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Financial Results Briefing  
FY2020 Ended March 31, 2021

QD Laser, Inc.  
May 2021

## Mission

**With the power of the semiconductor laser,  
“I can’t” becomes “I can”.**

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05 Further Growth Upside Expected

What was once thought to be impossible is now a reality; we have become the only company in the world to successfully mass produce Quantum Dot LASERs.

Our laser technology will enable dramatic improvements in our ability to process information, support visually impaired people, prevent eye diseases, and enhance vision, continually pushing the boundaries of human possibility.

# 01

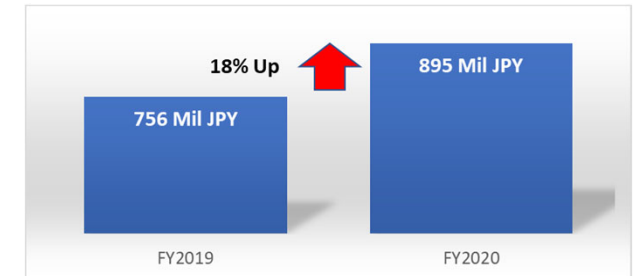


Financial Results for FY2020

## Financial Results Highlights for FY2020 vs FY2019

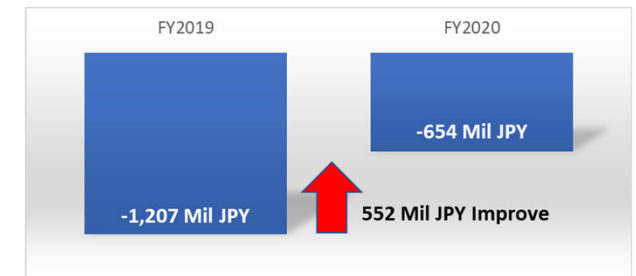
### ➤ 18% Sales Growth

Orders increased for the laser device business due to the diminished impact of the US-China trade conflict, especially DFB lasers for high-precision processing, compact visible lasers for biosensors, and high-power lasers for sensors.



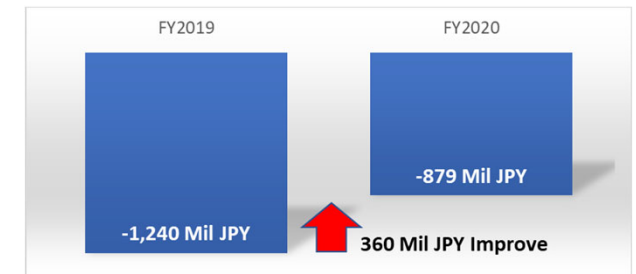
### ➤ 552 Million JPY Operating Loss Improved

Operating loss improved owing to the completion in the development of "RETISSA Display II".



### ➤ 360 Million JPY Net Loss Improved

The asset impaired in the laser eyewear manufacturing equipment, assuming the delay of recovering investment due to the COVID-19 infection.



# Financial Results Highlights for FY2020 vs FY2019

## Sales Growth and Operating Loss Improved

18% sales growth driven by the laser device business, and 552 million JPY operating loss improved due to the reduced development cost of the laser eyewear.

Performance Summary

(Million JPY)	FY2020 Results	FY2019 Results	YOY	FY2020 Forecast	Disparity vs Forecast
Sales	895	756	+18% (+138)	974	△8% (△79)
Operating Loss	△654	△1,207	+552	△688	+34
Ordinary Loss	△707	△1,225	+517	△740	+33
Net Loss	△879	△1,240	+360	△904	+25

Sales by Product Group

(Million JPY)	FY2020	FY2019	YOY
DFB Laser	253	200	+15%
Compact Visible Laser	97	87	+11%
High-Power Laser	218	165	+32%
Quantum Dot Laser	137	141	△3%
NRE	124	33	+276%
Others	8	19	△58%
<b>LD Total</b>	<b>841</b>	<b>668</b>	<b>+26%</b>
<b>LEW Total</b>	<b>54</b>	<b>87</b>	<b>△38%</b>
<b>Grand Total</b>	<b>895</b>	<b>756</b>	<b>+18%</b>

## Performance Summary by Segment

**LD business increased sales with less profit, and LEW business decreased sales with loss improved.**

In the LD business, sales increased, while operating income decreased due to an increase in the manufacturing cost and the SG & A expenses for new product development and IP application and registration. In the LEW business, sales decreased, while the operating loss was improved due to reduced development costs.

### Performance Summary by Segment

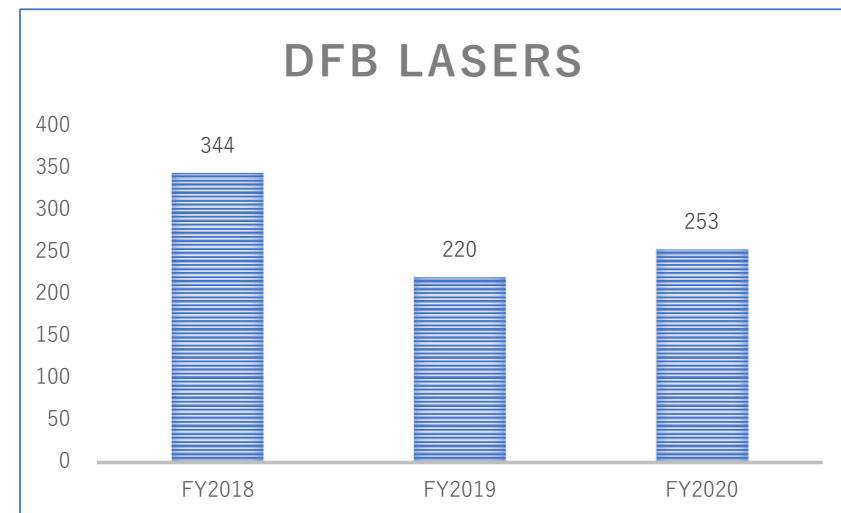
Million JPY		FY2020	FY2019	YOY
Laser Device (LD)	Sales	841	679	+24%
	Operating Profit	7	18	△61%
Laser Eyewear (LEW)	Sales	54	87	△38%
	Operating Profit	△434	△999	+565
HQ Cost	Sales	-	△10	△100%
	Operating Profit	△228	△226	△2
<b>Total</b>	<b>Sales</b>	<b>895</b>	<b>756</b>	<b>+18%</b>
	<b>Operating Profit</b>	<b>△654</b>	<b>△1,207</b>	<b>+552</b>



## DFB Lasers for precision machining : Sales<sup>\*1</sup>

253 million JPY sales, increased by 15% YOY.

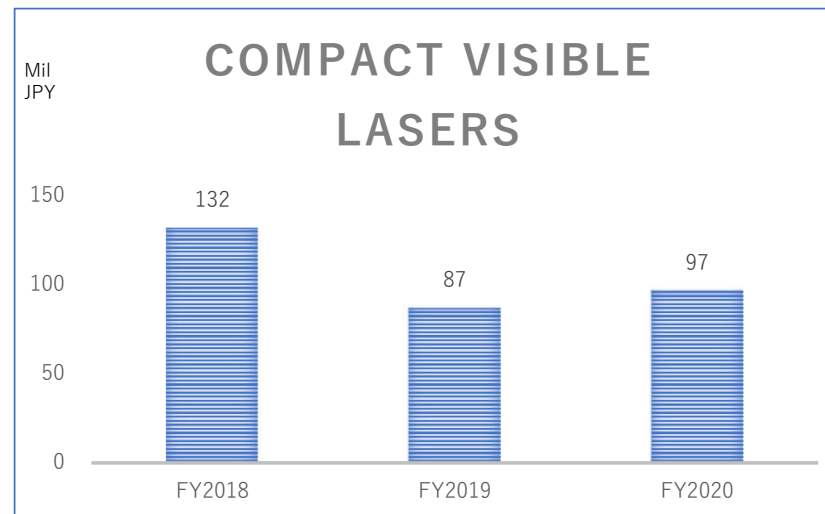
- Started mass production for customers in precision machining in Southeast Asia, France, and Japan.
- Increased orders from North American customers.
- Increased orders for use in sensing and measurements.
- As a result of the above, sales for the current period increased by 15% from the previous fiscal year to 253 million yen.



## Compact Visible Lasers : Sales

97 million JPY sales, increased by 11% YOY.

- Increased orders from a Chinese biomedical equipment manufacturer.
- As a result of the above, sales for the current period increased by 11% from the previous fiscal year to 97 million yen.

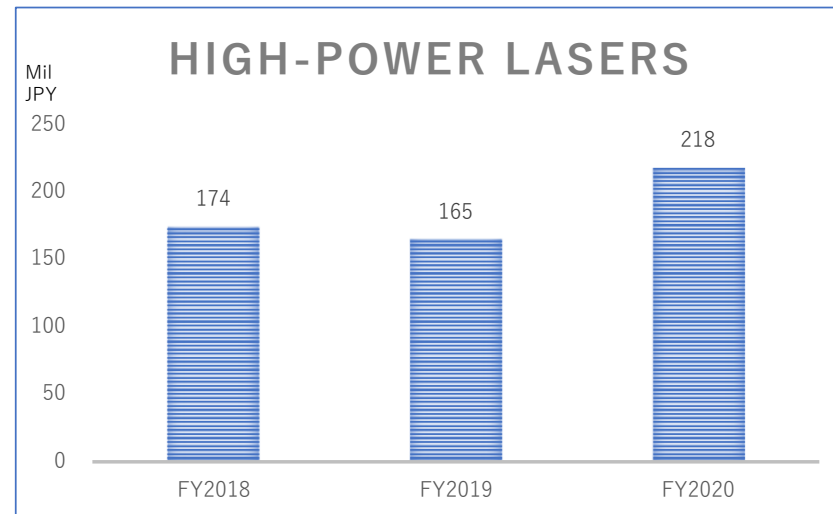




## High-Power Lasers : Sales

218 million JPY sales, increased by 32% YOY.

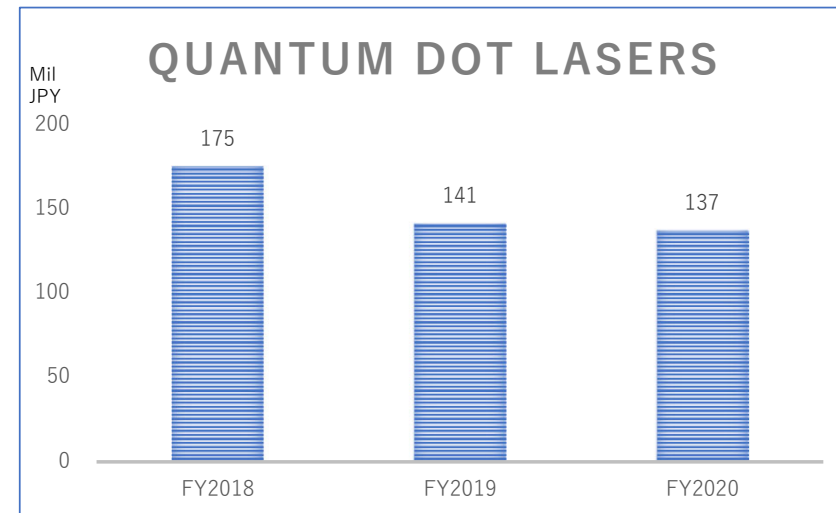
- Increased orders from various sensor manufacturers in North America, Europe, China, and Japan.
- As a result of the above, sales for the current period increased by 32% from the previous fiscal year to 218 million JPY.



## Quantum Dot Lasers<sup>\*1</sup> : Sales

137 million JPY sales, decreased by 3% YOY.

- Increased orders for data communication in China.
- Almost identical orders as the previous year for optical connector / chip-to-chip communication chips in silicon photonics.
- Decreased orders of wafers for silicon photonics.
- Increased orders of laser development for silicon-photonics-based LiDAR.
- As a result of the above, sales for the current period decreased by 3% from the previous fiscal year to 137 million JPY.



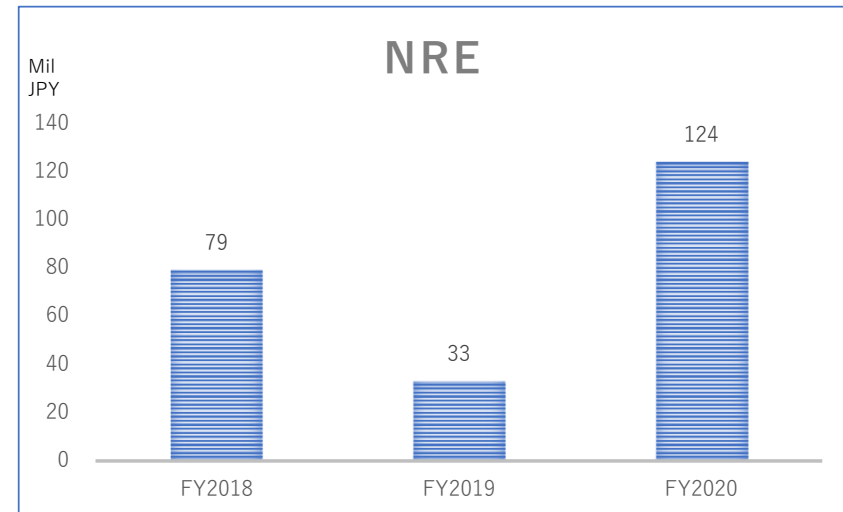
## NRE : Sales

124 million JPY sales, increased by 276% YOY.

Received the development consignment from medical, eyeglass, and university hospital-related customers with NRE (Non-Recurring Engineering) fee to realize the prototypes of

- Laser scanning fundus photography \* 1
  - Refractive power measurement \* 2
  - Portable fundus photography \* 3
- based on the laser retinal projection technology.

- As a result of the above, sales for the current period increased by 276% from the previous year to 124 million yen



### Terminology

\* 1 A prototype for laser scanning fundus photography enables fundus image acquisition at low cost and easy operability.

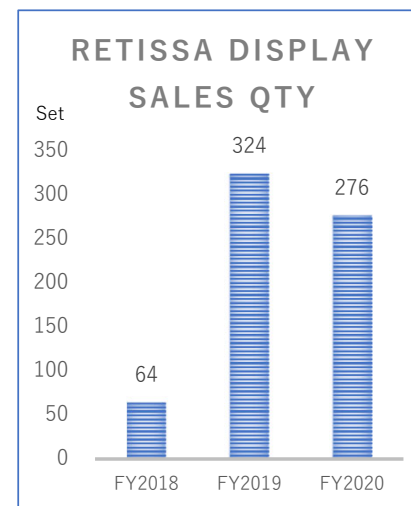
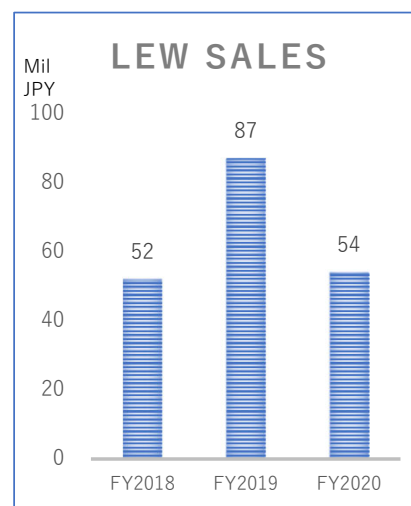
\* 2 A prototype for refractive power measurement allows you to subjectively and objectively inspect the refractive power of your eyes.

\* 3 A prototype for portable fundus photography allows you to inspect it yourself.

## Laser Eyewear (LEW) : Sales

54 million JPY sales, decreased by 38% YOY.

- Realized a price easy to purchase in the new product of RETISSA Display II, the successor to RETISSA Display.
- Achieved the sales target of selling 250 units despite the loss of large-scale projects in China due to the influence of COVID-19.
- As a result of the above, sales for the current period decreased by 38% from the previous year to 54 million yen.



## Balance Sheet

Total assets increased by 1,755 million JPY due to increased cash and deposits, raw materials, and supplies. The equity ratio was 81.5%, while 59.2% at the end of the previous fiscal year.

Balance Sheet

(Million JPY)	FY2020	FY2019	YOY
Current Assets	4,349	2,404	+1,945
Fixed Assets	325	515	△189
<b>Total of Assets</b>	<b>4,675</b>	<b>2,919</b>	<b>+1,755</b>
Current Liabilities	690	750	△59
Fixed Liabilities	175	438	△263
<b>Total of Liabilities</b>	<b>866</b>	<b>1,189</b>	<b>△323</b>
<b>Net Assets</b>	<b>3,808</b>	<b>1,729</b>	<b>+2,078</b>
<b>Total Liabilities and Net Assets</b>	<b>4,675</b>	<b>2,919</b>	<b>+1,755</b>

# Cash Flow

Cash and cash equivalents increased by 1,760 million JPY year-on-year.

## Cash Flow

(Million JPY)	FY2020	FY2019	YOY
CF from Operating Activities	△822	△1,208	+385
CF from Investing Activities	△44	△204	+160
CF from Financing Activities	2,643	1,161	+1,482
Cash and Cash Equivalents Year-end Balance	3,224	1,464	+1,760

# 02



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Financial Forecast for FY2021



## FY2021 Financial Forecast

Promote sales expansion of the LD business and market penetration of the LEW business to increase sales and suppress losses.

### Financial Forecast

(Million JPY)	FY2021 Forecast	FY2020 Results	YOY
Sales	<b>1,260</b>	895	+41% (+365)
Operating Loss	<b>△533</b>	△654	+121
Ordinary Loss	<b>△505</b>	△707	+202
Net Loss	<b>△508</b>	△879	+371

# 03



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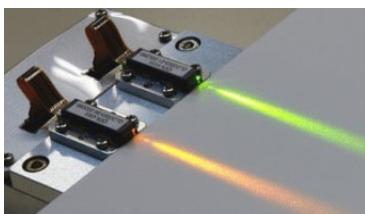
## Semiconductor Laser Devices

Solid Earnings Base even through the COVID-19 Pandemic  
High Growth Potential with Laser Market Expansion

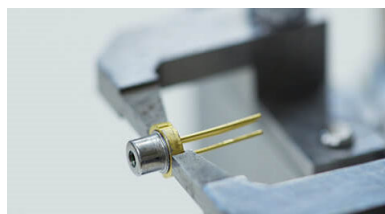
# Our Major Laser Device Businesses Products

## Compact visible lasers

Product  
image



## High power laser



## DFB laser



## Quantum dot laser



Use

- Biosensor, fluorescence microscope, etc.
- Ex. flow cytometers, cell sorters, and STED microscopes.

- Machine vision, sensors, spirit level, short-range LiDAR, 3D measurement, particle counters

- Seed light of fiber lasers for precision processing, gas sensing, etc.
- Aviation LiDAR, etc.

- Optical communication
- Silicon photonics for optical interconnect in data centers, 5 G base stations, HPC, automobiles, and LiDAR in robotics, drone, security, self-driving cars.

Features

- Miniature size, low power consumption, stability, short pulse generation, and high-speed modulation, etc.

- High power Fabry Perot laser
- Provide products and services by meeting the customers' needs, such as small-volume orders and service provision in Japanese

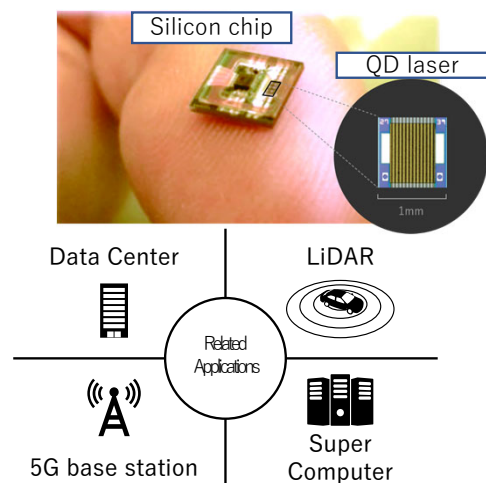
- Wavelength stability, high-speed, ultrashort pulse, modulation characteristics, robustness, and reliability.
- Higher quality of beam, more compact and lightweight size, higher photoelectric conversion efficiency, and longer life compared to existing solid-state lasers

- Quantum dots are used for the active layer (light-emitting part) of semiconductor lasers.
- Excellent temperature stability, high-temperature resistance, and low noise performance compared to existing semiconductor lasers.

# Laser Devices with Our Core Technology

## Evolution of Silicon Circuit

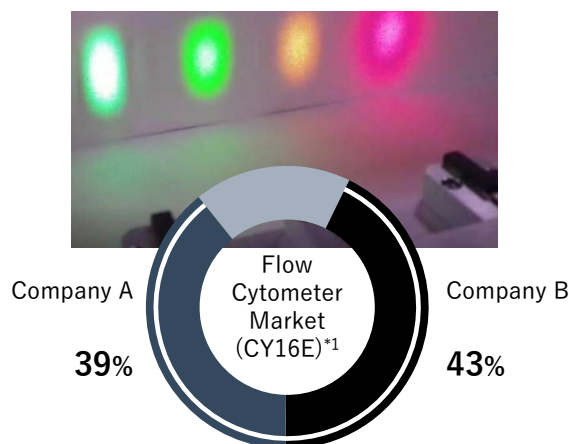
- Silicon electronic and optical integrated circuit is now a reality owing to quantum dot lasers with stable performance even in high temperatures over 100 °C.
- See a photo of a commercialized fingertip-sized silicon chip as 100Gbps optical transceiver with quantum dot lasers as light sources



- Cumulative sales of silicon photonics chips: **12,000 units**<sup>\*2</sup>

## Evolution of Sensing

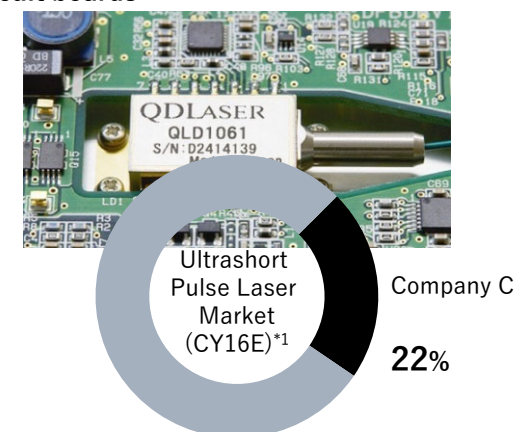
- Unique lasers with various wavelengths are applied to a variety of technologies such as biosensing equipment (i.e. flow cytometers, etc.) machine vision, and facial recognition, etc.



- A certified supplier for Top 2 companies that occupy **82.7%** of Flow Cytometer **Global Market** (JPY 77 bn<sup>\*1</sup> / approx. USD 73mn)

## Evolution of Laser Processing

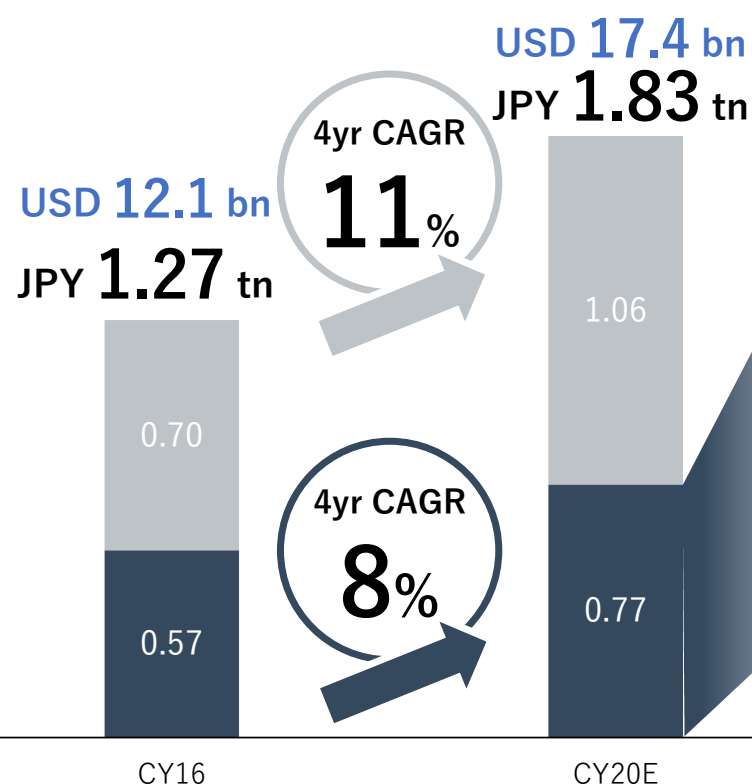
- Ultrashort pulse (10 ps) lasers enable unheated high-precision processing
- Currently used to process smartphone electronic circuit boards



- A certified supplier for the second largest company that occupies **22.4%** of Ultrashort Pulse Laser **Global Market** (JPY 46.6 bn<sup>\*1</sup> / approx. USD 424mn )
- Expanding into Airplane LiDAR

# The Semiconductor Laser Market Continues to Expand, Even for Existing Applications Alone Achieved 20% Increase of the Certification Number ( Customer X Product) in FY2020 from 39 to 47

Semiconductor laser market growth for existing applications\*1



## Expand presence in the target market via new product development

**Quantum-Dot Laser in Silicon Circuit** : Customized high temp. design and low-cost mass production

- Interconnect : Data centers, 5 G base stations, HPC, Automobiles
- LiDAR : Robotics, Drone, Security, and Self-driving cars

**Laser Processing** : Design of high-efficiency and high-speed DFB lasers

- Fiber lasers for micromachining : Composite electronic circuit boards, glass, ceramics, semiconductors, etc.
- LiDAR : Aircrafts, meteorological and terrain observation

**Sensing** : Plug and play of small visible lasers and high-power lasers

- Biosensing: Flow cytometer, cell sorter, and various microscopes
- Ubiquitous sensor: train, automatic transport device, level sensor, particle counter

## Measures to achieve 20% increase of Certification Number

Enhance distributors to develop the Chinese market (3 companies in total)

Web conferencing, SNS, and email delivery with customers and agencies

Issuance of White Paper on new product/technology development

# 04



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## Laser Retinal Projection

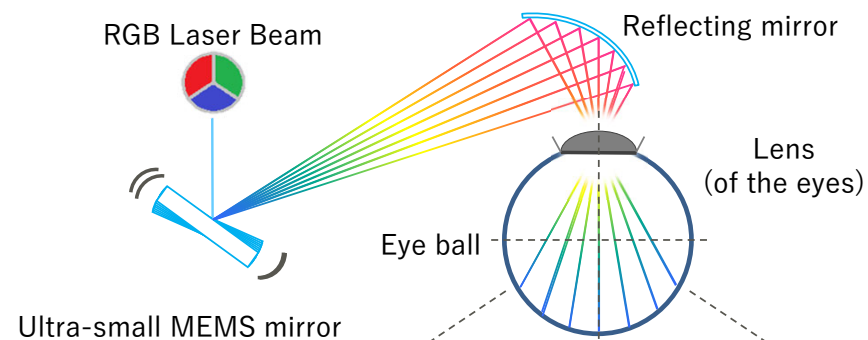
World's First Commercialization of Laser Retinal Projection Eyewear  
with Approvals to Market Medical Devices

# VISIRIUM TECHNOLOGY®

## Unique Laser Technology bringing Innovation to Vision

Laser Device

Laser Eyewear

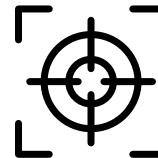


### Direct Image Projection onto Retina



#### Visual experience independent of the condition of your cornea or lens

You can recognize an image clearly even with myopia, hyperopia, astigmatism, or ametropia.



#### Free focus

The focus of both the landscape you see with the naked eye and the image projected by our glasses can be superimposed on the retina. This is a unique feature not found in other AR glasses.



#### Enables vision even in the periphery of the retina<sup>\*1</sup>

Since the image is in focus even over a wide area of the retina, we expect that it can also be effective for patients with retinopathy.

<sup>\*1</sup>: At major airline company and National University Corporation Tsukuba University of Technology, a systematic demonstration study is currently underway. There are individual differences.



## Status of RETISSA® Series Product Development Ready for Sales Worldwide



RETISSA® Display II  
Consumer Use

### Corrected vision: 0.8

- Refractive power: 0.8 corrected vision without eyeglasses in the power range of -11D<sup>\*1</sup> (high myopia) to +6D (medium high hyperopia) <sup>\*2</sup>



RETISSA® Medical  
Obtained Approvals  
to Market as a Medical Device in Japan

### Controlled medical device (Controlled medical devices requiring special maintenance)<sup>\*3</sup>

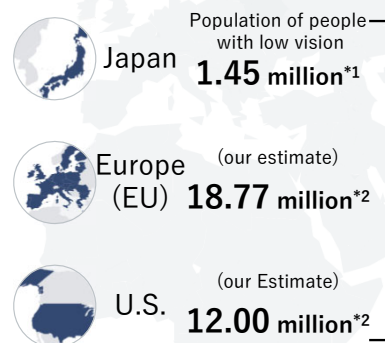
- Used to correct vision in patients whose vision is impaired by unjustified astigmatism (patients who are unable to achieve adequate vision using existing eyeglasses or contact lenses)
- Expected to (1) correct hyperopia, (2) improve reading speed, and (3) improve reading acuity

Low Vision Aids: Total Addressable Market (※Anterior eye disease patients only :  
Ametropia and corneal opacity)

**JPY 900 bn (USD 8.6 bn) Market in Japan, U.S. and Europe**

**Vision to Expand into Other Countries like China further behind in Ophthalmic Technologies**

### Low Vision Market

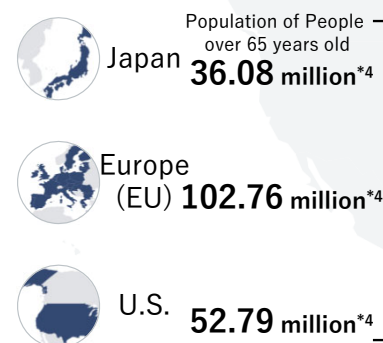


Estimated percentage of applicability (our estimate)<sup>\*3</sup> × **11%** × Product Price per Unit (our assumption)<sup>\*6</sup> × **JPY 200k (USD 1.9k)**

Total market size of advanced countries (our estimate)

**JPY 708.7 bn**  
(USD 6.7 bn)

### Senior Citizens Market



Estimated percentage of applicability (our estimate)<sup>\*5</sup> × **1%** × Product Price per Unit (our assumption)<sup>\*6</sup> × **JPY 100k (USD 950)**

Total market size of advanced countries (our estimate)

**JPY 191.6 bn**  
(USD 1.8 bn)

**JPY 900 bn (USD 8.6 bn)**

\*1: Japan Ophthalmologists Association "Social costs of visual impairment in Japan"

\*2: Calculated by multiplying the ratio of persons with low vision sourced from WHO "Visual Impairment and Blindness 2010" by the current population in each region (Europe: Eurostat "Population on 1 January", U.S.: United States Census Bureau "Annual Estimates of the Resident Population for the United States")

\*3: According to the survey by Santen Pharmaceuticals, the number of keratoconus patients in Japan is estimated to be 60,000 to 120,000; also, as the data on p.39 shows that the prevalence per 100,000 people of keratoconus is almost the same as that of corneal opacity, it is assumed that the number of corneal opacity patients in Japan is similar to that of keratoconus patients. Assuming the number of patients suffering from each of these diseases to be an intermediate value of 80,000, the total is calculated to be 160,000; then, we apply the estimated percentage of applicability of 11%, calculated by dividing 160,000 by the population of persons with low vision (1,450,000), to each country's population of low vision persons. This percentage only takes into account anterior eye diseases; therefore, if our product is also effective for patients with retinal disease, the estimated percentage of applicability is expected to increase.

\*4: Assuming that all the elderly aged 65 and over use near-sighted, presbyopic or bifocal glasses, we can estimate that each country's population aged 65 and over can be the potential population of persons with gap vision (Japan: Statistics Bureau of Japan "Population Estimates May 2020", EU: Eurostat "Population on 1 January by broad age group and sex", U.S.: United States Census Bureau "Population by Age and Sex: 2019").

\*5: Due to the products' similarity in characteristics to hearing aids (used by the elderly on a daily basis, wearable equipment, sold at glasses stores, etc.), the hearing aid market is used as a reference to estimate the percentage of applicability. Given that the number of hearing aids shipped in Japan in 2017 numbered 562,747 (Japan Hearing Instruments Manufacturers Association "2018 Shipment Volume of Hearing Aids"), this number divided by the number of elderly people in Japan will give us an estimate that 1.7% of the elderly purchased a hearing aid, which we then adjust conservatively to assume an estimated percentage of applicability of 1.0% which can then be applied to each country's population of gap vision persons.

\*6: Expected price per unit after the mass production is realized.

# 05

 QD LASER

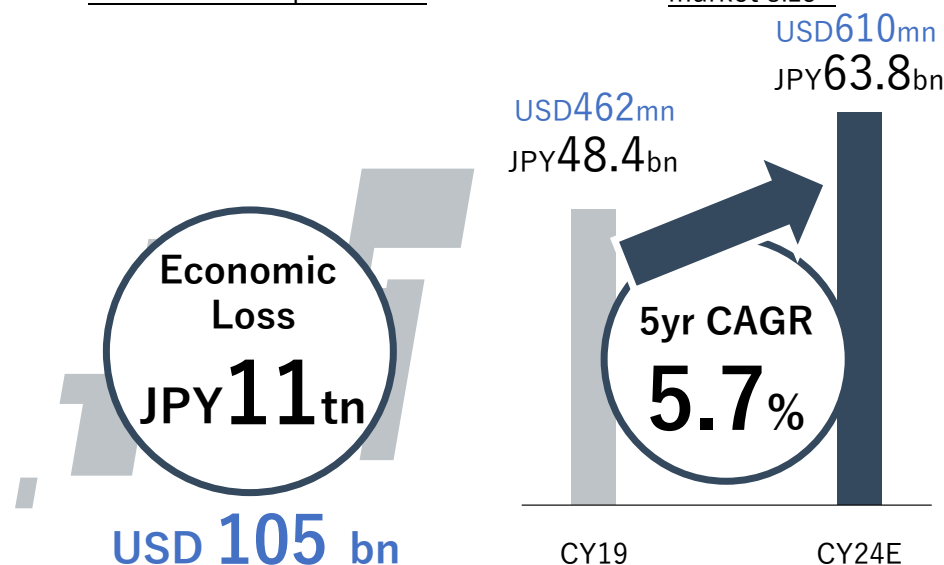
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Further Growth Upside Expected

# Large Growth Potential in Optometry Market Utilizing Laser Retinal Projection Technology, Developed New Optometry Prototypes and Working with Partners to Launch

Estimated economic loss in Japan  
due to visual impairment\*1

Fundus photography equipment  
market size\*2



Conventional  
optometry equipment

Large / expensive /  
Requires medical staff



Medical resources are available  
mainly in urban areas.  
Given the time and the financial cost,  
people miss the chance to go to their optometrist  
and end up detecting their glaucoma late

New optometry equipment

Small / low cost / short time /  
self-examination possible



Enables an environment where anyone  
can easily examine their eyes,  
increasing the early detection rate of glaucoma  
and expecting to extend  
the healthy lifespan of the eye

\*1: Japan Ophthalmologists Association (2009) "Economic Cost of Visual Impairment in Japan" and "Prevalence of Visual Impairment in the Adult Japanese Population by Cause and Severity and Future Projections"  
Economic cost = Direct health costs + Other financial costs + monetary converted number of loss of well-being from visual impairment (measured in disability-adjusted life years (DALYs))  
\*2: TechNavio (2020) "Global Ophthalmic Diagnostic Devices MARKET 2020-2024" Converted at an exchange rate of JPY/USD = 110 yen  
\*3: The approximate measurement time of the Goldmann perimeter and Humphrey perimeter, which are typical perimeters in conventional perimeter measurement.

# Expected Growth Potential in Mid-Long Term

**01** Through R&D of various laser technologies and stable profits from laser device business, strengthen business base for dramatic future growth.

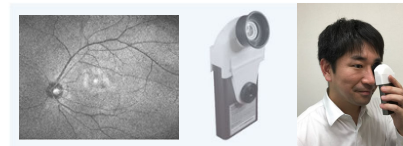


**02** Establish mass production and sales channels of consumer / medical eyewear  
Make laser eyewear business the growth driver in the short to medium term



**03**

In the mid to long term, in addition to the laser eyewear business, plan to expand sales of optometers and silicon photonics.



Present

Future

\*1: Chart for illustration purposes only

## Company Profile

# Spin-off Venture from Fujitsu

## Tier 1 Medical Companies such as Nikon/Santen joined as Shareholders

Company Name	QD Laser, Inc.
Foundation	April 24, 2006
Fiscal year-ended	March 31
Representative	Mitsuru Sugawara, President and CEO
Location	Headquarter: 1-1 Minamiwatarida-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa
Number of Persons*1	63
Business	Planning, design, development, production and sales of semiconductor laser and its application products
Licenses	<ul style="list-style-type: none"><li>• Class II Marketing License for Medical Devices</li><li>• Registration of medical equipment manufacturer</li><li>• ISO 9001</li><li>• EN ISO 13485</li></ul>

**Science and Technology  
Award from the Minister  
of MEXT**

**Prime Minister's Honorary  
Award for Achievement in  
Industry-Academia-  
Governmental Collaboration**



- Graduated from The University of Tokyo; Doctor of Engineering
- 1984: Graduated with a master's degree in Physical Engineering from the Department of Applied Physics, School of Engineering, University of Tokyo; joined Fujitsu Laboratory Ltd.
- 1995: Assumed the role of Senior Researcher at Optical Semiconductor Device Laboratory, Fujitsu Laboratory Ltd.; obtained degree in Eng. from The University of Tokyo
- 2004: Assumed the role of non-tenured professor at the Institute of Industrial Science, University of Tokyo
- 2005: Assumed the role of Deputy Head of Nanotechnology Research Center, Fujitsu Laboratory Ltd.
- 2006: Launched QD Laser Inc.; assumed the role of President and CEO

\*1: As of March 31, 2021. Including temporary staff, excluding part-time employees. Includes three directors in Corporate and Others.

## Caution When Handling This Document

- The materials and information provided in this presentation include forward-looking statements.
- These statements are based on expectations, forecasts and risk assumptions as of this presentation's publishing, and contain uncertainties that could lead to results that are substantially different from these statements.
- These risks and uncertainties are present in any transaction, and are applicable to general industry and market conditions as well as general domestic and international economic conditions, including fluctuations in interest rates and currency exchange rates.
- Note that QD Laser does not bear any duty to update or revise forward-looking statements provided in this document, even if new information comes to light or future events occur.