



COMPANY PRESENTATION

LED SOLUTION

www.ledsolution-k.com

Index

- **Company Introduction**
- **Production Environment**
- **Organization**
- **Core Value & Competitiveness**
- **Business Partners**
- **Workplace Introduction**
- **Quality Control [Flow Chart]**
- **EMS/SMT Business**
- **PCB Business**
- **Digital Signage Business [Electronic display]**
- **TLM Business [Transparent Film Display]**
- **Floor Signal Light**
- **Certifications**



Profile

Name

LED SOLUTION

Establishment

JAN. 15th. 2018

BusinessType

Manufacturing

Business Field

Development of Circuits

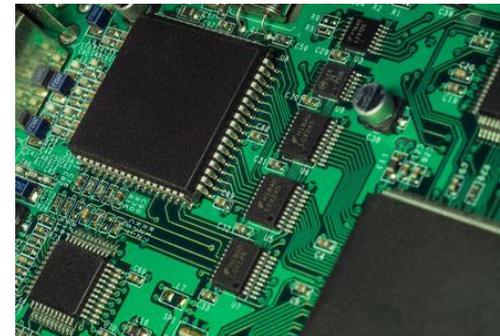
Development and Supply of PCB, SMT, Digital Signage (TLM) & Application Software

Manufacture of LED Lighting Fixtures & Advertising Lighting Fixtures

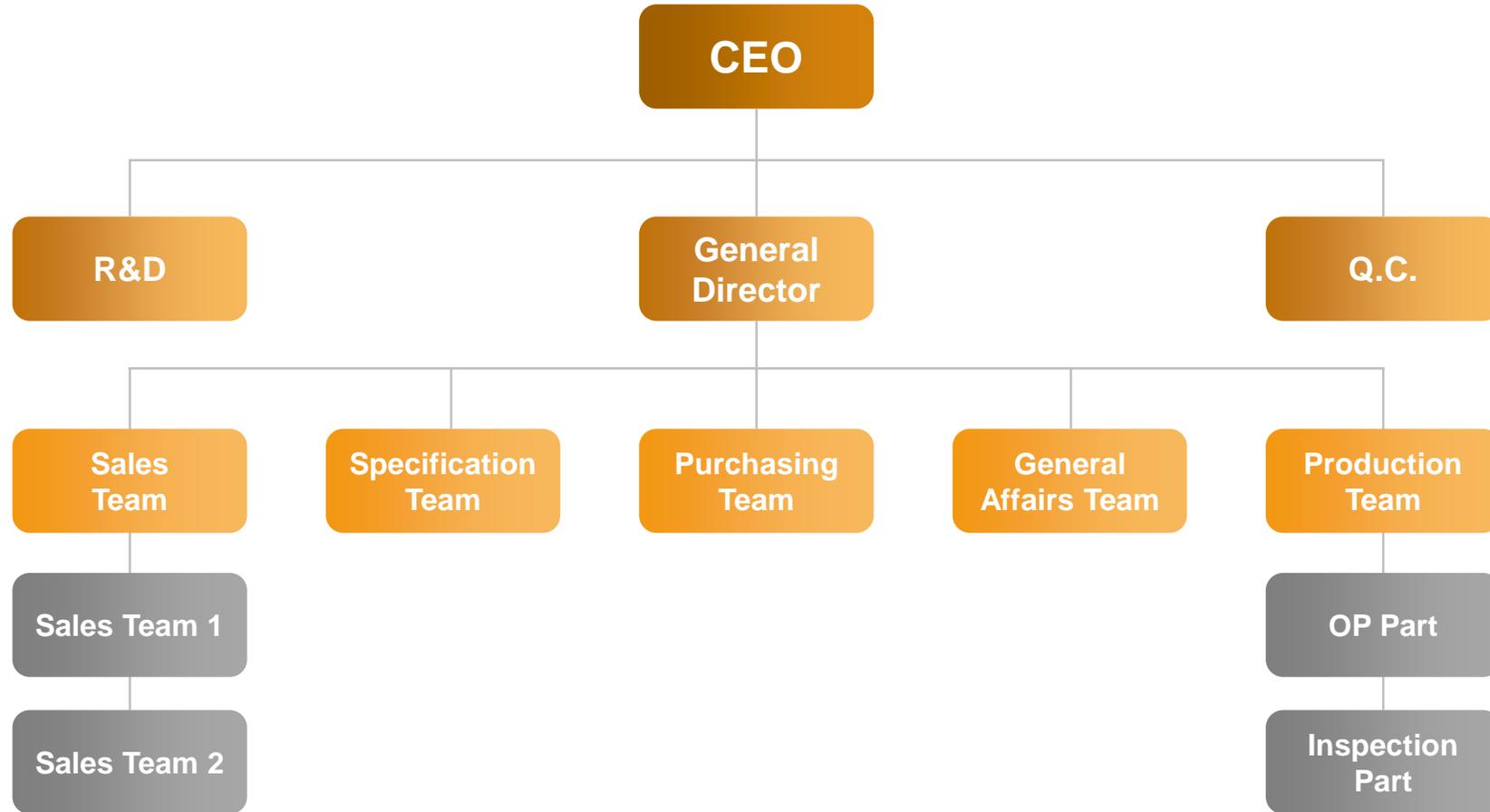
Business Items

Total Solution for LED applications.

[EMS, Circuit Design, PCB, SMT, Media Business]



Organization



Core Value



We specialize in manufacturing and supplying PCBs, SMTs, and core components related to EMS (SMT/Ass'y), TLM (Transparent LED Film Module), Floor Signal Light with the goal of Best Quality/Delivery/Cost.



Quality/ Environmental Management: ISO 9001/14001 certified



We are a company that continues to grow with abundant experience and technology.



Competitiveness

Superior Quality Service through high-quality systems and superior production environment

Have differentiated process know-how, **Deliver on Time, Cost Savings, and Follow-up (such as A/S)**



Business Partners



For Professional Lighting **ALTO**

maltani

TAEJOO MANUFACTURING

so lux

TOTAL LIGHTING

SFEEL

built LIGHTING

INS LED LIGHTING COMPANY

HEPEC

LED SOLUTION

UHWAN

KIMIN

SUNRAY

NEOMARU

blux (주)성안조명

Ralux

사회적기업 유비에코 Social Enterprise

SAMJIN LND

HANALUX (주)하나룩스

LIGHTING YOUNGKONG

태양조명공업(주)

VOLED (주)한국엘이디



SAMSUNG 삼성물산 건설부문

emart

SK 건설

한화건설

LOTTE DEPARTMENT STORE

POSCO 포스코건설

GS 리테일

롯데건설

SHINSEGAE

LG전자

MEGAGEN

LH 한국토지주택공사

조달청

Facility

* Unit: Number of point * Condition: 20Hr/D (2shifts) / Pick up at the same time

LINE 1



LINE 2



LINE 3



LINE 4



Purpose

Chip Mounter

Operation Efficiency (85%)

Mass P.

350,000

297,500

Mass P.

350,000

297,500

Sample

200,000

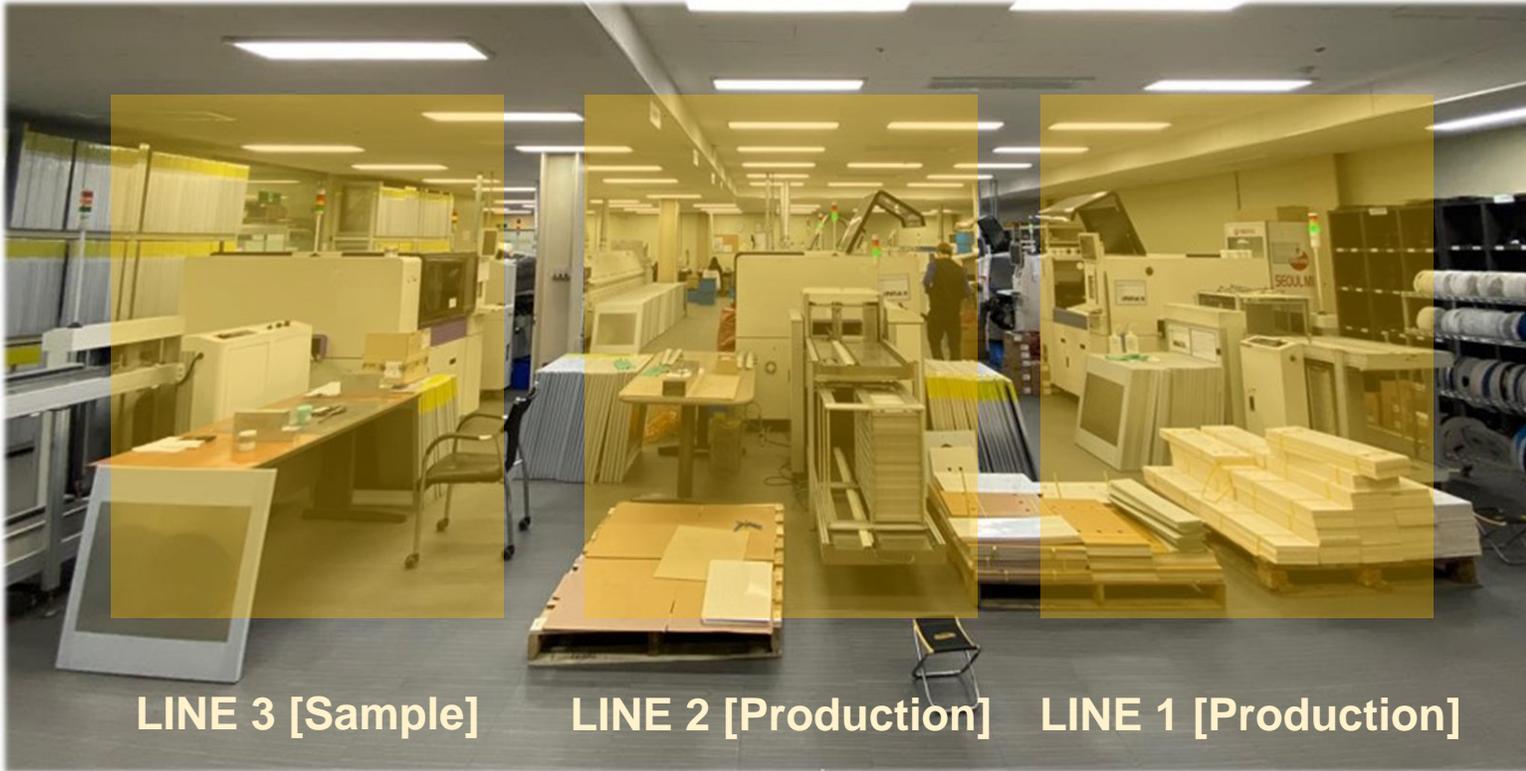
170,000

Bar
(1200mm)

300,000

255,000

Facility



Facility



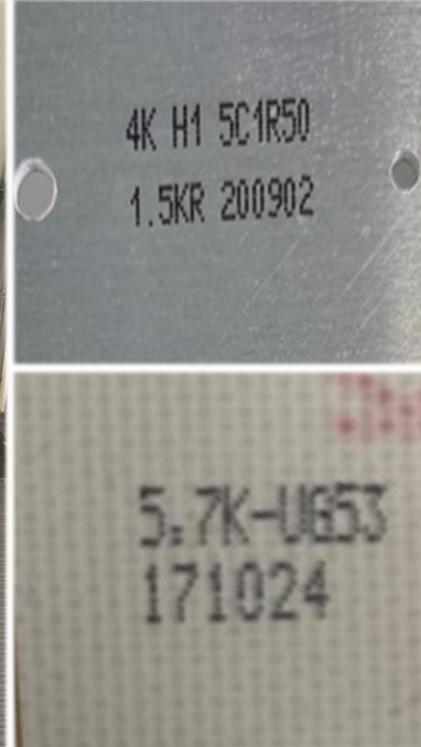
Management of Light Characteristics
(Integrating Sphere)



Management of Dehumidification Box for LED / Devices



Material Management by Customers



PCB Marking / Lot Management

Factory

Factory 1



1st : Visual Inspection

2nd : Lighting Test

* Factory 1 : SMT and inspection.

→ Conducting **full visual inspection, full lighting test**, shipment after filling out the shipment report

Factory 2

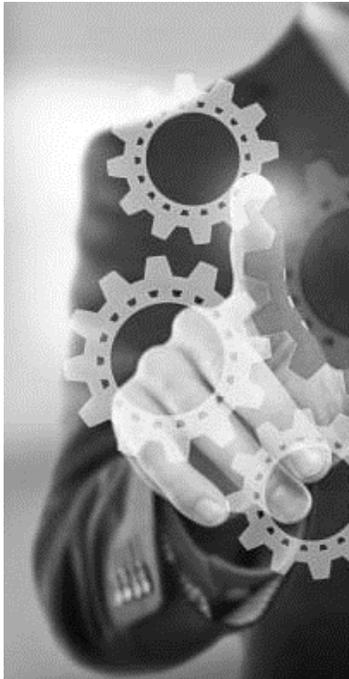
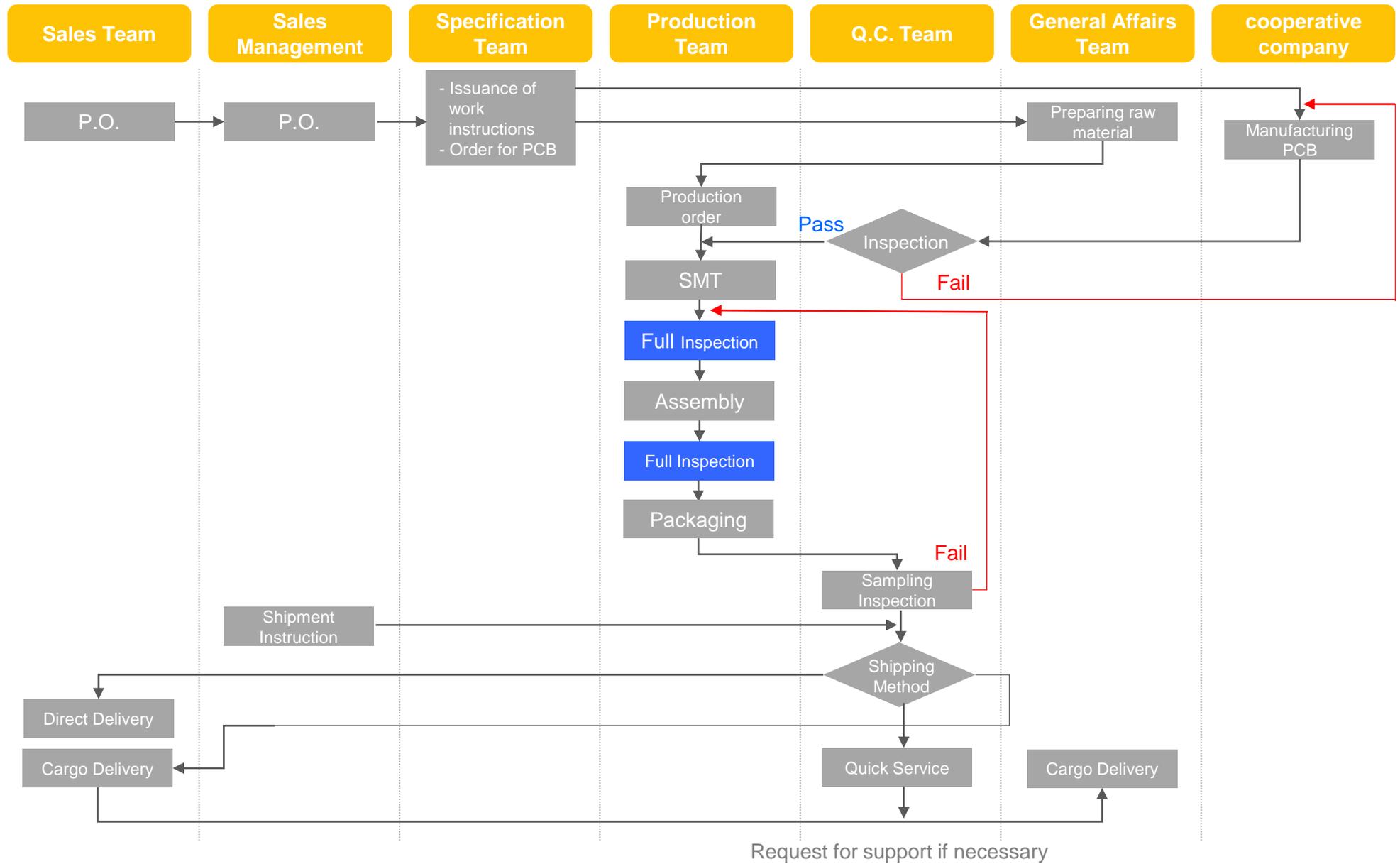


3rd : Hand Assemblage

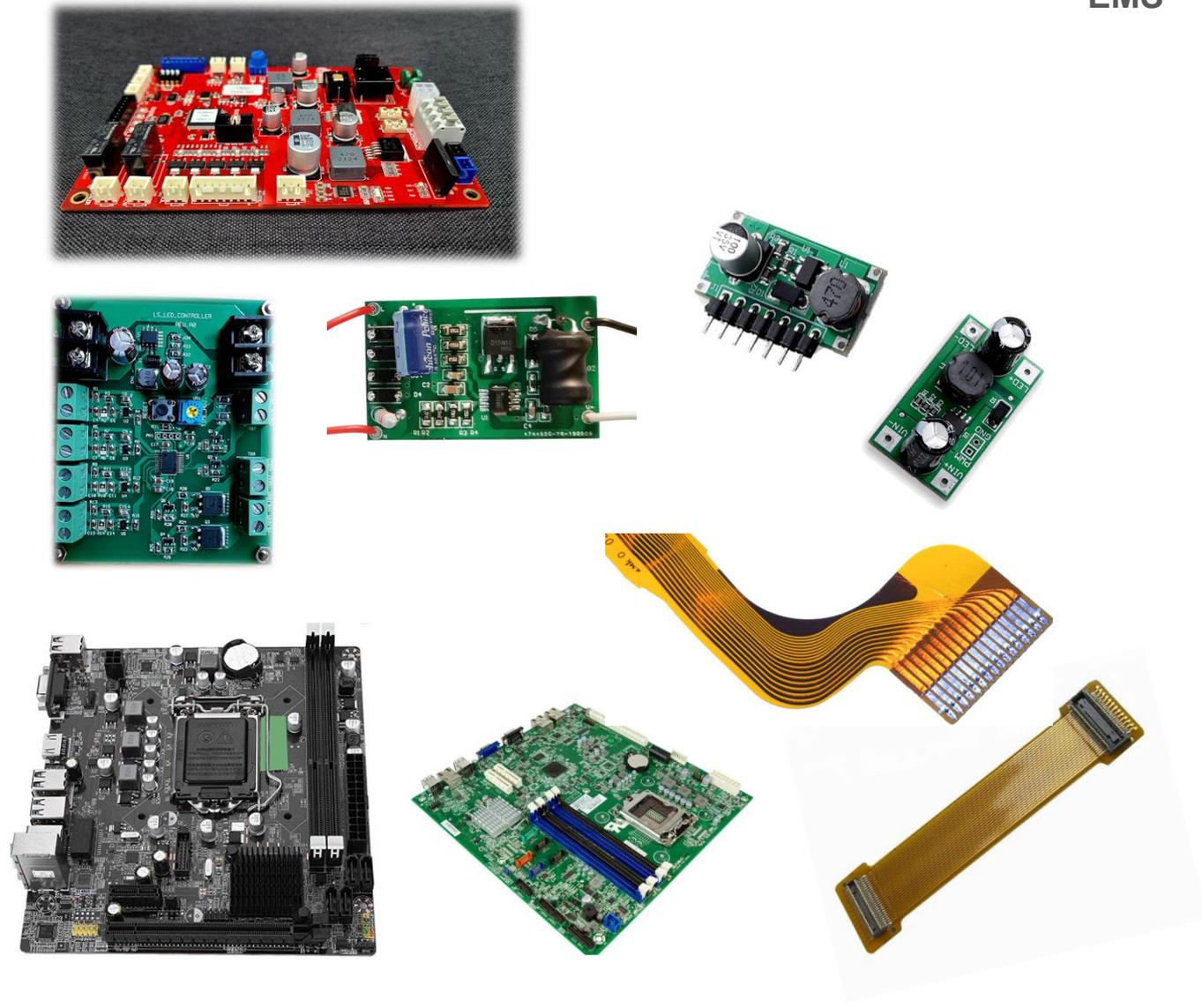
* Factory 2 : Back-End (Assembly & Etc.)

Ex.) Solving customer grievances as harness wire soldering, assembly, lens attachment, etc. (**increasing customer satisfaction**)

Process

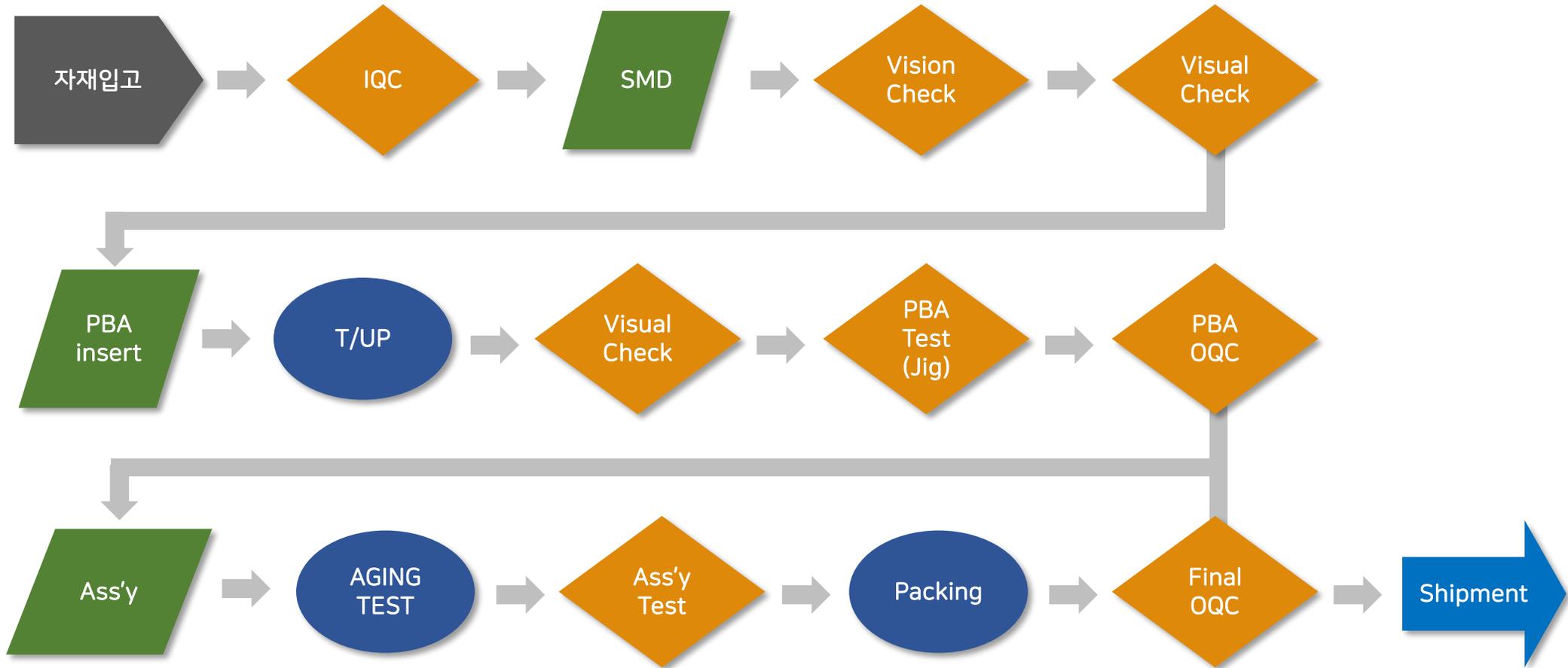


EMS [Electronic Manufacturing Service]



EMS Process

EMS



EMS Facility

EMS

A LINE



B LINE



C LINE



X-Ray



JARVIS
XSCAN-7100

X-Ray



MIRTEC
MV-3L

X-Ray

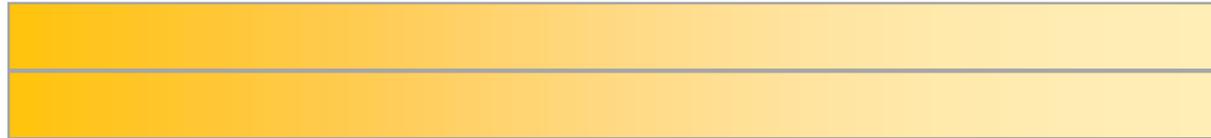


MIRTEC
MV-3L

EMS Hand Assembly LINE

EMS

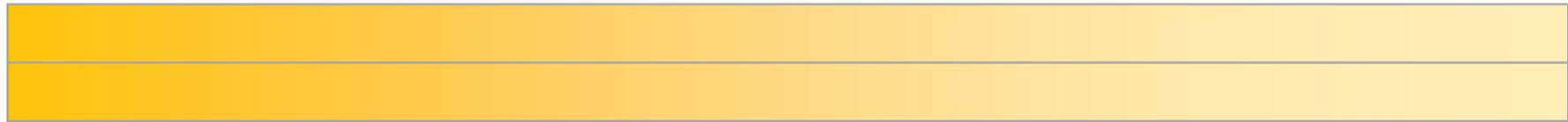
Lead Solder LINE



INSERT LINE

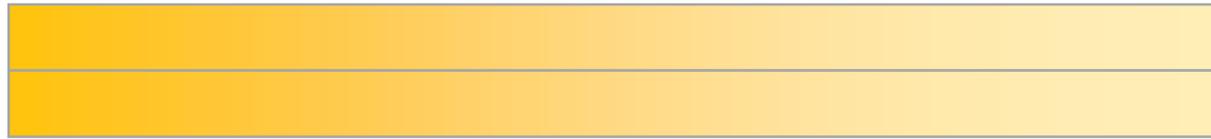


WAVE SOLDERING MACHINE
TSE



TOUCH UP LINE

Lead Free Solder LINE



INSERT LINE



WAVE SOLDERING MACHINE
TSE

EMS Inspection Equipment

EMS



A.O.I.(Vision, 광학 검사)



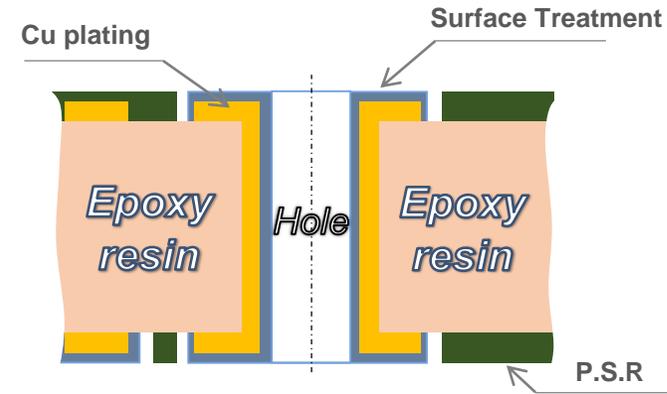
X-RAY



Functional Inspection

PCB

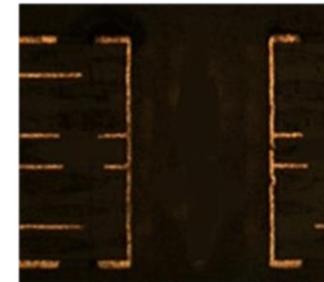
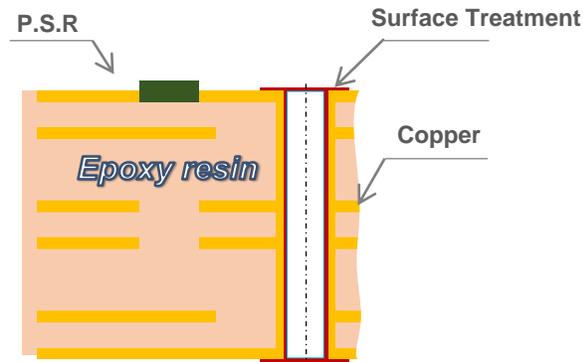
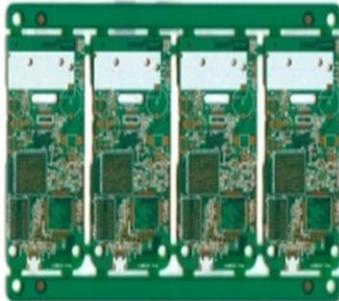
Double Layer PCB



In general, circuits are formed on both sides using FR-4 materials, and a conductor layer is made on the inner wall of the hole to allow interlayer conduction. which is currently common and widely used.

The price range is mid- to low-priced.

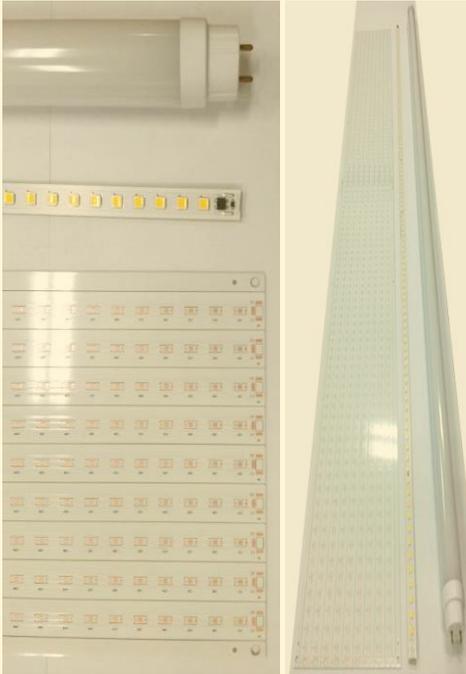
Multi Layer PCB



It is designed to create products that are small in size but perform high performance by integrating circuits that cannot be composed of double-sided PCB into the same or smaller space. This PCB is progressively improved in efficiency compared to conventional double-sided PCB by forming various fine holes to connect between the required layers and layers.

	Product	Material	Production Capacity
PCB	SINGLE SIDE(S/S) PCB	CEM-1,CEM-3, FR-1,FR-4	20,000 m2/Mon.
	DOUBLE SIDE (D/S) PCB	FR-4	35,000 m2/Mon.
	METAL PCB	METAL	5,000 m2/Mon.
	Inner layer processing ability (Inner layer machining capacity)	FR-4	25,000 m2/Mon.
TOTAL			85,000 m2/Mon.

Manufacture of Special size PCB (More than 1200mm)



Advantages of a large size
PCB [Max. W 1200 * L 400]



Reducing labor costs during
assembly process.
→ 160 won/EA

[Condition]

- Rates: 4 won/sec
- Work: 4 points.
- Time: 10 sec/point



- Overall assembly capacity
increased by 25% → 600mm
PCB fastening process Skipped
- The bottleneck of the
production process has been
resolved

[Condition: Tube type]

- Fastening process: 40 sec
- Screw processing speed:
30 sec



Fundamental solution for
defects in fastening parts →
Defective phenomenon: No
Light

[Cause: Open of fastening part]

- Open of the connecting pin
part occurs in the process of
hand assemblage, assembly
and other handling process.

Lighting Module



SAMSUNG



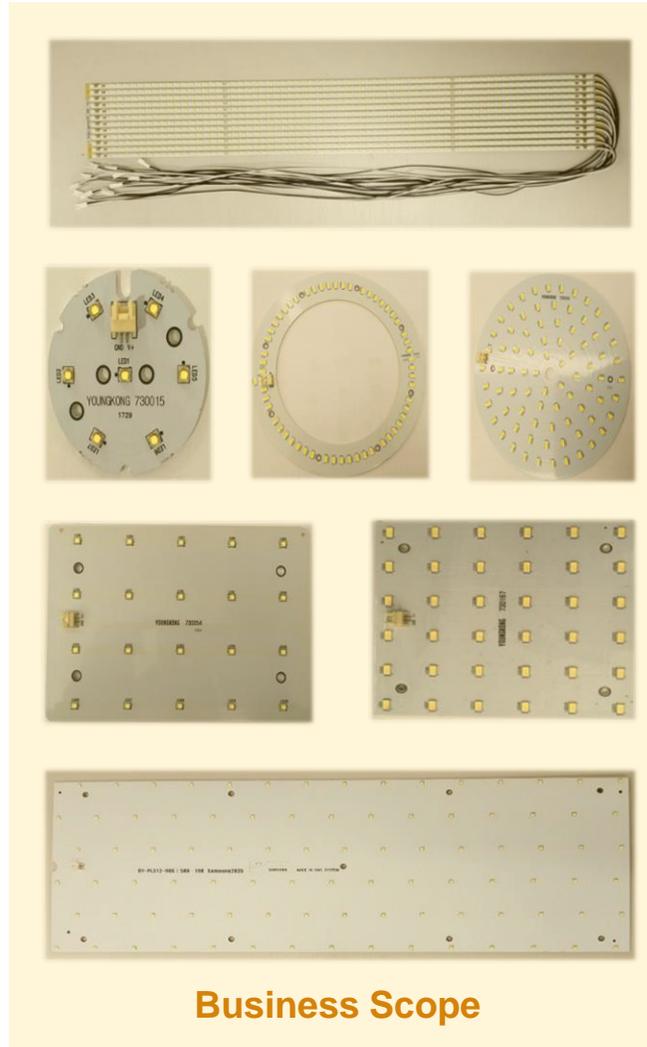
LUMILEDS

OSRAM
Opto Semiconductors

LITEON

CREE

EVERLIGHT



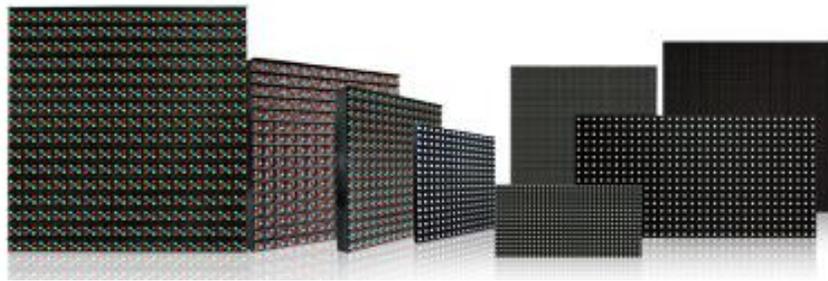
Business Scope



Digital Signage

Digital Signage

- Delicate images such as 4K and FHD can be displayed in various sizes and pixel (P1.4~).
- Due to its high daytime visibility, it is applied to various applications.
- It provides a very simple system to build and maintain.



Digital Signage

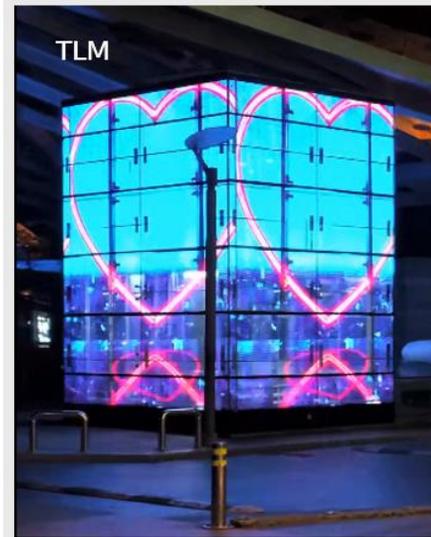
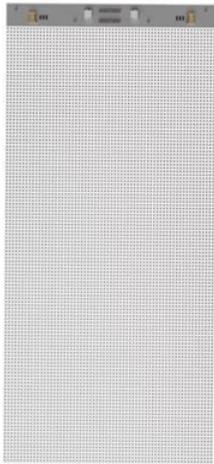
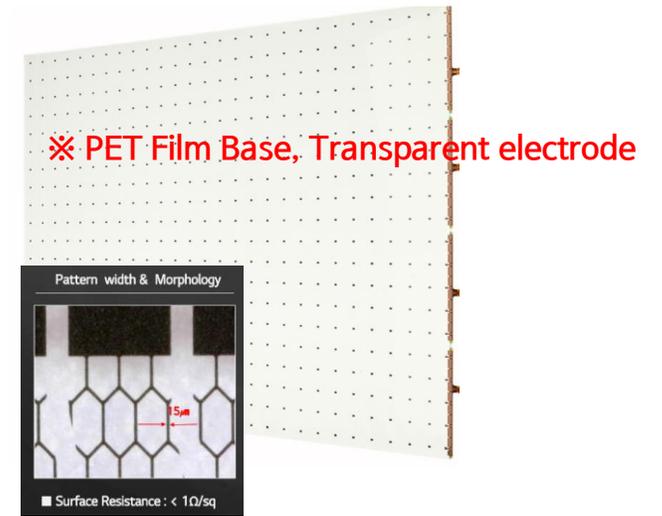
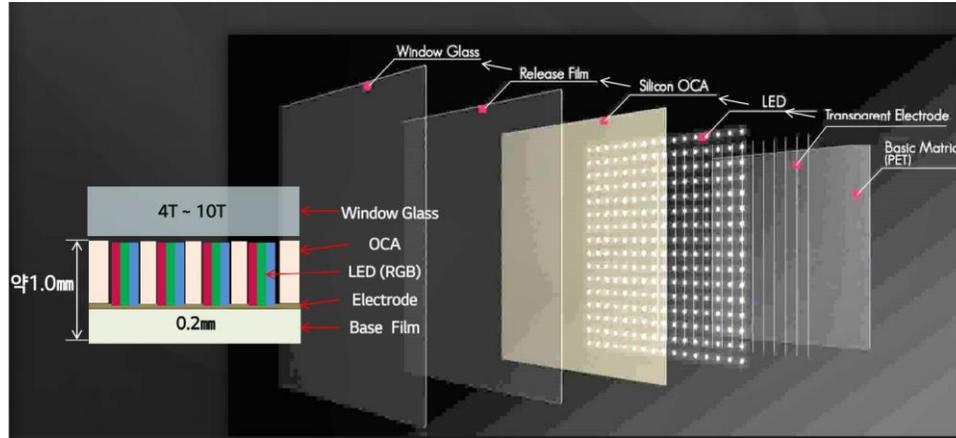
Installation Reference



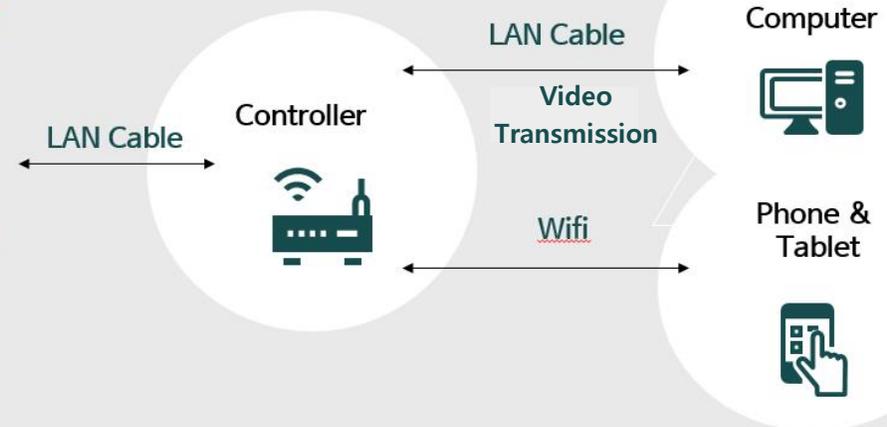
Transparent LED Film Module [TLM]

■ Transparent Display

- Easy attachment to the surface of existing window glass
- very convenient maintenance
- Transparent digital signage for advertising, promotion, and beautiful media art



Easy Installation & Maintenance



TLM Installation Reference

* Click on the image and play it with the bottom play button

Bukchon Cafe 'Shining Space'



- Pitch: 6 mm
- Size: H 1.8 x W 2.7 M
- Year: 2023

Jongno Tower Building



- Pitch: 6 mm
- Size: H 2.0 x W 13 M (1 side)
- Year: 2023

GS25 Convenience Store



- Pitch: 8 mm
- Size: H 1.2 x W 1.0 M
- Year: 2022

SSG Goods Shop Landers Field Branch



- Pitch: 10 mm
- Size: H 2.4 x W 6 M
- Year: 2022

Yeoncheon Media Wall



- Pitch: 10 mm
- Size: H 2.4 x W 12 M
- Year: 2022

Lotte Center Hanoi in Vietnam

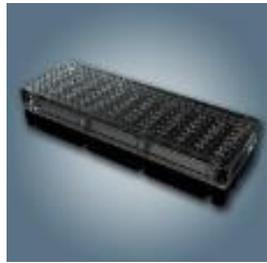


- Pitch: 20 mm
- Size: H 6 x W 14 M (4 sides)
- Year: 2021

Floor Signal Light

■ Floor-type pedestrian traffic lights for pedestrian safety

- The National Police Agency's standard guidelines were enacted in March 2019
→ As of 2022, it is expanding and installing nationwide
- It is being expanded to include child protection zones and accident risk areas
- 5% (12,000) of 240,000 crosswalks nationwide is expected to be installed



Display Part



Option Board



Control Box



■ Installation Effects

- Safe crosswalk 🗨️ Walking safety
- Slow driving 🗨️ Reducing traffic accidents
- Crosswalk psychological blocker
🗨️ Strengthening Visibility Identification

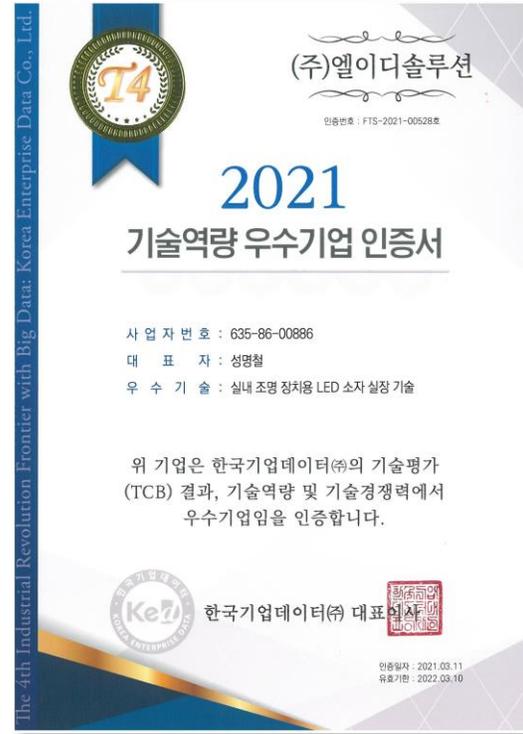
■ 2022 Installation Performance:

Yeoncheon/Dongducheon Elementary School in Gyeonggi Province, etc

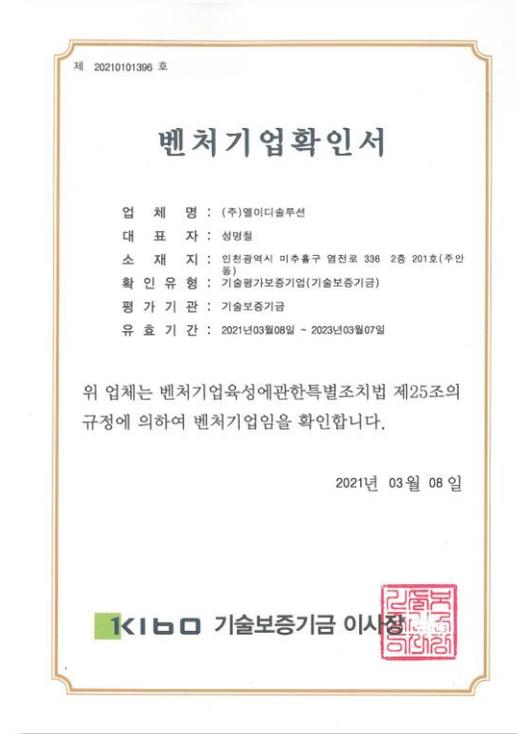
Certifications



■ ISO 9001: 2015



■ excellent technology capabilities



■ Venture Company



■ promising enterprises

A grayscale background image of a business meeting. In the foreground, two hands are shaking in a firm handshake. In the background, a person is holding a tablet computer, and another person is pointing at a document on a table. The overall scene is professional and collaborative.

Thank You !

www.ledsolution-k.com

LED SOLUTION