

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: P917608

Luminaire Tested: DFN2DIP-SQ4F0-060D160US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917608
REPORT IS A COMBINATION OF REPORTS P900203 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

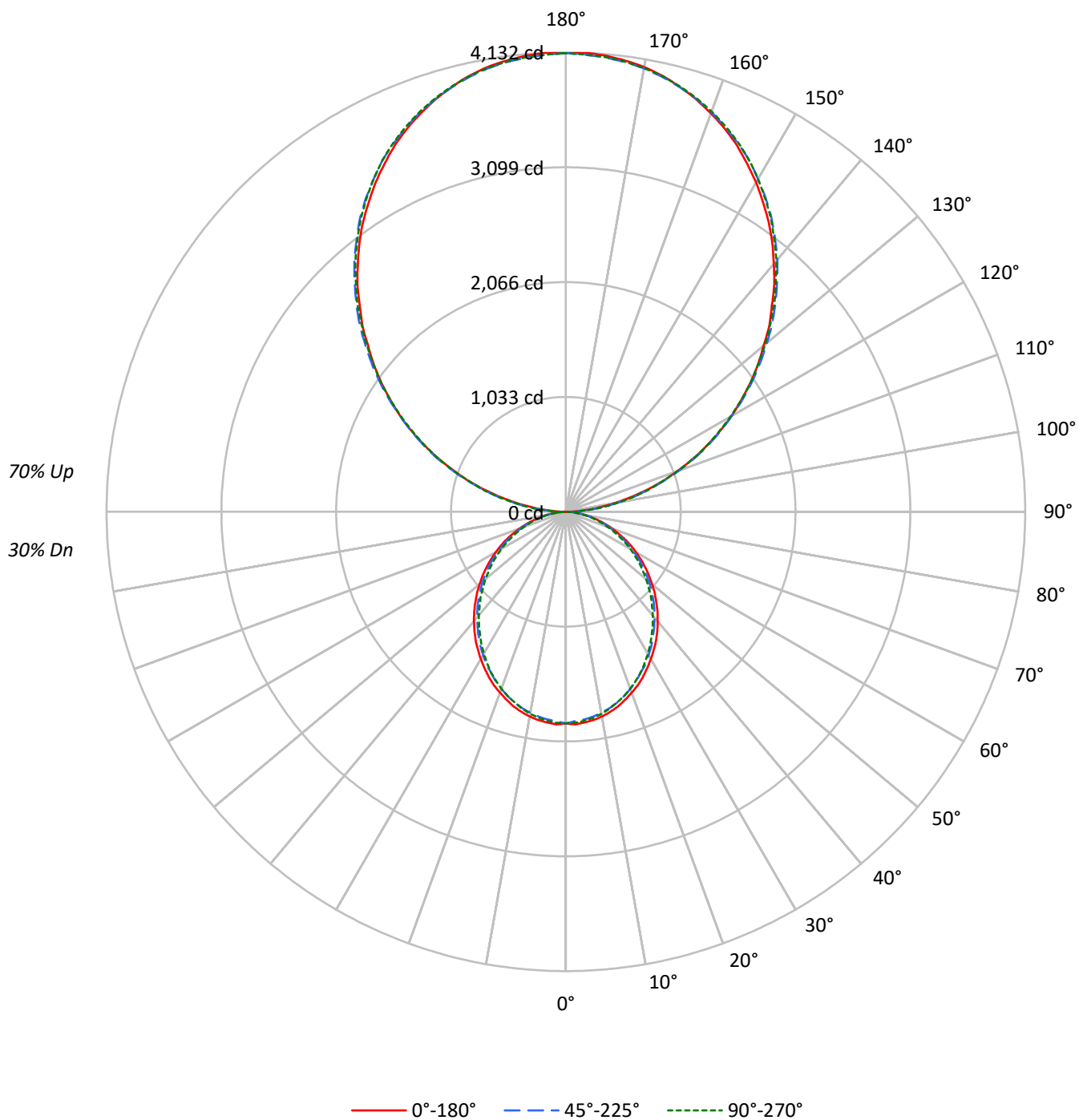
Lumens per Lamp: N/A
Luminaire Lumens: 16388.3 lumens
Efficiency: N/A
Efficacy: 95.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917608

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P917608

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US930-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	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	32
2	85	78	72	67	76	70	65	61	55	52	49	42	39	37	29	28	27
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	23
4	71	60	53	47	63	54	48	43	43	38	35	33	30	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	37	32	35	30	26	26	23	20	19	17	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	24	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°	1336	1336	1336
5°	1338	1317	1326
10°	1327	1300	1309
15°	1307	1279	1281
20°	1281	1249	1253
25°	1255	1214	1220
30°	1222	1181	1178
35°	1191	1142	1134
40°	1152	1103	1092
45°	1114	1064	1048
50°	1072	1023	999
55°	1028	975	953
60°	979	919	900
65°	925	860	838
70°	856	789	772
75°	761	704	711
80°	646	595	594
85°	467	407	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3246 cd/sqm

TEST NUMBER: P917608

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.1
10°-20°	504.1	3.1
20°-30°	740.8	4.5
30°-40°	860.4	5.2
40°-50°	859.3	5.2
50°-60°	749.3	4.6
60°-70°	553.9	3.4
70°-80°	313.4	1.9
80°-90°	94.4	0.6
90°-100°	255.3	1.6
100°-110°	811.2	4.9
110°-120°	1388.2	8.5
120°-130°	1825.7	11.1
130°-140°	2049.3	12.5
140°-150°	2009.6	12.3
150°-160°	1685.7	10.3
160°-170°	1117.9	6.8
170°-180°	390.8	2.4
0°-30°	1424.0	8.7
0°-40°	2284.3	13.9
0°-60°	3892.9	23.8
0°-90°	4854.6	29.6
90°-120°	2454.7	15.0
90°-150°	8339.3	50.9
90°-180°	11534.0	70.4
0°-180°	16388.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	4	45	122	114	118	16
95°	182	216	223	223	216	202
105°	749	759	766	772	772	790
115°	1393	1413	1407	1403	1393	1378
125°	2026	2057	2047	2036	2032	1811
135°	2621	2659	2667	2663	2653	2026
145°	3182	3207	3226	3230	3217	1988
155°	3638	3648	3659	3677	3666	1675
165°	3958	3954	3954	3979	3962	1117
175°	4118	4108	4101	4126	4105	391
180°	4126	4126	4126	4126	4126	

TEST NUMBER: P917608

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	3.8	44.8	121.9	114.5	118.1
92.5°	77.1	104.5	108.2	111.9	111.9
95°	181.6	216.5	222.7	222.7	216.5
97.5°	302.2	334.6	348.3	348.3	348.3
100°	441.6	470.2	480.1	480.1	476.4
102.5°	588.3	609.5	623.1	626.9	623.1
105°	748.8	758.7	766.2	772.4	772.4
107.5°	908.0	922.9	922.9	925.4	908.0
110°	1062.3	1082.1	1082.1	1082.1	1072.2

TEST NUMBER: P917608

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1228.9	1250.1	1246.3	1236.4	1228.9
115°	1393.1	1413.0	1406.8	1403.0	1393.1
117.5°	1556.1	1583.4	1566.0	1556.1	1546.1
120°	1720.3	1747.6	1720.3	1720.3	1709.0
122.5°	1869.5	1904.4	1886.9	1877.0	1869.5
125°	2026.3	2057.3	2047.4	2036.2	2032.5
127.5°	2179.2	2217.8	2204.1	2189.2	2179.2
130°	2322.3	2367.1	2360.9	2353.4	2339.7
132.5°	2482.7	2517.6	2520.0	2502.6	2492.7
135°	2620.8	2659.3	2666.8	2663.1	2653.1
137.5°	2775.0	2806.1	2812.4	2809.8	2794.9
140°	2910.6	2941.7	2959.1	2959.1	2945.4
142.5°	3049.9	3081.0	3091.0	3094.7	3081.0
145°	3181.8	3206.6	3226.5	3230.3	3216.6
147.5°	3299.9	3331.1	3346.0	3352.2	3338.5
150°	3421.8	3443.0	3456.7	3467.9	3456.7
152.5°	3530.1	3551.2	3568.6	3582.3	3568.6
155°	3638.3	3648.2	3659.4	3676.8	3665.7
157.5°	3731.5	3739.0	3745.2	3770.1	3752.7
160°	3814.9	3822.4	3826.1	3847.2	3832.3
162.5°	3892.0	3892.0	3895.7	3919.4	3901.9
165°	3957.9	3954.2	3954.2	3979.1	3961.7
167.5°	4017.6	4006.5	4006.5	4031.3	4013.9
170°	4062.4	4052.4	4048.8	4073.6	4052.4
172.5°	4093.5	4083.6	4079.8	4104.7	4083.6
175°	4118.4	4108.5	4101.0	4125.9	4104.7
177.5°	4132.1	4122.1	4114.6	4135.8	4114.6
180°	4125.9	4125.9	4125.9	4125.9	4125.9

TEST NUMBER: P917608

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US930-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	6.02	6.73	7.14	7.83	9.37	5.58	6.28	6.69	7.39	8.92
	3H	7.67	8.30	8.80	9.42	10.97	7.18	7.81	8.31	8.93	10.48
	4H	8.26	8.86	9.39	9.97	11.53	7.76	8.36	8.89	9.48	11.04
	6H	8.65	9.20	9.79	10.32	11.89	8.15	8.70	9.29	9.82	11.39
	8H	8.75	9.28	9.90	10.41	11.98	8.25	8.78	9.40	9.91	11.47
	12H	8.80	9.30	9.95	10.43	12.01	8.29	8.79	9.44	9.92	11.50
4H	2H	6.46	7.06	7.60	8.18	9.74	6.11	6.71	7.25	7.82	9.38
	3H	8.32	8.82	9.46	9.96	11.53	7.91	8.41	9.06	9.56	11.12
	4H	9.03	9.49	10.18	10.62	12.21	8.61	9.07	9.75	10.20	11.79
	6H	9.54	9.93	10.69	11.09	12.67	9.11	9.50	10.26	10.66	12.24
	8H	9.69	10.06	10.84	11.20	12.80	9.25	9.62	10.40	10.77	12.36
	12H	9.76	10.09	10.93	11.25	12.85	9.31	9.64	10.48	10.80	12.40
8H	4H	9.21	9.58	10.37	10.73	12.33	8.84	9.21	9.99	10.35	11.95
	6H	9.84	10.15	11.02	11.34	12.93	9.46	9.76	10.63	10.95	12.55
	8H	10.07	10.33	11.25	11.50	13.11	9.67	9.94	10.85	11.11	12.72
	12H	10.19	10.43	11.38	11.59	13.24	9.78	10.01	10.97	11.18	12.83
12H	4H	9.19	9.53	10.36	10.68	12.29	8.82	9.16	9.99	10.32	11.92
	6H	9.87	10.14	11.05	11.31	12.92	9.50	9.77	10.68	10.93	12.55
	8H	10.11	10.34	11.29	11.51	13.16	9.73	9.96	10.91	11.13	12.77

END OF REPORT