

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: P924518

Luminaire Tested: DFN2DIP-HX4F0-040D080US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924518
REPORT IS A COMBINATION OF REPORTS P899371 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D080US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

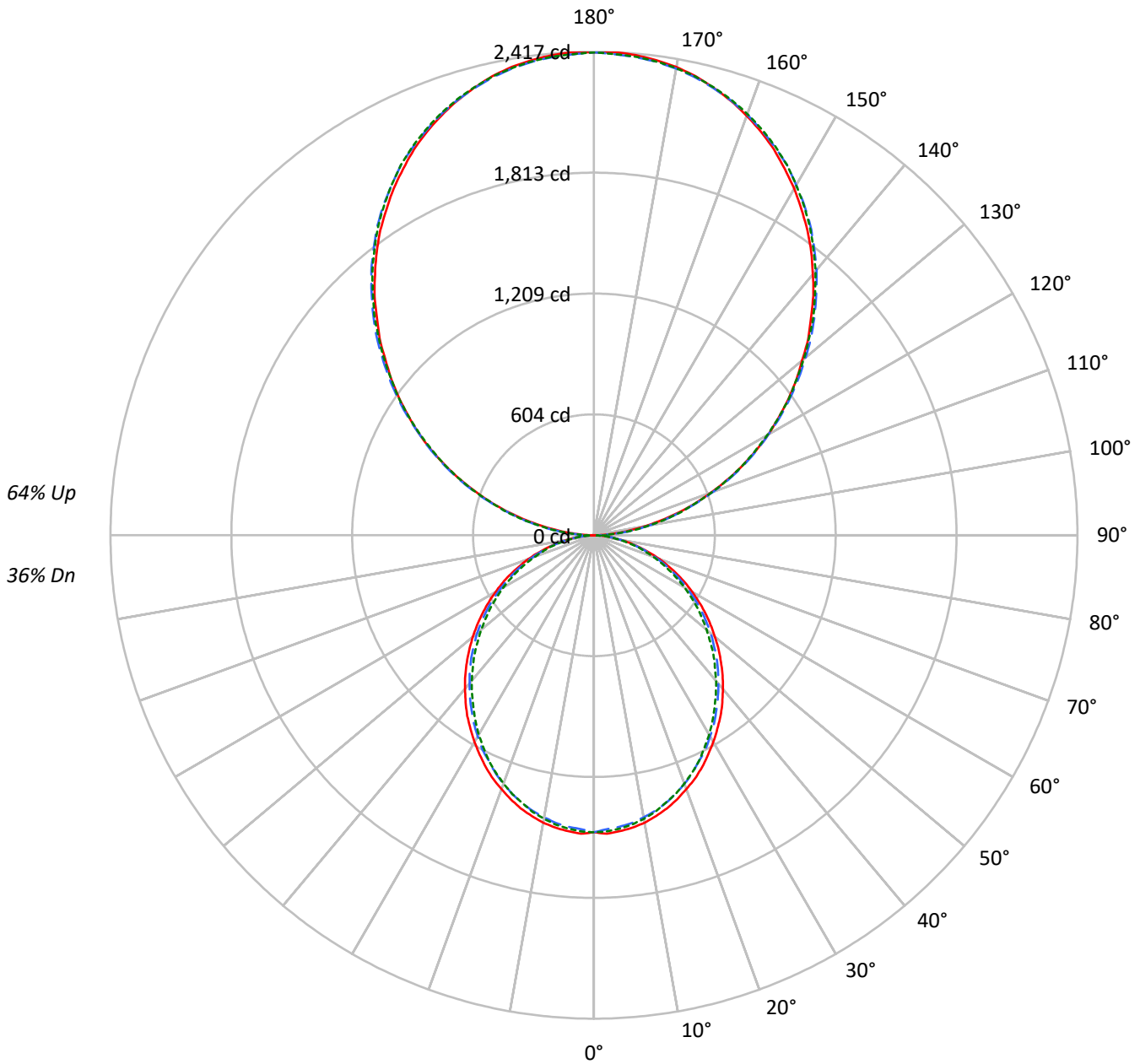
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10532.2 lumens
Efficiency: N/A
Efficacy: 134.0 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): 78.6
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

TEST NUMBER: P924518
CATALOG NUMBER: DFN2DIP-HX4F0-040D080US950-FLLFLL

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P924518
 CATALOG NUMBER: DFN2DIP-HX4F0-040D080US950-FLLFLL

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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36				36
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36	30				30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31	25				25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21				21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22	18				18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20	16				16
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17	14				14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12				12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11				11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10				10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11	9				9

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: 1822 cd/sqm



TEST NUMBER: P924518

CATALOG NUMBER: DFN2DIP-HX4F0-040D080US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	1.3
10°-20°	393.2	3.7
20°-30°	577.9	5.5
30°-40°	671.2	6.4
40°-50°	670.3	6.4
50°-60°	584.5	5.5
60°-70°	432.1	4.1
70°-80°	244.5	2.3
80°-90°	71.4	0.7
90°-100°	149.4	1.4
100°-110°	474.6	4.5
110°-120°	812.1	7.7
120°-130°	1068.1	10.1
130°-140°	1198.9	11.4
140°-150°	1175.6	11.2
150°-160°	986.2	9.4
160°-170°	654.0	6.2
170°-180°	228.6	2.2
0°-30°	1110.8	10.5
0°-40°	1782.0	16.9
0°-60°	3036.8	28.8
0°-90°	3784.7	35.9
90°-120°	1436.1	13.6
90°-150°	4878.6	46.3
90°-180°	6747.0	64.1
0°-180°	10532.2	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	26	71	67	69	10
95°	106	127	130	130	127	118
105°	438	444	448	452	452	462
115°	815	827	823	821	815	806
125°	1185	1204	1198	1191	1189	1059
135°	1533	1556	1560	1558	1552	1185
145°	1861	1876	1888	1890	1882	1163
155°	2128	2134	2141	2151	2144	980
165°	2316	2313	2313	2328	2318	653
175°	2409	2404	2399	2414	2401	229
180°	2414	2414	2414	2414	2414	



TEST NUMBER: P924518

CATALOG NUMBER: DFN2DIP-HX4F0-040D080US950-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°	2.2	26.2	71.4	67.0	69.2
92.5°	45.1	61.2	63.3	65.4	65.4
95°	106.3	126.6	130.2	130.2	126.6
97.5°	176.9	195.8	203.8	203.8	203.8
100°	258.3	275.0	280.9	280.9	278.7
102.5°	344.2	356.6	364.5	366.7	364.5
105°	438.1	443.9	448.3	451.9	451.9
107.5°	531.2	540.0	540.0	541.4	531.2
110°	621.4	633.1	633.1	633.1	627.3



TEST NUMBER: P924518

CATALOG NUMBER: DFN2DIP-HX4F0-040D080US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	718.9	731.3	729.1	723.3	718.9
115°	815.0	826.6	823.0	820.8	815.0
117.5°	910.3	926.3	916.1	910.3	904.5
120°	1006.4	1022.4	1006.4	1006.4	999.8
122.5°	1093.7	1114.1	1103.9	1098.1	1093.7
125°	1185.3	1203.6	1197.7	1191.2	1189.1
127.5°	1274.9	1297.4	1289.4	1280.7	1274.9
130°	1358.6	1384.7	1381.1	1376.8	1368.8
132.5°	1452.5	1472.8	1474.3	1464.1	1458.3
135°	1533.2	1555.8	1560.2	1558.0	1552.2
137.5°	1623.4	1641.6	1645.3	1643.8	1635.1
140°	1702.8	1720.9	1731.1	1731.1	1723.1
142.5°	1784.3	1802.5	1808.3	1810.5	1802.5
145°	1861.4	1875.9	1887.6	1889.8	1881.8
147.5°	1930.5	1948.7	1957.4	1961.1	1953.1
150°	2001.9	2014.2	2022.2	2028.8	2022.2
152.5°	2065.1	2077.5	2087.7	2095.7	2087.7
155°	2128.5	2134.3	2140.9	2151.0	2144.5
157.5°	2183.0	2187.4	2191.1	2205.6	2195.4
160°	2231.8	2236.2	2238.4	2250.7	2242.0
162.5°	2276.9	2276.9	2279.1	2292.9	2282.7
165°	2315.5	2313.3	2313.3	2327.9	2317.6
167.5°	2350.4	2343.9	2343.9	2358.4	2348.2
170°	2376.6	2370.8	2368.6	2383.2	2370.8
172.5°	2394.8	2389.0	2386.8	2401.3	2389.0
175°	2409.3	2403.5	2399.1	2413.7	2401.3
177.5°	2417.3	2411.5	2407.1	2419.5	2407.1
180°	2413.7	2413.7	2413.7	2413.7	2413.7



TEST NUMBER: P924518
 CATALOG NUMBER: DFN2DIP-HX4F0-040D080US950-FLLFLL

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	6.15	6.90	7.22	7.97	9.43	5.72	6.47	6.79	7.54	9.00
	3H	7.81	8.48	8.88	9.56	11.03	7.33	8.00	8.41	9.08	10.56
	4H	8.39	9.02	9.48	10.11	11.59	7.91	8.55	9.00	9.63	11.11
	6H	8.78	9.37	9.88	10.45	11.95	8.31	8.89	9.41	9.98	11.47
	8H	8.88	9.44	9.99	10.54	12.03	8.41	8.97	9.51	10.07	11.56
	12H	8.93	9.46	10.04	10.55	12.07	8.45	8.98	9.56	10.07	11.58
4H	2H	6.60	7.24	7.70	8.32	9.80	6.26	6.89	7.35	7.97	9.46
	3H	8.46	8.99	9.56	10.10	11.59	8.06	8.60	9.17	9.70	11.20
	4H	9.17	9.66	10.28	10.75	12.27	8.76	9.25	9.87	10.35	11.86
	6H	9.68	10.10	10.79	11.22	12.73	9.27	9.69	10.38	10.81	12.32
	8H	9.83	10.22	10.94	11.33	12.85	9.41	9.80	10.53	10.92	12.44
	12H	9.89	10.25	11.03	11.37	12.90	9.47	9.82	10.60	10.95	12.48
8H	4H	9.36	9.75	10.47	10.86	12.38	9.00	9.39	10.11	10.50	12.02
	6H	9.98	10.31	11.12	11.46	12.98	9.62	9.94	10.76	11.10	12.62
	8H	10.20	10.49	11.35	11.62	13.16	9.83	10.12	10.98	11.25	12.79
	12H	10.33	10.58	11.48	11.71	13.29	9.95	10.19	11.09	11.33	12.90
12H	4H	9.34	9.69	10.47	10.82	12.35	8.98	9.34	10.12	10.46	11.99
	6H	10.01	10.30	11.16	11.43	12.97	9.66	9.94	10.80	11.08	12.62
	8H	10.25	10.50	11.40	11.63	13.21	9.89	10.14	11.04	11.27	12.85