

Spanish version LM-79-19 download: [Click Here](#)

[ANSI \(American National Standards Institute\)](#) and IES(Illuminating Engineering Society of North America) officially released the latest version of the [IES LM-79-19](#) standard in May 2019, it will replace the [LM-79-08](#) version. LISUN interpreted the new standard as follows:

1. Test Environment (4.2.1 / 4.3 / 4.7 on Page 2 / Page 3 / Page 4 of the standard)
 - 1.1 Ambient Temperature: $25^{\circ}\text{C}\pm 1.2^{\circ}\text{C}$
 - 1.2 Humidity: 10%-65%
 - 1.3 Airflow: 0.2m/s
2. Test Circuit Requirements (5.2.1 on Page 4 of the standard): Power supply request 4-terminal connection, 2-terminal power supply, 2-terminal feedback
3. AC Power Supply (5.1.2 on page 4 of the standard)
 - 3.1 Load regulation rate: $\pm 0.2\%$
 - 3.2 Accuracy requirements: 0.1% (reading) + 0.1% (range)
 - 3.3 Example: If the power supply of lamp is 220V and the range is 300V, the actual output voltage should be $220\text{V} \pm 0.26\text{V}$

LISUN [LSP-500VAR Pure Sine Wave AC Power Source](#) fully meet the requirement, [click here](#) to learn more about it.

4. DC Power Supply (5.1.3 on Page 4 of the standard)
 - 4.1 Load regulation rate: $\pm 0.2\%$
 - 4.2 Accuracy requirements: Current and voltage are both 0.1%

LISUN [DC3010 Digital CC and CV DC Power Supply](#) fully meet the requirement, [click here](#) to learn more about it.

5. AC Power Meters (5.3.2 on Page 5 of the Standard, 5.3.4 on Page 5 of the Standard)
 - 5.1 Sampling frequency : 1kHz-100kHz
 - 5.2 The meter shall have an expanded uncertainty (k=2) of 0.6% or less for measurement frequencies ranging from 0.5Hz to 1kHz, and an expanded uncertainty (k=2) of 2.0% or less for measurement frequencies ranging from 1kHz to 100kHz
 - 5.3 Total Harmonic Distortion Measurement 2~50 times

LISUN [LS2050 Digital Power Meter](#) fully meet the requirement. [Click here](#) to learn more about it.

6. Photometric probe (7.3.2 on Page 9 of the Standard)
 - 6.1 Cosine angular responsivity $f_2(\epsilon, \varphi)$ less than 2%
 - 6.2 f_1' less than 3%

7. Spectroradiometer (7.3.2 on Page 9 of standard)
 - 7.1 380-780nm
 - 7.2 Bandwidth not greater than 5nm
 - 7.3 Wavelength uncertainty within 0.5nm
 - 7.4 Sensitivity: Refer to LM-78-17 (7.2 on Page 7 of standard)

LISUN [LPCE-2 High Precision Spectroradiometer Integrating Sphere System](#) fully meet the requirement, [click here](#) to learn more about it.



LPCE-2(LMS 9000) Spectrophotometer & Integrating Sphere Test System

8. Goniometer variable angle tester (7.3.3 on Page 9 of standard)
 - 8.1 For lamps with beam angle $< 20^\circ$: 100%-50% maximum luminous intensity choose no more than 1 degree angular resolution; 50%-10% maximum luminous intensity choose no more than 2 degrees angular resolution; 10%-0% maximum luminous intensity choose no more than 5 degrees angular resolution;
 - 8.2 For lamps with beam angle $\geq 20^\circ$: 100%-50% maximum luminous intensity choose no more than 2 degrees angular resolution; 50%-0% maximum luminous intensity choose no more than 5 degrees angular resolution.

LISUN [LSG-5000CCD Moving Detector Goniospectroradiometer](#) fully meet the requirement, [click here](#) to learn more about it.



LSG-5000CCD Moving Detector Goniospectroradiometer

9. Stabilization Requirement (6.4 on Page 7 of standard)
 - 9.1 Monitor for at least 30 minutes
 - 9.2 Take at least three readings of the light output and electrical power consumption taken over period of 20 minutes
 - 9.3 Stability shall be achieved when the variation (maximum to minimum) divided by the last measurements is less than 0.5%

10. Test Report (11.1 on Page 12 of the standard)
 - 10.1 Test date and testing organization
 - 10.2 Manufacture's name
 - 10.3 Optical parameters measured (e.g., total luminous flux, radiant flux, photon flux)
 - 10.4 Measured electrical values (Clarify AC, including frequency, or DC)
 - 10.5 Calculated quantities (e.g., luminous efficacy, angular color uniformity)
 - 10.6 Ambient temperature
 - 10.7 Measurement conditions. For sphere measurement: Sphere diameter, coating reflectance, 4π or 2π geometry. For goniophotometer measurement: Photometric distance
 - 10.8 SI (source of traceability)
 - 10.9 Self-absorption correction factor
 - 10.10 Luminous intensity
 - 10.11 Chromaticity coordinates, CCT, CRI

10.12 ANSI/IES TM-30-18 (Rg Rf, Local Chroma Shift, Local Hue Shift)

10.13 Spectral power distribution

Below is the test report of [LPCE-2 High Precision Spectroradiometer Integrating Sphere System](#) and [LSG-5000 CCD Moving Detector Goniospectroradiometer](#) test system:

Lightsource Test Report (1/2)

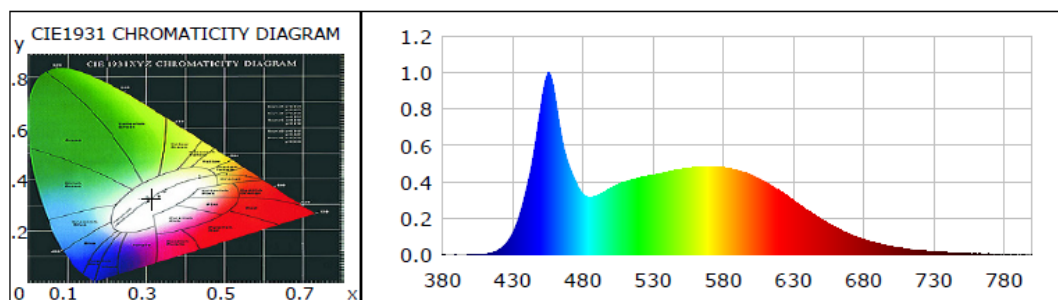
Product Information

Product Spec: 220V/13W
 Manufacturer: OSRAM

Product Number: DR-001
 Buyer: LISUN

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3126$ $y=0.3270$ $u(u')=0.1985$ $v=0.3115$ $v'(v')=0.4672$
 CCT: $T_c=6526K$ ($duv=0.00223$) Color Ratio: $R=0.139$ $G=0.796$ $B=0.065$
 Peak Wavelength: 455.6nm Half Bandwidth: 26.7nm
 Dominant Wavelength: 487.7nm Color Purity: 0.075
 CRI: $R_a=85.8$, $avgR(1\sim14)=79.8$, $avgR(1\sim15)=79.9$ TM30: $R_f=84$, $R_g=93$
 R1 =85 R2 =93 R3 =95 R4 =82 R5 =85 R6 =88 R7 =87 R8 =71
 R9 =18 R10=83 R11=82 R12=63 R13=88 R14=98 R15=81
 Color Quality Scale: $Q_a=82.8$, $Q_f=83.1$, $Q_p=82.1$, $Q_g=90.9$
 Q1 =82 Q2 =98 Q3 =83 Q4 =74 Q5 =78 Q6 =81 Q7 =86 Q8 =90
 Q9 =98 Q10=91 Q11=86 Q12=84 Q13=83 Q14=74 Q15=78



Photometric Parameters

Luminous Flux: 1112.62 lm Efficiency: 88.94 lm/W Radiant Power: 3.656 W
 EEI: 0.15 Energy Efficiency Class: A+ (EU 874-2012)
 Pupil Flux: 2152.01 Plm Pupil Lumens Per Watt: 172.02 Plm/W Pupil Factor (Kp): 1.934
 PAR: 3.608 W PPF: 16.209 umol/s R/B: 0.6
 Photons1: 4.909 umol/s(400~500nm) Photons2: 3.987 umol/s(600~700nm)
 Circopic Flux: 5073.88 lm
 Mesopic Flux (CIE R.): 1558.01 lm ($L_p=0.100$ cd/m², $S/P=2.33$)
 Mesopic Flux (USP): 1864.61 lm ($L_p=0.100$ cd/m², $S/P=2.33$)
 Mesopic Flux (MOVE): 1632.82 lm ($L_p=0.100$ cd/m², $S/P=2.33$)

Electric Parameters

Voltage: 220.70V Current: 0.0660A Power: 12.51W
 Power Factor: 0.8530 Frequency: 49.99Hz

Test Information

Scan Range: 380~800:1nm
 Stabilization Time: 0 Min
 Max of Signal: 46090 (2408)

Photometric Method: sphere-photometer (spec_rev)
 Photometric Condition: Sphere diameter: 1.00m, 4π
 CCD Integration Time: 87.05 ms

Condition: $T_x=18.9^{\circ}C$, $T_i=16.8^{\circ}C$, R.H.:60%
 Test Lab: LISUN Lab
 Operator:

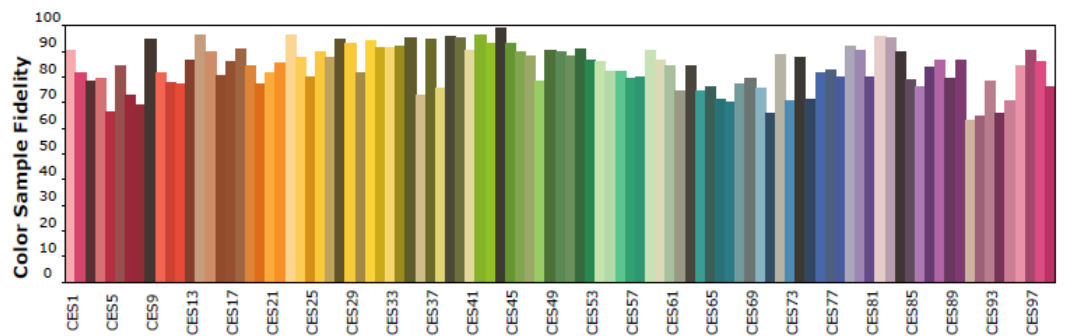
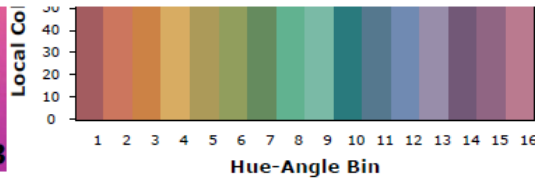
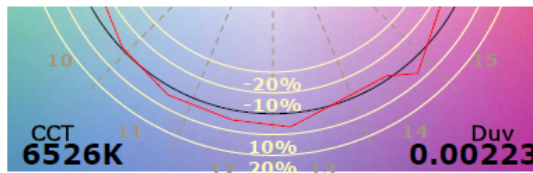
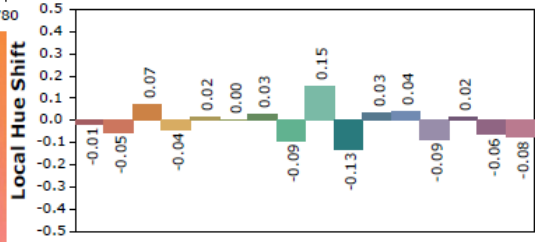
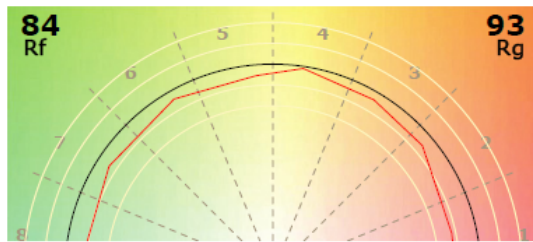
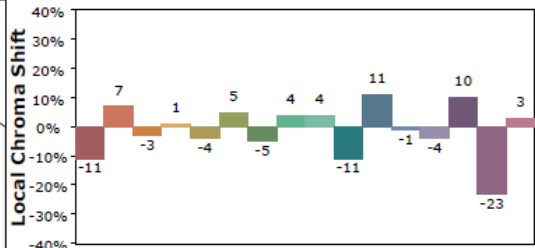
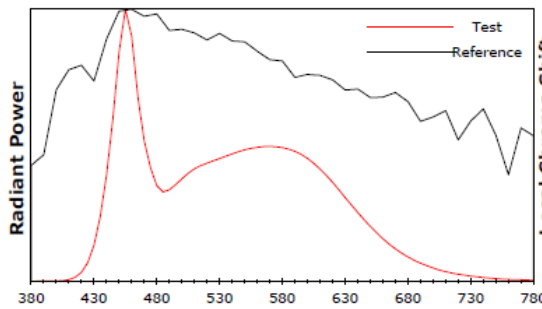
Test Device: Lisun LMS-9000B
 Test Time: 2019-01-17 14:43:41
 Inspector:

IES TM-30-18 Color Rendition Report

Product Information

Product Spec: 220V/13W
 Manufacturer: OSRAM

Product Number: DR-001
 Buyer: LISUN



Condition: Tx:18.9°C, Ti:16.8°C, R.H.:60%
 Test Lab: LISUN Lab
 Operator:

Test Device: Lisun LMS-9000B
 Test Time: 2019-01-17 14:43:41
 Inspector:

Report No.: LS1711

Test Time: 8/28/2017 17:02

Luminaire Property

Luminaire Manufacturer: LISUN
 Luminaire Category: LED Philips 112
 Lamp Catalog: LUMINUS
 Number of Lamps: 1
 Luminous Length (mm): 50
 Luminous Height (mm): 100
 Current: 0.530 A
 Power Factor: 0.999

Luminaire Description: LS-71-83-8077
 Lamp Description: LUMINUS001
 Lumens per Lamp: 550
 Luminous Width (mm): 50
 Voltage: 119.9 V
 Power: 63.55 W

Photometric Results

CIE Class: Direct
 Measurement Flux: 539.5 lm
 Downward Ratio: 98.08%
 Horizontal Diffuse Angle(50%): H99.2
 Vertical Diffuse Angle(50%): V101.5
 Luminaire Efficacy Rating (LER): 8.54
 Max. Intensity: 429.28 cd/klm
 S/MH(C0/C180): 1.14

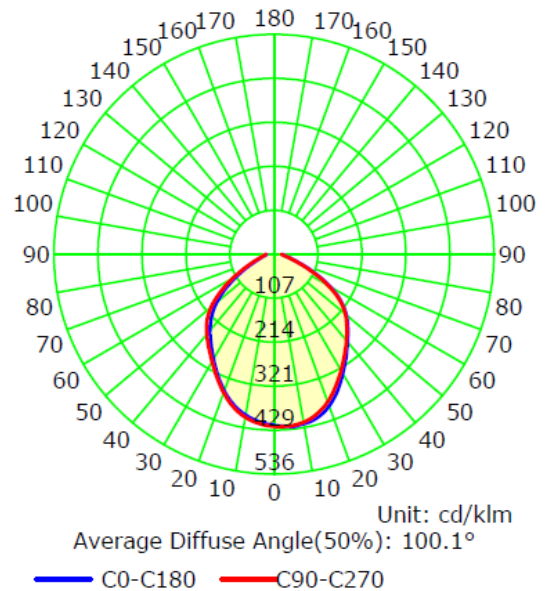
Total Rated Lamp Lumens: 550.0 lm
 Efficiency: 98.08%
 Upward Ratio: 0.00%

Central Intensity: 417.76 cd/klm
 Pos of Max. Intensity: H45 V8
 S/MH(C90/C270): 1.13

Picture Of Luminaire



Luminous Intensity Distribution Curve



C Plane (°):0.0-360.0: 45.0
 Test Lab: LISUN
 Test Type: TYPE C
 Temperature: 24.5°
 Operator: Jacky

Gamma Plane (°):0.0-90.0:1.0
 Test Device: LSG-5000CCD
 Distance: 8.000 m
 Humidity: 60%
 Inspector:

Lisun Instruments Limited was found by LISUN GROUP in 2003. LISUN quality system has been strictly certified by ISO9001:2015. As a CIE Membership, LISUN products are designed based on CIE, IEC and other international or national standards. All products passed CE certificate and authenticated by the third party lab.

Our main products are [Goniophotometer](#), [Surge Generator](#), [EMC Test Systems](#), [ESD Simulator](#), [EMI Test Receiver](#), [Electrical Safety Tester](#), [Integrating Sphere](#), [Temperature Chamber](#), [Salt Spray Test](#), [Environmental Test Chamber](#), [LED Test Instruments](#), [CFL Test Instruments](#), [Spectroradiometer](#), [Waterproof Test Equipment](#), [Plug and Switch Testing](#), [AC and DC Power Supply](#).

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