

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: P913417

Luminaire Tested: DFN2DIP-HX2F0-060D030US927-RLONL

Issue Date: 11/21/2024

**Test Information**

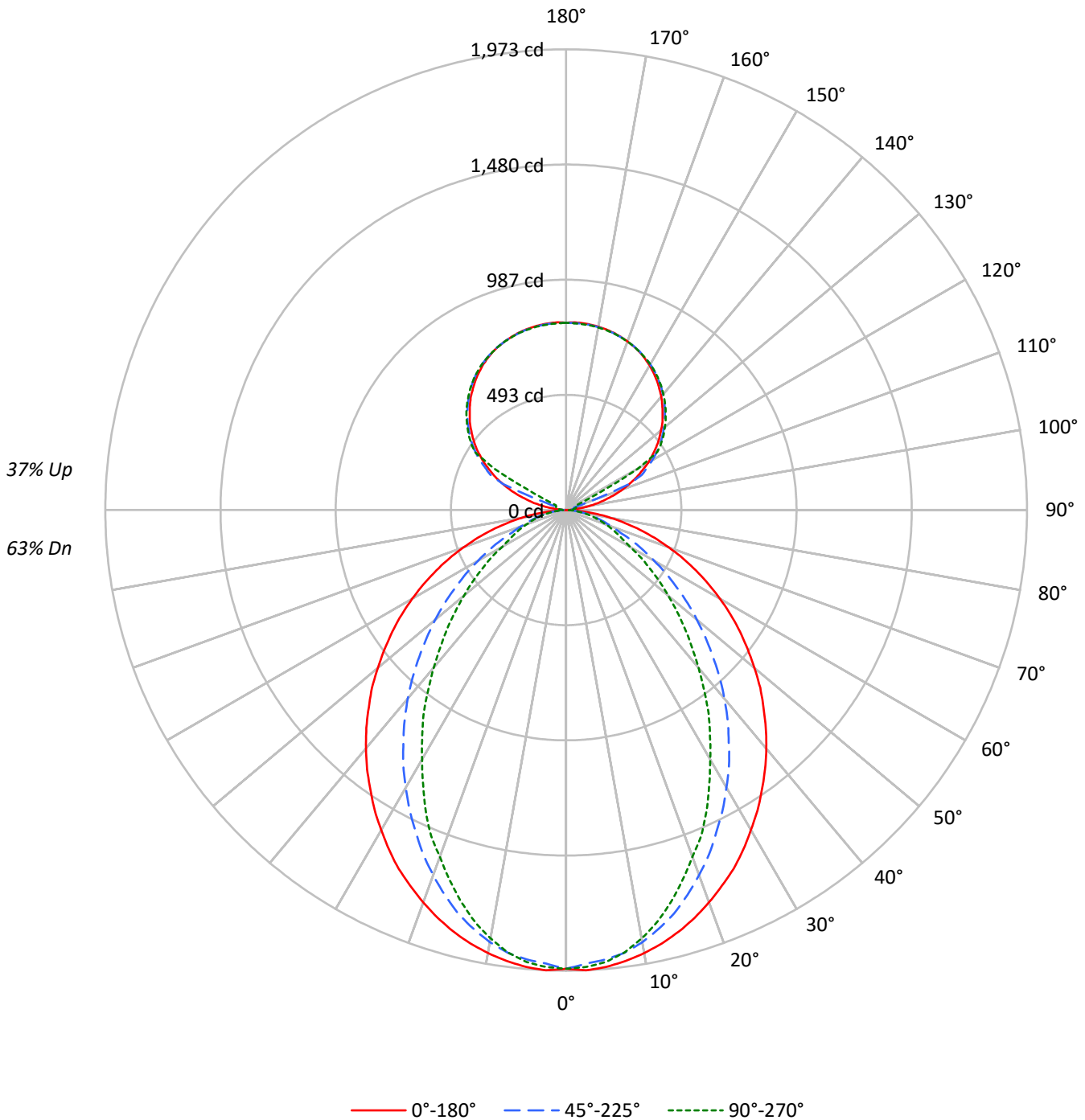
Test Method: LM-79-2019  
Report Number: P913417  
REPORT IS A COMBINATION OF REPORTS P900690 AND P897595  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-060D030US927-RLONL  
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6392.9 lumens  
Efficiency: N/A  
Efficacy: 78.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 81.2  
Input Voltage (V):  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P913417  
CATALOG NUMBER: DFN2DIP-HX2F0-060D030US927-RLLONL

### 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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59	59	59	59	54
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51	51	51	51	47
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44	44	44	44	40
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38	38	38	38	35
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34	34	34	34	31
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30	30	30	30	27
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27	27	27	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24	24	24	24	22
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22	22	22	22	20
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20	20	20	20	18

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	4629	4629	4629
5°	4629	4544	4576
10°	4575	4444	4418
15°	4505	4286	4180
20°	4414	4074	3891
25°	4322	3838	3613
30°	4199	3596	3262
35°	4079	3338	2954
40°	3956	3071	2602
45°	3815	2778	2284
50°	3668	2482	1974
55°	3513	2168	1676
60°	3334	1841	1372
65°	3128	1510	1225
70°	2876	1201	1097
75°	2561	1038	982
80°	2108	840	827
85°	1379	518	579

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3815 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	184.1	2.9
10°-20°	505.4	7.9
20°-30°	709.6	11.1
30°-40°	773.5	12.1
40°-50°	710.9	11.1
50°-60°	558.3	8.7
60°-70°	363.4	5.7
70°-80°	187.1	2.9
80°-90°	49.2	0.8
90°-100°	26.5	0.4
100°-110°	98.6	1.5
110°-120°	261.5	4.1
120°-130°	433.7	6.8
130°-140°	460.7	7.2
140°-150°	428.1	6.7
150°-160°	344.2	5.4
160°-170°	221.8	3.5
170°-180°	76.3	1.2
0°-30°	1399.1	21.9
0°-40°	2172.6	34.0
0°-60°	3441.9	53.8
0°-90°	4041.5	63.2
90°-120°	386.5	6.0
90°-150°	1709.0	26.7
90°-180°	2351.0	36.8
0°-180°	6392.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1964	1964	1964	1964	1964	
5°	1964	1956	1932	1948	1943	186
15°	1868	1849	1788	1755	1737	527
25°	1696	1639	1522	1449	1422	780
35°	1461	1371	1214	1102	1063	915
45°	1195	1076	889	763	720	923
55°	908	770	578	471	437	812
65°	613	469	309	249	244	608
75°	327	203	142	130	128	346
85°	76	39	34	34	34	88
90°	1	7	12	15	16	6
95°	38	18	23	26	25	45
105°	176	194	35	42	44	188
115°	334	344	358	89	48	329
125°	472	479	490	494	496	421
135°	584	593	598	604	603	451
145°	677	677	687	691	688	424
155°	746	741	748	751	746	344
165°	786	782	784	788	784	222
175°	804	800	801	805	799	76
180°	802	802	802	802	802	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1964.5	1964.5	1964.5	1964.5	1964.5
2.5°	1973.3	1964.5	1944.8	1962.7	1959.1
5°	1964.5	1955.6	1932.4	1948.4	1943.1
7.5°	1948.4	1937.8	1913.0	1919.9	1911.1
10°	1927.1	1914.6	1879.2	1873.7	1863.1
12.5°	1900.5	1884.4	1836.4	1825.8	1806.2
15°	1868.4	1848.8	1788.4	1754.7	1736.9
17.5°	1831.1	1802.6	1727.9	1688.9	1660.4
20°	1788.4	1752.8	1664.0	1619.6	1580.4
22.5°	1742.2	1701.3	1598.1	1537.8	1511.2
25°	1696.1	1639.1	1521.8	1449.0	1422.2
27.5°	1641.0	1580.4	1450.6	1367.1	1326.2
30°	1582.3	1514.6	1372.4	1281.8	1233.7
32.5°	1525.3	1443.5	1297.9	1191.1	1146.6
35°	1461.4	1370.7	1214.3	1102.2	1063.0
37.5°	1399.2	1301.2	1136.1	1013.3	968.9
40°	1333.3	1226.8	1054.2	928.0	881.8
42.5°	1265.8	1152.1	972.5	840.8	796.5
45°	1194.7	1075.5	889.0	762.6	719.9
47.5°	1127.2	1001.0	809.0	682.6	643.6
50°	1052.5	926.3	730.7	607.9	570.8
52.5°	979.5	846.1	656.0	538.7	504.9
55°	908.4	769.8	577.7	471.2	437.4
57.5°	835.6	693.3	508.5	408.9	380.4
60°	760.9	618.7	435.5	345.0	316.5
62.5°	688.1	545.9	373.3	288.0	273.9
65°	613.4	469.3	309.3	249.0	243.5
67.5°	542.2	398.2	249.0	218.6	213.3
70°	467.5	328.9	206.1	188.5	181.3
72.5°	396.5	264.8	172.4	158.3	154.6
75°	327.1	202.6	142.2	129.8	128.1
77.5°	257.9	143.9	112.0	104.9	101.3
80°	193.7	103.1	85.2	78.3	78.3
82.5°	135.1	69.4	58.6	55.1	55.1
85°	76.4	39.1	33.7	33.7	33.7
87.5°	28.5	14.2	14.2	12.4	12.4
90°	0.6	7.0	11.6	14.6	15.6
92.5°	14.6	12.2	13.9	15.1	15.6
95°	37.7	18.5	22.6	25.6	25.0
97.5°	67.9	20.4	29.5	31.4	31.9
100°	102.7	23.2	33.1	37.7	38.9
102.5°	141.0	139.9	34.2	40.6	42.4
105°	176.4	193.8	35.4	41.7	44.1
107.5°	217.6	232.1	36.6	42.9	45.3
110°	257.1	269.3	101.6	43.6	45.9



TEST NUMBER: P913417

CATALOG NUMBER: DFN2DIP-HX2F0-060D030US927-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	294.3	304.7	294.8	44.7	46.4
115°	333.7	343.6	358.1	89.4	47.6
117.5°	368.0	379.5	389.4	306.4	154.4
120°	406.2	414.9	425.4	432.4	354.0
122.5°	438.7	448.1	459.7	463.1	463.7
125°	471.8	479.3	490.4	494.5	496.2
127.5°	502.0	510.1	518.9	524.7	525.2
130°	530.4	539.8	546.1	552.5	552.0
132.5°	559.4	567.0	573.4	578.6	578.1
135°	583.8	593.2	598.3	604.2	603.0
137.5°	609.3	616.3	622.2	628.0	626.2
140°	634.3	639.0	645.3	650.5	647.7
142.5°	655.3	659.3	666.9	671.5	668.6
145°	677.3	676.7	686.6	690.6	687.7
147.5°	696.4	694.7	704.6	707.4	705.1
150°	715.0	711.0	720.3	723.7	720.8
152.5°	730.6	726.0	734.7	738.2	734.2
155°	745.8	740.6	747.5	751.0	746.4
157.5°	758.0	753.4	758.6	762.6	758.0
160°	768.4	764.9	768.4	771.9	767.8
162.5°	777.7	774.2	777.1	781.2	775.9
165°	785.8	782.4	784.1	788.1	784.1
167.5°	792.2	788.7	790.4	794.6	789.3
170°	797.4	793.9	795.1	799.2	793.9
172.5°	800.9	797.4	798.6	802.6	797.4
175°	803.7	799.7	800.9	804.9	799.2
177.5°	804.9	800.9	801.5	805.6	800.3
180°	802.1	802.1	802.1	802.1	802.1



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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	13.49	14.44	14.33	15.30	16.37	9.47	10.42	10.31	11.28	12.35
	3H	15.15	16.00	16.00	16.87	17.97	10.65	11.50	11.50	12.37	13.47
	4H	15.74	16.55	16.62	17.42	18.53	11.09	11.90	11.97	12.77	13.88
	6H	16.15	16.89	17.03	17.77	18.90	11.41	12.15	12.29	13.03	14.15
	8H	16.27	16.97	17.16	17.87	19.00	11.49	12.20	12.38	13.10	14.22
	12H	16.33	17.00	17.22	17.89	19.04	11.53	12.20	12.43	13.09	14.24
4H	2H	13.51	14.32	14.39	15.19	16.30	10.06	10.87	10.94	11.74	12.85
	3H	15.33	15.99	16.21	16.90	18.02	11.41	12.07	12.29	12.98	14.10
	4H	16.00	16.61	16.90	17.51	18.67	11.94	12.55	12.84	13.45	14.61
	6H	16.50	17.02	17.41	17.95	19.11	12.35	12.87	13.27	13.80	14.96
	8H	16.67	17.15	17.58	18.07	19.24	12.47	12.96	13.39	13.88	15.05
	12H	16.75	17.19	17.69	18.13	19.30	12.53	12.97	13.47	13.91	15.09
8H	4H	15.98	16.46	16.89	17.39	18.55	12.22	12.71	13.13	13.63	14.79
	6H	16.52	16.92	17.46	17.89	19.05	12.72	13.12	13.66	14.08	15.25
	8H	16.72	17.08	17.67	18.03	19.21	12.90	13.25	13.85	14.21	15.39
	12H	16.85	17.16	17.80	18.11	19.34	13.01	13.32	13.96	14.27	15.50
12H	4H	15.93	16.37	16.87	17.31	18.48	12.22	12.66	13.16	13.60	14.78
	6H	16.49	16.85	17.45	17.81	18.99	12.76	13.12	13.71	14.07	15.26
	8H	16.70	17.02	17.66	17.96	19.20	12.96	13.28	13.92	14.22	15.46