

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: P923962

Luminaire Tested: DFN2DIP-4P2F0-020D020US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923962
REPORT IS A COMBINATION OF REPORTS P899011 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D020US950-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

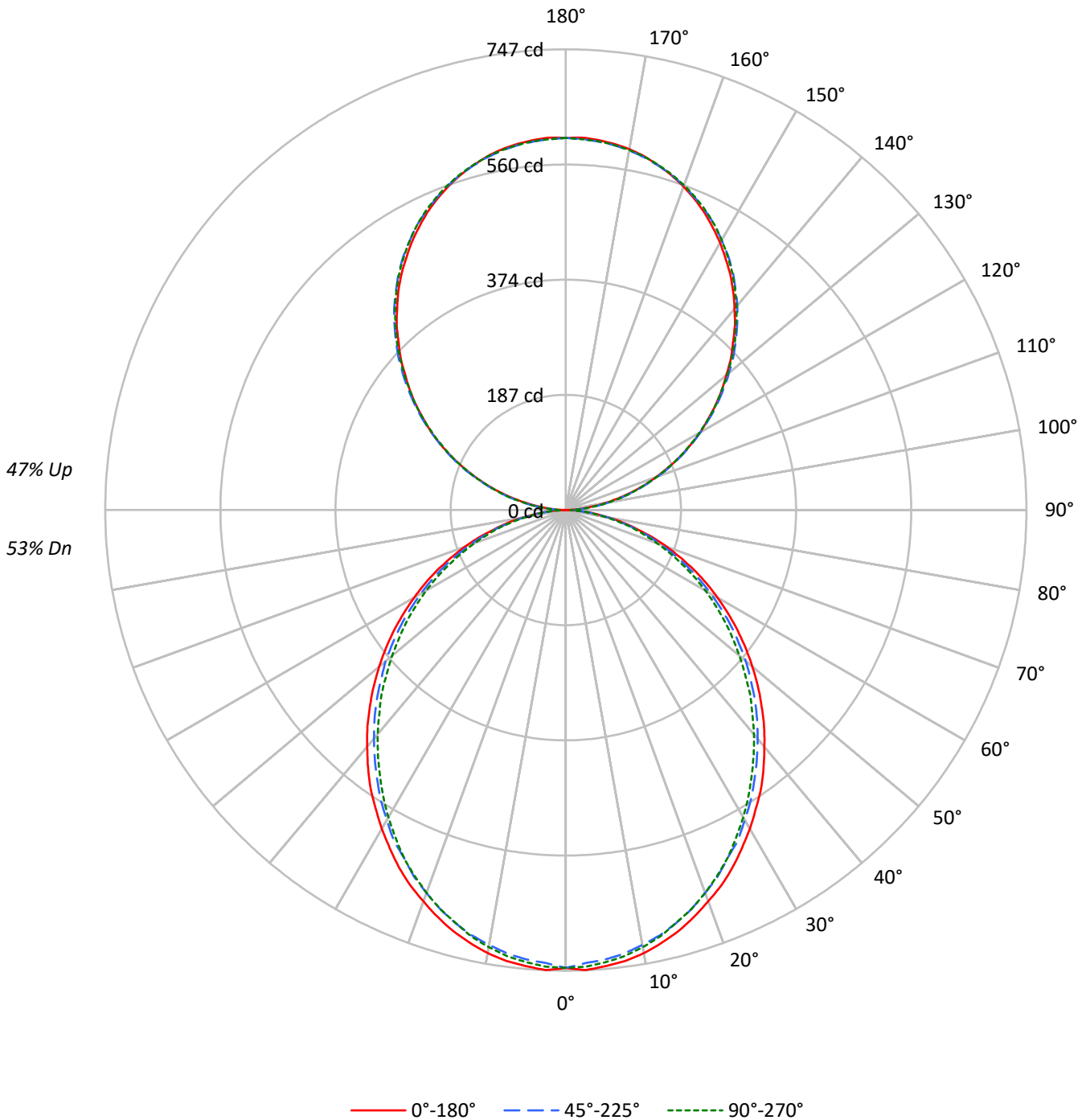
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3577.5 lumens
Efficiency: N/A
Efficacy: 110.8 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: General Diffuse

Input Watts (W): 32.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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			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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	59	59	59	53
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	41	38	36	32
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	23	20	17	15
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	21	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1859	1859	1859
5°	1858	1828	1842
10°	1839	1799	1814
15°	1809	1765	1772
20°	1768	1719	1729
25°	1729	1665	1680
30°	1679	1615	1619
35°	1632	1556	1554
40°	1574	1496	1491
45°	1517	1436	1428
50°	1454	1373	1355
55°	1388	1300	1286
60°	1313	1215	1208
65°	1231	1126	1116
70°	1126	1017	1016
75°	983	886	919
80°	810	721	743
85°	541	450	463

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1517 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	



TEST NUMBER: P923962

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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	9.55	10.44	10.48	11.39	12.62	9.11	9.99	10.04	10.94	12.17
	3H	11.19	11.99	12.13	12.94	14.20	10.70	11.50	11.64	12.46	13.71
	4H	11.76	12.52	12.72	13.48	14.74	11.27	12.02	12.23	12.99	14.25
	6H	12.15	12.84	13.12	13.81	15.09	11.65	12.34	12.62	13.31	14.59
	8H	12.24	12.91	13.22	13.89	15.16	11.74	12.40	12.72	13.39	14.66
	12H	12.29	12.91	13.27	13.89	15.19	11.78	12.41	12.76	13.39	14.68
4H	2H	10.00	10.76	10.97	11.72	12.98	9.65	10.40	10.61	11.36	12.63
	3H	11.84	12.47	12.82	13.46	14.74	11.44	12.06	12.41	13.06	14.33
	4H	12.54	13.12	13.52	14.10	15.40	12.12	12.69	13.10	13.68	14.98
	6H	13.04	13.53	14.03	14.54	15.84	12.60	13.10	13.60	14.11	15.41
	8H	13.18	13.64	14.17	14.64	15.95	12.74	13.20	13.73	14.20	15.52
	12H	13.24	13.66	14.25	14.68	15.99	12.79	13.21	13.81	14.23	15.55
8H	4H	12.73	13.19	13.72	14.19	15.51	12.35	12.81	13.34	13.81	15.13
	6H	13.33	13.71	14.35	14.76	16.07	12.95	13.33	13.97	14.37	15.68
	8H	13.54	13.87	14.57	14.91	16.24	13.14	13.48	14.17	14.51	15.84
	12H	13.65	13.95	14.69	14.98	16.35	13.24	13.54	14.28	14.57	15.94
12H	4H	12.71	13.13	13.72	14.15	15.47	12.34	12.76	13.36	13.78	15.10
	6H	13.36	13.69	14.38	14.73	16.05	12.98	13.32	14.01	14.35	15.68
	8H	13.58	13.88	14.61	14.90	16.28	13.20	13.50	14.23	14.52	15.90