

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: P923975

Luminaire Tested: DFN2DIP-4P2F0-030D020US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923975
REPORT IS A COMBINATION OF REPORTS P900533 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-030D020US950-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

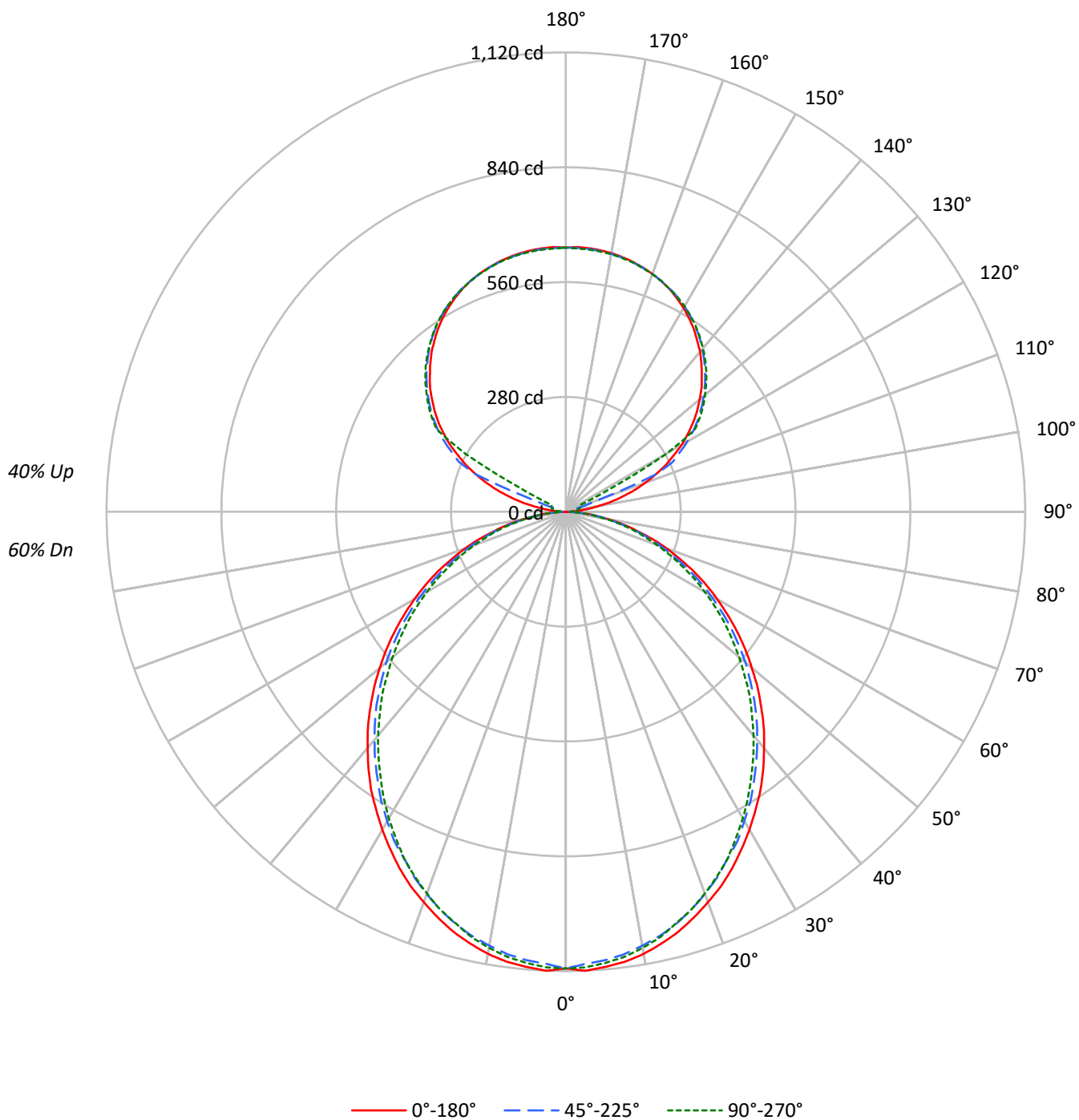
Lumens per Lamp: N/A
Luminaire Lumens: 4722.3 lumens
Efficiency: N/A
Efficacy: 109.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 43.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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
RCR																					
0	110	110	110	110		102	102	102	102		89	89	89		77	77	77		65	65	65
1	100	96	92	88		93	90	86	83		78	75	73		67	66	64		58	56	55
2	91	84	77	72		85	78	73	68		68	64	61		59	56	53		51	49	47
3	83	73	66	60		77	69	62	57		60	55	51		52	48	45		45	42	40
4	76	65	57	51		71	61	54	48		54	48	44		47	42	39		40	37	34
5	70	58	50	44		65	55	47	42		48	42	38		42	37	34		36	33	30
6	64	52	44	38		60	49	42	36		43	37	33		38	33	30		33	29	26
7	60	47	39	33		56	44	37	32		39	33	29		35	30	26		30	26	23
8	55	43	35	30		52	40	33	28		36	30	26		32	27	23		28	24	21
9	52	39	32	26		48	37	30	25		33	27	23		29	24	21		26	22	19
10	48	36	29	24		45	34	27	23		30	25	21		27	22	19		24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2788	2788	2788
5°	2787	2743	2764
10°	2759	2699	2722
15°	2713	2647	2658
20°	2653	2578	2594
25°	2592	2497	2520
30°	2518	2422	2428
35°	2448	2334	2330
40°	2362	2245	2237
45°	2276	2155	2141
50°	2181	2060	2032
55°	2082	1951	1929
60°	1970	1823	1812
65°	1846	1688	1674
70°	1689	1525	1523
75°	1474	1329	1379
80°	1213	1079	1115
85°	813	675	695

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2276 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.8	2.2
10°-20°	294.9	6.2
20°-30°	433.4	9.2
30°-40°	503.4	10.7
40°-50°	502.7	10.6
50°-60°	438.4	9.3
60°-70°	324.1	6.9
70°-80°	183.3	3.9
80°-90°	49.5	1.0
90°-100°	21.2	0.4
100°-110°	79.1	1.7
110°-120°	209.9	4.4
120°-130°	348.2	7.4
130°-140°	369.8	7.8
140°-150°	343.7	7.3
150°-160°	276.4	5.9
160°-170°	178.1	3.8
170°-180°	61.3	1.3
0°-30°	833.1	17.6
0°-40°	1336.5	28.3
0°-60°	2277.6	48.2
0°-90°	2834.5	60.0
90°-120°	310.3	6.6
90°-150°	1372.0	29.1
90°-180°	1888.0	40.0
0°-180°	4722.3	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°	0	6	9	12	13	4
95°	30	15	18	20	20	36
105°	142	156	28	34	35	151
115°	268	276	288	72	38	264
125°	379	385	394	397	398	338
135°	469	476	480	485	484	362
145°	544	543	551	554	552	340
155°	599	594	600	603	599	276
165°	631	628	629	633	629	178
175°	645	642	643	646	642	61
180°	644	644	644	644	644	

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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°	0.5	5.6	9.3	11.6	12.6
92.5°	11.6	9.8	11.2	12.1	12.6
95°	30.2	14.9	18.1	20.5	20.0
97.5°	54.5	16.3	23.8	25.2	25.7
100°	82.5	18.6	26.5	30.2	31.2
102.5°	113.2	112.3	27.5	32.6	34.1
105°	141.7	155.6	28.4	33.5	35.4
107.5°	174.8	186.3	29.4	34.4	36.3
110°	206.4	216.2	81.6	35.0	36.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	236.2	244.6	236.7	35.9	37.3
115°	267.9	275.8	287.5	71.7	38.3
117.5°	295.4	304.7	312.6	246.0	123.9
120°	326.2	333.1	341.5	347.2	284.2
122.5°	352.2	359.7	369.0	371.8	372.3
125°	378.8	384.8	393.7	397.0	398.4
127.5°	403.1	409.6	416.6	421.2	421.7
130°	425.9	433.3	438.5	443.6	443.1
132.5°	449.1	455.2	460.3	464.5	464.1
135°	468.8	476.2	480.3	485.1	484.2
137.5°	489.2	494.8	499.5	504.2	502.8
140°	509.2	513.1	518.1	522.3	520.0
142.5°	526.0	529.4	535.4	539.1	536.7
145°	543.8	543.3	551.2	554.5	552.2
147.5°	559.1	557.7	565.6	567.9	566.1
150°	574.0	570.8	578.2	581.0	578.7
152.5°	586.6	582.9	589.9	592.7	589.4
155°	598.7	594.5	600.2	602.9	599.2
157.5°	608.6	604.8	609.0	612.3	608.6
160°	617.0	614.1	617.0	619.7	616.5
162.5°	624.3	621.5	623.9	627.2	623.0
165°	630.9	628.1	629.4	632.8	629.4
167.5°	636.0	633.2	634.6	637.9	633.6
170°	640.2	637.4	638.3	641.6	637.4
172.5°	643.0	640.2	641.2	644.4	640.2
175°	645.3	642.0	643.0	646.2	641.6
177.5°	646.2	643.0	643.5	646.7	642.5
180°	643.9	643.9	643.9	643.9	643.9

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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	11.58	12.54	12.44	13.42	14.54	11.13	12.09	12.00	12.98	14.10
	3H	13.22	14.08	14.10	14.98	16.13	12.73	13.59	13.61	14.49	15.64
	4H	13.80	14.61	14.69	15.52	16.67	13.31	14.12	14.20	15.02	16.18
	6H	14.19	14.94	15.09	15.85	17.02	13.69	14.44	14.59	15.35	16.52
	8H	14.28	15.00	15.20	15.93	17.10	13.78	14.50	14.70	15.43	16.59
	12H	14.33	15.01	15.25	15.93	17.12	13.82	14.50	14.74	15.42	16.62
4H	2H	12.04	12.85	12.94	13.75	14.91	11.68	12.50	12.58	13.40	14.55
	3H	13.89	14.56	14.80	15.50	16.67	13.48	14.16	14.39	15.09	16.26
	4H	14.59	15.21	15.51	16.14	17.33	14.16	14.78	15.08	15.71	16.91
	6H	15.08	15.62	16.02	16.57	17.77	14.65	15.19	15.59	16.14	17.34
	8H	15.23	15.73	16.16	16.67	17.88	14.79	15.29	15.73	16.24	17.45
	12H	15.29	15.74	16.25	16.71	17.93	14.84	15.30	15.80	16.26	17.48
8H	4H	14.78	15.28	15.71	16.22	17.44	14.40	14.90	15.34	15.85	17.06
	6H	15.38	15.80	16.35	16.79	18.00	15.00	15.41	15.96	16.40	17.61
	8H	15.59	15.96	16.56	16.94	18.16	15.20	15.56	16.17	16.54	17.77
	12H	15.71	16.03	16.69	17.01	18.28	15.30	15.62	16.28	16.60	17.87
12H	4H	14.76	15.22	15.72	16.18	17.40	14.39	14.85	15.35	15.81	17.03
	6H	15.41	15.78	16.38	16.75	17.98	15.04	15.40	16.01	16.38	17.61
	8H	15.64	15.96	16.61	16.93	18.21	15.26	15.58	16.23	16.55	17.83