

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: P913318

Luminaire Tested: DFN2DIP-4P4F0-080D060US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913318
REPORT IS A COMBINATION OF REPORTS P899125 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D060US927-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

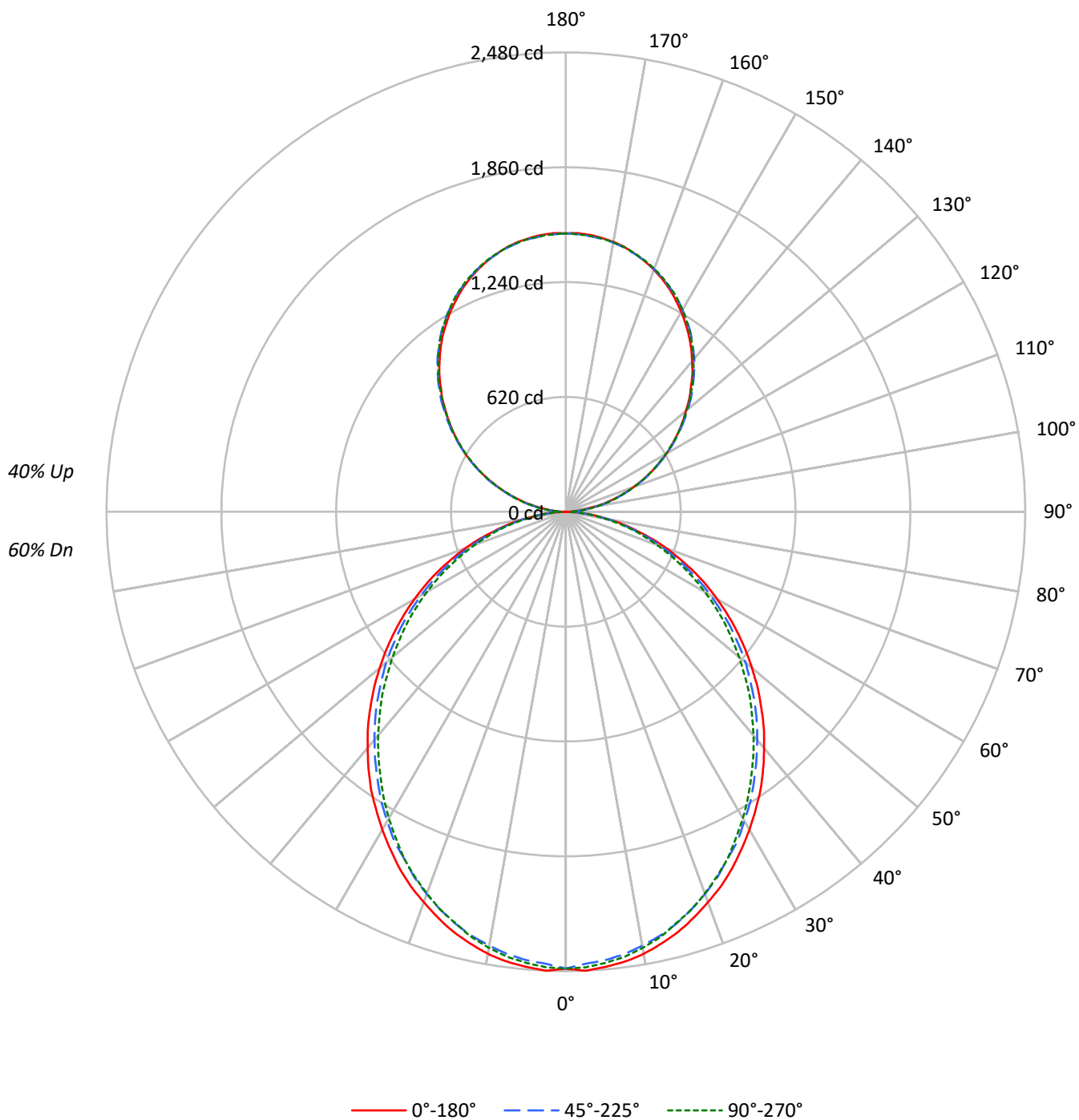
Lumens per Lamp: N/A
Luminaire Lumens: 10480.6 lumens
Efficiency: N/A
Efficacy: 77.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 136.1
Input Voltage (V):
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

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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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1600	1600	1600
5°	1602	1578	1589
10°	1590	1557	1568
15°	1566	1532	1535
20°	1535	1497	1501
25°	1504	1455	1462
30°	1464	1416	1412
35°	1427	1370	1359
40°	1381	1323	1308
45°	1336	1276	1257
50°	1286	1227	1197
55°	1233	1170	1143
60°	1174	1103	1080
65°	1110	1033	1006
70°	1028	948	927
75°	914	847	855
80°	778	718	715
85°	564	493	482

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1336 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.1	2.2
10°-20°	653.0	6.2
20°-30°	959.7	9.2
30°-40°	1114.6	10.6
40°-50°	1113.2	10.6
50°-60°	970.7	9.3
60°-70°	717.6	6.8
70°-80°	406.0	3.9
80°-90°	111.4	1.1
90°-100°	93.0	0.9
100°-110°	295.6	2.8
110°-120°	505.8	4.8
120°-130°	665.2	6.3
130°-140°	746.6	7.1
140°-150°	732.2	7.0
150°-160°	614.2	5.9
160°-170°	407.3	3.9
170°-180°	142.4	1.4
0°-30°	1844.8	17.6
0°-40°	2959.4	28.2
0°-60°	5043.4	48.1
0°-90°	6278.3	59.9
90°-120°	894.4	8.5
90°-150°	3038.4	29.0
90°-180°	4202.0	40.1
0°-180°	10480.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	1	16	44	42	43	10
95°	66	79	81	81	79	74
105°	273	276	279	282	282	288
115°	508	515	512	511	508	502
125°	738	750	746	742	740	660
135°	955	969	972	970	967	738
145°	1159	1168	1176	1177	1172	724
155°	1326	1329	1333	1340	1336	610
165°	1442	1441	1441	1450	1443	407
175°	1500	1497	1494	1503	1496	143
180°	1503	1503	1503	1503	1503	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	1.3	16.3	44.4	41.7	43.0
92.5°	28.1	38.1	39.5	40.8	40.8
95°	66.1	78.8	81.1	81.1	78.8
97.5°	110.1	121.9	126.9	126.9	126.9
100°	160.9	171.3	174.9	174.9	173.6
102.5°	214.4	222.0	227.0	228.4	227.0
105°	272.8	276.5	279.2	281.5	281.5
107.5°	330.8	336.3	336.3	337.2	330.8
110°	387.1	394.3	394.3	394.3	390.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	447.7	455.4	454.1	450.4	447.7
115°	507.6	514.8	512.5	511.2	507.6
117.5°	567.0	576.9	570.5	567.0	563.3
120°	626.8	636.8	626.8	626.8	622.7
122.5°	681.1	693.8	687.5	683.9	681.1
125°	738.2	749.6	745.9	741.9	740.5
127.5°	794.0	808.0	803.0	797.6	794.0
130°	846.1	862.4	860.2	857.5	852.5
132.5°	904.6	917.3	918.1	911.8	908.2
135°	954.9	968.9	971.6	970.3	966.6
137.5°	1011.1	1022.4	1024.7	1023.7	1018.3
140°	1060.5	1071.8	1078.2	1078.2	1073.2
142.5°	1111.2	1122.5	1126.2	1127.5	1122.5
145°	1159.3	1168.3	1175.6	1176.9	1172.0
147.5°	1202.3	1213.6	1219.1	1221.3	1216.3
150°	1246.7	1254.4	1259.4	1263.4	1259.4
152.5°	1286.1	1293.9	1300.2	1305.2	1300.2
155°	1325.6	1329.2	1333.2	1339.7	1335.5
157.5°	1359.5	1362.3	1364.5	1373.6	1367.3
160°	1390.0	1392.7	1394.0	1401.7	1396.3
162.5°	1418.0	1418.0	1419.4	1428.0	1421.6
165°	1442.0	1440.7	1440.7	1449.8	1443.4
167.5°	1463.8	1459.8	1459.8	1468.8	1462.4
170°	1480.1	1476.5	1475.1	1484.2	1476.5
172.5°	1491.4	1487.8	1486.4	1495.5	1487.8
175°	1500.5	1496.9	1494.1	1503.2	1495.5
177.5°	1505.5	1501.9	1499.1	1506.8	1499.1
180°	1503.2	1503.2	1503.2	1503.2	1503.2

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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	9.79	10.75	10.66	11.64	12.76	9.34	10.30	10.21	11.19	12.31
	3H	11.46	12.32	12.34	13.22	14.37	10.97	11.83	11.85	12.73	13.88
	4H	12.06	12.87	12.95	13.77	14.93	11.56	12.38	12.46	13.28	14.44
	6H	12.47	13.22	13.37	14.13	15.30	11.97	12.72	12.87	13.63	14.80
	8H	12.58	13.29	13.49	14.22	15.39	12.08	12.79	12.99	13.72	14.89
	12H	12.63	13.31	13.55	14.23	15.43	12.12	12.80	13.04	13.72	14.92
4H	2H	10.26	11.08	11.16	11.98	13.14	9.91	10.72	10.81	11.62	12.78
	3H	12.14	12.82	13.05	13.76	14.93	11.74	12.41	12.65	13.35	14.52
	4H	12.87	13.49	13.79	14.42	15.61	12.44	13.06	13.36	13.99	15.19
	6H	13.39	13.93	14.33	14.88	16.08	12.96	13.49	13.90	14.45	15.65
	8H	13.55	14.05	14.49	15.00	16.21	13.11	13.61	14.05	14.56	15.77
	12H	13.63	14.08	14.59	15.04	16.26	13.18	13.63	14.14	14.60	15.81
8H	4H	13.07	13.57	14.01	14.52	15.73	12.70	13.19	13.63	14.14	15.36
	6H	13.71	14.13	14.68	15.12	16.33	13.33	13.74	14.29	14.73	15.95
	8H	13.94	14.30	14.91	15.28	16.51	13.55	13.91	14.52	14.89	16.12
	12H	14.08	14.40	15.06	15.37	16.65	13.67	13.99	14.65	14.96	16.24
12H	4H	13.06	13.51	14.02	14.48	15.70	12.69	13.15	13.65	14.11	15.33
	6H	13.74	14.11	14.72	15.09	16.32	13.37	13.74	14.35	14.72	15.95
	8H	14.00	14.32	14.97	15.29	16.57	13.62	13.94	14.59	14.91	16.19