

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: P909140

Luminaire Tested: DFN2DIP-SQ3F0-060D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909140
REPORT IS A COMBINATION OF REPORTS P899865 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-060D040US840-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

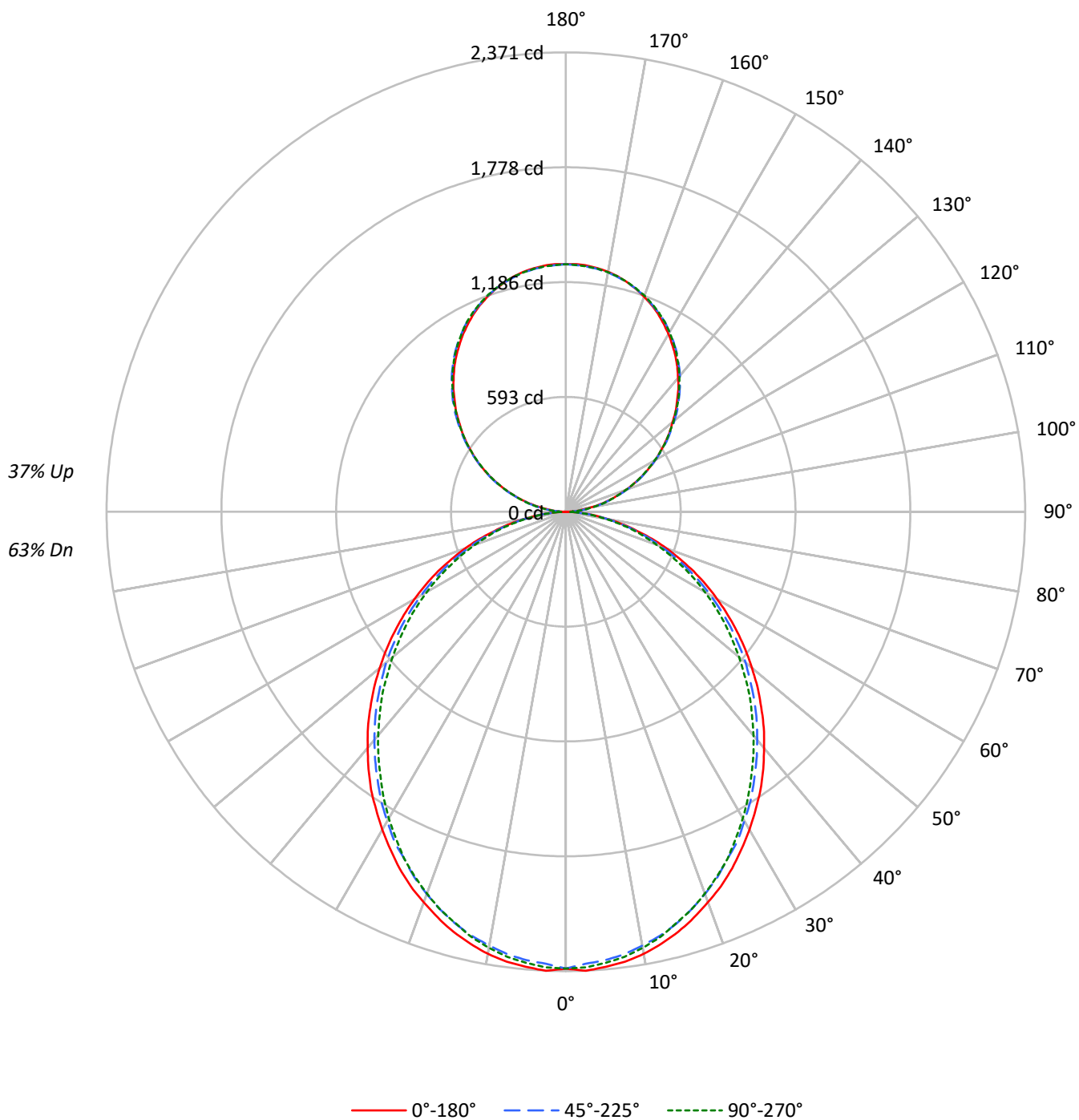
Lumens per Lamp: N/A
Luminaire Lumens: 9573.5 lumens
Efficiency: N/A
Efficacy: 114.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

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

TEST NUMBER: P909140

CATALOG NUMBER: DFN2DIP-SQ3F0-060D040US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P909140

CATALOG NUMBER: DFN2DIP-SQ3F0-060D040US840-FLLFLL

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	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2701	2701	2701
5°	2704	2662	2681
10°	2680	2624	2644
15°	2639	2579	2586
20°	2584	2517	2527
25°	2529	2444	2459
30°	2461	2375	2373
35°	2397	2295	2282
40°	2317	2213	2195
45°	2238	2131	2106
50°	2151	2045	2003
55°	2060	1946	1909
60°	1957	1828	1800
65°	1844	1706	1672
70°	1701	1557	1534
75°	1502	1378	1405
80°	1263	1150	1161
85°	889	762	760

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2238 cd/sqm

TEST NUMBER: P909140

CATALOG NUMBER: DFN2DIP-SQ3F0-060D040US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.3
10°-20°	624.4	6.5
20°-30°	917.5	9.6
30°-40°	1065.7	11.1
40°-50°	1064.4	11.1
50°-60°	928.1	9.7
60°-70°	686.1	7.2
70°-80°	388.2	4.1
80°-90°	106.1	1.1
90°-100°	79.1	0.8
100°-110°	251.2	2.6
110°-120°	429.8	4.5
120°-130°	565.3	5.9
130°-140°	634.5	6.6
140°-150°	622.2	6.5
150°-160°	522.0	5.5
160°-170°	346.2	3.6
170°-180°	121.0	1.3
0°-30°	1763.8	18.4
0°-40°	2829.5	29.6
0°-60°	4821.9	50.4
0°-90°	6002.2	62.7
90°-120°	760.1	7.9
90°-150°	2582.2	27.0
90°-180°	3571.0	37.3
0°-180°	9573.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	14	38	35	37	9
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	

TEST NUMBER: P909140

CATALOG NUMBER: DFN2DIP-SQ3F0-060D040US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0

TEST NUMBER: P909140

CATALOG NUMBER: DFN2DIP-SQ3F0-060D040US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5

TEST NUMBER: P909140

CATALOG NUMBER: DFN2DIP-SQ3F0-060D040US840-FLLFLL

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	11.79	12.77	12.63	13.64	14.71	11.34	12.33	12.18	13.19	14.27
	3H	13.45	14.34	14.30	15.21	16.31	12.96	13.85	13.81	14.72	15.82
	4H	14.04	14.88	14.91	15.76	16.87	13.55	14.39	14.42	15.26	16.38
	6H	14.44	15.22	15.32	16.10	17.23	13.94	14.72	14.82	15.60	16.73
	8H	14.55	15.29	15.44	16.19	17.32	14.05	14.79	14.94	15.69	16.82
	12H	14.60	15.30	15.50	16.20	17.35	14.09	14.79	14.99	15.69	16.84
4H	2H	12.26	13.10	13.13	13.98	15.09	11.90	12.74	12.78	13.62	14.73
	3H	14.13	14.83	15.01	15.74	16.87	13.72	14.42	14.61	15.33	16.46
	4H	14.85	15.48	15.74	16.39	17.55	14.42	15.06	15.32	15.97	17.12
	6H	15.36	15.91	16.27	16.85	18.00	14.93	15.48	15.84	16.41	17.57
	8H	15.51	16.03	16.43	16.95	18.13	15.08	15.59	15.99	16.52	17.69
	12H	15.59	16.06	16.52	17.00	18.18	15.14	15.61	16.08	16.55	17.73
8H	4H	15.05	15.56	15.96	16.49	17.66	14.67	15.19	15.58	16.11	17.28
	6H	15.68	16.11	16.62	17.07	18.24	15.29	15.72	16.24	16.69	17.86
	8H	15.90	16.27	16.85	17.23	18.42	15.50	15.88	16.45	16.84	18.03
	12H	16.03	16.36	16.98	17.31	18.55	15.62	15.95	16.57	16.90	18.14
12H	4H	15.04	15.50	15.97	16.45	17.62	14.67	15.13	15.60	16.08	17.26
	6H	15.71	16.09	16.66	17.04	18.23	15.33	15.71	16.29	16.67	17.86
	8H	15.95	16.28	16.91	17.23	18.47	15.57	15.90	16.52	16.85	18.09