

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: P914549

Luminaire Tested: DFN2DIP-SQ3F0-040D100US927-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P914549  
REPORT IS A COMBINATION OF REPORTS P901489 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-040D100US927-FLLONL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

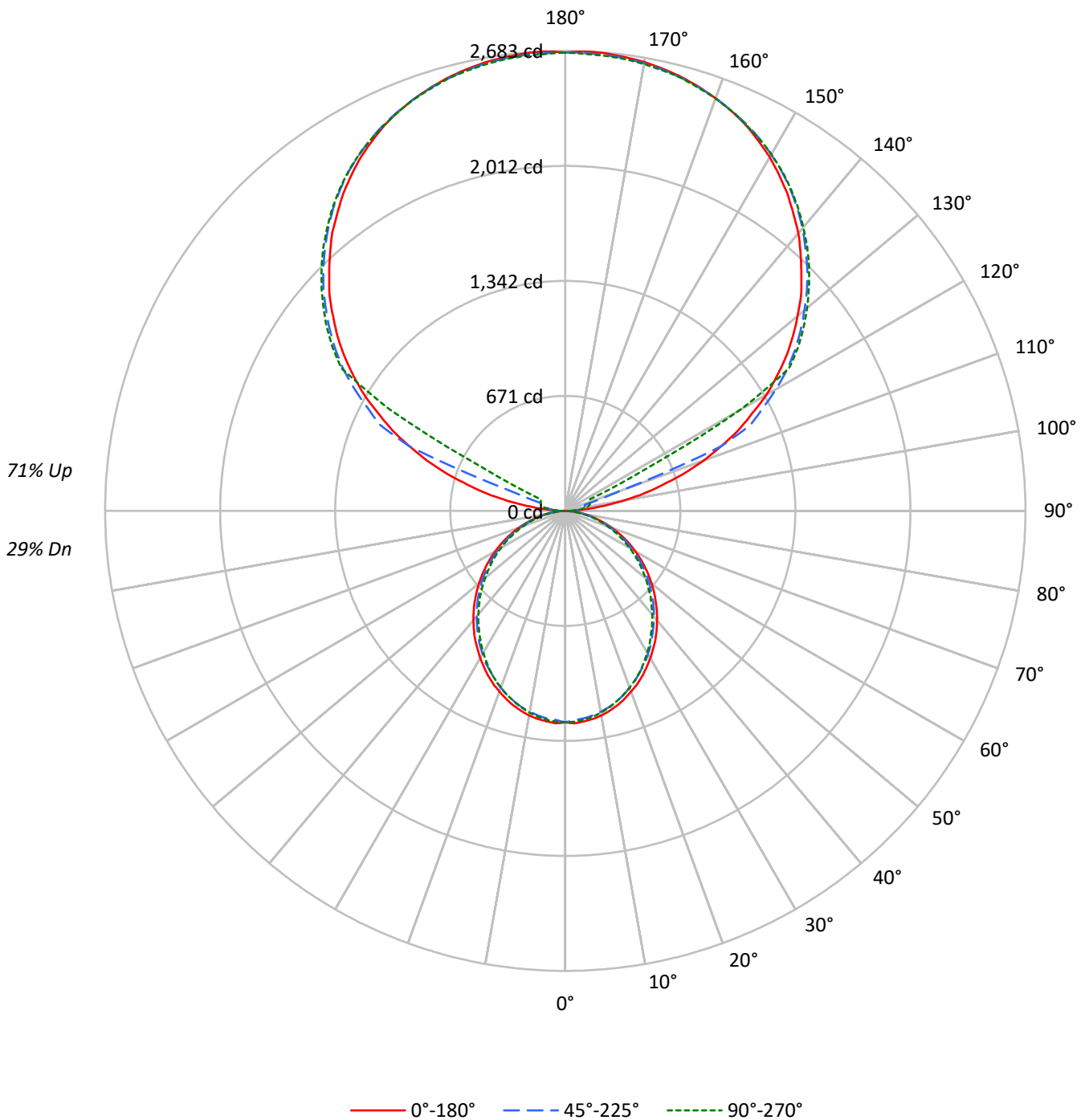
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10979.6 lumens  
Efficiency: N/A  
Efficacy: 100.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 109.8  
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				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	91	91	91	91	71	71	71	53	53	53	36	36	36	36	36	36	29
1	93	89	85	82	83	80	77	74	62	60	58	47	45	44	32	31	31	31	31	31	24
2	85	77	72	67	76	70	65	60	55	51	48	41	39	37	28	27	26	26	26	26	20
3	77	68	61	55	69	61	55	50	48	44	41	36	33	31	25	23	22	22	22	22	17
4	71	60	53	47	63	54	48	43	43	38	34	32	29	27	22	21	19	19	19	19	15
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	16	16	16	16	13
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	14	14	14	14	11
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	14	13	13	13	13	10
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	11	11	11	11	9
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10	10	10	10	8
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9	9	9	9	7

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1413	1413	1413
5°	1414	1392	1402
10°	1402	1372	1383
15°	1380	1349	1352
20°	1351	1317	1322
25°	1323	1278	1286
30°	1287	1242	1241
35°	1253	1200	1193
40°	1212	1157	1148
45°	1170	1115	1101
50°	1125	1070	1048
55°	1077	1018	998
60°	1023	956	941
65°	964	892	874
70°	889	814	802
75°	786	721	735
80°	660	601	607
85°	465	399	397

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1830 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	116.0	1.1
10°-20°	326.5	3.0
20°-30°	479.8	4.4
30°-40°	557.3	5.1
40°-50°	556.6	5.1
50°-60°	485.3	4.4
60°-70°	358.8	3.3
70°-80°	203.0	1.8
80°-90°	58.3	0.5
90°-100°	88.1	0.8
100°-110°	328.6	3.0
110°-120°	871.6	7.9
120°-130°	1445.6	13.2
130°-140°	1535.6	14.0
140°-150°	1427.1	13.0
150°-160°	1147.4	10.5
160°-170°	739.3	6.7
170°-180°	254.5	2.3
0°-30°	922.4	8.4
0°-40°	1479.7	13.5
0°-60°	2521.7	23.0
0°-90°	3141.7	28.6
90°-120°	1288.4	11.7
90°-150°	5696.7	51.9
90°-180°	7838.0	71.4
0°-180°	10979.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1233	1233	1233	1233	1233	
5°	1233	1228	1215	1225	1222	117
15°	1174	1167	1151	1156	1150	331
25°	1062	1053	1033	1035	1033	489
35°	916	905	886	878	873	572
45°	746	738	720	707	702	576
55°	564	557	543	529	523	505
65°	381	373	362	351	345	376
75°	199	197	191	184	186	213
85°	49	48	46	43	42	54
90°	2	23	39	48	52	10
95°	126	62	75	85	83	149
105°	588	646	118	139	147	628
115°	1112	1145	1194	298	159	1095
125°	1573	1598	1635	1648	1654	1403
135°	1946	1977	1994	2014	2010	1503
145°	2258	2256	2288	2302	2292	1412
155°	2486	2469	2492	2503	2488	1146
165°	2619	2608	2614	2627	2614	740
175°	2679	2666	2670	2683	2664	255
180°	2674	2674	2674	2674	2674	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1233.0	1233.0	1233.0	1233.0	1233.0
2.5°	1240.2	1234.2	1221.1	1233.0	1230.7
5°	1233.0	1228.3	1215.2	1224.6	1222.4
7.5°	1224.6	1217.6	1204.5	1214.1	1211.7
10°	1211.7	1203.4	1189.2	1198.6	1195.1
12.5°	1193.8	1186.8	1172.6	1178.5	1176.1
15°	1173.7	1166.6	1151.2	1156.0	1150.1
17.5°	1148.8	1141.8	1126.3	1132.2	1126.3
20°	1121.5	1114.4	1097.9	1101.4	1096.8
22.5°	1094.3	1083.6	1068.2	1068.2	1065.8
25°	1062.2	1052.8	1032.7	1035.0	1032.7
27.5°	1026.7	1018.3	1003.1	999.5	993.6
30°	991.2	981.7	963.9	960.4	955.6
32.5°	953.2	946.2	927.2	920.0	915.2
35°	916.5	904.7	885.7	878.5	872.6
37.5°	875.0	864.3	845.3	837.0	831.1
40°	832.3	822.8	803.7	793.2	788.5
42.5°	790.8	781.2	762.4	750.4	743.4
45°	745.8	737.5	719.6	706.7	701.9
47.5°	701.9	693.6	674.6	661.6	654.5
50°	655.6	649.7	633.1	616.5	610.5
52.5°	610.5	602.3	586.9	573.9	565.5
55°	564.4	557.2	543.0	528.8	522.9
57.5°	518.1	512.2	496.7	482.5	477.8
60°	471.8	467.1	450.6	437.5	434.0
62.5°	426.8	418.5	406.7	394.8	390.1
65°	380.6	373.4	361.6	350.9	345.1
67.5°	333.2	327.2	316.6	308.3	303.6
70°	289.3	284.6	273.9	265.5	260.9
72.5°	244.3	239.5	233.6	225.3	221.7
75°	199.2	196.9	190.8	183.8	186.2
77.5°	158.8	154.1	151.7	148.1	144.7
80°	118.6	117.3	114.9	111.5	109.1
82.5°	80.6	80.6	79.5	74.7	74.7
85°	48.6	47.5	46.3	42.6	41.5
87.5°	21.4	19.0	16.6	13.1	11.8
90°	1.8	23.2	38.6	48.5	52.1
92.5°	48.5	40.6	46.4	50.3	52.1
95°	125.6	61.8	75.3	85.2	83.2
97.5°	226.2	67.7	98.5	104.5	106.4
100°	342.5	77.4	110.3	125.6	129.6
102.5°	470.0	466.4	114.2	135.3	141.2
105°	588.1	646.2	118.1	139.2	147.0
107.5°	725.5	773.7	122.0	143.1	150.9
110°	857.1	897.5	338.6	145.2	152.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	980.9	1015.6	982.8	148.9	154.9
115°	1112.3	1145.2	1193.7	297.9	158.8
117.5°	1226.5	1265.1	1298.1	1021.4	514.6
120°	1354.2	1383.1	1418.1	1441.3	1180.1
122.5°	1462.4	1493.4	1532.2	1543.7	1545.8
125°	1572.7	1598.0	1634.7	1648.3	1654.0
127.5°	1673.3	1700.4	1729.6	1748.9	1750.7
130°	1768.1	1799.2	1820.4	1841.7	1839.8
132.5°	1864.9	1890.1	1911.3	1928.7	1926.9
135°	1946.2	1977.2	1994.5	2014.0	2010.1
137.5°	2031.2	2054.4	2073.9	2093.3	2087.5
140°	2114.3	2130.0	2151.1	2168.6	2158.9
142.5°	2184.2	2197.7	2222.8	2238.1	2228.6
145°	2257.7	2255.7	2288.5	2302.1	2292.4
147.5°	2321.3	2315.6	2348.4	2358.1	2350.6
150°	2383.4	2369.8	2400.9	2412.4	2402.7
152.5°	2435.5	2420.1	2449.1	2460.8	2447.2
155°	2485.9	2468.6	2491.8	2503.3	2487.9
157.5°	2526.5	2511.1	2528.6	2542.1	2526.5
160°	2561.4	2549.7	2561.4	2572.9	2559.4
162.5°	2592.2	2580.7	2590.4	2603.9	2586.5
165°	2619.3	2607.8	2613.6	2627.1	2613.6
167.5°	2640.7	2628.9	2635.0	2648.5	2631.0
170°	2658.1	2646.4	2650.3	2663.9	2646.4
172.5°	2669.6	2658.1	2662.0	2675.6	2658.1
175°	2679.2	2665.7	2669.6	2683.2	2663.9
177.5°	2683.2	2669.6	2671.7	2685.3	2667.7
180°	2673.5	2673.5	2673.5	2673.5	2673.5



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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	6.03	6.73	7.15	7.84	9.39	5.59	6.28	6.71	7.40	8.95
	3H	7.68	8.30	8.80	9.42	10.99	7.19	7.81	8.31	8.93	10.50
	4H	8.25	8.85	9.39	9.97	11.54	7.76	8.35	8.90	9.47	11.04
	6H	8.64	9.19	9.79	10.31	11.89	8.14	8.69	9.29	9.81	11.39
	8H	8.74	9.26	9.89	10.40	11.97	8.24	8.76	9.39	9.90	11.47
	12H	8.78	9.27	9.93	10.41	12.00	8.27	8.76	9.42	9.90	11.49
4H	2H	6.47	7.06	7.62	8.19	9.75	6.11	6.71	7.26	7.83	9.40
	3H	8.31	8.81	9.47	9.96	11.54	7.91	8.40	9.06	9.55	11.13
	4H	9.02	9.47	10.17	10.61	12.21	8.59	9.05	9.75	10.19	11.79
	6H	9.52	9.91	10.68	11.07	12.66	9.09	9.48	10.25	10.64	12.23
	8H	9.66	10.03	10.82	11.18	12.79	9.23	9.59	10.39	10.74	12.35
	12H	9.73	10.06	10.90	11.22	12.83	9.28	9.61	10.45	10.77	12.38
8H	4H	9.20	9.56	10.36	10.71	12.32	8.82	9.18	9.98	10.34	11.94
	6H	9.81	10.12	10.99	11.31	12.91	9.43	9.73	10.61	10.93	12.53
	8H	10.03	10.29	11.22	11.47	13.09	9.64	9.90	10.82	11.07	12.70
	12H	10.15	10.38	11.34	11.55	13.21	9.74	9.97	10.93	11.14	12.80
12H	4H	9.17	9.50	10.35	10.67	12.28	8.80	9.14	9.98	10.30	11.91
	6H	9.84	10.10	11.03	11.28	12.90	9.47	9.73	10.65	10.90	12.53
	8H	10.07	10.30	11.26	11.47	13.13	9.69	9.92	10.88	11.09	12.75