

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: P924283

Luminaire Tested: DFN2DIP-HX2F0-040D020US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924283
REPORT IS A COMBINATION OF REPORTS P900675 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D020US950-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

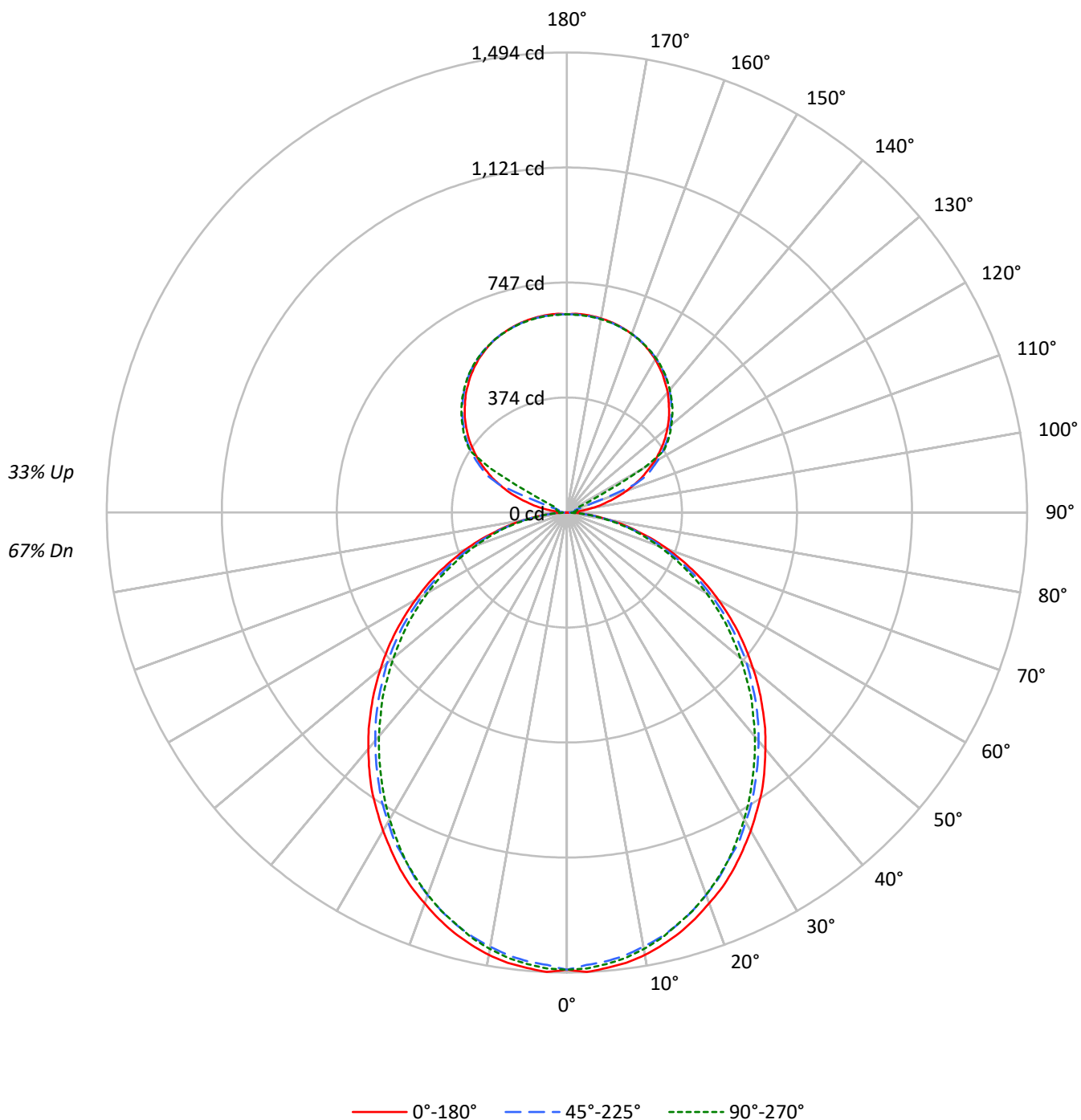
Lumens per Lamp: N/A
Luminaire Lumens: 5666.7 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 51.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924283

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P924283

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-FLLONL

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	0
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71	71	71	67
1	102	97	93	90	95	92	88	85	81	79	76		72	70	68		63	62	60	56
2	92	85	79	73	87	80	75	70	71	67	63		63	60	57		56	53	51	47
3	84	75	67	61	79	71	64	58	63	58	53		56	52	48		49	46	43	40
4	77	66	58	52	72	63	55	50	56	50	45		50	45	41		44	40	37	34
5	71	59	51	44	67	56	48	43	50	44	39		45	40	36		40	36	33	30
6	66	53	45	39	62	50	43	37	45	39	34		41	35	32		36	32	29	26
7	61	48	40	34	57	46	38	33	41	35	30		37	32	28		33	29	26	23
8	56	44	36	30	53	42	34	29	38	31	27		34	29	25		30	26	23	21
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28	24	21	19
10	49	37	29	24	46	35	28	24	32	26	22		29	24	20		26	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3498	3498	3498
5°	3498	3441	3466
10°	3465	3387	3413
15°	3408	3323	3333
20°	3334	3237	3252
25°	3259	3136	3159
30°	3168	3042	3043
35°	3081	2932	2920
40°	2974	2820	2802
45°	2868	2708	2681
50°	2751	2590	2543
55°	2629	2454	2413
60°	2490	2293	2265
65°	2337	2126	2092
70°	2144	1922	1902
75°	1878	1677	1719
80°	1554	1365	1387
85°	1056	856	858

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2868 cd/sqm

TEST NUMBER: P924283

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	2.5
10°-20°	393.2	6.9
20°-30°	577.9	10.2
30°-40°	671.2	11.8
40°-50°	670.3	11.8
50°-60°	584.5	10.3
60°-70°	432.1	7.6
70°-80°	244.5	4.3
80°-90°	65.7	1.2
90°-100°	21.2	0.4
100°-110°	79.1	1.4
110°-120°	209.9	3.7
120°-130°	348.2	6.1
130°-140°	369.8	6.5
140°-150°	343.7	6.1
150°-160°	276.4	4.9
160°-170°	178.1	3.1
170°-180°	61.3	1.1
0°-30°	1110.8	19.6
0°-40°	1782.0	31.4
0°-60°	3036.8	53.6
0°-90°	3779.0	66.7
90°-120°	310.3	5.5
90°-150°	1372.0	24.2
90°-180°	1888.0	33.3
0°-180°	5666.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	0	6	9	12	13	5
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	

TEST NUMBER: P924283

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
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



TEST NUMBER: P924283

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-FLLONL

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

TEST NUMBER: P924283

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-FLONL

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	12.90	13.93	13.70	14.76	15.77	12.48	13.51	13.28	14.33	15.34
	3H	14.55	15.48	15.36	16.31	17.35	14.09	15.02	14.90	15.85	16.89
	4H	15.13	16.00	15.96	16.84	17.89	14.67	15.54	15.50	16.38	17.43
	6H	15.52	16.32	16.36	17.17	18.24	15.06	15.87	15.90	16.71	17.78
	8H	15.62	16.39	16.47	17.25	18.32	15.16	15.93	16.01	16.79	17.86
	12H	15.66	16.40	16.52	17.25	18.35	15.20	15.93	16.05	16.79	17.88
4H	2H	13.37	14.25	14.21	15.09	16.14	13.03	13.91	13.87	14.75	15.80
	3H	15.22	15.96	16.07	16.83	17.90	14.84	15.57	15.69	16.45	17.51
	4H	15.93	16.59	16.78	17.46	18.56	15.53	16.20	16.39	17.07	18.16
	6H	16.43	17.00	17.30	17.90	18.99	16.03	16.61	16.91	17.50	18.60
	8H	16.57	17.11	17.45	18.00	19.11	16.17	16.71	17.05	17.60	18.71
	12H	16.64	17.12	17.54	18.03	19.15	16.23	16.72	17.13	17.63	18.74
8H	4H	16.12	16.66	17.00	17.55	18.66	15.77	16.31	16.65	17.20	18.31
	6H	16.73	17.18	17.64	18.11	19.22	16.38	16.83	17.29	17.76	18.87
	8H	16.94	17.34	17.85	18.26	19.39	16.58	16.98	17.50	17.90	19.03
	12H	17.06	17.41	17.98	18.33	19.51	16.69	17.04	17.61	17.96	19.14
12H	4H	16.12	16.60	17.01	17.51	18.63	15.77	16.26	16.67	17.17	18.28
	6H	16.76	17.16	17.68	18.08	19.21	16.42	16.82	17.33	17.74	18.87
	8H	16.99	17.34	17.91	18.26	19.44	16.65	17.00	17.56	17.91	19.09