGC Flat Glass Europe SA. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated December 17, 2007 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.49	License Agreement effective as of February 21, 2008 between Research Frontiers Incorporated and GKN Aerospace Transparency Systems Inc. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated March 5, 2008 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.

10.50	License Agreement effective as of September 29, 2008 between Research Frontiers Incorporated and PPG Industries, Inc. (now known as Pittsburgh Glass Works, LLC). Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated October 6, 2008 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.51	License Agreement effective as of September 10, 2009 between Research Frontiers Incorporated and Pilkington Group Ltd. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated September 15, 2009 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.52	License Agreement effective as of January 25, 2010 between Research Frontiers Incorporated and Vision Systems. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated January 25, 2010 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.53	License Agreement effective as of February 8, 2010 between Research Frontiers Incorporated and ID Research Pty Ltd. (iGlass). Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated February 16, 2010 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.54	License Agreement effective as of December 13, 2010 between Research Frontiers Incorporated and Diamond Sea-Glaze Manufacturing Ltd. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated December 14, 2010 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.55	License Agreement effective as of December 22, 2010 between Daimler AG, Research Frontiers Incorporated and SPD Control Systems Corp. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated February 9, 2011 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.56	License Agreement effective as of February 19, 2013 between Tint-It JSC and Research Frontiers Incorporated. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated March 5, 2013 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
10.57	License Agreement effective as of August 6, 2012 between Advnanotech LLC and Research Frontiers Incorporated. Previously filed as an Exhibit to the Company's Current Report on Form 8-K dated March 12, 2013 with portions omitted pursuant to the Registrant's request for confidential treatment and filed separately with the Securities and Exchange Commission and incorporated herein by reference.
14	Code of Ethics of Research Frontiers Incorporated. Previously filed as an Exhibit to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2003 and incorporated herein by reference.
21	Subsidiaries of the Registrant - SPD Enterprises, Inc.
23	Consent of BDO USA, LLP - Filed herewith.

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31.1 Rule 13a-14(a)/15d-14(a) Certification of Joseph M. Harary - Filed herewith.

31.2 Rule 13a-14(a)/15d-14(a) Certification of Seth L. Van Voorhees - Filed herewith.

32.1 Section 1350 Certification of Joseph M. Harary - Filed herewith.

32.2 Section 1350 Certification of Seth L. Van Voorhees - Filed herewith.

EX-101.INS XBRL INSTANCE DOCUMENT

EX-101.SCH XBRL TAXONOMY EXTENSION SCHEMA

EX-101.PRE XBRL TAXONOMY EXTENSION PRESENTATION LINKBASE

EX-101.LAB XBRL TAXONOMY EXTENSION LABEL LINKBASE

EX-101.CAL XBRL TAXONOMY EXTENSION CALCULATION LINKBASE

EX-101.DEF XBRL TAXONOMY EXTENSION DEFINITION LINKBASE

* Executive Compensation Plan or Arrangement.

ITEM 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

RESEARCH FRONTIERS INCORPORATED
(Registrant)

/s/ Joseph M. Harary
Joseph M. Harary, President and CEO
(Principal Executive Officer)

/s/ Seth L. Van Voorhees
Seth L. Van Voorhees, Vice President, CFO and Treasurer
(Principal Financial and Accounting Officer)

Dated: March 14, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature	Position	Date
/s/ Darryl Daigle Darryl Daigle	Director	March 14, 2019
/s/ Gregory G. Grimes Gregory G. Grimes	Director	March 14, 2019
/s/ Joseph M. Harary Joseph M. Harary	Director, President, CEO	March 14, 2019
/s/ Alexander Kaganowicz Alexander Kaganowicz	Director	March 14, 2019
/s/ Seth L. Van Voorhees Seth L. Van Voorhees	Vice President, CFO, Treasurer	March 14, 2019

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Report of Independent Registered Public Accounting Firm

The Shareholders and Board of Directors

Research Frontiers Incorporated

Woodbury, New York

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Research Frontiers Incorporated as of December 31, 2018 and 2017 and the related statements of operations, shareholders' equity and cash flows for each of the three years in the period ended December 31, 2018 and the related notes and schedule presented in Item 15 (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures within the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ BDO USA, LLP

We have served as the Company's auditors since 2005.

Melville, New York
March 14, 2019

RESEARCH FRONTIERS INCORPORATED

Consolidated Balance Sheets

December 31, 2018 and 2017

	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	$2,969,416	$1,737,847
Royalties receivable, net of reserves of $1,094,774 in 2018 and $1,051,424 in 2017	689,677	597,441
Prepaid expenses and other current assets	52,729	29,697
Total current assets	3,711,822	2,364,985
Fixed assets, net	313,177	482,561
Deposits and other assets	33,567	33,567
Total assets	$4,058,566	$2,881,113
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable	$133,486	$58,090
Accrued expenses and other	273,606	254,833
Deferred revenue	50,570	824
Total current liabilities	457,662	313,747
Warrant liability	501,414	-
Shareholders' equity:		
Common stock, par value $0.0001 per share; authorized 100,000,000 shares, issued and outstanding 27,665,211 in 2018 and 24,043,846 in 2017	2,767	2,404
Additional paid-in capital	114,787,657	111,627,789
Accumulated deficit	(111,690,934)	(109,062,827)
Total shareholders' equity	3,099,490	2,567,366
Total liabilities and shareholders' equity	$4,058,566	$2,881,113

See accompanying notes to consolidated financial statements.

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RESEARCH FRONTIERS INCORPORATED

Consolidated Statements of Operations

Years ended December 31, 2018, 2017 and 2016

	2018	2017	2016
Fee income	$1,488,642	$1,509,070	$1,236,097
Operating expenses	3,043,460	3,127,979	4,086,408
Research and development	863,401	799,702	1,417,634
Total Expenses	3,906,861	3,927,681	5,504,042
Operating loss	(2,418,219)	(2,418,611)	(4,267,945)
Warrant market adjustment	(278,044)	-	-
Net investment income	10,135	4,752	29,535
Net loss	(2,686,128)	(2,413,859)	(4,238,410)
Basic and diluted net loss per common share	$(0.10)	$(0.10)	$(0.18)
Weighted average number of common shares outstanding	25,956,232	24,043,846	24,043,846

See accompanying notes to consolidated financial statements.

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RESEARCH FRONTIERS INCORPORATED

Consolidated Statements of Shareholders' Equity

Years ended December 31, 2018, 2017 and 2016

	Common Stock		Additional Paid-in	Accumulated	
	Shares	Amount	Capital	Deficit	Total
Balance, December 31, 2015	24,043,846	$ 2,404	$ 111,483,959	$ (102,410,558)	$ 9,075,805
Share-based compensation	-	-	67,531	-	67,531
Net Loss	-	-	-	(4,238,410)	(4,238,410)
Balance, December 31, 2016	24,043,846	2,404	111,551,490	(106,648,968)	4,904,926
Share-based compensation	-	-	76,299	-	76,299
Net Loss	-	-	-	(2,413,859)	(2,413,859)
Balance, December 31, 2017	24,043,846	2,404	111,627,789	(109,062,827)	2,567,366
Adoption of ASC 606	-	-	-	58,021	58,021
Issuance of capital stock	3,562,809	357	3,026,273	-	3,026,630
Exercise of options and warrants	58,556	6	64,286	-	64,292
Share-based compensation	-	-	69,309	-	69,309
Net Loss	-	-	-	(2,686,128)	(2,686,128)
Balance, December 31, 2018	27,665,211	$ 2,767	$ 114,787,657	$ (111,690,934)	$ 3,099,490

See accompanying notes to consolidated financial statements.

RESEARCH FRONTIERS INCORPORATED

Consolidated Statements of Cash Flows

Years ended December 31, 2018, 2017 and 2016

	2018	2017	2016
Cash flows from operating activities:			
Net loss	$(2,686,128)	$(2,413,859)	$(4,238,410)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	181,047	175,643	188,501
Warrant market adjustment	278,044	-	-
Share based compensation	69,309	76,299	67,531
Loss on sale of fixed asset	-	-	1,775
Bad debts	43,350	56,415	480,563
Change in assets and liabilities:			
Royalties receivable	(77,565)	463,290	(283,035)
Prepaid expenses and other current assets	(23,032)	227,195	(123,427)
Accounts payable and accrued expenses	94,169	(56,347)	(98,941)
Deferred revenue	49,746	824	-
Net cash used in operating activities	(2,071,060)	(1,470,540)	(4,005,443)
Cash flows from investing activities:			
Purchases of fixed assets	(11,663)	(6,549)	(11,715)
Proceeds from sale of fixed asset	-	-	6,000
Proceeds from sale of investment	-	1,523,333	(9,549)
Net cash (used in) provided by investing activities	(11,663)	1,516,784	(15,264)
Cash flows from financing activities:			
Net proceeds from issuances of common stock and warrants and exercise of options and warrants	3,314,292	-	-
Net cash (used in) provided by financing activities	3,314,292	-	-
Net increase (decrease) in cash and cash equivalents	1,231,569	46,244	(4,020,707)
Cash and cash equivalents at beginning of year	1,737,847	1,691,603	5,712,310
Cash and cash equivalents at end of year	$2,969,416	$1,737,847	$1,691,603

See accompanying notes to consolidated financial statements.

RESEARCH FRONTIERS INCORPORATED

Notes to Consolidated Financial Statements

(1) Business and Basis for Presentation

Research Frontiers Incorporated ("Research Frontiers" or the "Company") operates in a single business segment which is engaged in the development and marketing of technology and devices to control the flow of light. Such devices, often referred to as "light valves" or suspended particle devices (SPDs), use colloidal particles that are either incorporated within a liquid suspension or a film, which is usually enclosed between two sheets of glass or plastic having transparent, electrically conductive coatings on the facing surfaces thereof. At least one of the two sheets is transparent. SPD technology, made possible by a flexible light-control film invented by Research Frontiers, allows the user to instantly and precisely control the shading of glass/plastic manually or automatically. SPD technology has numerous product applications, including SPD-Smart™ windows, sunshades, skylights and interior partitions for homes and buildings; automotive windows, sunroofs, sun-visors, sunshades, rear-view mirrors, instrument panels and navigation systems; aircraft windows; museum display panels, eyewear products; and flat panel displays for electronic products. SPD-Smart light control film is now being developed for, or used in, architectural, automotive, marine, aerospace and appliance applications.

The Company has historically utilized its cash, cash equivalents, short-term investments, and the proceeds from the sale of its investments to fund its research and development of SPD light valves, for marketing initiatives, and for other working capital purposes. The Company's working capital and capital requirements depend upon numerous factors, including the results of research and development activities, competitive and technological developments, the timing and cost of patent filings, and the development of new licensees and changes in the Company's relationships with its existing licensees. The degree of dependence of the Company's working capital requirements on each of the foregoing factors cannot be quantified; increased research and development activities and related costs would increase such requirements; the addition of new licensees may provide additional working capital or working capital requirements, and changes in relationships with existing licensees would have a favorable or negative impact depending upon the nature of such changes. We have incurred recurring losses since inception and expect to continue to incur losses as a result of costs and expenses related to our research and continued development of our SPD technology and our corporate general and administrative expenses. Our limited capital resources and operations to date have been substantially funded through sales of our common stock, exercise of options and warrants and royalty fees collected. As of December 31, 2018, we had working capital of approximately $3.3 million, cash of approximately $3.0 million, shareholders' equity of approximately $3.1 million and an accumulated deficit of approximately $111.7 million. Our quarterly projected cash flow shortfall, based on our current operations adjusted for any non-recurring cash expenses for the next 12 months, is approximately $450,000 per quarter. We may eliminate some operating expenses in the future, which will further reduce our cash flow shortfall if needed. We expect to have sufficient working capital for the next 18-24 months of operations. Since last year we have reduced our cash shortfall and are working to further reduce it and may seek new sources of financing.

In the event that we are unable to generate sufficient cash from our operating activities or raise additional funds, we may be required to delay, reduce or severely curtail our operations or otherwise impede our on-going business efforts, which could have a material adverse effect on our business, operating results, financial condition and long-term prospects. The Company may seek to obtain additional funding through future equity issuances. There can be no assurance as to the availability or terms upon which such financing and capital might be available. Eventual success of the Company and generation of positive cash flow will be dependent upon the commercialization of products using the Company's technology by the Company's licensees and payments of continuing royalties on account thereof. To date, the Company has not generated sufficient revenue from its licensees to fund its operations.

(2) Summary of Significant Accounting Policies

(a) Cash and Cash Equivalents

The Company considers securities purchased with original maturities of three months or less to be cash equivalents. Cash equivalents consist of short-term investments in money market accounts at December 31, 2018 and 2017.

Cash and cash equivalents are maintained at financial institutions and, at times, balances may exceed federally insured limits. We have never experienced any losses related to these balances. FDIC insurance coverage is $250,000 per depositor at each financial institution, and our non-interest bearing cash balances may again exceed federally insured limits. Amounts on deposit in excess of federally insured limits at December 31, 2018 and 2017 is approximately $2.7 million and $1.0 million, respectively.

(b) Royalties Receivable

Royalties receivable from licensees are recorded at the amounts specified within the license agreements when the collectability of the receivable is reasonably assured. The allowance for doubtful accounts is the Company's best estimate of the amount of probable credit losses in the Company's existing royalties receivable. The Company determines the allowance based on historical write off experience as well as the current status of the Company's customers. The Company reviews its allowance for doubtful accounts periodically. Past due accounts are reviewed individually for collectability. Account balances are charged off against the allowance after all means of collection have been exhausted and the potential for recovery is considered remote. As of December 31, 2018, three companies accounted for 30%, 22% and 16%, respectively, of the Company's outstanding receivables. As of December 31, 2017 four companies accounted for 33%, 25%, 17% and 11%, respectively, of the Company's outstanding receivables.

(c) Fixed Assets

Fixed assets are carried at cost. Depreciation and amortization are computed using the straight-line method over the estimated useful lives of the assets.

(d) Revenue Recognition/Fee Income

In May 2014, the FASB issued guidance on revenue recognition (ASC 606). The standard provides a single comprehensive revenue recognition model for all contracts with customers and supersedes existing revenue recognition guidance. The revenue standard contains principles that an entity will apply to determine the measurement of revenue and timing of when it is recognized. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services.

The ASC 606 guidance was adopted by the Company beginning January 1, 2018. ASC 606 was applied using the modified retrospective method, with the cumulative effect of the initial adoption being recognized as an adjustment to opening retained earnings at January 1, 2018. The comparative prior periods have not been adjusted and continue to be reported under FASB ASC Topic 605, Revenue Recognition ("ASC 605"). The policies described below refer to those in effect as of January 1, 2018.

ASC 606 follows a five-step approach to determining revenue recognition including: 1) Identification of the contract; 2) Identification of the performance obligations; 3) Determination of the transaction price; 4) Allocation of the transaction price and 5) Recognition of revenue.

The Company determined that its license agreements provide for three performance obligations which include: (i) the Grant of Use to its Patent Portfolio “Grant of Use”, (ii) Stand-Ready Technical Support (“Technical Support”) including the transfer of trade secrets and other know-how, production of materials, scale-up support, analytical testing, etc., and (iii) access to new Intellectual Property (“IP”) that may be developed sometime during the course of the contract period (“New Improvements”). Given the nature of IP development, such New Improvements are on an unspecified basis and can occur and be made available to licensees at any time during the contract period.

When a contract includes more than one performance obligation, the Company needs to allocate the total consideration to each performance obligation based on its relative standalone selling price or estimate the standalone selling price if it is not observable. A standalone selling price is not available for our performance obligations since we do not sell any of the services separately and there is no competitor pricing that is available. As a consequence, the best method for determining standalone selling price of our Grant of Use performance obligation is through a comparison of the average royalty rate for comparable license agreements as compared to our license agreements. Comparable license agreements must consider several factors including: (i) the materials that are being licensed, (ii) the market application for the licensed materials, and (iii) the financial terms in the license agreements that can increase or decrease the risk/reward nature of the agreement.

Based on the royalty rate comparison referred to above, any pricing above and beyond the average royalty rate would relate to the Technical Support and New Improvements performance obligations. The Company focuses a significant portion of its time and resources to provide the Technical Support and New Improvements services to its licensees which further supports the conclusions reached using the royalty rate analysis.

The Technical Support and New Improvements performance obligations are co-terminus over the term of the license agreement. For purposes of determining the transaction price, and recognizing revenue, the Company combined the Technical Support and New Improvements performance obligations because they have the same pattern of transfer and the same term. We maintain a staff of scientists and other professionals whose primary job responsibilities throughout the year are: (i) being available to respond to Technical Support needs of our licensees, and (ii) developing improvements to our technology which are offered to our licensees as New Improvements. Since the costs incurred to satisfy the Technical Support and New Improvements performance obligations are incurred evenly throughout the year, the value of the Technical Support and New Improvements services are recognized throughout the initial contract period as these performance obligations are satisfied. If the agreement is not terminated at the end of the initial contract period, it will renew on the same terms as the initial contract for a one-year period. Consequently, any fees or minimum annual royalty obligations relating to this renewal contract will be allocated similarly to the initial contract over the additional one-year period.

We recognize revenue when or as the performance obligations in the contract are satisfied. For performance obligations that are fulfilled at a point in time, revenue is recognized at the fulfillment of the performance obligation. Since the IP is determined to be a functional license, the value of the Grant of Use is recognized in the first period of the contract term in which the license agreement is in force. The value of the Technical Support and New Improvements obligations is allocated throughout the contract period based on the satisfaction of its performance obligations. If the agreement is not terminated at the end of the contract period, it will renew on the same terms as the original agreement for a one-year period. Consequently, any fees or minimum annual royalties (“MAR”) relating to this renewal contract will be allocated similarly over that additional year.

The Company’s license agreements have a variable royalty fee structure (meaning that royalties are a fixed percentage of sales that vary from period to period) and frequently include a minimum annual royalty commitment. In instances when sales of licensed products by its licensees exceed the MAR, the Company recognizes fee income as the amounts have been earned. Typically, the royalty rate for such sales is 10-15% of the selling price. While this is variable consideration, it is subject to the sales/usage royalty exception to recognition of variable consideration in ASC 606 10-55-65 and therefore is not recognized until the subsequent sales or usage occurs or the MAR period commences.

Because of the immediate recognition of the Grant of Use performance obligation: (i) the first period of the contract term will generally have a higher percent allocation of the transaction price under ASC 606 than under the accounting guidance used prior to the adoption of ASC 606, and (ii) the remaining periods will have less of the transaction price recognized under ASC 606 than under the accounting guidance used prior to the adoption of ASC 606. After the initial period in the contract term, the revenue for the remaining periods will be based on the satisfaction of the technical support and New Improvements obligations. Since most of our license agreements start as of January 1st, the revenue recognized for the contract under ASC 606 in our first quarter will tend to be higher than the accounting guidance used prior to the adoption of ASC 606. In 2018, the Company reported $64,823 lower revenue under ASC 606 as compared to the accounting guidance used prior to the adoption of ASC 606 due to the higher percent of the transaction price being recognized in the first period of multiyear contracts that were executed prior to fiscal 2018.

ASC 606 was applied using the modified retrospective method to all contracts that were not completed contracts as of the implementation date, with the cumulative effect of the initial adoption being recognized as an adjustment to opening retained earnings at January 1, 2018. As of January 1, 2018, we had four license agreements that were still under their multi-year initial term. The Company elected to use the Modified Retrospective approach when adopting the provisions of ASC 606. Using the Modified Retrospective Approach, with the adoption of ASC 606 as of January 1, 2018, the Company will not recognize $58,021 of revenue in future periods from these four license agreements that it would have recognized under ASC 605. The non-recognition of future revenues associated with the adoption of ASC 606 is solely from a financial reporting standpoint and does not impact the Company's licensees' obligations to pay royalties to the Company under their license agreements. The Company recorded a cumulative adjustment to decrease opening accumulated deficit and increase accounts receivable balance as of January 1, 2018 by $58,021.

Royalties receivable balance, net - December 31, 2017	$597,441
Cumulative effect of adoption of ASC 606	58,021
Opening royalties receivable balance, net - January 1, 2018	$655,462

As of December 31, 2018, the net closing royalties receivable balance is $689,677. Had ASC 606 not been adopted, the Company's net closing accounts receivable balance as of December 31, 2018 would have been $696,479. The Company does not have any contract assets under ASC 606 as of January 1, 2018 and December 31, 2018. There was $824 of revenue recognized during the year ended December 31, 2018 that was included in contract liability (deferred revenue) as of the beginning of the period and the balance of this account as of December 31, 2018 is $50,570. Had ASC 606 not been adopted, the Company's deferred revenue balance as of December 31, 2018 would have been $0.

Certain of the contract fees are accrued by, or paid to, the Company in advance of the period in which they are earned resulting in deferred revenue. Such excess amounts are recorded as deferred revenue and are recognized as revenue in future periods as earned.

The Company operates in a single business segment which is engaged in the development and marketing of technology and devices to control the flow of light. Our revenue source comes from the licensing of this technology and all of these license agreements have similar terms and provisions. The majority of the Company's licensing fee income comes from the activities of several licensees participating in the automotive market. The Company currently believes that the automotive market will be the largest source of its royalty income over the next several years. The Company's royalty income from this market may be influenced by numerous factors including various trends affecting demand in the automotive industry and the rate of introduction of new technology in OEM product lines. In addition to these macro factors, the Company's royalty income from the automotive market could also be influenced by specific factors such as whether the Company's SPD-SmartGlass technology appears as standard equipment or as an option on a particular vehicle, the number of additional vehicle models that SPD-SmartGlass appears on, the size of each window on a vehicle and the number of windows on a vehicle that use SPD SmartGlass, fluctuations in the total number of vehicles produced by a manufacturer, and in the percentage of cars within each model produced with SPD-SmartGlass, and changes in pricing or exchange rates.

As of December 31, 2018, the Company has six license agreements that are in their initial multiyear term ("Initial Term") with continuing performance obligations going forward. The Initial Term of four of these agreements will end as of December 31, 2019, one will end as of December 31, 2020, one will end as of December 31, 2021, and one will end as of December 31, 2022. The Company currently expects that five of these agreements will renew annually at the end of the Initial Term. As of December 31, 2018, the aggregate amount of the revenue to be recognized upon the satisfaction of the remaining performance obligations for the six license agreements is $352,811. The revenue for these remaining performance obligations for each of the five license agreements is expected to be recognize evenly throughout their remaining period of the Initial Term.

For the years ended December 31, 2018 and 2017, the Company had entered into a number of license agreements covering its light control technology. The Company received minimum annual royalties under certain license agreements and recorded fee income on a ratable basis each quarter. In instances when sales of licensed products by its licensees exceed minimum annual royalties, the Company recognized additional fee income as the amounts have been earned. Certain of the fees are accrued by, or paid to, the Company in advance of the period in which they are earned resulting in deferred revenue. Such excess amounts are recorded as deferred revenue and are typically recognized as fee income when earned. As of December 31, 2018 and 2017, deferred revenue balances were $50,570 and $824 respectively.

Fee income represents amounts earned by the Company under various license and other agreements relating to technology developed by the Company. During 2018, four licensees accounted for 35%, 13%, 11%, and 10% of fee income recognized for the year. During 2017, four licensees accounted for 35%, 15%, 10%, and 9% of fee income recognized during the year. During 2016 three licensees accounted for 30%, 27%, and 15%, respectively of fee income recognized for the year.

(e) Basic and Diluted Loss Per Common Share

Basic loss per share excludes any dilution. It is based upon the weighted average number of common shares outstanding during the period. Dilutive loss per share reflects the potential dilution that would occur if securities or other contracts to issue common stock were exercised or converted into common stock. The Company's dilutive loss per share equals basic loss per share for each of the years in the three-year period ended December 31, 2018 because all common stock equivalents (*i.e.,* options and warrants) were antidilutive in those periods. The number of options and warrants that were not included because their effect is antidilutive was 3,754,386, 1,436,910, and 2,082,229, for 2018, 2017 and 2016, respectively.

(f) Research and Development Costs

Research and development costs are charged to expense as incurred.

(g) Patent Costs

The Company expenses costs relating to the development or acquisition of patents due to the uncertainty of the recoverability of these items.

(h) Use of Estimates

The preparation of the Company's consolidated financial statements requires management of the Company to make a number of estimates and assumptions relating to the reported amount of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during this period. Actual results could differ from those estimates.

(i) Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to be recovered or settled.

On December 22, 2017, The Tax Cuts and Jobs Act (Act) was enacted into law. The Act provides for significant changes to the US Internal Revenue Code of 1986, as amended, that impact corporate taxation requirements, such as the reduction of the federal tax rate for corporations from 35% to 21% and changes or limitations to certain tax deductions. The reduction in the corporate tax rate under the Act required a one-time revaluation of certain tax-related assets to reflect their value at the lower corporate tax rate of 21%. As such, the Company reduced the value of these assets by approximately $10 million which primarily relates to the Company's net operating loss carryforward for which a full valuation allowance has been provided (see Note 5). As the Company has determined in accordance with ASC 740 that it is not more likely than not that it will realize this future tax benefit, the reduction in the asset value was accompanied by a reduction for a like amount in the associated valuation allowance.

In accordance with ASC Topic 740 (FIN 48), we recognize tax benefits only for tax positions that are more likely than not to be sustained upon examination by tax authorities. The amount recognized is measured as the largest amount of benefit that is greater than 50 percent likely to be realized upon ultimate settlement. Unrecognized tax benefits are tax benefits claimed in tax returns that do not meet these recognition and measurement standards. We classify accrued interest and penalties related to any unrecognized tax benefits in our income tax provision. At December 31, 2018 and 2017, we do not have accrued interest and penalties related to any unrecognized tax benefits. We do not believe we have any uncertain tax positions as of December 31, 2018 and 2017.

The tax years subject to examination by major tax jurisdictions include the years 2014 and forward by the U.S. Internal Revenue Service and certain states. The Company is not currently being audited by any tax jurisdiction.

(j) Equity-Based Compensation

We recognize all stock-based compensation as an expense in the financial statements and such costs are measured at the fair value of the award at the date of grant. In addition to reflecting compensation expense for new share-based payment awards, expense is also recognized to reflect the remaining vesting period of awards that had been granted in prior periods. Tax benefits related to stock option exercises are reflected as financing cash inflows.

The exercise price for stock options granted are generally set at the average for the high and low trading prices of the Company's common stock on the trading date immediately prior to the date of grant, and the related number of shares granted are fixed at the date of grant.

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In order to determine the fair value of stock options on the date of grant, the Company uses the Black-Scholes option-pricing model. Inherent in this model are assumptions related to expected stock-price volatility, option term, risk-free interest rate and dividend yield. While the risk-free interest rate and dividend yield are less subjective assumptions that are based on factual data derived from public sources, the expected stock-price volatility and option term assumptions require a greater level of judgment.

In connection with employee stock options and restricted stock grants, the Company charged to compensation expense $69,309, $76,299, and $67,531, during the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, these awards were fully vested. In lieu of higher cash compensation, the Company has granted warrants and non-employee options to consultants. These warrants and non-employee options vested ratably over various terms ranging from 24 to 59 months. Non-employee options are valued at fair value at the time that the related services are provided using the Black Scholes method and marked to market quarterly using the Black Scholes method. There were no such charges for the years ended December 31, 2018, 2017 and 2016.

(k) Restricted Stock

Compensation cost for restricted stock is measured using the quoted market price of the Company’s common stock at the date the common stock is granted. The compensation cost is recognized over the period between the issue date and the vesting period for such shares. Restricted stock is included in total common shares outstanding upon the lapse of any vesting conditions.

(l) Impairment of Long-Lived Assets

The Company reviews long-lived assets to determine whether an event or change in circumstances indicates the carrying value of the asset may not be recoverable. The Company bases its evaluation on such impairment indicators as the nature of the assets, the future economic benefit of the assets and any historical or future profitability measurements, as well as other external market conditions or factors that may be present. There was no impairment of long-lived assets recorded during the years ended 2018, 2017 and 2016.

(m) Fair Value Measurements

The fair value of a financial instrument is the amount at which the instrument could be exchanged in a current transaction between willing parties. The carrying amounts of all financial instruments classified as a current asset or current liability are deemed to approximate fair value because of the short maturity of those instruments.

Accounting Standards Codification (“ASC”) Topic 820 “Fair Value Measurements and Disclosures” (“ASC Topic 820”) establishes a framework for measuring fair value in generally accepted accounting principles and expands disclosures about fair value measurements. ASC Topic 820 applies other previously issued accounting pronouncements that require or permit fair value measurements but does not require any new fair value measurements.

ASC Topic 820 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC Topic 820 establishes a fair value hierarchy that distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity’s own assumptions about market participant assumptions developed based on the best information available in the circumstances (unobservable inputs).

We value financial instruments using a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value. These tiers include: Level 1, defined as observable inputs such as quoted prices in active markets for identical assets or liabilities; Level 2, defined as inputs other than quoted prices for similar assets or liabilities in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

As of December 31, 2018 and 2017, the fair value of the Company’s financial assets and non-warrant liabilities including cash and cash equivalents, royalties receivable, accounts payable and accrued expenses approximated carrying value due to the short-term maturity of these instruments. The carrying value of the warrant liabilities is adjusted to fair value each reporting period using the Black-Scholes method to determine the fair value of the warrants. The issued warrants treated as warrant liabilities have different exercise prices depending on the date of exercise. The lowest exercise price for these warrants was used in the Black Scholes method to value the warrant liabilities since it was deemed a reasonable approximation of fair market value. The Company’s warrant liability is considered a Level 3 financial instrument. The estimated fair value for warrant liabilities for the period ended December 31, 2018 and 2017 using the Black-Scholes method was $501,414 and $0 respectively.

(n) Recent Accounting Pronouncements

New Accounting Standards

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement: Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement," which eliminates, amends and adds disclosure requirements for fair value measurement. The standard is effective for the interim and annual periods beginning after December 15, 2019, with early adoption permitted. The Company will adopt this standard January 1, 2020. The adoption of this standard is not expected to have a material impact on the Company's financial statements.

In June 2018, the FASB issued ASU 2018-07 Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting (ASU 2018-07), which simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. ASU 2018-07 is effective for us in the first quarter of fiscal 2020, and earlier adoption is permitted. We are currently evaluating the impact of our pending adoption of ASU 2018-07 on the Company's financial statements.

In February 2018, the FASB issued ASU 2018-02, Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income (Loss), which allows a reclassification from accumulated other comprehensive income (loss) to retained earnings for standard tax effects resulting from the Tax Cuts and Jobs Act. ASU 2018-02 must be applied either in the period of adoption or retrospectively to each period in which the effect of the change in the U.S. federal corporate income tax rate in the Tax Cuts and Jobs Act is recognized. This guidance is effective for annual periods, including interim periods within those annual periods, beginning after December 15, 2018 with early adoption permitted in any interim period. The Company is currently evaluating the potential impact on the Company's financial statements.

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Updated ("ASU") No. 2016-02, Leases. ASU 2016-02 requires lessees to apply a modified retrospective transition approach for leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. Early adoption of the new guidance is permitted. The standard provides multiple practical expedients in order to simplify adoption, including the following:

1. An entity need not reassess whether any expired or existing contracts are or contain leases.
2. An entity need not reassess the lease classification for any expired or existing leases. Instead, any leases previously classified as operating leases will continue to be classified as operating leases, while any leases previously classified as capital leases will be classified as finance leases.

3. An entity need not reassess initial direct costs for any leases.
4. An entity may use hindsight in determining the lease term, including consideration of renewal, termination and purchase options, and in assessing impairment of ROU assets.

The first three practical expedients may only be elected as a package, while the fourth practical expedient may be elected alone or in conjunction with the other three. For leases classified as operating leases under Topics 840 and 842, the lessee should measure the lease liability as the present value of the remaining lease payments and any amounts probable of being owed under a residual value guarantee, using the discount rate in effect as of the later of the beginning of the earliest period presented or the commencement date of the lease.

As an accounting policy election, the company will account for nonlease and lease components in a contract as a single component for most asset classes. The company is finalizing the evaluation of the January 1, 2019 impact and estimates a material increase in lease-related assets and liabilities, ranging between $0.8 million to $1.2 million in the Consolidated Balance Sheet. The impact to the company’s Consolidated Statement of Operations and Consolidated Statement of Cash Flows is expected to not be material.

In June 2016 the FASB issued ASU 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments” (ASU 2016-13), that requires entities to use a new impairment model based on expected losses. Under this new model an entity would recognize an impairment allowance equal to its current estimate of credit losses on financial assets measured at amortized cost. ASU 2016-13 is effective for us beginning January 1, 2020 with early adoption permitted January 1, 2019. We are currently evaluating new processes to calculate credit losses in accordance with ASU 2016-13 that, once completed, will determine the impact on our consolidated financial statements. The Company is currently evaluating the impact of the provisions of this standard.

(3) Fixed Assets

Depreciation and amortization expense for the years ended December 31, 2018, 2017, and 2016 was $181,047, $175,643, and $188,501, respectively. Fixed assets and their estimated useful lives as of December 31, 2018 and 2017 are as follows:

	2018	2017	Estimated useful life
Equipment and furniture	$1,384,112	$1,372,449	5 years
Trade show materials	775,654	775,654	5 years
Leasehold Improvements	584,967	584,967	Life of lease or estimated life of asset if shorter
	2,744,733	2,733,070	
Less accumulated depreciation and amortization	(2,431,556)	(2,250,509)	
	$313,177	$482,561	

(4) Accrued Expenses and Other

Accrued expenses consist of the following at December 31, 2018 and 2017:

	2018	2017
Payroll, bonuses and related benefits	$74,010	$47,932
Professional services	4,400	4,400
Deferred rent	192,537	202,141
Other	2,659	360
	$273,606	$254,833

(5) Income Taxes

Since inception, the Company has incurred losses from operations and as a result has not recorded income tax expense. Benefits related to net operating loss carry-forwards and deferred items have been fully reserved since it is not more likely than not that the Company will achieve profitable operations. For the year ended December 31, 2018, the difference between the total income taxes at the federal statutory rate and the fact that there was no tax expense is attributable to both the federal rate reduction that was enacted as a part of the Act on December 22, 2017 as well as the change in the valuation allowance due to the net operating loss for the current year. The difference between the total income taxes at the federal statutory rate for each of the years ended December 31, 2018 and 2017 and the fact that no income tax benefit was recorded in each of these years is attributable to the change in the valuation allowance recorded in each year.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets at December 31, 2018 and 2017 are presented below and reflect the new federal statutory rate enacted in 2017. The 2018 and 2017 deferred tax amounts were adjusted for the effects of the new federal statutory rates.

	2018	2017
Deferred tax assets:		
Depreciation	$87,000	$89,000
Allowance for bad debts	234,000	225,000
Net operating loss carry-forwards	15,528,000	15,575,000
Stock option expense	257,000	257,000
Research and other credits	1,161,000	1,266,000
Other temporary differences	15,000	15,000
Total gross deferred tax assets	17,284,000	17,427,000
Less valuation allowance	(17,284,000)	(17,427,000)
	$-	$-

The reconciliation of the income tax expense (benefit) computed at the Federal statutory tax rates to income tax expense (benefit) is as follows:

	2018	2017	2016
Income Tax Provision at Federal Statutory Rate	$(564,100)	$(844,900)	$(1,483,400)
Permanent Differences	73,000	27,800	23,600
Credits	(5,000)	(50,000)	(50,000)
Other	640,000	655,400	245,100
2017 Tax Reform Act	-	10,563,000	-
Valuation Allowance	(143,900)	(10,351,300)	1,264,700
Total Income Tax Provision	$-	$-	$-

In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon future taxable income during the period in which those temporary differences become deductible. The Company considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax planning strategies in making this assessment. Based upon its historical operating losses, utilization of deferred tax assets cannot currently be determined. Accordingly, the Company has recorded a full valuation allowance against the deferred tax assets due to the uncertainty regarding the future utilization of the deferred tax assets for all periods presented.

At December 31, 2018, the Company had a net operating loss carry-forward for federal income tax purposes of approximately $72,562,000, of which a total of $70,180,000 will expire in varying amounts from 2019 through 2037. Research and other credit carry-forwards of approximately $1,161,000 are available to the Company to reduce income taxes payable in future years principally through 2038. The Company’s ability to utilize its net operating loss carryforwards and its current year tax credits in future periods could be subject to the 382 limitation. The Company will need to complete an analysis to determine whether its net operating losses are subject to the 382 limitation.

(6) Shareholders’ Equity

(a) Common Stock and Warrants

On or around February 16, 2018, a small group of long-time shareholders of the Company who are accredited investors made an interest-free five-year convertible loan of $1.25 million to the Company which, upon the occurrence of certain conditions which have occurred, automatically converted into 1,388,893 shares of common stock at a price equal to the market price of the Company’s common stock when the loan was made, plus warrants expiring February 28, 2023 to purchase 1,388,893 shares of common stock at an exercise price of $1.10, $1.20 or $1.35 per share depending on the exercise date. On April 23, 2018, Research Frontiers Incorporated filed a prospectus supplement relating to the issuance and sale of the above common stock and warrant securities with the Securities and Exchange Commission. The Company has recorded this transaction as an equity transaction whereby the proceeds were accounted for as the issuance of the Company’s common stock on the date that the proceeds were received.

On September 7, 2018, the Company announced that it had sold common stock to a group of investors led by Gauzy Ltd., a licensee of the Company’s SPD technology. The aggregate proceeds from these stock offerings was $2,000,000. At the closing, the investors received 2,173,916 shares of Research Frontiers common stock at a price of $0.92 per share, as well as five-year warrants to purchase 1,086,957 shares of Research Frontiers common stock at an exercise price of $1.10, $1.20 or $1.38 per share depending on the exercise date. In connection with the issuance of certain of these warrants during the third quarter of 2018, the Company recorded $223,370 as a warrant liability upon the issuance of these warrants on August 13, 2018 and recorded a non-cash accounting expense of $278,044 to mark the warrants to their estimated market value as of December 31, 2018. This resulted in a liability of $501,414 recorded on the Company's December 31, 2018 balance sheet.

During 2018, the Company received proceeds of $64,292 and issued 58,556 shares of common stock in connection with the exercise of outstanding options and warrants. During the first quarter of 2019 the Company has received proceeds of $1,101,782 from the exercise of warrants by investors issued in 2018.

The Company did not sell any equity securities during year ended December 31, 2017.

(b) Options and Warrants

(i) Employee Options

In 2008, the shareholders approved the Company's 2008 Equity Incentive Plan which provides for the granting of both incentive stock options at the fair market value at the date of grant and nonqualified stock options at the fair market value at the date of grant to employees or non-employees who, in the determination of the Board of Directors, have made or may make significant contributions to the Company in the future. The Company may also award stock appreciation rights, restricted stock, or restricted stock units under this plan. The Company initially reserved 750,000 shares of its common stock for issuance under this plan, and no options and other awards were available for issuance under this plan as of December 31, 2018.

At the discretion of the Board of Directors, options expire in ten years or less from the date of grant and are generally fully exercisable upon grant but in some cases may be subject to vesting in the future. Full payment of the exercise price may be made in cash or in shares of common stock valued at the fair market value thereof on the date of exercise, or by agreeing with the Company to cancel a portion of the exercised options.

The Company granted 85,250 fully vested options during 2016 and recorded share-based compensation of $67,531. The Company granted 158,000 fully vested options during 2017 and recorded share-based compensation of $76,299. The Company granted 150,182 fully vested options during 2018 and recorded share-based compensation of $69,309. The Company valued these grants using the Black-Scholes option pricing model with the following weighted average assumptions:

	2018	2017	2016
Fair value on grant date	$0.46	$0.48	$0.79

Expected Dividend yield	-		-		-	
Expected volatility	51	%	50	%	47	%
Risk free interest rate	2.77	%	2.20	%	1.93	%
Expected term of the option	5 years		5 years		5 years	

Activity for stock options is summarized below:

All options are exercisable at December 31, 2018.

In 2017 and 2016, the Company did not receive proceeds from the exercise of options.

	Number of Shares Subject to Option	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Balance at December 31, 2015	1,407,006	$ 7.49	6.2	
Granted	85,250	$ 1.83		
Cancelled	(200,390)	$ 5.89		
Exercised	-	$ -		
Balance at December 31, 2016	1,291,866	$ 7.11	6.2	$ -
Granted	158,000	$ 1.06		
Cancelled	(470,956)	$ 10.57		
Exercised	-	$ -		
Balance at December 31, 2017	978,910	$ 4.26	7.1	$ -
Granted	150,182	$ 1.00		
Cancelled	-	$ -		
Exercised	(3,000)	$ 1.06		
Balance at December 31, 2018	1,126,092	$ 3.84	6.6	$ 161,602

(ii) Warrants and Non-Employee Options

Activity in warrants is summarized below:

	Number of Shares Underlying Warrants and Non-Employee Options Granted	Weighted Average Exercise Price
Balance at December 31, 2015	790,363	$ 5.56
Exercised	-	-
Terminated	-	-
Issued	-	
Balance at December 31, 2016	790,363	$ 5.56
Exercised	-	-
Terminated	(332,363)	4.36
Issued	-	
Balance at December 31, 2017	458,000	$ 6.43
Exercised	(55,556)	1.10
Terminated	(250,000)	6.73
Issued	2,475,850	1.10
Balance at December 31, 2018	2,628,294	$ 1.49

In lieu of cash compensation, the Company has granted warrants to investors and non-employee options to consultants. These warrants and non-employee options vested ratably over various terms ranging from 12 to 59 months. The non-employee options are valued at fair value at the time that the related services are provided using the Black-Scholes option valuation model and marked to market quarterly using the Black-Scholes option valuation model. There were no such charges for non-employee options in 2018, 2017 and 2016. There are 2,475,850 warrants issued to investors that are outstanding of which 543,479 are accounted for as a liability and the remaining warrants are accounted for as equity. The warrants issued to investors that are accounted for as a liability are valued at fair value at the time of issuance using the Black-Scholes option valuation model and marked to market quarterly using the Black-Scholes option valuation model.

Warrants and non-employee options generally expire from five to ten years from the date of issuance. At December 31, 2018, all warrants and non-employee options outstanding were exercisable.

(c) Restricted Stock Grants

During 2018, 2017, and 2016, the Company did not issue restricted stock to its directors and employees.

(7) License and Other Agreements

The Company has entered into a number of license agreements covering various products using the Company's SPD technology. Some of these license agreements are limited to specific countries and/or markets. Licensees of Research Frontiers who incorporate SPD technology into end products pay Research Frontiers an earned royalty of 5-15% of net sales of licensed products under license agreements currently in effect and may also be required to pay Research Frontiers fees and minimum annual royalties. Licensees who sell products or components to other licensees of Research Frontiers do not pay a royalty on such sale; Research Frontiers will collect such royalty from the licensee incorporating such products or components into its own end-products. Research Frontiers' license agreements typically allow the licensee to terminate the license after some period of time and give Research Frontiers only limited rights to terminate before the license expires. Most licenses are non-exclusive and generally last as long as our patents remain in effect.

(8) Commitments

The Company has an employment agreement with its chief executive officer which provides for an annual base salary of $500,000 for calendar year 2019. This employment agreement has an evergreen provision that extend the term by one year on the anniversary date unless either the Company or the employee has given notice that they will not be renewing the agreement upon the expiration of its term.

The Company has a defined contribution profit sharing (401K) plan covering employees who have completed one year of service. Contributions are made at the discretion of the Company. The Company did not make any contributions to this plan for 2018, 2017, or 2016.

The Company occupies premises under an operating agreement which expires on March 31, 2025. As of December 31, 2018, the approximate minimum annual future rental commitments under lease agreements for the next five years are as follows:

Year	Amount
2019	$191,000
2020	$197,000
2021	$203,000
2022	$209,000
Thereafter:	$493,000

Rent expense, including other occupancy related expenses, amounted to approximately $182,000, $185,000, and $184,000, for the years ended 2018, 2017, and 2016, respectively.

(9) Rights Plan

In February 2013, the Company's Board of Directors adopted a Stockholders' Rights Plan (the "Rights Plan") and declared a dividend distribution of one right (a "Right") for each outstanding share of Company common stock to stockholders of record at the close of business on March 3, 2003 ("Record Time") and authorized the issuance of one Right in respect of each share of Common Stock issued after the Record Time and prior to the Separation Time.

"Separation Time" shall mean the earlier of the Close of Business on the tenth Business Day (or such later date as the Board of Directors may from time to time fix by resolution adopted prior to the Separation Time that otherwise would have occurred) following but not including (i) the date on which any Person commences a tender or exchange offer that, if consummated, would result in such Person's becoming an Acquiring Person, and (ii) the date of the first event causing a Flip-in Date to occur; provided that if any tender or exchange offer referred to in clause (i) of this paragraph is cancelled, terminated or otherwise withdrawn prior to the Separation Time without the purchase of any shares of Common Stock pursuant thereto, such offer shall be deemed, for purposes of this paragraph, never to have been made.

Subject to certain exceptions listed in the Rights Plan, if a person or group has acquired beneficial ownership of, or commences a tender or exchange offer for, 15% or more of the Company's common stock, unless redeemed by the Company's Board of Directors, each Right entitles the holder (other than the acquiring person) to purchase from the Company $80 worth of common stock for $40. If the Company is merged into, or 50% or more of its assets or earning power is sold to, the acquiring company, the Rights will also enable the holder (other than the acquiring person) to purchase $80 worth of common stock of the acquiring company for $40. The Rights will expire at the close of business on February 11, 2023, unless the Rights Plan is extended by the Company's Board of Directors or unless the Rights are earlier redeemed by the Company at a price of $.0001 per Right. The Rights are not exercisable during the time when they are redeemable by the Company.

The above description highlights some of the features of the Company's Rights Plan and is not a complete description of the Rights Plan. A more detailed description and copy of the Rights Plan has been filed with the SEC and is available from the Company upon request.

(10) Selected Quarterly Financial Data (Unaudited)

2018	Quarter First	Second (2)	Third (2)	Fourth (2)
Fee Income (3)	$433,269	$324,853	$359,725	$370,795
Operating loss	(795,172)	(571,931)	(403,890)	(647,226)
Net loss	(793,767)	(569,891)	(688,301)	(634,169)
Basic and diluted net loss per common share (1)	(0.03)	(0.02)	(0.03)	(0.02)

2017	Quarter First	Second	Third	Fourth (2)
Fee Income	$393,116	$348,179	$488,336	$279,439
Operating loss	(954,432)	(490,652)	(304,251)	(669,276)
Net loss	(952,555)	(489,812)	(303,138)	(668,354)
Basic and diluted net loss per common share (1)	(0.04)	(0.02)	(0.01)	(0.03)

(1) Since per share information is computed independently for each quarter and the full year, based on the respective average number of common shares outstanding, the sum of the quarterly per share amounts does not necessarily equal the per share amounts for the year.

(2) The Company incurred higher costs in the fourth quarter of 2017 due to: (i) $76,000 of stock and option compensation charges in 2017, relating to common stock and options granted to directors and employees. The Company incurred higher costs in the second quarter of 2018 due to $69,000 of stock option compensation charges in 2018 related to options granted to employees. In addition, during the third and fourth quarters of 2018 the Company incurred higher (lower) costs of $286,631 and ($8,587), respectively, relating to market valuation adjustments for warrants.

(3) In 2018, the Company adopted the new ASC 606 revenue recognition guidance which applies to revenues reported beginning with the first quarter of 2018. We would have reported lower fee income of $48,746 in the first quarter and higher fee income of $16,869, $74,352 and $22,351 respectively in the second, third and fourth quarters of 2018, representing a $64,826 increase in the reported fee income for the year ended December 31, 2018 had we continued to use the accounting guidance used prior to the adoption of ASC 606.

SCHEDULE II

RESEARCH FRONTIERS INCORPORATED

VALUATION AND QUALIFYING ACCOUNTS

Years ended December 31, 2018, 2017, and 2016

Description	Balance at beginning of period	Charged to costs and expenses	Deductions (1)	Balance
Allowance for uncollectible royalty receivables:				
December 31, 2018	$1,051,424	$43,350	$ -	$1,094,774
December 31, 2017	$1,110,020	$43,215	$ 101,811	$1,051,424
December 31, 2016	$629,457	$480,563	$ -	$1,110,020

(1) To write-off uncollectible receivables from the allowance for royalty receivable account.

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