

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: P919883

Luminaire Tested: DFN2DIP-SQ2F0-040D080US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919883
REPORT IS A COMBINATION OF REPORTS P901354 AND P898215
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-040D080US935-RLLONL
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

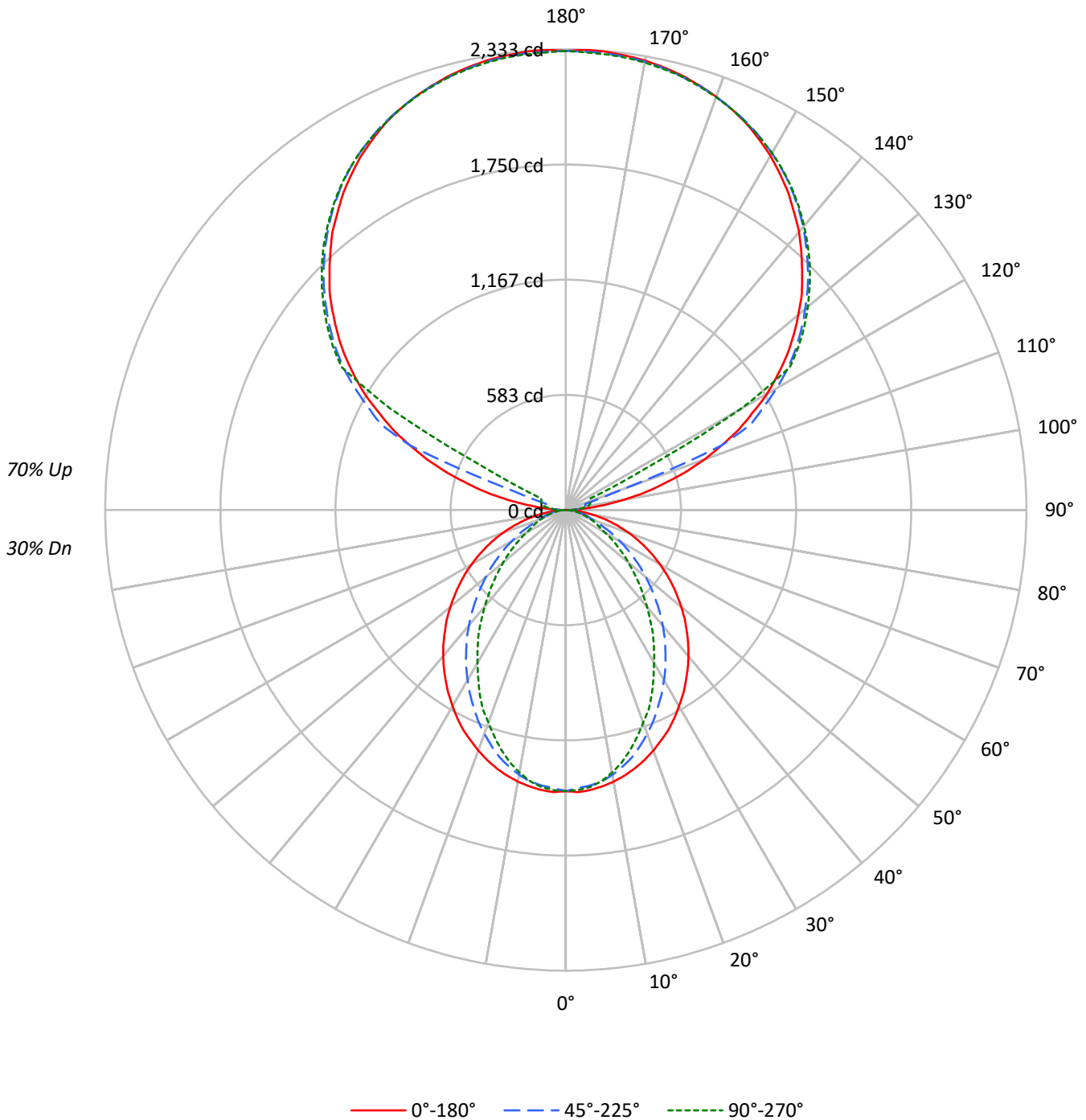
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9746.5 lumens
Efficiency: N/A
Efficacy: 98.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 98.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32	34	33	32	26
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28	30	29	28	22
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24	27	25	24	19
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	17
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18	22	20	18	15
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	13
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15	18	16	15	12
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13	17	15	13	11
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12	16	13	12	10
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11	14	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3130	3130	3130
5°	3129	3073	3096
10°	3093	3006	2990
15°	3045	2900	2831
20°	2983	2757	2636
25°	2920	2598	2448
30°	2837	2435	2212
35°	2755	2261	2004
40°	2672	2081	1767
45°	2575	1883	1552
50°	2475	1683	1342
55°	2370	1471	1141
60°	2248	1250	936
65°	2108	1025	837
70°	1938	817	751
75°	1722	707	675
80°	1414	573	571
85°	922	357	408

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2575 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.4	1.4
10°-20°	366.2	3.8
20°-30°	514.2	5.3
30°-40°	560.5	5.8
40°-50°	515.1	5.3
50°-60°	404.5	4.2
60°-70°	263.3	2.7
70°-80°	135.6	1.4
80°-90°	38.7	0.4
90°-100°	76.7	0.8
100°-110°	285.7	2.9
110°-120°	757.9	7.8
120°-130°	1256.9	12.9
130°-140°	1335.2	13.7
140°-150°	1240.9	12.7
150°-160°	997.6	10.2
160°-170°	642.8	6.6
170°-180°	221.3	2.3
0°-30°	1013.8	10.4
0°-40°	1574.2	16.2
0°-60°	2493.9	25.6
0°-90°	2931.5	30.1
90°-120°	1120.2	11.5
90°-150°	4953.3	50.8
90°-180°	6815.0	69.9
0°-180°	9746.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1423	1423	1423	1423	1423	
5°	1423	1417	1400	1412	1408	135
15°	1354	1340	1296	1271	1259	382
25°	1229	1188	1103	1050	1030	565
35°	1059	993	880	799	770	663
45°	866	779	644	553	522	668
55°	658	558	419	341	317	588
65°	444	340	224	180	176	441
75°	237	147	103	94	93	251
85°	55	28	24	24	24	64
90°	2	20	34	42	45	9
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2161	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1423.4	1423.4	1423.4	1423.4	1423.4
2.5°	1429.9	1423.4	1409.2	1422.2	1419.5
5°	1423.4	1416.9	1400.2	1411.8	1408.0
7.5°	1411.8	1404.1	1386.1	1391.1	1384.7
10°	1396.4	1387.3	1361.6	1357.6	1350.0
12.5°	1377.1	1365.5	1330.6	1322.9	1308.7
15°	1353.8	1339.6	1295.9	1271.4	1258.6
17.5°	1326.8	1306.1	1252.0	1223.7	1203.1
20°	1295.9	1270.1	1205.7	1173.5	1145.1
22.5°	1262.4	1232.8	1158.0	1114.2	1095.0
25°	1228.9	1187.7	1102.6	1049.9	1030.4
27.5°	1189.0	1145.1	1051.1	990.6	960.9
30°	1146.5	1097.4	994.4	928.8	894.0
32.5°	1105.3	1045.9	940.4	863.1	830.8
35°	1058.9	993.2	879.9	798.7	770.2
37.5°	1013.8	942.9	823.1	734.2	702.1
40°	966.1	888.9	763.9	672.4	638.9
42.5°	917.1	834.7	704.6	609.2	577.1
45°	865.6	779.3	644.1	552.6	521.7
47.5°	816.7	725.3	586.2	494.6	466.3
50°	762.6	671.1	529.4	440.5	413.5
52.5°	709.7	613.1	475.4	390.3	365.8
55°	658.2	557.8	418.6	341.4	316.9
57.5°	605.5	502.4	368.4	296.3	275.7
60°	551.3	448.2	315.6	249.9	229.4
62.5°	498.6	395.5	270.4	208.7	198.5
65°	444.4	340.0	224.1	180.4	176.4
67.5°	393.0	288.5	180.4	158.4	154.5
70°	338.8	238.3	149.4	136.6	131.3
72.5°	287.3	191.9	124.9	114.7	112.1
75°	236.9	146.8	103.1	94.0	92.8
77.5°	186.8	104.3	81.2	76.0	73.4
80°	140.3	74.7	61.7	56.7	56.7
82.5°	97.9	50.3	42.5	39.9	39.9
85°	55.4	28.3	24.5	24.5	24.5
87.5°	20.7	10.2	10.2	9.0	9.0
90°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.3	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.1
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.6	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.4	2146.5	2166.6	2176.6	2163.3
157.5°	2196.7	2183.4	2198.6	2210.4	2196.7
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6



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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	8.78	9.47	9.89	10.57	12.10	4.74	5.43	5.85	6.53	8.07
	3H	10.42	11.04	11.55	12.16	13.70	5.90	6.51	7.02	7.63	9.18
	4H	11.01	11.60	12.15	12.71	14.27	6.33	6.91	7.46	8.03	9.58
	6H	11.41	11.95	12.55	13.07	14.63	6.62	7.16	7.77	8.28	9.85
	8H	11.52	12.04	12.67	13.17	14.73	6.70	7.21	7.85	8.35	9.91
	12H	11.57	12.06	12.72	13.19	14.77	6.73	7.22	7.88	8.35	9.93
4H	2H	8.77	9.36	9.91	10.47	12.03	5.30	5.89	6.44	7.01	8.56
	3H	10.56	11.05	11.71	12.19	13.76	6.62	7.11	7.77	8.25	9.81
	4H	11.24	11.68	12.39	12.82	14.40	7.15	7.59	8.30	8.73	10.31
	6H	11.72	12.11	12.88	13.26	14.84	7.54	7.92	8.69	9.08	10.65
	8H	11.89	12.24	13.04	13.39	14.98	7.65	8.01	8.81	9.16	10.75
	12H	11.96	12.29	13.13	13.45	15.04	7.70	8.03	8.87	9.18	10.78
8H	4H	11.19	11.55	12.34	12.69	14.29	7.40	7.76	8.56	8.91	10.50
	6H	11.73	12.02	12.90	13.21	14.80	7.89	8.19	9.07	9.38	10.97
	8H	11.93	12.19	13.11	13.35	14.96	8.07	8.33	9.25	9.49	11.10
	12H	12.05	12.28	13.23	13.44	15.08	8.17	8.39	9.35	9.56	11.20
12H	4H	11.13	11.46	12.30	12.62	14.21	7.40	7.72	8.57	8.88	10.48
	6H	11.70	11.96	12.88	13.13	14.74	7.94	8.19	9.12	9.36	10.97
	8H	11.90	12.13	13.09	13.29	14.93	8.12	8.35	9.31	9.51	11.16