

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: P924516

Luminaire Tested: DFN2DIP-HX4F0-040D070US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924516
REPORT IS A COMBINATION OF REPORTS P899353 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D070US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

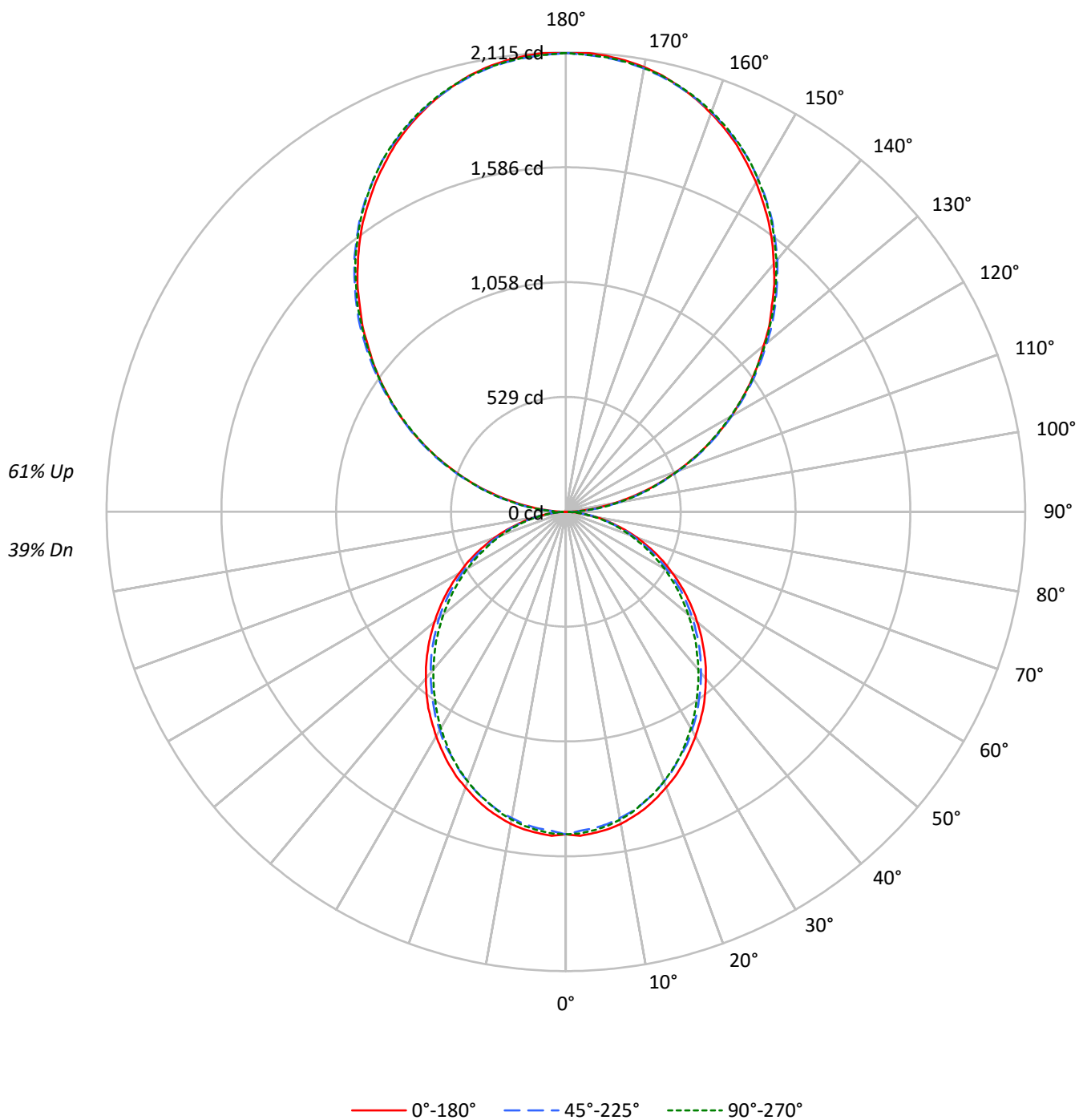
Lumens per Lamp: N/A
Luminaire Lumens: 9687.9 lumens
Efficiency: N/A
Efficacy: 133.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 72.8
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

TEST NUMBER: P924516

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US950-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924516

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US950-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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39
2	87	79	73	68	79	72	67	63	59	56	52	47	45	42	36	34	33
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	27	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1104	1104	1104
5°	1106	1089	1096
10°	1097	1074	1081
15°	1081	1057	1058
20°	1059	1032	1034
25°	1038	1003	1007
30°	1011	976	972
35°	985	944	935
40°	953	911	900
45°	922	879	864
50°	887	844	823
55°	851	805	785
60°	811	758	741
65°	766	710	689
70°	710	650	634
75°	631	580	583
80°	537	489	485
85°	390	333	322

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1593 cd/sqm

TEST NUMBER: P924516

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	1.4
10°-20°	393.2	4.1
20°-30°	577.9	6.0
30°-40°	671.2	6.9
40°-50°	670.3	6.9
50°-60°	584.5	6.0
60°-70°	432.1	4.5
70°-80°	244.5	2.5
80°-90°	70.5	0.7
90°-100°	130.7	1.3
100°-110°	415.3	4.3
110°-120°	710.6	7.3
120°-130°	934.6	9.6
130°-140°	1049.0	10.8
140°-150°	1028.7	10.6
150°-160°	862.9	8.9
160°-170°	572.3	5.9
170°-180°	200.0	2.1
0°-30°	1110.8	11.5
0°-40°	1782.0	18.4
0°-60°	3036.8	31.3
0°-90°	3783.8	39.1
90°-120°	1256.6	13.0
90°-150°	4268.9	44.1
90°-180°	5904.0	60.9
0°-180°	9687.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	2	23	62	59	60	9
95°	93	111	114	114	111	103
105°	383	388	392	395	395	405
115°	713	723	720	718	713	705
125°	1037	1053	1048	1042	1040	927
135°	1342	1361	1365	1363	1358	1037
145°	1629	1642	1652	1654	1647	1018
155°	1862	1868	1873	1882	1876	857
165°	2026	2024	2024	2037	2028	572
175°	2108	2103	2099	2112	2101	200
180°	2112	2112	2112	2112	2112	

TEST NUMBER: P924516

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
90°	1.9	22.9	62.4	58.6	60.5
92.5°	39.5	53.5	55.4	57.3	57.3
95°	92.9	110.8	114.0	114.0	110.8
97.5°	154.7	171.2	178.3	178.3	178.3
100°	226.0	240.7	245.8	245.8	243.8
102.5°	301.2	312.0	319.0	320.9	319.0
105°	383.3	388.4	392.2	395.4	395.4
107.5°	464.8	472.4	472.4	473.8	464.8
110°	543.8	554.0	554.0	554.0	548.8

TEST NUMBER: P924516

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	629.1	639.9	638.0	632.9	629.1
115°	713.1	723.3	720.2	718.3	713.1
117.5°	796.5	810.5	801.6	796.5	791.4
120°	880.5	894.6	880.5	880.5	874.8
122.5°	957.0	974.8	965.9	960.8	957.0
125°	1037.2	1053.1	1048.1	1042.3	1040.4
127.5°	1115.5	1135.3	1128.3	1120.7	1115.5
130°	1188.8	1211.7	1208.5	1204.7	1197.7
132.5°	1270.9	1288.8	1290.0	1281.1	1276.0
135°	1341.6	1361.3	1365.2	1363.2	1358.1
137.5°	1420.5	1436.4	1439.6	1438.3	1430.7
140°	1490.0	1505.9	1514.8	1514.8	1507.8
142.5°	1561.2	1577.2	1582.2	1584.1	1577.2
145°	1628.8	1641.5	1651.7	1653.6	1646.6
147.5°	1689.2	1705.2	1712.8	1716.0	1709.0
150°	1751.6	1762.4	1769.5	1775.2	1769.5
152.5°	1807.0	1817.8	1826.7	1833.8	1826.7
155°	1862.4	1867.5	1873.3	1882.1	1876.4
157.5°	1910.2	1914.0	1917.2	1929.9	1921.0
160°	1952.8	1956.7	1958.6	1969.3	1961.7
162.5°	1992.3	1992.3	1994.2	2006.3	1997.4
165°	2026.0	2024.1	2024.1	2036.9	2027.9
167.5°	2056.6	2050.9	2050.9	2063.6	2054.7
170°	2079.5	2074.5	2072.6	2085.3	2074.5
172.5°	2095.5	2090.3	2088.4	2101.2	2090.3
175°	2108.1	2103.1	2099.3	2112.0	2101.2
177.5°	2115.2	2110.1	2106.2	2117.1	2106.2
180°	2112.0	2112.0	2112.0	2112.0	2112.0

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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	6.51	7.28	7.56	8.33	9.75	6.08	6.85	7.12	7.90	9.32
	3H	8.16	8.86	9.22	9.92	11.35	7.69	8.38	8.75	9.44	10.88
	4H	8.75	9.40	9.82	10.47	11.91	8.27	8.93	9.34	9.99	11.44
	6H	9.14	9.75	10.22	10.81	12.27	8.67	9.27	9.74	10.34	11.79
	8H	9.25	9.82	10.33	10.90	12.35	8.77	9.35	9.85	10.43	11.88
	12H	9.29	9.84	10.38	10.91	12.39	8.81	9.36	9.90	10.43	11.91
4H	2H	6.96	7.62	8.04	8.68	10.12	6.62	7.27	7.69	8.33	9.78
	3H	8.82	9.37	9.90	10.46	11.91	8.43	8.97	9.51	10.06	11.52
	4H	9.53	10.03	10.62	11.11	12.59	9.13	9.63	10.21	10.71	12.19
	6H	10.04	10.47	11.14	11.58	13.05	9.63	10.06	10.73	11.17	12.64
	8H	10.19	10.59	11.29	11.69	13.18	9.78	10.18	10.87	11.27	12.76
	12H	10.26	10.62	11.37	11.73	13.23	9.84	10.20	10.95	11.31	12.80
8H	4H	9.72	10.12	10.82	11.22	12.71	9.36	9.76	10.46	10.86	12.35
	6H	10.35	10.68	11.47	11.82	13.30	9.99	10.32	11.10	11.46	12.94
	8H	10.57	10.86	11.69	11.98	13.49	10.20	10.49	11.33	11.61	13.12
	12H	10.70	10.95	11.83	12.07	13.61	10.31	10.57	11.44	11.68	13.23
12H	4H	9.70	10.07	10.82	11.17	12.67	9.35	9.71	10.46	10.82	12.32
	6H	10.38	10.67	11.50	11.79	13.29	10.03	10.32	11.15	11.44	12.94
	8H	10.62	10.87	11.75	11.99	13.53	10.26	10.52	11.39	11.63	13.17

END OF REPORT