

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: P921523

Luminaire Tested: DFN2DIP-HX2F0-020D040US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921523
REPORT IS A COMBINATION OF REPORTS P900691 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-020D040US940-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

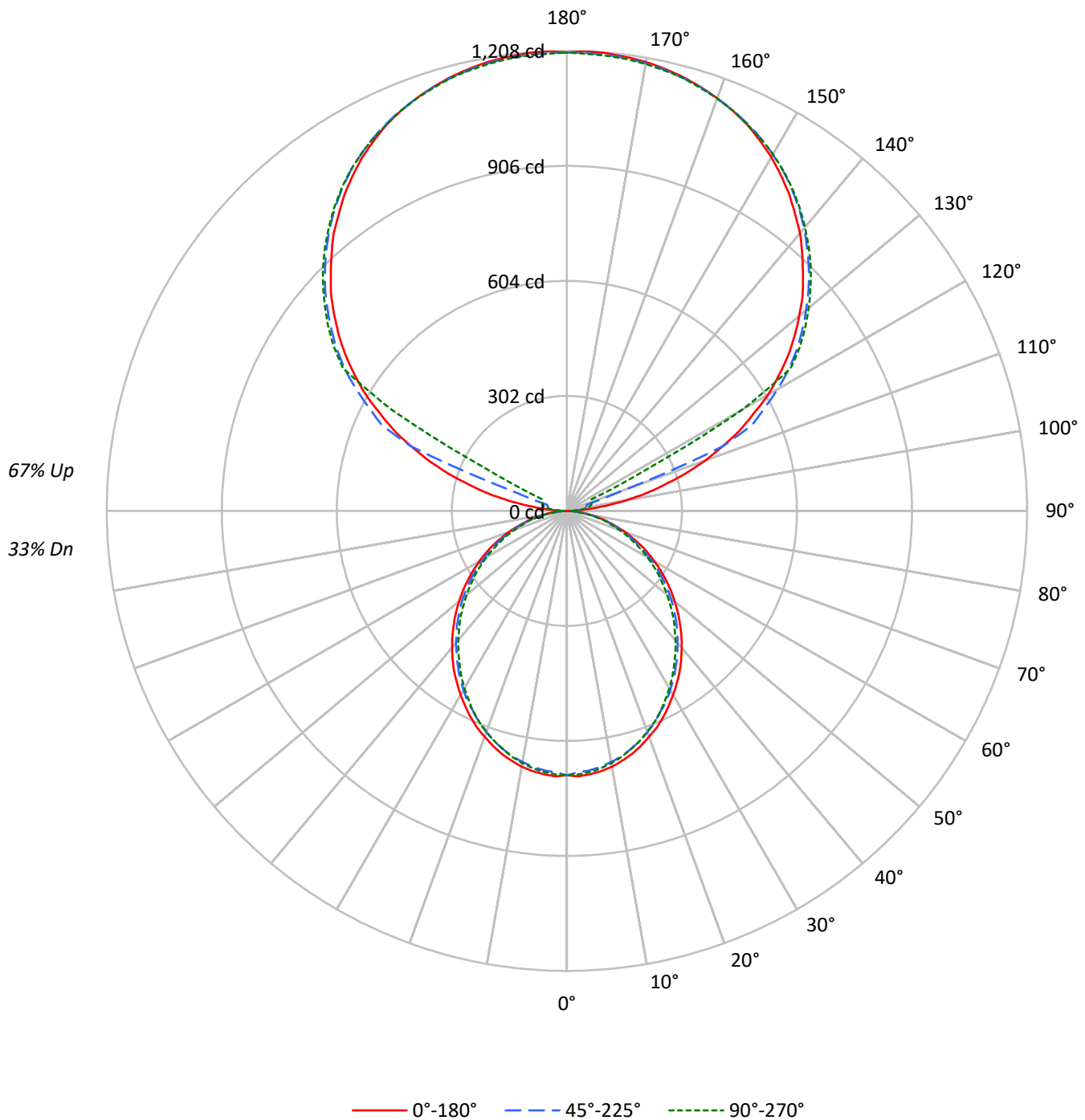
Lumens per Lamp: N/A
Luminaire Lumens: 5296.8 lumens
Efficiency: N/A
Efficacy: 118.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 44.6
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	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	19	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°	1635	1635	1635
5°	1635	1608	1620
10°	1619	1583	1595
15°	1593	1553	1558
20°	1558	1513	1520
25°	1523	1466	1476
30°	1481	1422	1422
35°	1440	1370	1365
40°	1390	1318	1309
45°	1340	1266	1253
50°	1286	1210	1189
55°	1228	1147	1128
60°	1164	1072	1059
65°	1092	994	977
70°	1002	898	889
75°	878	784	803
80°	727	638	647
85°	493	400	402

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1340 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.3	1.2
10°-20°	183.8	3.5
20°-30°	270.1	5.1
30°-40°	313.7	5.9
40°-50°	313.3	5.9
50°-60°	273.2	5.2
60°-70°	201.9	3.8
70°-80°	114.2	2.2
80°-90°	32.3	0.6
90°-100°	39.7	0.7
100°-110°	148.0	2.8
110°-120°	392.4	7.4
120°-130°	650.9	12.3
130°-140°	691.4	13.1
140°-150°	642.6	12.1
150°-160°	516.6	9.8
160°-170°	332.9	6.3
170°-180°	114.6	2.2
0°-30°	519.1	9.8
0°-40°	832.8	15.7
0°-60°	1419.3	26.8
0°-90°	1767.7	33.4
90°-120°	580.1	11.0
90°-150°	2565.0	48.4
90°-180°	3529.0	66.6
0°-180°	5296.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	694	694	694	694	694	
5°	694	691	684	689	688	66
15°	661	657	648	651	647	186
25°	598	592	581	582	581	275
35°	516	509	498	494	491	322
45°	420	415	405	398	395	324
55°	318	314	306	298	294	284
65°	214	210	204	198	194	212
75°	112	111	107	103	105	120
85°	27	27	26	24	23	30
90°	1	10	17	22	24	5
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	693.9	693.9	693.9	693.9	693.9
2.5°	697.9	694.6	687.2	693.9	692.7
5°	693.9	691.3	683.9	689.3	688.0
7.5°	689.3	685.3	678.0	683.3	682.0
10°	682.0	677.3	669.3	674.6	672.6
12.5°	671.9	668.0	660.0	663.3	661.9
15°	660.6	656.7	647.9	650.6	647.3
17.5°	646.6	642.7	633.9	637.2	633.9
20°	631.2	627.2	617.9	619.9	617.2
22.5°	615.9	609.9	601.2	601.2	599.9
25°	597.9	592.5	581.2	582.5	581.2
27.5°	577.8	573.2	564.5	562.6	559.2
30°	557.9	552.5	542.5	540.6	537.8
32.5°	536.5	532.5	521.8	517.8	515.1
35°	515.9	509.2	498.5	494.5	491.1
37.5°	492.5	486.4	475.7	471.1	467.7
40°	468.4	463.1	452.4	446.5	443.7
42.5°	445.1	439.7	429.1	422.4	418.4
45°	419.7	415.1	405.0	397.7	395.0
47.5°	395.0	390.4	379.7	372.3	368.4
50°	369.0	365.7	356.3	347.0	343.7
52.5°	343.7	338.9	330.3	323.0	318.3
55°	317.6	313.6	305.6	297.7	294.3
57.5°	291.6	288.3	279.6	271.6	268.9
60°	265.6	263.0	253.6	246.2	244.2
62.5°	240.2	235.5	228.9	222.2	219.5
65°	214.2	210.2	203.6	197.5	194.2
67.5°	187.5	184.1	178.2	173.5	170.9
70°	162.8	160.2	154.1	149.5	146.9
72.5°	137.5	134.8	131.4	126.8	124.8
75°	112.1	110.8	107.4	103.4	104.8
77.5°	89.4	86.8	85.3	83.4	81.4
80°	66.8	66.1	64.7	62.7	61.3
82.5°	45.4	45.4	44.8	42.1	42.1
85°	27.3	26.7	26.0	24.0	23.4
87.5°	12.0	10.7	9.4	7.4	6.7
90°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

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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	7.07	7.80	8.16	8.89	10.38	6.65	7.38	7.74	8.46	9.95
	3H	8.70	9.35	9.79	10.44	11.95	8.24	8.89	9.33	9.98	11.49
	4H	9.26	9.88	10.37	10.98	12.49	8.80	9.42	9.91	10.52	12.03
	6H	9.63	10.21	10.75	11.30	12.83	9.17	9.75	10.29	10.85	12.37
	8H	9.73	10.27	10.85	11.38	12.90	9.27	9.81	10.39	10.93	12.44
	12H	9.76	10.28	10.88	11.39	12.93	9.30	9.81	10.42	10.92	12.47
4H	2H	7.51	8.13	8.62	9.22	10.74	7.17	7.79	8.28	8.88	10.40
	3H	9.33	9.85	10.45	10.97	12.50	8.95	9.47	10.07	10.59	12.11
	4H	10.02	10.50	11.14	11.61	13.15	9.63	10.10	10.75	11.21	12.76
	6H	10.50	10.91	11.64	12.05	13.59	10.11	10.52	11.24	11.65	13.19
	8H	10.64	11.02	11.77	12.15	13.70	10.24	10.62	11.37	11.75	13.30
	12H	10.69	11.04	11.84	12.18	13.74	10.29	10.63	11.44	11.77	13.33
8H	4H	10.19	10.58	11.33	11.70	13.26	9.84	10.22	10.97	11.35	12.91
	6H	10.79	11.11	11.94	12.28	13.83	10.44	10.75	11.59	11.92	13.47
	8H	10.99	11.27	12.15	12.42	13.99	10.64	10.91	11.80	12.06	13.63
	12H	11.10	11.34	12.27	12.49	14.10	10.73	10.98	11.90	12.12	13.73
12H	4H	10.17	10.52	11.32	11.66	13.22	9.83	10.17	10.98	11.31	12.87
	6H	10.82	11.09	11.97	12.24	13.81	10.47	10.75	11.63	11.90	13.47
	8H	11.03	11.27	12.19	12.42	14.03	10.69	10.93	11.85	12.07	13.68