

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: P924242

Luminaire Tested: DFN2DIP-HX2F0-020D020US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924242
REPORT IS A COMBINATION OF REPORTS P899151 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-020D020US950-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

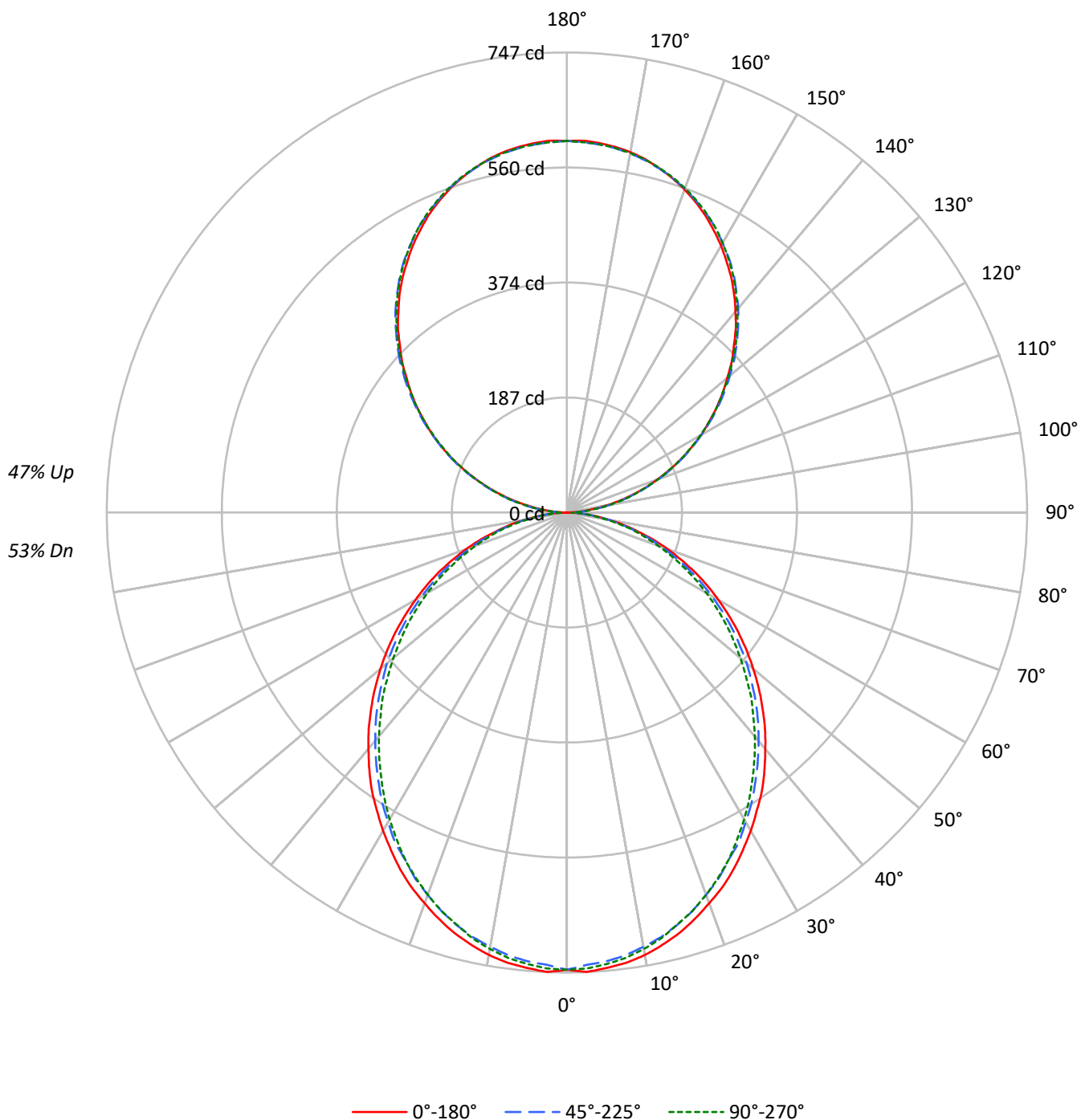
Lumens per Lamp: N/A
Luminaire Lumens: 3577.5 lumens
Efficiency: N/A
Efficacy: 117.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 30.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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°	1749	1749	1749
5°	1749	1721	1733
10°	1732	1693	1707
15°	1704	1661	1667
20°	1667	1618	1626
25°	1630	1568	1579
30°	1584	1521	1521
35°	1540	1466	1460
40°	1487	1410	1401
45°	1434	1354	1341
50°	1376	1295	1272
55°	1314	1227	1207
60°	1245	1147	1133
65°	1169	1063	1046
70°	1072	961	951
75°	939	838	859
80°	778	683	693
85°	527	429	429

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1434 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	9.34	10.22	10.27	11.17	12.40	8.91	9.80	9.85	10.75	11.98
	3H	10.97	11.77	11.92	12.73	13.98	10.51	11.31	11.46	12.27	13.52
	4H	11.55	12.30	12.50	13.26	14.52	11.09	11.84	12.05	12.80	14.07
	6H	11.93	12.62	12.90	13.59	14.87	11.47	12.16	12.44	13.13	14.41
	8H	12.02	12.68	13.00	13.67	14.94	11.57	12.23	12.54	13.21	14.49
	12H	12.06	12.69	13.05	13.67	14.97	11.60	12.23	12.58	13.21	14.51
4H	2H	9.79	10.54	10.75	11.51	12.77	9.45	10.21	10.42	11.17	12.43
	3H	11.63	12.26	12.60	13.25	14.53	11.25	11.88	12.22	12.87	14.15
	4H	12.33	12.90	13.31	13.89	15.19	11.93	12.51	12.92	13.49	14.79
	6H	12.82	13.31	13.81	14.33	15.62	12.42	12.92	13.42	13.93	15.23
	8H	12.96	13.42	13.95	14.42	15.74	12.56	13.02	13.56	14.03	15.34
	12H	13.02	13.44	14.04	14.46	15.78	12.62	13.03	13.63	14.05	15.37
8H	4H	12.51	12.98	13.51	13.98	15.29	12.16	12.63	13.16	13.63	14.94
	6H	13.12	13.50	14.14	14.55	15.86	12.77	13.15	13.79	14.19	15.50
	8H	13.32	13.66	14.35	14.69	16.02	12.97	13.30	13.99	14.33	15.66
	12H	13.44	13.74	14.47	14.76	16.14	13.07	13.37	14.10	14.39	15.77
12H	4H	12.50	12.92	13.51	13.94	15.25	12.15	12.57	13.17	13.59	14.91
	6H	13.14	13.48	14.17	14.51	15.84	12.80	13.14	13.83	14.17	15.50
	8H	13.37	13.66	14.40	14.69	16.06	13.02	13.32	14.05	14.34	15.72