

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: P923998

Luminaire Tested: DFN2DIP-4P3F0-020D020US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923998
REPORT IS A COMBINATION OF REPORTS P899029 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D020US950-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

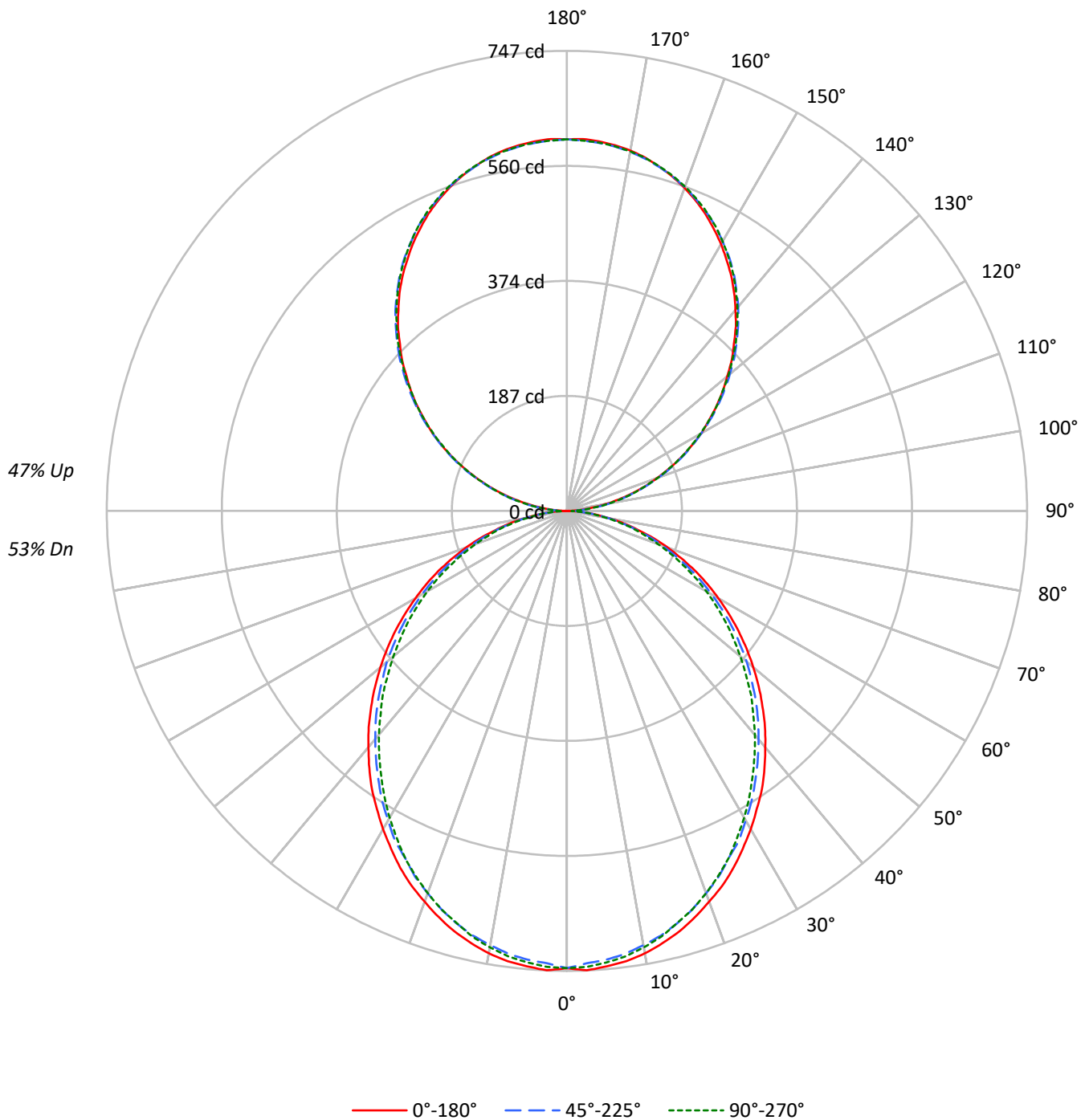
Lumens per Lamp: N/A
Luminaire Lumens: 3577.5 lumens
Efficiency: N/A
Efficacy: 115.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 31
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	846	846	846
5°	847	834	840
10°	839	822	828
15°	827	808	810
20°	809	788	792
25°	792	765	770
30°	771	744	743
35°	751	719	715
40°	726	693	687
45°	701	668	660
50°	674	641	628
55°	645	609	598
60°	613	573	564
65°	578	535	524
70°	533	488	480
75°	471	432	440
80°	396	361	363
85°	278	239	238

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 701 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.9	2.0
10°-20°	196.6	5.5
20°-30°	288.9	8.1
30°-40°	335.6	9.4
40°-50°	335.2	9.4
50°-60°	292.2	8.2
60°-70°	216.0	6.0
70°-80°	122.2	3.4
80°-90°	34.0	1.0
90°-100°	37.3	1.0
100°-110°	118.7	3.3
110°-120°	203.0	5.7
120°-130°	267.0	7.5
130°-140°	299.7	8.4
140°-150°	293.9	8.2
150°-160°	246.5	6.9
160°-170°	163.5	4.6
170°-180°	57.1	1.6
0°-30°	555.4	15.5
0°-40°	891.0	24.9
0°-60°	1518.4	42.4
0°-90°	1890.6	52.8
90°-120°	359.0	10.0
90°-150°	1219.7	34.1
90°-180°	1687.0	47.2
0°-180°	3577.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	742	742	742	742	742	
5°	742	740	732	737	736	70
15°	707	702	693	696	692	199
25°	640	634	622	623	622	294
35°	552	545	533	529	525	345
45°	449	444	433	426	423	347
55°	340	336	327	318	315	304
65°	229	225	218	211	208	227
75°	120	119	115	111	112	128
85°	29	28	28	26	25	33
90°	1	7	18	17	17	3
95°	26	32	32	32	32	30
105°	110	111	112	113	113	116
115°	204	207	206	205	204	202
125°	296	301	300	298	297	265
135°	383	389	390	390	388	296
145°	465	469	472	472	470	291
155°	532	534	535	538	536	245
165°	579	578	578	582	580	163
175°	602	601	600	603	600	57
180°	603	603	603	603	603	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	742.4	742.4	742.4	742.4	742.4
2.5°	746.7	743.2	735.2	742.4	741.1
5°	742.4	739.6	731.7	737.4	736.0
7.5°	737.4	733.1	725.3	731.1	729.6
10°	729.6	724.7	716.1	721.7	719.6
12.5°	718.8	714.6	706.1	709.6	708.2
15°	706.7	702.5	693.2	696.0	692.5
17.5°	691.7	687.5	678.2	681.7	678.2
20°	675.3	671.0	661.0	663.2	660.4
22.5°	658.9	652.5	643.2	643.2	641.8
25°	639.7	633.9	621.8	623.2	621.8
27.5°	618.2	613.2	604.0	601.9	598.3
30°	596.8	591.1	580.4	578.3	575.4
32.5°	573.9	569.7	558.3	554.0	551.1
35°	551.9	544.7	533.3	529.0	525.4
37.5°	526.9	520.4	509.0	504.0	500.4
40°	501.1	495.4	484.0	477.7	474.7
42.5°	476.1	470.4	459.1	451.9	447.6
45°	449.0	444.1	433.3	425.5	422.6
47.5°	422.6	417.7	406.2	398.3	394.1
50°	394.8	391.2	381.2	371.2	367.7
52.5°	367.7	362.6	353.4	345.5	340.6
55°	339.8	335.5	326.9	318.4	314.8
57.5°	312.0	308.4	299.1	290.6	287.6
60°	284.1	281.3	271.3	263.4	261.3
62.5°	257.0	252.0	244.9	237.7	234.9
65°	229.2	224.9	217.8	211.3	207.8
67.5°	200.6	197.0	190.6	185.6	182.8
70°	174.2	171.3	164.9	159.9	157.1
72.5°	147.1	144.2	140.6	135.7	133.6
75°	119.9	118.6	114.9	110.7	112.1
77.5°	95.7	92.8	91.3	89.2	87.1
80°	71.5	70.7	69.3	67.1	65.6
82.5°	48.6	48.6	47.9	45.0	45.0
85°	29.2	28.5	27.9	25.7	25.0
87.5°	12.9	11.4	10.0	7.9	7.2
90°	0.6	6.6	17.8	16.7	17.3
92.5°	11.3	15.3	15.8	16.4	16.4
95°	26.5	31.7	32.5	32.5	31.7
97.5°	44.2	48.9	50.9	50.9	50.9
100°	64.6	68.8	70.2	70.2	69.6
102.5°	86.1	89.1	91.1	91.7	91.1
105°	109.5	111.0	112.1	113.0	113.0
107.5°	132.8	135.0	135.0	135.4	132.8
110°	155.4	158.3	158.3	158.3	156.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	179.7	182.8	182.3	180.8	179.7
115°	203.8	206.6	205.8	205.2	203.8
117.5°	227.6	231.6	229.1	227.6	226.1
120°	251.6	255.6	251.6	251.6	249.9
122.5°	273.4	278.5	276.0	274.6	273.4
125°	296.3	300.9	299.5	297.8	297.3
127.5°	318.7	324.4	322.4	320.2	318.7
130°	339.6	346.2	345.3	344.2	342.2
132.5°	363.1	368.2	368.5	366.0	364.5
135°	383.3	388.9	390.0	389.5	388.0
137.5°	405.8	410.4	411.4	411.0	408.8
140°	425.7	430.3	432.8	432.8	430.8
142.5°	446.1	450.6	452.1	452.6	450.6
145°	465.4	469.0	471.9	472.4	470.4
147.5°	482.6	487.2	489.4	490.3	488.3
150°	500.5	503.5	505.5	507.1	505.5
152.5°	516.3	519.4	521.9	523.9	521.9
155°	532.1	533.6	535.2	537.8	536.1
157.5°	545.8	546.8	547.8	551.4	548.8
160°	558.0	559.0	559.6	562.7	560.5
162.5°	569.3	569.3	569.7	573.3	570.7
165°	578.9	578.3	578.3	581.9	579.5
167.5°	587.6	585.9	585.9	589.6	587.1
170°	594.2	592.7	592.1	595.8	592.7
172.5°	598.7	597.2	596.7	600.4	597.2
175°	602.4	600.9	599.8	603.4	600.4
177.5°	604.4	602.9	601.8	604.8	601.8
180°	603.4	603.4	603.4	603.4	603.4

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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	6.92	7.80	7.85	8.75	9.98	6.47	7.36	7.40	8.31	9.54
	3H	8.57	9.37	9.52	10.33	11.58	8.08	8.88	9.03	9.84	11.09
	4H	9.16	9.91	10.12	10.88	12.14	8.67	9.42	9.62	10.38	11.65
	6H	9.56	10.25	10.53	11.22	12.50	9.06	9.75	10.03	10.72	12.00
	8H	9.66	10.32	10.64	11.31	12.58	9.16	9.82	10.14	10.81	12.08
	12H	9.71	10.34	10.69	11.32	12.62	9.20	9.83	10.18	10.81	12.11
4H	2H	7.38	8.13	8.34	9.09	10.36	7.02	7.78	7.99	8.74	10.00
	3H	9.24	9.87	10.21	10.86	12.14	8.83	9.46	9.81	10.45	11.73
	4H	9.95	10.53	10.93	11.51	12.81	9.53	10.10	10.51	11.09	12.39
	6H	10.46	10.96	11.46	11.97	13.27	10.03	10.53	11.03	11.54	12.84
	8H	10.61	11.08	11.61	12.08	13.39	10.17	10.64	11.17	11.64	12.95
	12H	10.68	11.10	11.70	12.12	13.44	10.23	10.65	11.25	11.67	12.99
8H	4H	10.15	10.61	11.14	11.61	12.93	9.77	10.23	10.77	11.24	12.55
	6H	10.77	11.16	11.79	12.20	13.51	10.39	10.77	11.41	11.82	13.13
	8H	10.99	11.33	12.02	12.36	13.69	10.60	10.93	11.63	11.97	13.30
	12H	11.12	11.42	12.15	12.44	13.82	10.71	11.01	11.74	12.03	13.41
12H	4H	10.13	10.55	11.15	11.57	12.89	9.76	10.18	10.78	11.20	12.52
	6H	10.80	11.14	11.83	12.17	13.50	10.43	10.77	11.46	11.80	13.13
	8H	11.04	11.34	12.07	12.36	13.74	10.66	10.96	11.69	11.98	13.36