

LM-79-19 Test Report

For

RAB LIGHTING INC

(Brand Name: RAB)

408 W 14th St, New York, NY, US, 10014

Omnidirectional/Directional Medium Screw-Base Replacement for HID Lamps

Model name(s): HIDFA-45S-E26-8CCT-BYP

Representative (Tested) Model:

HIDFA-45S-E26-8CCT-BYP (Setting at 3000K 45W)
HIDFA-45S-E26-8CCT-BYP (Setting at 4000K 45W)
HIDFA-45S-E26-8CCT-BYP (Setting at 5000K 45W)
HIDFA-45S-E26-8CCT-BYP (Setting at 3000K 33W)
HIDFA-45S-E26-8CCT-BYP (Setting at 4000K 33W)
HIDFA-45S-E26-8CCT-BYP (Setting at 5000K 33W)
HIDFA-45S-E26-8CCT-BYP (Setting at 3000K 22W)
HIDFA-45S-E26-8CCT-BYP (Setting at 4000K 22W)
HIDFA-45S-E26-8CCT-BYP (Setting at 5000K 22W)

Model Different: All construction and rating are the same, except CCT

Test & Report By:



Engineer: Winnie Wu

Date: 2026-03-16

Review By:



Manager: Jason Luo

1.1 Product Information:

Organization Name	RAB LIGHTING INC	
Brand Name	RAB	
Model Number	HIDFA-45S-E26-8CCT-BYP	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Omnidirectional/Directional Medium Screw-Base Replacement for HID Lamps	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	45/33/22	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K, 5000K (Color tunable)	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-3080RC35003P1 L128-5080RC35003P1	
Sample Number	UTU2603010E-C 1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo



1.2 Test Specifications:

Date of Receipt	2026-03-11
Date of Test	2026-03-13
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2019 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	BL-QP-033

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. Goniophotometer far field detector $f1' = 1.42\%$, Test distance: 14.14m

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm. Use 2m diameter integrated sphere (94-98% coating reflectance) and 4π geometry.

Self-absorption:

HIDFA-45S-E26-8CCT-BYP:1.110

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 3000K 45W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.369	43.92	0.992	10.25
0E-C 1	277.0	60	0.175	43.6	0.9	12.73
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

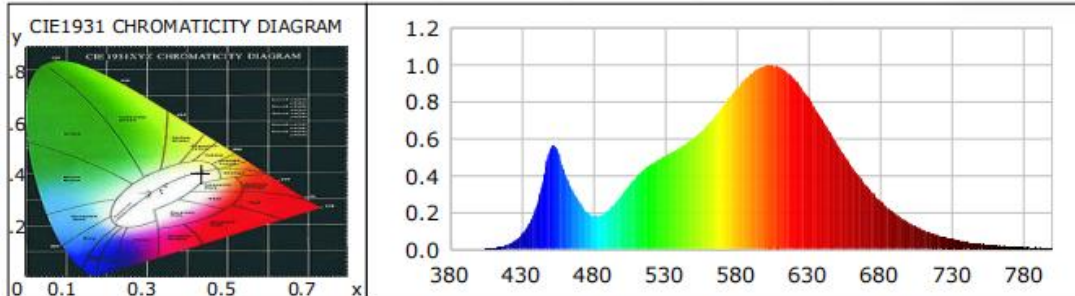
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3015	R3	96	R11	79
Duv	-0.0015	R4	80	R12	70
Chromaticity (x, y)	x=0.4337 y=0.3993	R5	81	R13	83
Chromaticity (u', v')	u'=0.2506 v'=0.519	R6	89	R14	99
Color Rendering Index CRI(Ra)	82	R7	82	R15	73
R9	6	R8	58	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	5917.6	5892.6	>=2000(-10%)
Luminous Efficacy (lm/W)	134.7	135.2	Standard>=130(-3%)
Most worst Luminous/Highest	134.17		
Beam Angle	279.1	--	>=75°
Center Beam Candle Power (cd)	261	--	--

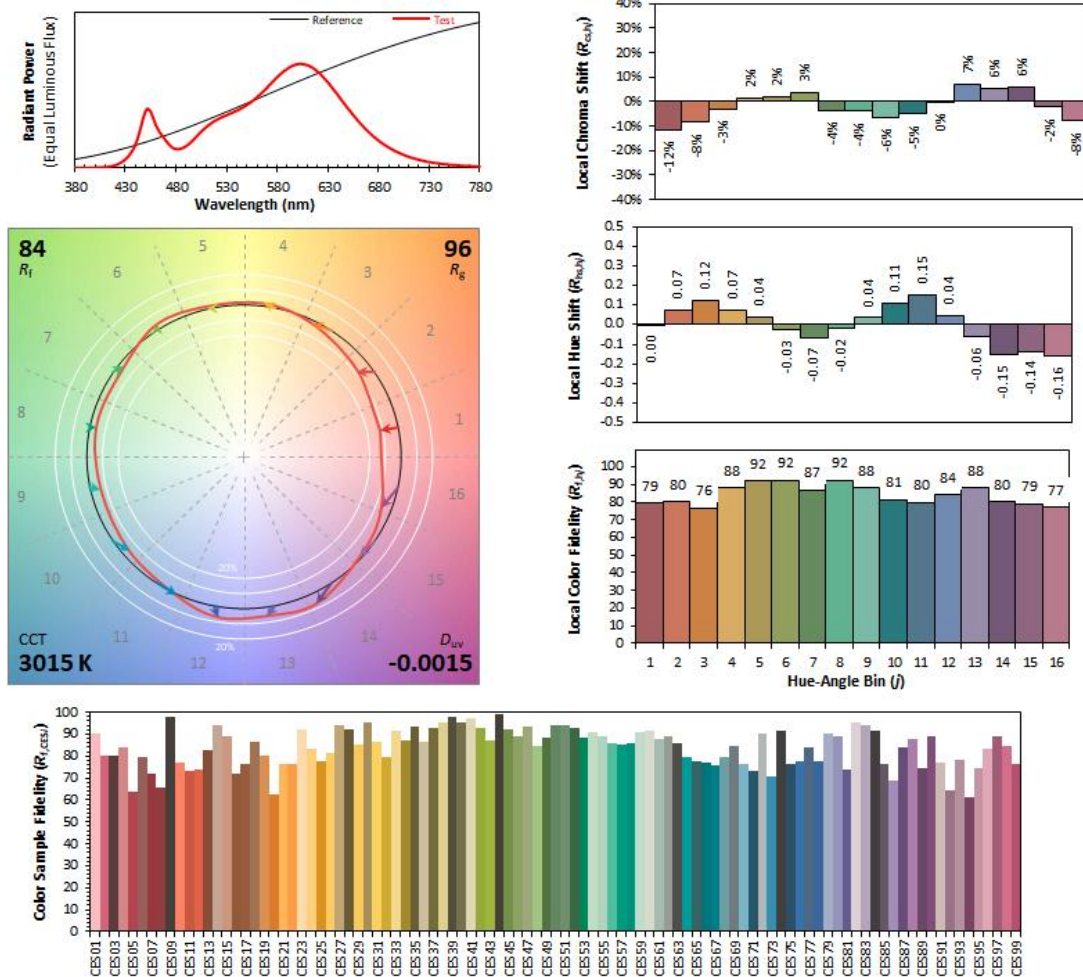
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.0096	535	0.4858	59.5167	690	0.3479	42.6195
385	0.0001	0.0179	540	0.5058	61.9721	695	0.3022	37.0303
390	0.0005	0.0604	545	0.5272	64.5883	700	0.2614	32.0236
395	0.0005	0.0666	550	0.5492	67.2909	705	0.2263	27.7310
400	0.0009	0.1067	555	0.5739	70.3166	710	0.1956	23.9700
405	0.0023	0.2853	560	0.6048	74.0958	715	0.1673	20.4973
410	0.0053	0.6479	565	0.6389	78.2773	720	0.1446	17.7140
415	0.0120	1.4735	570	0.6791	83.2009	725	0.1236	15.1388
420	0.0244	2.9949	575	0.7237	88.6620	730	0.1052	12.8947
425	0.0459	5.6270	580	0.7696	94.2872	735	0.0896	10.9718
430	0.0809	9.9132	585	0.8236	100.9021	740	0.0772	9.4598
435	0.1371	16.7947	590	0.8733	106.9938	745	0.0660	8.0822
440	0.2257	27.6509	595	0.9163	112.2665	750	0.0561	6.8685
445	0.3807	46.6381	600	0.9538	116.8627	755	0.0463	5.6711
450	0.5461	66.9035	605	0.9821	120.3203	760	0.0412	5.0497
455	0.5377	65.8798	610	0.9978	122.2517	765	0.0352	4.3176
460	0.4142	50.7485	615	0.9951	121.9123	770	0.0301	3.6908
465	0.3259	39.9258	620	0.9878	121.0251	775	0.0255	3.1252
470	0.2605	31.9150	625	0.9619	117.8530	780	0.0216	2.6462
475	0.2048	25.0902	630	0.9236	113.1582	785	0.0170	2.0774
480	0.1796	22.0070	635	0.8772	107.4771	790	0.0164	2.0117
485	0.1846	22.6217	640	0.8228	100.8024	795	0.0128	1.5714
490	0.2082	25.5102	645	0.7607	93.1993	800	0.0112	1.3681
495	0.2484	30.4305	650	0.6987	85.5971			
500	0.2970	36.3926	655	0.6330	77.5564			
505	0.3479	42.6238	660	0.5691	69.7278			
510	0.3925	48.0886	665	0.5079	62.2225			
515	0.4303	52.7158	670	0.4498	55.1049			
520	0.4597	56.3170	675	0.3963	48.5513			
525	0.4858	59.5167	680	0.3479	42.6195			
530	0.5058	61.9721	685	0.3022	37.0303			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4337
 y 0.3993
 u' 0.2506
 v' 0.5190

CIE 13.3-1995
(CRI)
 R_a 82
 R_9 6

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Zonal Lumen Tabulation

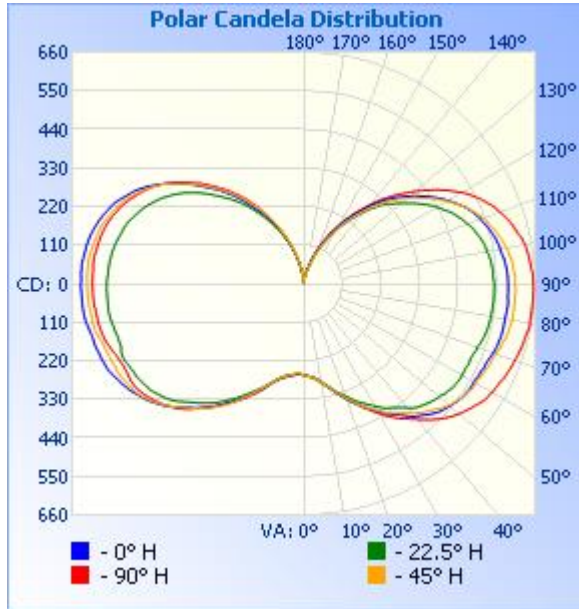
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	280.9	4.7%	4.7%
0-40	555.8	9.4%	9.4%
0-60	1,432.8	24.2%	24.2%
60-90	1,807.1	30.5%	30.5%
70-100	1,884.4	31.8%	31.8%
90-120	1,746.4	29.5%	29.5%
0-90	3,239.9	54.8%	54.7%
90-180	2,678.1	45.3%	45.3%
0-180	5,918.0	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	25.6	0.4%	90-100	635.5	10.7%
10-20	85.7	1.4%	100-110	595.5	10.1%
20-30	169.7	2.9%	110-120	515.4	8.7%
30-40	274.8	4.6%	120-130	401.1	6.8%
40-50	388.6	6.6%	130-140	275.4	4.7%
50-60	488.4	8.3%	140-150	160.9	2.7%
60-70	558.2	9.4%	150-160	72.1	1.2%
70-80	610.4	10.3%	160-170	20.0	0.3%
80-90	638.5	10.8%	170-180	2.1	0%

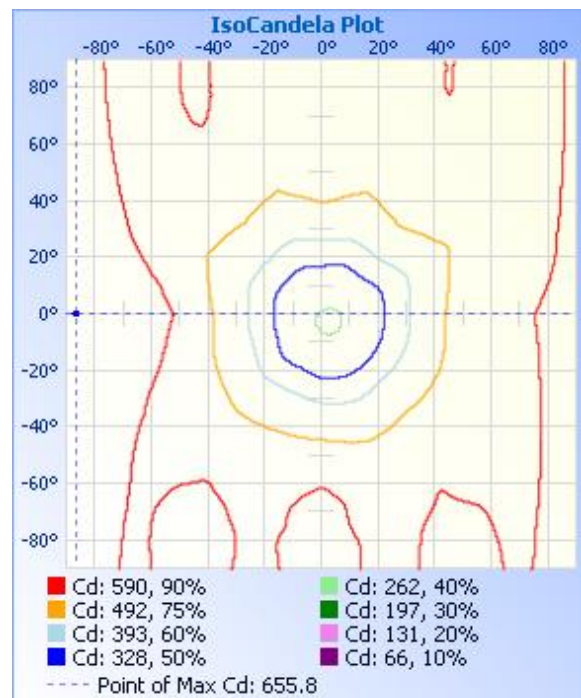
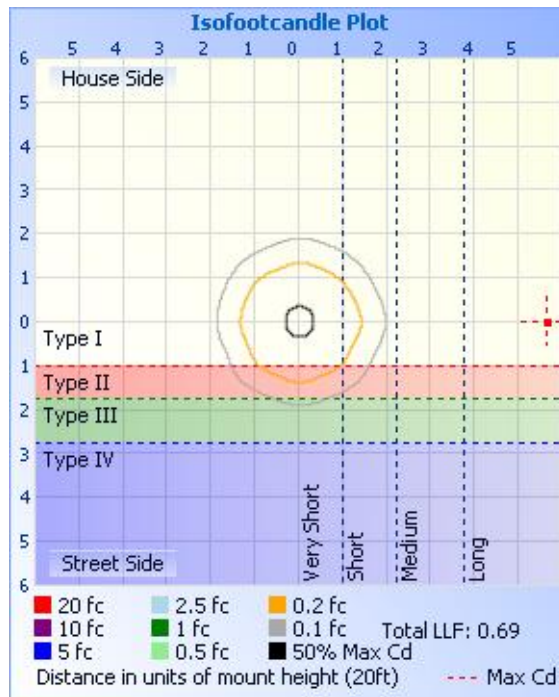
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	0.90 fc	34.0 ft	23.8 ft
34.0ft	0.23 fc	68.0 ft	47.6 ft
51.0ft	0.10 fc	102.0 ft	71.3 ft
68.0ft	0.06 fc	136.0 ft	95.1 ft
85.0ft	0.04 fc	170.0 ft	118.9 ft
102.0ft	0.03 fc	204.0 ft	142.7 ft

■ Vert. Spread: 90.0°
■ Horiz. Spread: 69.9°



Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	261	261	261	261	261	261	261	261	261	261	261	261	261	261	261	261	261
1	262	262	262	263	262	261	260	261	259	258	259	259	259	260	261	262	262
2	264	264	264	264	262	263	261	261	258	257	257	257	258	260	262	263	264
3	264	265	265	265	264	264	261	261	258	256	255	257	258	261	262	264	264
4	265	267	267	266	266	266	262	263	259	256	255	256	259	262	263	265	265
5	267	268	268	269	269	267	262	264	260	258	257	258	260	263	264	266	267
6	269	271	270	271	272	268	265	265	262	260	259	261	261	264	265	268	269
7	271	274	273	274	274	270	267	266	263	261	261	262	263	264	267	270	271
8	275	277	276	277	278	273	269	268	264	263	263	263	264	265	269	273	275
9	278	281	281	282	281	278	272	270	266	264	265	265	265	267	271	276	278
10	284	285	285	285	285	282	275	272	268	266	266	267	267	269	275	279	284
11	289	289	289	291	290	287	279	275	271	268	268	270	269	272	278	283	289
12	295	294	295	296	295	292	283	279	274	270	270	272	272	275	283	287	295
13	301	299	300	301	301	298	288	285	276	274	274	276	274	278	286	292	301
14	308	304	306	306	307	305	292	290	280	277	277	279	278	282	291	297	308
15	314	310	313	311	313	310	296	295	284	281	281	283	282	286	296	303	314
16	321	316	320	318	320	317	302	300	289	286	286	288	287	291	304	309	321
17	328	322	326	324	327	325	308	307	294	291	292	293	293	296	311	315	328
18	334	328	332	330	334	332	313	313	299	296	297	299	299	301	319	321	334
19	341	334	338	335	342	339	319	319	306	303	303	305	306	307	330	328	341
20	348	339	346	341	348	347	326	328	312	309	309	312	314	313	339	334	348
21	355	346	353	348	354	354	333	335	319	315	316	317	323	319	347	340	355
22	362	352	361	355	362	361	340	342	325	321	324	325	329	326	355	347	362
23	370	359	368	362	370	368	346	348	332	327	331	332	337	333	362	356	370
24	376	366	376	369	378	376	354	356	339	333	339	339	344	340	369	363	376
25	383	372	383	376	386	383	361	364	347	340	347	346	350	346	376	370	383
26	390	378	390	383	394	389	369	371	354	346	354	352	357	353	383	376	390
27	398	384	397	389	402	397	376	378	361	353	361	359	365	360	391	383	398

28	405	390	404	397	410	405	383	386	369	361	370	367	373	366	398	390	405
29	412	396	410	404	418	412	390	394	376	367	379	375	381	374	406	397	412
30	420	403	417	411	427	420	397	402	384	375	388	383	387	379	414	404	420
31	427	410	424	418	435	429	405	411	392	382	396	390	394	384	421	411	427
32	435	417	431	424	445	437	412	419	400	389	405	399	401	390	429	418	435
33	442	423	438	429	452	443	420	426	408	396	413	406	408	396	436	426	442
34	449	428	445	436	460	449	428	433	416	404	420	414	416	403	442	432	449
35	456	432	451	440	468	455	436	441	426	411	429	421	424	410	448	437	456
36	462	438	457	446	476	460	442	449	434	419	436	429	431	417	455	443	462
37	470	443	462	449	482	466	448	455	442	425	444	437	439	424	461	450	470
38	479	448	467	454	489	471	454	461	450	432	451	443	446	432	469	456	479
39	487	455	475	459	496	477	459	466	456	438	459	449	455	441	477	462	487
40	495	462	482	466	505	483	464	471	463	445	466	455	464	449	487	470	495
41	500	470	488	472	514	491	469	477	470	451	473	461	473	455	496	475	500
42	506	476	495	476	522	501	475	483	476	457	478	467	482	459	503	478	506
43	511	481	501	483	531	508	483	489	483	463	484	475	489	464	507	480	511
44	518	484	507	488	538	513	490	495	490	469	490	484	496	469	512	484	518
45	523	487	512	492	546	519	499	504	498	477	497	492	503	474	516	489	523
46	529	491	517	495	553	523	505	512	506	484	506	498	509	479	524	495	529
47	533	494	523	500	560	528	509	517	514	492	514	505	515	483	529	498	533
48	537	497	529	504	567	533	515	523	521	499	520	510	522	486	533	501	537
49	540	501	535	509	572	538	524	527	529	504	528	516	527	489	536	503	540
50	543	504	540	512	578	540	530	529	535	510	533	523	531	493	540	504	543
51	546	506	544	514	583	542	535	533	542	514	539	529	536	496	543	505	546
52	549	510	547	516	588	544	540	536	548	518	546	534	540	499	547	506	549
53	553	512	551	518	593	547	544	539	554	522	550	538	544	501	550	507	553
54	555	515	555	520	598	549	548	542	560	526	556	541	549	503	553	509	555
55	558	517	557	522	602	553	552	545	564	531	561	544	553	504	555	510	558
56	559	519	560	524	608	555	556	548	569	533	566	547	556	505	558	509	559
57	560	521	563	527	612	558	561	550	573	536	570	549	560	504	560	508	560
58	561	522	567	530	615	560	565	553	579	538	573	549	561	503	561	508	561
59	561	522	566	531	618	562	568	554	583	541	574	551	564	503	562	507	561

60	561	522	566	532	621	563	572	557	587	543	577	552	565	503	562	507	561
61	562	521	567	533	622	564	574	560	591	545	579	554	565	503	561	509	562
62	564	521	570	533	624	565	577	562	594	546	582	554	565	503	561	507	564
63	564	522	572	535	626	567	580	563	598	547	584	554	564	502	563	508	564
64	565	523	574	536	629	567	583	564	602	549	586	553	564	503	564	511	565
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66	567	522	578	536	634	568	589	567	609	553	587	552	565	508	565	515	567
67	569	523	580	536	636	570	592	568	611	556	589	552	568	510	567	516	569
68	571	525	580	536	638	573	593	570	612	556	590	553	570	511	570	518	571
69	573	528	581	536	640	572	594	570	614	556	591	554	572	511	574	521	573
70	576	528	584	537	641	573	597	570	615	554	592	555	576	512	576	521	576
71	578	531	586	538	642	573	601	570	616	551	594	558	579	515	578	524	578
72	580	533	590	541	644	575	603	569	618	551	596	562	582	517	580	526	580
73	580	535	591	542	646	574	605	570	620	551	597	563	585	518	582	526	580
74	581	537	594	543	648	575	607	570	621	551	599	565	588	521	585	528	581
75	583	538	597	544	649	575	608	570	621	553	602	568	590	522	585	529	583
76	583	540	599	545	650	576	611	570	622	554	606	571	592	523	586	529	583
77	583	540	600	545	651	578	612	572	624	555	608	573	593	524	587	528	583
78	583	541	601	546	654	579	613	573	626	557	611	576	595	525	588	530	583
79	583	542	603	547	655	580	615	574	628	559	611	578	596	526	589	531	583
80	583	542	603	547	656	580	616	574	631	561	612	579	596	527	590	532	583
81	583	542	604	548	654	580	616	574	632	561	612	580	597	528	591	533	583
82	585	543	604	548	655	581	616	574	633	562	613	581	598	531	593	534	585
83	585	544	604	548	655	581	618	573	633	562	613	582	598	532	594	535	585
84	585	543	604	548	655	579	619	573	634	562	615	582	601	533	594	536	585
85	585	545	604	548	655	579	620	572	634	561	616	582	601	535	594	537	585
86	584	544	604	547	656	579	621	571	634	561	617	583	602	536	594	539	584
87	583	544	604	544	656	578	620	571	634	561	617	584	602	538	594	539	583
88	583	543	605	545	655	577	621	570	634	562	617	584	602	539	593	539	583
89	583	544	604	544	655	576	621	569	635	562	618	585	602	539	594	540	583
90	583	543	603	544	655	577	620	569	635	561	618	585	603	540	594	541	583
91	583	543	603	544	655	576	620	568	634	561	618	586	602	541	593	541	583

92	582	541	603	543	654	575	621	567	635	560	619	586	602	542	593	542	582
93	581	541	602	542	653	573	621	565	635	559	618	587	602	543	591	541	581
94	580	541	599	540	651	572	620	563	635	558	618	585	602	544	590	543	580
95	580	539	599	538	649	570	619	562	635	558	618	585	603	544	589	542	580
96	577	538	597	536	648	568	617	560	633	558	617	585	603	545	587	541	577
97	576	538	596	534	646	567	616	559	632	557	617	585	603	545	586	541	576
98	573	536	593	532	645	565	615	558	631	555	616	583	601	545	584	540	573
99	571	534	591	529	643	563	613	556	630	554	613	583	599	544	582	539	571
100	569	531	587	528	641	560	610	553	629	552	611	583	598	542	580	538	569
101	568	530	584	525	637	557	608	550	627	551	610	582	597	542	579	535	568
102	565	528	581	522	635	554	605	548	625	549	608	580	595	541	576	535	565
103	563	526	577	519	628	551	602	546	623	546	606	579	594	541	574	534	563
104	560	522	573	516	624	548	599	542	620	544	604	577	592	540	572	531	560
105	556	519	569	513	621	544	596	538	617	541	602	575	590	540	567	530	556
106	553	515	565	507	618	540	592	535	614	539	601	571	588	538	564	527	553
107	550	512	559	504	613	536	586	532	611	537	597	569	586	537	561	525	550
108	545	508	555	499	608	532	581	528	608	535	593	566	583	534	558	521	545
109	541	503	552	494	602	527	577	524	604	532	589	564	580	532	556	519	541
110	537	498	546	490	597	523	572	520	599	528	585	561	576	529	551	514	537
111	533	493	540	485	591	518	567	515	595	523	581	558	572	526	547	511	533
112	528	489	533	480	585	512	562	510	591	520	577	555	569	524	541	507	528
113	523	483	527	474	578	505	556	503	587	515	573	550	565	521	537	502	523
114	518	477	520	467	570	500	550	498	581	511	568	544	561	518	531	497	518
115	512	472	513	462	564	493	543	492	573	506	563	539	555	514	526	492	512
116	505	466	504	456	556	487	537	487	567	501	558	534	551	510	520	487	505
117	497	458	496	449	548	480	529	482	561	496	551	528	544	506	514	481	497
118	490	451	488	442	539	474	522	476	555	490	544	523	539	501	508	474	490
119	482	445	480	435	530	467	514	470	548	485	538	517	534	495	502	468	482
120	475	438	471	428	521	459	506	462	540	479	531	510	528	490	495	460	475
121	467	431	462	420	509	451	498	456	532	473	524	504	523	485	488	454	467
122	459	423	454	412	499	444	488	449	524	467	517	497	516	480	480	446	459
123	451	414	444	404	489	436	478	441	514	459	510	490	509	475	470	439	451

124	442	407	435	396	477	427	469	433	505	452	502	482	502	469	462	432	442
125	433	398	426	386	466	419	459	425	495	445	494	475	494	461	454	426	433
126	425	391	416	377	455	409	448	415	485	438	483	468	486	455	444	418	425
127	416	382	406	369	443	400	438	406	474	430	473	460	478	448	435	410	416
128	406	373	398	361	432	392	429	397	464	421	463	451	469	441	427	401	406
129	398	365	388	353	421	383	419	388	454	412	453	442	459	433	417	392	398
130	389	358	378	345	409	374	409	378	443	403	444	434	450	424	406	384	389
131	378	349	369	337	398	363	399	369	432	395	434	425	441	415	397	376	378
132	369	341	359	329	386	354	389	362	422	386	424	414	430	406	388	367	369
133	360	334	349	321	375	346	378	354	410	376	414	405	421	397	379	358	360
134	350	326	339	314	363	337	369	346	399	367	404	395	413	390	369	350	350
135	342	318	328	305	352	328	360	340	389	356	394	386	402	379	359	341	342
136	330	308	318	297	340	319	350	332	378	347	382	376	391	369	351	332	330
137	319	298	306	286	329	310	339	324	368	338	372	367	381	362	340	325	319
138	309	289	295	278	318	300	330	316	359	330	363	358	371	351	332	315	309
139	298	278	285	267	305	290	319	308	348	321	353	349	361	342	322	305	298
140	287	267	273	258	293	279	309	299	336	311	343	340	352	334	312	297	287
141	275	257	262	249	281	268	299	289	326	303	333	331	341	324	300	286	275
142	264	246	251	238	270	258	288	280	314	294	324	322	331	313	290	274	264
143	253	235	241	228	259	247	276	270	303	285	312	313	321	305	279	265	253
144	242	226	231	219	248	238	267	261	293	275	303	304	311	295	268	255	242
145	232	215	221	210	238	227	257	250	281	265	292	294	299	286	257	245	232
146	222	205	211	201	225	218	247	241	269	255	281	283	288	275	247	236	222
147	211	196	200	193	214	209	237	231	258	244	271	273	278	264	236	224	211
148	200	185	189	184	204	198	226	220	248	234	261	263	266	253	226	214	200
149	188	175	178	173	193	190	216	211	238	225	251	252	254	242	217	204	188
150	177	164	167	163	184	181	206	202	228	216	241	240	243	232	207	195	177
151	165	155	157	154	175	173	196	193	216	205	230	229	231	220	196	185	165
152	156	144	147	144	165	162	187	185	207	196	220	218	220	209	185	173	156
153	146	135	136	135	154	153	177	176	196	188	210	207	209	198	175	163	146
154	135	125	126	126	144	144	166	167	186	179	199	196	198	188	163	152	135
155	126	117	117	118	134	134	156	156	177	170	187	185	186	176	154	143	126

156	117	107	107	109	125	126	146	146	168	161	177	174	175	164	144	134	117
157	107	98	98	100	115	116	138	138	158	152	166	162	165	155	135	125	107
158	99	90	90	93	105	107	128	129	148	142	154	151	154	144	125	115	99
159	90	82	81	85	96	98	118	120	138	133	145	142	145	135	115	105	90
160	81	74	73	77	87	91	110	112	128	126	135	131	134	124	105	96	81
161	73	67	65	69	79	83	100	103	120	117	125	122	123	115	97	88	73
162	66	60	58	62	71	74	92	94	111	110	116	114	114	105	87	81	66
163	59	54	52	55	62	66	82	86	102	100	107	105	104	96	79	72	59
164	53	48	45	48	55	60	72	79	93	92	98	95	95	88	72	66	53
165	47	42	39	43	46	53	63	71	85	84	88	88	85	79	64	57	47
166	41	36	34	38	40	47	55	64	77	77	81	79	77	72	57	50	41
167	36	32	30	33	35	42	49	57	68	69	72	71	69	64	52	44	36
168	32	28	26	29	30	37	43	52	59	62	65	64	62	57	47	38	32
169	29	24	23	26	26	33	38	46	52	56	59	57	55	50	42	33	29
170	26	21	20	22	23	29	34	41	46	50	53	50	48	44	37	29	26
171	22	19	19	19	20	25	30	36	39	44	46	44	43	38	33	26	22
172	16	17	16	17	18	22	27	32	35	40	40	39	36	33	30	24	16
173	15	13	13	14	15	20	24	28	31	34	36	34	29	29	25	21	15
174	9	9	9	11	12	17	20	24	27	31	31	30	24	24	20	12	9
175	4	5	4	6	8	12	17	20	22	27	26	20	20	19	13	8	4
176	4	3	4	3	3	8	11	15	19	21	20	19	13	13	10	4	4
177	3	3	3	3	2	4	6	9	13	15	15	13	8	5	4	4	3
178	3	4	3	4	2	4	4	4	4	3	5	4	3	4	4	4	3
179	3	4	4	4	1	4	4	4	4	4	3	3	2	4	3	3	3
180	4	3	3	3	2	4	4	4	4	4	4	3	2	4	4	4	4

2.2 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 4000K 45W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.356	42.36	0.992	10.36
0E-C 1	277.0	60	0.169	42.07	0.9	12.72
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

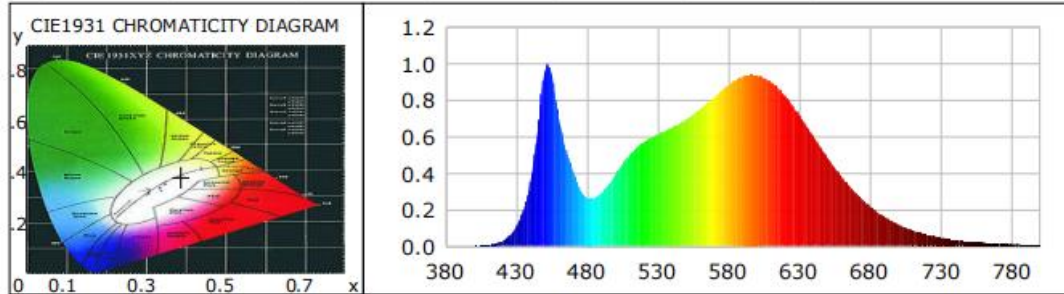
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	12
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3807	R3	96	R11	81
Duv	-0.0027	R4	82	R12	64
Chromaticity (x, y)	x=0.3871 y=0.3749	R5	83	R13	85
Chromaticity (u', v')	u'=0.2303 v'=0.5018	R6	87	R14	98
Color Rendering Index CRI(Ra)	84	R7	85	R15	77
R9	12	R8	64	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	6336.2	6308.8	>=2000(-10%)
Luminous Efficacy (lm/W)	149.6	150.0	Standard>=130(-3%)
Most worst Luminous/Highest Watts	148.93		

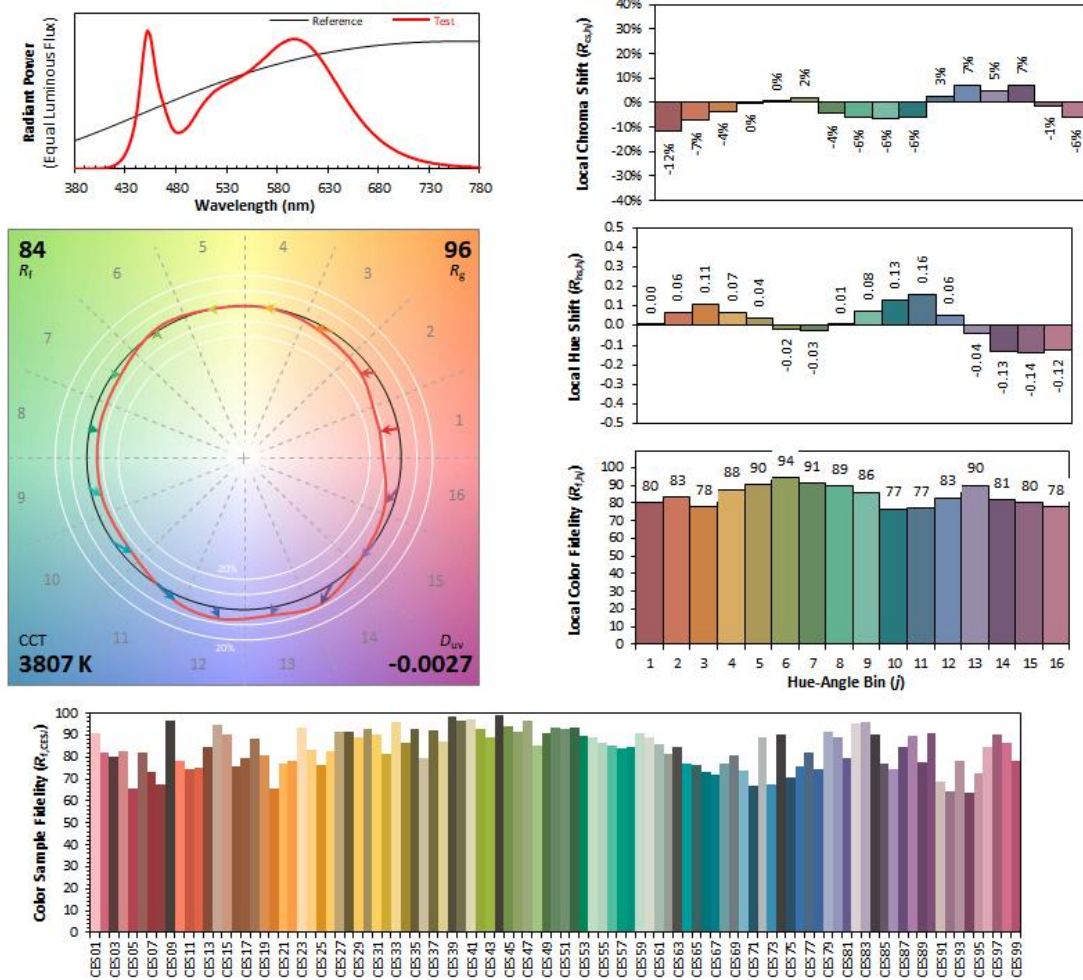
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0389	535	0.5938	73.7593	690	0.2897	35.9815
385	0.0007	0.0869	540	0.6121	76.0383	695	0.2520	31.3055
390	0.0004	0.0533	545	0.6308	78.3613	700	0.2183	27.1133
395	0.0011	0.1328	550	0.6509	80.8552	705	0.1881	23.3657
400	0.0010	0.1279	555	0.6712	83.3820	710	0.1617	20.0893
405	0.0027	0.3319	560	0.6951	86.3479	715	0.1395	17.3293
410	0.0059	0.7300	565	0.7225	89.7497	720	0.1180	14.6634
415	0.0129	1.6043	570	0.7538	93.6399	725	0.1024	12.7230
420	0.0279	3.4600	575	0.7859	97.6198	730	0.0865	10.7446
425	0.0562	6.9814	580	0.8162	101.3912	735	0.0748	9.2870
430	0.1079	13.4066	585	0.8532	105.9820	740	0.0631	7.8347
435	0.1992	24.7401	590	0.8851	109.9530	745	0.0542	6.7381
440	0.3525	43.7904	595	0.9074	112.7202	750	0.0462	5.7364
445	0.6372	79.1546	600	0.9300	115.5192	755	0.0383	4.7546
450	0.9536	118.4528	605	0.9384	116.5690	760	0.0343	4.2583
455	0.9436	117.2096	610	0.9374	116.4503	765	0.0299	3.7141
460	0.7063	87.7397	615	0.9224	114.5826	770	0.0248	3.0823
465	0.5334	66.2573	620	0.9018	112.0237	775	0.0212	2.6318
470	0.4114	51.1094	625	0.8663	107.6119	780	0.0179	2.2188
475	0.3122	38.7789	630	0.8225	102.1730	785	0.0140	1.7337
480	0.2638	32.7656	635	0.7729	96.0068	790	0.0132	1.6350
485	0.2645	32.8564	640	0.7163	88.9734	795	0.0104	1.2906
490	0.2905	36.0852	645	0.6569	81.5978	800	0.0091	1.1292
495	0.3372	41.8897	650	0.5996	74.4854			
500	0.3941	48.9584	655	0.5397	67.0374			
505	0.4494	55.8296	660	0.4824	59.9252			
510	0.4996	62.0556	665	0.4288	53.2694			
515	0.5395	67.0139	670	0.3784	47.0108			
520	0.5692	70.7094	675	0.3323	41.2844			
525	0.5938	73.7593	680	0.2897	35.9815			
530	0.6121	76.0383	685	0.2520	31.3055			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3871
 y 0.3749
 z' 0.2303
 v' 0.5018

CIE 13.3-1995 (CRI)	
R_a	84
R_g	12

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

2.3 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 5000K 45W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.370	43.98	0.991	10.11
0E-C 1	277.0	60	0.175	43.64	0.899	12.63
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

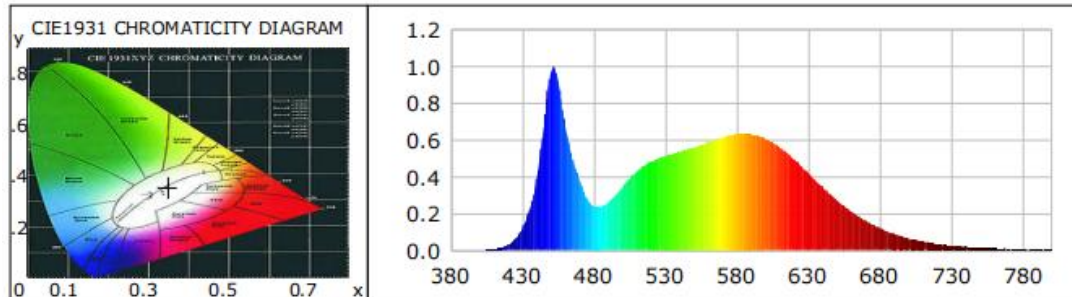
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	2
Frequency (Hz)	60	R2	88	R10	72
CCT (K)	4927	R3	93	R11	78
Duv	0.0006	R4	80	R12	55
Chromaticity (x, y)	x=0.3473 y=0.3545	R5	80	R13	82
Chromaticity (u', v')	u'=0.2118 v'=0.4864	R6	83	R14	97
Color Rendering Index CRI(Ra)	82	R7	86	R15	75
R9	2	R8	65	--	--
Rf	82	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-13				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	6298.4	6282.4	>=2000(-10%)
Luminous Efficacy (lm/W)	143.2	144.0	Standard>=130(-3%)
Most worst Luminous/Highest Watts	142.85		

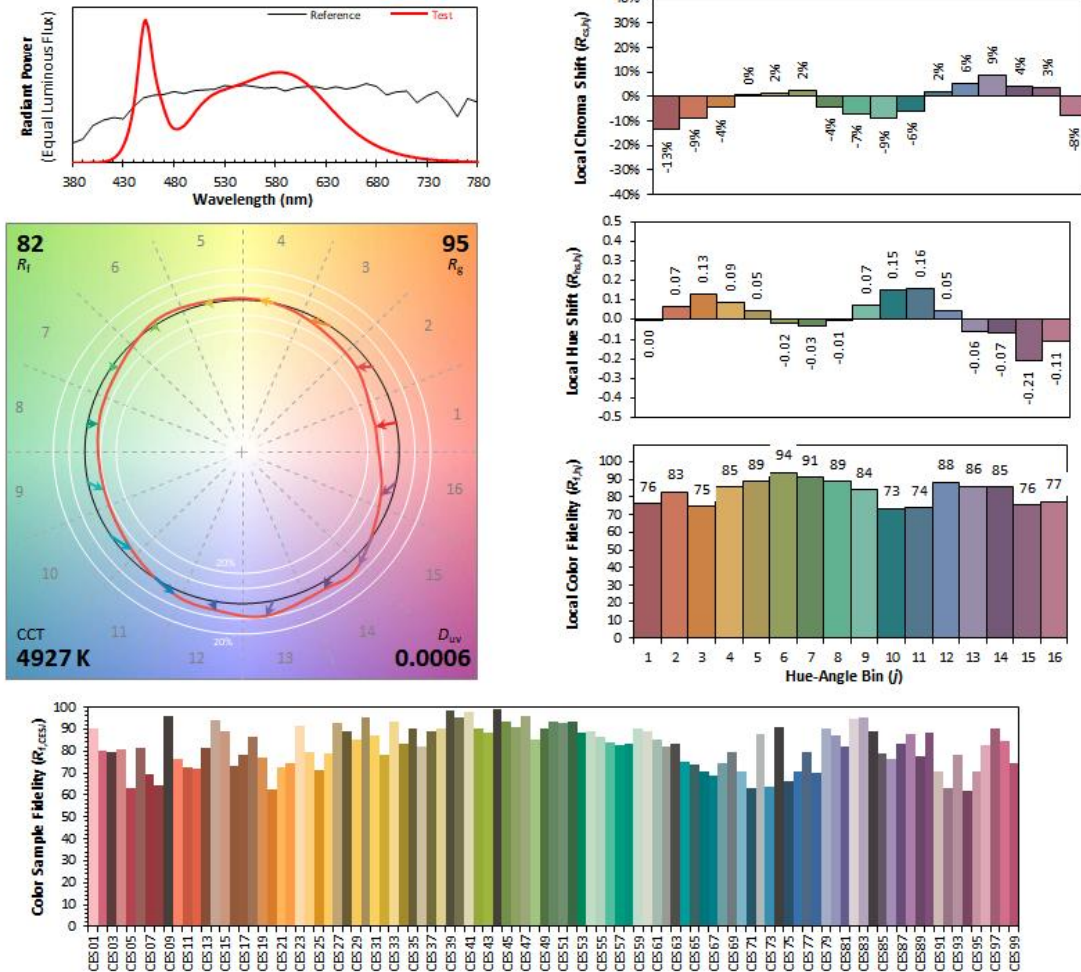
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0420	535	0.4999	81.5398	690	0.1597	26.0432
385	0.0004	0.0680	540	0.5115	83.4338	695	0.1384	22.5769
390	0.0006	0.0903	545	0.5242	85.4990	700	0.1204	19.6346
395	0.0005	0.0774	550	0.5371	87.6020	705	0.1023	16.6776
400	0.0013	0.2041	555	0.5482	89.4073	710	0.0887	14.4632
405	0.0027	0.4341	560	0.5614	91.5638	715	0.0759	12.3872
410	0.0060	0.9778	565	0.5756	93.8747	720	0.0647	10.5484
415	0.0145	2.3578	570	0.5895	96.1560	725	0.0555	9.0520
420	0.0306	4.9838	575	0.6029	98.3295	730	0.0469	7.6538
425	0.0615	10.0278	580	0.6133	100.0276	735	0.0407	6.6462
430	0.1197	19.5217	585	0.6251	101.9594	740	0.0344	5.6126
435	0.2213	36.0923	590	0.6312	102.9424	745	0.0290	4.7379
440	0.3911	63.7957	595	0.6321	103.1021	750	0.0253	4.1329
445	0.6843	111.6092	600	0.6305	102.8383	755	0.0207	3.3760
450	0.9711	158.3816	605	0.6218	101.4243	760	0.0189	3.0842
455	0.9222	150.4184	610	0.6065	98.9144	765	0.0170	2.7659
460	0.6738	109.8919	615	0.5852	95.4472	770	0.0139	2.2748
465	0.5010	81.7101	620	0.5597	91.2847	775	0.0121	1.9685
470	0.3793	61.8681	625	0.5278	86.0850	780	0.0105	1.7068
475	0.2824	46.0546	630	0.4931	80.4236	785	0.0076	1.2345
480	0.2391	39.0053	635	0.4571	74.5581	790	0.0067	1.0882
485	0.2380	38.8220	640	0.4188	68.3060	795	0.0057	0.9338
490	0.2595	42.3240	645	0.3792	61.8451	800	0.0059	0.9551
495	0.2992	48.8011	650	0.3418	55.7511			
500	0.3467	56.5522	655	0.3056	49.8431			
505	0.3917	63.8903	660	0.2703	44.0944			
510	0.4296	70.0645	665	0.2393	39.0234			
515	0.4599	75.0161	670	0.2098	34.2123			
520	0.4820	78.6232	675	0.1837	29.9589			
525	0.4999	81.5398	680	0.1597	26.0432			
530	0.5115	83.4338	685	0.1384	22.5769			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3473
 y 0.3545
 u' 0.2118
 v' 0.4864

CIE 13.3-1995 (CRI)	
R_a	82
R_9	2

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

2.4 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 3000K 33W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.273	32.39	0.988	7.09
0E-C 1	277.0	60	0.129	32.01	0.894	10.56
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

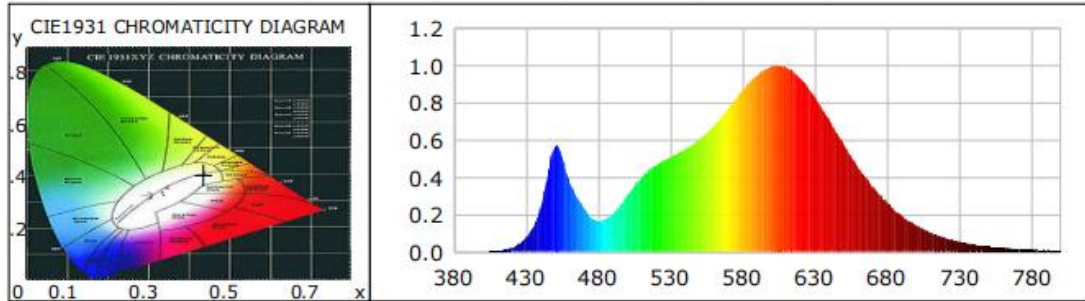
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	91	R10	78
CCT (K)	3002	R3	96	R11	80
Duv	-0.0010	R4	81	R12	70
Chromaticity (x, y)	x=0.4353 y=0.4009	R5	81	R13	83
Chromaticity (u', v')	u'=0.2508 v'=0.5199	R6	88	R14	99
Color Rendering Index CRI(Ra)	82	R7	83	R15	73
R9	6	R8	59	--	--
Rf	84	--	--	--	--
Rg	97	--	--	--	--
Rcs,h1(%)	-11				

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	4729.5	4680.5	>=2000(-10%)
Luminous Efficacy (lm/W)	146.02	146.22	Standard>=130(-3%)
Most worst Luminous/Highest	144.50		
Beam Angle	281.5	--	>=75°
Center Beam Candle Power (cd)	201	--	--

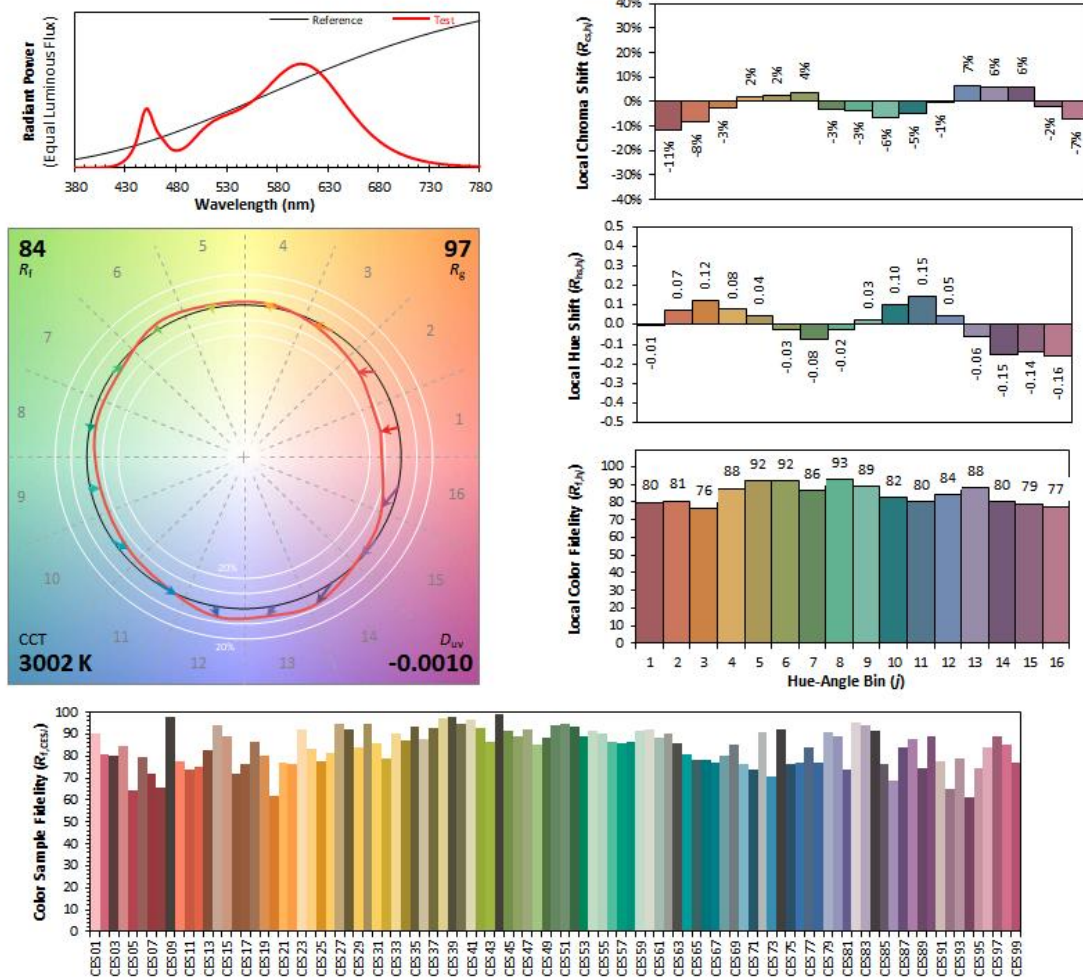
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.0222	535	0.4902	46.7334	690	0.3475	33.1340
385	0.0006	0.0524	540	0.5090	48.5294	695	0.3022	28.8079
390	0.0005	0.0492	545	0.5291	50.4421	700	0.2622	25.0028
395	0.0005	0.0466	550	0.5509	52.5275	705	0.2253	21.4809
400	0.0009	0.0903	555	0.5750	54.8242	710	0.1936	18.4623
405	0.0021	0.2008	560	0.6033	57.5233	715	0.1668	15.9017
410	0.0043	0.4104	565	0.6380	60.8275	720	0.1415	13.4947
415	0.0100	0.9565	570	0.6783	64.6724	725	0.1211	11.5497
420	0.0215	2.0472	575	0.7218	68.8148	730	0.1031	9.8341
425	0.0419	3.9963	580	0.7676	73.1816	735	0.0877	8.3586
430	0.0768	7.3201	585	0.8204	78.2210	740	0.0755	7.1942
435	0.1353	12.8983	590	0.8695	82.8958	745	0.0639	6.0937
440	0.2348	22.3900	595	0.9112	86.8738	750	0.0536	5.1057
445	0.4128	39.3597	600	0.9506	90.6306	755	0.0453	4.3222
450	0.5648	53.8505	605	0.9800	93.4357	760	0.0390	3.7182
455	0.5086	48.4947	610	0.9959	94.9513	765	0.0347	3.3113
460	0.3765	35.8919	615	0.9976	95.1156	770	0.0281	2.6792
465	0.2984	28.4524	620	0.9910	94.4844	775	0.0252	2.4039
470	0.2354	22.4407	625	0.9662	92.1164	780	0.0212	2.0240
475	0.1827	17.4231	630	0.9314	88.7995	785	0.0173	1.6480
480	0.1654	15.7735	635	0.8847	84.3486	790	0.0157	1.4948
485	0.1757	16.7525	640	0.8285	78.9929	795	0.0131	1.2506
490	0.2037	19.4182	645	0.7677	73.1883	800	0.0110	1.0479
495	0.2482	23.6653	650	0.7037	67.0917			
500	0.3014	28.7340	655	0.6381	60.8339			
505	0.3523	33.5900	660	0.5739	54.7134			
510	0.3992	38.0598	665	0.5117	48.7819			
515	0.4362	41.5828	670	0.4531	43.1975			
520	0.4651	44.3418	675	0.3972	37.8655			
525	0.4902	46.7334	680	0.3475	33.1340			
530	0.5090	48.5294	685	0.3022	28.8079			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4353
 y 0.4009
 z' 0.2508
 v' 0.5199

CIE 13.3-1995 (CRI)	
R_a	82
R_9	6

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Zonal Lumen Tabulation

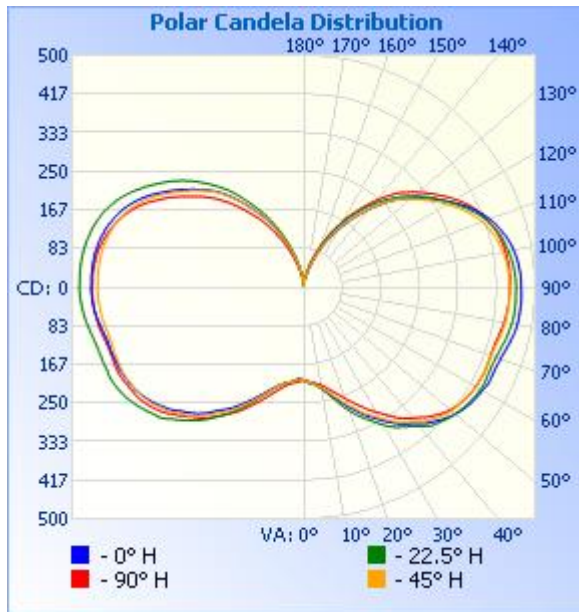
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	222.5	4.7%	4.7%
0-40	443.8	9.4%	9.4%
0-60	1,147.5	24.3%	24.3%
60-90	1,435.2	30.3%	30.3%
70-100	1,498.3	31.7%	31.7%
90-120	1,398.0	29.6%	29.6%
0-90	2,582.7	54.6%	54.6%
90-180	2,147.1	45.4%	45.4%
0-180	4,729.8	100%	100%

Lumens Per Zone

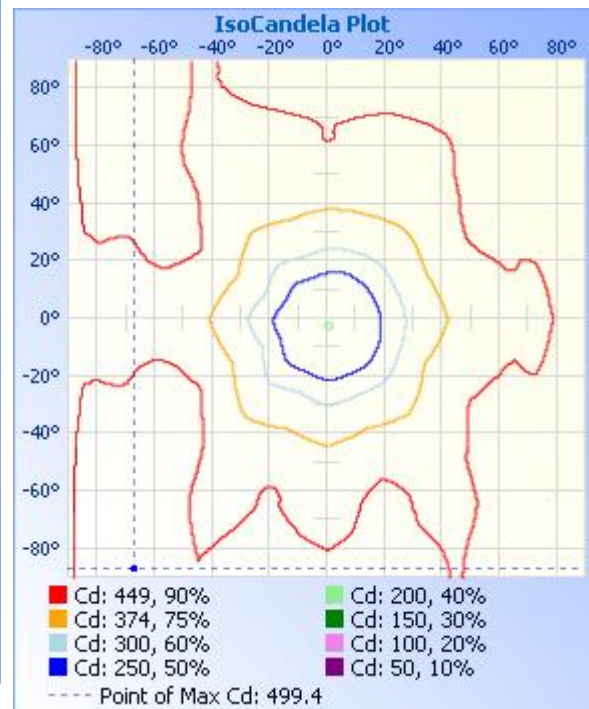
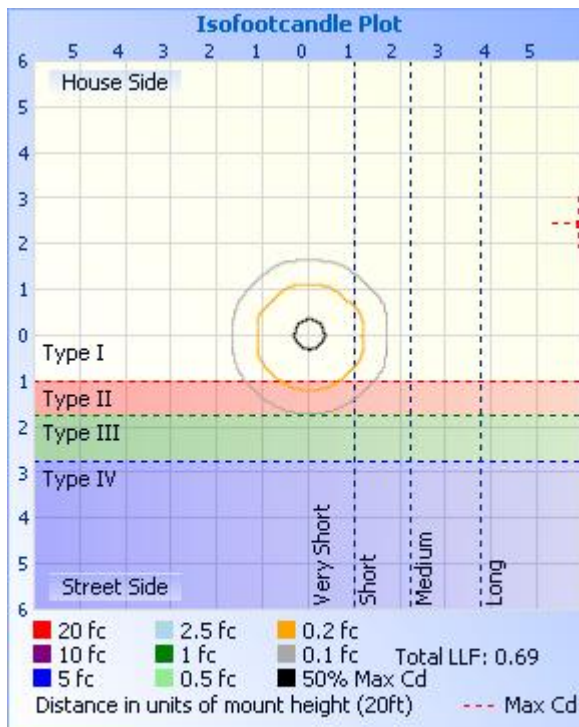
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	19.9	0.4%	90-100	508.3	10.7%
10-20	67.2	1.4%	100-110	477.8	10.1%
20-30	135.3	2.9%	110-120	412.0	8.7%
30-40	221.3	4.7%	120-130	320.1	6.8%
40-50	312.2	6.6%	130-140	223.7	4.7%
50-60	391.5	8.3%	140-150	130.4	2.8%
60-70	445.2	9.4%	150-160	57.6	1.2%
70-80	481.7	10.2%	160-170	15.7	0.3%
80-90	508.3	10.7%	170-180	1.7	0%

Photometric Data



	Center Beam fc	Beam Width
17.0ft	0.70 fc	1,298.4 ft
34.0ft	0.17 fc	2,596.8 ft
51.0ft	0.08 fc	3,895.2 ft
68.0ft	0.04 fc	5,193.6 ft
85.0ft	0.03 fc	6,492.0 ft
102.0ft	0.02 fc	7,790.4 ft

■ Beam Spread: 177.0°



Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201	201
1	203	203	203	203	201	201	200	200	199	200	200	200	202	202	202	203	203
2	205	205	205	205	202	201	200	199	198	198	199	201	203	203	204	205	205
3	206	206	206	206	204	203	200	199	198	199	199	201	205	205	205	206	206
4	207	207	207	207	205	204	202	201	199	201	201	203	206	206	206	207	207
5	209	208	208	208	206	205	204	203	201	203	202	205	207	207	208	208	209
6	210	210	210	209	207	207	205	205	203	204	204	206	207	209	209	209	210
7	213	212	212	210	209	208	206	206	205	206	205	207	209	210	211	211	213
8	215	215	214	213	210	209	207	207	207	207	207	209	211	212	213	214	215
9	218	219	217	215	212	210	209	208	208	208	208	210	213	215	216	216	218
10	221	222	220	219	214	212	211	209	209	210	210	213	215	217	219	220	221
11	226	227	223	223	218	214	214	211	211	211	211	215	219	221	222	222	226
12	230	232	227	228	220	217	216	213	213	214	214	218	222	224	226	226	230
13	234	237	231	233	224	221	219	216	215	216	216	221	225	228	230	230	234
14	238	243	235	238	227	226	222	220	218	219	219	225	229	232	234	234	238
15	244	249	241	244	231	231	225	224	221	224	222	228	233	236	238	239	244
16	249	255	246	251	235	237	229	230	225	227	227	233	238	241	244	244	249
17	255	262	251	257	240	244	233	234	229	232	230	237	242	246	249	249	255
18	260	269	256	265	244	251	237	240	233	236	235	242	247	252	254	255	260
19	266	276	263	272	249	258	242	246	237	242	239	246	253	258	259	261	266
20	272	281	267	279	254	266	246	252	242	247	245	252	258	263	265	266	272
21	277	288	273	286	260	273	251	259	247	253	250	258	264	269	270	272	277
22	283	294	278	293	265	280	257	266	252	259	256	264	269	276	276	279	283
23	289	301	285	300	270	288	263	272	258	266	261	270	274	282	282	286	289
24	296	307	291	308	275	295	267	279	264	271	268	277	279	289	287	293	296
25	302	312	298	315	281	303	272	285	269	278	274	284	286	295	294	299	302
26	308	318	303	322	287	311	278	292	274	285	279	291	292	302	300	305	308
27	313	324	308	327	294	318	283	299	280	292	285	298	298	308	305	312	313
28	318	330	314	335	300	324	289	306	286	299	292	306	304	315	310	317	318
29	324	336	319	341	305	330	295	313	293	306	299	314	309	322	315	323	324

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31	337	349	331	356	317	343	305	324	305	319	311	330	320	335	327	336	337
32	342	355	337	362	322	349	311	330	310	325	316	339	325	342	332	342	342
33	348	360	343	368	329	357	316	337	315	331	322	346	331	349	338	349	348
34	354	364	350	374	335	364	322	343	320	338	327	355	336	355	344	354	354
35	360	368	355	379	342	371	328	349	325	344	333	362	343	362	350	358	360
36	364	372	359	385	349	376	334	355	332	351	340	370	348	368	355	363	364
37	369	377	363	390	355	382	341	360	339	358	346	376	354	373	360	368	369
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40	383	392	377	408	368	399	357	374	356	375	363	391	367	389	372	382	383
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42	395	403	390	422	378	411	366	384	365	386	372	400	375	399	383	395	395
43	399	408	393	427	384	419	372	388	369	391	376	405	380	405	388	399	399
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45	408	413	399	433	393	430	383	400	378	402	385	415	390	417	397	409	408
46	412	416	404	438	397	435	387	406	383	408	389	420	394	421	402	412	412
47	416	419	408	443	402	442	392	410	388	415	393	425	400	425	407	414	416
48	420	422	411	446	406	445	398	413	393	419	397	429	404	429	411	418	420
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53	435	433	421	461	420	466	418	431	411	435	414	443	422	446	429	433	435
54	437	434	423	463	422	470	421	435	413	439	416	447	424	450	432	436	437
55	439	436	424	465	424	473	423	438	416	442	419	449	427	453	434	437	439
56	440	437	425	467	425	476	425	441	419	445	420	452	429	455	435	439	440
57	442	438	426	469	427	478	427	444	422	448	423	454	431	457	436	440	442
58	443	440	427	471	428	480	429	446	424	451	424	456	432	459	437	440	443
59	445	441	428	472	429	482	429	447	427	453	426	458	433	460	438	441	445
60	445	441	430	471	429	483	431	450	428	455	426	460	434	461	439	442	445
61	447	442	430	471	430	484	431	451	429	456	427	462	435	462	441	443	447

62	450	442	431	471	430	485	432	453	430	458	428	464	437	464	442	444	450
63	450	442	430	472	431	485	433	453	432	460	430	466	438	465	443	444	450
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68	451	441	430	470	431	485	434	454	436	461	432	469	441	465	447	442	451
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74	459	448	435	475	432	487	436	459	439	465	433	470	443	470	453	451	459
75	461	450	437	477	433	488	436	460	440	466	432	472	444	471	455	453	461
76	463	452	438	478	434	490	438	461	441	467	434	473	446	474	457	454	463
77	465	453	440	479	436	491	439	463	443	468	434	475	447	475	459	455	465
78	466	454	440	480	437	492	440	465	444	470	436	476	449	476	461	457	466
79	468	455	442	482	438	493	441	467	447	472	437	478	450	477	463	458	468
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82	470	458	443	483	442	497	445	471	452	477	441	483	453	481	466	462	470
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127	319	324	315	355	337	373	347	362	347	376	341	374	325	353	321	328	319
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138	236	249	237	272	262	285	272	289	276	298	274	297	247	270	240	245	236
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141	209	225	212	243	236	256	246	267	252	274	250	272	222	246	214	222	209
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144	186	201	188	213	209	224	218	243	226	247	225	245	198	219	190	197	186
145	178	193	181	202	201	213	209	235	217	238	216	236	190	210	182	188	178
146	169	186	173	191	192	202	201	227	209	228	207	227	183	201	174	181	169
147	161	178	165	180	185	192	192	218	200	219	199	219	176	192	167	173	161
148	153	170	157	170	176	182	184	210	191	210	190	210	168	183	159	165	153
149	144	162	148	160	168	173	176	202	184	201	183	202	160	175	151	157	144
150	137	153	139	149	159	164	168	194	177	193	175	194	152	168	143	149	137
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152	121	137	124	130	141	146	151	177	160	176	158	177	135	151	127	132	121
153	114	129	117	120	133	136	142	167	152	166	149	167	128	142	120	123	114
154	107	122	109	111	126	127	134	157	143	157	141	158	120	133	112	115	107
155	99	113	101	103	118	118	127	148	135	148	133	149	113	124	105	108	99
156	91	104	93	95	110	110	119	139	127	139	126	141	106	116	99	100	91
157	84	95	86	88	102	104	112	130	120	131	118	133	99	108	91	92	84

158	77	85	80	80	95	97	104	121	113	123	111	124	91	100	83	84	77
159	70	77	72	74	88	89	97	113	105	115	102	115	84	92	76	77	70
160	64	69	65	68	81	82	90	104	97	107	94	106	77	84	70	70	64
161	58	61	59	61	74	76	83	95	89	98	87	98	71	76	64	63	58
162	52	55	53	55	68	71	77	86	82	90	80	89	65	69	58	56	52
163	47	48	48	50	63	65	70	78	76	82	74	81	59	61	52	50	47
164	41	42	43	45	56	59	64	71	69	74	67	73	53	54	47	45	41
165	37	37	38	40	51	53	58	64	63	67	61	64	48	48	42	39	37
166	33	33	34	36	46	49	52	57	57	60	55	56	43	42	37	34	33
167	29	29	30	32	41	43	46	51	51	53	49	49	39	37	33	30	29
168	26	25	26	29	36	39	41	46	46	47	44	43	35	32	29	26	26
169	23	22	23	26	31	34	36	41	40	41	39	37	31	28	26	22	23
170	20	19	20	23	27	31	32	36	36	36	35	32	27	24	22	19	20
171	18	17	18	20	23	28	28	32	32	31	31	27	24	22	20	17	18
172	15	15	16	18	21	24	25	28	28	27	27	24	20	19	17	15	15
173	12	14	14	16	19	22	22	25	25	24	24	21	15	15	14	13	12
174	9	10	11	13	17	18	20	22	22	21	21	18	11	11	8	10	9
175	4	6	7	10	14	15	17	18	20	18	19	16	9	6	5	5	4
176	4	4	4	4	11	12	13	15	15	16	15	14	4	4	4	4	4
177	4	4	4	4	4	7	10	9	11	10	10	7	4	4	4	4	4
178	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
179	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
180	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

2.5 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 4000K 33W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.266	31.6	0.991	7.22
0E-C 1	277.0	60	0.127	31.33	0.894	10.48
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

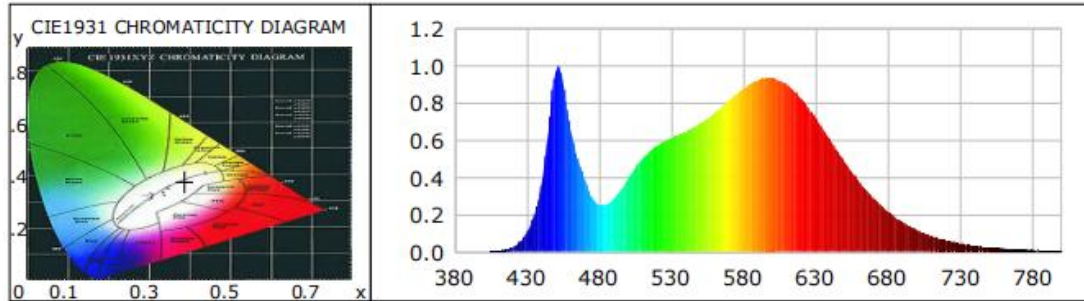
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	11
Frequency (Hz)	60	R2	91	R10	78
CCT (K)	3790	R3	96	R11	81
Duv	-0.0025	R4	82	R12	64
Chromaticity (x, y)	x=0.3881 y=0.3761	R5	83	R13	85
Chromaticity (u', v')	u'=0.2305 v'=0.5024	R6	87	R14	98
Color Rendering Index CRI(Ra)	84	R7	85	R15	77
R9	11	R8	64	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	5041.9	5013.7	>=2000(-10%)
Luminous Efficacy (lm/W)	159.55	160.03	Standard>=130(-3%)
Most worst Luminous/Highest Watts	158.66		

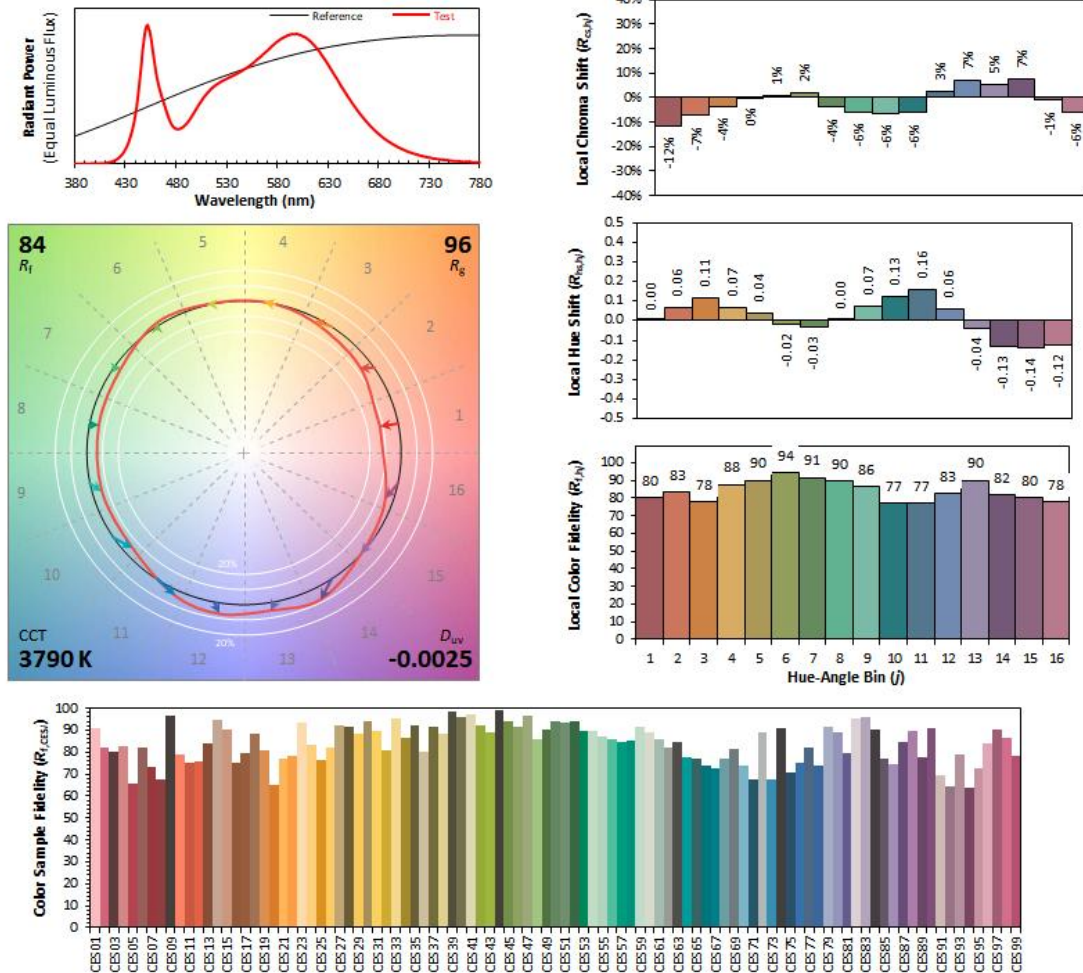
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0244	535	0.5936	57.9680	690	0.2887	28.1956
385	0.0004	0.0433	540	0.6106	59.6312	695	0.2500	24.4118
390	0.0007	0.0692	545	0.6296	61.4861	700	0.2170	21.1928
395	0.0008	0.0782	550	0.6487	63.3513	705	0.1848	18.0514
400	0.0015	0.1511	555	0.6688	65.3121	710	0.1601	15.6331
405	0.0025	0.2399	560	0.6922	67.6000	715	0.1369	13.3698
410	0.0048	0.4688	565	0.7187	70.1838	720	0.1169	11.4133
415	0.0117	1.1422	570	0.7500	73.2409	725	0.1005	9.8160
420	0.0255	2.4871	575	0.7810	76.2640	730	0.0850	8.2965
425	0.0526	5.1414	580	0.8128	79.3739	735	0.0722	7.0526
430	0.1032	10.0797	585	0.8490	82.9070	740	0.0625	6.1040
435	0.1957	19.1139	590	0.8805	85.9851	745	0.0527	5.1435
440	0.3573	34.8911	595	0.9038	88.2586	750	0.0452	4.4169
445	0.6623	64.6809	600	0.9251	90.3374	755	0.0370	3.6108
450	0.9716	94.8840	605	0.9350	91.3064	760	0.0318	3.1042
455	0.9162	89.4731	610	0.9342	91.2305	765	0.0286	2.7912
460	0.6678	65.2182	615	0.9194	89.7872	770	0.0239	2.3303
465	0.5064	49.4490	620	0.8982	87.7140	775	0.0201	1.9580
470	0.3888	37.9635	625	0.8653	84.5024	780	0.0178	1.7388
475	0.2912	28.4372	630	0.8231	80.3756	785	0.0143	1.3920
480	0.2514	24.5540	635	0.7724	75.4248	790	0.0128	1.2500
485	0.2558	24.9816	640	0.7172	70.0369	795	0.0109	1.0623
490	0.2852	27.8469	645	0.6575	64.2064	800	0.0089	0.8710
495	0.3353	32.7417	650	0.5993	58.5216			
500	0.3948	38.5526	655	0.5384	52.5788			
505	0.4517	44.1157	660	0.4809	46.9631			
510	0.5011	48.9332	665	0.4269	41.6936			
515	0.5410	52.8359	670	0.3763	36.7475			
520	0.5700	55.6626	675	0.3306	32.2836			
525	0.5936	57.9680	680	0.2887	28.1956			
530	0.6106	59.6312	685	0.2500	24.4118			

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ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3881
 y 0.3761
 u' 0.2305
 v' 0.5024

CIE 13.3-1995 (CRI)	
R_a	84
R_g	11

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

2.6 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 5000K 33W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.272	32.36	0.992	7.17
0E-C 1	277.0	60	0.129	31.99	0.893	10.48
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

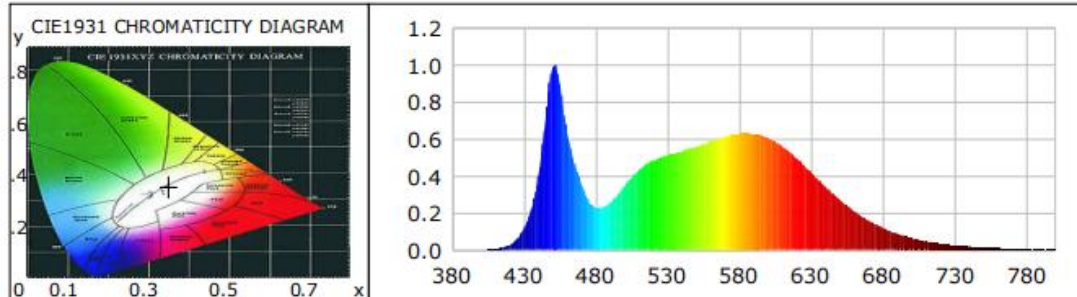
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	1
Frequency (Hz)	60	R2	88	R10	71
CCT (K)	4892	R3	93	R11	79
Duv	0.0008	R4	80	R12	55
Chromaticity (x, y)	x=0.3484 y=0.3559	R5	80	R13	82
Chromaticity (u', v')	u'=0.212 v'=0.4872	R6	82	R14	96
Color Rendering Index CRI(Ra)	82	R7	86	R15	74
R9	1	R8	65	--	--
Rf	82	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-13				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	5052.1	4992.7	>=2000(-10%)
Luminous Efficacy (lm/W)	156.12	156.07	Standard>=130(-3%)
Most worst Luminous/Highest Watts	154.29		

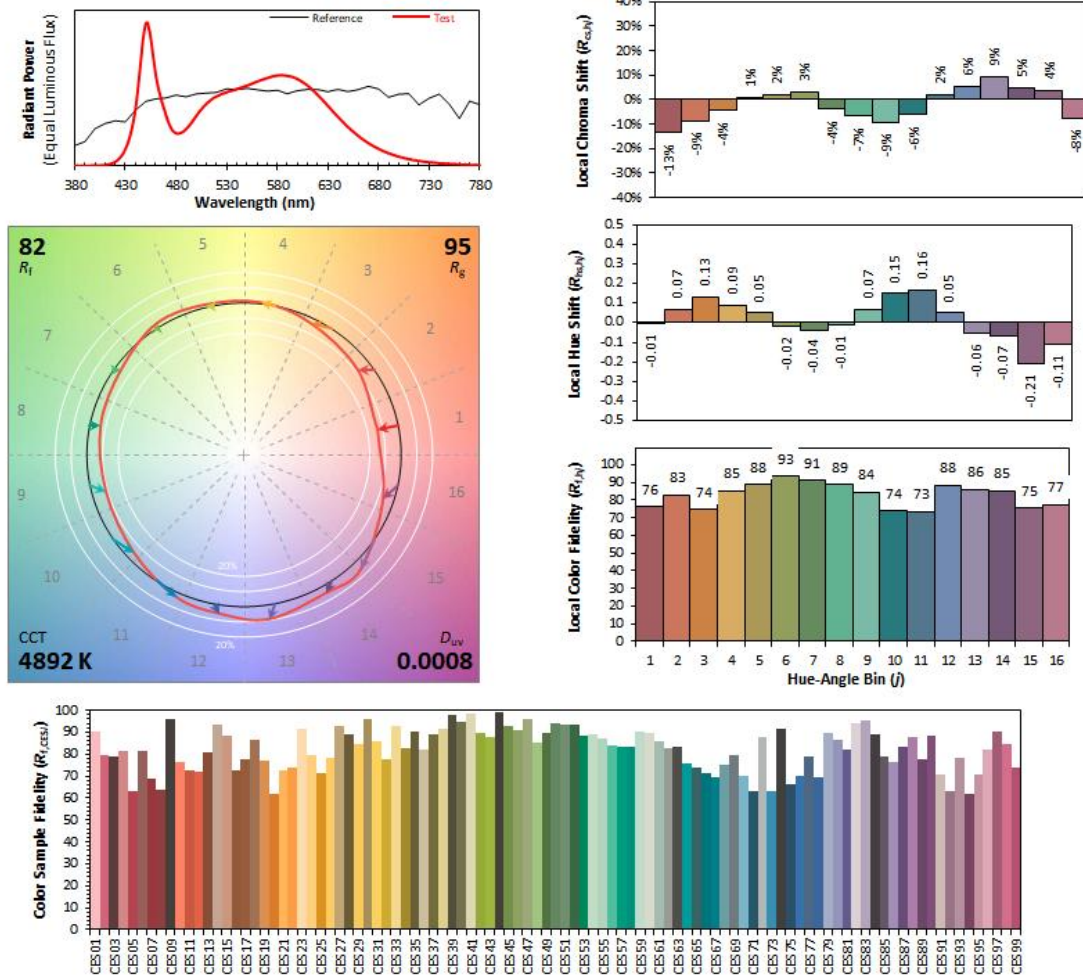
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0005	0.0623	535	0.5013	65.5881	690	0.1585	20.7436
385	0.0007	0.0869	540	0.5122	67.0222	695	0.1371	17.9393
390	0.0009	0.1147	545	0.5237	68.5234	700	0.1184	15.4960
395	0.0006	0.0802	550	0.5362	70.1542	705	0.1014	13.2680
400	0.0012	0.1572	555	0.5469	71.5595	710	0.0871	11.3977
405	0.0023	0.3040	560	0.5600	73.2684	715	0.0750	9.8187
410	0.0054	0.7050	565	0.5731	74.9871	720	0.0642	8.3939
415	0.0126	1.6487	570	0.5880	76.9386	725	0.0549	7.1773
420	0.0277	3.6184	575	0.6015	78.7002	730	0.0465	6.0841
425	0.0580	7.5941	580	0.6121	80.0942	735	0.0396	5.1807
430	0.1157	15.1429	585	0.6240	81.6493	740	0.0341	4.4557
435	0.2199	28.7704	590	0.6314	82.6118	745	0.0287	3.7524
440	0.4001	52.3482	595	0.6322	82.7153	750	0.0246	3.2218
445	0.7173	93.8626	600	0.6282	82.2016	755	0.0203	2.6627
450	0.9902	129.5692	605	0.6205	81.1873	760	0.0181	2.3632
455	0.8923	116.7509	610	0.6066	79.3698	765	0.0163	2.1383
460	0.6351	83.1052	615	0.5853	76.5787	770	0.0135	1.7658
465	0.4738	61.9937	620	0.5605	73.3363	775	0.0131	1.7094
470	0.3545	46.3905	625	0.5292	69.2418	780	0.0108	1.4104
475	0.2636	34.4943	630	0.4946	64.7162	785	0.0083	1.0870
480	0.2275	29.7711	635	0.4585	59.9972	790	0.0072	0.9365
485	0.2307	30.1840	640	0.4180	54.6906	795	0.0064	0.8316
490	0.2559	33.4832	645	0.3792	49.6140	800	0.0053	0.6944
495	0.2981	39.0104	650	0.3422	44.7789			
500	0.3482	45.5549	655	0.3054	39.9660			
505	0.3929	51.4131	660	0.2696	35.2787			
510	0.4331	56.6746	665	0.2387	31.2326			
515	0.4625	60.5152	670	0.2092	27.3713			
520	0.4842	63.3544	675	0.1823	23.8542			
525	0.5013	65.5881	680	0.1585	20.7436			
530	0.5122	67.0222	685	0.1371	17.9393			

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ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3484
 y 0.3559
 u' 0.2120
 v' 0.4872

CIE 13.3-1995 (CRI)	
R_a	82
R_9	1

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

2.7 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 3000K 22W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.185	21.81	0.985	5.85
0E-C 1	277.0	60	0.087	21.37	0.887	9.18
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

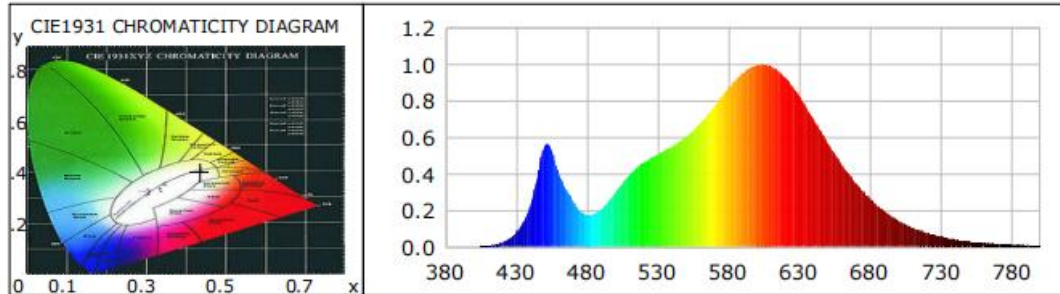
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3011	R3	96	R11	79
Duv	-0.0013	R4	80	R12	70
Chromaticity (x, y)	x=0.4342 y=0.3998	R5	81	R13	83
Chromaticity (u', v')	u'=0.2507 v'=0.5193	R6	89	R14	99
Color Rendering Index CRI(Ra)	82	R7	82	R15	73
R9	6	R8	58	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	3260.4	3207.4	>=2000(-10%)
Luminous Efficacy (lm/W)	149.49	150.09	Standard>=130(-3%)
Most worst Luminous/Highest	147.06		
Beam Angle	281.4	--	>=75°
Center Beam Candle Power (cd)	139	--	--

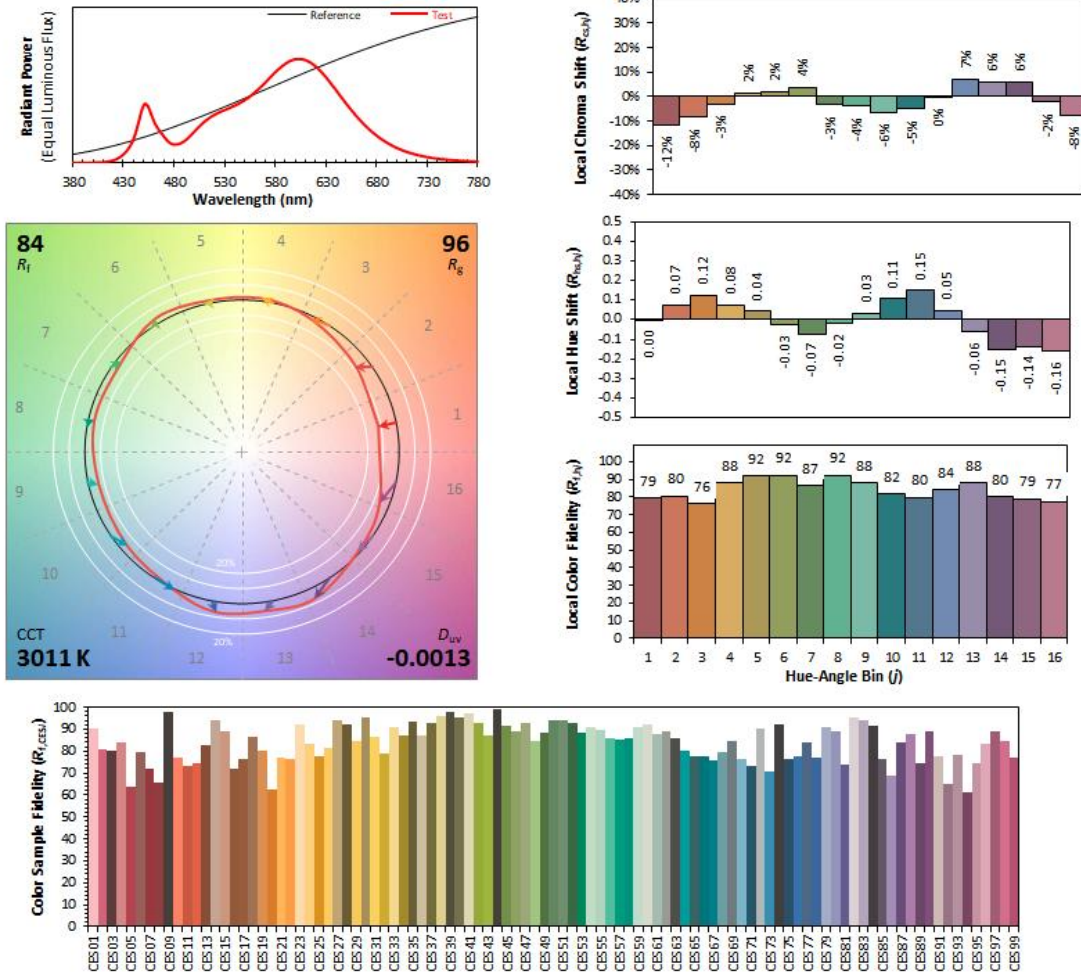
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.0035	535	0.4866	32.0894	690	0.3476	22.9234
385	0.0006	0.0417	540	0.5057	33.3486	695	0.3025	19.9488
390	0.0005	0.0298	545	0.5275	34.7868	700	0.2625	17.3136
395	0.0005	0.0358	550	0.5505	36.3028	705	0.2268	14.9538
400	0.0008	0.0504	555	0.5751	37.9239	710	0.1958	12.9106
405	0.0022	0.1477	560	0.6035	39.7963	715	0.1668	10.9987
410	0.0052	0.3416	565	0.6394	42.1676	720	0.1427	9.4111
415	0.0112	0.7377	570	0.6794	44.8050	725	0.1223	8.0679
420	0.0237	1.5608	575	0.7234	47.7090	730	0.1046	6.8968
425	0.0448	2.9549	580	0.7700	50.7810	735	0.0887	5.8501
430	0.0801	5.2828	585	0.8229	54.2717	740	0.0760	5.0137
435	0.1366	9.0095	590	0.8727	57.5549	745	0.0655	4.3207
440	0.2283	15.0589	595	0.9151	60.3459	750	0.0552	3.6399
445	0.3908	25.7753	600	0.9536	62.8889	755	0.0454	2.9932
450	0.5539	36.5253	605	0.9825	64.7951	760	0.0403	2.6580
455	0.5297	34.9301	610	0.9986	65.8540	765	0.0352	2.3241
460	0.4030	26.5772	615	0.9969	65.7425	770	0.0299	1.9697
465	0.3168	20.8948	620	0.9902	65.3004	775	0.0255	1.6807
470	0.2520	16.6202	625	0.9641	63.5807	780	0.0213	1.4015
475	0.1976	13.0316	630	0.9277	61.1793	785	0.0182	1.2010
480	0.1751	11.5457	635	0.8814	58.1245	790	0.0158	1.0390
485	0.1816	11.9785	640	0.8257	54.4517	795	0.0130	0.8557
490	0.2067	13.6293	645	0.7633	50.3373	800	0.0108	0.7133
495	0.2480	16.3580	650	0.6998	46.1518			
500	0.2987	19.7018	655	0.6348	41.8613			
505	0.3488	23.0033	660	0.5702	37.6050			
510	0.3950	26.0461	665	0.5100	33.6354			
515	0.4320	28.4895	670	0.4511	29.7516			
520	0.4615	30.4373	675	0.3977	26.2269			
525	0.4866	32.0894	680	0.3476	22.9234			
530	0.5057	33.3486	685	0.3025	19.9488			

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ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4342
 y 0.3998
 z' 0.2507
 v' 0.5193

CIE 13.3-1995 (CRI)	
R_a	82
R_g	6

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Zonal Lumen Tabulation

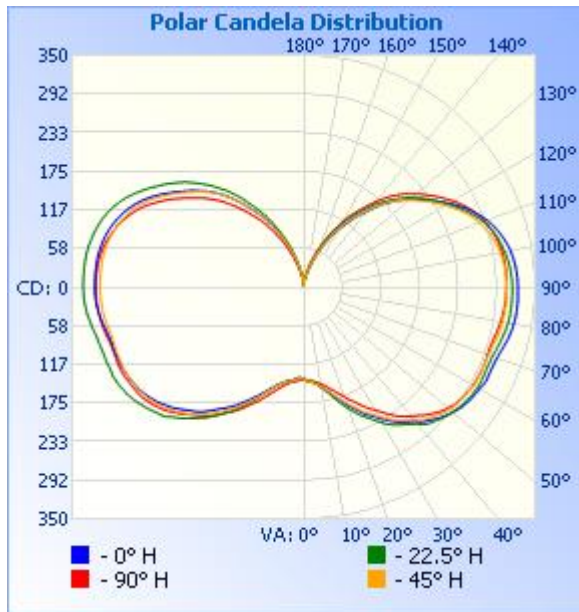
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	153.8	4.7%	4.7%
0-40	306.6	9.4%	9.4%
0-60	792.2	24.3%	24.3%
60-90	989.2	30.3%	30.3%
70-100	1,032.4	31.7%	31.7%
90-120	963.2	29.5%	29.5%
0-90	1,781.4	54.6%	54.6%
90-180	1,479.2	45.4%	45.4%
0-180	3,260.6	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	13.8	0.4%	90-100	350.2	10.7%
10-20	46.5	1.4%	100-110	329.1	10.1%
20-30	93.5	2.9%	110-120	283.9	8.7%
30-40	152.8	4.7%	120-130	220.6	6.8%
40-50	215.5	6.6%	130-140	154.1	4.7%
50-60	270.1	8.3%	140-150	89.8	2.8%
60-70	307.0	9.4%	150-160	39.7	1.2%
70-80	332.0	10.2%	160-170	10.8	0.3%
80-90	350.2	10.7%	170-180	1.1	0%

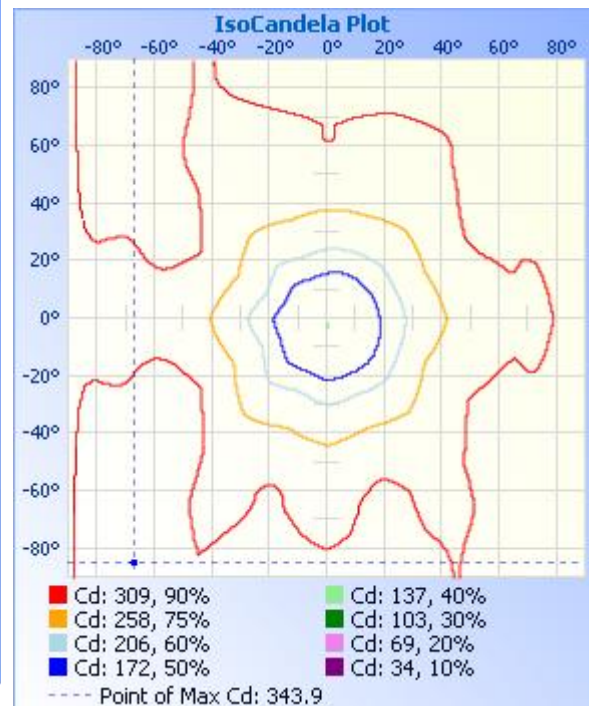
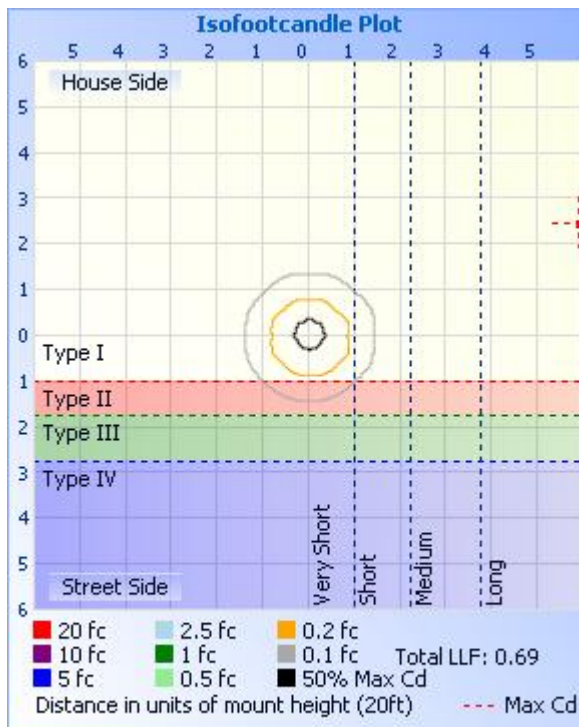
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	0.48 fc	778.7 ft
34.0ft	0.12 fc	1,557.5 ft
51.0ft	0.05 fc	2,336.2 ft
68.0ft	0.03 fc	3,114.9 ft
85.0ft	0.02 fc	3,893.6 ft
102.0ft	0.01 fc	4,672.4 ft

■ Beam Spread: 175.0°



Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139
1	140	140	141	140	139	139	139	138	138	138	138	139	140	140	140	140	140
2	142	141	142	141	140	139	138	138	137	137	138	139	140	140	141	142	142
3	143	142	143	143	141	140	139	138	137	137	138	139	141	142	142	143	143
4	144	143	143	143	142	141	140	139	138	138	139	141	142	142	143	143	144
5	144	144	144	144	142	142	141	140	139	140	140	142	143	143	143	144	144
6	145	145	146	144	143	143	142	142	141	141	141	143	143	144	145	145	145
7	147	147	147	146	144	144	143	143	142	142	143	144	145	145	146	146	147
8	148	149	148	147	145	144	144	143	143	143	143	144	146	147	147	148	148
9	150	151	150	149	147	145	145	144	144	144	144	145	147	148	149	150	150
10	153	153	152	151	148	147	146	145	145	145	145	147	149	150	151	152	153
11	156	156	155	154	150	148	148	146	146	146	146	149	151	152	154	154	156
12	159	160	157	158	152	150	150	148	147	147	148	151	153	155	156	157	159
13	162	164	160	161	154	153	152	150	149	149	150	153	156	158	159	159	162
14	165	168	163	165	157	156	154	153	151	151	152	155	158	160	162	162	165
15	168	172	167	169	160	160	156	156	153	154	154	158	161	163	165	165	168
16	172	176	170	173	162	164	159	159	155	157	157	161	164	166	168	169	172
17	176	181	174	178	166	168	161	162	158	160	160	164	168	170	172	172	176
18	180	186	178	183	169	173	164	166	161	163	163	167	171	174	176	177	180
19	184	190	182	188	172	178	167	171	164	167	166	171	175	178	179	181	184
20	188	194	185	193	175	184	170	175	167	170	170	174	178	182	183	185	188
21	192	198	189	198	179	189	174	179	171	174	174	178	182	186	187	189	192
22	196	203	193	203	183	194	178	184	174	179	177	183	186	190	191	193	196
23	200	207	197	208	186	199	181	188	178	184	181	187	190	194	195	198	200
24	204	211	201	213	190	204	185	193	182	187	185	191	193	199	198	202	204
25	209	215	206	218	194	210	188	197	186	192	190	196	197	204	203	207	209
26	213	219	210	222	198	215	192	202	189	197	193	201	202	208	207	211	213
27	217	223	214	226	203	220	196	207	194	201	198	206	206	213	211	215	217
28	220	227	217	231	207	224	200	212	198	206	202	212	210	218	214	219	220

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30	228	236	225	241	214	232	207	220	206	215	211	223	217	227	222	228	228
31	232	240	229	246	218	236	211	224	211	220	215	229	221	231	226	232	232
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34	244	251	242	258	231	251	223	237	221	233	226	245	232	245	238	244	244
35	248	254	245	262	236	255	227	241	225	238	231	251	236	250	242	248	248
36	252	256	248	265	240	259	231	245	229	242	235	256	240	254	245	251	252
37	255	259	252	269	244	263	236	249	233	247	240	260	244	257	249	254	255
38	258	263	254	273	248	267	240	252	238	251	244	263	248	261	251	257	258
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40	264	270	261	281	254	275	247	258	245	259	251	270	253	268	257	264	264
41	269	275	265	286	257	280	250	262	249	263	255	273	256	272	261	268	269
42	273	278	269	291	261	284	253	265	252	266	258	276	259	276	264	272	273
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44	278	282	274	297	268	294	261	272	258	274	263	284	266	284	271	278	278
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50	294	294	287	313	284	313	281	290	276	293	279	300	284	300	289	292	294
51	297	295	289	315	286	315	284	293	278	296	282	302	286	303	291	294	297
52	298	296	290	317	288	318	286	295	281	298	285	304	289	305	294	296	298
53	300	297	291	318	290	321	289	298	283	301	287	306	291	308	296	298	300
54	301	299	292	320	291	324	290	300	285	303	288	309	292	310	298	300	301
55	303	300	293	321	293	326	292	302	287	305	290	310	294	312	299	301	303
56	304	301	294	322	293	328	294	304	289	307	291	312	296	314	300	302	304
57	305	302	294	323	294	330	295	306	291	309	293	313	297	315	301	303	305
58	306	303	295	325	295	331	296	307	293	310	294	315	298	316	301	304	306
59	307	303	296	325	295	332	297	309	294	312	295	316	299	317	302	304	307
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61	308	304	298	325	296	334	298	311	296	315	296	319	300	318	304	305	308
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63	310	304	297	325	297	334	299	313	298	317	298	322	302	320	305	306	310
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66	310	303	297	324	297	334	300	312	300	318	299	324	304	320	307	304	310
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68	310	303	297	324	296	334	300	313	300	318	299	324	304	320	308	305	310
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72	314	306	299	326	296	334	300	315	302	319	299	324	303	322	310	308	314
73	315	307	300	326	297	335	300	316	302	320	299	324	304	323	311	309	315
74	316	308	300	327	297	336	301	317	302	320	299	325	305	324	312	310	316
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76	319	311	303	329	299	337	302	318	304	322	300	326	307	326	314	312	319
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79	322	313	305	331	302	340	304	322	308	325	303	330	310	329	318	315	322
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82	324	315	306	333	304	342	307	325	311	329	305	333	312	332	321	317	324
83	324	315	307	333	305	343	308	326	313	330	306	334	312	332	321	318	324
84	324	316	307	333	305	343	309	327	313	331	306	335	313	333	321	318	324
85	324	315	307	333	306	344	309	328	315	332	307	336	314	333	322	319	324
86	325	316	307	334	306	344	310	328	315	332	307	336	314	333	322	319	325
87	324	315	307	334	306	344	311	329	315	333	308	337	314	334	322	319	324
88	324	316	307	334	306	344	311	329	316	333	308	337	314	334	321	318	324
89	324	315	307	333	307	344	311	329	316	333	308	337	314	333	321	319	324
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93	323	315	307	333	307	343	312	329	316	334	308	337	314	333	320	318	323
94	323	315	306	333	307	343	312	329	316	333	308	337	314	333	320	318	323
95	322	314	306	332	307	343	312	329	316	334	308	337	314	333	319	317	322
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98	320	311	304	330	306	341	312	328	315	332	307	336	312	331	316	315	320
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101	316	307	301	327	304	338	310	325	313	331	305	333	309	328	313	312	316
102	315	306	299	326	303	337	309	325	312	330	304	332	308	326	311	310	315
103	312	304	298	324	302	336	308	324	311	329	304	331	306	325	309	309	312
104	311	303	296	323	301	334	307	322	310	328	302	330	305	324	307	307	311
105	308	301	294	322	300	333	306	321	309	327	301	328	303	322	305	305	308
106	306	300	293	320	298	331	304	319	308	325	300	327	301	320	302	303	306
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109	298	292	286	313	293	326	299	314	302	321	295	322	295	314	294	295	298
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111	292	286	281	307	289	321	295	309	298	317	291	317	289	309	288	289	292
112	288	283	278	304	287	318	293	307	296	314	290	315	287	306	285	286	288
113	284	279	275	301	285	315	290	304	293	312	287	313	283	303	282	282	284
114	281	275	271	297	282	312	288	301	291	309	285	310	280	299	279	279	281
115	276	272	267	293	279	308	285	298	288	306	282	306	277	296	275	275	276
116	272	268	264	290	275	304	282	294	285	303	279	303	274	292	271	271	272
117	267	264	259	285	272	300	279	290	281	300	276	300	270	288	267	267	267
118	263	259	256	282	268	296	275	286	278	296	273	296	265	284	263	263	263
119	258	256	251	277	264	292	272	283	274	292	269	292	261	280	259	258	258
120	254	251	247	273	260	288	268	278	270	288	265	288	256	275	254	254	254
121	249	247	243	269	257	283	264	274	266	284	261	284	252	271	250	250	249
122	244	243	239	265	252	279	260	270	262	280	257	279	247	266	245	246	244
123	239	239	234	261	248	275	256	266	257	276	253	275	243	262	240	242	239
124	234	235	230	257	244	270	252	262	253	271	249	270	238	257	236	238	234

125	229	231	226	254	240	266	248	258	248	267	245	266	233	252	231	234	229
126	224	227	222	249	236	262	243	254	244	263	241	262	228	248	226	230	224
127	220	223	217	245	232	257	239	250	240	259	236	258	224	243	221	226	220
128	215	219	213	240	228	252	234	246	235	255	232	254	219	238	216	221	215
129	211	215	209	235	223	247	230	242	231	250	228	249	214	233	211	217	211
130	206	210	205	230	219	242	226	238	226	246	224	245	209	228	206	211	206
131	202	206	201	225	215	236	221	233	222	241	220	240	205	223	201	206	202
132	197	201	197	220	211	231	217	228	218	237	215	235	200	218	196	201	197
133	192	196	192	215	206	225	213	223	213	232	212	231	196	212	192	195	192
134	186	191	186	210	201	220	208	218	209	226	207	225	191	207	187	190	186
135	180	186	181	205	196	214	203	214	205	221	204	220	186	202	182	184	180
136	175	181	176	199	191	208	198	209	200	216	199	216	181	196	177	179	175
137	168	176	170	193	186	202	192	204	195	211	194	210	175	191	171	174	168
138	162	171	164	187	180	196	186	200	190	205	189	205	170	185	165	168	162
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143	133	144	135	153	149	162	157	173	161	177	161	176	142	157	136	141	133
144	128	138	130	146	143	154	150	168	155	170	155	170	136	150	131	135	128
145	123	133	125	139	138	147	144	162	149	164	149	163	131	144	125	130	123
146	117	128	120	132	133	139	138	157	143	157	143	157	126	138	120	124	117
147	111	123	114	124	128	132	132	151	137	151	137	151	121	132	115	119	111
148	105	117	108	117	122	126	127	145	132	145	132	145	116	126	110	114	105
149	100	111	102	110	116	119	121	139	127	139	126	140	110	121	104	108	100
150	94	105	97	103	110	113	116	134	121	133	121	134	104	116	98	102	94
151	88	99	91	96	103	107	110	128	116	127	115	128	99	110	93	97	88
152	83	94	85	89	97	100	104	122	110	121	109	122	93	104	87	91	83
153	78	89	80	82	91	94	98	115	104	115	103	116	88	97	82	85	78
154	73	83	75	77	86	87	92	109	98	108	98	109	82	91	77	79	73
155	68	78	69	71	81	81	87	102	93	102	92	103	78	86	72	74	68
156	63	71	64	66	76	76	82	96	87	96	87	97	73	80	68	69	63

157	58	65	59	60	70	71	77	89	82	90	82	91	68	74	62	63	58
158	53	58	55	55	65	66	72	83	78	84	77	85	63	69	57	58	53
159	48	53	50	51	61	61	67	78	72	79	71	79	58	63	53	53	48
160	44	47	45	47	56	57	62	72	67	73	65	73	53	58	48	48	44
161	40	42	41	42	51	52	58	65	62	67	60	67	49	52	44	43	40
162	36	37	37	38	47	49	53	59	57	62	56	62	45	47	40	39	36
163	32	33	33	35	43	45	48	54	52	56	51	56	41	42	36	35	32
164	29	29	29	31	39	41	44	49	48	51	46	50	37	37	32	31	29
165	25	26	26	28	35	37	40	44	43	46	42	44	33	33	29	27	25
166	23	23	23	25	32	34	36	40	39	41	38	39	30	29	26	24	23
167	20	20	20	22	28	30	32	35	35	37	34	34	27	25	23	21	20
168	18	17	18	20	25	27	28	31	32	32	30	30	24	22	20	18	18
169	16	15	16	18	21	24	25	28	28	28	27	25	21	19	18	15	16
170	14	13	14	16	18	21	23	25	25	25	24	22	19	17	15	13	14
171	12	12	12	14	16	19	20	22	22	22	21	19	16	15	14	12	12
172	11	10	11	12	14	17	18	19	19	19	19	16	13	13	12	10	11
173	8	9	9	11	13	15	16	17	17	16	17	15	10	11	10	9	8
174	6	7	8	9	12	12	14	15	15	14	15	13	8	8	6	7	6
175	3	4	5	7	9	10	12	12	14	12	13	11	6	4	3	3	3
176	3	3	3	3	7	8	9	10	11	11	10	9	3	3	3	3	3
177	3	3	3	3	3	5	7	6	8	7	7	5	3	3	3	3	3
178	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
179	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
180	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

2.8 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 4000K 22W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.180	21.37	0.991	5.82
0E-C 1	277.0	60	0.086	21.16	0.887	9.13
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

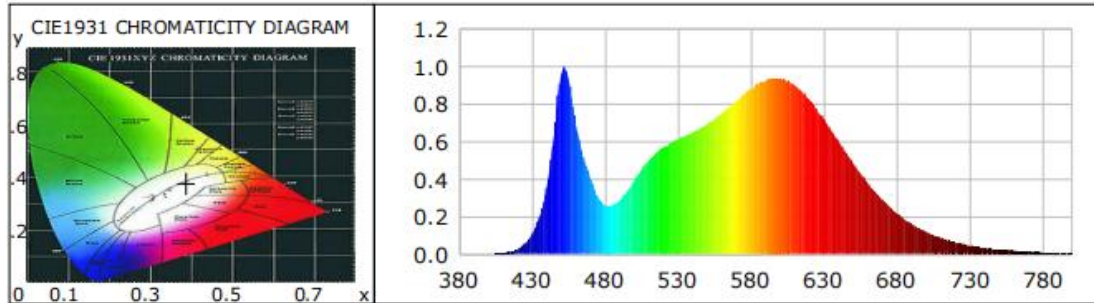
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	83	R9	12
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3801	R3	96	R11	81
Duv	-0.0027	R4	82	R12	64
Chromaticity (x, y)	x=0.3875 y=0.3753	R5	83	R13	85
Chromaticity (u', v')	u'=0.2304 v'=0.502	R6	87	R14	98
Color Rendering Index CRI(Ra)	84	R7	85	R15	77
R9	12	R8	64	--	--
Rf	84	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-12				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	3427.4	3387.7	>=2000(-10%)
Luminous Efficacy (lm/W)	160.38	160.10	Standard>=130(-3%)
Most worst Luminous/Highest Watts	158.53		

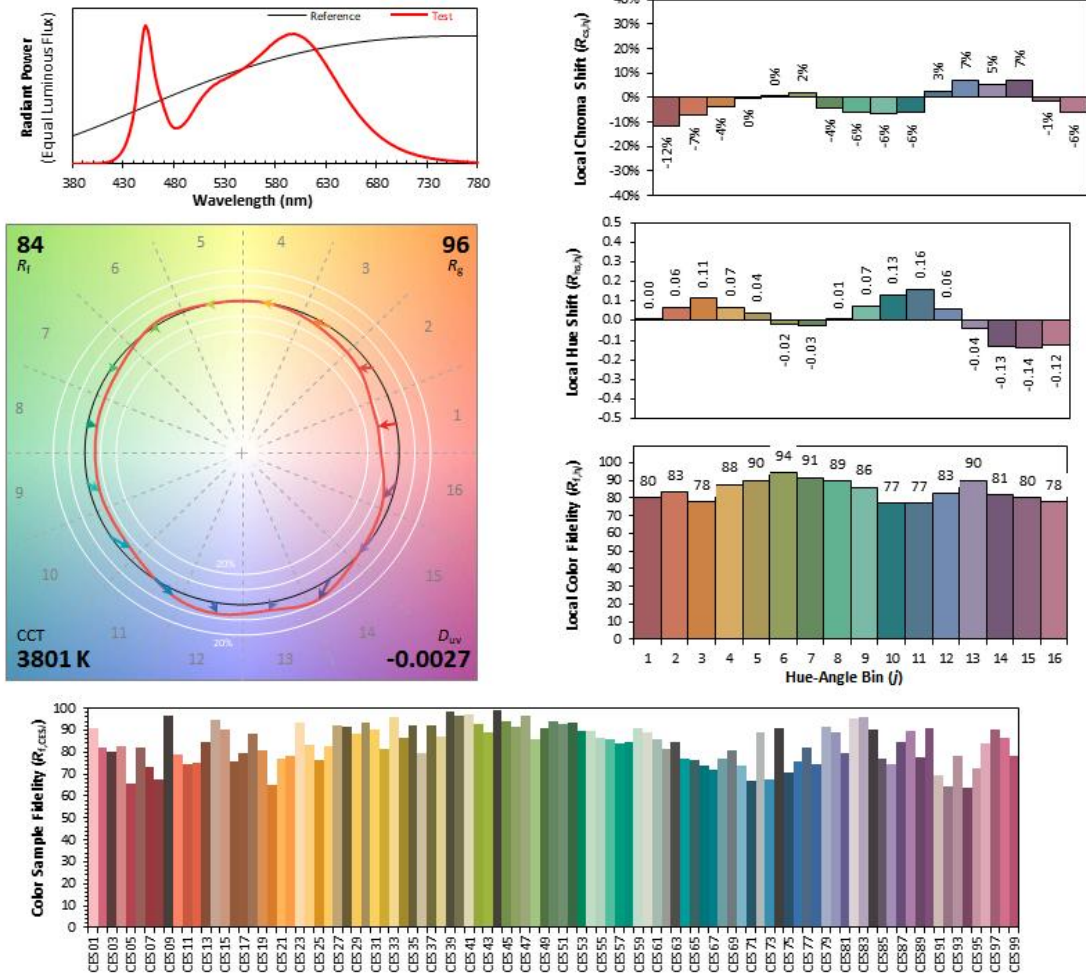
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0222	535	0.5942	39.3432	690	0.2897	19.1812
385	0.0004	0.0281	540	0.6112	40.4696	695	0.2512	16.6306
390	0.0007	0.0460	545	0.6301	41.7177	700	0.2172	14.3820
395	0.0007	0.0440	550	0.6507	43.0807	705	0.1871	12.3874
400	0.0011	0.0722	555	0.6697	44.3419	710	0.1613	10.6795
405	0.0025	0.1680	560	0.6943	45.9719	715	0.1380	9.1392
410	0.0054	0.3547	565	0.7218	47.7883	720	0.1182	7.8231
415	0.0121	0.8033	570	0.7518	49.7732	725	0.1005	6.6527
420	0.0268	1.7777	575	0.7841	51.9140	730	0.0856	5.6651
425	0.0547	3.6222	580	0.8150	53.9614	735	0.0728	4.8191
430	0.1063	7.0376	585	0.8531	56.4860	740	0.0626	4.1457
435	0.1979	13.1035	590	0.8849	58.5852	745	0.0531	3.5188
440	0.3538	23.4274	595	0.9059	59.9777	750	0.0454	3.0089
445	0.6446	42.6771	600	0.9272	61.3862	755	0.0367	2.4298
450	0.9608	63.6162	605	0.9374	62.0664	760	0.0326	2.1551
455	0.9354	61.9346	610	0.9366	62.0097	765	0.0289	1.9142
460	0.6927	45.8629	615	0.9218	61.0339	770	0.0237	1.5686
465	0.5229	34.6194	620	0.9005	59.6186	775	0.0210	1.3929
470	0.4050	26.8170	625	0.8663	57.3563	780	0.0171	1.1328
475	0.3044	20.1547	630	0.8225	54.4585	785	0.0140	0.9275
480	0.2598	17.2040	635	0.7733	51.1982	790	0.0133	0.8779
485	0.2618	17.3339	640	0.7180	47.5351	795	0.0101	0.6713
490	0.2878	19.0576	645	0.6590	43.6305	800	0.0082	0.5399
495	0.3360	22.2459	650	0.6002	39.7363			
500	0.3947	26.1340	655	0.5393	35.7046			
505	0.4509	29.8569	660	0.4826	31.9545			
510	0.4999	33.0998	665	0.4284	28.3657			
515	0.5401	35.7598	670	0.3774	24.9895			
520	0.5700	37.7404	675	0.3306	21.8868			
525	0.5942	39.3432	680	0.2897	19.1812			
530	0.6112	40.4696	685	0.2512	16.6306			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.3875	CIE 13.3-1995 (CRI) R_a 84 R_g 12
y	0.3753	
u'	0.2304	
v'	0.5020	

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2.9 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2026-03-13	Test Ambient:	25.2 ° C
Test Orientation	Horizontal	Stabilization Time (min)	90
Model Number	HIDFA-45S-E26-8CCT-BYP(Setting at 5000K 22W)	Operation time(min)	110

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
UTU260301	120.0	60	0.183	21.78	0.992	5.88
0E-C 1	277.0	60	0.087	21.42	0.886	9.14
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

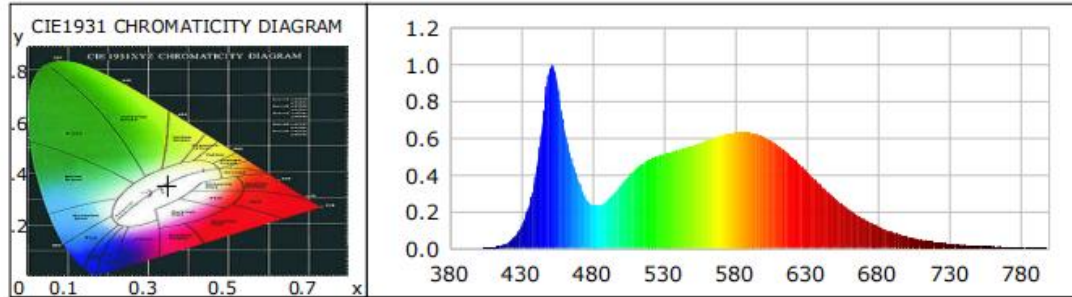
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	1
Frequency (Hz)	60	R2	88	R10	71
CCT (K)	4915	R3	93	R11	79
Duv	0.0007	R4	80	R12	55
Chromaticity (x, y)	x=0.3477 y=0.355	R5	80	R13	82
Chromaticity (u', v')	u'=0.2119 v'=0.4867	R6	82	R14	97
Color Rendering Index CRI(Ra)	82	R7	86	R15	74
R9	1	R8	65	--	--
Rf	82	--	--	--	--
Rg	95	--	--	--	--
Rcs,h1(%)	-13				

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V6.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	3402.6	3360.2	>=2000(-10%)
Luminous Efficacy (lm/W)	156.23	156.87	Standard>=130(-3%)
Most worst Luminous/Highest Watts	154.28		

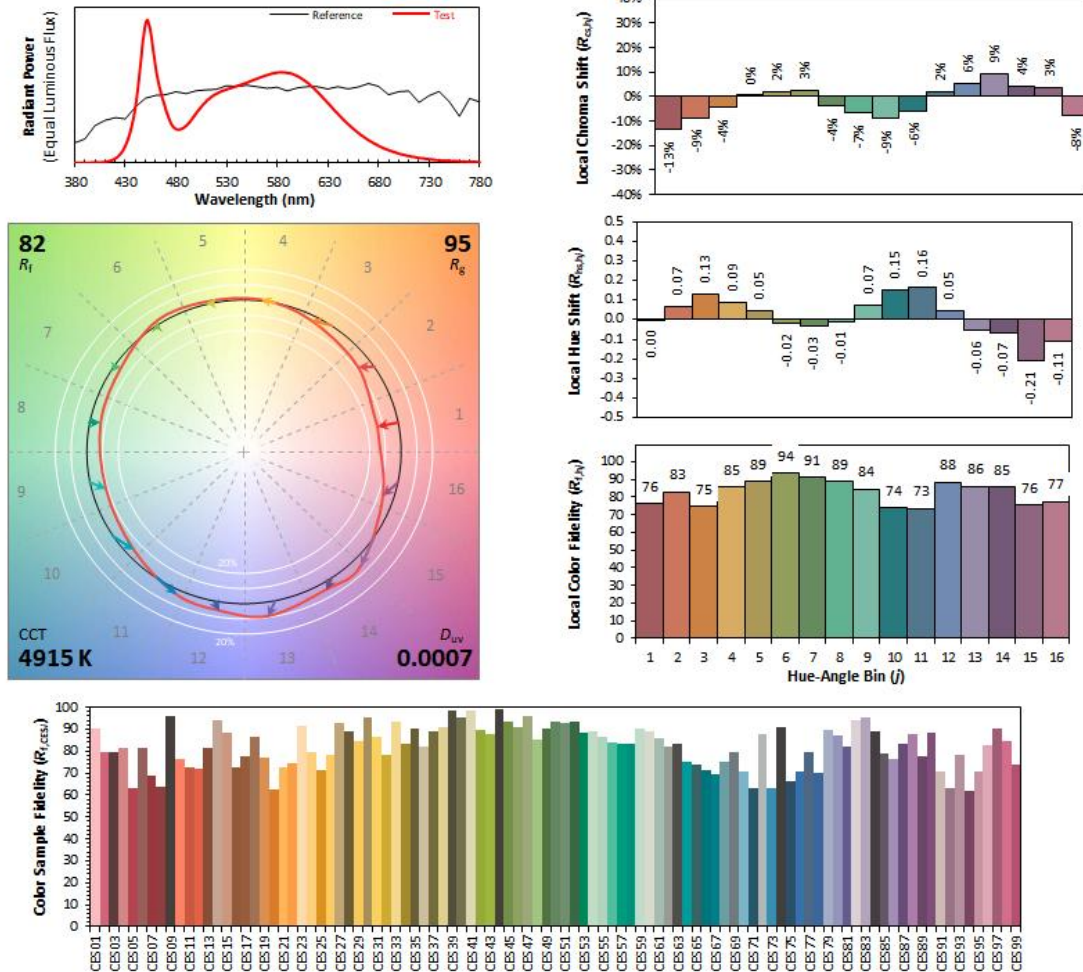
Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.0201	535	0.5004	44.0167	690	0.1593	14.0152
385	0.0004	0.0329	540	0.5133	45.1511	695	0.1382	12.1540
390	0.0007	0.0624	545	0.5247	46.1465	700	0.1193	10.4956
395	0.0008	0.0678	550	0.5373	47.2557	705	0.1023	8.9955
400	0.0014	0.1241	555	0.5483	48.2240	710	0.0888	7.8090
405	0.0026	0.2274	560	0.5612	49.3643	715	0.0760	6.6834
410	0.0057	0.5008	565	0.5760	50.6619	720	0.0645	5.6763
415	0.0138	1.2164	570	0.5887	51.7775	725	0.0553	4.8638
420	0.0297	2.6090	575	0.6017	52.9212	730	0.0471	4.1411
425	0.0605	5.3240	580	0.6132	53.9343	735	0.0399	3.5090
430	0.1187	10.4422	585	0.6259	55.0544	740	0.0338	2.9731
435	0.2225	19.5718	590	0.6320	55.5837	745	0.0299	2.6311
440	0.3948	34.7276	595	0.6328	55.6614	750	0.0251	2.2067
445	0.6951	61.1344	600	0.6299	55.4033	755	0.0208	1.8284
450	0.9775	85.9733	605	0.6220	54.7073	760	0.0180	1.5809
455	0.9120	80.2192	610	0.6077	53.4506	765	0.0165	1.4529
460	0.6615	58.1807	615	0.5847	51.4301	770	0.0142	1.2477
465	0.4925	43.3143	620	0.5609	49.3306	775	0.0118	1.0399
470	0.3702	32.5591	625	0.5296	46.5793	780	0.0095	0.8360
475	0.2761	24.2807	630	0.4955	43.5801	785	0.0086	0.7592
480	0.2358	20.7355	635	0.4571	40.2061	790	0.0071	0.6227
485	0.2363	20.7805	640	0.4177	36.7411	795	0.0062	0.5478
490	0.2590	22.7784	645	0.3799	33.4123	800	0.0050	0.4414
495	0.2991	26.3108	650	0.3412	30.0101			
500	0.3475	30.5648	655	0.3056	26.8812			
505	0.3920	34.4823	660	0.2709	23.8286			
510	0.4313	37.9368	665	0.2388	21.0006			
515	0.4615	40.5958	670	0.2101	18.4793			
520	0.4820	42.3972	675	0.1827	16.0710			
525	0.5004	44.0167	680	0.1593	14.0152			
530	0.5133	45.1511	685	0.1382	12.1540			

TM30

ANSI/IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3477
 y 0.3550
 u' 0.2119
 v' 0.4867

CIE 13.3-1995
(CRI)
 R_a 82
 R_g 1

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3. Test Equipment

Equipment Name	Model No.	Serial No.	Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2025-10-23
AC Power Source	CHP-500C	DYBWD010159	2025-10-13
Standard Lamp*	24V/150W	DYJYR040040	2025-12-30
Standard Lamp**	24V/100W	DYBWR030014	2025-12-30
Digital Power Meter	WT500	DYDWQ20010	2025-10-13
Integral Sphere (2M)	2M	DYJCE120067	2025-10-23
Digital Power Meter	WT500	DYDWQ200006	2025-10-13
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2025-10-23

* Reference standard lamp (150W incandescent directional lamp) calibrated by Guangzhou Institute of Measurement and Testing Technology.

** Reference standard lamp (100W incandescent omni-directional lamp) calibrated by Guangzhou Institute of Measurement and Testing Technology.

Expand Uncertainty:

Photometric Measurement (Sphere): 2.02%, k=2

Chromaticity Measurement(Sphere):24.8K, k=2

Photometric Measurement(Goniophotometer):2.88%, k=2

***** END OF REPORT *****