

The background of the slide is a photograph of a city skyline at night, likely New York City, with numerous skyscrapers illuminated. The right half of the image is covered by a semi-transparent yellow overlay. The text 'COMPANY PRESENTATION' is centered over this yellow area.

# COMPANY PRESENTATION

**LED SOLUTION**

[www.ledsolution-k.com](http://www.ledsolution-k.com)



# Index

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- **Company Introduction**
- **Production Environment**
- **Organization**
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- **Business Partners**
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- **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. 15<sup>th</sup>. 2018

## BusinessType

Manufacturing

## Business Field

Development of Circuits

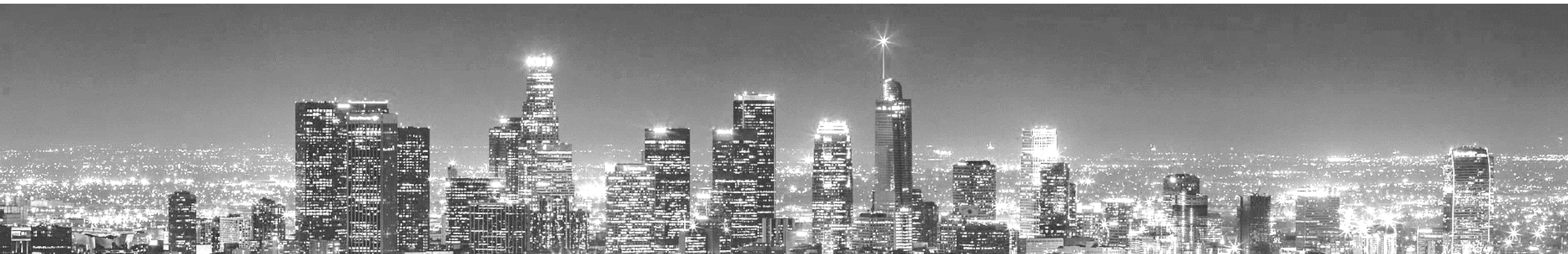
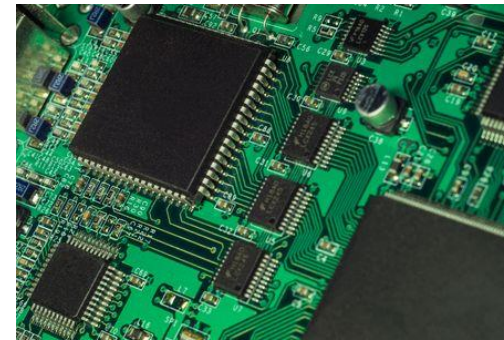
Development and Supply of PCB, SMT, Digital Signage (TLM) & Application Software

Manufacture of LED Lighting Fixtures & Advertising Lighting Fixtures

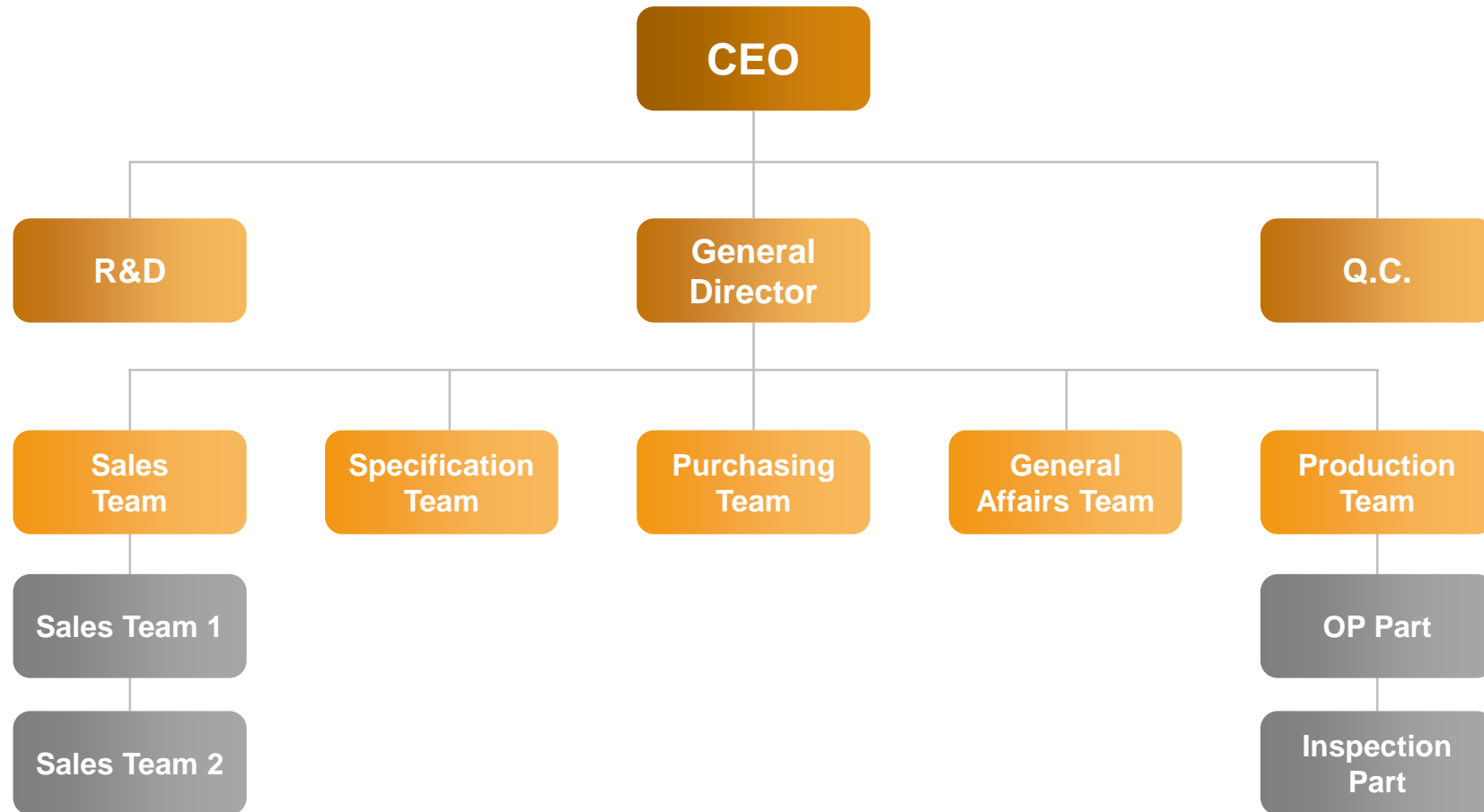
## Business Items

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)**



Solving the customer's problems → Maximizing win-win effects.

Providing services for purchasing and raw material management, **reducing workload for cost savings.**

# Business Partners



# Facility

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

LINE 1



LINE 2



LINE 3



LINE 4



Purpose

Mass P.

Mass P.

Sample

Bar  
(1200mm)

Chip  
Mounter

350,000

350,000

200,000

300,000

Operation  
Efficiency (85%)

297,500

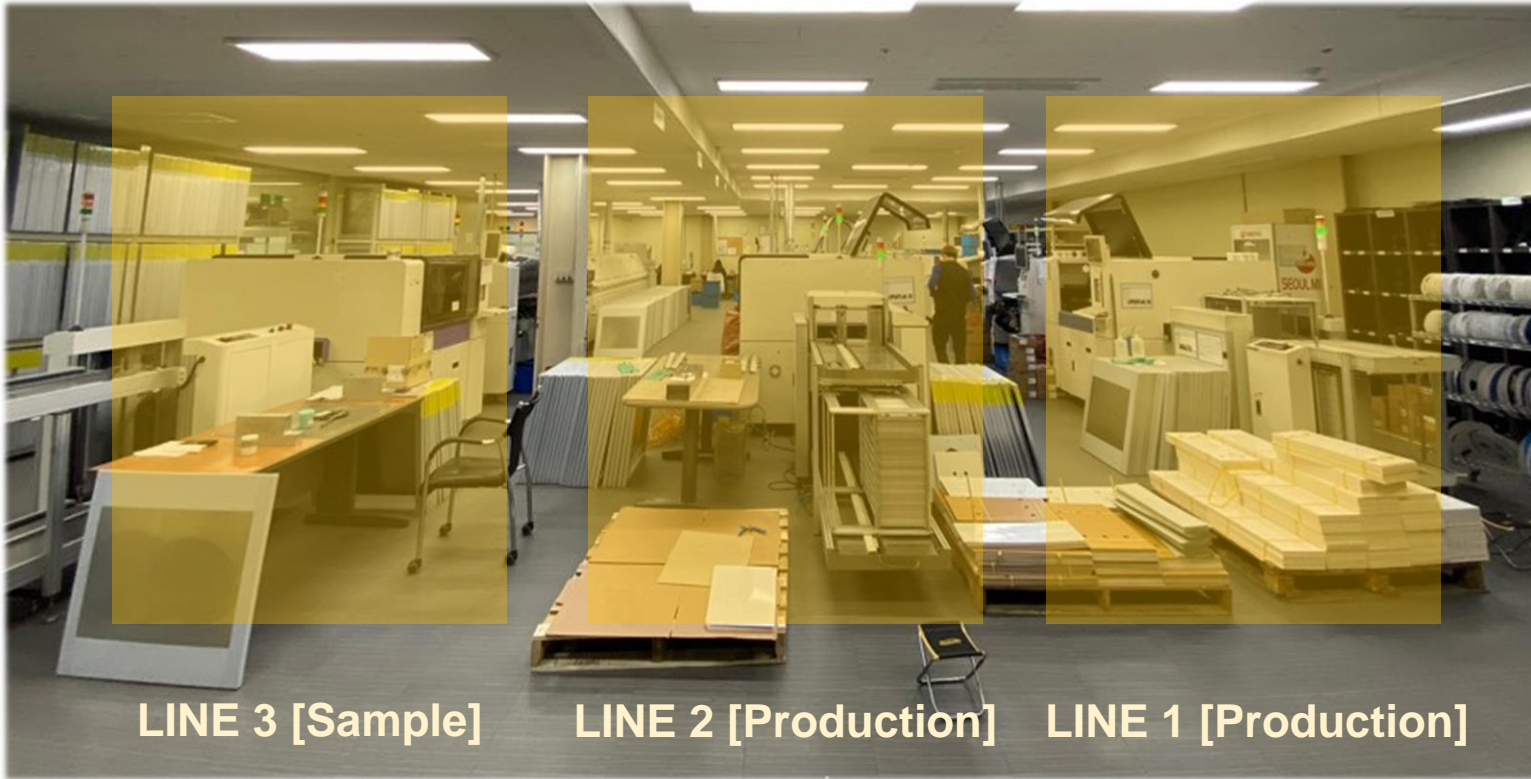
297,500

170,000

255,000



# Facility



# Facility



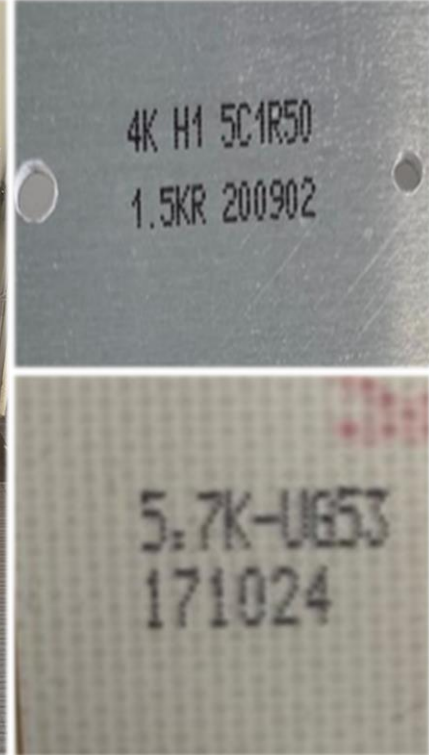
Management of Light  
Characteristics  
(Integrating Sphere)



Management of  
Dehumidification Box for  
LED / Devices



Material Management  
by Customers



PCB Marking / Lot  
Management



# Factory

Factory 1



1<sup>st</sup> : Visual Inspection

2<sup>nd</sup> : Lighting Test

\* Factory 1 : SMT and inspection.  
→ Conducting **full visual inspection**, **full lighting test**, shipment after filling out the shipment report

Factory 2

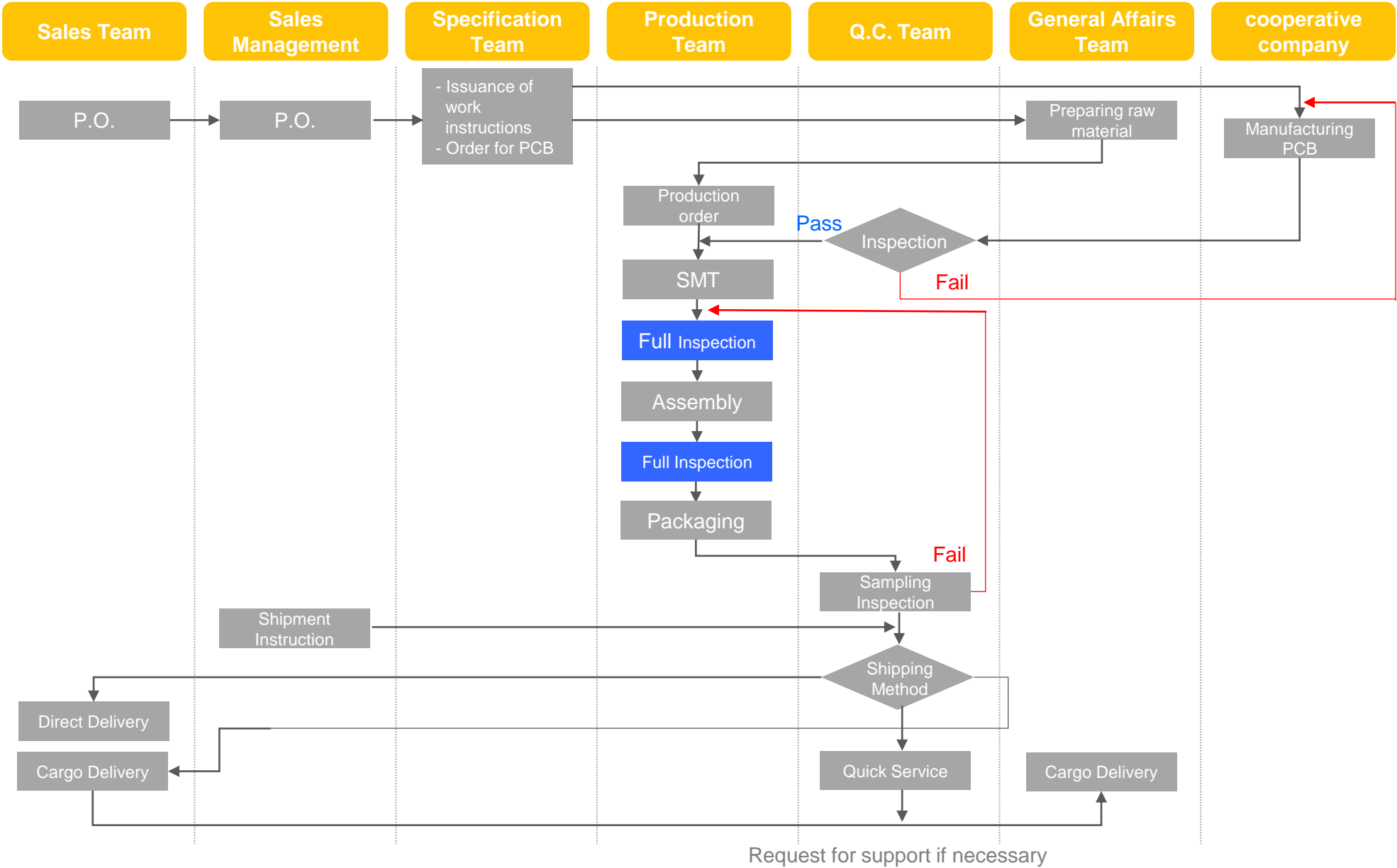
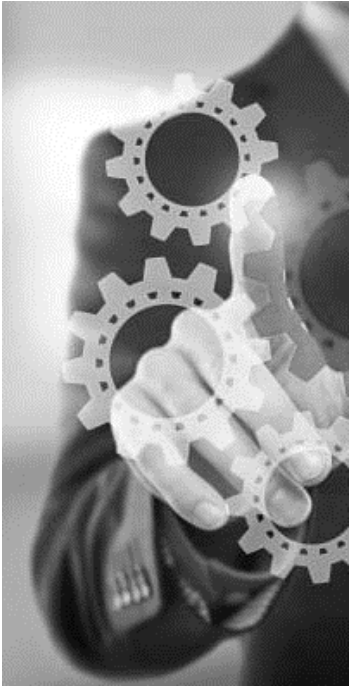


3<sup>rd</sup> : Hand Assemblage

\* Factory 2 : Back-End (Assembly & Etc.)  
Ex.) Solving customer grievances as harness wire soldering, assembly, lens attachment, etc.  
(**increasing customer satisfaction**)



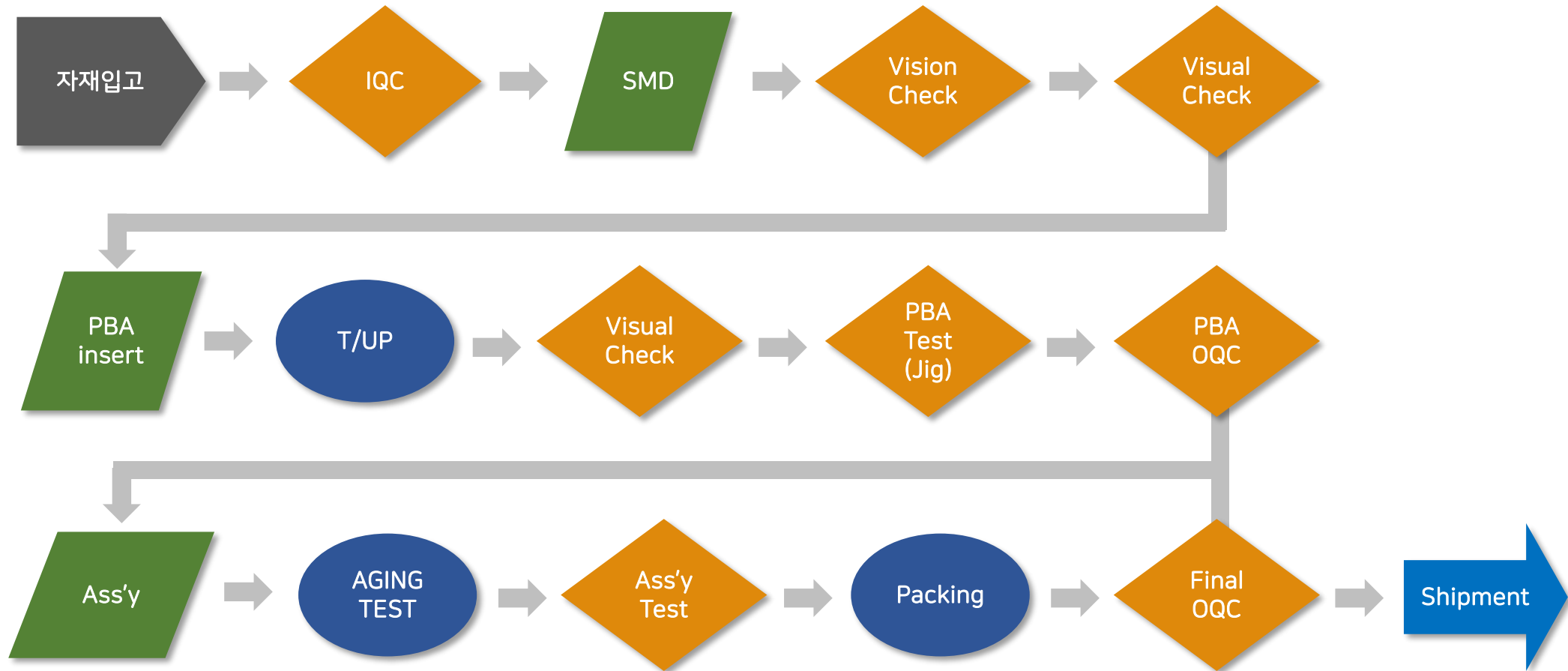
# Process





# EMS Process

EMS





A LINE



B LINE



C LINE



X-Ray



JARVIS  
XSCAN-7100

X-Ray



MIRTEC  
MV-3L

X-Ray

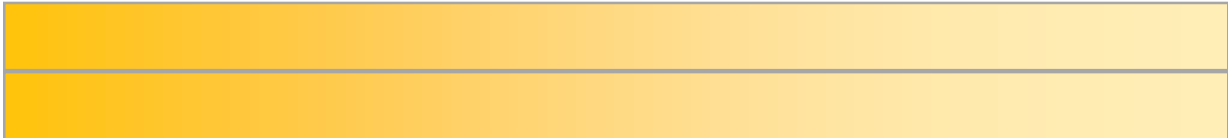


MIRTEC  
MV-3L

# EMS Hand Assembly LINE

EMS

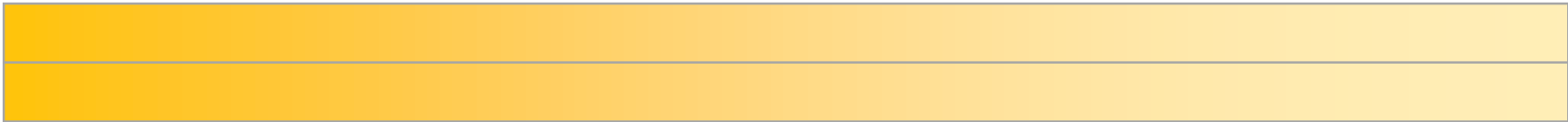
Lead  
Solder LINE



INSERT LINE

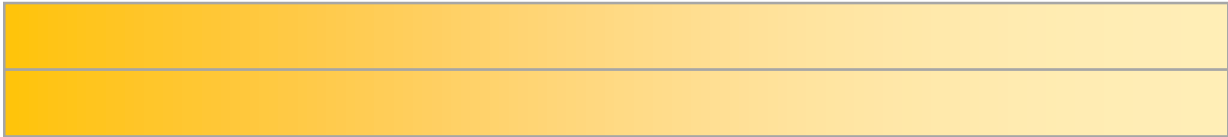


WAVE SOLDERING MACHINE  
TSE



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

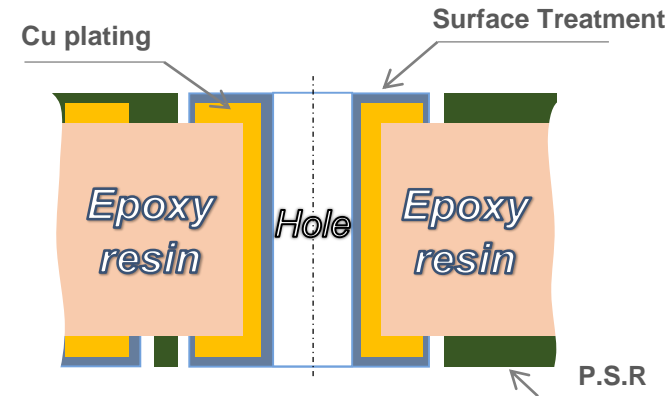
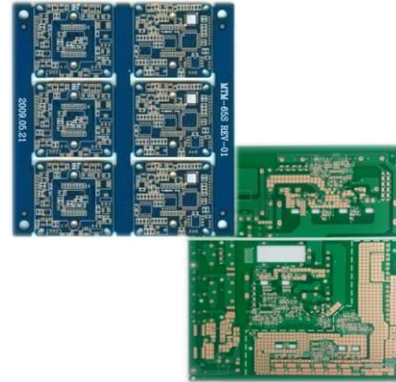


Functional Inspection



# PCB

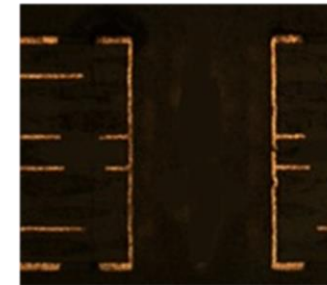
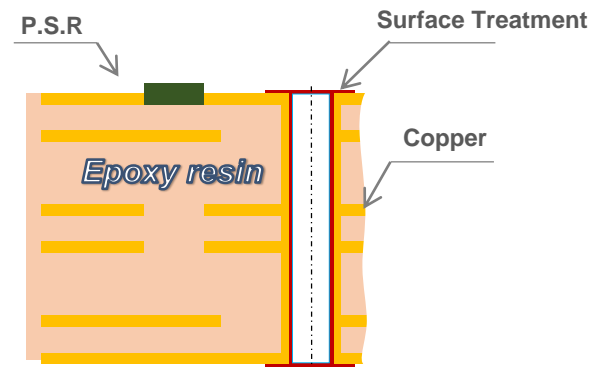
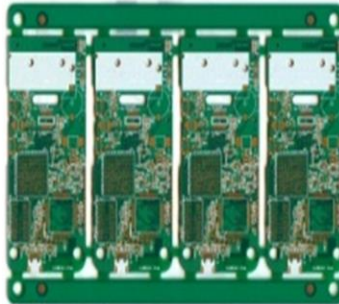
## Double Layer PCB



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.

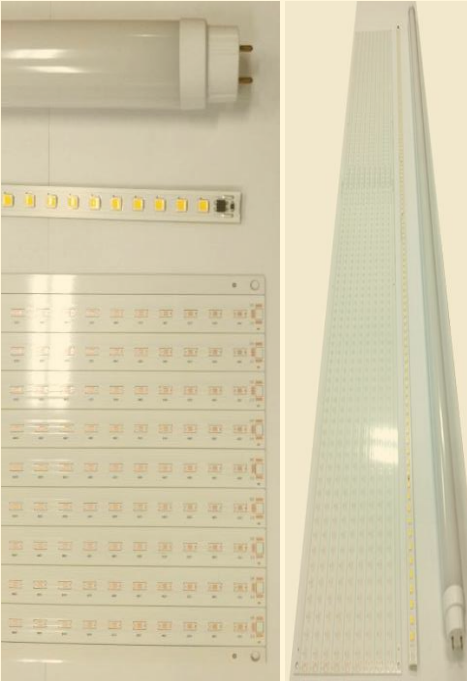
## Multi Layer PCB



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



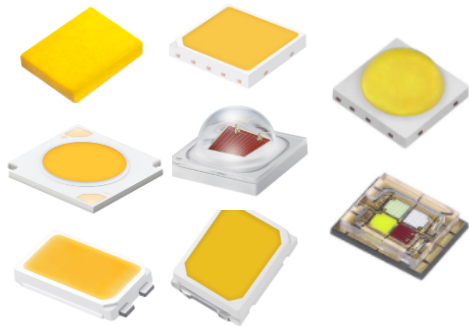
Fundamental solution for  
defects in fastening parts →  
Defective phenomenon: No  
Light

[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**



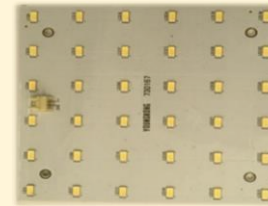
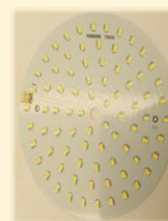
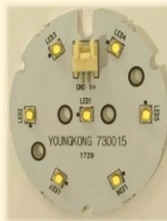
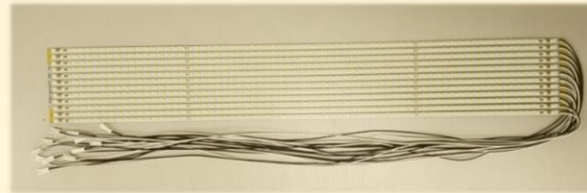
**LUMILEDS**

**OSRAM**  
Opto Semiconductors

**LITEON**

**CREE** 

**EVERLIGHT**



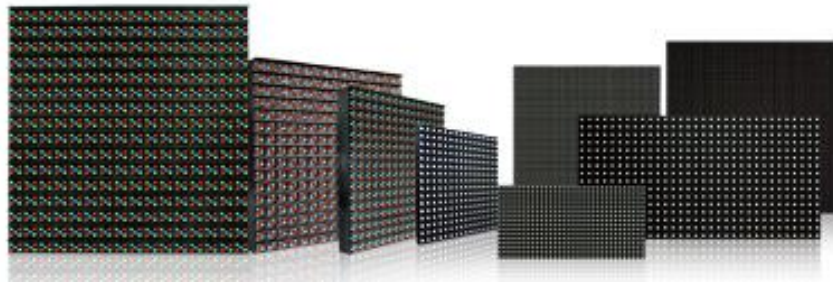
**Business Scope**



# Digital Signage

## ■ Digital Signage

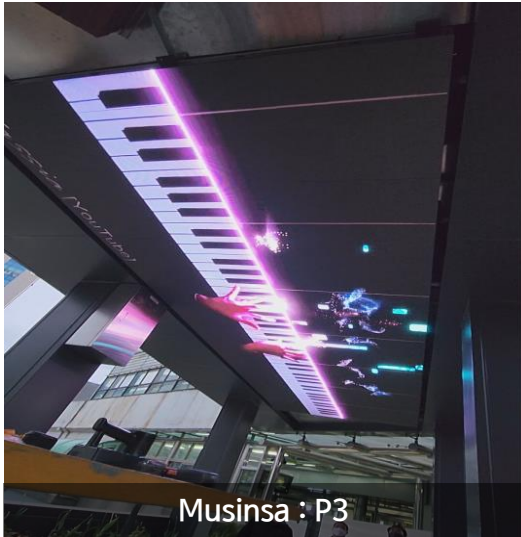
- Delicate images such as 4K and FHD can be displayed in various sizes and pixel (P1.4~).
- Due to its high daytime visibility, it is applied to various applications.
- It provides a very simple system to build and maintain.





# Digital Signage

## ■ Installation Reference

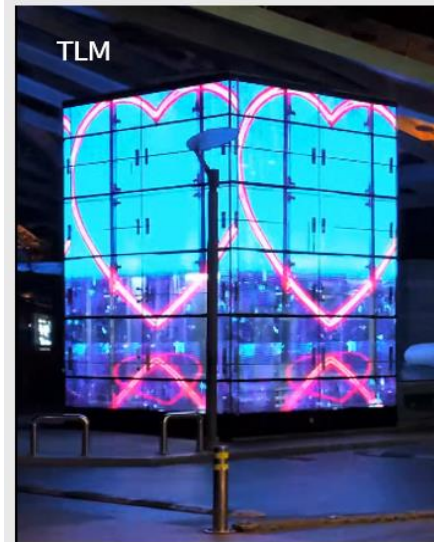
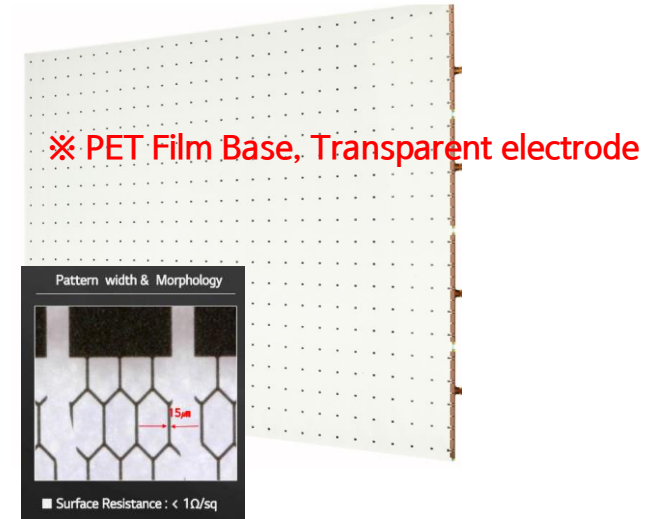
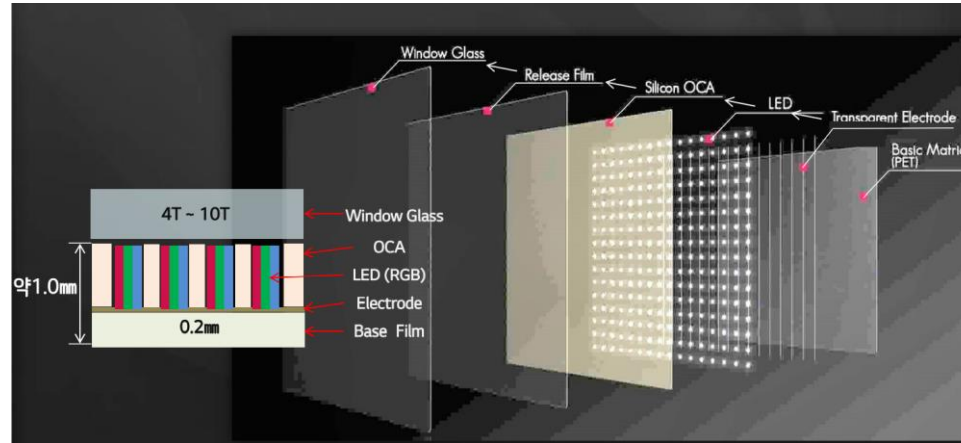




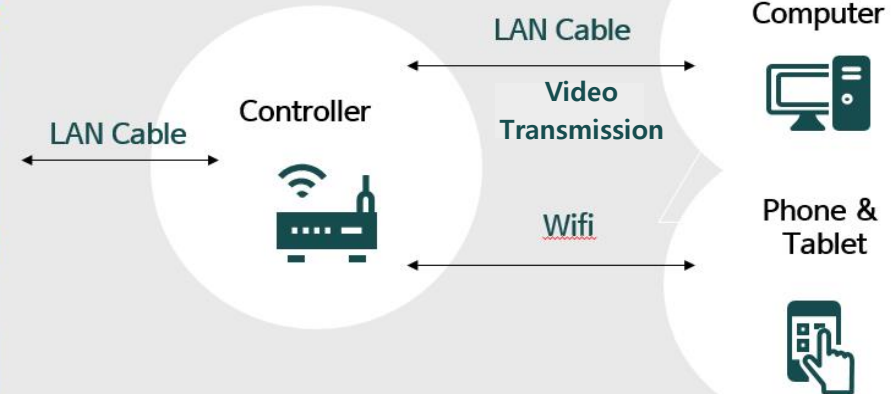
# Transparent LED Film Module [TLM]

## ■ 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:

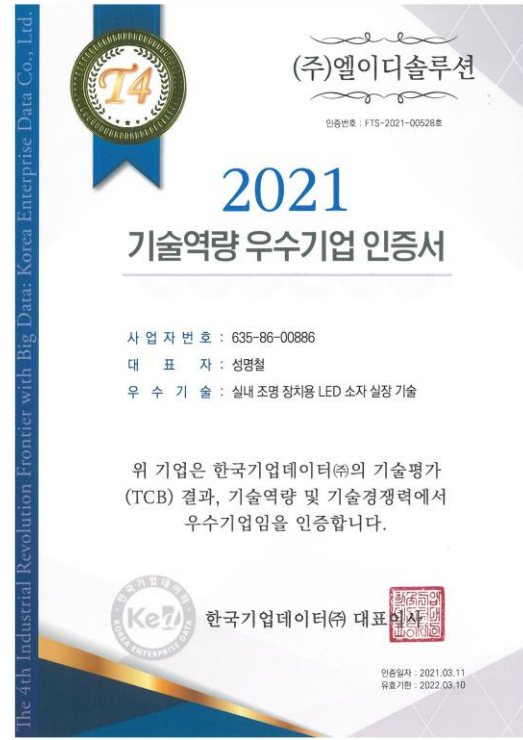
Yeoncheon/Dongducheon Elementary School in Gyeonggi Province, etc



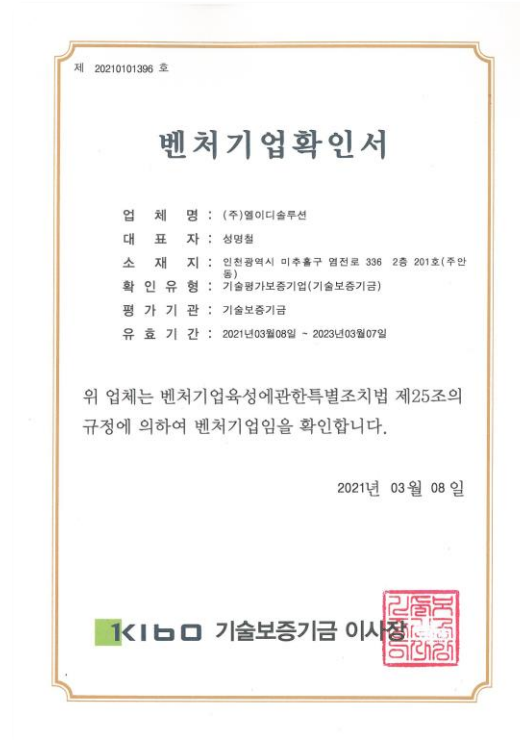
# Certifications



■ ISO 9001: 2015



■ excellent technology capabilities



■ Venture Company



■ promising enterprises

A grayscale background image showing a business meeting. Two people are shaking hands over a table. One person is holding a tablet, and another is holding a smartphone. There are papers with charts on the table.

# Thank You !

[www.ledsolution-k.com](http://www.ledsolution-k.com)

**LED SOLUTION**