

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: P913620

Luminaire Tested: DFN2DIP-HX4F0-050D060US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913620
REPORT IS A COMBINATION OF REPORTS P899337 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D060US927-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

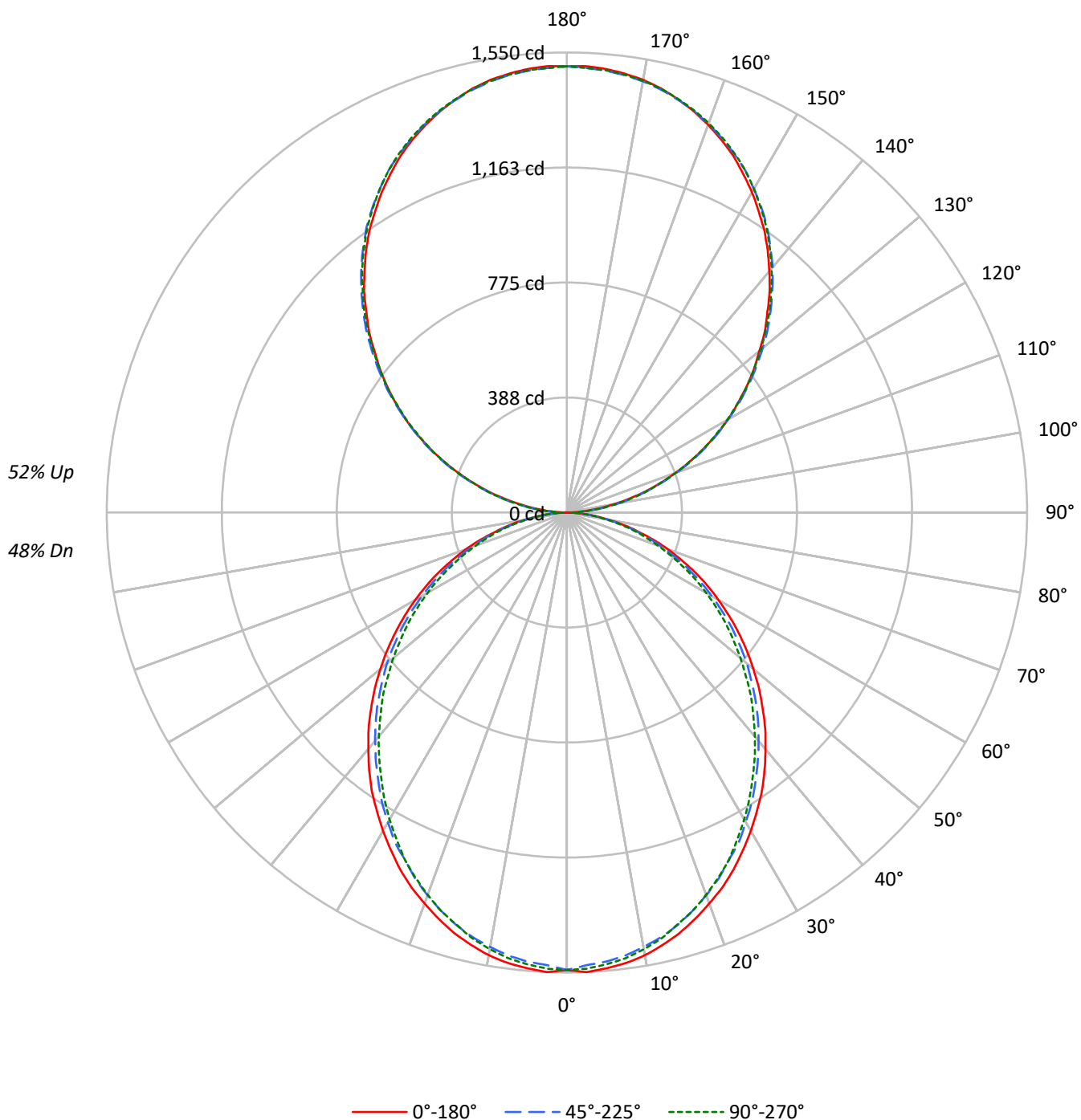
Lumens per Lamp: N/A
Luminaire Lumens: 8127.8 lumens
Efficiency: N/A
Efficacy: 104.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 77.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1146	1146	1146
5°	1148	1130	1138
10°	1139	1115	1122
15°	1122	1097	1098
20°	1100	1071	1074
25°	1077	1041	1045
30°	1049	1013	1009
35°	1022	979	971
40°	990	946	935
45°	957	912	897
50°	921	877	854
55°	884	835	814
60°	841	787	769
65°	795	736	716
70°	737	675	658
75°	655	602	605
80°	558	508	503
85°	405	346	335

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°	145.1	1.8
10°-20°	408.1	5.0
20°-30°	599.8	7.4
30°-40°	696.6	8.6
40°-50°	695.8	8.6
50°-60°	606.7	7.5
60°-70°	448.5	5.5
70°-80°	253.7	3.1
80°-90°	71.2	0.9
90°-100°	93.0	1.1
100°-110°	295.6	3.6
110°-120°	505.8	6.2
120°-130°	665.2	8.2
130°-140°	746.6	9.2
140°-150°	732.2	9.0
150°-160°	614.2	7.6
160°-170°	407.3	5.0
170°-180°	142.4	1.8
0°-30°	1153.0	14.2
0°-40°	1849.6	22.8
0°-60°	3152.1	38.8
0°-90°	3925.6	48.3
90°-120°	894.4	11.0
90°-150°	3038.4	37.4
90°-180°	4202.0	51.7
0°-180°	8127.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1541	1541	1541	1541	1541	
5°	1541	1535	1519	1531	1528	146
15°	1467	1458	1439	1445	1438	413
25°	1328	1316	1291	1294	1291	611
35°	1146	1131	1107	1098	1091	715
45°	932	922	900	883	877	719
55°	706	697	679	661	654	631
65°	476	467	452	439	431	470
75°	249	246	238	230	233	266
85°	61	59	58	53	52	68
90°	1	16	44	42	43	8
95°	66	79	81	81	79	74
105°	273	276	279	282	282	288
115°	508	515	512	511	508	502
125°	738	750	746	742	740	660
135°	955	969	972	970	967	738
145°	1159	1168	1176	1177	1172	724
155°	1326	1329	1333	1340	1336	610
165°	1442	1441	1441	1450	1443	407
175°	1500	1497	1494	1503	1496	143
180°	1503	1503	1503	1503	1503	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1541.2	1541.2	1541.2	1541.2	1541.2
2.5°	1550.1	1542.8	1526.5	1541.2	1538.4
5°	1541.2	1535.4	1519.0	1530.8	1528.0
7.5°	1530.8	1522.0	1505.7	1517.7	1514.7
10°	1514.7	1504.3	1486.5	1498.3	1493.9
12.5°	1492.3	1483.5	1465.8	1473.1	1470.1
15°	1467.1	1458.3	1439.0	1445.0	1437.6
17.5°	1436.0	1427.2	1407.9	1415.2	1407.9
20°	1401.9	1393.1	1372.4	1376.7	1370.9
22.5°	1367.9	1354.6	1335.2	1335.2	1332.2
25°	1327.9	1316.1	1290.9	1293.7	1290.9
27.5°	1283.3	1273.0	1253.8	1249.3	1242.0
30°	1239.0	1227.1	1204.9	1200.5	1194.5
32.5°	1191.5	1182.7	1159.0	1150.0	1144.1
35°	1145.6	1130.8	1107.1	1098.1	1090.8
37.5°	1093.7	1080.4	1056.6	1046.2	1038.9
40°	1040.5	1028.5	1004.7	991.5	985.6
42.5°	988.6	976.6	953.0	938.0	929.2
45°	932.2	921.9	899.5	883.4	877.3
47.5°	877.3	867.0	843.3	826.9	818.1
50°	819.5	812.1	791.4	770.6	763.2
52.5°	763.2	752.8	733.6	717.3	706.9
55°	705.5	696.6	678.7	661.0	653.6
57.5°	647.6	640.2	620.9	603.2	597.1
60°	589.8	584.0	563.2	546.8	542.5
62.5°	533.5	523.2	508.3	493.5	487.6
65°	475.8	466.8	452.0	438.7	431.3
67.5°	416.5	409.0	395.8	385.4	379.4
70°	361.6	355.7	342.3	331.9	326.1
72.5°	305.4	299.4	292.0	281.6	277.2
75°	248.9	246.1	238.5	229.7	232.7
77.5°	198.6	192.6	189.6	185.2	180.9
80°	148.3	146.7	143.7	139.3	136.3
82.5°	100.8	100.8	99.3	93.4	93.4
85°	60.7	59.3	57.8	53.3	51.9
87.5°	26.7	23.8	20.8	16.3	14.8
90°	1.3	16.3	44.4	41.7	43.0
92.5°	28.1	38.1	39.5	40.8	40.8
95°	66.1	78.8	81.1	81.1	78.8
97.5°	110.1	121.9	126.9	126.9	126.9
100°	160.9	171.3	174.9	174.9	173.6
102.5°	214.4	222.0	227.0	228.4	227.0
105°	272.8	276.5	279.2	281.5	281.5
107.5°	330.8	336.3	336.3	337.2	330.8
110°	387.1	394.3	394.3	394.3	390.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	447.7	455.4	454.1	450.4	447.7
115°	507.6	514.8	512.5	511.2	507.6
117.5°	567.0	576.9	570.5	567.0	563.3
120°	626.8	636.8	626.8	626.8	622.7
122.5°	681.1	693.8	687.5	683.9	681.1
125°	738.2	749.6	745.9	741.9	740.5
127.5°	794.0	808.0	803.0	797.6	794.0
130°	846.1	862.4	860.2	857.5	852.5
132.5°	904.6	917.3	918.1	911.8	908.2
135°	954.9	968.9	971.6	970.3	966.6
137.5°	1011.1	1022.4	1024.7	1023.7	1018.3
140°	1060.5	1071.8	1078.2	1078.2	1073.2
142.5°	1111.2	1122.5	1126.2	1127.5	1122.5
145°	1159.3	1168.3	1175.6	1176.9	1172.0
147.5°	1202.3	1213.6	1219.1	1221.3	1216.3
150°	1246.7	1254.4	1259.4	1263.4	1259.4
152.5°	1286.1	1293.9	1300.2	1305.2	1300.2
155°	1325.6	1329.2	1333.2	1339.7	1335.5
157.5°	1359.5	1362.3	1364.5	1373.6	1367.3
160°	1390.0	1392.7	1394.0	1401.7	1396.3
162.5°	1418.0	1418.0	1419.4	1428.0	1421.6
165°	1442.0	1440.7	1440.7	1449.8	1443.4
167.5°	1463.8	1459.8	1459.8	1468.8	1462.4
170°	1480.1	1476.5	1475.1	1484.2	1476.5
172.5°	1491.4	1487.8	1486.4	1495.5	1487.8
175°	1500.5	1496.9	1494.1	1503.2	1495.5
177.5°	1505.5	1501.9	1499.1	1506.8	1499.1
180°	1503.2	1503.2	1503.2	1503.2	1503.2

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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	7.58	8.43	8.56	9.42	10.71	7.15	8.00	8.12	8.99	10.28
	3H	9.24	10.00	10.23	11.00	12.32	8.77	9.53	9.75	10.53	11.84
	4H	9.83	10.55	10.83	11.55	12.87	9.36	10.08	10.35	11.08	12.40
	6H	10.23	10.89	11.24	11.90	13.24	9.76	10.42	10.76	11.42	12.76
	8H	10.34	10.97	11.35	11.99	13.32	9.86	10.49	10.87	11.51	12.85
	12H	10.39	10.98	11.40	12.00	13.36	9.90	10.50	10.92	11.52	12.88
4H	2H	8.04	8.76	9.05	9.76	11.09	7.70	8.42	8.70	9.42	10.74
	3H	9.91	10.51	10.92	11.54	12.88	9.52	10.12	10.53	11.14	12.48
	4H	10.63	11.17	11.64	12.19	13.56	10.22	10.77	11.24	11.79	13.15
	6H	11.14	11.61	12.17	12.66	14.01	10.73	11.20	11.76	12.25	13.60
	8H	11.29	11.73	12.32	12.77	14.14	10.88	11.32	11.91	12.36	13.73
	12H	11.36	11.76	12.41	12.81	14.19	10.94	11.34	11.99	12.39	13.77
8H	4H	10.82	11.26	11.85	12.30	13.67	10.46	10.90	11.49	11.94	13.31
	6H	11.45	11.82	12.51	12.90	14.27	11.09	11.46	12.15	12.53	13.90
	8H	11.68	12.00	12.74	13.06	14.45	11.31	11.63	12.37	12.69	14.08
	12H	11.81	12.09	12.87	13.15	14.58	11.42	11.70	12.49	12.76	14.19
12H	4H	10.81	11.21	11.86	12.26	13.64	10.45	10.85	11.50	11.90	13.28
	6H	11.48	11.81	12.55	12.87	14.26	11.13	11.45	12.19	12.52	13.91
	8H	11.73	12.01	12.79	13.07	14.50	11.37	11.65	12.43	12.71	14.14