

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: P913542

Luminaire Tested: DFN2DIP-HX3F0-070D070US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

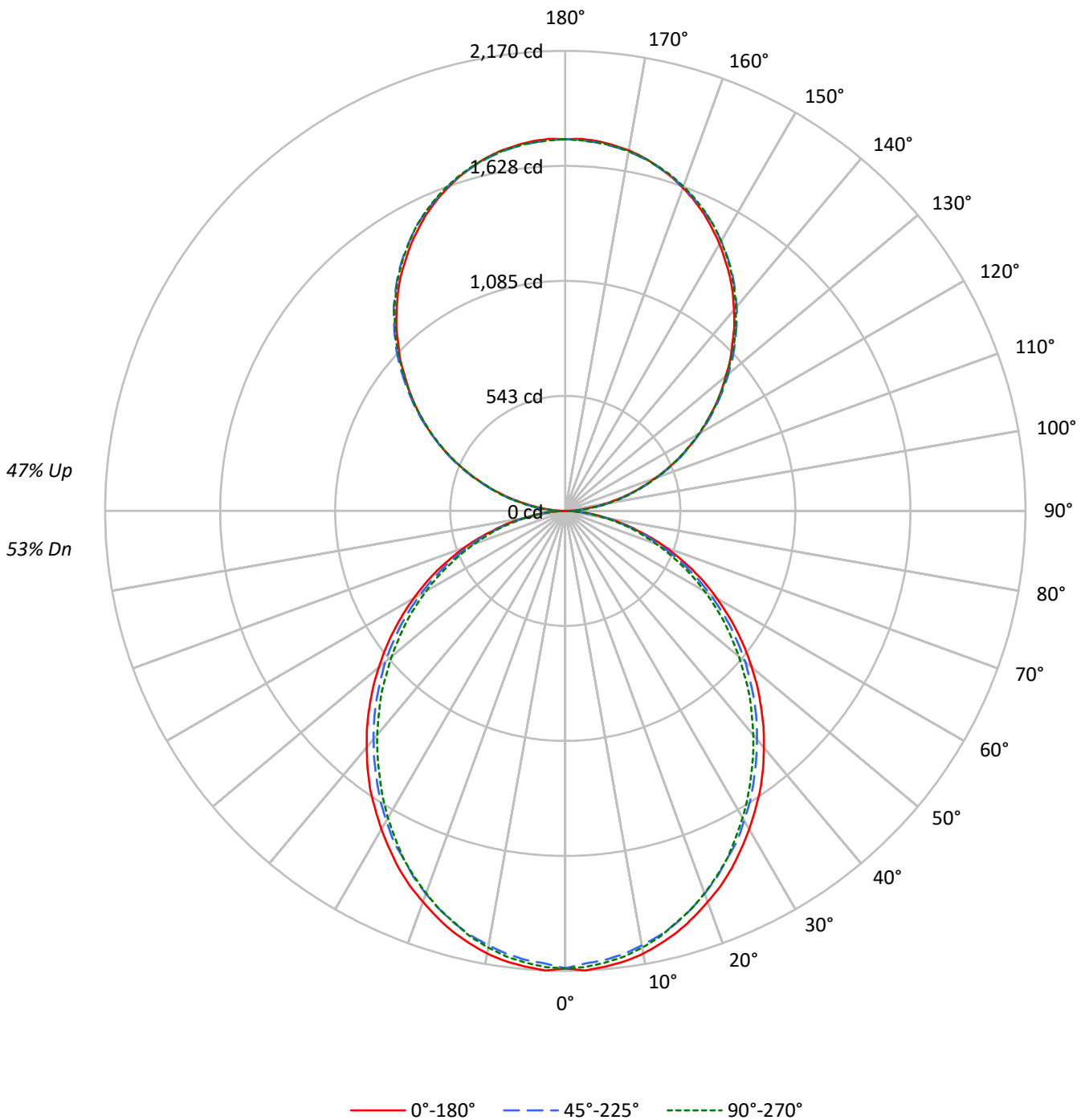
Test Method: LM-79-2019  
Report Number: P913542  
REPORT IS A COMBINATION OF REPORTS P899265 AND P896089  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-070D070US927-FLLFLL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10397.4 lumens  
Efficiency: N/A  
Efficacy: 84.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 122.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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		0	
RW	70	50	30	10	70	50	30	10	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	53		
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	45		
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	37		
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	32		
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	27		
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	24		
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	21		
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	18		
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	16		
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	15		
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	13		

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

	0°	45°	90°
0°	2499	2499	2499
5°	2502	2463	2480
10°	2481	2428	2445
15°	2443	2386	2391
20°	2393	2329	2336
25°	2343	2261	2273
30°	2280	2197	2192
35°	2220	2123	2107
40°	2148	2047	2026
45°	2075	1971	1944
50°	1995	1892	1848
55°	1911	1800	1759
60°	1817	1691	1658
65°	1714	1577	1539
70°	1582	1439	1410
75°	1400	1273	1289
80°	1180	1062	1061
85°	837	703	688

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2075 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	203.1	2.0
10°-20°	571.4	5.5
20°-30°	839.7	8.1
30°-40°	975.3	9.4
40°-50°	974.1	9.4
50°-60°	849.4	8.2
60°-70°	627.9	6.0
70°-80°	355.2	3.4
80°-90°	98.7	0.9
90°-100°	108.5	1.0
100°-110°	344.8	3.3
110°-120°	590.1	5.7
120°-130°	776.1	7.5
130°-140°	871.1	8.4
140°-150°	854.2	8.2
150°-160°	716.6	6.9
160°-170°	475.2	4.6
170°-180°	166.1	1.6
0°-30°	1614.2	15.5
0°-40°	2589.5	24.9
0°-60°	4412.9	42.4
0°-90°	5494.8	52.8
90°-120°	1043.4	10.0
90°-150°	3544.8	34.1
90°-180°	4903.0	47.2
0°-180°	10397.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2127	2143	2139	205
15°	2054	2042	2015	2023	2013	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1002
45°	1305	1291	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	2	19	52	49	50	10
95°	77	92	95	95	92	86
105°	318	322	326	328	328	336
115°	592	601	598	596	592	586
125°	861	874	870	866	864	770
135°	1114	1130	1134	1132	1128	861
145°	1352	1363	1372	1373	1367	845
155°	1546	1551	1556	1563	1558	712
165°	1682	1681	1681	1691	1684	475
175°	1751	1746	1743	1754	1745	166
180°	1754	1754	1754	1754	1754	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2157.7	2157.7	2157.7	2157.7	2157.7
2.5°	2170.3	2159.9	2137.0	2157.7	2153.7
5°	2157.7	2149.6	2126.7	2143.2	2139.2
7.5°	2143.2	2130.8	2107.9	2124.7	2120.5
10°	2120.5	2105.9	2081.1	2097.6	2091.4
12.5°	2089.2	2076.9	2052.1	2062.4	2058.2
15°	2054.0	2041.7	2014.6	2023.0	2012.6
17.5°	2010.4	1998.1	1971.0	1981.4	1971.0
20°	1962.6	1950.4	1921.3	1927.5	1919.3
22.5°	1915.1	1896.4	1869.3	1869.3	1865.1
25°	1859.0	1842.5	1807.3	1811.2	1807.3
27.5°	1796.7	1782.2	1755.3	1749.1	1738.8
30°	1734.6	1717.8	1686.9	1680.7	1672.3
32.5°	1668.1	1655.8	1622.5	1610.0	1601.6
35°	1603.8	1583.2	1549.9	1537.4	1527.0
37.5°	1531.2	1512.5	1479.2	1464.7	1454.4
40°	1456.6	1439.9	1406.6	1388.1	1379.7
42.5°	1383.9	1367.2	1334.2	1313.3	1300.9
45°	1305.1	1290.6	1259.3	1236.7	1228.3
47.5°	1228.3	1213.8	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.9	1068.5
52.5°	1068.5	1054.0	1027.1	1004.2	989.7
55°	987.7	975.2	950.3	925.4	915.0
57.5°	906.7	896.4	869.3	844.4	836.1
60°	825.7	817.5	788.5	765.6	759.5
62.5°	746.9	732.4	711.7	691.0	682.6
65°	666.1	653.5	632.9	614.2	603.8
67.5°	583.1	572.6	554.1	539.6	531.2
70°	506.3	498.0	479.2	464.7	456.5
72.5°	427.5	419.1	408.8	394.3	388.1
75°	348.5	344.5	333.9	321.6	325.8
77.5°	278.1	269.7	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.0	190.8
82.5°	141.1	141.1	139.1	130.8	130.8
85°	85.0	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.9	20.7
90°	1.6	19.0	51.8	48.6	50.2
92.5°	32.8	44.4	46.0	47.6	47.6
95°	77.2	92.0	94.7	94.7	92.0
97.5°	128.5	142.2	148.1	148.1	148.1
100°	187.7	199.9	204.1	204.1	202.5
102.5°	250.1	259.0	264.9	266.5	264.9
105°	318.3	322.5	325.7	328.4	328.4
107.5°	386.0	392.3	392.3	393.4	386.0
110°	451.5	460.0	460.0	460.0	455.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	522.4	531.4	529.8	525.5	522.4
115°	592.2	600.6	598.0	596.4	592.2
117.5°	661.4	673.0	665.7	661.4	657.2
120°	731.2	742.8	731.2	731.2	726.4
122.5°	794.6	809.5	802.1	797.8	794.6
125°	861.3	874.5	870.3	865.5	864.0
127.5°	926.3	942.7	936.9	930.6	926.3
130°	987.1	1006.1	1003.5	1000.4	994.5
132.5°	1055.3	1070.2	1071.2	1063.8	1059.5
135°	1114.0	1130.4	1133.6	1131.9	1127.7
137.5°	1179.6	1192.8	1195.4	1194.4	1188.0
140°	1237.2	1250.5	1257.8	1257.8	1252.0
142.5°	1296.4	1309.6	1313.8	1315.4	1309.6
145°	1352.5	1363.0	1371.5	1373.1	1367.3
147.5°	1402.7	1415.9	1422.3	1424.9	1419.1
150°	1454.5	1463.5	1469.3	1474.1	1469.3
152.5°	1500.5	1509.5	1516.9	1522.7	1516.9
155°	1546.5	1550.7	1555.5	1562.9	1558.1
157.5°	1586.2	1589.4	1592.0	1602.6	1595.1
160°	1621.6	1624.8	1626.3	1635.3	1629.0
162.5°	1654.4	1654.4	1656.0	1666.0	1658.6
165°	1682.4	1680.8	1680.8	1691.4	1683.9
167.5°	1707.8	1703.0	1703.0	1713.6	1706.2
170°	1726.8	1722.6	1721.0	1731.5	1722.6
172.5°	1740.0	1735.7	1734.2	1744.8	1735.7
175°	1750.6	1746.4	1743.2	1753.7	1744.8
177.5°	1756.4	1752.1	1749.0	1758.0	1749.0
180°	1753.7	1753.7	1753.7	1753.7	1753.7



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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	10.67	11.56	11.60	12.51	13.74	10.24	11.13	11.17	12.08	13.31
	3H	12.32	13.12	13.27	14.08	15.33	11.86	12.65	12.80	13.61	14.86
	4H	12.91	13.66	13.87	14.62	15.89	12.44	13.19	13.40	14.16	15.42
	6H	13.30	14.00	14.27	14.97	16.24	12.83	13.53	13.80	14.50	15.77
	8H	13.41	14.07	14.38	15.05	16.33	12.94	13.60	13.91	14.58	15.86
	12H	13.45	14.08	14.43	15.06	16.36	12.98	13.61	13.96	14.59	15.88
4H	2H	11.13	11.88	12.10	12.85	14.11	10.79	11.54	11.75	12.51	13.77
	3H	12.99	13.62	13.96	14.61	15.89	12.60	13.23	13.57	14.22	15.50
	4H	13.70	14.28	14.68	15.26	16.56	13.30	13.87	14.28	14.86	16.16
	6H	14.21	14.71	15.20	15.72	17.01	13.80	14.30	14.80	15.31	16.61
	8H	14.36	14.82	15.35	15.82	17.14	13.95	14.41	14.94	15.42	16.73
	12H	14.43	14.84	15.44	15.86	17.18	14.01	14.43	15.03	15.45	16.77
8H	4H	13.90	14.36	14.89	15.36	16.68	13.54	14.00	14.53	15.00	16.32
	6H	14.52	14.90	15.54	15.95	17.26	14.16	14.54	15.18	15.59	16.90
	8H	14.73	15.07	15.76	16.10	17.43	14.37	14.71	15.40	15.74	17.07
	12H	14.86	15.16	15.90	16.19	17.56	14.48	14.78	15.52	15.81	17.18
12H	4H	13.88	14.30	14.90	15.32	16.64	13.53	13.95	14.55	14.97	16.29
	6H	14.55	14.89	15.58	15.92	17.25	14.20	14.54	15.23	15.57	16.90
	8H	14.79	15.08	15.82	16.11	17.48	14.43	14.73	15.46	15.75	17.13