

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: P921911

Luminaire Tested: DFN2DIP-HX4F0-110D050US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921911
REPORT IS A COMBINATION OF REPORTS P899332 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D050US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

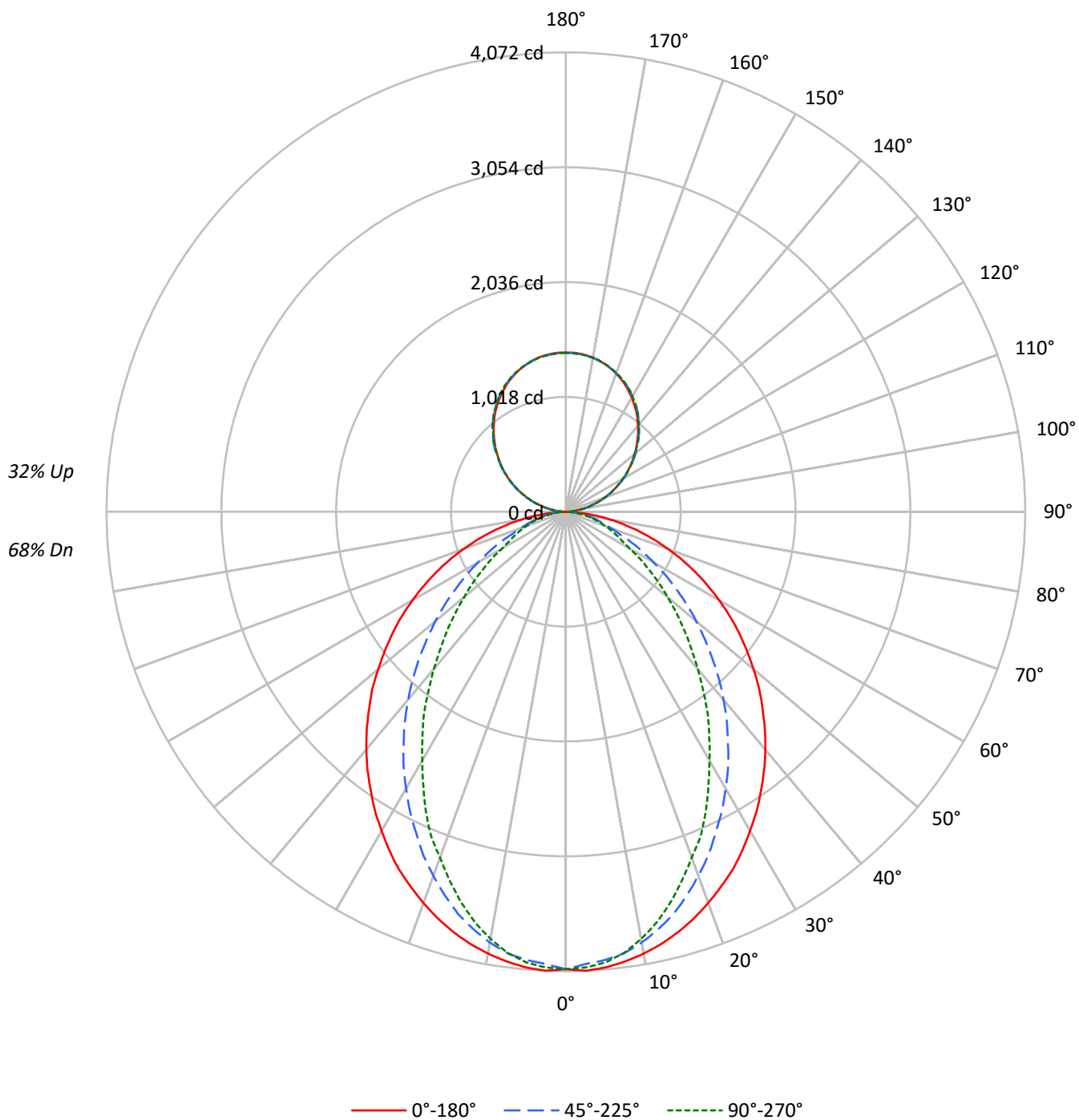
Lumens per Lamp: N/A
Luminaire Lumens: 12283.3 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 140.9
Input Voltage (V):
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	73	73	73
1	102	98	94	91	97	93	90	87	83	80	78	74	72	70	65	64	63
2	94	87	81	76	88	82	77	72	73	69	66	66	62	60	58	56	54
3	86	77	70	64	81	73	66	61	65	60	56	59	55	51	52	49	47
4	79	68	61	55	74	65	58	53	59	53	49	53	48	45	47	44	41
5	73	61	53	47	69	58	51	46	53	47	42	48	43	39	43	39	36
6	68	56	47	42	64	53	46	40	48	42	37	43	38	35	39	35	32
7	63	50	42	37	59	48	41	36	44	38	33	40	35	31	36	32	29
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26
9	55	42	35	30	52	40	34	29	37	31	27	34	29	25	31	27	24
10	51	39	32	27	48	37	31	26	34	29	25	31	27	23	29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3014	3014	3014
5°	3019	2967	2986
10°	2990	2909	2889
15°	2949	2813	2739
20°	2895	2681	2554
25°	2839	2532	2377
30°	2765	2380	2151
35°	2692	2217	1953
40°	2617	2048	1725
45°	2531	1860	1519
50°	2441	1670	1318
55°	2348	1467	1125
60°	2240	1256	926
65°	2116	1040	834
70°	1966	839	755
75°	1777	740	687
80°	1503	622	596
85°	1051	416	449

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2531 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	3.1
10°-20°	1043.0	8.5
20°-30°	1464.4	11.9
30°-40°	1596.2	13.0
40°-50°	1467.1	11.9
50°-60°	1152.2	9.4
60°-70°	750.0	6.1
70°-80°	386.0	3.1
80°-90°	102.6	0.8
90°-100°	87.3	0.7
100°-110°	277.2	2.3
110°-120°	474.5	3.9
120°-130°	624.0	5.1
130°-140°	700.4	5.7
140°-150°	686.8	5.6
150°-160°	576.1	4.7
160°-170°	382.1	3.1
170°-180°	133.5	1.1
0°-30°	2887.3	23.5
0°-40°	4483.6	36.5
0°-60°	7102.9	57.8
0°-90°	8341.5	67.9
90°-120°	838.9	6.8
90°-150°	2850.1	23.2
90°-180°	3942.0	32.1
0°-180°	12283.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4054	4054	4054	4054	4054	
5°	4054	4036	3988	4021	4010	384
15°	3856	3815	3691	3621	3584	1087
25°	3500	3382	3140	2990	2935	1610
35°	3016	2829	2506	2275	2194	1888
45°	2466	2220	1834	1574	1486	1904
55°	1875	1588	1192	972	903	1675
65°	1266	968	638	514	502	1255
75°	675	418	294	268	264	714
85°	158	81	70	70	70	181
90°	1	15	42	39	40	12
95°	62	74	76	76	74	69
105°	256	259	262	264	264	270
115°	476	483	481	480	476	471
125°	692	703	700	696	695	619
135°	896	909	911	910	907	692
145°	1087	1096	1103	1104	1099	679
155°	1243	1247	1251	1257	1253	572
165°	1353	1351	1351	1360	1354	382
175°	1408	1404	1402	1410	1403	134
180°	1410	1410	1410	1410	1410	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4054.0	4054.0	4054.0	4054.0	4054.0
2.5°	4072.3	4054.0	4013.5	4050.5	4043.1
5°	4054.0	4035.7	3987.8	4020.9	4010.0
7.5°	4020.9	3999.1	3947.7	3962.1	3943.8
10°	3976.9	3951.2	3878.0	3866.7	3845.0
12.5°	3922.0	3888.9	3789.7	3767.8	3727.3
15°	3855.8	3815.4	3690.8	3621.1	3584.5
17.5°	3778.8	3720.0	3565.9	3485.2	3426.5
20°	3690.8	3617.2	3433.9	3342.4	3261.4
22.5°	3595.5	3510.9	3298.1	3173.5	3118.6
25°	3500.1	3382.5	3140.4	2990.2	2934.9
27.5°	3386.4	3261.4	2993.7	2821.2	2736.7
30°	3265.4	3125.6	2832.2	2645.3	2546.0
32.5°	3147.8	2978.8	2678.3	2458.1	2366.2
35°	3015.9	2828.6	2506.0	2274.8	2193.8
37.5°	2887.4	2685.4	2344.4	2091.0	1999.6
40°	2751.6	2531.7	2175.5	1915.0	1819.7
42.5°	2612.2	2377.5	2007.0	1735.3	1643.8
45°	2465.5	2219.5	1834.5	1573.7	1485.8
47.5°	2326.1	2065.7	1669.5	1408.6	1328.1
50°	2171.9	1911.6	1508.0	1254.5	1177.9
52.5°	2021.3	1746.1	1353.8	1111.7	1042.0
55°	1874.6	1588.5	1192.2	972.3	902.7
57.5°	1724.4	1430.8	1049.4	843.9	785.1
60°	1570.2	1276.8	898.8	711.9	653.2
62.5°	1420.0	1126.5	770.3	594.4	565.2
65°	1265.8	968.4	638.4	513.8	502.5
67.5°	1119.1	821.7	513.8	451.1	440.2
70°	964.9	678.9	425.4	388.9	374.1
72.5°	818.1	546.5	355.8	326.5	319.1
75°	674.9	418.0	293.5	267.8	264.3
77.5°	532.1	297.0	231.2	216.4	209.0
80°	399.8	212.9	175.9	161.6	161.6
82.5°	278.7	143.2	121.1	113.7	113.7
85°	157.7	80.6	69.6	69.6	69.6
87.5°	58.8	29.2	29.2	25.7	25.7
90°	1.2	15.3	41.6	39.1	40.4
92.5°	26.4	35.7	37.0	38.3	38.3
95°	62.1	74.0	76.1	76.1	74.0
97.5°	103.3	114.3	119.0	119.0	119.0
100°	150.9	160.7	164.1	164.1	162.8
102.5°	201.1	208.3	212.9	214.3	212.9
105°	255.9	259.3	261.9	263.9	263.9
107.5°	310.3	315.4	315.4	316.3	310.3
110°	363.0	369.9	369.9	369.9	366.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	420.0	427.2	426.0	422.6	420.0
115°	476.1	483.0	480.8	479.6	476.1
117.5°	531.8	541.2	535.2	531.8	528.4
120°	587.9	597.3	587.9	587.9	584.1
122.5°	638.9	650.9	644.9	641.5	638.9
125°	692.5	703.1	699.7	695.9	694.6
127.5°	744.8	758.0	753.3	748.1	744.8
130°	793.7	809.0	806.8	804.3	799.6
132.5°	848.6	860.4	861.3	855.3	851.9
135°	895.7	908.8	911.4	910.2	906.8
137.5°	948.4	959.0	961.2	960.3	955.2
140°	994.7	1005.4	1011.3	1011.3	1006.7
142.5°	1042.3	1053.0	1056.4	1057.7	1053.0
145°	1087.4	1095.9	1102.7	1104.0	1099.3
147.5°	1127.8	1138.4	1143.5	1145.7	1140.9
150°	1169.5	1176.7	1181.3	1185.2	1181.3
152.5°	1206.5	1213.7	1219.6	1224.3	1219.6
155°	1243.4	1246.8	1250.6	1256.6	1252.8
157.5°	1275.3	1277.8	1280.0	1288.5	1282.5
160°	1303.8	1306.4	1307.6	1314.8	1309.7
162.5°	1330.2	1330.2	1331.4	1339.5	1333.6
165°	1352.7	1351.4	1351.4	1359.9	1354.0
167.5°	1373.1	1369.2	1369.2	1377.8	1371.8
170°	1388.4	1385.0	1383.8	1392.2	1385.0
172.5°	1399.0	1395.6	1394.4	1402.8	1395.6
175°	1407.6	1404.1	1401.6	1410.1	1402.8
177.5°	1412.2	1408.8	1406.2	1413.5	1406.2
180°	1410.1	1410.1	1410.1	1410.1	1410.1

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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	12.51	13.51	13.30	14.32	15.32	8.48	9.48	9.28	10.30	11.29
	3H	14.20	15.10	15.01	15.92	16.94	9.69	10.58	10.49	11.40	12.43
	4H	14.82	15.66	15.64	16.49	17.53	10.15	10.99	10.97	11.82	12.85
	6H	15.25	16.03	16.09	16.86	17.91	10.48	11.25	11.31	12.09	13.14
	8H	15.38	16.12	16.23	16.98	18.02	10.57	11.31	11.42	12.17	13.22
	12H	15.45	16.15	16.30	17.00	18.07	10.62	11.33	11.47	12.18	13.25
4H	2H	12.55	13.39	13.38	14.22	15.26	9.10	9.94	9.93	10.77	11.81
	3H	14.39	15.10	15.23	15.96	17.01	10.47	11.17	11.31	12.03	13.08
	4H	15.09	15.73	15.95	16.59	17.67	11.02	11.66	11.88	12.52	13.60
	6H	15.62	16.17	16.49	17.05	18.13	11.45	12.00	12.32	12.89	13.97
	8H	15.80	16.31	16.67	17.19	18.28	11.59	12.10	12.46	12.98	14.07
	12H	15.90	16.36	16.79	17.26	18.36	11.66	12.12	12.55	13.02	14.12
8H	4H	15.07	15.59	15.95	16.47	17.56	11.32	11.83	12.19	12.71	13.80
	6H	15.65	16.07	16.55	16.99	18.09	11.84	12.27	12.74	13.19	14.28
	8H	15.87	16.24	16.78	17.16	18.27	12.04	12.41	12.95	13.33	14.44
	12H	16.01	16.34	16.92	17.25	18.41	12.16	12.50	13.08	13.40	14.57
12H	4H	15.03	15.50	15.93	16.40	17.49	11.33	11.79	12.22	12.69	13.79
	6H	15.62	16.00	16.53	16.92	18.03	11.89	12.27	12.80	13.18	14.29
	8H	15.85	16.18	16.77	17.09	18.25	12.11	12.44	13.02	13.35	14.51