

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: P913476

Luminaire Tested: DFN2DIP-HX3F0-040D090US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913476
REPORT IS A COMBINATION OF REPORTS P899287 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D090US927-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

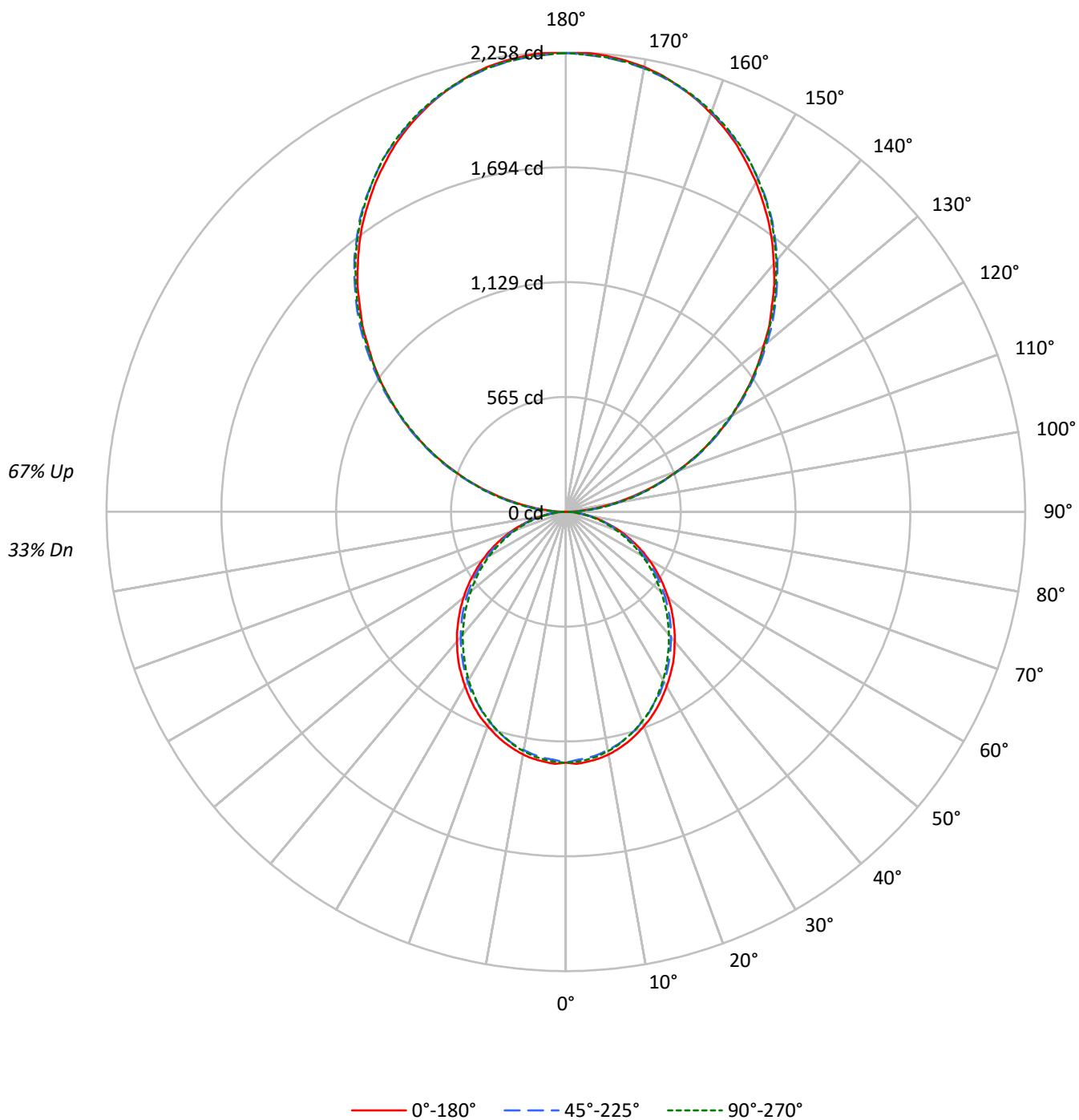
Lumens per Lamp: N/A
Luminaire Lumens: 9446.8 lumens
Efficiency: N/A
Efficacy: 89.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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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CATALOG NUMBER: DFN2DIP-HX3F0-040D090US927-FLLFL

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	18	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°	1428	1428	1428
5°	1430	1407	1417
10°	1418	1387	1397
15°	1396	1364	1366
20°	1367	1331	1335
25°	1339	1292	1299
30°	1303	1256	1253
35°	1269	1213	1204
40°	1227	1170	1158
45°	1186	1126	1111
50°	1140	1081	1056
55°	1092	1028	1005
60°	1038	966	948
65°	979	901	879
70°	904	823	806
75°	800	728	736
80°	674	606	607
85°	479	402	393

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2123 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.0	1.2
10°-20°	326.5	3.5
20°-30°	479.8	5.1
30°-40°	557.3	5.9
40°-50°	556.6	5.9
50°-60°	485.3	5.1
60°-70°	358.8	3.8
70°-80°	203.0	2.1
80°-90°	60.0	0.6
90°-100°	139.5	1.5
100°-110°	443.3	4.7
110°-120°	758.7	8.0
120°-130°	997.8	10.6
130°-140°	1120.0	11.9
140°-150°	1098.2	11.6
150°-160°	921.3	9.8
160°-170°	611.0	6.5
170°-180°	213.5	2.3
0°-30°	922.4	9.8
0°-40°	1479.7	15.7
0°-60°	2521.7	26.7
0°-90°	3143.4	33.3
90°-120°	1341.5	14.2
90°-150°	4557.5	48.2
90°-180°	6303.0	66.7
0°-180°	9446.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1233	1233	1233	1233	1233	
5°	1233	1228	1215	1225	1222	117
15°	1174	1167	1151	1156	1150	331
25°	1062	1053	1033	1035	1033	489
35°	916	905	886	878	873	572
45°	746	738	720	707	702	576
55°	564	557	543	529	523	505
65°	381	373	362	351	345	376
75°	199	197	191	184	186	213
85°	49	48	46	43	42	54
90°	2	24	67	62	65	9
95°	99	118	122	122	118	110
105°	409	415	419	422	422	432
115°	761	772	769	767	761	753
125°	1107	1124	1119	1113	1111	990
135°	1432	1453	1458	1455	1450	1107
145°	1739	1752	1763	1765	1758	1086
155°	1988	1994	2000	2009	2003	915
165°	2163	2161	2161	2175	2165	610
175°	2251	2245	2241	2255	2243	214
180°	2255	2255	2255	2255	2255	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1233.0	1233.0	1233.0	1233.0	1233.0
2.5°	1240.2	1234.2	1221.1	1233.0	1230.7
5°	1233.0	1228.3	1215.2	1224.6	1222.4
7.5°	1224.6	1217.6	1204.5	1214.1	1211.7
10°	1211.7	1203.4	1189.2	1198.6	1195.1
12.5°	1193.8	1186.8	1172.6	1178.5	1176.1
15°	1173.7	1166.6	1151.2	1156.0	1150.1
17.5°	1148.8	1141.8	1126.3	1132.2	1126.3
20°	1121.5	1114.4	1097.9	1101.4	1096.8
22.5°	1094.3	1083.6	1068.2	1068.2	1065.8
25°	1062.2	1052.8	1032.7	1035.0	1032.7
27.5°	1026.7	1018.3	1003.1	999.5	993.6
30°	991.2	981.7	963.9	960.4	955.6
32.5°	953.2	946.2	927.2	920.0	915.2
35°	916.5	904.7	885.7	878.5	872.6
37.5°	875.0	864.3	845.3	837.0	831.1
40°	832.3	822.8	803.7	793.2	788.5
42.5°	790.8	781.2	762.4	750.4	743.4
45°	745.8	737.5	719.6	706.7	701.9
47.5°	701.9	693.6	674.6	661.6	654.5
50°	655.6	649.7	633.1	616.5	610.5
52.5°	610.5	602.3	586.9	573.9	565.5
55°	564.4	557.2	543.0	528.8	522.9
57.5°	518.1	512.2	496.7	482.5	477.8
60°	471.8	467.1	450.6	437.5	434.0
62.5°	426.8	418.5	406.7	394.8	390.1
65°	380.6	373.4	361.6	350.9	345.1
67.5°	333.2	327.2	316.6	308.3	303.6
70°	289.3	284.6	273.9	265.5	260.9
72.5°	244.3	239.5	233.6	225.3	221.7
75°	199.2	196.9	190.8	183.8	186.2
77.5°	158.8	154.1	151.7	148.1	144.7
80°	118.6	117.3	114.9	111.5	109.1
82.5°	80.6	80.6	79.5	74.7	74.7
85°	48.6	47.5	46.3	42.6	41.5
87.5°	21.4	19.0	16.6	13.1	11.8
90°	2.1	24.5	66.6	62.5	64.6
92.5°	42.1	57.1	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.2	182.8	190.4	190.4	190.4
100°	241.3	257.0	262.4	262.4	260.4
102.5°	321.5	333.1	340.6	342.6	340.6
105°	409.2	414.6	418.7	422.2	422.2
107.5°	496.2	504.4	504.4	505.7	496.2
110°	580.5	591.4	591.4	591.4	586.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	671.6	683.2	681.1	675.7	671.6
115°	761.4	772.2	768.8	766.8	761.4
117.5°	850.4	865.4	855.9	850.4	844.9
120°	940.2	955.1	940.2	940.2	934.0
122.5°	1021.7	1040.8	1031.3	1025.8	1021.7
125°	1107.4	1124.3	1119.0	1112.8	1110.8
127.5°	1191.0	1212.0	1204.6	1196.4	1191.0
130°	1269.2	1293.6	1290.2	1286.1	1278.7
132.5°	1356.8	1375.9	1377.2	1367.7	1362.3
135°	1432.3	1453.3	1457.5	1455.4	1450.0
137.5°	1516.6	1533.6	1537.0	1535.6	1527.5
140°	1590.7	1607.7	1617.2	1617.2	1609.7
142.5°	1666.8	1683.8	1689.2	1691.3	1683.8
145°	1738.9	1752.5	1763.3	1765.4	1757.9
147.5°	1803.5	1820.4	1828.6	1832.0	1824.6
150°	1870.1	1881.7	1889.1	1895.2	1889.1
152.5°	1929.2	1940.8	1950.3	1957.8	1950.3
155°	1988.4	1993.8	1999.9	2009.4	2003.3
157.5°	2039.3	2043.4	2046.8	2060.4	2050.9
160°	2084.9	2089.0	2091.0	2102.5	2094.4
162.5°	2127.0	2127.0	2129.1	2142.0	2132.5
165°	2163.1	2161.0	2161.0	2174.6	2165.1
167.5°	2195.7	2189.6	2189.6	2203.1	2193.6
170°	2220.2	2214.7	2212.7	2226.3	2214.7
172.5°	2237.1	2231.7	2229.7	2243.3	2231.7
175°	2250.7	2245.3	2241.2	2254.9	2243.3
177.5°	2258.2	2252.8	2248.7	2260.3	2248.7
180°	2254.9	2254.9	2254.9	2254.9	2254.9

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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	6.68	7.41	7.77	8.49	9.99	6.25	6.98	7.34	8.07	9.56
	3H	8.32	8.97	9.42	10.07	11.58	7.85	8.51	8.95	9.60	11.11
	4H	8.90	9.52	10.01	10.61	12.13	8.43	9.05	9.54	10.15	11.66
	6H	9.28	9.85	10.40	10.95	12.48	8.81	9.38	9.93	10.48	12.01
	8H	9.38	9.92	10.50	11.04	12.56	8.91	9.46	10.03	10.57	12.09
	12H	9.42	9.94	10.55	11.05	12.59	8.95	9.46	10.07	10.57	12.12
4H	2H	7.12	7.74	8.24	8.84	10.35	6.78	7.40	7.89	8.49	10.01
	3H	8.97	9.48	10.09	10.61	12.13	8.58	9.09	9.70	10.22	11.74
	4H	9.67	10.14	10.79	11.26	12.80	9.27	9.74	10.39	10.85	12.40
	6H	10.17	10.58	11.30	11.71	13.25	9.76	10.17	10.90	11.31	12.85
	8H	10.31	10.69	11.44	11.82	13.38	9.90	10.28	11.04	11.41	12.97
	12H	10.37	10.72	11.52	11.86	13.42	9.96	10.30	11.11	11.44	13.00
8H	4H	9.85	10.23	10.98	11.36	12.92	9.49	9.87	10.63	11.00	12.56
	6H	10.47	10.78	11.62	11.95	13.50	10.11	10.42	11.26	11.59	13.15
	8H	10.68	10.96	11.84	12.11	13.68	10.32	10.59	11.48	11.74	13.31
	12H	10.80	11.04	11.96	12.19	13.80	10.42	10.66	11.59	11.81	13.42
12H	4H	9.83	10.17	10.98	11.31	12.88	9.48	9.82	10.63	10.96	12.53
	6H	10.49	10.77	11.65	11.92	13.49	10.15	10.42	11.31	11.57	13.14
	8H	10.72	10.97	11.89	12.11	13.72	10.37	10.61	11.53	11.76	13.37