

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: P924324

Luminaire Tested: DFN2DIP-HX2F0-060D020US950-RLLFLL

Issue Date: 11/21/2024

**Test Information**

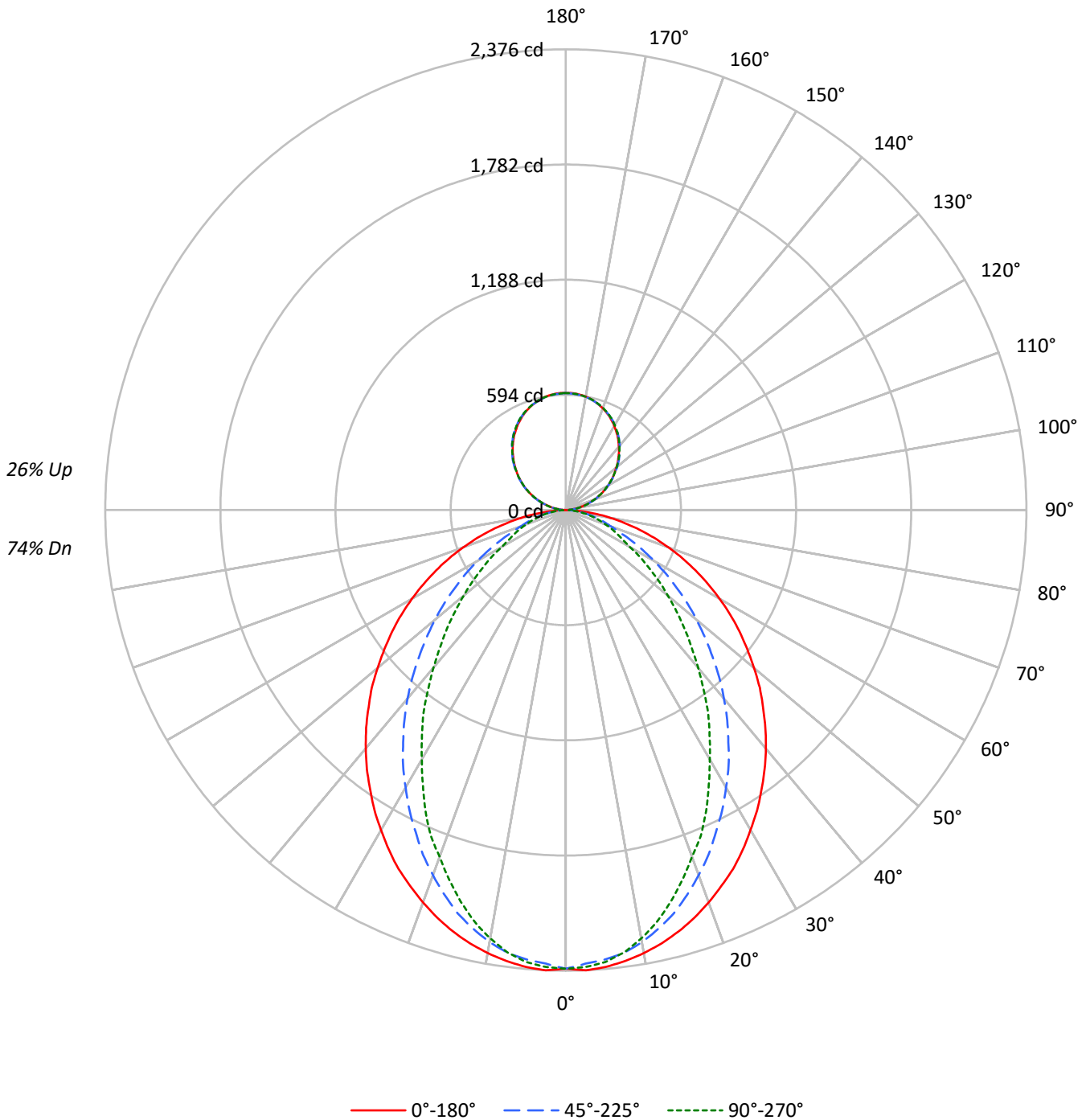
Test Method: LM-79-2019  
Report Number: P924324  
REPORT IS A COMBINATION OF REPORTS P899160 AND P896039  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-060D020US950-RLLFLL  
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6554.0 lumens  
Efficiency: N/A  
Efficacy: 87.7 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): 74.7  
Input Voltage (V):  
Input Current (Ain): 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

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	78	78	78	74
1	104	100	96	93	99	95	92	89	86	84	81	78	76	74	70	69	68	68	68	68	64
2	95	88	82	77	90	84	79	74	76	72	68	69	66	63	63	60	58	58	58	58	55
3	87	78	71	65	83	75	68	63	68	63	58	62	58	54	56	53	50	50	50	50	47
4	80	70	62	56	76	67	60	54	61	55	51	56	51	47	51	47	44	44	44	44	41
5	74	63	54	48	70	60	53	47	55	49	44	51	45	42	46	42	39	39	39	39	36
6	69	57	48	43	65	54	47	41	50	44	39	46	41	37	42	38	35	35	35	35	32
7	64	51	43	38	61	49	42	37	46	39	35	42	37	33	39	34	31	31	31	31	29
8	59	47	39	34	57	45	38	33	42	36	31	39	34	30	36	31	28	28	28	28	26
9	56	43	36	31	53	42	35	30	39	33	28	36	31	27	33	29	26	26	26	26	24
10	52	40	33	28	50	39	32	27	36	30	26	33	28	25	31	27	23	23	23	23	22

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

	0°	45°	90°
0°	5574	5574	5574
5°	5574	5472	5510
10°	5510	5352	5321
15°	5425	5162	5034
20°	5316	4906	4686
25°	5204	4621	4351
30°	5057	4331	3928
35°	4912	4020	3557
40°	4765	3699	3134
45°	4594	3345	2751
50°	4417	2989	2377
55°	4231	2611	2019
60°	4015	2217	1652
65°	3767	1818	1476
70°	3465	1446	1321
75°	3085	1249	1183
80°	2539	1013	996
85°	1661	624	697

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4594 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	221.7	3.4
10°-20°	608.7	9.3
20°-30°	854.5	13.0
30°-40°	931.5	14.2
40°-50°	856.2	13.1
50°-60°	672.4	10.3
60°-70°	437.7	6.7
70°-80°	225.3	3.4
80°-90°	59.2	0.9
90°-100°	37.3	0.6
100°-110°	118.7	1.8
110°-120°	203.0	3.1
120°-130°	267.0	4.1
130°-140°	299.7	4.6
140°-150°	293.9	4.5
150°-160°	246.5	3.8
160°-170°	163.5	2.5
170°-180°	57.1	0.9
0°-30°	1684.9	25.7
0°-40°	2616.4	39.9
0°-60°	4144.9	63.2
0°-90°	4867.1	74.3
90°-120°	359.0	5.5
90°-150°	1219.7	18.6
90°-180°	1687.0	25.7
0°-180°	6554.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	1	7	18	17	17	6
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°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
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	15.00	16.08	15.72	16.82	17.69	10.98	12.06	11.71	12.80	13.68
	3H	16.67	17.63	17.41	18.38	19.29	12.17	13.14	12.91	13.89	14.80
	4H	17.27	18.18	18.03	18.94	19.86	12.62	13.53	13.38	14.29	15.21
	6H	17.69	18.52	18.45	19.29	20.23	12.94	13.78	13.71	14.55	15.48
	8H	17.81	18.60	18.59	19.39	20.33	13.03	13.83	13.81	14.61	15.55
	12H	17.87	18.63	18.65	19.41	20.37	13.07	13.83	13.86	14.61	15.58
4H	2H	15.04	15.95	15.80	16.71	17.63	11.59	12.50	12.35	13.26	14.18
	3H	16.87	17.62	17.64	18.41	19.35	12.95	13.70	13.72	14.49	15.43
	4H	17.55	18.23	18.33	19.03	20.00	13.49	14.17	14.28	14.97	15.94
	6H	18.05	18.64	18.86	19.46	20.44	13.90	14.49	14.71	15.31	16.29
	8H	18.22	18.77	19.03	19.58	20.57	14.03	14.58	14.83	15.39	16.38
	12H	18.31	18.81	19.14	19.64	20.64	14.09	14.59	14.92	15.43	16.42
8H	4H	17.53	18.08	18.34	18.90	19.88	13.77	14.32	14.58	15.14	16.13
	6H	18.08	18.53	18.91	19.39	20.38	14.28	14.73	15.11	15.59	16.58
	8H	18.28	18.68	19.13	19.54	20.54	14.45	14.86	15.30	15.71	16.72
	12H	18.41	18.77	19.26	19.61	20.67	14.57	14.93	15.42	15.77	16.83
12H	4H	17.49	17.99	18.32	18.82	19.82	13.78	14.28	14.61	15.12	16.11
	6H	18.05	18.46	18.90	19.31	20.32	14.32	14.72	15.17	15.58	16.58
	8H	18.27	18.62	19.11	19.47	20.53	14.53	14.88	15.37	15.73	16.79