

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: P924103

Luminaire Tested: DFN2DIP-4P4F0-030D040US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924103
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-4P4F0-030D040US950-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

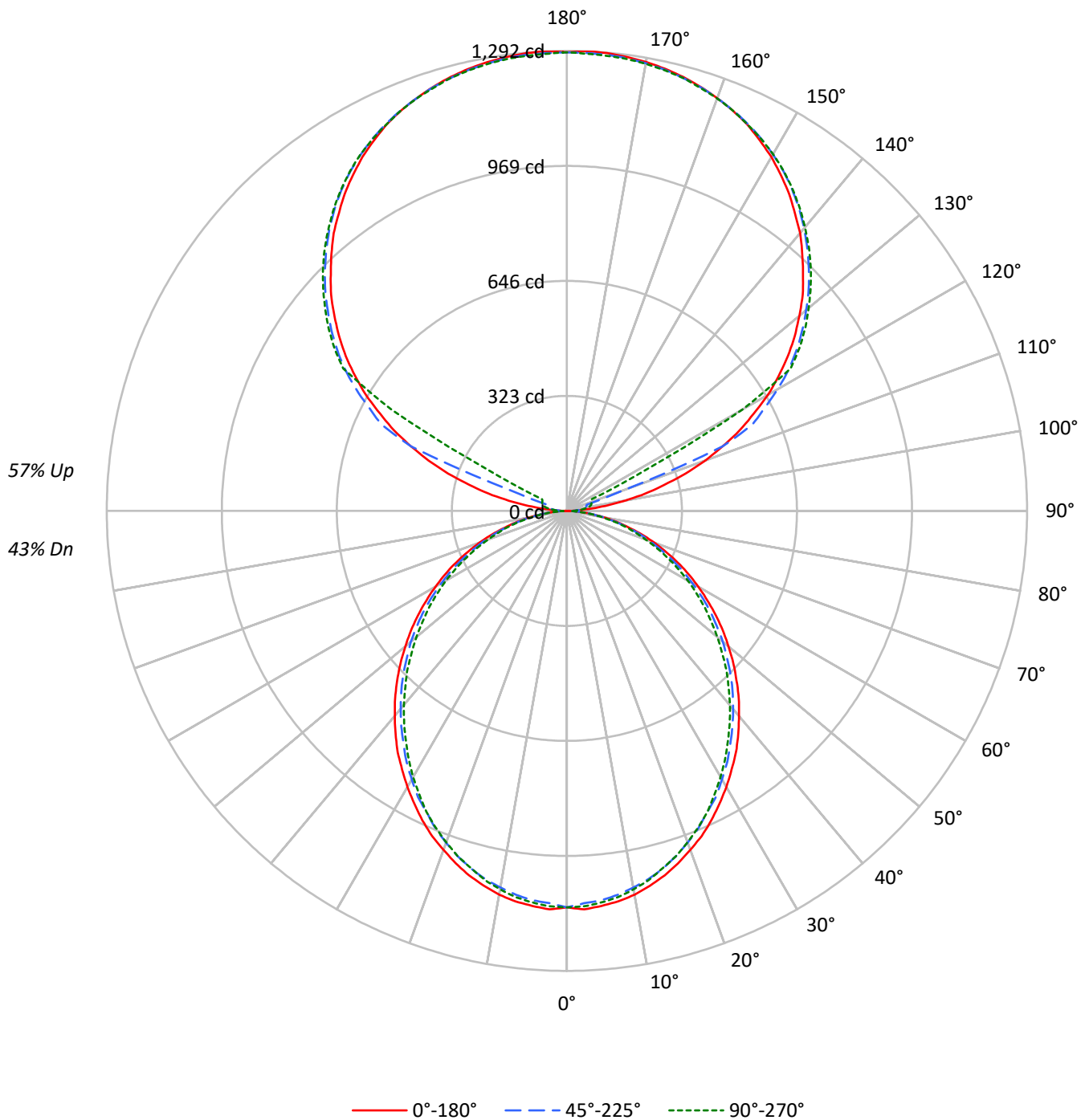
Lumens per Lamp: N/A
Luminaire Lumens: 6611.2 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79		64	64	64		50
1	96	92	88	85	88	84	81	78	70	67	65		56	55	53		44
2	88	80	74	69	80	74	68	64	61	57	54		49	47	44		39
3	80	71	63	58	73	65	58	53	54	49	45		44	40	38		34
4	73	62	55	49	66	57	50	45	48	43	39		39	35	32		31
5	67	56	48	42	61	51	44	39	43	37	33		35	31	28		28
6	62	50	42	36	56	46	39	34	38	33	29		31	27	24		25
7	57	45	37	32	52	41	34	29	35	29	25		29	25	22		23
8	53	41	33	28	48	38	31	26	32	26	23		26	22	19		21
9	49	37	30	25	45	34	28	23	29	24	20		24	20	17		19
10	46	34	27	22	42	31	25	21	27	22	18		22	18	16		18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	722	722	722
5°	724	713	717
10°	718	703	708
15°	707	692	693
20°	693	676	678
25°	679	657	660
30°	661	639	638
35°	645	618	614
40°	624	597	591
45°	603	576	568
50°	581	554	541
55°	557	529	516
60°	530	498	488
65°	501	467	455
70°	464	428	419
75°	413	383	386
80°	351	324	323
85°	255	223	218

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 663 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.8	1.6
10°-20°	294.9	4.5
20°-30°	433.4	6.6
30°-40°	503.4	7.6
40°-50°	502.7	7.6
50°-60°	438.4	6.6
60°-70°	324.1	4.9
70°-80°	183.3	2.8
80°-90°	50.6	0.8
90°-100°	42.5	0.6
100°-110°	158.3	2.4
110°-120°	419.9	6.4
120°-130°	696.4	10.5
130°-140°	739.7	11.2
140°-150°	687.5	10.4
150°-160°	552.7	8.4
160°-170°	356.1	5.4
170°-180°	122.6	1.9
0°-30°	833.1	12.6
0°-40°	1336.5	20.2
0°-60°	2277.6	34.5
0°-90°	2835.6	42.9
90°-120°	620.6	9.4
90°-150°	2744.1	41.5
90°-180°	3776.0	57.1
0°-180°	6611.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1114	1114	1114	1114	1114	
5°	1114	1109	1098	1106	1104	106
15°	1060	1054	1040	1044	1039	299
25°	959	951	933	935	933	441
35°	828	817	800	793	788	517
45°	674	666	650	638	634	520
55°	510	503	490	478	472	456
65°	344	337	327	317	312	340
75°	180	178	172	166	168	192
85°	44	43	42	38	38	49
90°	1	11	19	23	25	6
95°	60	30	36	41	40	72
105°	283	311	57	67	71	303
115°	536	552	575	144	76	527
125°	758	770	787	794	797	676
135°	938	952	961	970	968	724
145°	1088	1087	1102	1109	1104	680
155°	1198	1189	1200	1206	1198	552
165°	1262	1256	1259	1266	1259	356
175°	1291	1284	1286	1292	1283	123
180°	1288	1288	1288	1288	1288	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1113.6	1113.6	1113.6	1113.6	1113.6
2.5°	1120.1	1114.7	1102.9	1113.6	1111.6
5°	1113.6	1109.4	1097.6	1106.2	1104.1
7.5°	1106.2	1099.8	1087.9	1096.6	1094.4
10°	1094.4	1086.9	1074.1	1082.6	1079.5
12.5°	1078.3	1071.9	1059.1	1064.4	1062.3
15°	1060.1	1053.8	1039.8	1044.1	1038.7
17.5°	1037.6	1031.3	1017.3	1022.6	1017.3
20°	1013.0	1006.6	991.6	994.7	990.5
22.5°	988.4	978.8	964.8	964.8	962.6
25°	959.4	950.9	932.7	934.8	932.7
27.5°	927.3	919.8	905.9	902.8	897.4
30°	895.2	886.6	870.6	867.4	863.1
32.5°	861.0	854.6	837.4	830.9	826.6
35°	827.8	817.1	799.9	793.4	788.1
37.5°	790.3	780.7	763.5	755.9	750.6
40°	751.8	743.2	726.0	716.5	712.2
42.5°	714.3	705.7	688.6	677.8	671.4
45°	673.6	666.1	650.0	638.2	633.9
47.5°	633.9	626.5	609.3	597.5	591.1
50°	592.1	586.8	571.8	556.8	551.5
52.5°	551.5	544.0	530.1	518.3	510.8
55°	509.8	503.3	490.5	477.7	472.3
57.5°	467.9	462.6	448.7	435.8	431.5
60°	426.2	422.0	407.0	395.1	392.0
62.5°	385.5	378.0	367.3	356.6	352.3
65°	343.8	337.3	326.6	317.0	311.7
67.5°	301.0	295.5	285.9	278.5	274.2
70°	261.3	257.0	247.4	239.8	235.6
72.5°	220.7	216.3	210.9	203.5	200.3
75°	179.8	177.8	172.4	166.0	168.2
77.5°	143.5	139.2	137.0	133.8	130.7
80°	107.1	106.0	103.8	100.6	98.5
82.5°	72.8	72.8	71.8	67.4	67.4
85°	43.9	42.8	41.8	38.5	37.5
87.5°	19.3	17.2	15.0	11.8	10.7
90°	0.9	11.2	18.6	23.4	25.1
92.5°	23.4	19.6	22.3	24.2	25.1
95°	60.5	29.8	36.3	41.0	40.1
97.5°	109.0	32.6	47.5	50.4	51.2
100°	164.9	37.3	53.1	60.5	62.4
102.5°	226.4	224.7	55.0	65.2	68.0
105°	283.2	311.3	56.9	67.1	70.8
107.5°	349.5	372.7	58.8	69.0	72.7
110°	412.9	432.4	163.1	69.9	73.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	472.5	489.2	473.4	71.7	74.6
115°	535.8	551.6	575.0	143.5	76.5
117.5°	590.8	609.4	625.3	492.0	247.8
120°	652.3	666.3	683.1	694.3	568.5
122.5°	704.4	719.4	738.1	743.6	744.6
125°	757.6	769.8	787.4	794.0	796.8
127.5°	806.0	819.1	833.1	842.5	843.3
130°	851.7	866.7	876.8	887.1	886.3
132.5°	898.3	910.5	920.7	929.1	928.2
135°	937.5	952.5	960.8	970.1	968.3
137.5°	978.4	989.6	999.0	1008.3	1005.5
140°	1018.5	1026.0	1036.2	1044.6	1040.0
142.5°	1052.2	1058.7	1070.8	1078.1	1073.5
145°	1087.6	1086.6	1102.3	1108.9	1104.3
147.5°	1118.2	1115.4	1131.3	1135.9	1132.3
150°	1148.0	1141.6	1156.5	1162.1	1157.4
152.5°	1173.2	1165.8	1179.7	1185.3	1178.9
155°	1197.5	1189.2	1200.3	1205.9	1198.4
157.5°	1217.0	1209.6	1218.1	1224.6	1217.0
160°	1233.8	1228.2	1233.8	1239.3	1232.9
162.5°	1248.7	1243.2	1247.8	1254.3	1245.9
165°	1261.8	1256.2	1259.0	1265.5	1259.0
167.5°	1272.1	1266.3	1269.3	1275.8	1267.4
170°	1280.5	1274.8	1276.6	1283.2	1274.8
172.5°	1286.0	1280.5	1282.4	1288.9	1280.5
175°	1290.6	1284.1	1286.0	1292.5	1283.2
177.5°	1292.5	1286.0	1286.9	1293.5	1285.1
180°	1287.9	1287.9	1287.9	1287.9	1287.9

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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	5.47	6.27	6.48	7.29	8.66	5.02	5.82	6.04	6.85	8.22
	3H	7.13	7.85	8.15	8.88	10.27	6.64	7.36	7.66	8.39	9.78
	4H	7.72	8.40	8.75	9.43	10.83	7.22	7.90	8.26	8.94	10.34
	6H	8.12	8.74	9.17	9.78	11.19	7.62	8.24	8.67	9.28	10.69
	8H	8.22	8.82	9.28	9.88	11.28	7.72	8.32	8.77	9.37	10.78
	12H	8.27	8.84	9.33	9.89	11.32	7.76	8.33	8.82	9.38	10.81
4H	2H	5.92	6.60	6.97	7.64	9.03	5.57	6.25	6.61	7.28	8.68
	3H	7.79	8.36	8.84	9.42	10.83	7.38	7.95	8.43	9.01	10.42
	4H	8.50	9.02	9.56	10.08	11.51	8.08	8.60	9.14	9.66	11.09
	6H	9.02	9.47	10.09	10.55	11.97	8.59	9.04	9.66	10.12	11.54
	8H	9.17	9.59	10.24	10.66	12.10	8.73	9.15	9.80	10.22	11.67
	12H	9.25	9.62	10.33	10.71	12.16	8.80	9.17	9.88	10.26	11.71
8H	4H	8.70	9.11	9.77	10.19	11.63	8.32	8.74	9.39	9.81	11.25
	6H	9.33	9.68	10.42	10.79	12.23	8.95	9.29	10.04	10.41	11.85
	8H	9.56	9.86	10.66	10.95	12.41	9.16	9.47	10.26	10.56	12.02
	12H	9.69	9.96	10.79	11.05	12.54	9.28	9.54	10.38	10.64	12.13
12H	4H	8.68	9.06	9.77	10.14	11.59	8.31	8.69	9.40	9.78	11.22
	6H	9.36	9.67	10.46	10.76	12.22	8.99	9.29	10.09	10.39	11.85
	8H	9.61	9.87	10.71	10.96	12.46	9.22	9.49	10.33	10.58	12.08

END OF REPORT