

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P913381

Luminaire Tested: DFN2DIP-HX2F0-040D040US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913381
REPORT IS A COMBINATION OF REPORTS P900696 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D040US927-RLLONL
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

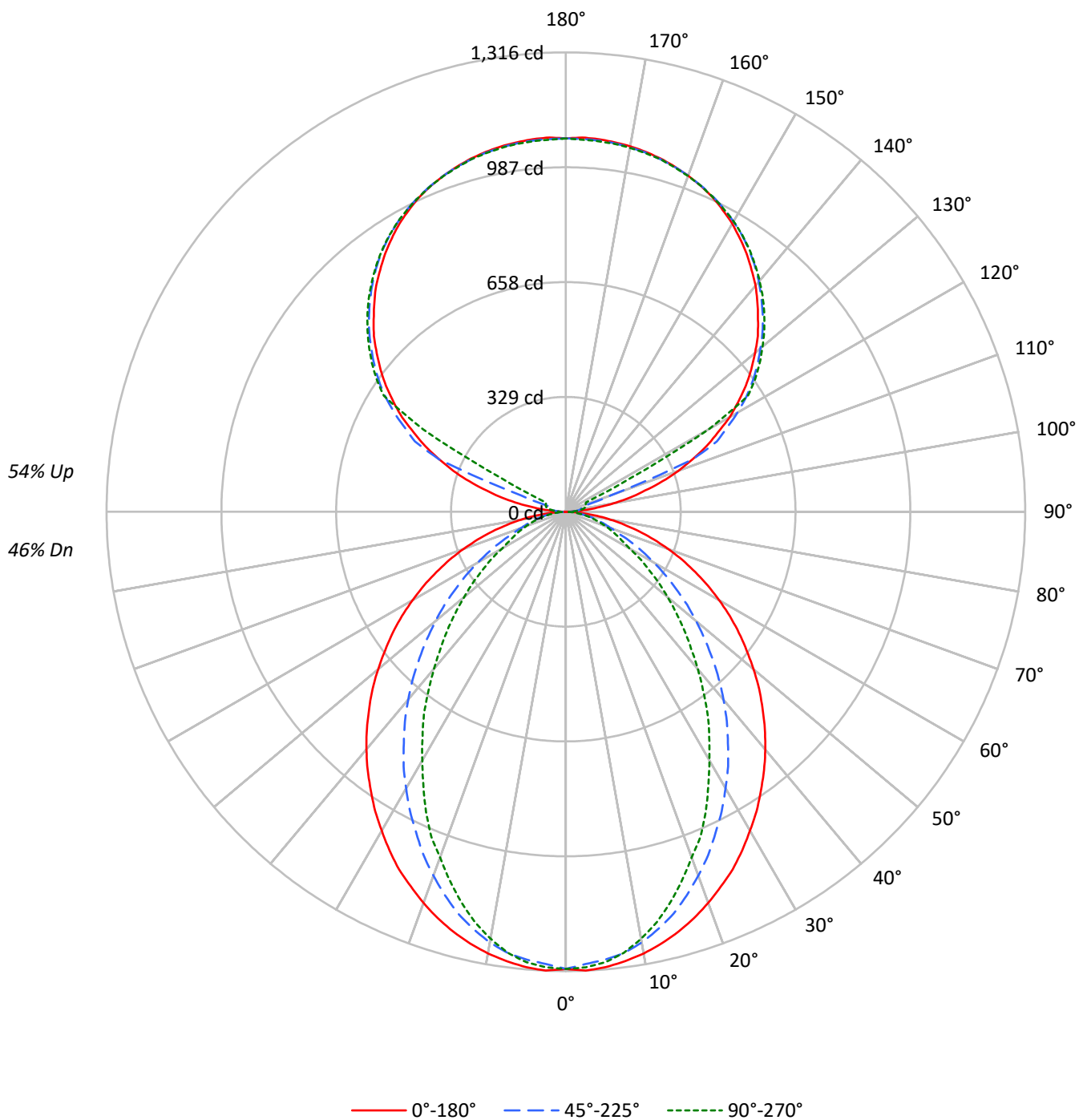
Lumens per Lamp: N/A
Luminaire Lumens: 5830.4 lumens
Efficiency: N/A
Efficacy: 89.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 65.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3086	3086	3086
5°	3086	3029	3051
10°	3050	2963	2946
15°	3003	2858	2787
20°	2943	2716	2594
25°	2881	2558	2408
30°	2800	2397	2175
35°	2719	2225	1969
40°	2638	2048	1735
45°	2543	1852	1523
50°	2445	1655	1316
55°	2342	1445	1118
60°	2222	1227	915
65°	2085	1006	817
70°	1918	801	731
75°	1707	692	655
80°	1405	560	551
85°	919	346	386

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2543 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.7	2.1
10°-20°	336.9	5.8
20°-30°	473.1	8.1
30°-40°	515.7	8.8
40°-50°	473.9	8.1
50°-60°	372.2	6.4
60°-70°	242.3	4.2
70°-80°	124.7	2.1
80°-90°	33.7	0.6
90°-100°	35.2	0.6
100°-110°	131.5	2.3
110°-120°	348.6	6.0
120°-130°	578.2	9.9
130°-140°	614.2	10.5
140°-150°	570.9	9.8
150°-160°	458.9	7.9
160°-170°	295.7	5.1
170°-180°	101.8	1.7
0°-30°	932.7	16.0
0°-40°	1448.4	24.8
0°-60°	2294.6	39.4
0°-90°	2695.3	46.2
90°-120°	515.3	8.8
90°-150°	2278.7	39.1
90°-180°	3135.0	53.8
0°-180°	5830.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1310	1310	1310	1310	1310	
5°	1310	1304	1288	1299	1296	124
15°	1246	1233	1192	1170	1158	351
25°	1131	1093	1014	966	948	520
35°	974	914	810	735	709	610
45°	796	717	593	508	480	615
55°	606	513	385	314	292	541
65°	409	313	206	166	162	405
75°	218	135	95	86	85	231
85°	51	26	22	22	22	58
90°	1	9	15	19	21	5
95°	50	25	30	34	33	60
105°	235	258	47	56	59	251
115°	445	458	477	119	64	438
125°	629	639	654	659	662	561
135°	778	791	798	806	804	601
145°	903	902	915	921	917	565
155°	994	988	997	1001	995	458
165°	1048	1043	1045	1051	1045	296
175°	1072	1066	1068	1073	1066	102
180°	1069	1069	1069	1069	1069	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1309.6	1309.6	1309.6	1309.6	1309.6
2.5°	1315.6	1309.6	1296.6	1308.5	1306.1
5°	1309.6	1303.7	1288.2	1298.9	1295.5
7.5°	1298.9	1291.9	1275.3	1279.9	1274.1
10°	1284.8	1276.4	1252.8	1249.1	1242.1
12.5°	1267.0	1256.3	1224.2	1217.2	1204.1
15°	1245.6	1232.6	1192.3	1169.8	1158.0
17.5°	1220.8	1201.7	1151.9	1125.9	1106.9
20°	1192.3	1168.5	1109.3	1079.7	1053.6
22.5°	1161.5	1134.2	1065.4	1025.2	1007.5
25°	1130.7	1092.7	1014.5	966.0	948.1
27.5°	1094.0	1053.6	967.1	911.4	884.1
30°	1054.9	1009.7	914.9	854.5	822.5
32.5°	1016.9	962.3	865.2	794.1	764.4
35°	974.3	913.8	809.5	734.8	708.7
37.5°	932.8	867.5	757.3	675.5	645.9
40°	888.9	817.8	702.8	618.7	587.9
42.5°	843.8	768.0	648.3	560.5	531.0
45°	796.5	717.0	592.6	508.4	480.0
47.5°	751.5	667.3	539.3	455.1	429.0
50°	701.6	617.5	487.1	405.3	380.5
52.5°	653.0	564.1	437.4	359.1	336.6
55°	605.6	513.2	385.2	314.1	291.6
57.5°	557.1	462.2	339.0	272.6	253.7
60°	507.2	412.4	290.3	230.0	211.0
62.5°	458.8	363.9	248.8	192.0	182.6
65°	408.9	312.8	206.2	166.0	162.3
67.5°	361.6	265.5	166.0	145.8	142.2
70°	311.7	219.3	137.4	125.6	120.8
72.5°	264.4	176.6	114.9	105.5	103.1
75°	218.0	135.1	94.8	86.5	85.4
77.5°	171.9	95.9	74.7	69.9	67.5
80°	129.1	68.8	56.8	52.2	52.2
82.5°	90.1	46.3	39.1	36.7	36.7
85°	50.9	26.1	22.5	22.5	22.5
87.5°	19.0	9.4	9.4	8.3	8.3
90°	0.7	9.3	15.4	19.4	20.8
92.5°	19.4	16.2	18.5	20.1	20.8
95°	50.2	24.7	30.1	34.1	33.3
97.5°	90.5	27.1	39.5	41.8	42.5
100°	137.0	31.0	44.1	50.2	51.8
102.5°	188.0	186.6	45.6	54.1	56.5
105°	235.2	258.5	47.2	55.7	58.8
107.5°	290.2	309.5	48.8	57.3	60.4
110°	342.9	359.0	135.5	58.1	61.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	392.4	406.2	393.1	59.6	61.9
115°	444.9	458.0	477.4	119.1	63.5
117.5°	490.6	506.0	519.3	408.5	205.8
120°	541.7	553.3	567.2	576.5	472.1
122.5°	584.9	597.4	612.9	617.5	618.3
125°	629.1	639.2	653.9	659.3	661.6
127.5°	669.3	680.2	691.8	699.6	700.3
130°	707.3	719.7	728.1	736.6	735.9
132.5°	745.9	756.1	764.5	771.5	770.8
135°	778.5	790.9	797.8	805.6	804.1
137.5°	812.5	821.7	829.6	837.3	835.0
140°	845.7	852.0	860.5	867.4	863.6
142.5°	873.7	879.1	889.1	895.2	891.4
145°	903.1	902.3	915.4	920.8	916.9
147.5°	928.5	926.2	939.4	943.3	940.2
150°	953.3	947.9	960.4	965.0	961.1
152.5°	974.2	968.0	979.6	984.3	978.9
155°	994.3	987.5	996.7	1001.3	995.1
157.5°	1010.6	1004.4	1011.5	1016.8	1010.6
160°	1024.5	1019.9	1024.5	1029.1	1023.7
162.5°	1036.9	1032.3	1036.2	1041.6	1034.6
165°	1047.7	1043.1	1045.4	1050.8	1045.4
167.5°	1056.3	1051.5	1054.0	1059.4	1052.4
170°	1063.3	1058.6	1060.1	1065.6	1058.6
172.5°	1067.9	1063.3	1064.8	1070.2	1063.3
175°	1071.7	1066.3	1067.9	1073.2	1065.6
177.5°	1073.2	1067.9	1068.7	1074.1	1067.1
180°	1069.4	1069.4	1069.4	1069.4	1069.4

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	10.56	11.36	11.56	12.36	13.69	6.54	7.34	7.54	8.35	9.67
	3H	12.21	12.93	13.22	13.94	15.29	7.71	8.43	8.72	9.44	10.79
	4H	12.80	13.48	13.82	14.49	15.85	8.15	8.83	9.17	9.84	11.20
	6H	13.20	13.82	14.23	14.84	16.21	8.46	9.08	9.49	10.10	11.47
	8H	13.32	13.91	14.35	14.94	16.31	8.54	9.13	9.57	10.17	11.53
	12H	13.37	13.93	14.41	14.96	16.35	8.57	9.14	9.61	10.16	11.55
4H	2H	10.57	11.25	11.60	12.26	13.62	7.12	7.80	8.15	8.81	10.17
	3H	12.37	12.93	13.40	13.98	15.35	8.45	9.01	9.48	10.06	11.42
	4H	13.04	13.56	14.08	14.59	15.98	8.98	9.50	10.02	10.53	11.92
	6H	13.53	13.97	14.58	15.03	16.42	9.38	9.82	10.43	10.88	12.27
	8H	13.69	14.10	14.74	15.16	16.56	9.50	9.91	10.55	10.96	12.37
	12H	13.77	14.14	14.84	15.21	16.62	9.55	9.93	10.62	10.99	12.40
8H	4H	13.00	13.42	14.05	14.47	15.87	9.24	9.66	10.30	10.71	12.11
	6H	13.54	13.88	14.62	14.97	16.37	9.74	10.08	10.81	11.17	12.57
	8H	13.74	14.04	14.82	15.12	16.54	9.92	10.21	11.00	11.29	12.71
	12H	13.86	14.12	14.95	15.20	16.66	10.02	10.28	11.10	11.35	12.81
12H	4H	12.95	13.33	14.02	14.39	15.80	9.24	9.62	10.31	10.68	12.09
	6H	13.51	13.81	14.60	14.89	16.31	9.78	10.08	10.86	11.16	12.58
	8H	13.72	13.98	14.80	15.05	16.51	9.97	10.24	11.06	11.31	12.77