

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: P913273

Luminaire Tested: DFN2DIP-4P4F0-060D060US927-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913273
REPORT IS A COMBINATION OF REPORTS P900642 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D060US927-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

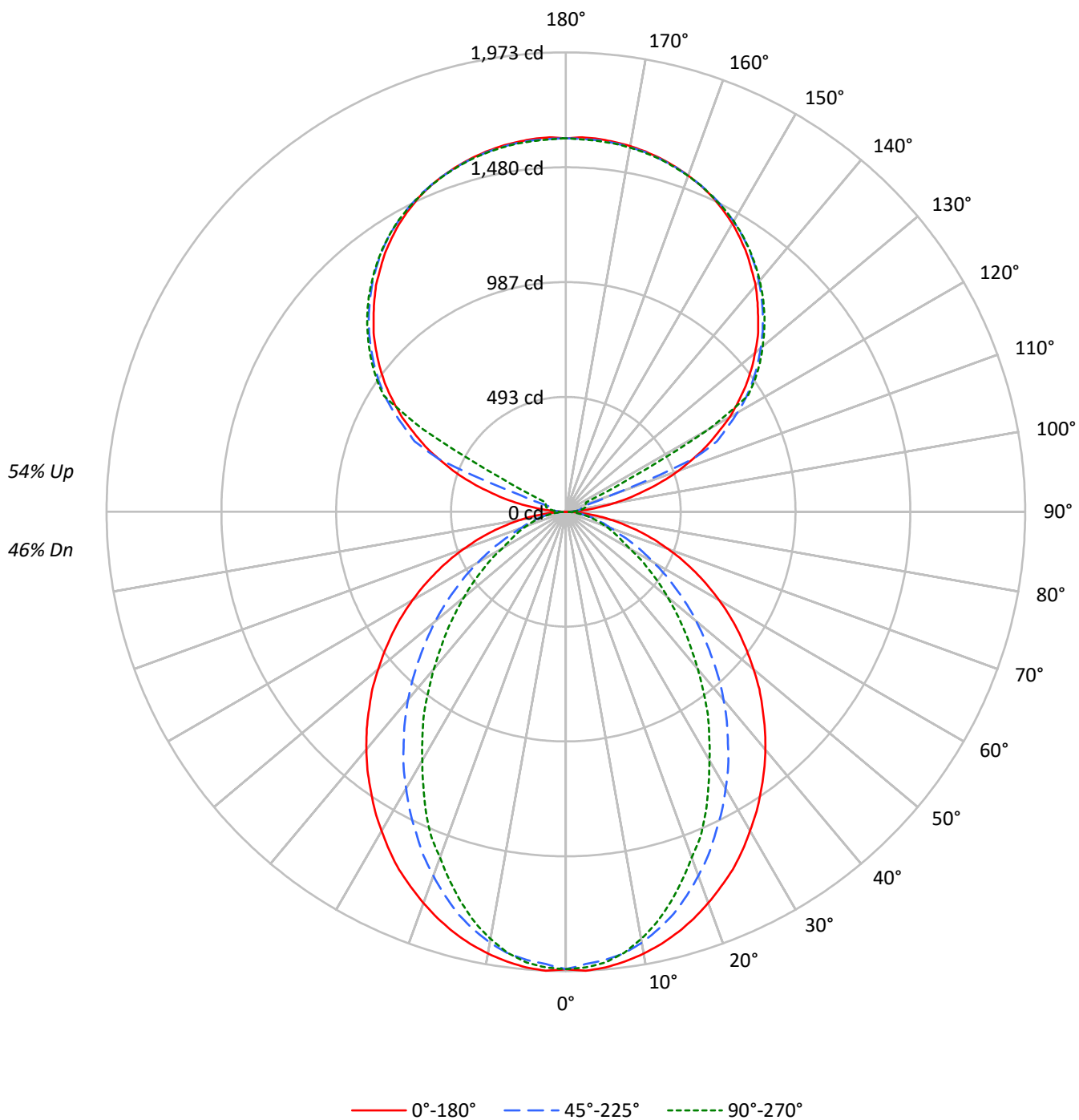
Lumens per Lamp: N/A
Luminaire Lumens: 8745.6 lumens
Efficiency: N/A
Efficacy: 78.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1274	1274	1274
5°	1277	1255	1263
10°	1264	1230	1222
15°	1247	1190	1159
20°	1224	1134	1081
25°	1200	1072	1006
30°	1169	1008	911
35°	1138	939	828
40°	1106	867	732
45°	1070	788	645
50°	1032	708	560
55°	993	623	478
60°	947	533	394
65°	895	442	355
70°	831	357	322
75°	751	316	294
80°	635	266	257
85°	444	180	196

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1070 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.1	2.1
10°-20°	505.4	5.8
20°-30°	709.6	8.1
30°-40°	773.5	8.8
40°-50°	710.9	8.1
50°-60°	558.3	6.4
60°-70°	363.4	4.2
70°-80°	187.1	2.1
80°-90°	50.6	0.6
90°-100°	52.9	0.6
100°-110°	197.2	2.3
110°-120°	523.0	6.0
120°-130°	867.4	9.9
130°-140°	921.3	10.5
140°-150°	856.3	9.8
150°-160°	688.4	7.9
160°-170°	443.6	5.1
170°-180°	152.7	1.7
0°-30°	1399.1	16.0
0°-40°	2172.6	24.8
0°-60°	3441.9	39.4
0°-90°	4042.9	46.2
90°-120°	773.0	8.8
90°-150°	3418.0	39.1
90°-180°	4703.0	53.8
0°-180°	8745.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1964	1964	1964	1964	1964	
5°	1964	1956	1932	1948	1943	186
15°	1868	1849	1788	1755	1737	527
25°	1696	1639	1522	1449	1422	780
35°	1461	1371	1214	1102	1063	915
45°	1195	1076	889	763	720	923
55°	908	770	578	471	437	812
65°	613	469	309	249	244	608
75°	327	203	142	130	128	346
85°	76	39	34	34	34	88
90°	1	14	23	29	31	8
95°	75	37	45	51	50	89
105°	353	388	71	84	88	377
115°	667	687	716	179	95	657
125°	944	959	981	989	992	842
135°	1168	1186	1197	1208	1206	902
145°	1355	1353	1373	1381	1376	847
155°	1492	1481	1495	1502	1493	687
165°	1572	1565	1568	1576	1568	444
175°	1608	1599	1602	1610	1598	153
180°	1604	1604	1604	1604	1604	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.5	1964.5	1964.5	1964.5	1964.5
2.5°	1973.3	1964.5	1944.8	1962.7	1959.1
5°	1964.5	1955.6	1932.4	1948.4	1943.1
7.5°	1948.4	1937.8	1913.0	1919.9	1911.1
10°	1927.1	1914.6	1879.2	1873.7	1863.1
12.5°	1900.5	1884.4	1836.4	1825.8	1806.2
15°	1868.4	1848.8	1788.4	1754.7	1736.9
17.5°	1831.1	1802.6	1727.9	1688.9	1660.4
20°	1788.4	1752.8	1664.0	1619.6	1580.4
22.5°	1742.2	1701.3	1598.1	1537.8	1511.2
25°	1696.1	1639.1	1521.8	1449.0	1422.2
27.5°	1641.0	1580.4	1450.6	1367.1	1326.2
30°	1582.3	1514.6	1372.4	1281.8	1233.7
32.5°	1525.3	1443.5	1297.9	1191.1	1146.6
35°	1461.4	1370.7	1214.3	1102.2	1063.0
37.5°	1399.2	1301.2	1136.1	1013.3	968.9
40°	1333.3	1226.8	1054.2	928.0	881.8
42.5°	1265.8	1152.1	972.5	840.8	796.5
45°	1194.7	1075.5	889.0	762.6	719.9
47.5°	1127.2	1001.0	809.0	682.6	643.6
50°	1052.5	926.3	730.7	607.9	570.8
52.5°	979.5	846.1	656.0	538.7	504.9
55°	908.4	769.8	577.7	471.2	437.4
57.5°	835.6	693.3	508.5	408.9	380.4
60°	760.9	618.7	435.5	345.0	316.5
62.5°	688.1	545.9	373.3	288.0	273.9
65°	613.4	469.3	309.3	249.0	243.5
67.5°	542.2	398.2	249.0	218.6	213.3
70°	467.5	328.9	206.1	188.5	181.3
72.5°	396.5	264.8	172.4	158.3	154.6
75°	327.1	202.6	142.2	129.8	128.1
77.5°	257.9	143.9	112.0	104.9	101.3
80°	193.7	103.1	85.2	78.3	78.3
82.5°	135.1	69.4	58.6	55.1	55.1
85°	76.4	39.1	33.7	33.7	33.7
87.5°	28.5	14.2	14.2	12.4	12.4
90°	1.1	13.9	23.1	29.1	31.3
92.5°	29.1	24.4	27.8	30.2	31.3
95°	75.4	37.1	45.2	51.2	49.9
97.5°	135.8	40.6	59.1	62.7	63.8
100°	205.5	46.4	66.1	75.4	77.7
102.5°	282.0	279.8	68.5	81.2	84.8
105°	352.8	387.7	70.8	83.5	88.2
107.5°	435.3	464.2	73.2	85.9	90.5
110°	514.3	538.5	203.2	87.1	91.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.5	609.3	589.6	89.3	92.9
115°	667.4	687.1	716.2	178.8	95.2
117.5°	735.9	759.1	778.9	612.8	308.7
120°	812.5	829.9	850.9	864.7	708.1
122.5°	877.4	896.0	919.3	926.2	927.5
125°	943.6	958.8	980.8	989.0	992.4
127.5°	1004.0	1020.3	1037.8	1049.3	1050.4
130°	1060.9	1079.5	1092.2	1105.0	1103.9
132.5°	1119.0	1134.1	1146.8	1157.2	1156.1
135°	1167.8	1186.4	1196.7	1208.4	1206.0
137.5°	1218.7	1232.6	1244.4	1255.9	1252.5
140°	1268.6	1278.0	1290.7	1301.2	1295.4
142.5°	1310.5	1318.7	1333.7	1342.9	1337.1
145°	1354.6	1353.4	1373.1	1381.2	1375.5
147.5°	1392.8	1389.3	1409.1	1414.8	1410.3
150°	1430.0	1421.9	1440.5	1447.4	1441.6
152.5°	1461.3	1452.1	1469.4	1476.5	1468.3
155°	1491.5	1481.1	1495.1	1502.0	1492.7
157.5°	1515.9	1506.6	1517.1	1525.3	1515.9
160°	1536.8	1529.8	1536.8	1543.7	1535.6
162.5°	1555.3	1548.4	1554.2	1562.3	1551.9
165°	1571.6	1564.7	1568.1	1576.3	1568.1
167.5°	1584.4	1577.4	1581.0	1589.1	1578.6
170°	1594.9	1587.8	1590.2	1598.3	1587.8
172.5°	1601.8	1594.9	1597.2	1605.4	1594.9
175°	1607.6	1599.4	1601.8	1609.9	1598.3
177.5°	1609.9	1601.8	1603.0	1611.1	1600.7
180°	1604.1	1604.1	1604.1	1604.1	1604.1

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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	7.65	8.45	8.64	9.45	10.77	3.61	4.41	4.60	5.41	6.74
	3H	9.33	10.04	10.33	11.05	12.40	4.79	5.51	5.80	6.52	7.87
	4H	9.94	10.61	10.96	11.63	12.98	5.24	5.92	6.26	6.94	8.29
	6H	10.36	10.98	11.39	12.00	13.37	5.57	6.19	6.59	7.21	8.58
	8H	10.49	11.08	11.53	12.12	13.48	5.66	6.25	6.69	7.28	8.65
	12H	10.55	11.12	11.59	12.15	13.53	5.70	6.26	6.74	7.29	8.68
4H	2H	7.66	8.34	8.69	9.35	10.71	4.20	4.88	5.23	5.89	7.25
	3H	9.49	10.06	10.53	11.10	12.47	5.55	6.11	6.58	7.16	8.53
	4H	10.19	10.70	11.23	11.74	13.13	6.10	6.61	7.14	7.65	9.04
	6H	10.71	11.15	11.76	12.21	13.59	6.52	6.96	7.57	8.02	9.41
	8H	10.89	11.30	11.94	12.35	13.75	6.65	7.06	7.70	8.11	9.51
	12H	10.98	11.35	12.05	12.42	13.83	6.71	7.09	7.78	8.15	9.56
8H	4H	10.15	10.57	11.21	11.62	13.02	6.38	6.79	7.43	7.84	9.25
	6H	10.73	11.07	11.80	12.16	13.56	6.90	7.24	7.97	8.33	9.73
	8H	10.95	11.24	12.03	12.32	13.74	7.09	7.39	8.17	8.47	9.89
	12H	11.09	11.35	12.17	12.42	13.88	7.21	7.48	8.30	8.55	10.01
12H	4H	10.10	10.48	11.17	11.54	12.95	6.38	6.76	7.45	7.82	9.23
	6H	10.70	11.00	11.78	12.08	13.50	6.95	7.25	8.03	8.33	9.75
	8H	10.92	11.19	12.01	12.26	13.72	7.16	7.43	8.25	8.50	9.96

END OF REPORT