

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: P909137

Luminaire Tested: DFN2DIP-SQ3F0-050D120US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909137
REPORT IS A COMBINATION OF REPORTS P901527 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-050D120US840-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

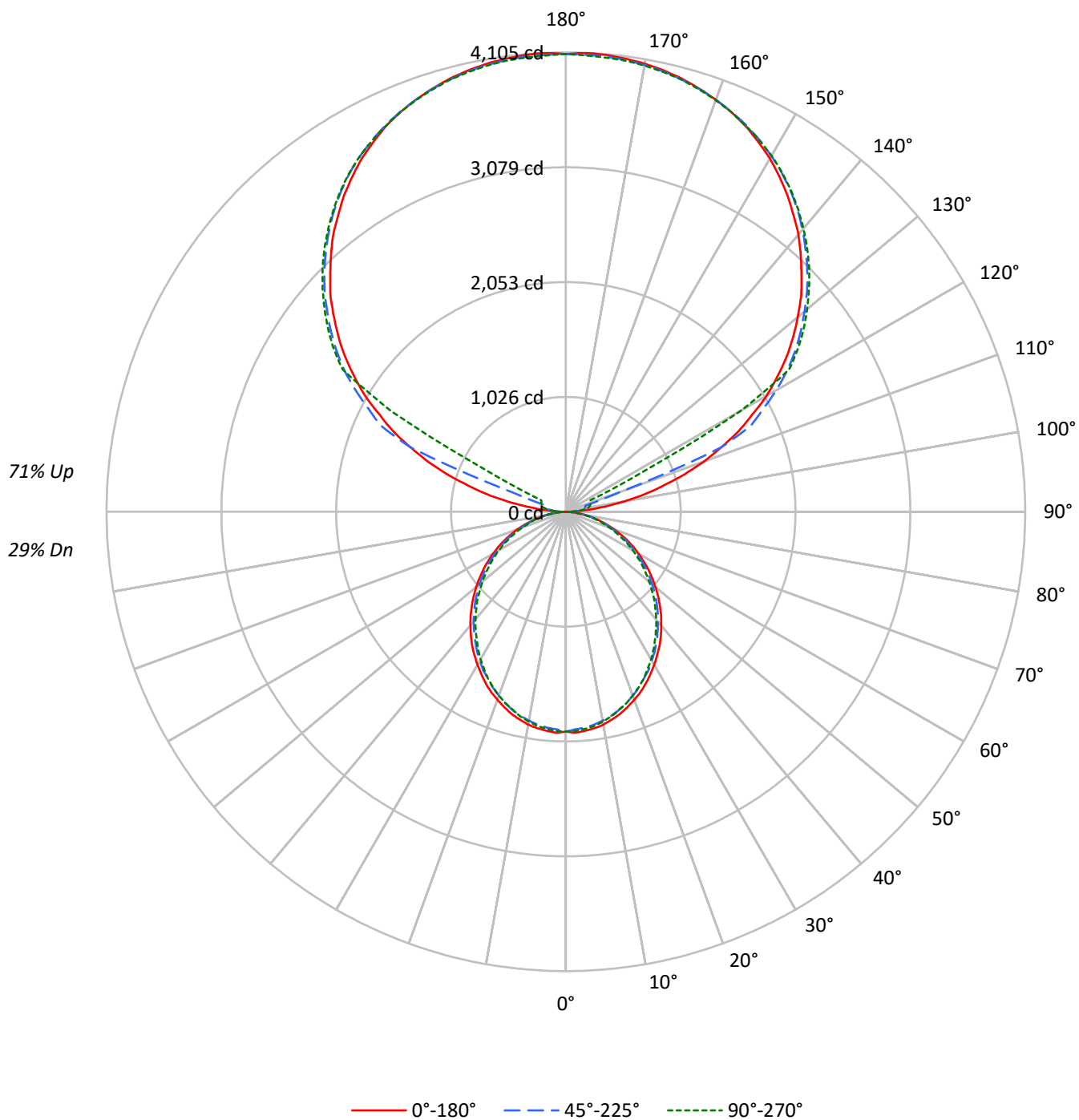
Lumens per Lamp: N/A
Luminaire Lumens: 16996.0 lumens
Efficiency: N/A
Efficacy: 124.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 136.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909137

CATALOG NUMBER: DFN2DIP-SQ3F0-050D120US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P909137

CATALOG NUMBER: DFN2DIP-SQ3F0-050D120US840-FLONL

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	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	31
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	29	28	26
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	22
4	71	60	53	47	63	54	48	43	43	38	35	33	29	27	23	21	19
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17
6	60	48	40	34	53	43	36	32	35	30	26	26	23	20	19	16	15
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13
8	51	39	32	26	46	35	29	24	28	23	20	22	18	16	16	13	12
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2251	2251	2251
5°	2253	2218	2234
10°	2234	2187	2203
15°	2199	2149	2155
20°	2154	2098	2106
25°	2108	2037	2049
30°	2051	1979	1978
35°	1997	1912	1902
40°	1931	1844	1829
45°	1865	1776	1755
50°	1793	1705	1669
55°	1717	1622	1590
60°	1631	1524	1500
65°	1537	1422	1393
70°	1417	1297	1278
75°	1252	1148	1171
80°	1052	958	968
85°	741	634	633

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2802 cd/sqm

TEST NUMBER: P909137

CATALOG NUMBER: DFN2DIP-SQ3F0-050D120US840-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.1
10°-20°	520.3	3.1
20°-30°	764.6	4.5
30°-40°	888.1	5.2
40°-50°	887.0	5.2
50°-60°	773.4	4.6
60°-70°	571.7	3.4
70°-80°	323.5	1.9
80°-90°	92.6	0.5
90°-100°	134.9	0.8
100°-110°	502.7	3.0
110°-120°	1333.3	7.8
120°-130°	2211.4	13.0
130°-140°	2349.0	13.8
140°-150°	2183.2	12.8
150°-160°	1755.2	10.3
160°-170°	1131.0	6.7
170°-180°	389.3	2.3
0°-30°	1469.8	8.6
0°-40°	2357.9	13.9
0°-60°	4018.3	23.6
0°-90°	5006.0	29.5
90°-120°	1970.9	11.6
90°-150°	8714.5	51.3
90°-180°	11990.0	70.5
0°-180°	16996.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	3	35	59	74	80	16
95°	192	94	115	130	127	228
105°	900	989	181	213	225	961
115°	1702	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3025	3051	3081	3075	2300
145°	3454	3451	3501	3522	3507	2160
155°	3803	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4105	4075	390
180°	4090	4090	4090	4090	4090	

TEST NUMBER: P909137

CATALOG NUMBER: DFN2DIP-SQ3F0-050D120US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	77.0	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.5	168.6	192.2	198.2
102.5°	719.0	713.4	174.6	207.0	216.1
105°	899.6	988.6	180.7	213.0	224.9
107.5°	1109.7	1183.6	186.6	218.9	230.9
110°	1311.1	1373.0	518.0	222.1	233.7

TEST NUMBER: P909137

CATALOG NUMBER: DFN2DIP-SQ3F0-050D120US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.6	1553.6	1503.4	227.7	236.8
115°	1701.5	1751.8	1825.9	455.8	242.9
117.5°	1876.2	1935.3	1985.9	1562.4	787.2
120°	2071.6	2115.9	2169.3	2204.8	1805.2
122.5°	2237.2	2284.6	2344.0	2361.6	2364.7
125°	2405.8	2444.5	2500.7	2521.4	2530.2
127.5°	2559.7	2601.2	2645.8	2675.3	2678.2
130°	2704.8	2752.3	2784.6	2817.3	2814.5
132.5°	2852.8	2891.4	2923.8	2950.5	2947.7
135°	2977.2	3024.6	3051.0	3080.9	3074.9
137.5°	3107.3	3142.7	3172.6	3202.1	3193.3
140°	3234.5	3258.3	3290.6	3317.4	3302.7
142.5°	3341.2	3362.0	3400.3	3423.8	3409.1
145°	3453.7	3450.6	3500.8	3521.6	3506.8
147.5°	3551.1	3542.3	3592.6	3607.3	3595.7
150°	3645.9	3625.2	3672.7	3690.3	3675.5
152.5°	3725.7	3702.2	3746.5	3764.4	3743.7
155°	3802.6	3776.3	3811.8	3829.4	3805.9
157.5°	3864.9	3841.3	3868.1	3888.8	3864.9
160°	3918.3	3900.4	3918.3	3935.8	3915.1
162.5°	3965.4	3947.9	3962.6	3983.3	3956.7
165°	4006.8	3989.3	3998.1	4018.9	3998.1
167.5°	4039.6	4021.6	4030.8	4051.5	4024.8
170°	4066.2	4048.3	4054.3	4075.0	4048.3
172.5°	4083.8	4066.2	4072.3	4093.0	4066.2
175°	4098.5	4077.8	4083.8	4104.6	4075.0
177.5°	4104.6	4083.8	4087.0	4107.7	4081.1
180°	4089.9	4089.9	4089.9	4089.9	4089.9

TEST NUMBER: P909137

CATALOG NUMBER: DFN2DIP-SQ3F0-050D120US840-FLLONL

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	7.77	8.47	8.88	9.58	11.12	7.32	8.03	8.44	9.14	10.67
	3H	9.41	10.04	10.54	11.16	12.71	8.92	9.55	10.05	10.67	12.22
	4H	9.99	10.59	11.12	11.71	13.27	9.50	10.09	10.63	11.21	12.77
	6H	10.38	10.93	11.52	12.05	13.62	9.88	10.43	11.02	11.55	13.12
	8H	10.48	11.00	11.62	12.14	13.70	9.97	10.50	11.12	11.63	13.20
	12H	10.52	11.01	11.67	12.14	13.73	10.01	10.50	11.16	11.64	13.22
4H	2H	8.21	8.80	9.35	9.92	11.48	7.85	8.45	8.99	9.57	11.13
	3H	10.05	10.55	11.20	11.70	13.27	9.64	10.14	10.79	11.29	12.86
	4H	10.76	11.21	11.91	12.35	13.94	10.33	10.79	11.48	11.92	13.52
	6H	11.26	11.65	12.41	12.81	14.39	10.83	11.22	11.98	12.38	13.96
	8H	11.40	11.77	12.56	12.92	14.51	10.96	11.33	12.12	12.48	14.08
	12H	11.46	11.80	12.64	12.96	14.56	11.02	11.35	12.19	12.51	14.11
8H	4H	10.94	11.30	12.09	12.45	14.05	10.56	10.93	11.71	12.07	13.67
	6H	11.55	11.86	12.73	13.05	14.64	11.17	11.47	12.35	12.66	14.26
	8H	11.77	12.03	12.95	13.20	14.82	11.38	11.64	12.56	12.81	14.43
	12H	11.89	12.12	13.07	13.29	14.94	11.48	11.71	12.66	12.88	14.53
12H	4H	10.91	11.25	12.08	12.40	14.01	10.54	10.88	11.72	12.04	13.64
	6H	11.58	11.84	12.76	13.01	14.63	11.21	11.47	12.39	12.64	14.26
	8H	11.81	12.04	13.00	13.21	14.86	11.43	11.66	12.61	12.83	14.48