

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: P914919

Luminaire Tested: DFN2DIP-SQ4F0-070D160US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914919
REPORT IS A COMBINATION OF REPORTS P901726 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US927-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

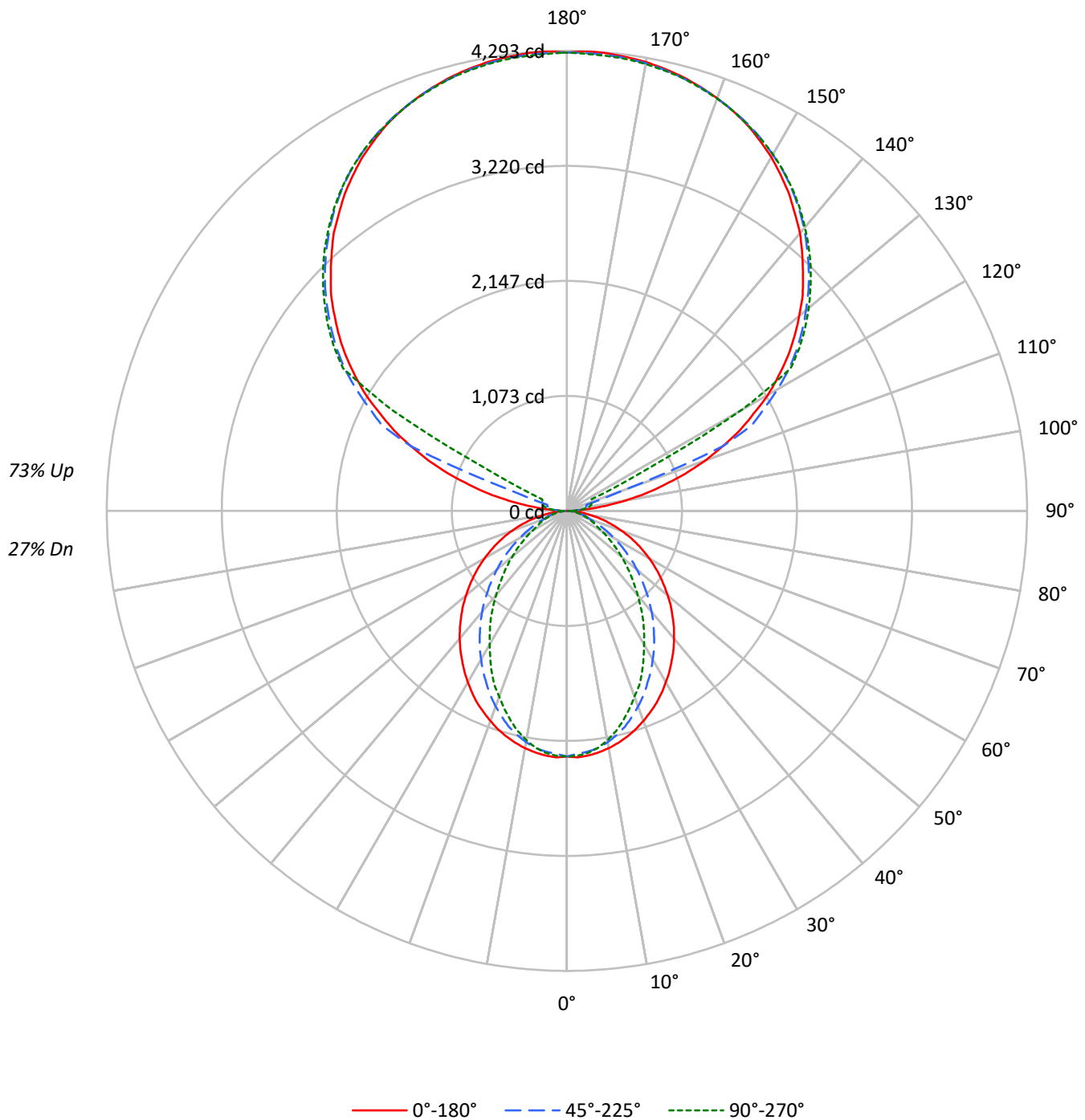
Lumens per Lamp: N/A
Luminaire Lumens: 17261.6 lumens
Efficiency: N/A
Efficacy: 94.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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
RCR																					
0	102	102	102	102		91	91	91	91		71	71	71		52	52	52		35	35	35
1	93	89	85	82		83	80	77	74		62	60	58		46	45	44		32	31	30
2	85	78	72	67		76	70	65	61		55	52	49		41	39	37		28	27	26
3	77	69	62	56		69	62	56	51		49	44	41		36	34	32		25	24	22
4	71	61	53	48		63	55	48	43		43	39	35		33	30	27		23	21	19
5	65	54	46	41		58	49	42	37		39	34	30		29	26	24		20	19	17
6	60	49	41	35		53	44	37	32		35	30	27		26	23	21		19	17	15
7	55	44	36	31		49	40	33	28		32	27	23		24	21	18		17	15	13
8	51	40	32	27		46	36	29	25		29	24	21		22	19	16		16	14	12
9	48	36	29	24		43	33	27	22		26	22	18		20	17	15		14	12	11
10	44	33	26	22		40	30	24	20		24	20	17		19	15	13		13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1608	1608	1608
5°	1611	1583	1593
10°	1595	1552	1542
15°	1573	1501	1462
20°	1544	1431	1364
25°	1514	1352	1269
30°	1474	1271	1149
35°	1435	1184	1044
40°	1395	1093	922
45°	1349	993	813
50°	1301	892	705
55°	1251	784	602
60°	1193	671	496
65°	1126	556	447
70°	1046	449	405
75°	945	396	370
80°	798	334	322
85°	555	225	246

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2292 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	214.8	1.2
10°-20°	589.7	3.4
20°-30°	827.9	4.8
30°-40°	902.4	5.2
40°-50°	829.4	4.8
50°-60°	651.4	3.8
60°-70°	424.0	2.5
70°-80°	218.2	1.3
80°-90°	63.2	0.4
90°-100°	141.0	0.8
100°-110°	525.8	3.0
110°-120°	1394.6	8.1
120°-130°	2313.0	13.4
130°-140°	2456.9	14.2
140°-150°	2283.4	13.2
150°-160°	1835.8	10.6
160°-170°	1182.9	6.9
170°-180°	407.2	2.4
0°-30°	1632.3	9.5
0°-40°	2534.7	14.7
0°-60°	4015.5	23.3
0°-90°	4721.0	27.3
90°-120°	2061.4	11.9
90°-150°	9114.7	52.8
90°-180°	12541.0	72.7
0°-180°	17261.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2282	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	3	37	62	78	83	16
95°	201	99	121	136	133	238
105°	941	1034	189	223	235	1005
115°	1780	1832	1910	477	254	1752
125°	2516	2557	2616	2637	2646	2244
135°	3114	3164	3191	3222	3216	2405
145°	3612	3609	3662	3683	3668	2259
155°	3977	3950	3987	4005	3981	1833
165°	4191	4172	4182	4203	4182	1184
175°	4287	4265	4271	4293	4262	408
180°	4278	4278	4278	4278	4278	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2291.9	2291.9	2291.9	2291.9	2291.9
2.5°	2302.2	2291.9	2269.0	2289.9	2285.7
5°	2291.9	2281.5	2254.5	2273.2	2267.0
7.5°	2273.2	2260.8	2231.8	2239.9	2229.6
10°	2248.3	2233.8	2192.4	2186.0	2173.7
12.5°	2217.2	2198.5	2142.5	2130.1	2107.2
15°	2179.8	2157.0	2086.5	2047.2	2026.5
17.5°	2136.3	2103.1	2015.9	1970.3	1937.1
20°	2086.5	2044.9	1941.3	1889.6	1843.8
22.5°	2032.7	1984.9	1864.5	1794.1	1763.1
25°	1978.7	1912.2	1775.4	1690.4	1659.2
27.5°	1914.5	1843.8	1692.4	1595.0	1547.2
30°	1846.0	1767.0	1601.1	1495.5	1439.4
32.5°	1779.6	1684.1	1514.2	1389.6	1337.7
35°	1704.9	1599.1	1416.7	1286.0	1240.2
37.5°	1632.4	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.9	1082.7	1028.7
42.5°	1476.8	1344.1	1134.6	981.0	929.3
45°	1393.8	1254.7	1037.1	889.7	839.9
47.5°	1315.0	1167.8	943.8	796.4	750.8
50°	1227.9	1080.7	852.5	709.2	665.9
52.5°	1142.7	987.1	765.3	628.4	589.1
55°	1059.8	898.0	674.0	549.7	510.3
57.5°	974.9	808.9	593.3	477.1	443.9
60°	887.7	721.8	508.1	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.6	547.5	360.9	290.5	284.1
67.5°	632.6	464.5	290.5	255.0	248.9
70°	545.5	383.7	240.5	219.8	211.4
72.5°	462.6	309.0	201.1	184.7	180.5
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.7	122.3	118.2
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.1	45.6	39.4	39.4	39.4
87.5°	33.2	16.5	16.5	14.5	14.5
90°	2.9	37.2	61.7	77.6	83.4
92.5°	77.6	65.0	74.2	80.5	83.4
95°	201.1	98.9	120.6	136.3	133.1
97.5°	362.0	108.4	157.6	167.2	170.2
100°	548.0	123.9	176.4	201.1	207.3
102.5°	752.0	746.2	182.7	216.5	226.0
105°	941.0	1034.0	188.9	222.8	235.2
107.5°	1160.7	1237.9	195.2	229.0	241.5
110°	1371.3	1436.1	541.8	232.3	244.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1569.5	1625.0	1572.4	238.2	247.7
115°	1779.7	1832.2	1909.8	476.7	254.0
117.5°	1962.4	2024.1	2077.1	1634.2	823.3
120°	2166.8	2213.0	2268.9	2306.0	1888.2
122.5°	2339.9	2389.5	2451.6	2469.9	2473.3
125°	2516.3	2556.7	2615.5	2637.3	2646.4
127.5°	2677.3	2720.7	2767.3	2798.2	2801.2
130°	2829.1	2878.7	2912.5	2946.7	2943.7
132.5°	2983.8	3024.2	3058.1	3086.0	3083.1
135°	3113.9	3163.6	3191.1	3222.4	3216.1
137.5°	3249.9	3287.1	3318.3	3349.2	3340.0
140°	3383.0	3408.0	3441.8	3469.8	3454.3
142.5°	3494.7	3516.4	3556.5	3581.1	3565.7
145°	3612.3	3609.0	3661.6	3683.2	3667.9
147.5°	3714.1	3705.0	3757.6	3773.0	3760.8
150°	3813.4	3791.7	3841.4	3859.7	3844.3
152.5°	3896.8	3872.2	3918.5	3937.3	3915.6
155°	3977.3	3949.7	3986.9	4005.3	3980.6
157.5°	4042.4	4017.8	4045.7	4067.4	4042.4
160°	4098.3	4079.5	4098.3	4116.6	4094.9
162.5°	4147.5	4129.2	4144.5	4166.2	4138.4
165°	4190.9	4172.5	4181.7	4203.4	4181.7
167.5°	4225.1	4206.3	4215.9	4237.5	4209.7
170°	4253.0	4234.3	4240.5	4262.2	4234.3
172.5°	4271.4	4253.0	4259.2	4280.9	4253.0
175°	4286.8	4265.1	4271.4	4293.1	4262.2
177.5°	4293.1	4271.4	4274.7	4296.4	4268.4
180°	4277.6	4277.6	4277.6	4277.6	4277.6

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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	6.20	6.87	7.34	8.00	9.56	2.16	2.84	3.30	3.96	5.52
	3H	7.87	8.47	9.01	9.60	11.18	3.34	3.94	4.48	5.07	6.65
	4H	8.47	9.05	9.63	10.18	11.76	3.78	4.35	4.93	5.49	7.07
	6H	8.89	9.42	10.05	10.55	12.15	4.10	4.62	5.25	5.76	7.35
	8H	9.02	9.52	10.18	10.66	12.25	4.18	4.68	5.34	5.83	7.42
	12H	9.07	9.55	10.24	10.69	12.30	4.22	4.69	5.39	5.84	7.45
4H	2H	6.20	6.77	7.36	7.90	9.49	2.74	3.31	3.90	4.44	6.03
	3H	8.02	8.49	9.18	9.65	11.25	4.08	4.55	5.24	5.71	7.31
	4H	8.71	9.15	9.87	10.29	11.91	4.62	5.06	5.78	6.20	7.82
	6H	9.22	9.59	10.39	10.76	12.37	5.03	5.40	6.20	6.57	8.18
	8H	9.39	9.74	10.56	10.90	12.53	5.16	5.51	6.33	6.67	8.29
	12H	9.48	9.80	10.67	10.97	12.60	5.21	5.53	6.40	6.70	8.33
8H	4H	8.66	9.01	9.83	10.17	11.80	4.89	5.24	6.06	6.40	8.02
	6H	9.23	9.52	10.42	10.72	12.34	5.40	5.69	6.59	6.89	8.51
	8H	9.45	9.70	10.64	10.88	12.52	5.59	5.85	6.79	7.03	8.67
	12H	9.58	9.80	10.78	10.98	12.65	5.71	5.93	6.91	7.11	8.78
12H	4H	8.61	8.93	9.80	10.10	11.72	4.89	5.21	6.07	6.38	8.00
	6H	9.20	9.46	10.40	10.64	12.27	5.45	5.70	6.65	6.88	8.52
	8H	9.42	9.64	10.62	10.82	12.49	5.66	5.88	6.86	7.06	8.73

END OF REPORT