

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: P905007

Luminaire Tested: DFN2DIP-4P4F0-030D040US835-FLONL

Issue Date: 11/21/2024

**Test Information**

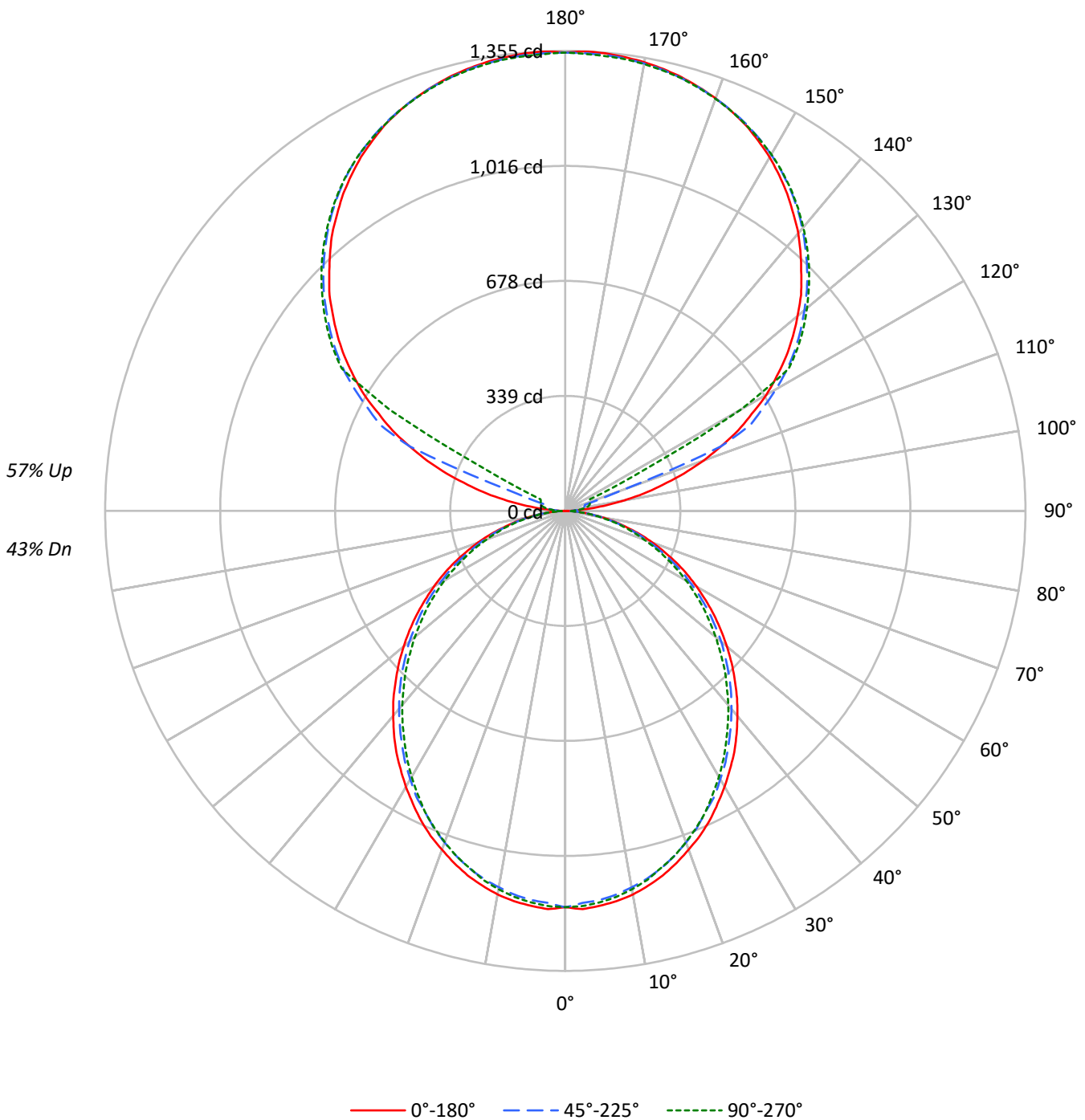
Test Method: LM-79-2019  
Report Number: P905007  
REPORT IS A COMBINATION OF REPORTS P900611 AND P897523  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-030D040US835-FLLONL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6930.0 lumens  
Efficiency: N/A  
Efficacy: 118.5 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): 58.5  
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50	43				43
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42	36				36
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35	30				30
3	80	71	63	58	73	65	58	53	54	49	45	44	40	38	34	32	30	26				26
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	31	28	26	22				22
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	28	25	23	19				19
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20	17				17
7	57	45	37	32	52	41	34	29	35	29	25	29	25	22	23	20	18	15				15
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16	13				13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	12				12
10	46	34	27	22	42	31	25	21	27	22	18	22	18	16	18	15	13	11				11

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

	0°	45°	90°
0°	757	757	757
5°	759	747	752
10°	752	737	742
15°	741	725	726
20°	727	709	710
25°	712	689	692
30°	693	670	668
35°	676	648	643
40°	654	626	619
45°	632	604	595
50°	609	581	567
55°	584	554	541
60°	556	522	511
65°	526	489	476
70°	487	449	439
75°	433	401	405
80°	368	340	339
85°	267	233	228

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 695 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	109.9	1.6
10°-20°	309.1	4.5
20°-30°	454.3	6.6
30°-40°	527.6	7.6
40°-50°	527.0	7.6
50°-60°	459.5	6.6
60°-70°	339.7	4.9
70°-80°	192.2	2.8
80°-90°	53.1	0.8
90°-100°	44.5	0.6
100°-110°	165.9	2.4
110°-120°	440.1	6.4
120°-130°	729.9	10.5
130°-140°	775.4	11.2
140°-150°	720.6	10.4
150°-160°	579.4	8.4
160°-170°	373.3	5.4
170°-180°	128.5	1.9
0°-30°	873.3	12.6
0°-40°	1400.9	20.2
0°-60°	2387.4	34.5
0°-90°	2972.4	42.9
90°-120°	650.5	9.4
90°-150°	2876.4	41.5
90°-180°	3958.0	57.1
0°-180°	6930.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1167	1167	1167	1167	1167	
5°	1167	1163	1150	1160	1157	111
15°	1111	1105	1090	1094	1089	313
25°	1006	997	978	980	978	463
35°	868	856	838	832	826	542
45°	706	698	681	669	664	545
55°	534	528	514	501	495	478
65°	360	354	342	332	327	356
75°	188	186	181	174	176	201
85°	46	45	44	40	39	51
90°	1	12	20	24	26	6
95°	63	31	38	43	42	75
105°	297	326	60	70	74	317
115°	562	578	603	150	80	553
125°	794	807	825	832	835	708
135°	983	998	1007	1017	1015	759
145°	1140	1139	1156	1162	1158	713
155°	1255	1246	1258	1264	1256	578
165°	1323	1317	1320	1326	1320	374
175°	1353	1346	1348	1355	1345	129
180°	1350	1350	1350	1350	1350	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1167.3	1167.3	1167.3	1167.3	1167.3
2.5°	1174.1	1168.5	1156.1	1167.3	1165.2
5°	1167.3	1162.9	1150.5	1159.5	1157.3
7.5°	1159.5	1152.8	1140.4	1149.5	1147.2
10°	1147.2	1139.3	1125.9	1134.8	1131.5
12.5°	1130.3	1123.6	1110.2	1115.7	1113.5
15°	1111.2	1104.6	1089.9	1094.4	1088.8
17.5°	1087.6	1081.0	1066.3	1071.9	1066.3
20°	1061.8	1055.1	1039.4	1042.7	1038.3
22.5°	1036.1	1026.0	1011.3	1011.3	1009.0
25°	1005.7	996.8	977.7	979.9	977.7
27.5°	972.0	964.1	949.6	946.3	940.7
30°	938.4	929.4	912.6	909.2	904.7
32.5°	902.5	895.8	877.8	871.0	866.5
35°	867.7	856.5	838.5	831.7	826.1
37.5°	828.4	818.3	800.3	792.4	786.8
40°	788.0	779.0	761.0	751.0	746.5
42.5°	748.7	739.7	721.8	710.5	703.8
45°	706.1	698.2	681.3	669.0	664.5
47.5°	664.5	656.7	638.7	626.3	619.6
50°	620.7	615.1	599.4	583.7	578.1
52.5°	578.1	570.2	555.7	543.3	535.4
55°	534.4	527.6	514.1	500.7	495.1
57.5°	490.5	484.9	470.3	456.8	452.3
60°	446.7	442.3	426.6	414.2	410.9
62.5°	404.1	396.2	385.0	373.8	369.3
65°	360.4	353.6	342.4	332.3	326.7
67.5°	315.5	309.8	299.7	291.9	287.4
70°	273.9	269.4	259.3	251.4	247.0
72.5°	231.3	226.7	221.1	213.3	210.0
75°	188.5	186.4	180.7	174.0	176.3
77.5°	150.4	145.9	143.6	140.3	137.0
80°	112.3	111.1	108.8	105.5	103.3
82.5°	76.3	76.3	75.3	70.7	70.7
85°	46.0	44.9	43.8	40.4	39.3
87.5°	20.2	18.0	15.7	12.4	11.2
90°	0.9	11.7	19.5	24.5	26.3
92.5°	24.5	20.5	23.4	25.4	26.3
95°	63.4	31.2	38.0	43.0	42.0
97.5°	114.3	34.2	49.8	52.8	53.7
100°	172.9	39.1	55.7	63.4	65.4
102.5°	237.3	235.5	57.6	68.3	71.3
105°	296.9	326.3	59.6	70.3	74.2
107.5°	366.3	390.7	61.6	72.3	76.2
110°	432.8	453.2	171.0	73.3	77.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	495.3	512.8	496.2	75.2	78.2
115°	561.6	578.2	602.7	150.4	80.2
117.5°	619.3	638.8	655.5	515.7	259.8
120°	683.8	698.4	716.0	727.8	595.9
122.5°	738.4	754.1	773.7	779.5	780.5
125°	794.1	806.9	825.4	832.3	835.2
127.5°	844.9	858.6	873.3	883.1	884.0
130°	892.8	908.5	919.1	929.9	929.0
132.5°	941.6	954.4	965.1	973.9	973.0
135°	982.7	998.4	1007.1	1016.9	1015.0
137.5°	1025.6	1037.3	1047.2	1056.9	1054.0
140°	1067.6	1075.5	1086.2	1095.0	1090.1
142.5°	1102.9	1109.7	1122.4	1130.1	1125.3
145°	1140.0	1139.0	1155.5	1162.4	1157.5
147.5°	1172.1	1169.2	1185.8	1190.7	1186.9
150°	1203.4	1196.6	1212.3	1218.1	1213.2
152.5°	1229.8	1222.0	1236.6	1242.5	1235.7
155°	1255.2	1246.5	1258.2	1264.0	1256.2
157.5°	1275.7	1267.9	1276.8	1283.6	1275.7
160°	1293.3	1287.4	1293.3	1299.1	1292.3
162.5°	1308.9	1303.1	1308.0	1314.8	1306.0
165°	1322.6	1316.8	1319.7	1326.5	1319.7
167.5°	1333.4	1327.4	1330.5	1337.3	1328.5
170°	1342.2	1336.3	1338.2	1345.1	1336.3
172.5°	1348.0	1342.2	1344.2	1351.0	1342.2
175°	1352.8	1346.0	1348.0	1354.8	1345.1
177.5°	1354.8	1348.0	1349.0	1355.9	1347.1
180°	1350.0	1350.0	1350.0	1350.0	1350.0



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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	5.63	6.43	6.65	7.46	8.82	5.19	5.99	6.20	7.01	8.38
	3H	7.29	8.01	8.32	9.04	10.43	6.80	7.52	7.83	8.55	9.94
	4H	7.88	8.56	8.92	9.60	10.99	7.39	8.07	8.42	9.10	10.50
	6H	8.28	8.91	9.33	9.95	11.36	7.78	8.41	8.83	9.45	10.86
	8H	8.39	8.98	9.44	10.04	11.44	7.89	8.48	8.94	9.54	10.94
	12H	8.44	9.00	9.49	10.05	11.48	7.93	8.49	8.98	9.54	10.97
4H	2H	6.08	6.77	7.13	7.80	9.20	5.73	6.41	6.78	7.45	8.84
	3H	7.95	8.52	9.00	9.58	10.99	7.54	8.11	8.60	9.18	10.59
	4H	8.67	9.19	9.73	10.24	11.68	8.24	8.76	9.30	9.82	11.25
	6H	9.19	9.63	10.25	10.71	12.14	8.75	9.20	9.82	10.28	11.71
	8H	9.34	9.75	10.41	10.83	12.27	8.90	9.32	9.97	10.39	11.83
	12H	9.41	9.79	10.50	10.87	12.32	8.96	9.34	10.05	10.42	11.87
8H	4H	8.86	9.28	9.93	10.35	11.79	8.48	8.90	9.55	9.97	11.42
	6H	9.50	9.84	10.59	10.95	12.39	9.11	9.46	10.20	10.57	12.01
	8H	9.72	10.02	10.82	11.12	12.58	9.33	9.63	10.43	10.73	12.19
	12H	9.85	10.12	10.96	11.21	12.71	9.44	9.71	10.54	10.80	12.30
12H	4H	8.84	9.22	9.93	10.31	11.75	8.48	8.85	9.56	9.94	11.39
	6H	9.53	9.83	10.62	10.93	12.38	9.15	9.46	10.25	10.55	12.01
	8H	9.77	10.04	10.87	11.13	12.63	9.39	9.66	10.49	10.75	12.25