

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P437018

Luminaire Tested: **ISS-SA1A-740-U-T4W**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437018
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-12)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISS-SA1A-740-U-T4W
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 4000K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV WIDE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2780 lumens
Efficiency: N/A
Efficacy: 138.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G1

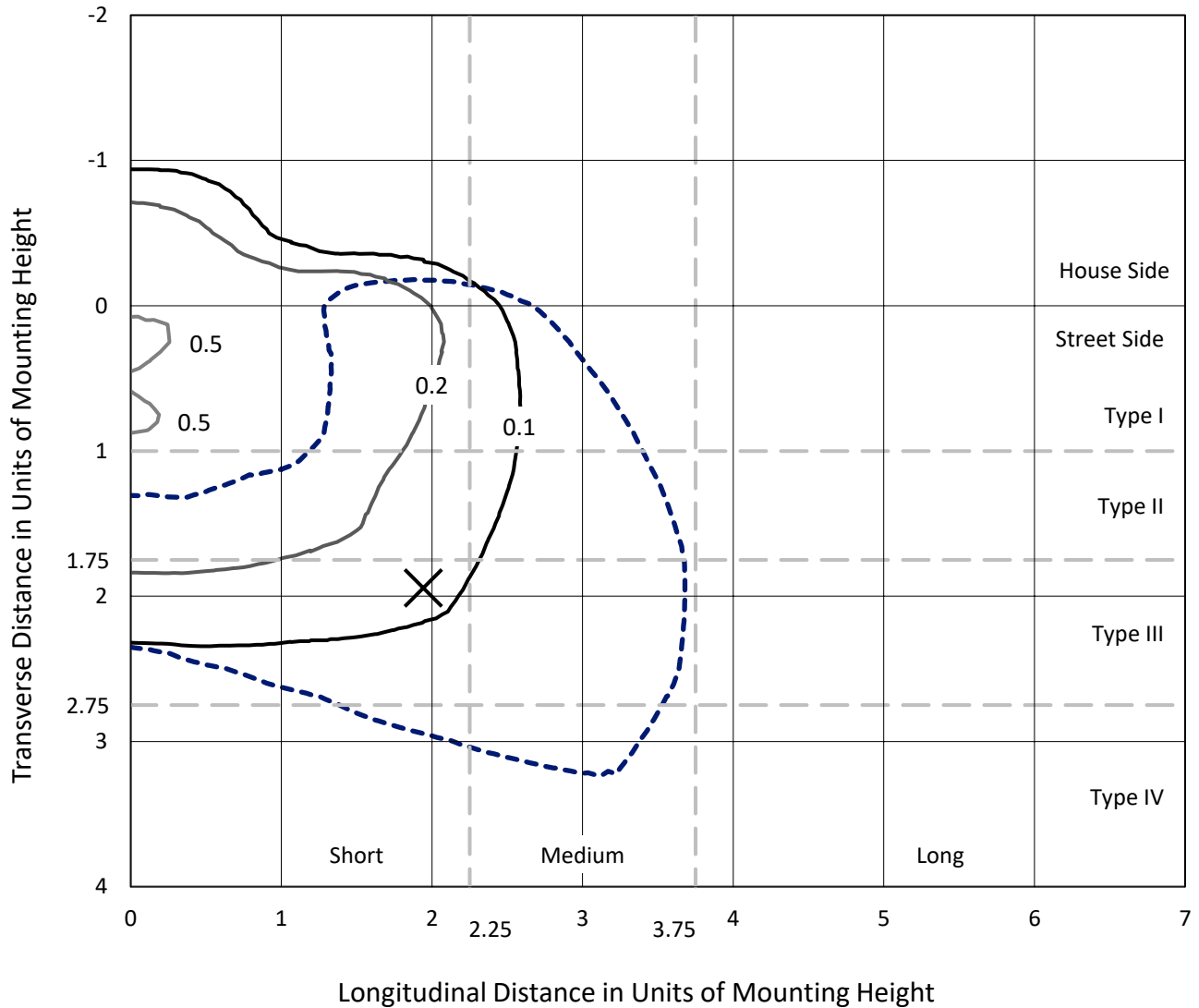
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

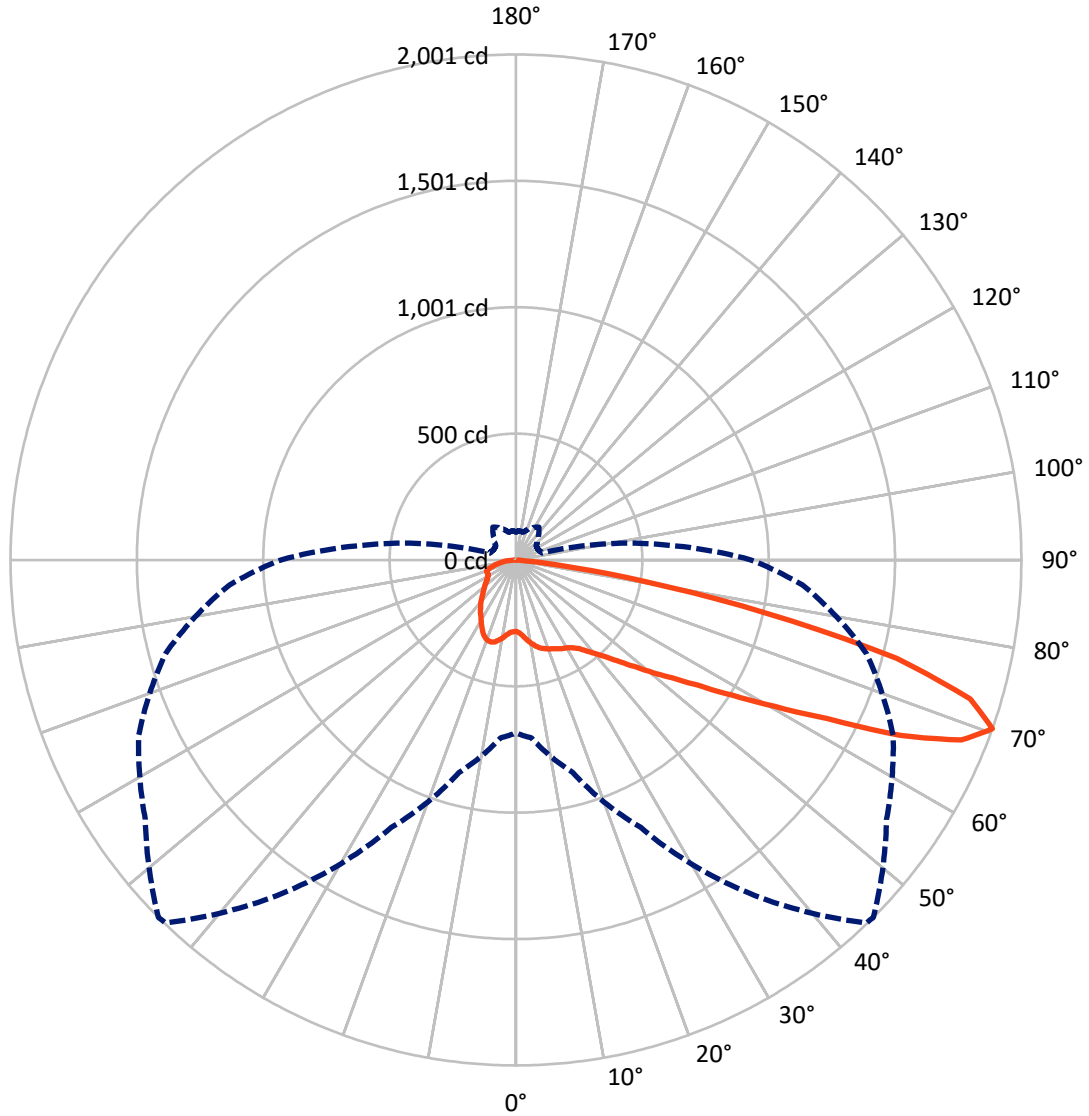
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.6 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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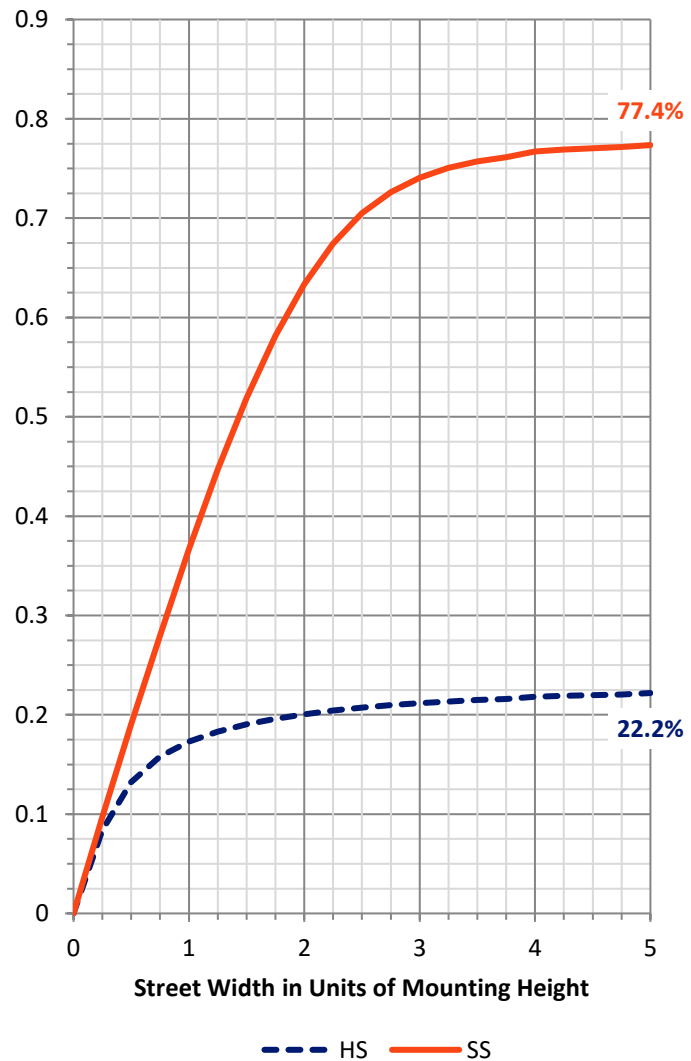
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	627.7	0.0	627.7
	% Fixture	22.6	0.0	22.6
Street Side	Lumens	2152.4	0.0	2152.4
	% Fixture	77.4	0.0	77.4
Total	Lumens	2780.0	0.0	2780.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.2	1.0
10°-20°	97.7	3.5
20°-30°	165.4	5.9
30°-40°	239.1	8.6
40°-50°	344.7	12.4
50°-60°	565.4	20.3
60°-70°	810.0	29.1
70°-80°	481.5	17.3
80°-90°	47.1	1.7
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	2780.0	100.0
0°-180°	2780.0	100.0



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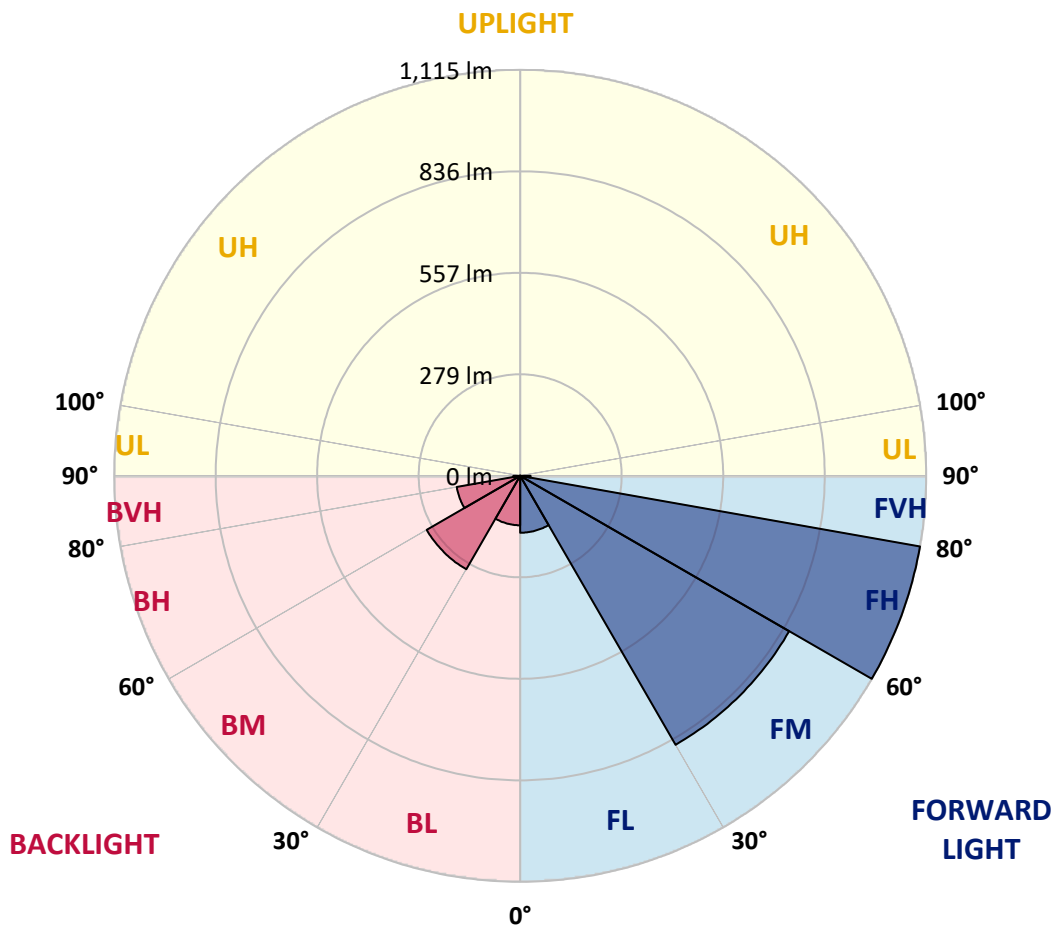
CATALOG NUMBER: ISS-SA1A-740-U-T4W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	156.3	5.6			
FM (30°-60°)	852.9	30.7			
FH (60°-80°)	1114.7	40.1			G1/1800
FVH (80°-90°)	28.4	1.0			G1/100
BL (0°-30°)	135.8	4.9	B1/500		
BM (30°-60°)	296.3	10.7	B1/1000		
BH (60°-80°)	176.8	6.4	B1/500		G1/500
BVH (80°-90°)	18.7	0.7			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
0°	283	283	283	283	283	283	283	283	283	283	283
2.5°	297	297	296	295	293	291	290	287	287	286	284
5°	319	317	316	312	309	304	303	296	292	289	287
7.5°	342	343	339	334	327	320	320	312	305	298	292
10°	364	364	359	353	346	337	335	326	318	309	302
12.5°	381	380	374	368	359	352	350	339	332	321	311
15°	393	393	387	378	369	362	362	354	344	333	321
17.5°	400	399	394	384	376	370	369	363	357	346	331
20°	400	398	394	386	379	375	376	371	367	354	342
22.5°	399	398	391	385	383	382	381	379	372	362	352
25°	408	407	399	391	387	387	389	385	381	371	362
27.5°	433	429	418	403	397	396	397	392	389	382	374
30°	475	473	456	428	412	404	403	402	398	393	386
32.5°	530	528	502	466	432	414	415	410	410	403	397
35°	598	594	568	517	462	432	430	423	424	412	406
37.5°	658	654	629	569	500	461	458	441	430	415	416
40°	709	710	692	632	549	493	488	455	442	429	435
42.5°	761	764	752	688	599	528	526	479	468	458	472
45°	812	818	808	748	655	581	573	518	511	505	547
47.5°	857	859	858	811	717	641	630	569	578	594	664
50°	913	916	900	874	801	709	699	633	670	722	828
52.5°	996	1000	955	939	905	791	776	727	807	885	1011
55°	1044	1038	1018	1020	1001	889	876	842	956	1049	1218
57.5°	1075	1072	1084	1111	1111	1015	1010	995	1116	1228	1382
60°	1125	1131	1159	1213	1242	1180	1177	1180	1296	1353	1499
62.5°	1156	1169	1240	1333	1394	1401	1382	1380	1436	1457	1576
65°	1101	1122	1238	1389	1576	1689	1675	1554	1552	1551	1561
67.5°	956	972	1140	1364	1674	1910	1902	1709	1662	1559	1421
70°	685	707	871	1168	1611	1998	2001	1791	1648	1437	1139
72.5°	424	425	531	832	1364	1869	1881	1710	1483	1197	805
75°	131	142	225	436	923	1520	1557	1421	1187	828	441
77.5°	65	67	81	160	444	984	1012	949	750	401	185
80°	37	39	50	71	170	489	512	500	304	145	79
82.5°	18	19	25	36	72	146	164	180	116	77	43
85°	5	5	7	12	19	30	30	33	41	39	21
87.5°	0	0	0	1	1	1	2	1	2	3	3
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	283	283	283	283	283	283	283	283	283	283	283
2.5°	284	284	282	283	283	284	284	285	286	287	287
5°	286	285	284	285	286	288	291	294	296	299	298
7.5°	292	289	290	290	294	298	304	308	312	314	314
10°	299	297	296	300	304	312	317	323	326	331	329
12.5°	309	304	305	310	318	324	328	333	336	340	339
15°	317	314	315	323	331	335	337	339	340	343	344
17.5°	327	326	327	334	339	340	339	337	336	339	338
20°	338	337	338	343	341	337	333	330	327	329	330
22.5°	347	348	349	347	339	329	322	317	315	317	319
25°	358	359	360	350	331	315	305	302	303	306	307
27.5°	372	375	372	349	320	297	289	288	289	292	295
30°	387	391	381	344	305	279	272	272	275	277	280
32.5°	400	408	389	335	284	262	257	255	255	257	258
35°	416	426	394	319	264	248	244	238	233	234	233
37.5°	432	447	392	294	242	232	228	219	211	206	208
40°	462	480	388	262	222	218	211	201	191	182	181
42.5°	515	516	379	233	203	201	195	186	174	162	162
45°	586	568	367	206	185	187	182	173	159	148	148
47.5°	693	630	344	182	170	174	171	162	147	137	137
50°	843	731	321	165	159	163	162	151	137	129	129
52.5°	1017	863	305	152	146	153	153	143	130	124	123
55°	1196	987	289	141	137	143	146	137	125	120	119
57.5°	1323	1049	267	132	127	135	139	133	122	117	116
60°	1387	1055	224	123	118	128	135	130	122	120	120
62.5°	1402	1030	179	115	112	124	136	134	128	130	131
65°	1338	947	146	109	108	123	142	141	129	134	135
67.5°	1185	803	124	103	102	125	153	141	122	127	125
70°	931	636	107	97	97	124	159	139	114	116	110
72.5°	612	417	95	91	88	113	155	135	110	104	97
75°	310	207	85	86	77	96	150	134	109	99	96
77.5°	128	97	76	78	65	82	141	124	98	88	85
80°	67	60	64	65	53	65	112	107	88	81	77
82.5°	39	38	49	50	37	53	99	93	74	66	64
85°	18	21	33	30	23	35	60	46	33	29	28
87.5°	2	3	7	7	5	3	1	0	0	0	0
90°	0	0	0	0	0	0	0	0	0	0	0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

CCT (K):	3905	CRI (Ra):	71.2	R9:	-29.7
CIE u':	0.2273	R1:	68.9	R10:	46.2
CIE v':	0.5024	R2:	77.0	R11:	68.8
Duv:	-0.0008	R3:	84.0	R12:	45.6
CIE x:	0.3841	R4:	71.6	R13:	69.5
CIE y:	0.3774	R5:	68.9	R14:	90.7
CIE z:	0.2385	R6:	68.3		
Peak Wavelength (nm):	443	R7:	78.7		
Dominant Wavelength (nm):	579	R8:	52.2		
Purity:	28.7				
Rf:	71.7				
Rg:	96.9				



Test Conditions

Stabilization Time: 211M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/312%
 Sphere Temperature (°C): 24.1

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Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength



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λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)
360	2304	0.0	490	19043	2.7	620	97577	25.4	750	4830	0.0	880	3505	0.0
365	2150	0.0	495	26606	4.8	625	90158	19.9	755	4664	0.0	885	2991	0.0
370	2146	0.0	500	36376	8.0	630	82240	14.9	760	4006	0.0	890	2327	0.0
375	2332	0.0	505	47714	13.3	635	74361	11.2	765	3715	0.0	895	2775	0.0
380	2527	0.0	510	58741	20.2	640	66994	8.0	770	3696	0.0	900	2141	0.0
385	2304	0.0	515	68716	28.5	645	60405	5.8	775	3117	0.0	905	2421	0.0
390	2064	0.0	520	77136	37.4	650	53806	3.9	780	3062	0.0	910	2200	0.0
395	1856	0.0	525	83567	44.9	655	47610	2.7	785	2907	0.0	915	2716	0.0
400	1856	0.0	530	89283	52.6	660	42018	1.8	790	2655	0.0	920	2656	0.0
405	2374	0.0	535	94097	58.4	665	36742	1.2	795	2467	0.0	925	2671	0.0
410	4084	0.0	540	96845	63.1	670	32105	0.7	800	2609	0.0	930	3292	0.0
415	8543	0.0	545	100829	67.1	675	27946	0.5	805	2293	0.0	935	3188	0.0
420	18394	0.1	550	105648	71.8	680	24146	0.3	810	2188	0.0	940	1997	0.0
425	37987	0.2	555	110017	75.1	685	21191	0.2	815	2386	0.0	945	2623	0.0
430	67605	0.5	560	114586	77.9	690	18544	0.1	820	2712	0.0	950	2969	0.0
435	102160	1.2	565	118987	79.1	695	16058	0.1	825	2473	0.0	955	2277	0.0
440	135103	2.1	570	122326	79.5	700	14133	0.0	830	1969	0.0	960	4267	0.0
445	140126	2.9	575	125968	78.4	705	12309	0.0	835	1917	0.0	965	2034	0.0
450	102339	2.7	580	127613	75.8	710	11142	0.0	840	2248	0.0	970	3586	0.0
455	58751	2.0	585	129466	71.9	715	10143	0.0	845	2266	0.0	975	2505	0.0
460	36892	1.5	590	128813	66.6	720	9072	0.0	850	2558	0.0	980	2666	0.0
465	24637	1.3	595	126387	59.9	725	8130	0.0	855	2767	0.0	985	2934	0.0
470	16738	1.0	600	123477	53.2	730	7149	0.0	860	2826	0.0	990	4120	0.0
475	13456	1.1	605	118718	46.0	735	6311	0.0	865	2385	0.0	995	3858	0.0
480	13081	1.2	610	112091	38.5	740	5711	0.0	870	3194	0.0	1000	3405	0.0
485	14734	1.7	615	105039	31.7	745	5111	0.0	875	3189	0.0			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)
360	2304	0.0	490	19043	29.3	620	97577	1.2	750	4830	0.0	880	3505	0.0
365	2150	0.0	495	26606	43.0	625	90158	0.8	755	4664	0.0	885	2991	0.0
370	2146	0.0	500	36376	60.8	630	82240	0.5	760	4006	0.0	890	2327	0.0
375	2332	0.0	505	47714	81.1	635	74361	0.3	765	3715	0.0	895	2775	0.0
380	2527	0.0	510	58741	99.6	640	66994	0.2	770	3696	0.0	900	2141	0.0
385	2304	0.0	515	68716	113.9	645	60405	0.1	775	3117	0.0	905	2421	0.0
390	2064	0.0	520	77136	122.6	650	53806	0.1	780	3062	0.0	910	2200	0.0
395	1856	0.0	525	83567	125.0	655	47610	0.0	785	2907	0.0	915	2716	0.0
400	1856	0.0	530	89283	123.1	660	42018	0.0	790	2655	0.0	920	2656	0.0
405	2374	0.1	535	94097	117.3	665	36742	0.0	795	2467	0.0	925	2671	0.0
410	4084	0.2	540	96845	107.0	670	32105	0.0	800	2609	0.0	930	3292	0.0
415	8543	0.9	545	100829	96.7	675	27946	0.0	805	2293	0.0	935	3188	0.0
420	18394	3.0	550	105648	86.4	680	24146	0.0	810	2188	0.0	940	1997	0.0
425	37987	9.3	555	110017	75.2	685	21191	0.0	815	2386	0.0	945	2623	0.0
430	67605	23.0	560	114586	64.0	690	18544	0.0	820	2712	0.0	950	2969	0.0
435	102160	45.7	565	118987	53.4	695	16058	0.0	825	2473	0.0	955	2277	0.0
440	135103	75.5	570	122326	43.2	700	14133	0.0	830	1969	0.0	960	4267	0.0
445	140126	93.8	575	125968	34.3	705	12309	0.0	835	1917	0.0	965	2034	0.0
450	102339	79.3	580	127613	26.3	710	11142	0.0	840	2248	0.0	970	3586	0.0
455	58751	51.3	585	129466	19.8	715	10143	0.0	845	2266	0.0	975	2505	0.0
460	36892	35.6	590	128813	14.3	720	9072	0.0	850	2558	0.0	980	2666	0.0
465	24637	26.0	595	126387	10.1	725	8130	0.0	855	2767	0.0	985	2934	0.0
470	16738	19.3	600	123477	7.0	730	7149	0.0	860	2826	0.0	990	4120	0.0
475	13456	16.8	605	118718	4.7	735	6311	0.0	865	2385	0.0	995	3858	0.0
480	13081	17.7	610	112091	3.0	740	5711	0.0	870	3194	0.0	1000	3405	0.0
485	14734	21.4	615	105039	1.9	745	5111	0.0	875	3189	0.0			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)
360	2304	0.0	490	19043	15.8	620	97577	0.1	750	4830	0.0	880	3505	0.0
365	2150	0.0	495	26606	22.0	625	90158	0.0	755	4664	0.0	885	2991	0.0
370	2146	0.0	500	36376	29.2	630	82240	0.0	760	4006	0.0	890	2327	0.0
375	2332	0.0	505	47714	36.6	635	74361	0.0	765	3715	0.0	895	2775	0.0
380	2527	0.0	510	58741	42.2	640	66994	0.0	770	3696	0.0	900	2141	0.0
385	2304	0.0	515	68716	44.9	645	60405	0.0	775	3117	0.0	905	2421	0.0
390	2064	0.0	520	77136	44.9	650	53806	0.0	780	3062	0.0	910	2200	0.0
395	1856	0.0	525	83567	42.4	655	47610	0.0	785	2907	0.0	915	2716	0.0
400	1856	0.0	530	89283	38.6	660	42018	0.0	790	2655	0.0	920	2656	0.0
405	2374	0.0	535	94097	33.9	665	36742	0.0	795	2467	0.0	925	2671	0.0
410	4084	0.2	540	96845	28.3	670	32105	0.0	800	2609	0.0	930	3292	0.0
415	8543	0.6	545	100829	23.4	675	27946	0.0	805	2293	0.0	935	3188	0.0
420	18394	2.1	550	105648	19.0	680	24146	0.0	810	2188	0.0	940	1997	0.0
425	37987	5.9	555	110017	14.8	685	21191	0.0	815	2386	0.0	945	2623	0.0
430	67605	14.3	560	114586	11.3	690	18544	0.0	820	2712	0.0	950	2969	0.0
435	102160	27.3	565	118987	8.4	695	16058	0.0	825	2473	0.0	955	2277	0.0
440	135103	45.1	570	122326	6.0	700	14133	0.0	830	1969	0.0	960	4267	0.0
445	140126	55.3	575	125968	4.2	705	12309	0.0	835	1917	0.0	965	2034	0.0
450	102339	47.2	580	127613	2.9	710	11142	0.0	840	2248	0.0	970	3586	0.0
455	58751	30.8	585	129466	1.9	715	10143	0.0	845	2266	0.0	975	2505	0.0
460	36892	21.7	590	128813	1.3	720	9072	0.0	850	2558	0.0	980	2666	0.0
465	24637	16.1	595	126387	0.8	725	8130	0.0	855	2767	0.0	985	2934	0.0
470	16738	12.0	600	123477	0.5	730	7149	0.0	860	2826	0.0	990	4120	0.0
475	13456	10.3	605	118718	0.3	735	6311	0.0	865	2385	0.0	995	3858	0.0
480	13081	10.5	610	112091	0.2	740	5711	0.0	870	3194	0.0	1000	3405	0.0
485	14734	12.1	615	105039	0.1	745	5111	0.0	875	3189	0.0			

Summary

$R_f = 71.7$
 $R_g = 96.9$
 CIE $R_a = 71.2$
 $R_g = -29.7$



Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 55	CES51 = 86	CES76 = 45
CES02 = 61	CES27 = 80	CES52 = 87	CES77 = 68
CES03 = 30	CES28 = 79	CES53 = 74	CES78 = 49
CES04 = 70	CES29 = 51	CES54 = 81	CES79 = 77
CES05 = 47	CES30 = 60	CES55 = 80	CES80 = 75
CES06 = 50	CES31 = 56	CES56 = 69	CES81 = 75
CES07 = 40	CES32 = 52	CES57 = 67	CES82 = 90
CES08 = 39	CES33 = 62	CES58 = 69	CES83 = 85
CES09 = 29	CES34 = 65	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 81	CES60 = 91	CES85 = 83
CES11 = 57	CES36 = 92	CES61 = 85	CES86 = 72
CES12 = 63	CES37 = 74	CES62 = 81	CES87 = 77
CES13 = 42	CES38 = 69	CES63 = 72	CES88 = 77
CES14 = 74	CES39 = 92	CES64 = 69	CES89 = 72
CES15 = 71	CES40 = 86	CES65 = 64	CES90 = 75
CES16 = 46	CES41 = 84	CES66 = 63	CES91 = 91
CES17 = 49	CES42 = 75	CES67 = 60	CES92 = 66
CES18 = 56	CES43 = 70	CES68 = 67	CES93 = 80
CES19 = 72	CES44 = 98	CES69 = 77	CES94 = 56
CES20 = 65	CES45 = 80	CES70 = 57	CES95 = 72
CES21 = 86	CES46 = 77	CES71 = 53	CES96 = 78
CES22 = 78	CES47 = 74	CES72 = 84	CES97 = 83
CES23 = 92	CES48 = 66	CES73 = 47	CES98 = 73
CES24 = 91	CES49 = 76	CES74 = 96	CES99 = 63
CES25 = 72	CES50 = 85	CES75 = 52	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)