

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: P928508

Luminaire Tested: DFN2DIP-HX4F0-040D080US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928508
REPORT IS A COMBINATION OF REPORTS P900891 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D080US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

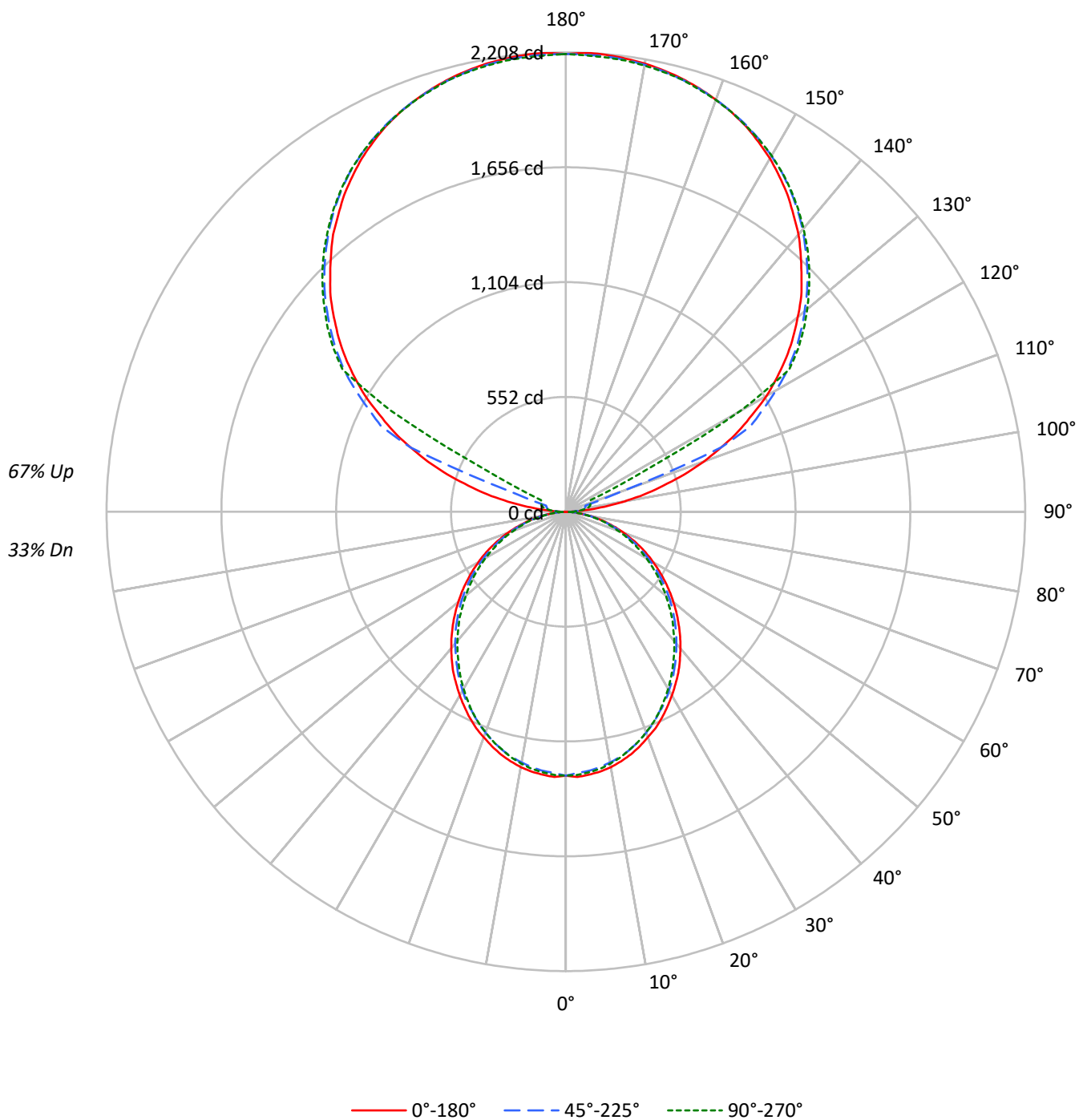
Lumens per Lamp: N/A
Luminaire Lumens: 9682.2 lumens
Efficiency: N/A
Efficacy: 105.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 91.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	943	943	943
5°	945	930	936
10°	937	918	924
15°	923	903	904
20°	905	882	884
25°	886	857	860
30°	863	834	831
35°	841	806	799
40°	814	778	769
45°	787	751	738
50°	758	721	703
55°	727	688	670
60°	693	648	633
65°	655	606	589
70°	606	556	541
75°	539	495	498
80°	459	418	414
85°	333	285	275

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1132 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	1.2
10°-20°	335.9	3.5
20°-30°	493.7	5.1
30°-40°	573.4	5.9
40°-50°	572.7	5.9
50°-60°	499.3	5.2
60°-70°	369.1	3.8
70°-80°	208.8	2.2
80°-90°	59.0	0.6
90°-100°	72.6	0.7
100°-110°	270.5	2.8
110°-120°	717.4	7.4
120°-130°	1189.8	12.3
130°-140°	1263.8	13.1
140°-150°	1174.6	12.1
150°-160°	944.4	9.8
160°-170°	608.5	6.3
170°-180°	209.4	2.2
0°-30°	949.0	9.8
0°-40°	1522.3	15.7
0°-60°	2594.3	26.8
0°-90°	3231.3	33.4
90°-120°	1060.4	11.0
90°-150°	4688.7	48.4
90°-180°	6451.0	66.6
0°-180°	9682.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1268	1268	1268	1268	1268	
5°	1268	1264	1250	1260	1258	120
15°	1208	1200	1184	1189	1183	340
25°	1093	1083	1062	1065	1062	503
35°	943	931	911	904	898	589
45°	767	759	740	727	722	592
55°	581	573	559	544	538	519
65°	392	384	372	361	355	387
75°	205	202	196	189	192	219
85°	50	49	48	44	43	56
90°	2	19	32	40	43	9
95°	103	51	62	70	68	122
105°	484	532	97	115	121	517
115°	916	942	982	245	131	901
125°	1294	1315	1345	1357	1361	1154
135°	1602	1627	1642	1658	1654	1237
145°	1858	1856	1884	1895	1887	1162
155°	2046	2032	2051	2060	2048	943
165°	2156	2146	2151	2162	2151	609
175°	2205	2194	2197	2208	2192	210
180°	2200	2200	2200	2200	2200	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1268.5	1268.5	1268.5	1268.5	1268.5
2.5°	1275.9	1269.8	1256.3	1268.5	1266.2
5°	1268.5	1263.7	1250.2	1259.9	1257.6
7.5°	1259.9	1252.7	1239.2	1249.1	1246.6
10°	1246.6	1238.1	1223.5	1233.2	1229.5
12.5°	1228.2	1221.0	1206.4	1212.5	1209.9
15°	1207.5	1200.3	1184.4	1189.2	1183.2
17.5°	1181.9	1174.7	1158.8	1164.8	1158.8
20°	1153.8	1146.5	1129.5	1133.1	1128.4
22.5°	1125.8	1114.8	1098.9	1098.9	1096.5
25°	1092.8	1083.1	1062.4	1064.8	1062.4
27.5°	1056.2	1047.7	1032.0	1028.3	1022.3
30°	1019.7	1009.9	991.7	988.0	983.1
32.5°	980.7	973.4	953.9	946.5	941.6
35°	942.9	930.7	911.2	903.8	897.7
37.5°	900.2	889.2	869.6	861.1	855.0
40°	856.3	846.5	826.9	816.1	811.2
42.5°	813.6	803.8	784.4	772.0	764.8
45°	767.2	758.8	740.3	727.1	722.1
47.5°	722.1	713.5	694.1	680.6	673.4
50°	674.5	668.4	651.3	634.2	628.1
52.5°	628.1	619.6	603.8	590.4	581.8
55°	580.7	573.3	558.7	544.0	538.0
57.5°	533.0	527.0	511.0	496.4	491.5
60°	485.4	480.6	463.6	450.1	446.5
62.5°	439.1	430.6	418.4	406.2	401.3
65°	391.6	384.2	372.0	361.0	355.0
67.5°	342.8	336.6	325.8	317.2	312.3
70°	297.6	292.7	281.7	273.2	268.4
72.5°	251.3	246.4	240.3	231.8	228.1
75°	204.9	202.5	196.3	189.1	191.5
77.5°	163.4	158.5	156.1	152.4	148.8
80°	122.0	120.7	118.3	114.7	112.2
82.5°	83.0	83.0	81.8	76.9	76.9
85°	50.0	48.8	47.6	43.8	42.7
87.5°	22.0	19.6	17.1	13.4	12.1
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.4	50.9	62.0	70.2	68.5
97.5°	186.2	55.7	81.1	86.1	87.5
100°	281.9	63.7	90.8	103.4	106.6
102.5°	386.9	383.8	94.0	111.3	116.3
105°	484.0	531.9	97.1	114.6	121.0
107.5°	597.1	636.8	100.4	117.8	124.2
110°	705.5	738.7	278.7	119.5	125.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	807.3	835.9	808.9	122.5	127.5
115°	915.5	942.5	982.4	245.2	130.6
117.5°	1009.5	1041.2	1068.5	840.6	423.6
120°	1114.6	1138.4	1167.2	1186.2	971.2
122.5°	1203.6	1229.2	1261.1	1270.6	1272.3
125°	1294.4	1315.2	1345.4	1356.6	1361.3
127.5°	1377.2	1399.5	1423.6	1439.4	1440.9
130°	1455.3	1480.8	1498.2	1515.8	1514.3
132.5°	1534.9	1555.7	1573.1	1587.5	1585.9
135°	1601.8	1627.3	1641.5	1657.6	1654.4
137.5°	1671.8	1690.9	1706.9	1722.8	1718.1
140°	1740.2	1753.1	1770.5	1784.8	1776.9
142.5°	1797.7	1808.8	1829.4	1842.1	1834.2
145°	1858.2	1856.5	1883.5	1894.7	1886.7
147.5°	1910.6	1905.9	1932.9	1940.8	1934.6
150°	1961.6	1950.5	1976.0	1985.4	1977.5
152.5°	2004.6	1991.9	2015.7	2025.4	2014.2
155°	2046.0	2031.8	2050.9	2060.3	2047.7
157.5°	2079.4	2066.8	2081.1	2092.3	2079.4
160°	2108.2	2098.5	2108.2	2117.6	2106.4
162.5°	2133.5	2124.1	2132.0	2143.1	2128.8
165°	2155.8	2146.4	2151.1	2162.2	2151.1
167.5°	2173.4	2163.7	2168.6	2179.8	2165.5
170°	2187.8	2178.1	2181.3	2192.5	2178.1
172.5°	2197.2	2187.8	2191.0	2202.1	2187.8
175°	2205.1	2194.0	2197.2	2208.3	2192.5
177.5°	2208.3	2197.2	2198.9	2210.0	2195.7
180°	2200.4	2200.4	2200.4	2200.4	2200.4

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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	5.30	6.03	6.38	7.11	8.60	4.86	5.59	5.95	6.68	8.17
	3H	6.95	7.60	8.04	8.70	10.20	6.48	7.13	7.57	8.22	9.73
	4H	7.53	8.15	8.64	9.25	10.76	7.06	7.68	8.16	8.77	10.29
	6H	7.92	8.49	9.04	9.59	11.12	7.45	8.02	8.56	9.12	10.64
	8H	8.02	8.57	9.14	9.68	11.20	7.55	8.09	8.67	9.21	10.73
	12H	8.07	8.58	9.19	9.69	11.24	7.59	8.10	8.71	9.21	10.75
4H	2H	5.74	6.36	6.86	7.46	8.97	5.40	6.02	6.51	7.11	8.63
	3H	7.60	8.12	8.72	9.24	10.76	7.20	7.72	8.33	8.85	10.37
	4H	8.31	8.78	9.43	9.90	11.44	7.90	8.38	9.03	9.49	11.04
	6H	8.82	9.22	9.95	10.36	11.90	8.41	8.81	9.54	9.95	11.49
	8H	8.96	9.34	10.09	10.47	12.03	8.55	8.93	9.68	10.06	11.61
	12H	9.03	9.38	10.18	10.51	12.07	8.61	8.95	9.76	10.09	11.65
8H	4H	8.49	8.87	9.63	10.00	11.56	8.13	8.51	9.26	9.64	11.20
	6H	9.12	9.44	10.27	10.60	12.16	8.76	9.07	9.91	10.24	11.79
	8H	9.34	9.62	10.50	10.76	12.34	8.97	9.25	10.13	10.40	11.97
	12H	9.47	9.71	10.63	10.85	12.46	9.08	9.32	10.24	10.47	12.08
12H	4H	8.47	8.82	9.62	9.96	11.52	8.12	8.47	9.27	9.61	11.17
	6H	9.15	9.42	10.31	10.57	12.15	8.80	9.07	9.96	10.22	11.79
	8H	9.39	9.63	10.55	10.77	12.38	9.03	9.27	10.19	10.42	12.02