

PROFILE

RANGDONG LIGHT SOURCE
AND VACUUM FLASK JSC.



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Typical products

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ECO SYSTEM 4.0

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OVERVIEW

- Full Company Name:
RANG DONG LIGHT SOURCE AND VACUUM FLASK JOINT STOCK COMPANY
- Business Company Name: RALACO
- Established: 1961
- Stock Symbol: RAL on HOSE
- Company type: Public
- Business activities:
 - + Manufacturing general lighting products, HCL (Human Centric Lighting)
 - + Professional ODM/ OEM service for lighting products
 - + Manufacturing and Trading product ecosystems 4.0 of Smart Home, Smart City, Smart Farm.
 - + Producing and trading High-tech agriculture lighting, fishery lighting and renewable energy lighting products
 - + Producing and trading Vacuum flasks and household appliances.



Head office and Factory No.1
Located 87-89 Ha Dinh Str., Thanh Xuan Dist., Hanoi, Vietnam
Area: 57,000 m2



Factory No.2
Located Que Vo Industrial Zone, Bac Ninh Province
Area: 82,000 m2



Research and Development Centers
+ LED Lighting R&D Center (LRDC)
+ Digital R&D Center (DRDC)
+ Business Model R&D Center (BMRDC)



LED Lighting for cusumers: 100 million units/ year
LED Lighting for professionals: 05 million units/ year
Vacuum Flasks & Glass Refills: 32 million units/ year



<https://rangdong.com.vn>
<https://en.rangdong.com.vn>
<https://vacuumflask.rangdong.com.vn/>



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RangDong Vietnam, Vacuum Flask-Rang Dong



Ralacoexport.trustpass.alibaba.com



International Management System



Member of ILAC / APLAC MRA

ACCREDITED LABORATORY VILAS 126
(Conformed with requirements of ISO/IEC 17025:2017)

276
Accredited tests



MISSION

- Pioneering enterprise providing a synchronous solution system based on core technologies of Lighting and IoT, contributing to the creation of smart home, smart city, hi-tech agriculture and precision agriculture, promoting life in harmony with nature - smart - happiness, accompanying the nation to build a prosperous Vietnam.



VISION

- By 2025, envisaging to become a leading high-tech enterprise in the Vietnamese lighting market, pioneering in the field of providing Ecosystem 4.0 to realize the aspiration of "Make in Vietnam".
- By 2030, becoming a billion-dollar enterprise, bringing Rang Dong brand to the regional level.
- Keeping the development path of the business based on Science, Technology, Innovation and Kindness.
- Building a company having a creative, cultural, civilized, professional and happy working environment.



CORE VALUE

- Solidarity, Proactiveness, Creativity, Rapidity and Professionalism.



ACTION MOTTOS

- Serving customers, creating knowledge for resonating value



HUMAN VALUE

- Dedication - Endeavor - Self-consciousness - Self-confidence - Self-respect - Honesty
- Same orientation - Same behavior - Shared work - Shared benefit
- New Qualities: Tectonic - Adaptive - Creative - Professional



- TOP **500** Vietnam's Largest Companies (10 consecutive years)
- TOP **500** Vietnam's Fastest Growing Companies (6 consecutive years)
- TOP **100** ASEAN Famous Brands 2020
- TOP **50** Best Vietnamese Listed Companies
- TOP **50** Leading Brands in Vietnam
- TOP **50** Typical Creative Enterprises 2021
- TOP **50** Leading Brands in Vietnam
- TOP **10** Vietnam's Golden Brands
- TOP **10** Best Brandname in Vietnam
- TOP **10** Gold Classified Products



Highest Energy Efficiency Award 2020



Won smart city award 2020

Won smart city award 2020 for "Green - Smart - Human Centric Lighting Solution for Smart Buildings and Smart Homes"



TOP 1

Won smart city award 2020 for "Green - Smart - Human Centric Lighting Solution for Smart Buildings and Smart Homes"



Sao Khue award 2021

Smart Lighting Solutions in Hi-Tech Agriculture (HTAL) and Precision Agriculture (PAL)

1958 - THE BEGINNING:

Starting the construction of Factory

1961:

Officially established
(February 24, 1961).

1990:

Starting the 1st renovation period

2004:

Transforming from a state-owned enterprise
to a joint - stock enterprise
Exporting compact fluorescent lamps to EU

2006:

Company stock (RAL) listed on Ho Chi Minh
Stock Exchange (HOSE).
Factory No. 2 in Que Vo Industrial Zone, Bac
Ninh province operational

2008:

Successfully producing the first LED lighting
product.

2011:

Establishing Lighting Research &
Development Center (LRDC) with more than
40 scientists and professors

2014:

Establishing LED - Electronic & Lighting
Equipment factory, manufacturing LED lights
on an industrial scale.

2015:

100% state divestment and becoming a
public company
Ending the 1st renovation period and
starting the 2nd one

2016:

Signing a strategic cooperation agreement
with Samsung Electronics Co., Ltd. South
Korea.

2020:

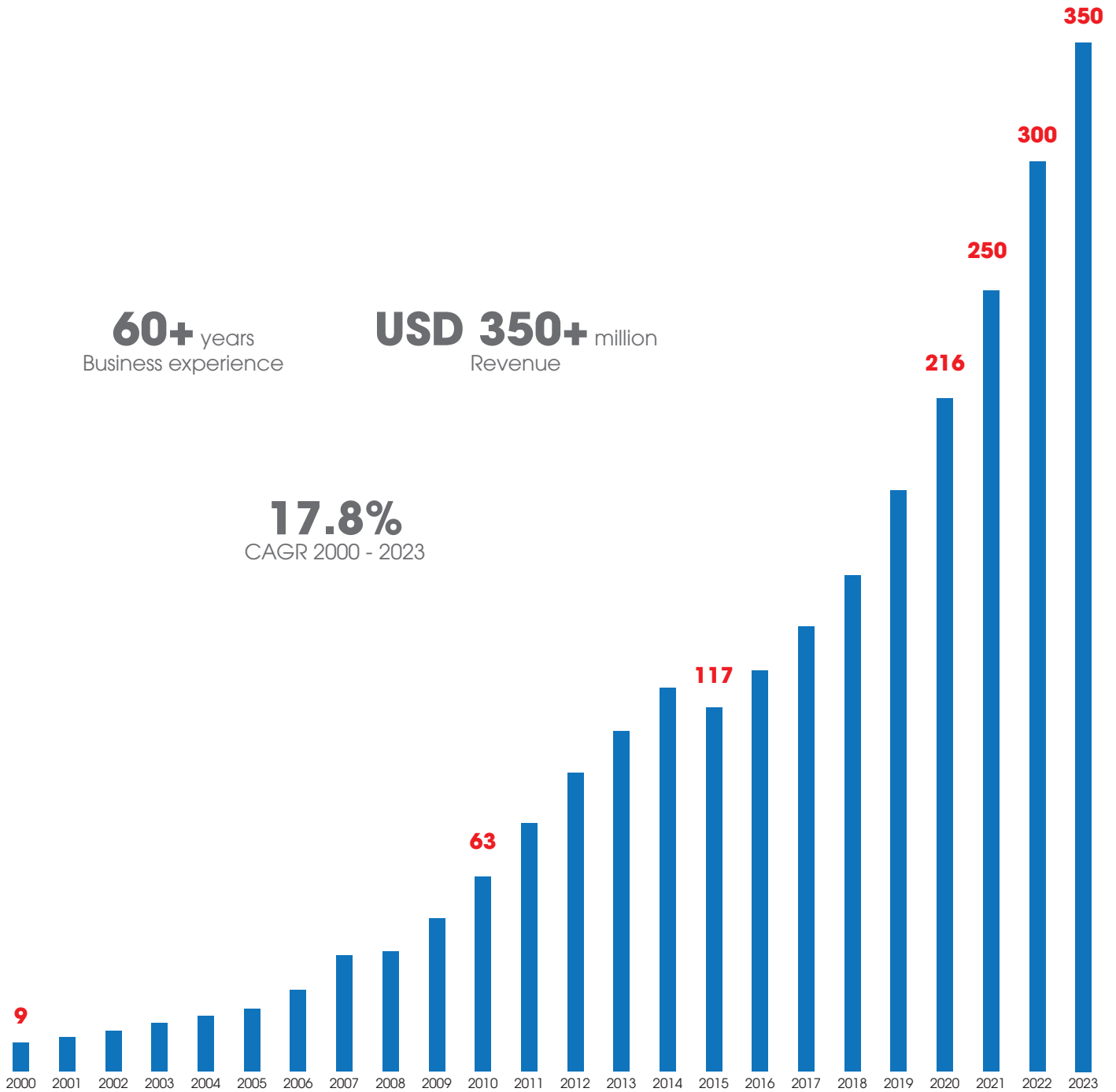
Establishing Digital Research & Development
Center (DRDC)

2021:

Cooperating with Seoul Semiconductor,
Korea as the strategic partner



01 | INTERNATIONAL & DOMESTIC MARKETS



No.1 MARKET SHARE IN VIETNAM

IN LIGHTING AND VACUUM FLASK

- 400** Distributors
- 16 000** Points Of Sale
- 500** Market Staffs
- 10** Branches
- 04** Lighting Consulting Service Centers
- 01** LED Ecosystem Development Center



PARACEL ISLANDS

DA NANG BRANCH
 No. 169 Dien Bien Phu, Chinh Gian Ward,
 Thanh Khe District, Da Nang
 Tel: 0236224 5386 / 02363503188

TAY NGUYEN BRANCH
 No. 142 Le Thanh Tong, Tan Loi Ward,
 Buon Ma Thuot City, Dak Lak Province.
 Tel: 0262 3956668

HO CHI MINH CITY BRANCH
 No. 177 - 179, Street No. 26, Ward 10,
 District 6, Ho Chi Minh City
 Tel: 028 3754 5233/235

TIEN GIANG BRANCH
 No. 18 - 20 Huyen Toai Street,
 Ward 1, My Tho City,
 Tien Giang Province
 Tel: 027 3397 7455

NHA TRANG BRANCH
 No. 12A Van Don, Phuoc Hoa Ward,
 Nha Trang City, Khanh Hoa
 Tel: 025 8387 4488

BIEN HOA BRANCH
 No. 14 - A18 extended residential area,
 An Binh Ward, Bien Hoa City, Dong Nai Province
 Tel: 025 1886 0365



SPRATLY ISLANDS

CAN THO BRANCH
 77AA - 79AA Nguyen Van Cu Street, An Binh Ward,
 Ninh Kieu District, Can Tho City
 Tel: 0292381 3346

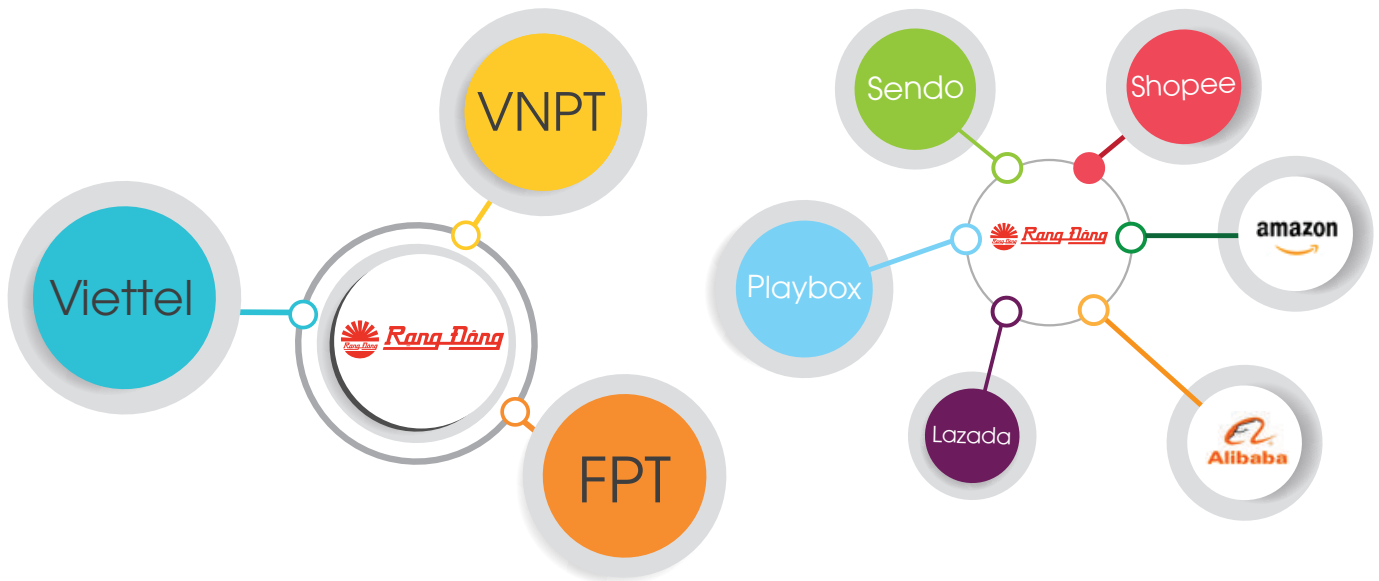


02 | SCIENCE & TECHNOLOGY

ABILITIES

Science & Technology abilities

Rang Dong has cooperated with domestic and foreign scientists in many different fields: Digital Technology, the Internet-of-Things (IoT) Technology, cloud computing, edge computing, radio signal identification, etc. absorbed scientific and technological achievements such as materials physics, Mechatronics, Smart agriculture, renewable technology, Biomedical optics, etc. to create high-tech products, bring new values to customers, meet the increasing demands of customers.



In 2011, the Lighting R&D Center was established to research on lighting and apply interdisciplinary and transdisciplinary science and technology: physical & material sciences, Mechatronics, optics, microorganism technology, chemistry, etc. to produce high-tech products with high added value, protect human health, and bring a variety of experiences to customers.



Rang Dong Lighting R&D center has been issued certificate of registration for science and technology activities by Hanoi department of science and technology



In 2020, Rang Dong established Business Model R&D Center (BMRDC), Creativity Center and Digital R&D Center (DRDC). The above centers have signed with many large technology corporations of Vietnam such as VNPT, FPT, Viettel etc. to conduct business on digital platforms.

EXCLUSIVE INVENTION PATENTS, USEFUL SOLUTIONS

Rang Dong currently owns

137 Intellectual property patents

99 industrial design degrees

36 Trademarks degrees

12 Invention Patents / Useful Solutions

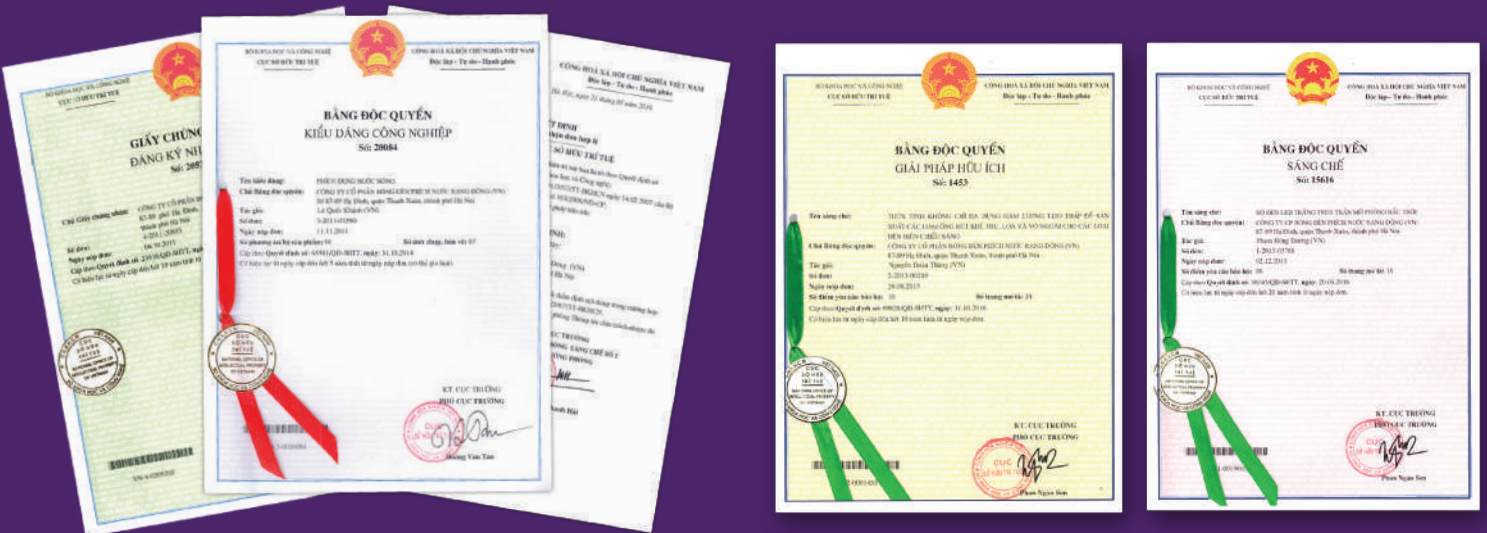
06 CE marking (Conformité Européenne - European Conformity) for LED Lighting products

52 KC (Korea Industrial standard) for LED lighting products

9 KS (Korea Industrial Standard) for LED lighting products

7 HE (High Efficiency) for LED lighting products

Exclusive Invention Patents, Useful Solutions



CERTIFICATE OF ACCREDITED LABORATORY



MASTERING 4 LEVELS OF LIGHTING TECHNOLOGY

4TH TECHNOLOGY LEVEL

4.0 LED PRODUCTS & SERVICE ECOSYSTEM
Rang Dong builds RAL IoT platform
Automatically change according to the scripts



Save **50%** energy
more than LED lights

4

3RD TECHNOLOGY LEVEL

(2011-2019)

SOLID-STATE LIGHTING (SSL) TECHNOLOGY
Year 2018 is an important milestone
ending 7 years and 8 months (2011-2018)
that Rang Dong mastered in electronic
technology in LED light production.



10 - YEAR LIFETIME

3

9W
1200 lm
130 lm/W

2ND TECHNOLOGY LEVEL

LOW-PRESSURE MERCURY-VAPOR
DISCHARGE LAMP TECHNOLOGY

From 1993 to 2015, developing Fluorescent lamps and Compact fluorescent lamps, nearly 22 years of mastering the Low pressure mercury-vapor discharge technology, which created the miracle "Rang Dong Phenomenon"



03 - YEAR LIFETIME

2

20W
1200 lm
65 lm/W

1ST TECHNOLOGY LEVEL

ELECTRIC VACUUM TECHNOLOGY

From 1961 to 1993 - 32 years Rang Dong mastered electric vacuum technology to develop Incandescent lamps



06 - MONTH LIFETIME

1

100W
1200 lm
10 lm/W

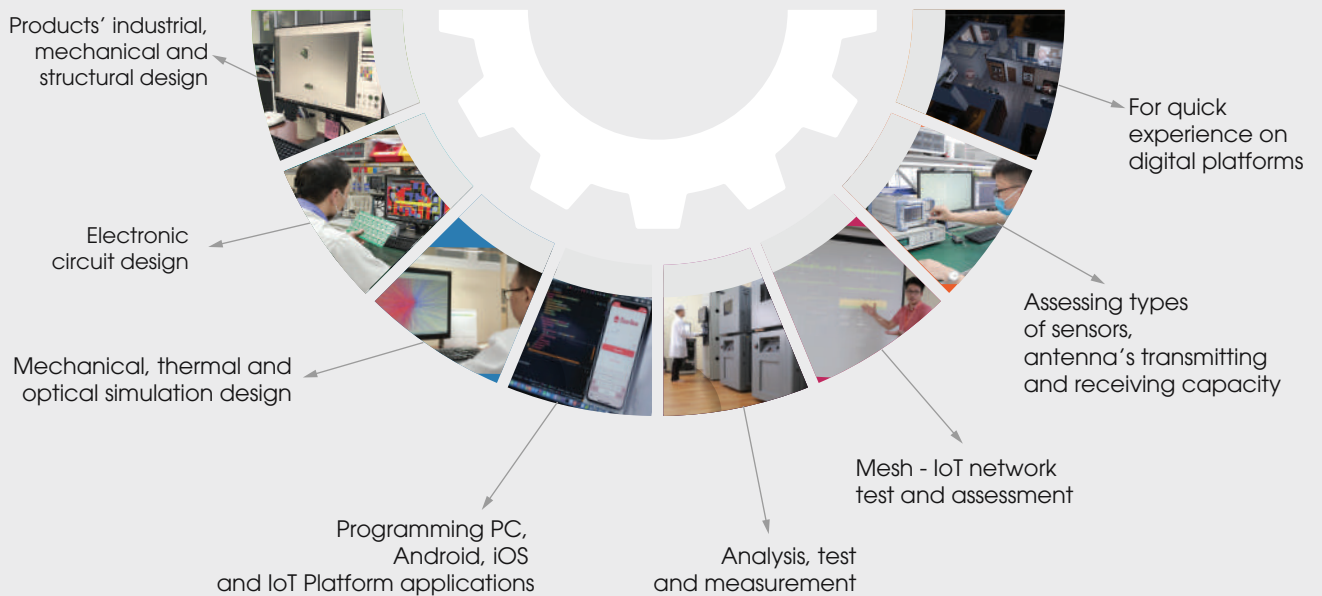


03 | **PRODUCT DESIGN** ABILITIES





8 DESIGN ABILITIES



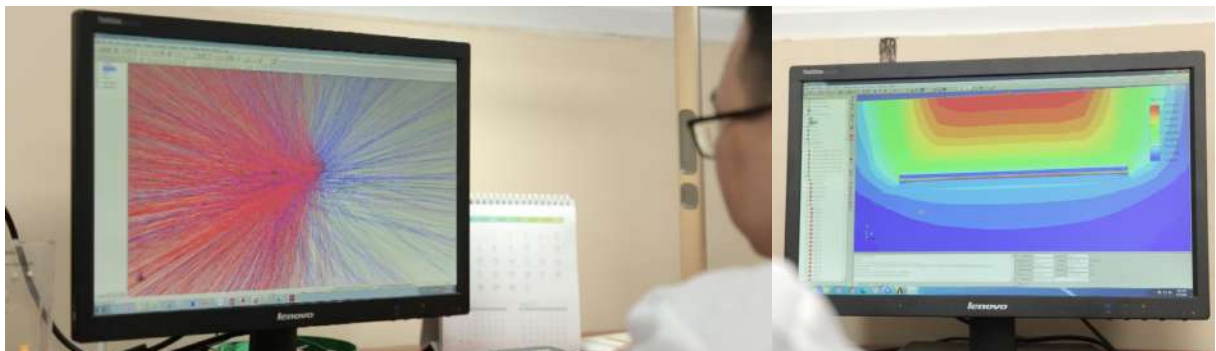
3D INDUSTRIAL STYLE DESIGN



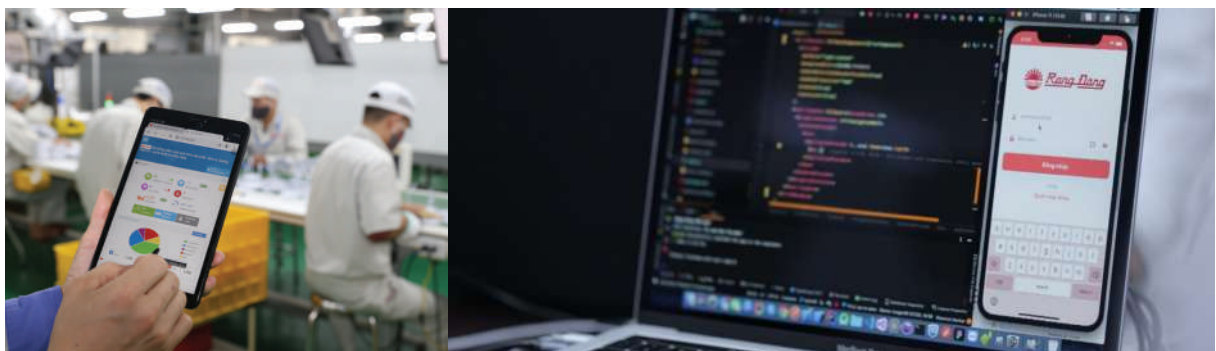
ELECTRONIC CIRCUIT DESIGN/SIMULATION/OPTIMIZATION



MECHANICAL, THERMAL AND OPTICAL SIMULATION/OPTIMIZATION



FIRMWARE/SOFTWARE DEVELOPMENT



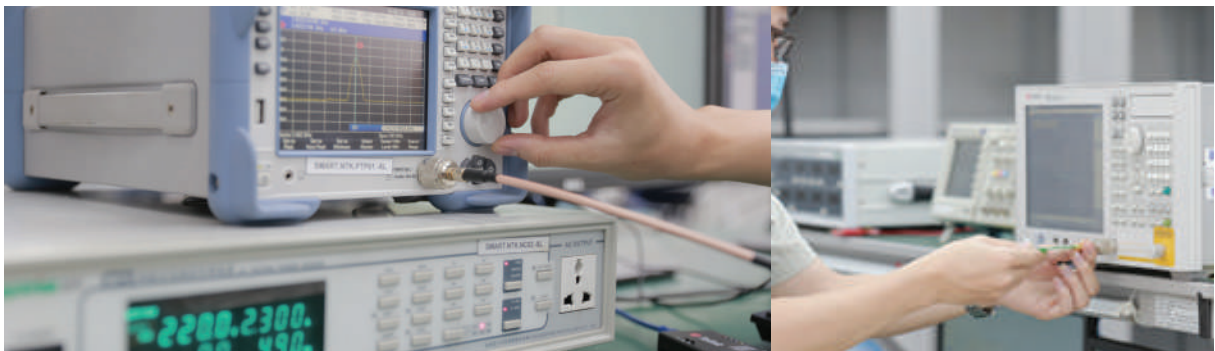
ANALYSIS, TEST AND MEASUREMENT



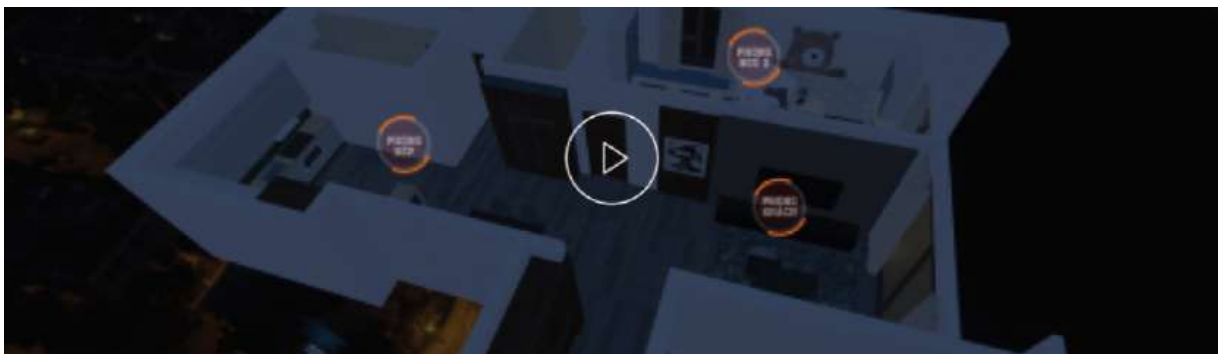
MESH - IoT NETWORKING



RF NETWORK DESIGN



CUSTOMER EXPERIENCE ON DIGITAL PLATFORM





04 | **PRODUCTION** CAPACITY

PRODUCTION CAPACITY

100 MILLION
UNITS/YEAR

LED LIGHTING FOR CONSUMERS

05 MILLION
UNITS/YEAR

LED LIGHTING FOR PROFESSIONALS

32 MILLION
UNITS/YEAR

VACUUM FLASKS & GLASS REFILLS

ELECTRONIC ASSEMBLY



SUPPORTING TECHNOLOGY



AUTOMATIC ASSEMBLY LINES



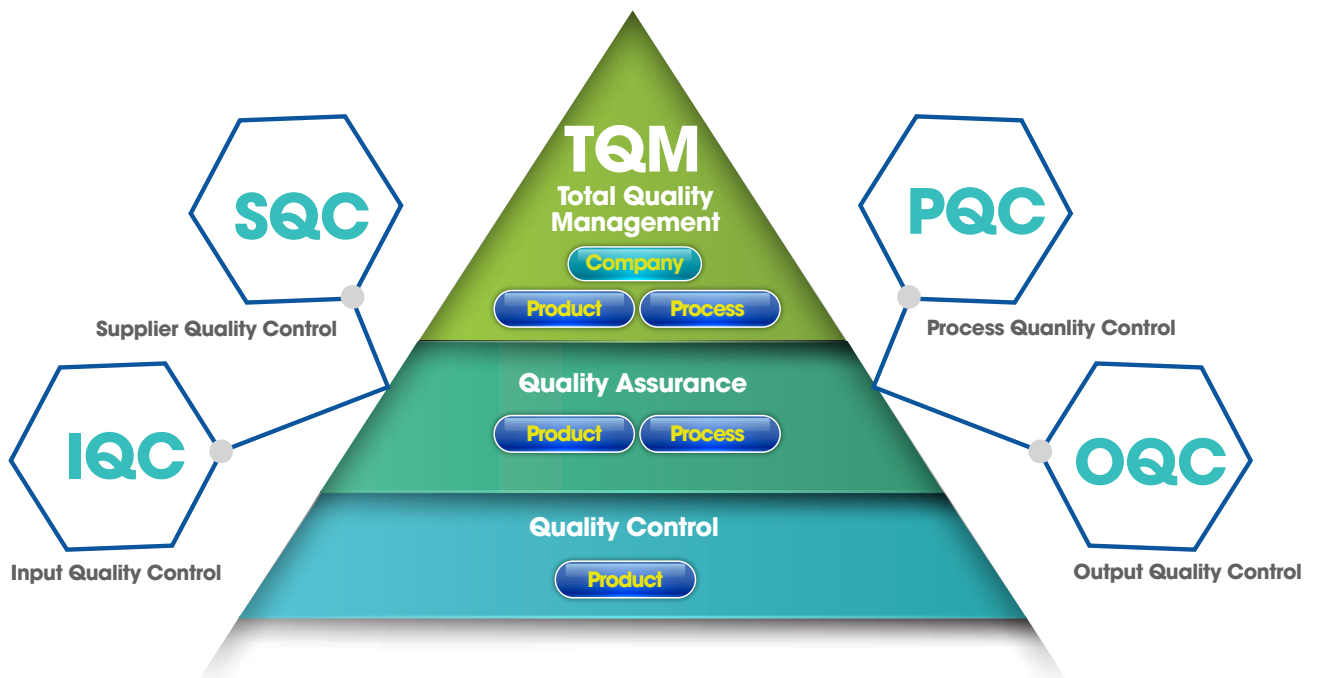


05

QUALITY MANAGEMENT SYSTEM ABILITIES

QUALITY MANAGEMENT SYSTEM

- Rang Dong always applies the latest versions of quality management systems (ISO): 9001:2015, 14001:2015, 50001:2005.
- Building a system of processes, regulations and guidelines based on ISO and industry standards.
- Rang Dong implements control from Supplier Quality Control (SQC) Input Quality Control (IQC) to Process Quality Control (PQC) and Output Quality Control (OQC); Moving towards applying Total Quality Management (TQM).
- The equipment and machinery used to evaluate and control the process are periodically inspected annually.
- Quality managers are regularly trained and evaluated to improve their qualifications.



DIGITAL OPERATION CENTER OF LED-ELECTRONICS & LIGHTING EQUIPMENT FACTORY



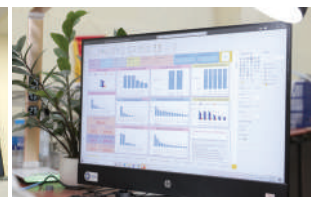
Digitalized ISO system



SCADA system (Transferring realtime data to the warning system)



Smart report



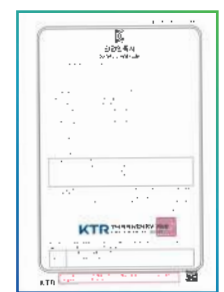
Power BI



Digital Operating Centre



Measuring equipments of accredited lab





06 | E-COMMERCE & INTERNATIONAL TRADE



International E-commerce Model

TYPICAL PRODUCTS

DEVELOPED MARKETS



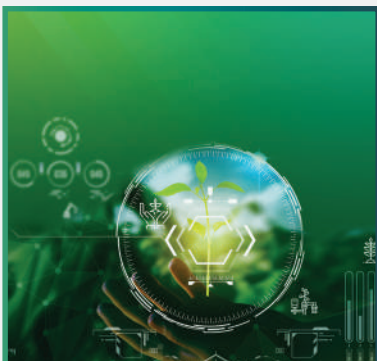
ECOSYSTEM 4.0



SMART HOME
Elevating Life's Values



SMART CITY
Smart Technology
Community Service



SMART FARM
Science and Technology for Life

DEVELOPED MARKETS

NORTH AMERICAN MARKET

BACK-LIT PANEL LIGHT



CEILING LIGHT



BATTEN LIGHT



BATTEN LIGHT



LINEAR HIGH BAY



DOWNLIGHT



SOUTH KOREAN MARKET

BACKLIT PANEL 25/30/40/50W



EDGE-LIT PANEL 25/30/40/50W



CEILING LIGHT 40/50W



CROSS LIGHT 50W



LINEAR LIGHT 40/50W



PARKING LIGHT 40/50W



HOME LIGHTING 40/50W



FPL 14/21W



AUSTRALIAN & EUROPEAN MARKETS

DOWNLIGHT 7/9W



BATTEN LIGHT 60/20W, 1200/40W, 1500/50W



PARKING LIGHT 40/50W



PENDANT LIGHT



PANEL 9W - TRICOLOUR



CEILING LIGHT 40/50W



ECO SYSTEM 4.0

SMART HOME

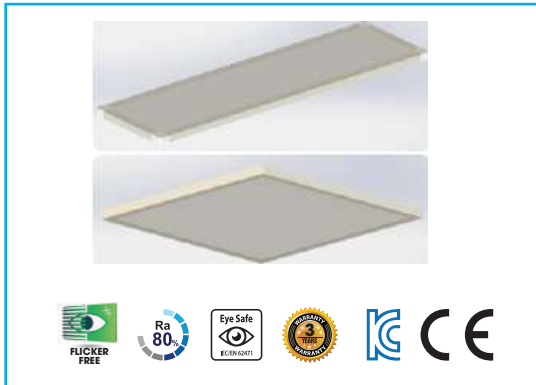
REMOTE CONTROL CEILING LIGHT (EU/KR)



REMOTE CONTROL CEILING LIGHT (US)



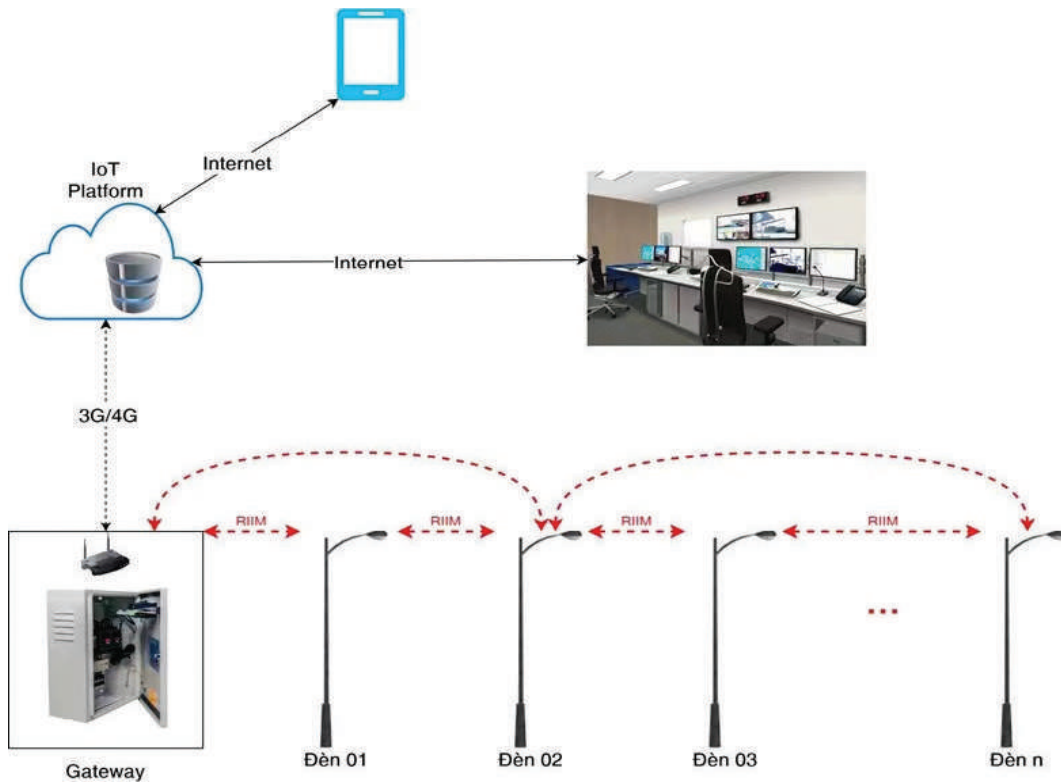
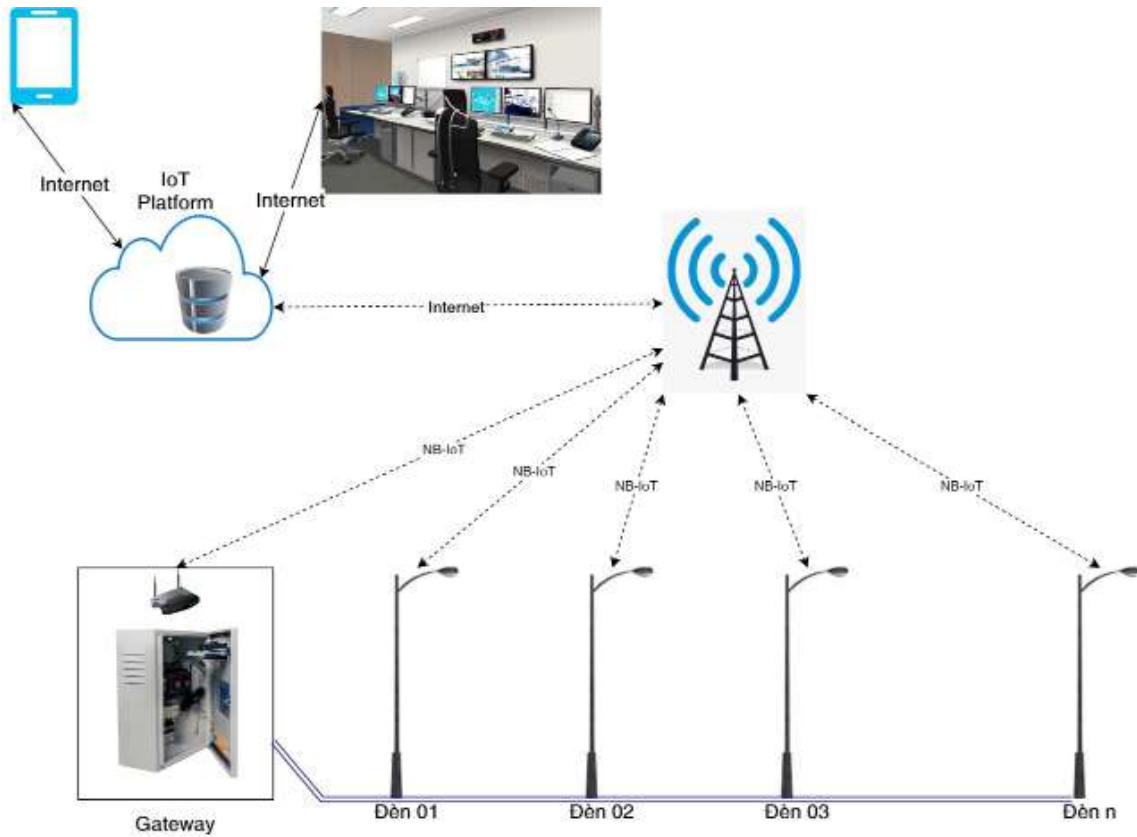
REMOTE CONTROL BACK-LIT PANEL LIGHT (EU/KR)



SMART WIFI PLUG (US)



SMART CITY: Smart street light system



LED Street Lights



- Power Levels: 75W-150W
- Ensure performance and safety technical specifications according to domestic and international standards.
- High quality of light, suitable light color, optical beam angle suitable for each type of road.

DEVICE



Power supply for each route, light cluster.


Scheduled light on/off and other functions from the control center.

The control cabinet operates on the basis of the infrastructure that is power supplied from the low-voltage grid

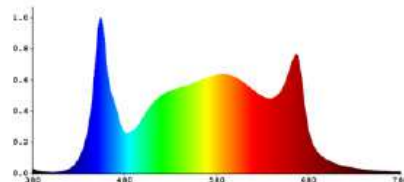
All switchboard operating schedules are programmed and pre-set or customized to suit reality from the control center.

SMART FARM

LED HORTICULTURE GROW LIGHT




Eye Safe
5 YEAR WARRANTY
CE UL FC

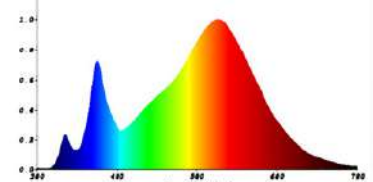


The graph shows a spectrum with a prominent blue peak at approximately 450nm, a broad green and yellow region between 500nm and 600nm, and a red peak at approximately 660nm. The y-axis represents relative intensity from 0.0 to 1.0, and the x-axis represents wavelength in nanometers from 380 to 780.

LED UFO/WBU




IP65
Eye Safe
3 YEAR WARRANTY
CE UL FC KC

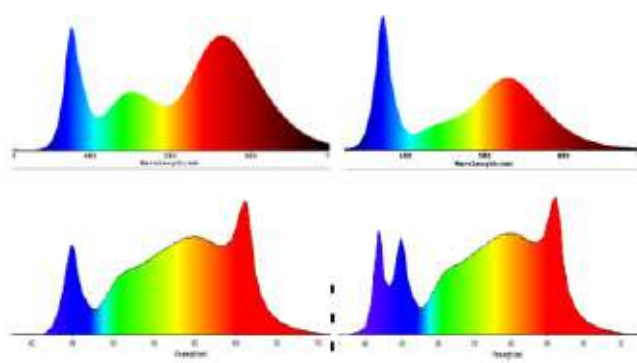


The graph shows a spectrum with a blue peak at approximately 450nm, a broad green and yellow region between 500nm and 600nm, and a red peak at approximately 660nm. The y-axis represents relative intensity from 0.0 to 2.0, and the x-axis represents wavelength in nanometers from 380 to 780.

LED GROW LIGHT TUBE T5/T8



T5
T8



Four spectral power distribution graphs are shown, comparing different tube models. The top two graphs show similar spectra with blue, green, and red peaks. The bottom two graphs show spectra with more pronounced blue and red peaks. The y-axis represents relative intensity from 0.0 to 2.0, and the x-axis represents wavelength in nanometers from 380 to 780.

IP65
Eye Safe
3 YEAR WARRANTY
CE UL FC KC

LED LIGHT FOR DRAGON FRUIT GROWING



1.0 - 1.00W/001000mm



The graph shows a spectrum with a blue peak at approximately 450nm, a broad green and yellow region between 500nm and 600nm, and a red peak at approximately 660nm. The y-axis represents relative intensity from 0.0 to 1.0, and the x-axis represents wavelength in nanometers from 380 to 780.

IP65
Eye Safe
CE KC

LED LIGHT FOR CHRYSANTHEMUM GROWING



1.0 - 1.00W/001000mm



The graph shows a spectrum with a blue peak at approximately 450nm, a broad green and yellow region between 500nm and 600nm, and a red peak at approximately 660nm. The y-axis represents relative intensity from 0.0 to 1.0, and the x-axis represents wavelength in nanometers from 380 to 780.

IP65
Eye Safe
CE KC



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