

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: P908976

Luminaire Tested: DFN2DIP-SQ2F0-050D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908976
REPORT IS A COMBINATION OF REPORTS P899787 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-050D040US840-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

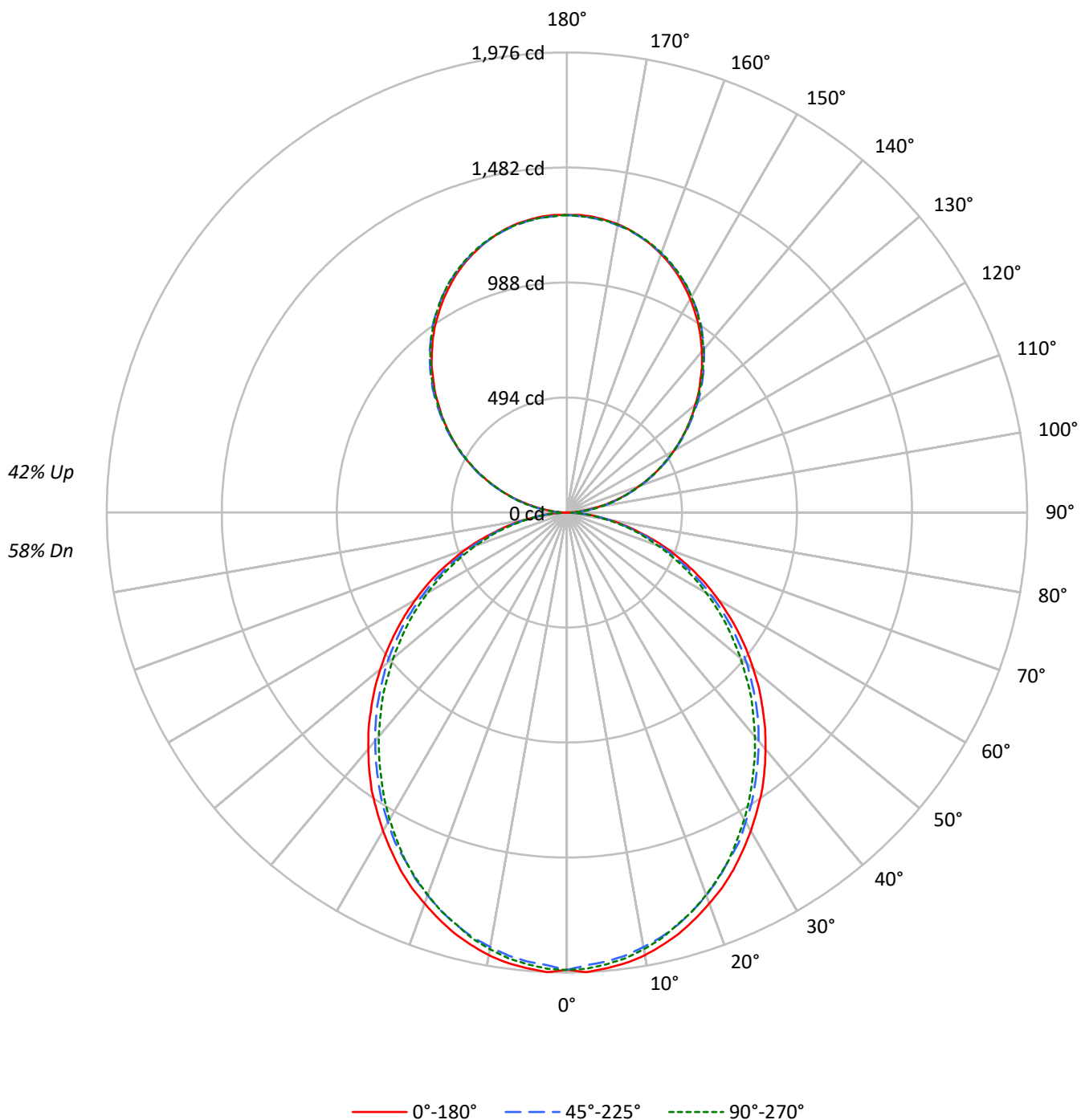
Lumens per Lamp: N/A
Luminaire Lumens: 8573.8 lumens
Efficiency: N/A
Efficacy: 116.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 73.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P908976

CATALOG NUMBER: DFN2DIP-SQ2F0-050D040US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P908976

CATALOG NUMBER: DFN2DIP-SQ2F0-050D040US840-FLLFL

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
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88		75	75	75		64
1	100	95	91	88	93	89	86	82	77	75	72		66	65	63		56
2	91	83	77	72	84	78	72	68	68	64	60		58	55	52		50
3	83	73	66	60	77	69	62	57	60	55	50		52	48	44		44
4	76	65	57	51	70	61	54	48	53	47	43		46	42	38		39
5	70	58	50	43	65	54	47	41	48	42	37		41	37	33		35
6	64	52	44	38	60	49	41	36	43	37	32		37	33	29		32
7	59	47	39	33	55	44	37	32	39	33	29		34	29	26		29
8	55	43	35	29	51	40	33	28	36	30	26		31	26	23		27
9	51	39	31	26	48	37	30	25	33	27	23		29	24	21		25
10	48	36	28	24	45	34	27	23	30	25	21		27	22	19		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4320	4320	4320
5°	4320	4250	4283
10°	4277	4184	4219
15°	4207	4106	4122
20°	4114	4001	4023
25°	4022	3877	3910
30°	3908	3761	3768
35°	3800	3626	3618
40°	3668	3489	3475
45°	3536	3352	3327
50°	3391	3207	3158
55°	3239	3040	3001
60°	3066	2843	2821
65°	2877	2637	2608
70°	2636	2387	2378
75°	2307	2086	2157
80°	1905	1703	1752
85°	1288	1074	1100

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3536 cd/sqm

TEST NUMBER: P908976

CATALOG NUMBER: DFN2DIP-SQ2F0-050D040US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	2.2
10°-20°	520.3	6.1
20°-30°	764.6	8.9
30°-40°	888.1	10.4
40°-50°	887.0	10.3
50°-60°	773.4	9.0
60°-70°	571.7	6.7
70°-80°	323.5	3.8
80°-90°	89.0	1.0
90°-100°	79.1	0.9
100°-110°	251.2	2.9
110°-120°	429.8	5.0
120°-130°	565.3	6.6
130°-140°	634.5	7.4
140°-150°	622.2	7.3
150°-160°	522.0	6.1
160°-170°	346.2	4.0
170°-180°	121.0	1.4
0°-30°	1469.8	17.1
0°-40°	2357.9	27.5
0°-60°	4018.3	46.9
0°-90°	5002.5	58.3
90°-120°	760.1	8.9
90°-150°	2582.2	30.1
90°-180°	3571.0	41.7
0°-180°	8573.8	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°	1	14	38	35	37	8
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: P908976

CATALOG NUMBER: DFN2DIP-SQ2F0-050D040US840-FLLFLL

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°	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: P908976

CATALOG NUMBER: DFN2DIP-SQ2F0-050D040US840-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

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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	12.98	13.92	13.86	14.82	15.97	12.53	13.47	13.41	14.38	15.52
	3H	14.62	15.47	15.52	16.38	17.55	14.13	14.98	15.03	15.89	17.06
	4H	15.20	16.00	16.11	16.92	18.10	14.71	15.51	15.62	16.43	17.61
	6H	15.59	16.33	16.51	17.25	18.45	15.09	15.83	16.01	16.75	17.95
	8H	15.69	16.39	16.62	17.33	18.53	15.19	15.89	16.12	16.83	18.03
	12H	15.73	16.40	16.67	17.34	18.56	15.23	15.89	16.16	16.83	18.05
4H	2H	13.44	14.24	14.35	15.15	16.34	13.08	13.88	14.00	14.80	15.98
	3H	15.29	15.95	16.21	16.90	18.10	14.88	15.55	15.80	16.49	17.69
	4H	15.99	16.60	16.92	17.54	18.76	15.56	16.17	16.50	17.12	18.34
	6H	16.49	17.02	17.44	17.98	19.20	16.06	16.58	17.01	17.55	18.77
	8H	16.63	17.12	17.58	18.08	19.32	16.20	16.69	17.15	17.65	18.88
	12H	16.70	17.14	17.67	18.12	19.36	16.25	16.69	17.22	17.67	18.91
8H	4H	16.18	16.67	17.13	17.63	18.87	15.80	16.29	16.75	17.25	18.49
	6H	16.79	17.20	17.77	18.20	19.43	16.41	16.81	17.38	17.82	19.05
	8H	17.00	17.36	17.99	18.35	19.60	16.61	16.97	17.59	17.96	19.21
	12H	17.12	17.44	18.11	18.42	19.72	16.71	17.03	17.70	18.01	19.31
12H	4H	16.17	16.61	17.14	17.59	18.83	15.80	16.24	16.77	17.22	18.46
	6H	16.82	17.18	17.80	18.17	19.42	16.44	16.80	17.43	17.79	19.05
	8H	17.05	17.36	18.04	18.35	19.65	16.67	16.98	17.66	17.97	19.27