

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: P905074

Luminaire Tested: DFN2DIP-4P4F0-060D030US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

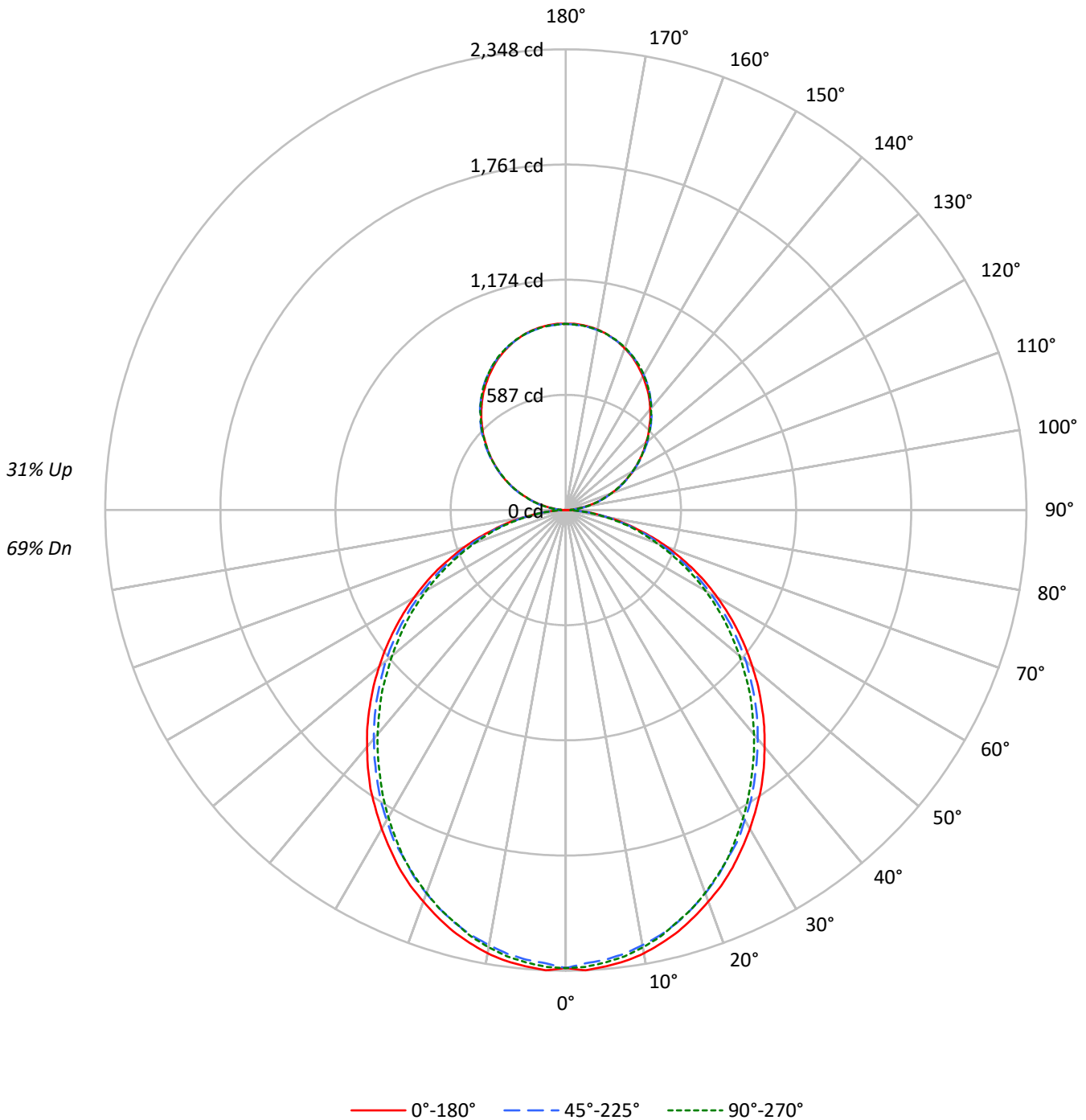
Test Method: LM-79-2019  
Report Number: P905074  
REPORT IS A COMBINATION OF REPORTS P899085 AND P895967  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-060D030US835-FLLFLL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8595.0 lumens  
Efficiency: N/A  
Efficacy: 101.7 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: Semi-Direct  
  
Input Watts (W): 84.5  
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				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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69				69
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58				58
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49				49
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41				41
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35				35
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31				31
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27				27
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24				24
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22				22
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19				19
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18				18

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

	0°	45°	90°
0°	1515	1515	1515
5°	1517	1494	1504
10°	1505	1474	1484
15°	1483	1451	1453
20°	1453	1417	1421
25°	1423	1377	1384
30°	1386	1340	1336
35°	1351	1297	1286
40°	1308	1252	1239
45°	1265	1208	1190
50°	1217	1162	1134
55°	1168	1108	1082
60°	1112	1044	1023
65°	1051	978	953
70°	973	898	878
75°	866	802	809
80°	737	680	677
85°	534	467	457

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1265 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	219.7	2.6
10°-20°	618.3	7.2
20°-30°	908.6	10.6
30°-40°	1055.3	12.3
40°-50°	1054.0	12.3
50°-60°	919.0	10.7
60°-70°	679.4	7.9
70°-80°	384.4	4.5
80°-90°	104.1	1.2
90°-100°	58.7	0.7
100°-110°	186.5	2.2
110°-120°	319.2	3.7
120°-130°	419.8	4.9
130°-140°	471.2	5.5
140°-150°	462.1	5.4
150°-160°	387.7	4.5
160°-170°	257.1	3.0
170°-180°	89.9	1.0
0°-30°	1746.6	20.3
0°-40°	2801.8	32.6
0°-60°	4774.8	55.6
0°-90°	5942.7	69.1
90°-120°	564.5	6.6
90°-150°	1917.7	22.3
90°-180°	2652.0	30.9
0°-180°	8595.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2335	2326	2301	2319	2315	222
15°	2222	2209	2180	2189	2178	626
25°	2011	1994	1955	1960	1955	926
35°	1735	1713	1677	1663	1652	1084
45°	1412	1396	1363	1338	1329	1090
55°	1069	1055	1028	1001	990	955
65°	721	707	685	664	653	713
75°	377	373	361	348	352	402
85°	92	90	88	81	79	103
90°	1	10	28	26	27	8
95°	42	50	51	51	50	46
105°	172	174	176	178	178	182
115°	320	325	324	323	320	317
125°	466	473	471	468	467	416
135°	603	612	613	612	610	466
145°	732	737	742	743	740	457
155°	837	839	842	846	843	385
165°	910	909	909	915	911	257
175°	947	945	943	949	944	90
180°	949	949	949	949	949	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2334.6	2334.6	2334.6	2334.6	2334.6
2.5°	2348.2	2337.0	2312.2	2334.6	2330.3
5°	2334.6	2325.8	2301.0	2318.9	2314.6
7.5°	2318.9	2305.6	2280.8	2298.9	2294.4
10°	2294.4	2278.7	2251.7	2269.6	2262.9
12.5°	2260.6	2247.2	2220.3	2231.5	2227.0
15°	2222.4	2209.1	2179.8	2188.9	2177.7
17.5°	2175.3	2162.0	2132.7	2143.8	2132.7
20°	2123.6	2110.3	2078.8	2085.5	2076.7
22.5°	2072.2	2051.9	2022.6	2022.6	2018.1
25°	2011.4	1993.6	1955.4	1959.7	1955.4
27.5°	1944.0	1928.3	1899.2	1892.6	1881.4
30°	1876.9	1858.7	1825.2	1818.5	1809.4
32.5°	1804.9	1791.6	1755.6	1742.0	1733.0
35°	1735.4	1713.0	1677.0	1663.4	1652.2
37.5°	1656.8	1636.5	1600.6	1584.8	1573.6
40°	1576.0	1557.9	1522.0	1502.0	1492.9
42.5°	1497.4	1479.3	1443.6	1421.0	1407.6
45°	1412.2	1396.4	1362.6	1338.1	1329.0
47.5°	1329.0	1313.3	1277.4	1252.6	1239.2
50°	1241.4	1230.2	1198.8	1167.3	1156.1
52.5°	1156.1	1140.4	1111.3	1086.6	1070.9
55°	1068.7	1055.1	1028.2	1001.3	990.1
57.5°	981.1	969.9	940.6	913.7	904.6
60°	893.4	884.6	853.2	828.4	821.7
62.5°	808.1	792.4	770.0	747.6	738.6
65°	720.7	707.2	684.8	664.5	653.3
67.5°	630.9	619.5	599.5	583.8	574.7
70°	547.8	538.8	518.5	502.8	494.0
72.5°	462.5	453.5	442.3	426.6	419.9
75°	377.0	372.8	361.3	348.0	352.5
77.5°	300.8	291.8	287.2	280.6	273.9
80°	224.6	222.2	217.7	211.0	206.5
82.5°	152.7	152.7	150.5	141.5	141.5
85°	91.9	89.8	87.6	80.7	78.6
87.5°	40.5	36.0	31.4	24.8	22.4
90°	0.9	10.3	28.0	26.3	27.2
92.5°	17.7	24.0	24.9	25.7	25.7
95°	41.8	49.8	51.2	51.2	49.8
97.5°	69.5	76.9	80.1	80.1	80.1
100°	101.5	108.1	110.4	110.4	109.6
102.5°	135.3	140.2	143.3	144.2	143.3
105°	172.2	174.5	176.2	177.6	177.6
107.5°	208.8	212.2	212.2	212.8	208.8
110°	244.3	248.9	248.9	248.9	246.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	282.6	287.5	286.6	284.3	282.6
115°	320.4	324.9	323.5	322.7	320.4
117.5°	357.8	364.1	360.1	357.8	355.5
120°	395.6	401.9	395.6	395.6	393.0
122.5°	429.9	437.9	433.9	431.6	429.9
125°	466.0	473.1	470.8	468.2	467.4
127.5°	501.1	510.0	506.9	503.4	501.1
130°	534.0	544.3	542.9	541.2	538.0
132.5°	570.9	578.9	579.5	575.5	573.2
135°	602.7	611.5	613.3	612.4	610.1
137.5°	638.1	645.3	646.7	646.2	642.7
140°	669.3	676.5	680.5	680.5	677.3
142.5°	701.4	708.5	710.8	711.7	708.5
145°	731.7	737.4	742.0	742.8	739.7
147.5°	758.9	766.0	769.4	770.9	767.7
150°	786.9	791.8	794.9	797.5	794.9
152.5°	811.8	816.6	820.6	823.8	820.6
155°	836.7	838.9	841.5	845.5	843.0
157.5°	858.1	859.8	861.3	867.0	863.0
160°	877.3	879.0	879.9	884.7	881.3
162.5°	895.0	895.0	895.9	901.3	897.3
165°	910.2	909.3	909.3	915.0	911.0
167.5°	923.9	921.3	921.3	927.0	923.0
170°	934.2	931.9	931.1	936.8	931.9
172.5°	941.3	939.1	938.2	943.9	939.1
175°	947.1	944.8	943.1	948.8	943.9
177.5°	950.2	947.9	946.2	951.1	946.2
180°	948.8	948.8	948.8	948.8	948.8



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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	10.34	11.40	11.11	12.20	13.17	9.89	10.96	10.67	11.75	12.72
	3H	12.02	12.97	12.80	13.78	14.78	11.53	12.48	12.31	13.29	14.29
	4H	12.62	13.52	13.42	14.33	15.34	12.12	13.03	12.93	13.84	14.85
	6H	13.03	13.87	13.85	14.69	15.71	12.53	13.37	13.35	14.19	15.21
	8H	13.15	13.94	13.97	14.78	15.80	12.64	13.44	13.47	14.28	15.30
	12H	13.20	13.96	14.03	14.79	15.85	12.69	13.45	13.52	14.28	15.34
4H	2H	10.82	11.73	11.63	12.54	13.55	10.47	11.37	11.28	12.18	13.19
	3H	12.71	13.47	13.53	14.31	15.34	12.30	13.06	13.13	13.91	14.93
	4H	13.44	14.13	14.27	14.97	16.03	13.02	13.70	13.85	14.55	15.60
	6H	13.97	14.57	14.82	15.44	16.49	13.54	14.13	14.39	15.00	16.06
	8H	14.13	14.68	14.98	15.55	16.62	13.69	14.25	14.55	15.11	16.18
	12H	14.21	14.71	15.09	15.60	16.68	13.77	14.27	14.64	15.15	16.23
8H	4H	13.65	14.21	14.51	15.07	16.15	13.28	13.83	14.13	14.70	15.77
	6H	14.30	14.76	15.18	15.67	16.74	13.92	14.38	14.80	15.28	16.35
	8H	14.53	14.93	15.42	15.84	16.92	14.13	14.54	15.03	15.44	16.53
	12H	14.67	15.03	15.57	15.92	17.07	14.26	14.62	15.16	15.51	16.65
12H	4H	13.65	14.15	14.52	15.03	16.11	13.28	13.78	14.15	14.67	15.74
	6H	14.33	14.74	15.22	15.64	16.73	13.96	14.37	14.85	15.27	16.36
	8H	14.59	14.95	15.48	15.84	16.98	14.21	14.57	15.10	15.46	16.60