

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: P917589

Luminaire Tested: DFN2DIP-SQ4F0-060D090US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917589
REPORT IS A COMBINATION OF REPORTS P901633 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D090US930-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

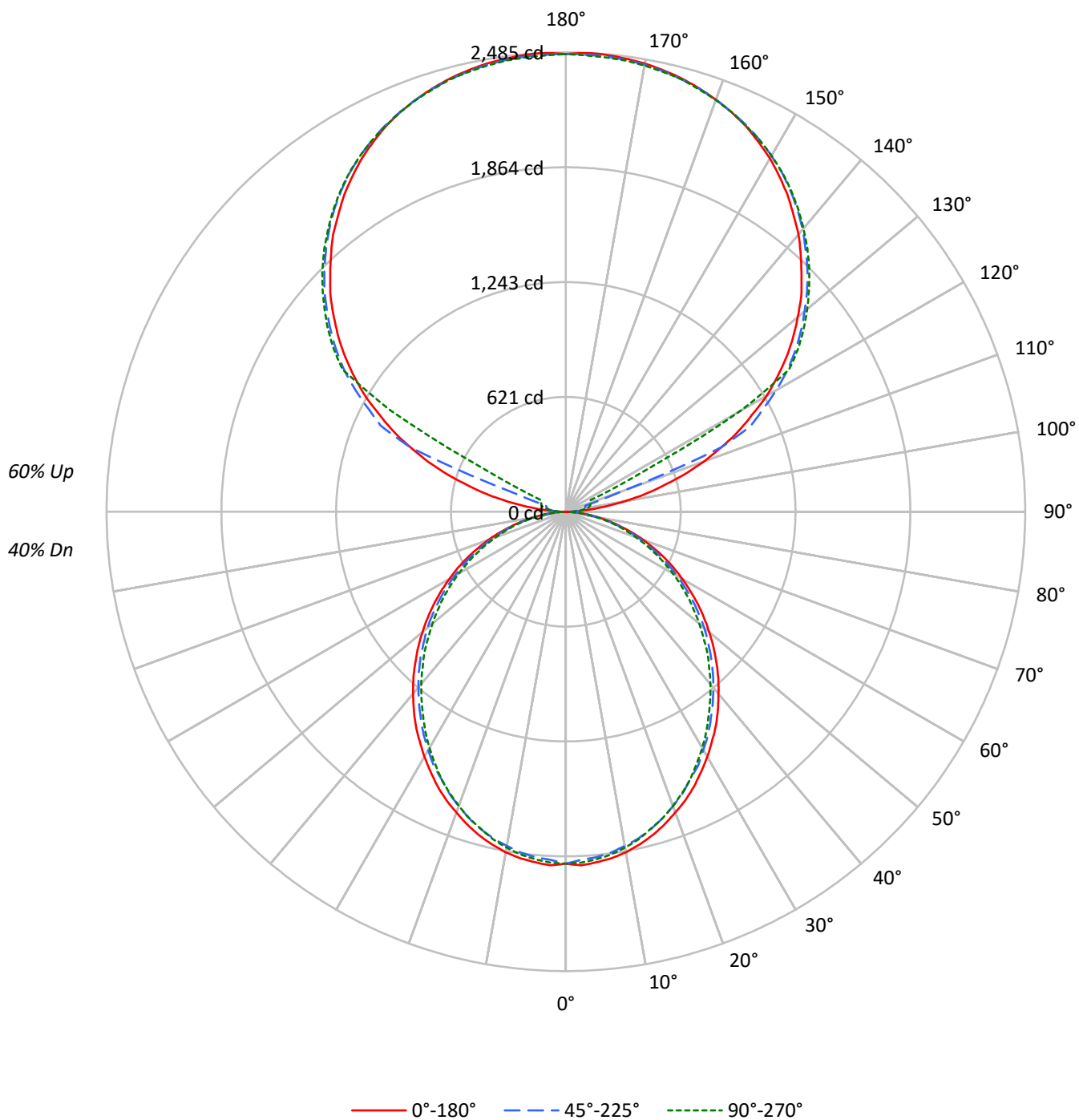
Lumens per Lamp: N/A
Luminaire Lumens: 12107.2 lumens
Efficiency: N/A
Efficacy: 103.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 116.7
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

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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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

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: 1327 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.5
10°-20°	504.1	4.2
20°-30°	740.8	6.1
30°-40°	860.4	7.1
40°-50°	859.3	7.1
50°-60°	749.3	6.2
60°-70°	553.9	4.6
70°-80°	313.4	2.6
80°-90°	87.1	0.7
90°-100°	81.7	0.7
100°-110°	304.4	2.5
110°-120°	807.3	6.7
120°-130°	1339.0	11.1
130°-140°	1422.3	11.7
140°-150°	1321.9	10.9
150°-160°	1062.8	8.8
160°-170°	684.8	5.7
170°-180°	235.7	1.9
0°-30°	1424.0	11.8
0°-40°	2284.3	18.9
0°-60°	3892.9	32.2
0°-90°	4847.2	40.0
90°-120°	1193.4	9.9
90°-150°	5276.6	43.6
90°-180°	7260.0	60.0
0°-180°	12107.2	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°	2	22	36	45	48	11
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

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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°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

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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	7.29	8.07	8.33	9.12	10.52	6.85	7.63	7.89	8.67	10.08
	3H	8.95	9.65	10.00	10.70	12.13	8.46	9.16	9.51	10.21	11.64
	4H	9.54	10.20	10.60	11.25	12.69	9.04	9.70	10.10	10.76	12.19
	6H	9.94	10.55	11.01	11.61	13.05	9.44	10.05	10.51	11.10	12.55
	8H	10.04	10.62	11.12	11.70	13.14	9.54	10.12	10.61	11.19	12.63
	12H	10.09	10.64	11.17	11.71	13.17	9.58	10.13	10.66	11.20	12.66
4H	2H	7.74	8.41	8.81	9.46	10.89	7.39	8.05	8.46	9.11	10.54
	3H	9.61	10.16	10.68	11.24	12.69	9.20	9.75	10.27	10.83	12.28
	4H	10.32	10.83	11.40	11.90	13.37	9.90	10.40	10.98	11.48	12.94
	6H	10.84	11.27	11.92	12.37	13.83	10.40	10.84	11.49	11.94	13.40
	8H	10.99	11.39	12.07	12.48	13.96	10.55	10.95	11.64	12.04	13.52
	12H	11.06	11.42	12.16	12.53	14.01	10.61	10.98	11.71	12.08	13.56
8H	4H	10.51	10.92	11.60	12.01	13.48	10.14	10.54	11.22	11.63	13.11
	6H	11.14	11.48	12.26	12.61	14.08	10.76	11.10	11.87	12.23	13.70
	8H	11.37	11.66	12.49	12.77	14.27	10.97	11.27	12.09	12.38	13.88
	12H	11.50	11.76	12.62	12.87	14.40	11.09	11.35	12.21	12.45	13.99
12H	4H	10.49	10.86	11.60	11.96	13.45	10.13	10.49	11.23	11.60	13.08
	6H	11.17	11.47	12.29	12.58	14.07	10.80	11.10	11.92	12.21	13.70
	8H	11.42	11.67	12.54	12.78	14.31	11.04	11.29	12.16	12.40	13.93

END OF REPORT