

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: P906413

Luminaire Tested: DFN2DIP-SQ3F0-060D040US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906413
REPORT IS A COMBINATION OF REPORTS P901385 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-060D040US835-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

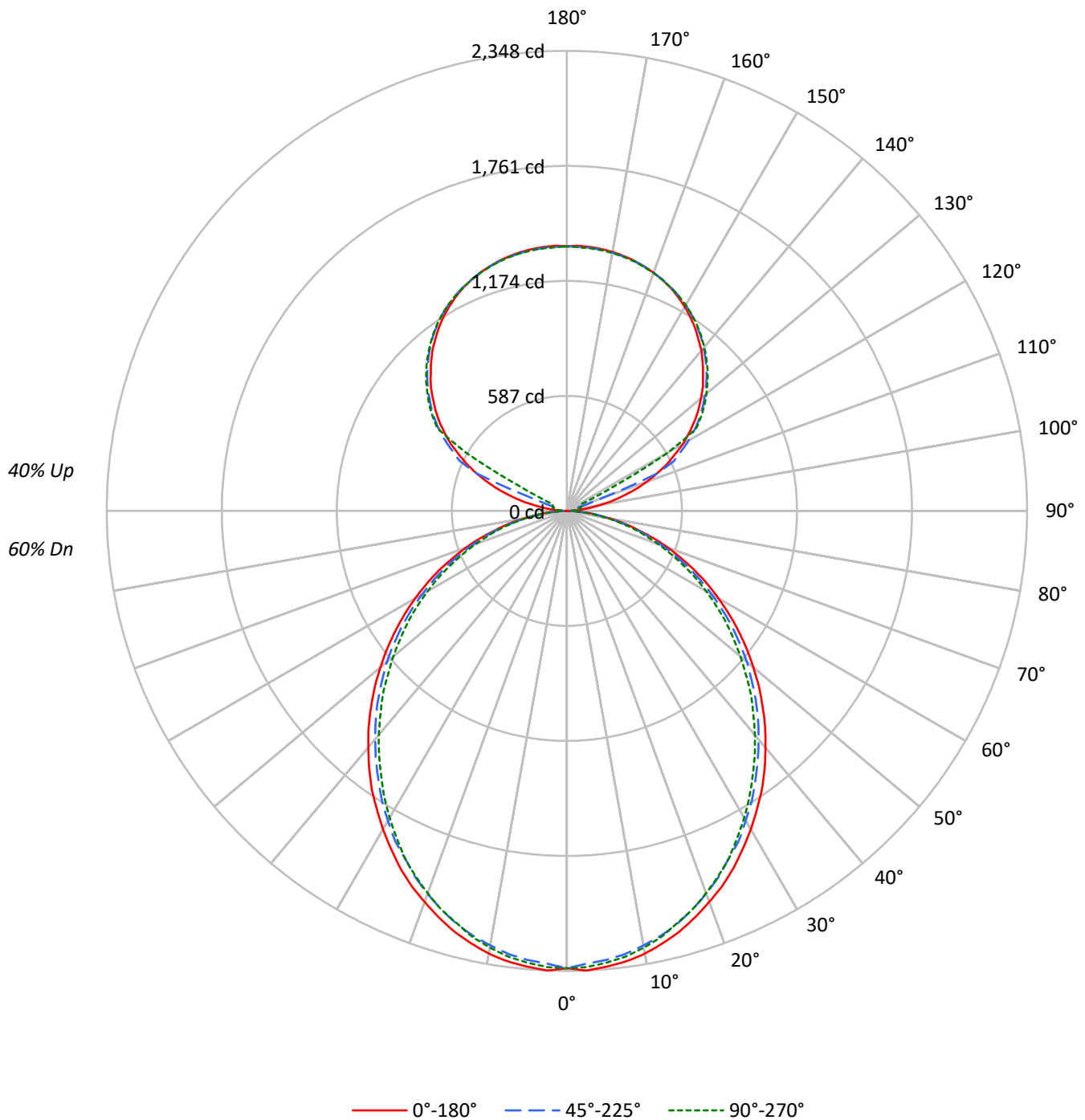
Lumens per Lamp: N/A
Luminaire Lumens: 9900.0 lumens
Efficiency: N/A
Efficacy: 118.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 83.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2675	2675	2675
5°	2678	2636	2655
10°	2654	2599	2618
15°	2613	2554	2561
20°	2559	2493	2502
25°	2505	2420	2435
30°	2437	2352	2350
35°	2373	2272	2259
40°	2294	2192	2173
45°	2216	2111	2085
50°	2130	2026	1984
55°	2040	1927	1890
60°	1938	1811	1782
65°	1826	1689	1655
70°	1684	1542	1519
75°	1488	1365	1391
80°	1251	1139	1150
85°	880	754	753

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2216 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.7	2.2
10°-20°	618.3	6.2
20°-30°	908.6	9.2
30°-40°	1055.3	10.7
40°-50°	1054.0	10.6
50°-60°	919.0	9.3
60°-70°	679.4	6.9
70°-80°	384.4	3.9
80°-90°	103.8	1.0
90°-100°	44.5	0.4
100°-110°	165.9	1.7
110°-120°	440.1	4.4
120°-130°	729.9	7.4
130°-140°	775.4	7.8
140°-150°	720.6	7.3
150°-160°	579.4	5.9
160°-170°	373.3	3.8
170°-180°	128.5	1.3
0°-30°	1746.6	17.6
0°-40°	2801.8	28.3
0°-60°	4774.8	48.2
0°-90°	5942.4	60.0
90°-120°	650.5	6.6
90°-150°	2876.4	29.1
90°-180°	3958.0	40.0
0°-180°	9900.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2335	2326	2301	2319	2315	222
15°	2222	2209	2180	2189	2178	626
25°	2011	1994	1955	1960	1955	926
35°	1735	1713	1677	1663	1652	1084
45°	1412	1396	1363	1338	1329	1090
55°	1069	1055	1028	1001	990	955
65°	721	707	685	664	653	713
75°	377	373	361	348	352	402
85°	92	90	88	81	79	103
90°	1	12	20	24	26	9
95°	63	31	38	43	42	75
105°	297	326	60	70	74	317
115°	562	578	603	150	80	553
125°	794	807	825	832	835	708
135°	983	998	1007	1017	1015	759
145°	1140	1139	1156	1162	1158	713
155°	1255	1246	1258	1264	1256	578
165°	1323	1317	1320	1326	1320	374
175°	1353	1346	1348	1355	1345	129
180°	1350	1350	1350	1350	1350	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2334.6	2334.6	2334.6	2334.6	2334.6
2.5°	2348.2	2337.0	2312.2	2334.6	2330.3
5°	2334.6	2325.8	2301.0	2318.9	2314.6
7.5°	2318.9	2305.6	2280.8	2298.9	2294.4
10°	2294.4	2278.7	2251.7	2269.6	2262.9
12.5°	2260.6	2247.2	2220.3	2231.5	2227.0
15°	2222.4	2209.1	2179.8	2188.9	2177.7
17.5°	2175.3	2162.0	2132.7	2143.8	2132.7
20°	2123.6	2110.3	2078.8	2085.5	2076.7
22.5°	2072.2	2051.9	2022.6	2022.6	2018.1
25°	2011.4	1993.6	1955.4	1959.7	1955.4
27.5°	1944.0	1928.3	1899.2	1892.6	1881.4
30°	1876.9	1858.7	1825.2	1818.5	1809.4
32.5°	1804.9	1791.6	1755.6	1742.0	1733.0
35°	1735.4	1713.0	1677.0	1663.4	1652.2
37.5°	1656.8	1636.5	1600.6	1584.8	1573.6
40°	1576.0	1557.9	1522.0	1502.0	1492.9
42.5°	1497.4	1479.3	1443.6	1421.0	1407.6
45°	1412.2	1396.4	1362.6	1338.1	1329.0
47.5°	1329.0	1313.3	1277.4	1252.6	1239.2
50°	1241.4	1230.2	1198.8	1167.3	1156.1
52.5°	1156.1	1140.4	1111.3	1086.6	1070.9
55°	1068.7	1055.1	1028.2	1001.3	990.1
57.5°	981.1	969.9	940.6	913.7	904.6
60°	893.4	884.6	853.2	828.4	821.7
62.5°	808.1	792.4	770.0	747.6	738.6
65°	720.7	707.2	684.8	664.5	653.3
67.5°	630.9	619.5	599.5	583.8	574.7
70°	547.8	538.8	518.5	502.8	494.0
72.5°	462.5	453.5	442.3	426.6	419.9
75°	377.0	372.8	361.3	348.0	352.5
77.5°	300.8	291.8	287.2	280.6	273.9
80°	224.6	222.2	217.7	211.0	206.5
82.5°	152.7	152.7	150.5	141.5	141.5
85°	91.9	89.8	87.6	80.7	78.6
87.5°	40.5	36.0	31.4	24.8	22.4
90°	0.9	11.7	19.5	24.5	26.3
92.5°	24.5	20.5	23.4	25.4	26.3
95°	63.4	31.2	38.0	43.0	42.0
97.5°	114.3	34.2	49.8	52.8	53.7
100°	172.9	39.1	55.7	63.4	65.4
102.5°	237.3	235.5	57.6	68.3	71.3
105°	296.9	326.3	59.6	70.3	74.2
107.5°	366.3	390.7	61.6	72.3	76.2
110°	432.8	453.2	171.0	73.3	77.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	495.3	512.8	496.2	75.2	78.2
115°	561.6	578.2	602.7	150.4	80.2
117.5°	619.3	638.8	655.5	515.7	259.8
120°	683.8	698.4	716.0	727.8	595.9
122.5°	738.4	754.1	773.7	779.5	780.5
125°	794.1	806.9	825.4	832.3	835.2
127.5°	844.9	858.6	873.3	883.1	884.0
130°	892.8	908.5	919.1	929.9	929.0
132.5°	941.6	954.4	965.1	973.9	973.0
135°	982.7	998.4	1007.1	1016.9	1015.0
137.5°	1025.6	1037.3	1047.2	1056.9	1054.0
140°	1067.6	1075.5	1086.2	1095.0	1090.1
142.5°	1102.9	1109.7	1122.4	1130.1	1125.3
145°	1140.0	1139.0	1155.5	1162.4	1157.5
147.5°	1172.1	1169.2	1185.8	1190.7	1186.9
150°	1203.4	1196.6	1212.3	1218.1	1213.2
152.5°	1229.8	1222.0	1236.6	1242.5	1235.7
155°	1255.2	1246.5	1258.2	1264.0	1256.2
157.5°	1275.7	1267.9	1276.8	1283.6	1275.7
160°	1293.3	1287.4	1293.3	1299.1	1292.3
162.5°	1308.9	1303.1	1308.0	1314.8	1306.0
165°	1322.6	1316.8	1319.7	1326.5	1319.7
167.5°	1333.4	1327.4	1330.5	1337.3	1328.5
170°	1342.2	1336.3	1338.2	1345.1	1336.3
172.5°	1348.0	1342.2	1344.2	1351.0	1342.2
175°	1352.8	1346.0	1348.0	1354.8	1345.1
177.5°	1354.8	1348.0	1349.0	1355.9	1347.1
180°	1350.0	1350.0	1350.0	1350.0	1350.0

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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	11.53	12.49	12.40	13.38	14.50	11.09	12.05	11.96	12.94	14.06
	3H	13.20	14.06	14.07	14.95	16.10	12.71	13.57	13.58	14.46	15.61
	4H	13.79	14.60	14.68	15.50	16.66	13.29	14.11	14.19	15.01	16.16
	6H	14.19	14.94	15.09	15.85	17.02	13.69	14.44	14.59	15.35	16.52
	8H	14.29	15.01	15.21	15.93	17.10	13.79	14.51	14.71	15.43	16.60
	12H	14.34	15.02	15.26	15.94	17.14	13.83	14.51	14.75	15.44	16.63
4H	2H	12.00	12.82	12.90	13.72	14.88	11.65	12.46	12.55	13.36	14.52
	3H	13.87	14.55	14.78	15.49	16.66	13.46	14.14	14.37	15.08	16.25
	4H	14.59	15.21	15.51	16.14	17.33	14.16	14.78	15.08	15.71	16.91
	6H	15.10	15.64	16.04	16.59	17.79	14.67	15.21	15.61	16.16	17.36
	8H	15.25	15.75	16.19	16.70	17.91	14.82	15.32	15.75	16.26	17.47
	12H	15.33	15.78	16.28	16.74	17.96	14.88	15.33	15.84	16.30	17.51
8H	4H	14.79	15.29	15.72	16.23	17.45	14.41	14.91	15.35	15.86	17.07
	6H	15.42	15.83	16.38	16.82	18.03	15.03	15.45	16.00	16.43	17.65
	8H	15.63	16.00	16.61	16.98	18.21	15.24	15.61	16.21	16.59	17.81
	12H	15.77	16.09	16.74	17.06	18.34	15.36	15.68	16.33	16.65	17.93
12H	4H	14.78	15.23	15.73	16.19	17.41	14.41	14.86	15.36	15.82	17.04
	6H	15.44	15.81	16.42	16.79	18.02	15.07	15.44	16.05	16.42	17.65
	8H	15.69	16.01	16.66	16.98	18.26	15.31	15.63	16.28	16.60	17.88