



榮創能源科技股份有限公司
Advanced Optoelectronic Technology Inc.

Investor's Conference
(Code : 3437TT)

2020/11/18

Safe Harbor Notice

This presentation may contain various forward-looking statements of Advanced Optoelectronic Technology Inc. (“AOT”) and include AOT’s operations, future results and prospects. These statements may involve substantial known and unknown risks and uncertainties, and actual result and performance may differ materially from those contained in any forward-looking statements due to some factors beyond AOT’s control. In addition, AOT expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements, whether as a result of new information, future events, or otherwise.

Outline

- **Corporate Introduce**
- **Operation Results**
- **Market Outlook**
- **Business Strategy**
- **Product Roadmap**

1. Corporate Introduce

Basic Information

- Set-up : 1999/10
- President & CEO : Jung-Hsi Fang
- General Manager : Yu-Liang Huang
- Major Stockholder : Foxconn Group
- Capital : NT\$1.45 billions
- Major Business : Package
- Employee : around 1,000
- Site : Hsinchu Industrial Park
- Oversea office : Shenzhen, China

Products Trend



Backlight

- TV
- Automotive
- Monitor
- Mobile



Mini LED

- Gaming monitor
- Notebook
- Automotive



Car Lighting

- Front Lamp
- Side Lamp
- Fog Lamp
- Rear Lamp



New Pro

- Fingerprint
- VCSEL
- UV
- IR

Major Customers

INNOLUX

SHARP

SAMSUNG

BOE

TIANMA

LG Display

 **Microsoft**

vivo

oppo

VIZIO

GARMIN



Hisense

lenovo 联想

TCL 华星光电
CSOT



available at
amazon

2.Operation Results

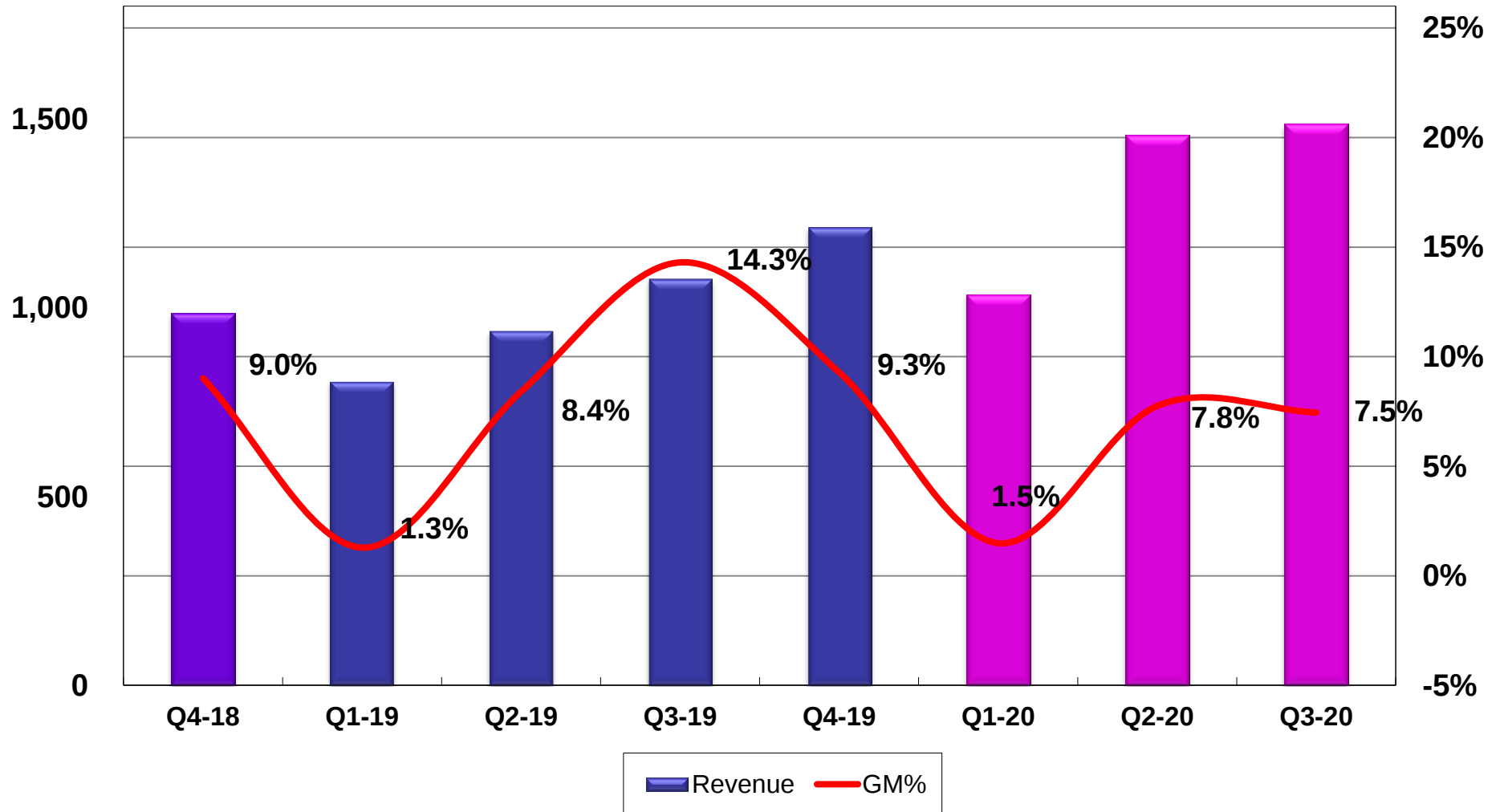
Financial Results

UNIT:NT\$K

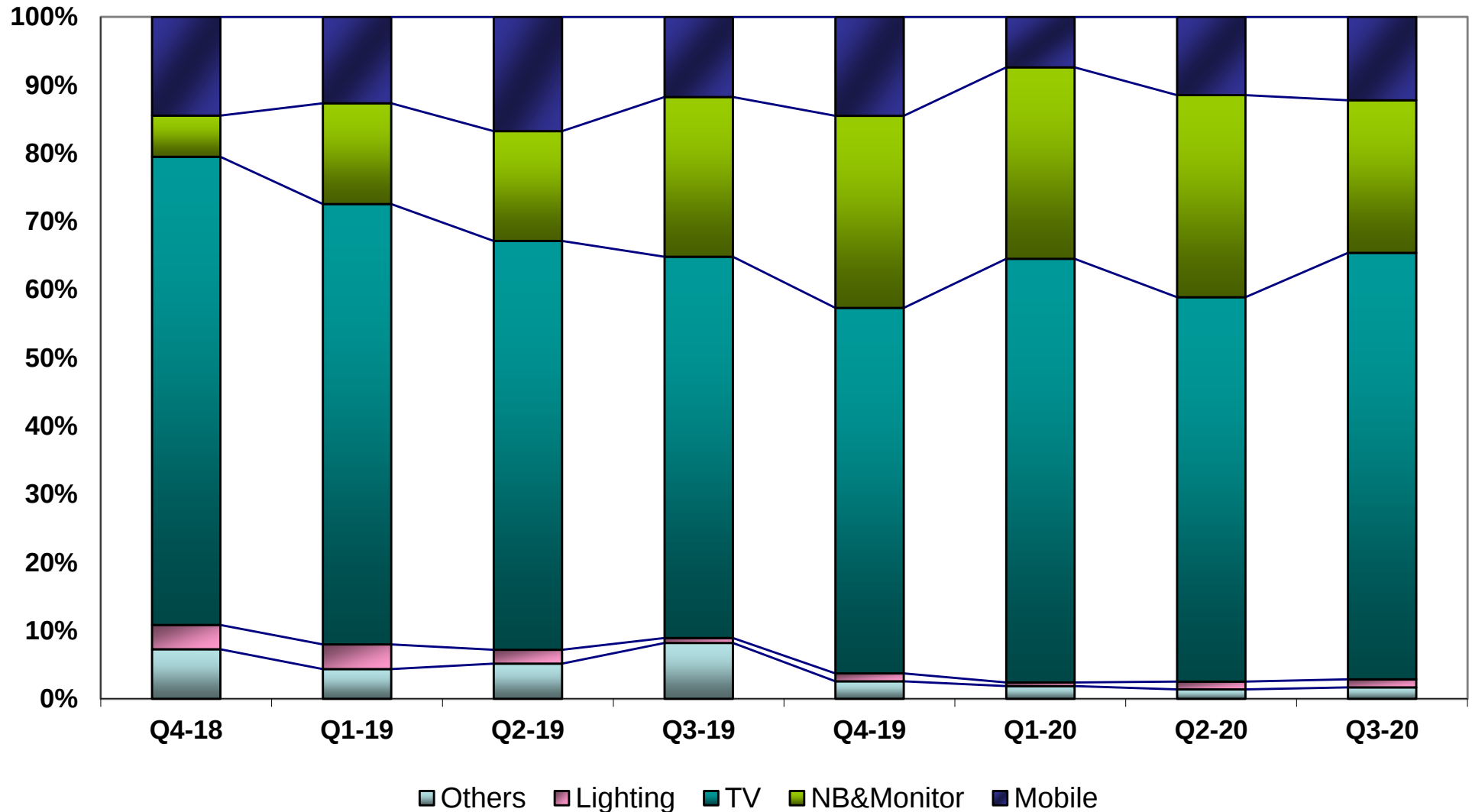
Year	2014	2015	2016	2017	2018	2019
Revenue	7,114,256	6,170,439	6,171,727	5,978,055	4,643,051	4,037,141
Gross Margin	1,188,111	1,045,571	763,910	770,076	279,198	356,091
Gross Margin%	16.70%	16.94%	12.38%	12.88%	6.01%	8.82%
Operation Income	529,823	387,651	102,912	132,039	(395,227)	(171,061)
Net Income after Tax	422,013	342,783	58,947	98,008	(386,785)	(207,225)
Net Income after Tax%	5.93%	5.56%	0.96%	1.64%	(8.33%)	(5.13%)
EPS(NT\$)	3.07	2.38	0.41	0.68	(2.68)	(1.43)

Quarterly Revenue & GM%

UNIT:NT\$ Million

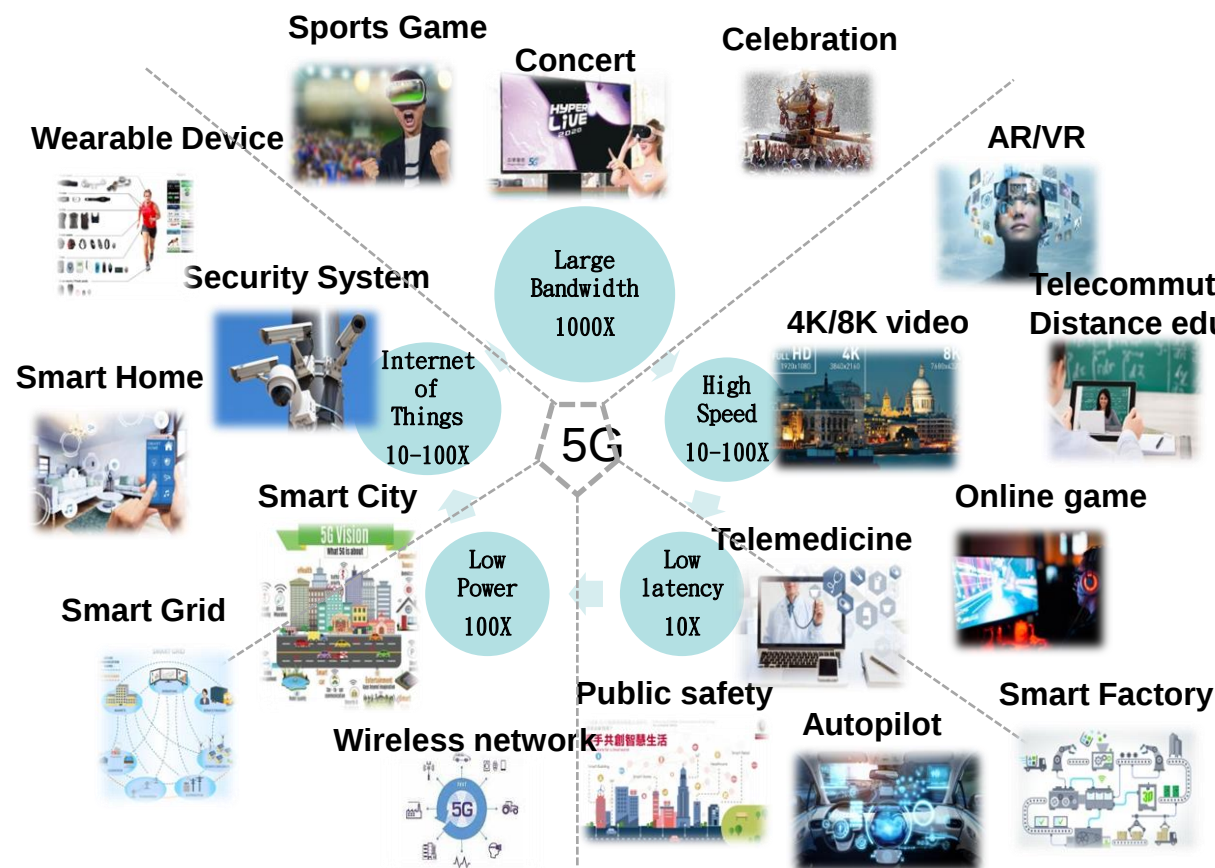


Product Portfolio



3. Market Outlook

Market Trends



Source: 5GForum / Executive Yuan of ROC

- 5G+AIoT will affect market trend widely in future years.
- The demand for backlight applications of various sizes driven by 5G will increase rapidly.
- In 2020, the demand of distance education & telework increases under the effect of Covid-19.
- Mini/Micro products are expected to release earlier in the great demand for wearable products, .
- The demand for sensing components / vehicle components will also increase due to the 5G development.
- With 5G stimulating the development of automatic driving, the demand for onboard display will also promote the launch of Mini LED products.

Global wearable device market outlook

Worldwide Wearable Devices End-User Spending by Type, 2018-2021 (Millions of Dollars)

Device Type	2018	2019	2020	2021
Smartwatch	12,412	17,047	22,803	27,388
Head-mounted display	5,354	7,183	10,609	15,501
Ear-worn	6,780	7,885	8,716	9,927
Sports watch	3,647	4,121	4,555	4,912
Wristband	3,405	3,194	3,115	3,055
Smart-clothing	848	1,151	1,746	2,202
Total	32,446	40,581	51,545	62,985

Source: Gartner (October 2019)

- With the change of using habits and convenience, wearable products are getting more and more popular.
- Most countries take strictly entry regulations to prevent Covid-19. This situation enhances the need of sports and health awareness.
- Wearable products increase the demand for related sensing components, such as blood oxygen level detection components, photosensitive components and heart rate detection components.



4. Business Strategy

❖ 2020 ~ 2022 Market Strategy

Mini LED



2020

Gaming MNT/ NB / TV



2021

Automotive backlight



2022

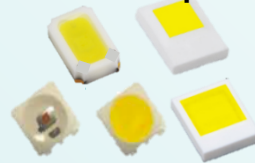
Micro LED



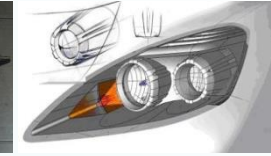
Car Lighting



LED components



Module



Sensor



Watch/Fingerprint / Face ID



5. Product Roadmap

AOT Backlight Solution

Product Categories

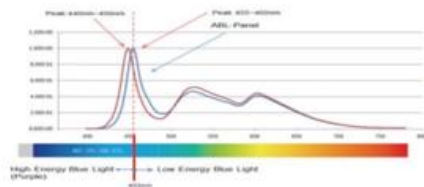


AOT Backlight Solution

LED Proposal for Mobile

Low Blue Light Solution

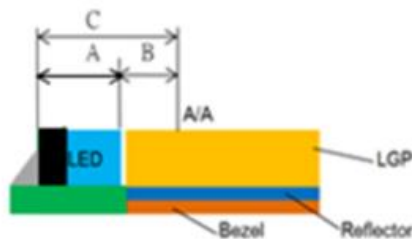
AOT-2604 Series



Area(415~450nm) / Area(400~500nm) <50%

Extra Narrow Border LED Solution

AOT-1403S



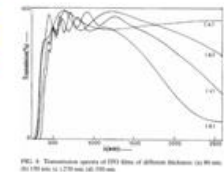
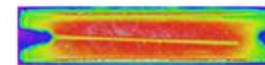
High Brightness Solution

AOT-2605



Lower Driving Voltage (<2.85v)

All side view Series

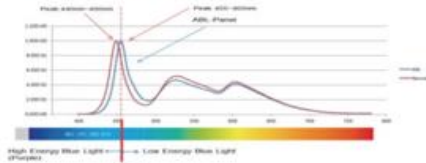


AOT Backlight Solution

LED Proposal for Notebook

Low Blue Light Solution

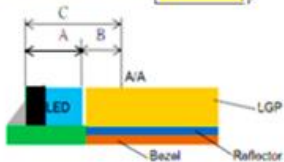
AOT-3006 series



$\text{Area}(415\sim450\text{nm}) / \text{Area}(400\sim500\text{nm}) < 50\%$

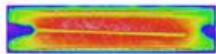
Narrow Border LED Solution

AOT-1406



Lower Driving Voltage (<2.85v)

All side view Series



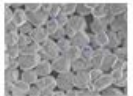
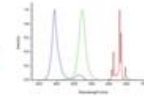
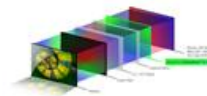
High Efficiency (170lm/W)

AOT-3006

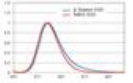


WCG Solution

AOT-3006 Purple LED
(Blue Chip + KSF Phosphor)

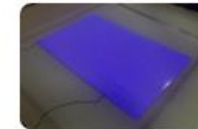


Narrow Band Phosphor Solution
QD in Package Solution



High dynamic range(HDR) Solution

Mini LED BLU:AOT-0603S



Thinner LGP Solution

AOT-2605

AOT-3005

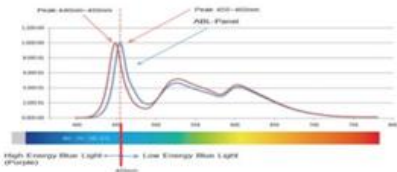


AOT Backlight Solution

LED Proposal for MNT

Low Blue Light Solution

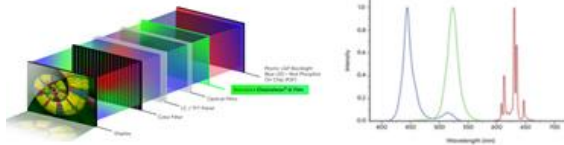
AOT-4014/7020 all series



$\text{Area}(415\sim450\text{nm}) / \text{Area}(400\sim500\text{nm}) < 50\%$

WCG Solution

AOT-4014 Purple LED



Thinner LGP Solution

AOT-4010/4012



Energy Star 8.0 Solution

AOT-4014

AOT-7020



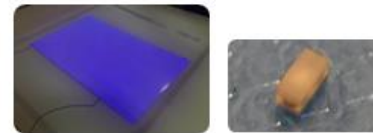
Curve and High thermal Conductivity Solution

AOT-5030



High dynamic range(HDR) Solution

Mini LED BLU:AOT-0603S



AOT Backlight Solution

LED Proposal for TV

Lower Cost Solution

(Reduce LED or LBR Q'ty)

AOT-3030S2 Solution

Base on OD-22

TV 尺寸	方案 (条*颗数)	PKG	LED用量
55	4*8	3030M2	32
55	4*7	3030S2	28
65	5*10	3030M2	50
65	5*9	3030S2	45

High Dynamic Range

(HDR→HDR+→HDR10→HDR Pro)

AOT HV LED Solution (Plural Cell)

0603S/0909F/3030S/3030S2/3030M2

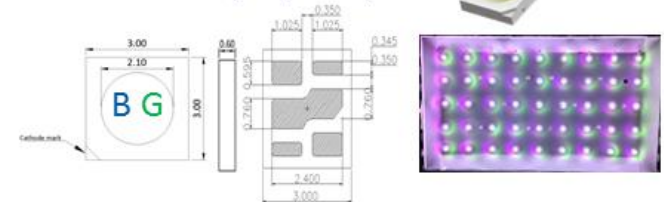
Product	215	0909F	3030S	3030S2	3030M2
LED type	PCB	CSP	ESR	ESR	ESR
Applications	TV / BRT / Module	TV	TV	TV	TV
Outline					
LED Dimensions [mm]	0.8 x 0.5 x 0.21	0.9x 0.9 x 0.351	3.0x 3.0 x 0.21	3.0x 3.0 x 0.61	3.0x3.0x0.81
Light area[mm ²]	0.8x0.3	0.9x0.9	1.0x1.0	φ2.1	φ2.1
Typ. Luminous flux [lm]	16.6	270	226.6	TBD	126
Typ. Vf[V]	5.8	6.5	17.4	17.4	6.3

Product	3031	3035F	3035S	3035S2	3035M2
LED type	PCB	CSF	EMC	EMC	EMC
Applications	TV MRT/Automotive	TV	TV	TV	TV
Outline					
LED Dimensions (mm)	6.6 x 6.3 x 0.31	6.9x 6.9 x 0.31	3.0x 3.0 x 0.52	3.0x 3.0 x 0.81	3.6x3.6x0.61
Light area(mm ²)	□0.89.3	□0.89.3	□1.01.0	□2.1	□2.1
Typ. Luminance [lm]	(5.37)	(76)	780	780	135
Typ. V _f	5.8	5.9	17.4	17.4	6.2



Wide Color Gamut (NTSC→BT2020)

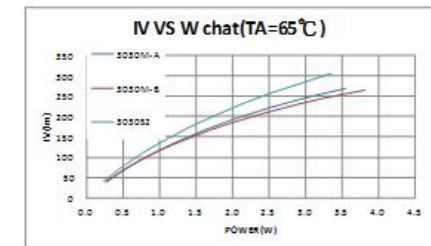
AOT-3030 (Chip B+G)+KSF



Lower Power Consumption

(Energy Saving)

AOT-3030S2



Slim Backlight

(DRT:OD22→OD14→OD10→OD6)

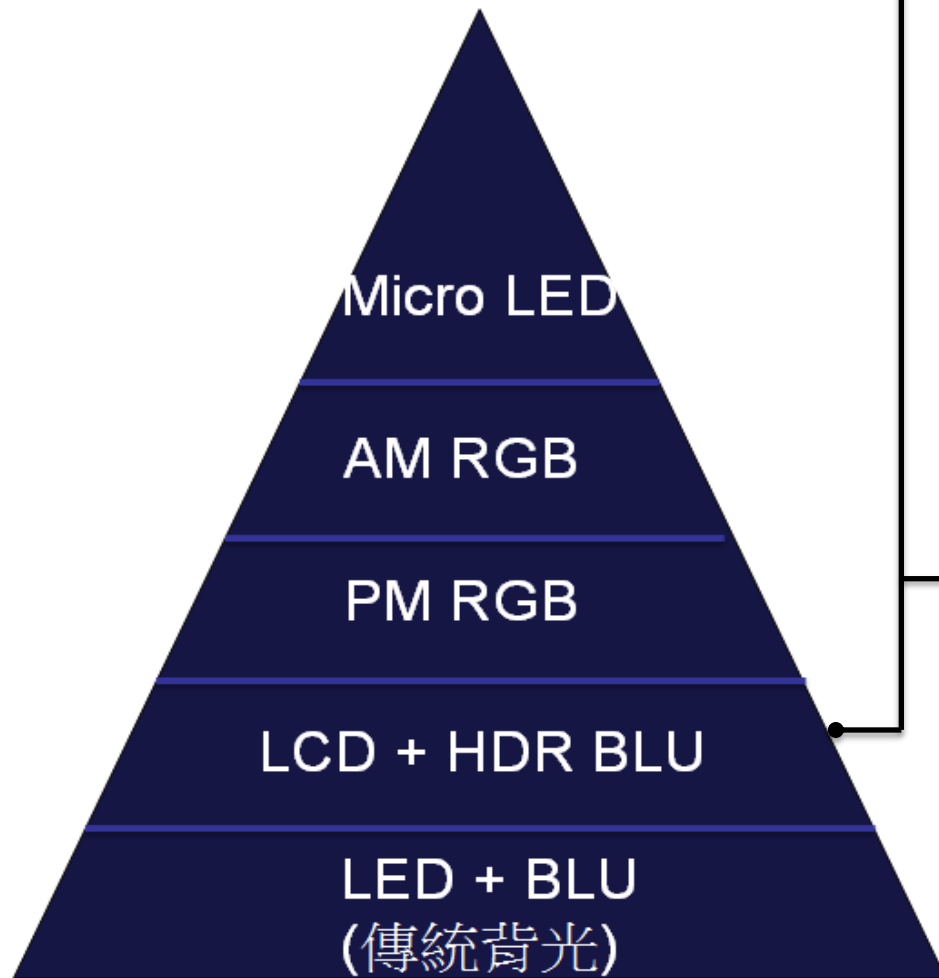
AOT-3030S/3030S2/3030M2 with 2'nd

Lens Solution

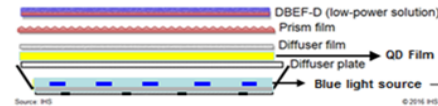
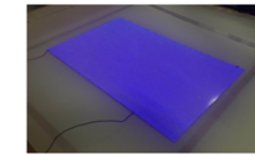
AOT-1313CSP with Lens Solution



AOT Display Solution



HDR Mini LED(Blue) Solution



COB Type



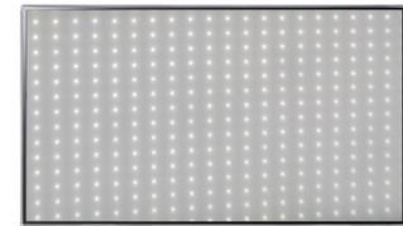
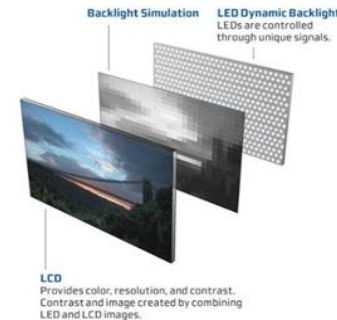
POB Type



CSP Type



HDR PKG Solution



Automotive Lamps

OEM (Car)

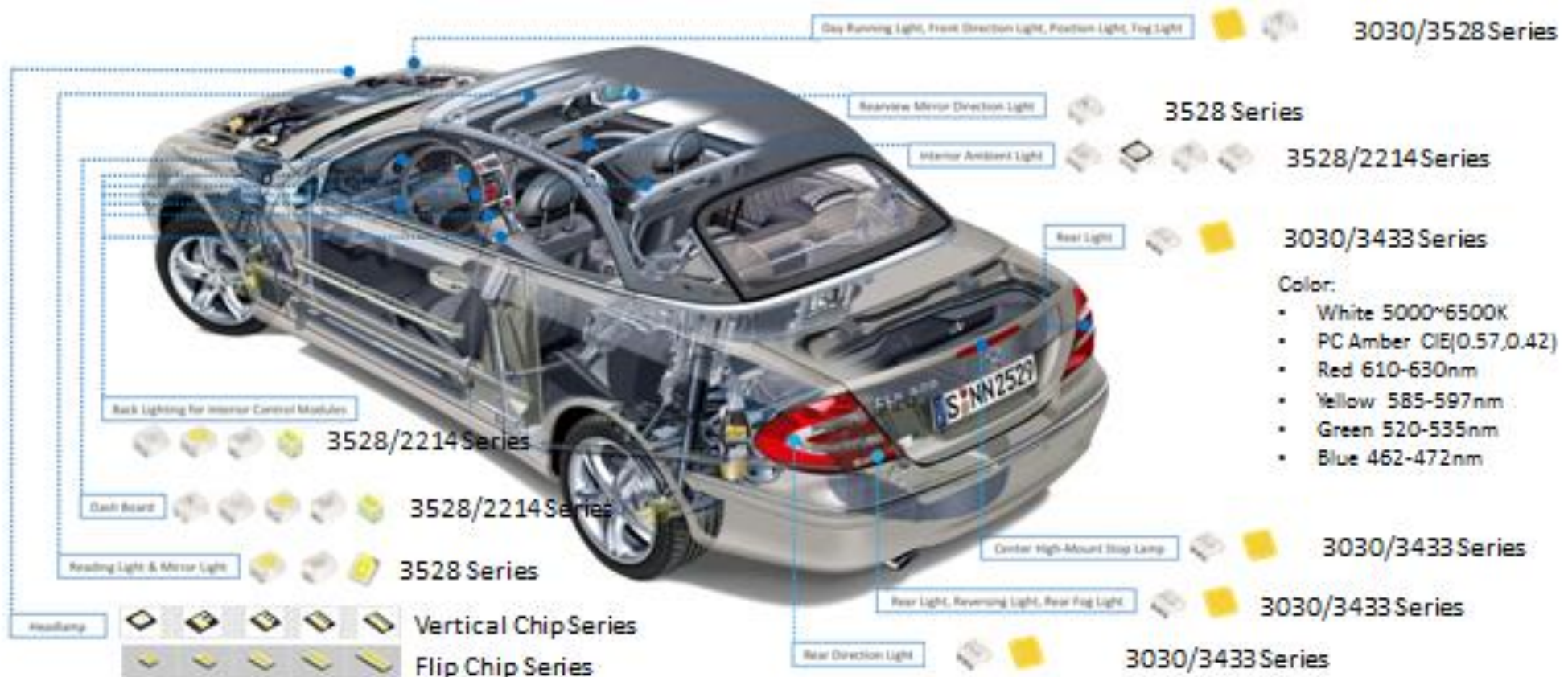
OEM (Motorcycle)

OES

Aftermarket

Function :

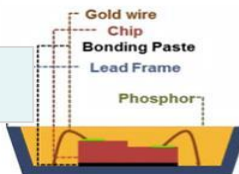
1. PKG life quality up to 50,000 hours for Automotive for OEM/AM marketing
2. ODM LED Light bar for Automotive Panel
3. Ceramic CSP & EMC for Automotive Lighting
4. PIG(Phosphor in Glass) package technology
5. Automotive Lighting PKG & board for OEM/AM marketing



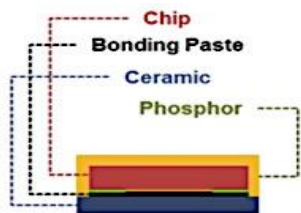
Automotive Lamps



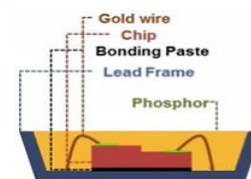
3528/3030M



Side Turning lamps



Head lamps



Rear lamps



3528/3030M



CSP Series



Sensing Package

Expand existing customers.



AOT Wearables Solutions

- Green LED
 - EMC PKG, long life (2.1mm*2.1mm)
 - 0603S, small size(0.6mm*0.3mm)
- Multi Chips PKGs (Red, Green, IR)
 - 4821C-D501, 4 chips (4.8*2.1*0.61 mm)
 - 4821C-D502, 6 chips (4.8*2.1*0.61 mm)
 - 2020, 4 chips (2.0*2.0*0.65 mm)
- Photo Diode
 - 4825(4.8*2.5*0.53mm)

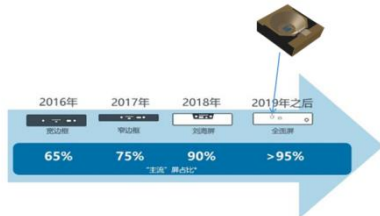


OEM/ODM model reach in IR / VCSEL / Digital sensing market.

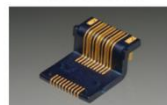
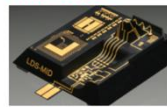


AOT IR Solutions, MID for IR-LED

- Small Size IR LED (2.2*2.0*0.9 mm)
 - 940nm, half angle =25°



Molded Interconnect Device (MID)/Laser Directed Structuring (LDS) Custom Capabilities under MediSpec™

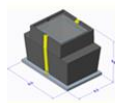
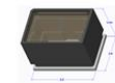


Molex GECL™ (Grouped Element Channel Link) Technology Application



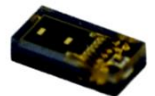
AOT Laser Solutions

- Structured light
 - DOE+VCSEL



AOT Proximity Sensor Solutions

- Small size, PS + VCSEL(2.0*1.0*0.5 mm)
 - I2C serial data signal
 - Low Power consumption



Sensing Module/System

Develop with customers and expand market applications.



Near infrared spectroscopy, NIRS

Products realization



Prototype

Medical
beauty



schematic diagram

Monitor of collagen, water, and skin condition.
Loss and supplement management for filler

physical
exercise



schematic diagram

Physical exercise device for muscle state trace
and body fat composition. Time discriminate
for exercise continuing or termination.

Pet



schematic diagram

Excrement analysis to master pets' healthy.

industrial
application



Food Processors



Blenders



Ovens



Espresso
Machines



Juicers

on food processor, blenders, ovens, coffee machine, and juicer.

Thanks!

Q & A