

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: P913208

Luminaire Tested: DFN2DIP-4P4F0-030D080US927-RLLFLL

Issue Date: 11/21/2024

**Test Information**

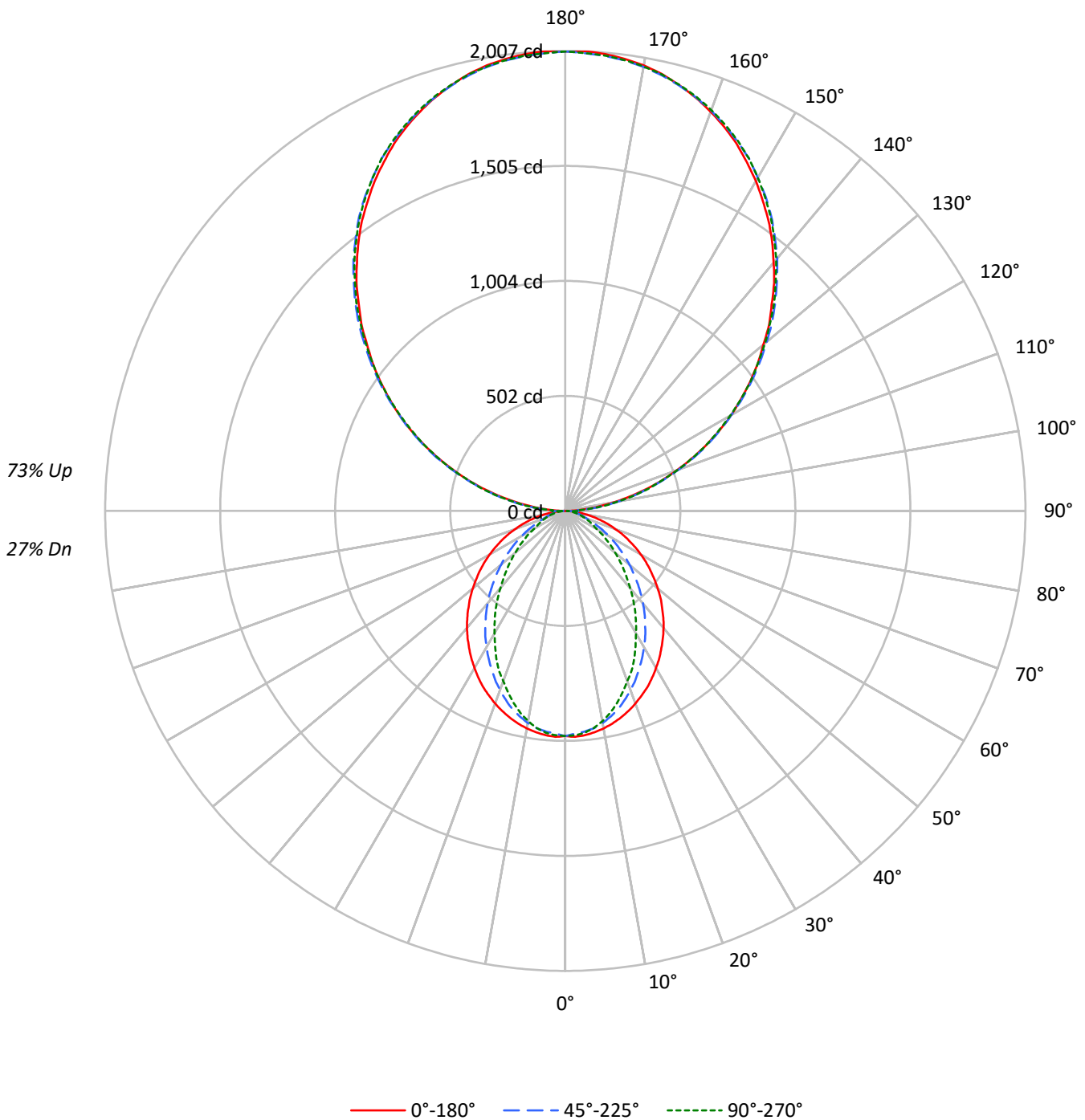
Test Method: LM-79-2019  
Report Number: P913208  
REPORT IS A COMBINATION OF REPORTS P899140 AND P895967  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-030D080US927-RLLFLL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7628.7 lumens  
Efficiency: N/A  
Efficacy: 75.4 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: Semi-Indirect  
  
Input Watts (W): 101.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	91	91	91	91	70	70	70	52	52	52	35	35	35	27			27
1	93	89	85	82	83	79	76	74	62	60	58	46	44	43	31	30	30	23			23
2	85	78	72	67	75	70	65	61	54	51	48	40	38	37	27	26	25	20			20
3	77	68	62	56	69	61	56	51	48	44	41	36	33	31	25	23	22	17			17
4	71	61	53	48	63	54	48	43	43	38	35	32	29	27	22	20	19	15			15
5	65	54	46	41	58	49	42	37	38	34	30	29	26	23	20	18	17	13			13
6	60	48	41	35	53	44	37	32	35	30	26	26	23	20	18	16	15	11			11
7	55	44	36	31	49	39	33	28	31	27	23	24	21	18	17	15	13	10			10
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9			9
9	48	36	29	24	42	33	26	22	26	21	18	20	17	14	14	12	11	8			8
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8			8

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	637	637	637
5°	638	627	631
10°	632	615	611
15°	623	595	579
20°	612	567	541
25°	600	536	503
30°	584	504	456
35°	569	469	414
40°	553	434	366
45°	535	394	322
50°	516	354	280
55°	496	311	239
60°	473	267	197
65°	447	221	178
70°	415	179	161
75°	375	158	147
80°	318	133	128
85°	222	90	98

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1517 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	92.1	1.2
10°-20°	252.7	3.3
20°-30°	354.8	4.7
30°-40°	386.8	5.1
40°-50°	355.5	4.7
50°-60°	279.2	3.7
60°-70°	181.7	2.4
70°-80°	93.5	1.2
80°-90°	29.6	0.4
90°-100°	124.0	1.6
100°-110°	394.1	5.2
110°-120°	674.4	8.8
120°-130°	886.9	11.6
130°-140°	995.5	13.0
140°-150°	976.2	12.8
150°-160°	818.9	10.7
160°-170°	543.1	7.1
170°-180°	189.8	2.5
0°-30°	699.6	9.2
0°-40°	1086.3	14.2
0°-60°	1720.9	22.6
0°-90°	2025.8	26.6
90°-120°	1192.5	15.6
90°-150°	4051.1	53.1
90°-180°	5603.0	73.4
0°-180°	7628.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	982	982	982	982	982	
5°	982	978	966	974	972	93
15°	934	924	894	877	868	263
25°	848	820	761	724	711	390
35°	731	685	607	551	532	457
45°	597	538	444	381	360	461
55°	454	385	289	236	219	406
65°	307	235	155	124	122	304
75°	164	101	71	65	64	173
85°	38	20	17	17	17	44
90°	2	22	59	56	57	8
95°	88	105	108	108	105	98
105°	364	369	372	375	375	384
115°	677	686	683	682	677	669
125°	984	999	995	989	987	880
135°	1273	1292	1296	1294	1289	984
145°	1546	1558	1567	1569	1563	966
155°	1767	1772	1778	1786	1781	813
165°	1923	1921	1921	1933	1924	542
175°	2001	1996	1992	2004	1994	190
180°	2004	2004	2004	2004	2004	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	982.2	982.2	982.2	982.2	982.2
2.5°	986.7	982.2	972.4	981.4	979.6
5°	982.2	977.8	966.2	974.2	971.5
7.5°	974.2	968.9	956.5	960.0	955.5
10°	963.5	957.4	939.6	936.8	931.6
12.5°	950.2	942.2	918.2	912.9	903.1
15°	934.2	924.4	894.2	877.3	868.5
17.5°	915.5	901.3	864.0	844.5	830.2
20°	894.2	876.4	831.9	809.8	790.2
22.5°	871.2	850.6	799.1	768.9	755.6
25°	848.0	819.5	760.9	724.4	711.1
27.5°	820.5	790.2	725.3	683.6	663.1
30°	791.2	757.3	686.2	641.0	616.9
32.5°	762.6	721.8	649.0	595.6	573.3
35°	730.7	685.3	607.1	551.1	531.6
37.5°	699.6	650.6	568.0	506.6	484.5
40°	666.7	613.4	527.1	464.0	440.9
42.5°	632.9	576.1	486.2	420.4	398.2
45°	597.4	537.7	444.5	381.3	360.0
47.5°	563.6	500.5	404.5	341.3	321.8
50°	526.2	463.1	365.4	304.0	285.3
52.5°	489.7	423.1	328.0	269.3	252.5
55°	454.2	384.8	288.8	235.6	218.7
57.5°	417.8	346.7	254.3	204.5	190.2
60°	380.4	309.3	217.8	172.5	158.3
62.5°	344.0	272.9	186.6	144.0	137.0
65°	306.7	234.6	154.6	124.5	121.8
67.5°	271.2	199.1	124.5	109.3	106.6
70°	233.8	164.5	103.1	94.2	90.6
72.5°	198.2	132.4	86.2	79.1	77.3
75°	163.5	101.3	71.1	64.9	64.0
77.5°	128.9	71.9	56.0	52.4	50.6
80°	96.9	51.6	42.6	39.1	39.1
82.5°	67.5	34.7	29.3	27.6	27.6
85°	38.2	19.5	16.9	16.9	16.9
87.5°	14.3	7.1	7.1	6.3	6.3
90°	1.8	21.8	59.3	55.6	57.4
92.5°	37.5	50.8	52.6	54.3	54.3
95°	88.2	105.1	108.1	108.1	105.1
97.5°	146.9	162.6	169.2	169.2	169.2
100°	214.5	228.4	233.2	233.2	231.4
102.5°	285.8	296.1	302.7	304.5	302.7
105°	363.8	368.6	372.2	375.3	375.3
107.5°	441.1	448.4	448.4	449.6	441.1
110°	516.0	525.7	525.7	525.7	520.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	597.0	607.3	605.5	600.6	597.0
115°	676.8	686.4	683.4	681.6	676.8
117.5°	755.9	769.2	760.7	755.9	751.1
120°	835.7	849.0	835.7	835.7	830.2
122.5°	908.2	925.1	916.6	911.8	908.2
125°	984.3	999.4	994.6	989.1	987.4
127.5°	1058.7	1077.4	1070.7	1063.5	1058.7
130°	1128.1	1149.9	1146.8	1143.3	1136.6
132.5°	1206.1	1223.0	1224.2	1215.8	1210.9
135°	1273.1	1291.9	1295.5	1293.7	1288.9
137.5°	1348.1	1363.2	1366.2	1365.0	1357.7
140°	1414.0	1429.0	1437.5	1437.5	1430.8
142.5°	1481.6	1496.7	1501.6	1503.4	1496.7
145°	1545.7	1557.7	1567.4	1569.2	1562.6
147.5°	1603.1	1618.2	1625.4	1628.5	1621.8
150°	1662.3	1672.5	1679.2	1684.7	1679.2
152.5°	1714.8	1725.1	1733.6	1740.3	1733.6
155°	1767.4	1772.3	1777.7	1786.1	1780.7
157.5°	1812.7	1816.4	1819.4	1831.4	1823.0
160°	1853.2	1856.9	1858.7	1868.9	1861.7
162.5°	1890.7	1890.7	1892.5	1904.0	1895.5
165°	1922.7	1920.9	1920.9	1933.0	1924.5
167.5°	1951.7	1946.3	1946.3	1958.4	1949.9
170°	1973.5	1968.6	1966.8	1978.9	1968.6
172.5°	1988.6	1983.8	1982.0	1994.0	1983.8
175°	2000.7	1995.8	1992.2	2004.3	1994.0
177.5°	2007.3	2002.5	1998.8	2009.1	1998.8
180°	2004.3	2004.3	2004.3	2004.3	2004.3



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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	2.87	3.54	4.01	4.66	6.24	0.00	0.00	0.00	0.62	2.20
	3H	4.54	5.14	5.69	6.27	7.86	0.01	0.60	1.15	1.74	3.33
	4H	5.14	5.71	6.30	6.85	8.44	0.45	1.02	1.61	2.15	3.75
	6H	5.56	6.08	6.73	7.22	8.83	0.76	1.29	1.93	2.42	4.03
	8H	5.69	6.18	6.85	7.34	8.93	0.85	1.35	2.02	2.50	4.10
	12H	5.74	6.22	6.91	7.36	8.98	0.89	1.36	2.06	2.51	4.13
4H	2H	2.87	3.43	4.03	4.57	6.16	0.00	0.00	0.57	1.11	2.70
	3H	4.69	5.16	5.86	6.32	7.93	0.74	1.22	1.91	2.38	3.98
	4H	5.38	5.81	6.55	6.96	8.59	1.29	1.72	2.46	2.87	4.50
	6H	5.89	6.26	7.06	7.43	9.05	1.70	2.07	2.87	3.24	4.86
	8H	6.06	6.41	7.24	7.57	9.21	1.83	2.17	3.00	3.34	4.97
	12H	6.15	6.47	7.34	7.64	9.28	1.88	2.20	3.07	3.37	5.01
8H	4H	5.33	5.68	6.51	6.84	8.47	1.56	1.91	2.73	3.07	4.70
	6H	5.90	6.19	7.09	7.39	9.02	2.07	2.36	3.27	3.56	5.19
	8H	6.12	6.37	7.32	7.55	9.20	2.27	2.51	3.46	3.70	5.35
	12H	6.25	6.47	7.46	7.65	9.33	2.38	2.60	3.58	3.78	5.46
12H	4H	5.28	5.59	6.47	6.77	8.40	1.56	1.87	2.75	3.05	4.68
	6H	5.87	6.12	7.07	7.31	8.96	2.12	2.37	3.32	3.56	5.20
	8H	6.09	6.31	7.29	7.49	9.17	2.33	2.55	3.53	3.73	5.41