

In. Licht Ultra Spectrum/WELL Meter

User Guide

**Measure light through spectrum,
illuminance and frequency**

The world's first human-centric light meter
certified by International Well Building Institute:
Works with WELL program



Lighting Recipe Studio

Measure light through spectrum, illuminance and frequency

Thank you for using our In. Licht Ultra Spectrum/ WELL Meter (hereinafter referred to as In. Licht Ultra). Please read this user guide before use for correctly operate the product, in order to enhance user experience and better meet your professional needs.

If you have any problems during use, please contact us (refer to the customer service info in this guide). We are committed to providing you with the best service.



We continuously improve and upgrade our products, so technical specifications are subject to change without notice. Please visit our official website and social media channels regularly to receive the latest updates. Thank you.

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Features of In. Licht Ultra

In. Licht Ultra, designed by Lighting Recipe Studio, is an all-in-one portable handheld spectrometer tailored for lighting equipment manufacturers, lighting designers, professional testers, and the bio-optical research and application industry. It can be handheld, placed flat on a surface, or used with a panoramic tripod for fixed-point testing, freeing your hands and unlocking the blind spots of other handheld spectrometers. Its ultra-wide spectrum detection values capture sharp details of both visible and non-visible light biological effects. With this device in hand, everything flows effortlessly, like carrying a personalized mobile professional optical laboratory in your pocket, with a light and compact feel of just 59 grams, allowing you to master the perception of true light easily.

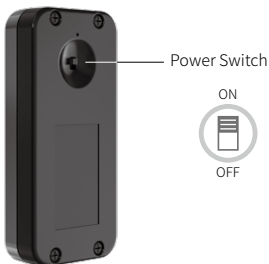
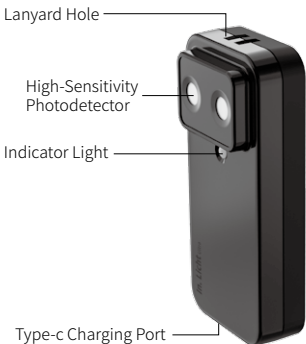


- ✔ Provides 23 precise measurement parameters (EML, m-EDI, CCT, LUX, CRI, Flicker index, CIE(1976/1931), CQS, Duv, λP , S/P ratio, etc.) and offers continuous upgrade services.
- ✔ Specialized in professional detection items for human-centric lighting and healthy light environments: EML, flicker, and blue light hazard detection.
- ✔ Utilizes a combination of spectrum, illuminance, flicker, and exclusively developed human-centric lighting algorithms to comprehensively examine core biological effects of light.
- ✔ Bluetooth-enabled spectrometer with separate testing capabilities, providing flexibility and accuracy for various testing scenarios.
- ✔ Accurately measures various mixed light sources and natural light sources.
- ✔ Significantly enhances industry application range and user convenience, meeting the needs of professional fields such as human-centric health lighting, plant cultivation, biochemical research, and special light source design, while continuously offering upgrade services.

Product and Accessories Description



- Cowhide leather magnetic buckle bag
- Silicone dust cover
(classic black / elegant white)
- Type-C cable



3 Steps to Activate In. Licht Ultra

- 1** Search: **In.Licht ultra app** in the app store and install.



- 2** Turn on the power switch on the back of the product (the front power indicator light will turn green), then enable Bluetooth on your phone. The system will automatically pair.



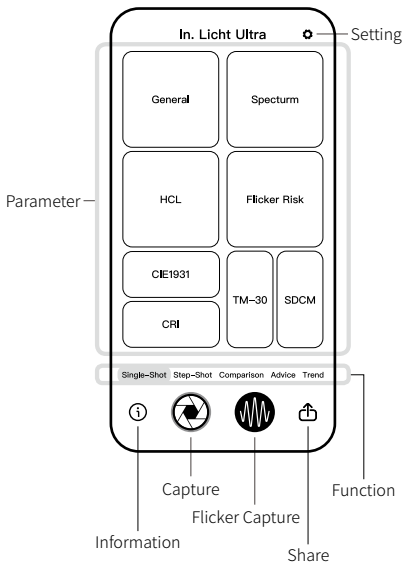
- 3** Once pairing is complete, open the app on your phone to complete activation.



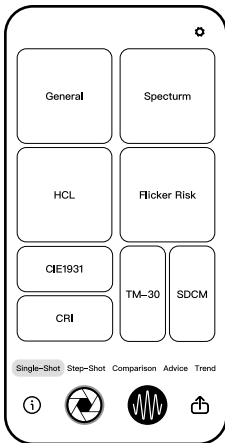
Measurement Operation Instructions

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Home Screen Menu

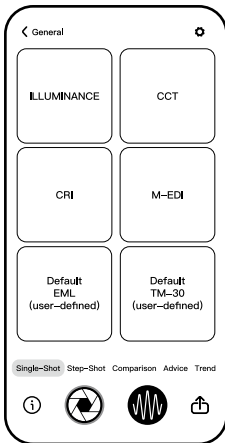


8 Key Measuring Modes



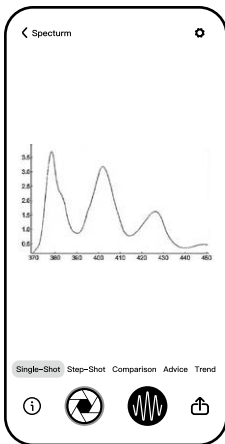
- 1 Click on the “Single-Shot” in the main screen options.
- 2 Display 8 key measurement modes: “General”, “Spectrum”, “HCL”, “Flicker Risk”, “CIE1931”, “CRI”, “TM-30”, “SDCM.”
- 3 Click on the “Capture” below to measure the current light environment values with this device.

1. General Mode



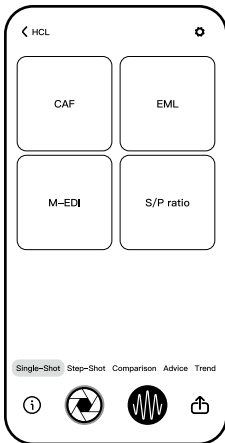
- 1 click “Capture”, then click on “General” to display measurement information in “General Mode” (as shown in the figure).
- 2 This mode includes 4 fixed parameters: illuminance, CCT, CRI, M-EDI. Here also provides 2 customizable parameters (default as EML, TM-30Rf).
- 3 To set the User-define, click on one of these defaults on the bottom, it will open a scroll menu for parameters, select new definition according to personal needs.

2. Spectrum Mode



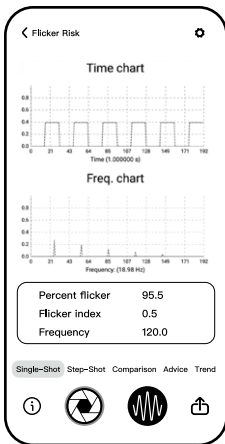
- 1 Click the “Capture” below > click on “Spectrum” to display measurement information under “Spectrum Mode.”
- 2 You can measure the environmental spectrum, as well as dominant wavelength (λ_d), peak wavelength (λ_p), peak wavelength intensity ($\lambda_p V$), and spectral power distribution (SPD).
- 3 Click the left arrow symbol “<” in the upper left corner to return to the previous page.

3. HCL Mode



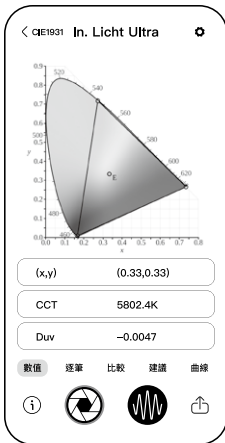
- 1 Click the “Capture” below > click on “HCL” to display measurement information under “HCL Mode.”
- 2 You can measure human-centric lighting parameters: RG, Circadian Action Factor, EML, M-EDI, S/P ratio.
- 3 Click the left arrow symbol “<” in the upper left corner to return to the previous page.

4. Flicker Risk Mode



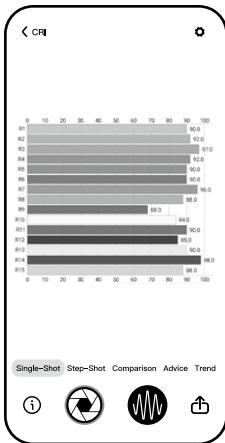
- 1 Click the “Flicker Capture” at the bottom.
- 2 Click “Flicker Risk” on the main screen to display measurement information under “Flicker Risk Mode.”
- 3 Obtain the flicker waveform, Percent flicker, Flicker index and Frequency.
- 4 Font colors indicate the flicker risk: Blue/No risk; Green/Low risk; Yellow/Medium risk; Red/High risk.

5. CIE1931 Mode



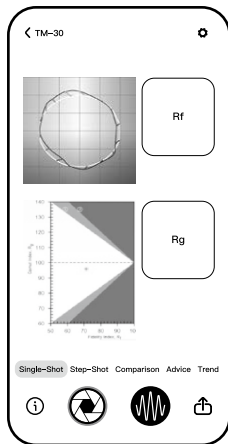
- 1 Click on the “Capture,” then click on “CIE1931” to display measurement information under “CIE1931 Mode.”
- 2 You can measure the environmental chromaticity diagram, Correlated Color Temperature (CCT), and blackbody deviation (DUV).
- 3 Click on the left arrow symbol “<” at the top left to return to the previous page.

6. CRI Mode



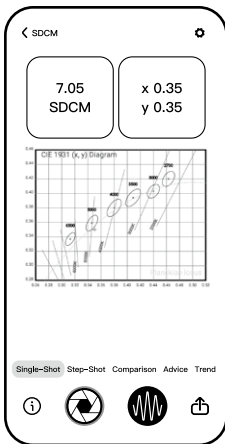
- 1 Click on the "Capture," then click on "CRI" to display measurement information under "CRI Mode."
- 2 You can measure the color rendering index (CRI) information for R1~R15 in the light environment.
- 3 Click on the left arrow symbol "<" at the top left to return to the previous page.

7 . TM-30 Mode



- 1 Click on the "Capture," then click on "TM-30" to display measurement information under "TM-30 Mode."
- 2 You can measure the TM-30 values and two parameters: Color Fidelity Index (Rf) and Gamut Index (Rg) in the light environment.
- 3 Click on the left arrow symbol "<" at the top left to return to the previous page.

8. SDCM Mode



- 1 Click on the “Capture,” then click on “SDCM” to display measurement information under “SDCM Mode.”
- 2 You can measure the light source color deviation SDCM diagram and the number of color deviation steps.
- 3 Click on the left arrow symbol “<” at the top left to return to the previous page.

“Single-Shot” Function

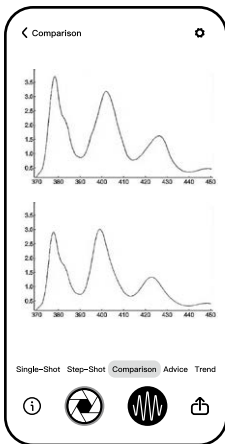
The screenshot shows a mobile application interface for the 'Step-Shot' function. At the top, there is a back arrow and the text 'Step-Shot', followed by a gear icon for settings. Below this is a table with 10 rows of data. The columns are labeled 'No.', 'LUX', 'CCT', 'CAF', 'EML', and 'M-EDI'. The data values are as follows:

No.	LUX	CCT	CAF	EML	M-EDI
1	180	6500	0.8	135	50
2	182	4500	0.6	130	51
3	150	3921	0.7	122	30
4	120	3800	0.3	110	40
5	120	3800	0.3	110	40
6	120	3800	0.3	110	40
7	120	3800	0.3	110	40
8	120	3800	0.3	110	40
9	120	3800	0.3	110	40
10	120	3800	0.3	110	40

Below the table, there are five navigation options: 'Single-Shot', 'Step-Shot' (which is highlighted with a grey background), 'Comparison', 'Advice', and 'Trend'. At the bottom of the screen, there are four icons: an information icon (i in a circle), a camera shutter icon, a waveform icon, and a share icon.

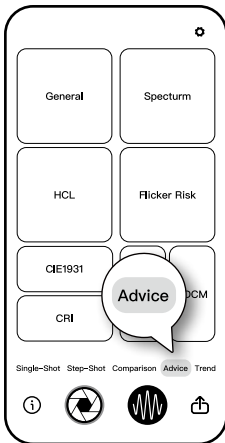
- 1 Click on the “Single-Shot” function key in the main screen options.
- 2 Each time you click the “Capture,” you can sequentially measure and record the following environmental values: illuminance, Correlated Color Temperature, color rendering index (CRI), EML, and M-EDI.

“Comparison” Function



- 1 Click on the “Comparison.”
- 2 According to your planned two sets of lighting environments, place the device in the first scene, click the “Capture” for the first measurement; move to the second scene and click for the second measurement. The screen will sequentially record the spectra obtained from the two measurements for quick comparison of the lighting environment values.

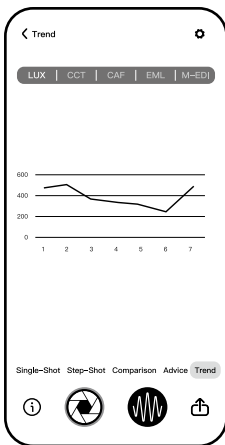
“Advice” Function



- 1 Click on the “Advice.”
- 2 Provides human-centric lighting and optical information for reference, including:
 - TM-30 Color Rendition Index System
 - CIE 1931 Color Space
 - CRI / CIE Ra Color Rendering Index
 - CQS Color Quality Scale

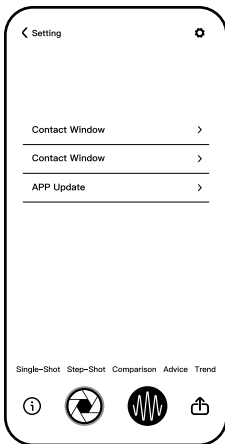
Note: For complete information, please refer to the “Advice” section in the mobile app.

“Trend” Function



- 1 Click on the “Trend.”
- 2 Select the indicator above for the trend chart and set the detection time.
- 3 The system will start to record the light data based on the detection time to create a trend chart.

“Setting” Function



- 1 Click on the “” to access setting.

Note: UI might be different due to software constantly upgrade.

Lighting Recipe Studio



WELL Standard: Light Performance Verification

Focusing on Light Environment Health

The Lighting Recipe Studio (LRS) has long been committed to human-centric lighting, emphasizing the interactive impact of light on health. Dedicated to applying light science to create superior lighting environments for humanity, LRS integrates advanced life sciences research on the effects of light on emotions and brain cognition. Underpinned by the International Well Building (IWBI) WELL standard, LRS has developed the In. Licht Ultra and In. Licht Pro, becoming the world's first two devices officially recognized under IWBI's Works with WELL program for human-centric health light source testing. We continuously collaborate with IWBI and other ecological partners to create life-friendly lighting environments for all, illuminating

the path towards intelligent and healthy lighting in the lighting industry.

Using In.Licht Ultra for WELL Standard Assessment

To promote human-centric lighting, as a cornerstone member of IWBI, LRS has integrated corresponding and convenient light testing functions into its products to meet the rigorous optical environment testing requirements of the WELL standard. This enables WELL performance verification partners in the field of Light to efficiently accomplish their testing tasks.

In.Licht Ultra is the world's first professional light measurement device approved under the Works with WELL program, providing professional monitoring and management for 9 key provisions of WELL v2 Light concept. Specifically, In.Licht Ultra can directly contribute to the assessment of the following provisions:

- L01 Light Exposure
- L02 Visual Lighting Design
- L03 Circadian Lighting Design
- L04 Electric Light Glare Control
- L05 Daylight Design Strategies
- L06 Daylight Simulation
- L07 Visual Balance
- L08 Electric Light Quality

Additionally, through integration with the "Welltek OS" ecosystem, we provide L09 services for user-controlled lighting environments, assisting you in achieving comprehensive pre-assessment and scoring under the WELL project's Light concept.

The WELL v2 Light concept differs from conventional building assessments by prioritizing the impact of light environments on users.

Therefore, our approach to measurement (e.g., location and technology) significantly differs from standard light environment assessments. In response, In.Licht Ultra is designed with unique measurement techniques, measurement planes, and detection heights in mind.

For instance, we separate the light-emitting screen from the detection device to avoid minimal light interference and meet WELL's requirements for illuminance contrast measurements. The device can be placed on a flat surface to prevent shadow interference during measurements. EML measurements must be taken vertically at eye height (or 45 cm above the working platform), utilizing our specialized lightweight WELL-compatible panoramic aluminum tripod. This setup requires no additional adjustments or configurations—simply install and measure, effectively streamlining your testing process.

For more details on using this product for light

performance verification, key information is excerpted from “THE WELL PERFORMANCE RATING GUIDEBOOK,” applicable to WELL v1, WELL v2 Pilots, WELL v2, and WELL Performance Ratings. For the latest testing requirements, please refer to the official IWBI “WELL Performance Rating Guidebook.”

Visual Lighting

■ Test Locations & Conditions

- This parameter is measured on the horizontal plane.
- For all other versions of WELL, working plane heights and target illumination levels are to be provided by project teams.
- This parameter is to be measured using only electric lighting. Take measurements at night to avoid daylight contribution.
- If supplemental lighting is used, the lighting should be turned on and positioned as per regular conditions.
- The WELL Performance Testing Agent may follow instructions by the project team to turn screens on or off. However, agents are not to alter field conditions in any other way

including influencing or controlling lighting automation (changing brightness levels, color or color temperature) and/or directing the adjustments made by the project team.

- The measurements must be conducted at various locations across the project boundary, including both interior and exterior spaces.

■ Test Method

- The measuring instrument is placed in the center of the flat surface of the working plane with the aperture facing upward.
- Ensure that the shadow of the WELL Performance Testing Agent does not fall on the measuring instrument while the measurements are taken.

Circadian Lighting

■ Test Locations & Conditions

- This parameter is to be measured on the vertical plane to simulate the light entering the eye of the occupant.
- Sampling points must be representative of the common occupant position in the space under regular conditions.

- For space types with workstations, this parameter must be measured 45 cm [18 in] above the working plane (the surface of a desk may be considered as the working plane for both sitting and standing desk surfaces).
- The measurements of WELL v1 Feature 54, Part 1.b and WELL v2 and WELL v2 pilot Feature L03 are taken under electric lighting only. Take measurements at night to avoid daylight contribution.

■ Test Method

- Measurements must be recorded on a vertical plane (perpendicular to the floor) to simulate the light entering the eye of the occupant.
- The measuring instrument must be mounted on a tripod and placed on a stable surface for each measurement.
- Ensure that the shadow of the WELL Performance Testing Agent does not fall on the measuring instrument as the measurements are taken.

Note: In the formula $EML = \text{lux} \times \text{melanopic ratio}$, the melanopic ratio is calculated using the data from the spectrometer and the lux value is taken from the cosine-corrected photometer.

Specifications

System Configuration	
Software	In.Licht ultra app
System Compatibility	Android / iOS
Connection Method	Bluetooth/ type C
Output File Format	Excel / JPG
Dimensions	88 (H) × 40 (W) × 22 (D) mm
Battery Life	4 hours (up to 6 hours when fully charged)
Battery	1,150 mAh Lithium Ion
Weight (including battery)	59g±5g
Operating Conditions (temperature and humidity)	0-35 °C , <70%
Storage Conditions (temperature and humidity)	-10-40 °C , <70%
Languages	English / Traditional Chinese / Simplified Chinese
Features	
Capture Function	One time / Sequential / Continuous
Operation Mode	APP
Integration Mode	Auto
Dark Calibration	Auto

Spectrum & Illuminance	
Sensor	C-MOS Linear Image Sensor
Illuminance Meter Class	Complies with JIS C 1609-1:2006 General-Purpose AA Class
Wavelength Range	380-780 nm
Wavelength Data Increment	2 nm
Spectral Bandwidth (FWHM)	10 nm
Measurement Range	5-75,000 lx
Illuminance Repeatability	1%(5-00lx), 0.5%, (100-75,000lx) @CIE1931 x,y
Color Coordinates	x,y: $\pm 0.01(5-75,000lx)$
Color Temperature Range	1000-10,000 K
Accuracy (Illuminance)	$\pm 5\%(5-100lx)$, $\pm 4\%(100-50,000lx)$, $\pm 8\%(50,000-75,000lx)$
Color Repeatability	x,y: $\pm 0.002(5-100lx)$, $\pm 0.001(100-75,000lx)$
CCT Accuracy	$\pm 3\%$
CRI Accuracy	$\pm 3\%$
Integration Time Range	1-5,000 ms
Digital Resolution	16 bits
Flicker	
Frequency Range	5-7,500 Hz
Sampling Rate	200 / 1k / 20k / 100k Sec
Frequency Resolution	0.2, 1, 20, 100 Hz
Digital Resolution	5% (5-7,500 Hz)

Measurement Modes and Parameters	
General Mode	1. Illuminance
	2. Correlated Color Temperature (CCT)
	3. Color Rendering Index (CRI/Ra)
Spectral Chart Mode	4. Spectral Chart
	5. Dominant Wavelength (λ_d)
	6. Peak Wavelength (λ_p)
	7. Peak Intensity ($\lambda_p V$)
	8. Spectral Power Distribution (SPD)
Human-centric Lighting Mode	9. Blue Hazard Ranking (RG)
	10. Scotopic/Photopic Ratio (S/P ratio)
	11. EML Melanopic Irradiance (EML)
	12. m-EDI Melanopic Daylight Irradiance (m-EDI)
	13. Circadian Stimulus (CAF)
CRI Mode	14. Color Rendering (R1~R15)
Flicker Risk Mode	15. Flicker frequency
	16. Percent flicker
	17. Flicker index
	18. Flicker Risk Display
CIE1931 Mode	19. CIE 1931(x,y) Chromaticity Diagram
	20. CIE 1976(u',v') Chromaticity Diagram
	21. Correlated Color Temperature Deviation (DUV)
TM-30 Mode	22. Color Rendering (TM-30-Color Fidelity Rf, Gamut Index Rg, Color Vector Graphic)
SDCM Mode	23. Standard Deviation of Color Matching (SDCM)

The company reserves the right to change product specifications at any time without prior notice.

Product Usage Instructions

- Before first use, it is recommended to fully charge the battery for 4 hours. When the power indicator changes from green to red, it indicates low battery and charging is required.
- To maintain optimal battery life, it is suggested to limit continuous measurement time to 4 hours (including breaks). Continuous operation in low light conditions may shorten usage time, so timely recharging is advised.
- This product features a dual-sensitive photosensitive film, which is a high-sensitivity precision component. Avoid impacts, drops, sharp objects, and scratching with fingernails to prevent affecting or damaging measurement accuracy.
- If the product malfunctions, contact customer service for assistance. Do not disassemble or modify the product yourself. Any visible alteration or damage caused by human factors will affect your product warranty rights.
- Use a blower bulb to gently remove dust or lint from the dual films.
- For routine maintenance, wipe gently with a soft cloth. Avoid corrosive cleaners, do not rinse or soak in water, and store in a cool, dry place.

Safety Warning

Please read the following safety information to avoid overheating, electric shock, fire, explosion, and other accidents:

- Do not modify the battery. Do not submerge this product in water or expose it to fire.
- If the product overheats, smokes, or emits an unusual odor during charging, immediately remove the charging cable and stop charging.
- Keep the product and charging cable away from heat sources to avoid increasing the risk of electric shock or fire, directly or indirectly.
- Do not use the product near direct heat sources or in high-temperature environments.

Product Warranty and Annual Calibration

Warranty Service

- This product is covered by 1-year warranty from the date of purchase. During the warranty period, non-human-caused defects or malfunctions are eligible for free repairs.
- Damages caused by abnormal operation, human factors, or consumable part replacements are not covered under warranty.
- Any damage resulting from improper use, self-disassembly, modifications, or obvious external damage to the product are considered human-caused defects and are not covered under warranty.

Calibration Service

- Within the first year from the date of purchase, the product is eligible for free in-house calibration services (customer bears round-trip shipping costs).
- Beyond the warranty period (starting from the first day after the first year from the date of purchase), in-house calibration services are charged at \$150 USD per occurrence (or equivalent in local currency).
- If a TAF laboratory certification report is required, the fee is \$500 USD (excluding costs for the report and specialized equipment express shipping). The report will be sent to you via international express delivery. For this service, please contact customer service for assessment and arrangements.

Customer Service Info

For inquiries about product services or repairs, please contact the following customer service units based on the location of your purchase:

Global

Customer Service Email: service@lightingrecipe.com

Official Website: www.LightingRecipe.com

China (including Hong Kong and Macau)

Customer Service Email: 496554464@qq.com

WeChat ID: 13902481591

User Warranty Certificate

Product Model	
Purchase Date	(Date of Purchase)
Warranty Period	(Expiration Date of Warranty)
Invoice Number	
Distributor	

Product Quality Inspection Card

Production Date:

Inspection Conclusion:

Inspector ID:



校正報告



Report of Calibration

校正日期 : 2024/07/09
Calibration Date

報告編號 : 24A067034
Report Number

儀器名稱 : 藍牙色溫光譜儀
Unit Under Test

廠牌型號 : In.Licht Ultra
Manufacturer & Model No.

Follow Us



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WeChat



Lighting Recipe Studio

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Taoyuan City, Taiwan, R.O.C.

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