

ANSI/IES LM-79-19

MEASUREMENT AND TEST REPORT

For

GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, Kowloon,
Hong Kong, China

Test Model:
NYXDM8RD/S9CCT5S/DUALDIM/MD/CC

Report Type:	Electrical and Photometric tests including: Input Current, Power, Power Factor, Luminous Flux, Luminous Efficacy, CRI, CCT, Chromaticity Coordinate, Spectral Power Distribution, THD
Reviewed By:	Ezer Pan <i>Ezer Pan</i>
Report Number:	KS2231204-72556E-EE-5
Test Date:	2023-12-11
Report Date:	2024-04-18
Approved by:	Blake Zhang / EE Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F (B-West), 6F, 7F, the 3rd Phase of Wan Li Industrial Building D Shihua Road, Futian Free Trade Zone Shenzhen 518038 China. Tel: +86-755-33320018 Fax: +86-755-33320008
Test Location:	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.(Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government. *This report contains data that are not covered by the NVLAP accreditation.

1. Product Description[#]

General Information:

One test sample was in good condition and received on 2023-12-04, and used for testing. All tests and evaluations were performed at the most consumptive white light setting.

Model Tested: NYXDM8RD/S9CCT5S/DUALDIM/MD/CC
Manufacturer: GREEN CREATIVE LTD
Brand Name: GREEN CREATIVE
Product Designation: LED recessed downlight
Burning Time Before Test: 0hour(For New Products)

Rated Values:

Rated Voltage/Frequency: 120-277V AC 50/60Hz
Rated Power: 7.5/10/15/23W
Nominal CCT: 2700K/3000K/3500K/4000K/5000K
Nominal Lumen Output: 2185lm(2700K),2260lm(3000K),2300lm(3500K),2300lm(4000K),2300lm(5000K)

2. Standards Used

- ANSI/IES LM-79-19: Approved method: Optical and Electrical Measurements of Solid-State Lighting Products
- ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting
- *IES TM-30-18: IES Method for Evaluating Light Source Color Rendition (This method is not in NVLAP accreditation scope)

3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	11010018	2023-09-02	2024-09-01
spectroradiometer	EVERFINE	HAAS-2000	G112048TS81331121	2023-09-02	2024-09-01
Digital Power Meter	EVERFINE	PF2010A	1011004	2023-09-02	2024-09-01
Digital CC&CV DC Power Supply	EVERFINE	WY305-V1	1101047	2023-09-02	2024-09-01
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Special zero-voltage synchronous switching AC	EVERFINE	DPS1010-YF	1011001T	2023-09-02	2024-09-01

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

4. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with ANSI/IES LM-79-19. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1.2°C during measurement. And relative humidity is maintained between 10% and 65%. The air flow around the SSL product is less than 0.2m/s.

Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement.

4 π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

The uncertainty of the light output (luminous flux) measurements is U=2.1% (K=2), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is U=22K (K=2), at the 95% confidence level. The uncertainty of the CRI is U=2.1(K=2), at the 95% confidence level.

The uncertainty of power meter AC current U=0.19 % of rdg, AC Voltage U=0.18% of rdg, Power U=0.46%) (K=2), at the 95% confidence level.

Additional Test

The Additional Test item may not be covered by ANSI/IES LM-79-2019. Additional test including power factor, off-state power and THD, was measured by Digital Power Meter after stabilized at 25°C \pm 1.2°C. Test voltage for THD and power factor test would be equal to rated voltage or, in case of a voltage range, maximum value of that range.

The uncertainty of power meter AC current U=0.19 % of rdg, AC Voltage U=0.15% of rdg, Power U=0.46%) (K=2), at the 95% confidence level.

Fidelity Index and Gamut Index Calculation

The R_i , R_g was calculated according to IES TM-30-18 by using calculation tools. The calculation was based on the measured SPD from 380nm to 780nm with 1nm intervals. All the colors in this report is for reference only.

5. Test Result

[Integrating Sphere System]

The diameter of the sphere: 2M

The coating reflectance of sphere: 98%

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

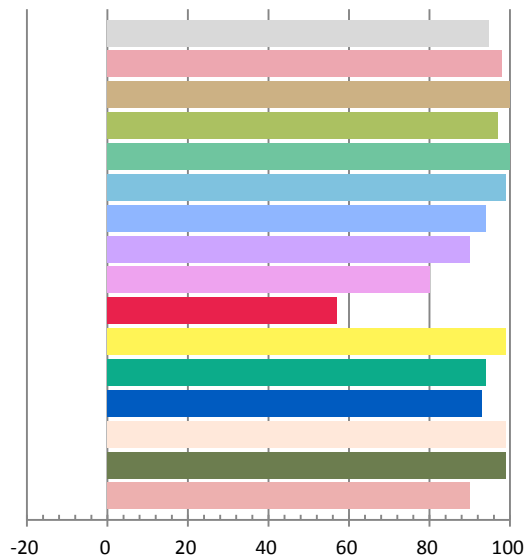
Photometric and Electrical Measurement Result

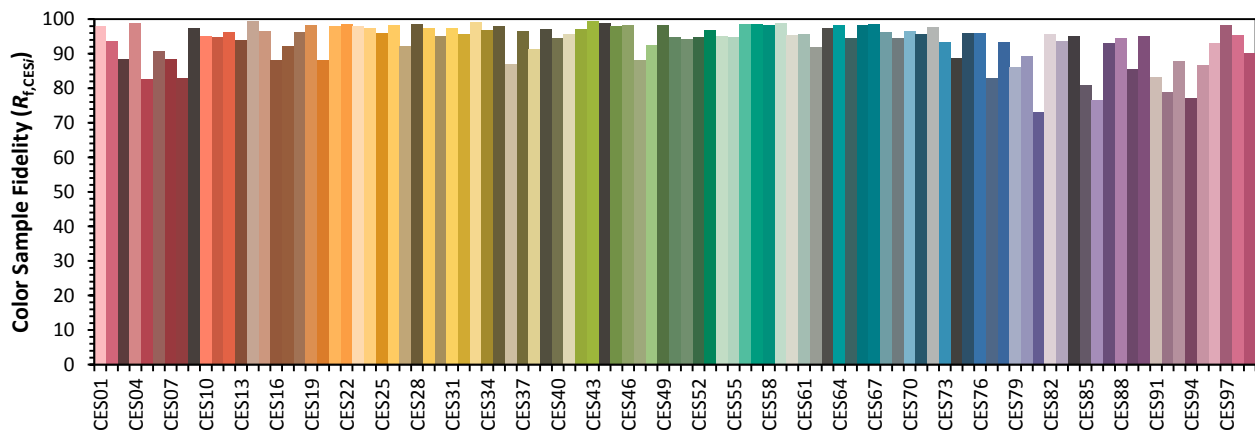
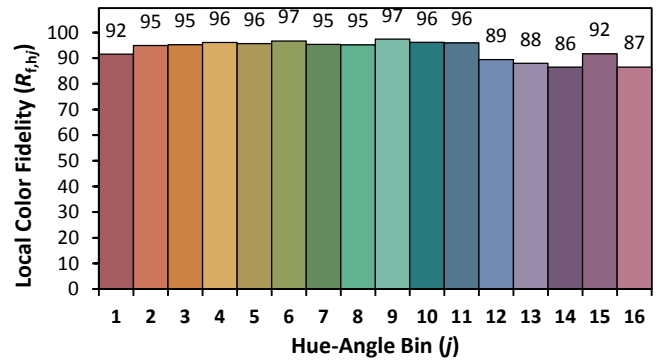
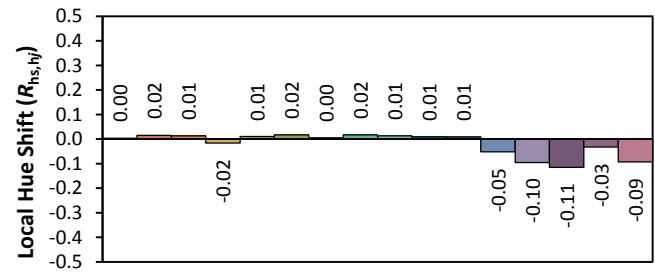
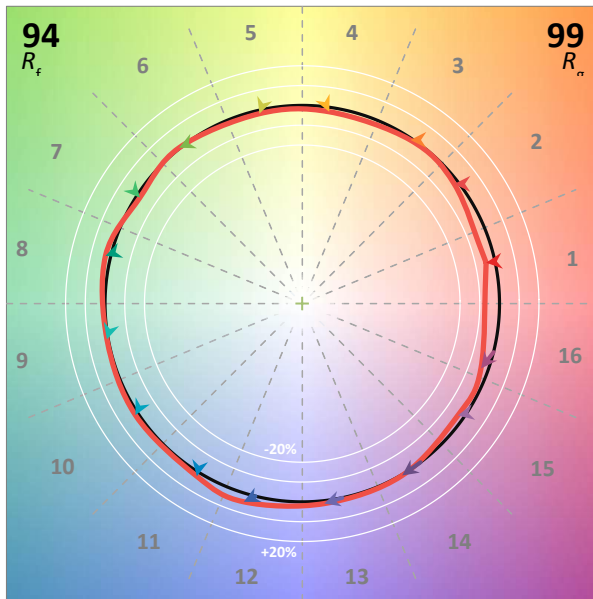
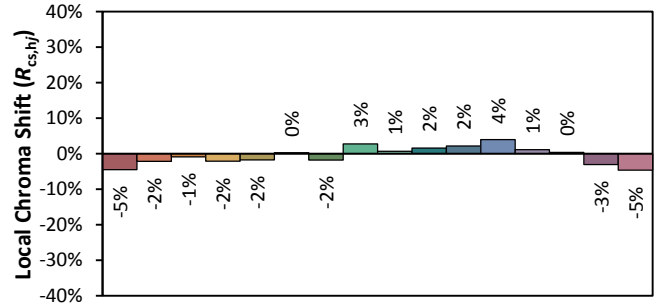
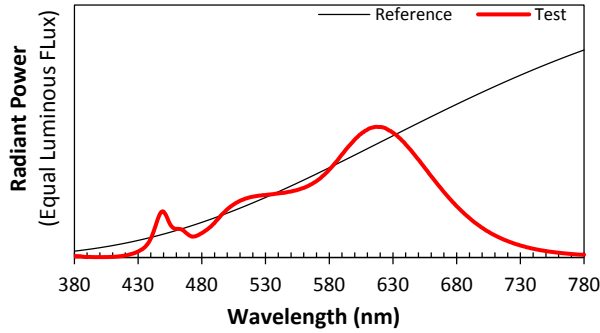
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
120.1	60	0.1749	20.74	0.9873	2326.6	112.19

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
7.8363	2746	0.000627	0.4572	0.4117	0.2603	0.5274

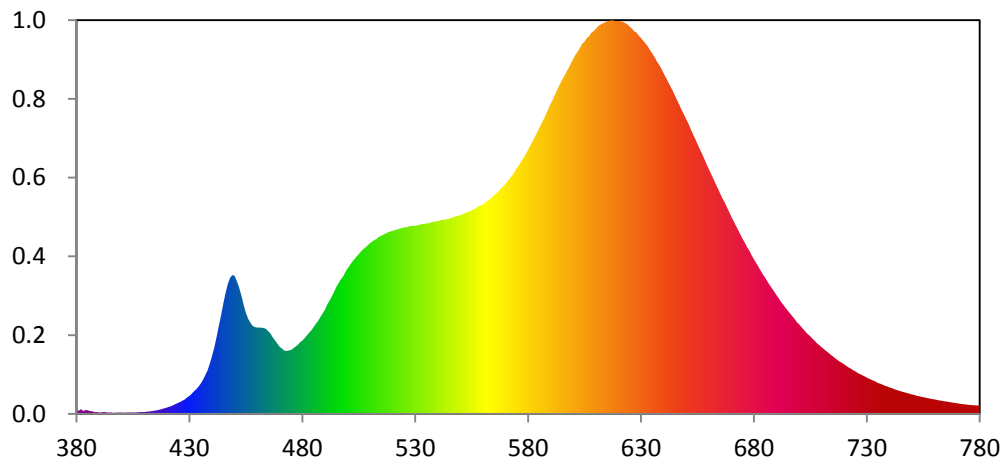
Color Rendering Index

Ra			
94.7			
R1	R2	R3	R4
98	100	97	100
R5	R6	R7	R8
99	94	90	80
R9	R10	R11	R12
57	99	94	93
R13	R14	R15	
99	99	90	





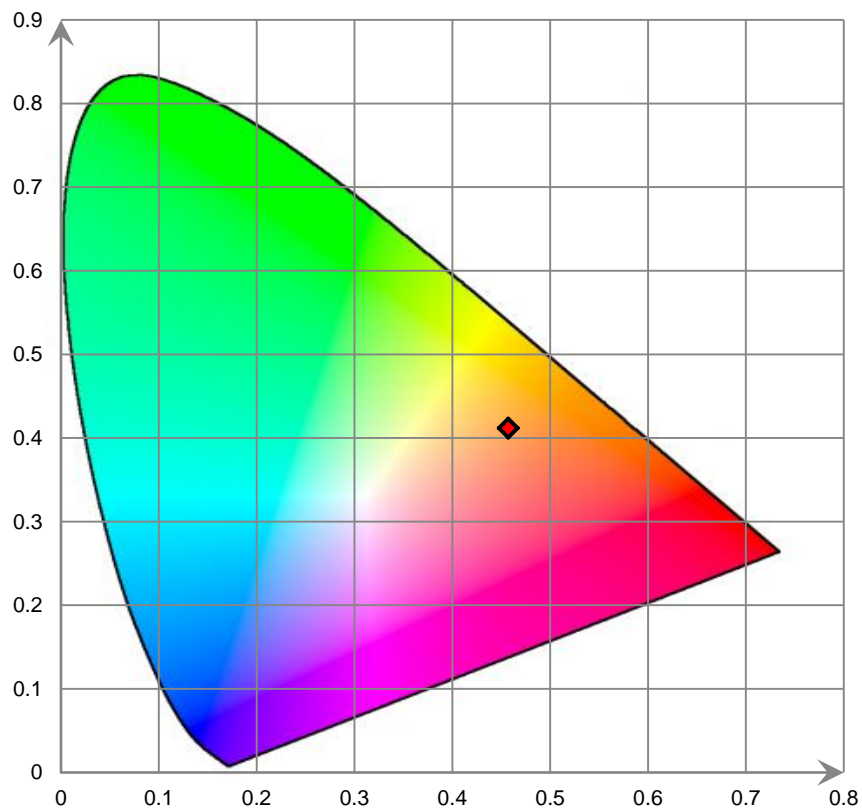
Relative Spectral Power Distribution



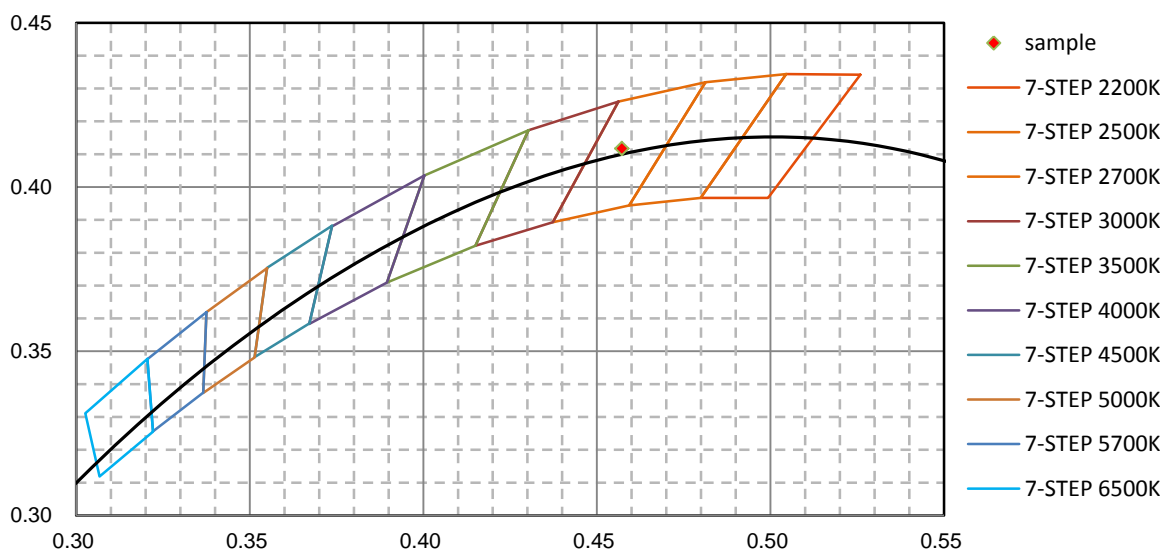
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	5.914E-01	421	9.504E-01	462	1.158E+01	503	2.078E+01	544	2.619E+01
381	4.185E-01	422	1.040E+00	463	1.154E+01	504	2.113E+01	545	2.623E+01
382	6.493E-01	423	1.191E+00	464	1.140E+01	505	2.148E+01	546	2.636E+01
383	3.913E-01	424	1.343E+00	465	1.109E+01	506	2.182E+01	547	2.645E+01
384	5.408E-01	425	1.484E+00	466	1.075E+01	507	2.215E+01	548	2.658E+01
385	4.934E-01	426	1.617E+00	467	1.027E+01	508	2.241E+01	549	2.665E+01
386	3.762E-01	427	1.793E+00	468	9.833E+00	509	2.269E+01	550	2.670E+01
387	3.532E-01	428	1.946E+00	469	9.438E+00	510	2.297E+01	551	2.685E+01
388	2.238E-01	429	2.221E+00	470	9.021E+00	511	2.318E+01	552	2.701E+01
389	2.429E-01	430	2.435E+00	471	8.760E+00	512	2.340E+01	553	2.709E+01
390	1.892E-01	431	2.714E+00	472	8.520E+00	513	2.355E+01	554	2.721E+01
391	2.132E-01	432	3.015E+00	473	8.470E+00	514	2.383E+01	555	2.737E+01
392	2.564E-01	433	3.299E+00	474	8.543E+00	515	2.395E+01	556	2.752E+01
393	2.293E-01	434	3.644E+00	475	8.607E+00	516	2.412E+01	557	2.769E+01
394	1.758E-01	435	4.074E+00	476	8.816E+00	517	2.426E+01	558	2.789E+01
395	2.070E-01	436	4.592E+00	477	9.046E+00	518	2.443E+01	559	2.805E+01
396	1.525E-01	437	5.205E+00	478	9.294E+00	519	2.451E+01	560	2.818E+01
397	1.728E-01	438	5.856E+00	479	9.636E+00	520	2.462E+01	561	2.842E+01
398	1.677E-01	439	6.722E+00	480	9.881E+00	521	2.472E+01	562	2.864E+01
399	1.950E-01	440	7.754E+00	481	1.018E+01	522	2.480E+01	563	2.887E+01
400	1.963E-01	441	8.896E+00	482	1.057E+01	523	2.490E+01	564	2.913E+01
401	1.608E-01	442	1.028E+01	483	1.092E+01	524	2.499E+01	565	2.941E+01
402	1.857E-01	443	1.176E+01	484	1.125E+01	525	2.507E+01	566	2.967E+01
403	1.777E-01	444	1.330E+01	485	1.168E+01	526	2.509E+01	567	2.996E+01
404	2.013E-01	445	1.486E+01	486	1.210E+01	527	2.517E+01	568	3.031E+01
405	1.887E-01	446	1.628E+01	487	1.251E+01	528	2.527E+01	569	3.060E+01
406	1.973E-01	447	1.749E+01	488	1.302E+01	529	2.527E+01	570	3.094E+01
407	2.112E-01	448	1.829E+01	489	1.355E+01	530	2.530E+01	571	3.131E+01
408	2.565E-01	449	1.866E+01	490	1.400E+01	531	2.537E+01	572	3.171E+01
409	2.543E-01	450	1.857E+01	491	1.471E+01	532	2.545E+01	573	3.207E+01
410	2.492E-01	451	1.787E+01	492	1.520E+01	533	2.553E+01	574	3.257E+01
411	2.936E-01	452	1.704E+01	493	1.578E+01	534	2.552E+01	575	3.306E+01
412	3.222E-01	453	1.588E+01	494	1.635E+01	535	2.562E+01	576	3.345E+01
413	3.599E-01	454	1.464E+01	495	1.703E+01	536	2.563E+01	577	3.397E+01
414	4.103E-01	455	1.359E+01	496	1.754E+01	537	2.575E+01	578	3.445E+01
415	4.755E-01	456	1.280E+01	497	1.803E+01	538	2.584E+01	579	3.496E+01
416	5.136E-01	457	1.226E+01	498	1.848E+01	539	2.586E+01	580	3.556E+01
417	6.004E-01	458	1.185E+01	499	1.904E+01	540	2.595E+01	581	3.608E+01
418	6.767E-01	459	1.167E+01	500	1.955E+01	541	2.601E+01	582	3.668E+01
419	7.650E-01	460	1.161E+01	501	1.998E+01	542	2.610E+01	583	3.724E+01
420	8.496E-01	461	1.162E+01	502	2.040E+01	543	2.611E+01	584	3.785E+01

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.848E+01	626	5.179E+01	667	2.844E+01	708	9.489E+00	749	2.717E+00
586	3.905E+01	627	5.141E+01	668	2.780E+01	709	9.252E+00	750	2.619E+00
587	3.970E+01	628	5.127E+01	669	2.715E+01	710	8.968E+00	751	2.549E+00
588	4.039E+01	629	5.087E+01	670	2.651E+01	711	8.713E+00	752	2.453E+00
589	4.107E+01	630	5.054E+01	671	2.592E+01	712	8.453E+00	753	2.389E+00
590	4.173E+01	631	5.016E+01	672	2.531E+01	713	8.205E+00	754	2.320E+00
591	4.230E+01	632	4.978E+01	673	2.475E+01	714	7.963E+00	755	2.260E+00
592	4.298E+01	633	4.939E+01	674	2.413E+01	715	7.734E+00	756	2.188E+00
593	4.366E+01	634	4.888E+01	675	2.356E+01	716	7.484E+00	757	2.132E+00
594	4.426E+01	635	4.843E+01	676	2.300E+01	717	7.269E+00	758	2.056E+00
595	4.489E+01	636	4.798E+01	677	2.238E+01	718	7.035E+00	759	1.996E+00
596	4.543E+01	637	4.740E+01	678	2.193E+01	719	6.882E+00	760	1.958E+00
597	4.601E+01	638	4.695E+01	679	2.131E+01	720	6.638E+00	761	1.897E+00
598	4.654E+01	639	4.643E+01	680	2.079E+01	721	6.446E+00	762	1.827E+00
599	4.716E+01	640	4.576E+01	681	2.029E+01	722	6.240E+00	763	1.773E+00
600	4.774E+01	641	4.523E+01	682	1.978E+01	723	6.086E+00	764	1.724E+00
601	4.828E+01	642	4.462E+01	683	1.928E+01	724	5.866E+00	765	1.678E+00
602	4.873E+01	643	4.405E+01	684	1.875E+01	725	5.705E+00	766	1.621E+00
603	4.922E+01	644	4.347E+01	685	1.830E+01	726	5.511E+00	767	1.571E+00
604	4.976E+01	645	4.283E+01	686	1.777E+01	727	5.351E+00	768	1.530E+00
605	5.006E+01	646	4.218E+01	687	1.731E+01	728	5.208E+00	769	1.474E+00
606	5.055E+01	647	4.154E+01	688	1.687E+01	729	5.046E+00	770	1.437E+00
607	5.078E+01	648	4.089E+01	689	1.644E+01	730	4.878E+00	771	1.373E+00
608	5.125E+01	649	4.022E+01	690	1.598E+01	731	4.730E+00	772	1.337E+00
609	5.147E+01	650	3.963E+01	691	1.555E+01	732	4.607E+00	773	1.307E+00
610	5.178E+01	651	3.901E+01	692	1.507E+01	733	4.466E+00	774	1.267E+00
611	5.213E+01	652	3.830E+01	693	1.468E+01	734	4.315E+00	775	1.218E+00
612	5.233E+01	653	3.762E+01	694	1.425E+01	735	4.138E+00	776	1.201E+00
613	5.250E+01	654	3.698E+01	695	1.387E+01	736	4.065E+00	777	1.169E+00
614	5.262E+01	655	3.630E+01	696	1.351E+01	737	3.934E+00	778	1.149E+00
615	5.276E+01	656	3.562E+01	697	1.313E+01	738	3.785E+00	779	1.127E+00
616	5.287E+01	657	3.500E+01	698	1.278E+01	739	3.691E+00	780	1.129E+00
617	5.291E+01	658	3.427E+01	699	1.235E+01	740	3.563E+00		
618	5.286E+01	659	3.358E+01	700	1.205E+01	741	3.471E+00		
619	5.282E+01	660	3.293E+01	701	1.169E+01	742	3.353E+00		
620	5.282E+01	661	3.228E+01	702	1.135E+01	743	3.238E+00		
621	5.281E+01	662	3.164E+01	703	1.098E+01	744	3.159E+00		
622	5.269E+01	663	3.098E+01	704	1.069E+01	745	3.049E+00		
623	5.254E+01	664	3.033E+01	705	1.042E+01	746	2.956E+00		
624	5.237E+01	665	2.967E+01	706	1.008E+01	747	2.882E+00		
625	5.205E+01	666	2.903E+01	707	9.803E+00	748	2.800E+00		

CIE 1931 x y Chromaticity Diagram



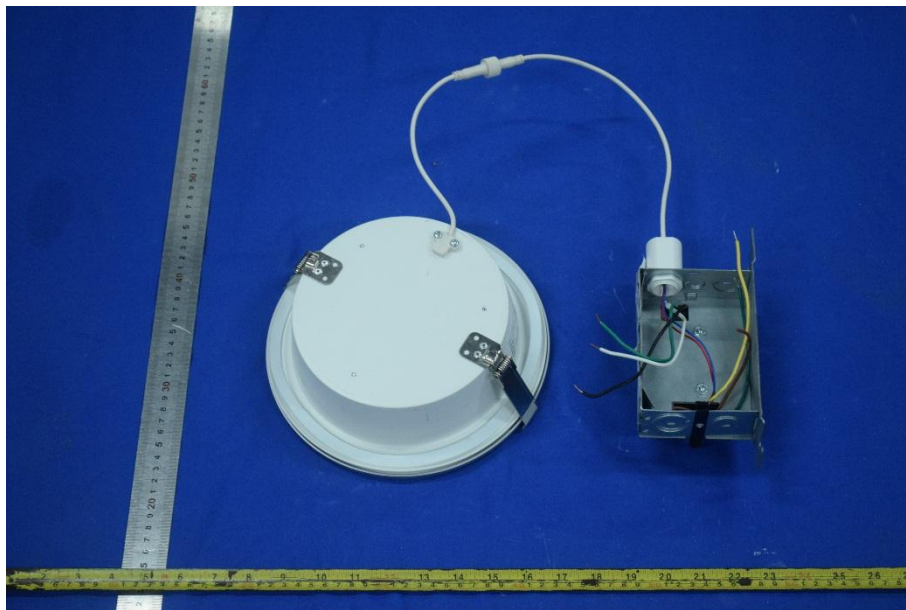
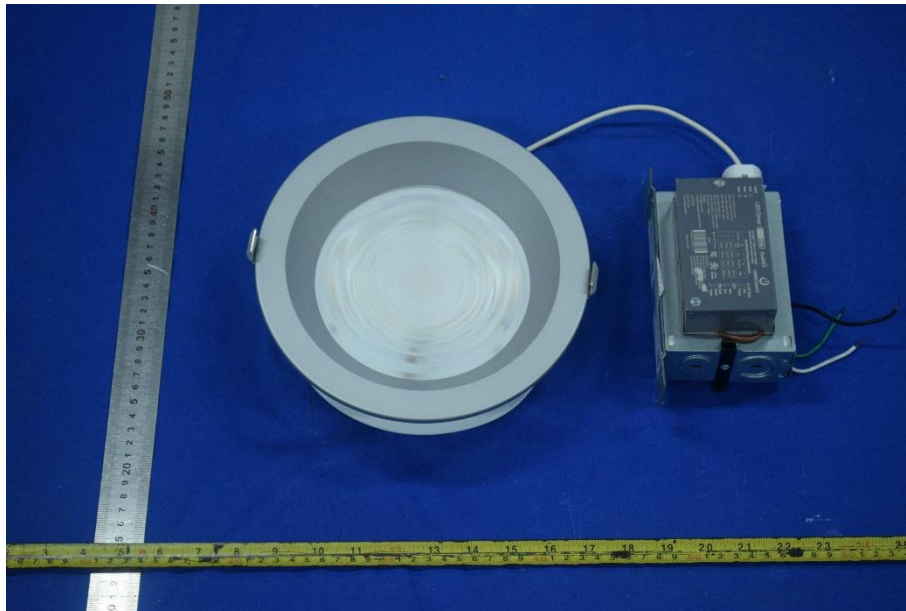
7-Step Chromaticity Quadrangles



[Additional Test]

Test Item	Test Voltage (V)	Frequency (Hz)	Test Result
Total Harmonic Distortion:	120	60	11.77%

6. Product Photo



Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. This report includes some test methods are not in NVLAP accreditation scope marked *.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor $K=2$ with the 95% confidence interval.
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