

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: P916074

Luminaire Tested: DFN2DIP-HX2F0-020D060US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916074
REPORT IS A COMBINATION OF REPORTS P899191 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-020D060US930-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

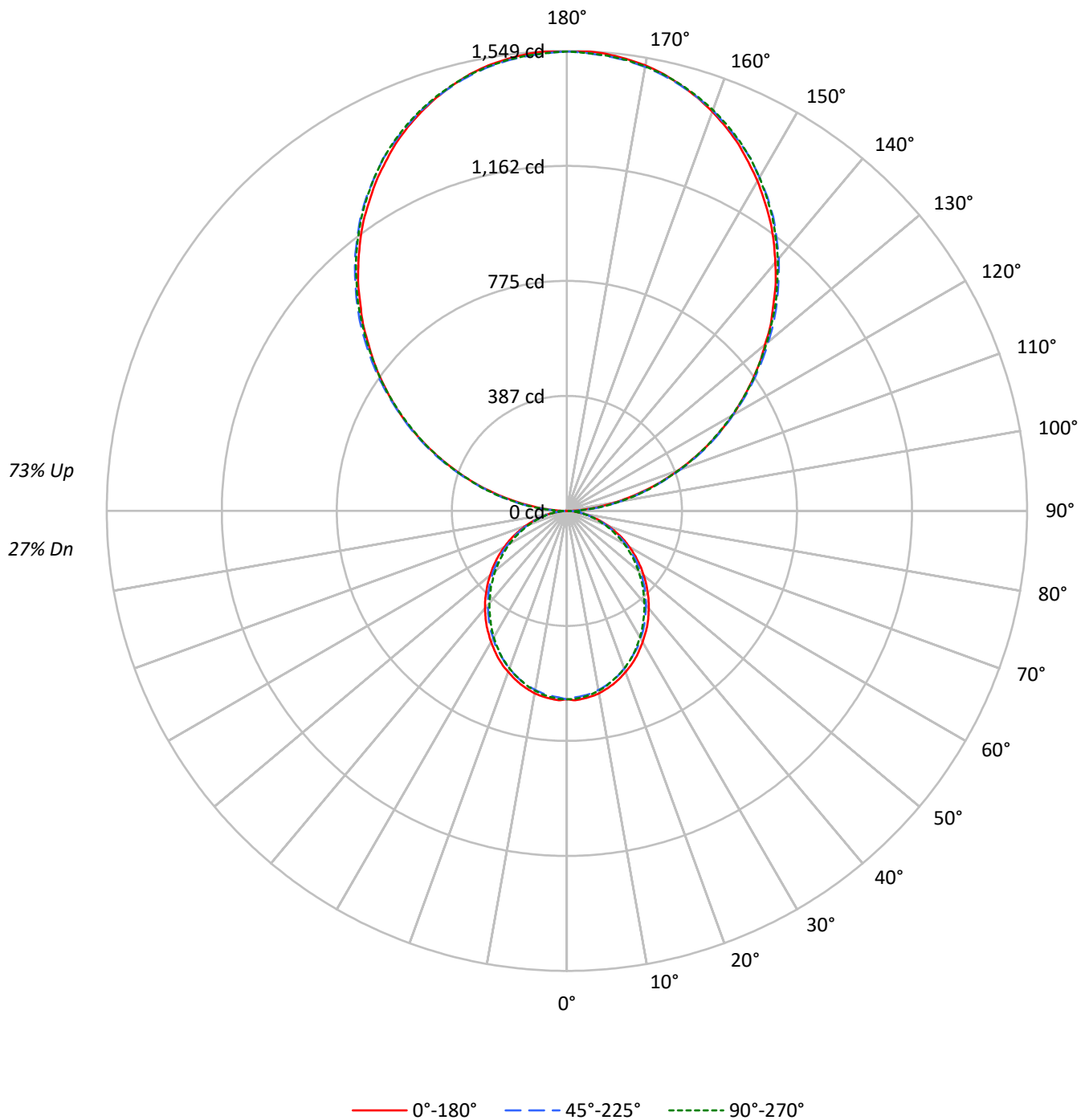
Lumens per Lamp: N/A
Luminaire Lumens: 5943.6 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 63.6
Input Voltage (V): 120
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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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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	88	85	81	83	79	76	73	62	60	58	46	44	43	31	30	30
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25
3	77	68	61	55	68	61	55	50	48	44	40	35	33	30	24	23	21
4	70	60	52	47	62	54	47	42	42	38	34	32	29	26	22	20	18
5	64	53	45	40	57	48	41	36	38	33	29	28	25	22	19	17	16
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	11	10
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1495	1495	1495
5°	1495	1470	1481
10°	1480	1447	1458
15°	1456	1420	1424
20°	1424	1383	1389
25°	1393	1340	1350
30°	1354	1300	1300
35°	1317	1253	1248
40°	1271	1205	1197
45°	1225	1157	1146
50°	1176	1107	1087
55°	1123	1048	1031
60°	1064	980	968
65°	998	908	894
70°	916	821	813
75°	803	717	734
80°	665	584	592
85°	449	366	367

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2076 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.7	1.0
10°-20°	168.0	2.8
20°-30°	246.9	4.2
30°-40°	286.8	4.8
40°-50°	286.4	4.8
50°-60°	249.7	4.2
60°-70°	184.6	3.1
70°-80°	104.5	1.8
80°-90°	32.0	0.5
90°-100°	95.7	1.6
100°-110°	304.2	5.1
110°-120°	520.6	8.8
120°-130°	684.6	11.5
130°-140°	768.4	12.9
140°-150°	753.5	12.7
150°-160°	632.1	10.6
160°-170°	419.2	7.1
170°-180°	146.5	2.5
0°-30°	474.7	8.0
0°-40°	761.5	12.8
0°-60°	1297.6	21.8
0°-90°	1618.7	27.2
90°-120°	920.5	15.5
90°-150°	3127.0	52.6
90°-180°	4325.0	72.8
0°-180°	5943.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	634	634	634	634	634	
5°	634	632	625	630	629	60
15°	604	600	592	595	592	170
25°	547	542	531	533	531	252
35°	472	466	456	452	449	295
45°	384	380	370	364	361	296
55°	290	287	279	272	269	260
65°	196	192	186	181	178	194
75°	102	101	98	95	96	109
85°	25	24	24	22	21	28
90°	1	17	46	43	44	6
95°	68	81	84	84	81	76
105°	281	284	287	290	290	296
115°	522	530	528	526	522	517
125°	760	771	768	764	762	679
135°	983	997	1000	999	995	760
145°	1193	1202	1210	1211	1206	745
155°	1364	1368	1372	1379	1374	628
165°	1484	1483	1483	1492	1486	419
175°	1544	1541	1538	1547	1539	147
180°	1547	1547	1547	1547	1547	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	634.5	634.5	634.5	634.5	634.5
2.5°	638.1	635.1	628.4	634.5	633.3
5°	634.5	632.1	625.3	630.2	629.0
7.5°	630.2	626.6	619.9	624.8	623.5
10°	623.5	619.3	612.0	616.8	615.0
12.5°	614.3	610.7	603.4	606.4	605.2
15°	604.0	600.4	592.4	594.8	591.8
17.5°	591.2	587.6	579.6	582.6	579.6
20°	577.1	573.5	564.9	566.8	564.3
22.5°	563.1	557.7	549.7	549.7	548.5
25°	546.7	541.8	531.4	532.6	531.4
27.5°	528.3	524.1	516.2	514.4	511.3
30°	510.1	505.2	496.0	494.2	491.7
32.5°	490.5	486.9	477.1	473.4	471.0
35°	471.7	465.5	455.8	452.1	449.0
37.5°	450.3	444.7	435.0	430.7	427.6
40°	428.3	423.4	413.6	408.2	405.7
42.5°	406.9	402.0	392.3	386.2	382.5
45°	383.8	379.5	370.3	363.6	361.2
47.5°	361.2	356.9	347.2	340.4	336.8
50°	337.4	334.4	325.8	317.2	314.2
52.5°	314.2	309.9	302.0	295.3	291.1
55°	290.4	286.7	279.4	272.1	269.0
57.5°	266.6	263.6	255.6	248.3	245.8
60°	242.8	240.4	231.9	225.1	223.3
62.5°	219.6	215.3	209.3	203.2	200.7
65°	195.8	192.2	186.1	180.6	177.6
67.5°	171.5	168.4	162.9	158.7	156.2
70°	148.9	146.4	140.9	136.6	134.3
72.5°	125.7	123.3	120.2	115.9	114.1
75°	102.5	101.3	98.2	94.6	95.8
77.5°	81.8	79.3	78.0	76.2	74.4
80°	61.1	60.4	59.2	57.3	56.1
82.5°	41.5	41.5	40.9	38.5	38.5
85°	24.9	24.4	23.8	21.9	21.4
87.5°	11.0	9.8	8.6	6.8	6.1
90°	1.4	16.8	45.7	42.9	44.3
92.5°	28.9	39.2	40.6	42.0	42.0
95°	68.1	81.1	83.5	83.5	81.1
97.5°	113.3	125.5	130.6	130.6	130.6
100°	165.6	176.3	180.0	180.0	178.6
102.5°	220.6	228.5	233.7	235.1	233.7
105°	280.8	284.5	287.3	289.7	289.7
107.5°	340.5	346.1	346.1	347.0	340.5
110°	398.4	405.8	405.8	405.8	402.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	460.8	468.7	467.3	463.6	460.8
115°	522.4	529.9	527.5	526.1	522.4
117.5°	583.5	593.8	587.2	583.5	579.8
120°	645.1	655.3	645.1	645.1	640.8
122.5°	701.0	714.0	707.5	703.8	701.0
125°	759.8	771.4	767.7	763.5	762.1
127.5°	817.2	831.6	826.5	820.9	817.2
130°	870.8	887.6	885.3	882.5	877.3
132.5°	931.0	944.0	944.9	938.4	934.7
135°	982.8	997.2	1000.0	998.6	994.8
137.5°	1040.6	1052.2	1054.6	1053.6	1048.1
140°	1091.4	1103.1	1109.6	1109.6	1104.5
142.5°	1143.6	1155.3	1159.0	1160.4	1155.3
145°	1193.1	1202.4	1209.9	1211.3	1206.2
147.5°	1237.4	1249.0	1254.7	1256.9	1251.8
150°	1283.1	1291.0	1296.2	1300.3	1296.2
152.5°	1323.6	1331.6	1338.1	1343.3	1338.1
155°	1364.2	1368.0	1372.1	1378.8	1374.5
157.5°	1399.2	1402.1	1404.4	1413.7	1407.2
160°	1430.5	1433.3	1434.7	1442.6	1437.0
162.5°	1459.4	1459.4	1460.8	1469.7	1463.1
165°	1484.1	1482.7	1482.7	1492.1	1485.6
167.5°	1506.5	1502.4	1502.4	1511.6	1505.1
170°	1523.3	1519.6	1518.2	1527.5	1519.6
172.5°	1535.0	1531.2	1529.8	1539.1	1531.2
175°	1544.3	1540.6	1537.7	1547.1	1539.1
177.5°	1549.4	1545.7	1542.9	1550.8	1542.9
180°	1547.1	1547.1	1547.1	1547.1	1547.1

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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	5.92	6.61	7.05	7.73	9.30	5.50	6.19	6.63	7.31	8.87
	3H	7.54	8.16	8.68	9.29	10.87	7.08	7.70	8.22	8.83	10.41
	4H	8.11	8.69	9.25	9.82	11.41	7.65	8.23	8.80	9.36	10.95
	6H	8.48	9.02	9.63	10.15	11.75	8.02	8.56	9.17	9.69	11.29
	8H	8.57	9.08	9.73	10.23	11.82	8.11	8.62	9.27	9.77	11.36
	12H	8.60	9.09	9.76	10.23	11.84	8.14	8.62	9.30	9.77	11.38
4H	2H	6.35	6.94	7.51	8.07	9.65	6.01	6.60	7.17	7.73	9.31
	3H	8.17	8.66	9.33	9.82	11.41	7.79	8.28	8.95	9.43	11.03
	4H	8.86	9.31	10.02	10.46	12.07	8.47	8.92	9.63	10.06	11.68
	6H	9.34	9.73	10.51	10.90	12.50	8.95	9.33	10.11	10.50	12.10
	8H	9.48	9.84	10.64	10.99	12.62	9.08	9.44	10.25	10.60	12.22
	12H	9.53	9.85	10.71	11.03	12.65	9.12	9.45	10.31	10.62	12.25
8H	4H	9.03	9.39	10.20	10.55	12.17	8.68	9.04	9.85	10.20	11.82
	6H	9.63	9.92	10.81	11.13	12.74	9.27	9.57	10.46	10.77	12.39
	8H	9.83	10.09	11.02	11.27	12.91	9.47	9.73	10.66	10.91	12.55
	12H	9.94	10.16	11.13	11.34	13.01	9.57	9.79	10.76	10.97	12.64
12H	4H	9.01	9.33	10.19	10.50	12.13	8.66	8.99	9.85	10.16	11.79
	6H	9.65	9.91	10.84	11.09	12.73	9.31	9.57	10.50	10.75	12.39
	8H	9.86	10.09	11.06	11.27	12.94	9.52	9.75	10.72	10.92	12.59