

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: P905505

Luminaire Tested: DFN2DIP-HX4F0-090D040US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905505
REPORT IS A COMBINATION OF REPORTS P899310 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D040US835-RLFL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

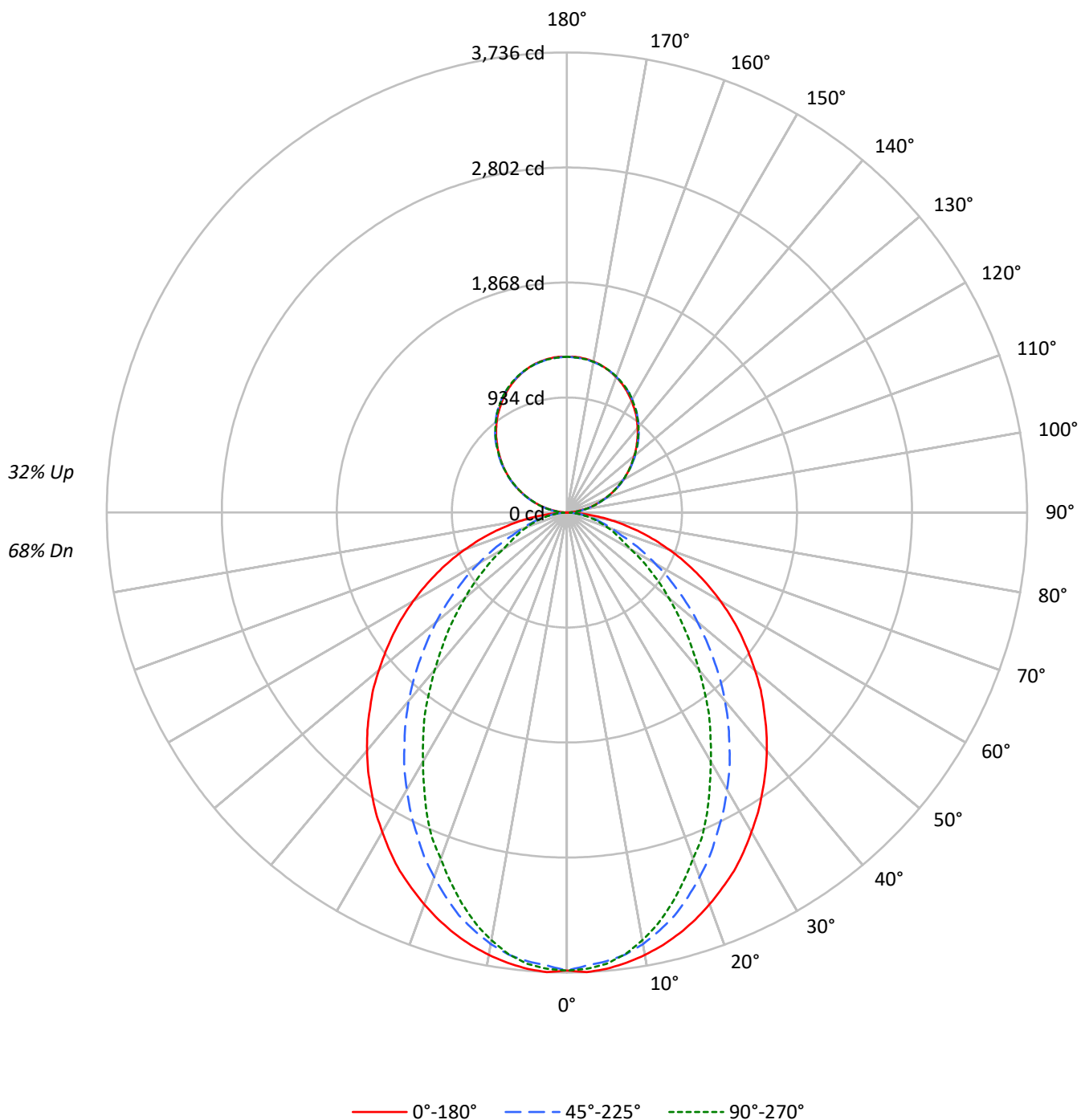
Lumens per Lamp: N/A
Luminaire Lumens: 11190.0 lumens
Efficiency: N/A
Efficacy: 99.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 112.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	66	66	66
1	103	98	95	91	97	93	90	87	83	81	78	74	72	70	66	64	63	59	57	55
2	94	87	81	76	89	82	77	72	74	70	66	66	63	60	59	56	54	50	48	46
3	86	77	70	64	81	73	67	61	66	61	56	59	55	51	52	49	47	44	42	40
4	79	69	61	55	75	65	58	53	59	53	49	53	48	45	47	44	41	38	36	34
5	73	62	53	48	69	59	51	46	53	47	43	48	43	39	43	39	36	33	31	29
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	39	35	32	30	28	26
7	63	51	43	37	59	48	41	36	44	38	33	40	35	31	36	32	29	27	25	23
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24	22	20
9	55	42	35	30	52	41	34	29	37	31	27	34	29	25	31	27	24	22	20	18
10	51	39	32	27	48	37	31	26	34	29	25	32	27	23	29	25	22	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2766	2766	2766
5°	2770	2722	2739
10°	2743	2669	2650
15°	2706	2581	2513
20°	2656	2460	2344
25°	2605	2324	2181
30°	2537	2184	1974
35°	2470	2034	1792
40°	2401	1879	1583
45°	2322	1706	1394
50°	2240	1532	1209
55°	2154	1346	1032
60°	2055	1152	850
65°	1942	954	765
70°	1804	770	692
75°	1630	679	630
80°	1379	571	547
85°	964	382	412

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2322 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.6	3.1
10°-20°	957.0	8.6
20°-30°	1343.6	12.0
30°-40°	1464.6	13.1
40°-50°	1346.2	12.0
50°-60°	1057.2	9.4
60°-70°	688.1	6.1
70°-80°	354.2	3.2
80°-90°	94.0	0.8
90°-100°	78.3	0.7
100°-110°	248.7	2.2
110°-120°	425.6	3.8
120°-130°	559.8	5.0
130°-140°	628.3	5.6
140°-150°	616.2	5.5
150°-160°	516.9	4.6
160°-170°	342.8	3.1
170°-180°	119.8	1.1
0°-30°	2649.2	23.7
0°-40°	4113.9	36.8
0°-60°	6517.2	58.2
0°-90°	7653.6	68.4
90°-120°	752.7	6.7
90°-150°	2556.9	22.9
90°-180°	3536.0	31.6
0°-180°	11190.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3720	3720	3720	3720	3720	
5°	3720	3703	3659	3689	3679	353
15°	3538	3501	3386	3322	3289	997
25°	3212	3104	2882	2744	2693	1477
35°	2767	2595	2299	2087	2013	1732
45°	2262	2036	1683	1444	1363	1747
55°	1720	1458	1094	892	828	1537
65°	1161	889	586	471	461	1151
75°	619	384	269	246	242	655
85°	145	74	64	64	64	166
90°	1	14	37	35	36	11
95°	56	66	68	68	66	62
105°	230	233	235	237	237	242
115°	427	433	431	430	427	422
125°	621	631	628	624	623	555
135°	804	815	818	816	814	621
145°	976	983	989	990	986	610
155°	1116	1119	1122	1127	1124	513
165°	1214	1212	1212	1220	1215	342
175°	1263	1260	1257	1265	1259	120
180°	1265	1265	1265	1265	1265	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3719.7	3719.7	3719.7	3719.7	3719.7
2.5°	3736.5	3719.7	3682.5	3716.5	3709.7
5°	3719.7	3702.9	3659.0	3689.3	3679.3
7.5°	3689.3	3669.3	3622.2	3635.4	3618.6
10°	3649.0	3625.4	3558.3	3547.9	3527.9
12.5°	3598.6	3568.3	3477.2	3457.2	3420.0
15°	3537.9	3500.8	3386.5	3322.5	3289.0
17.5°	3467.2	3413.3	3271.8	3197.9	3144.0
20°	3386.5	3319.0	3150.7	3066.8	2992.5
22.5°	3299.0	3221.5	3026.1	2911.8	2861.5
25°	3211.5	3103.6	2881.5	2743.6	2692.9
27.5°	3107.2	2992.5	2746.8	2588.6	2511.1
30°	2996.1	2867.9	2598.6	2427.2	2336.1
32.5°	2888.2	2733.2	2457.5	2255.4	2171.1
35°	2767.2	2595.4	2299.3	2087.2	2012.9
37.5°	2649.3	2464.0	2151.1	1918.6	1834.7
40°	2524.7	2322.9	1996.1	1757.2	1669.7
42.5°	2396.8	2181.5	1841.4	1592.2	1508.2
45°	2262.2	2036.5	1683.2	1443.9	1363.2
47.5°	2134.3	1895.4	1531.8	1292.5	1218.6
50°	1992.9	1753.9	1383.6	1151.1	1080.7
52.5°	1854.7	1602.2	1242.2	1020.0	956.1
55°	1720.0	1457.5	1093.9	892.2	828.2
57.5°	1582.2	1312.9	962.9	774.3	720.4
60°	1440.7	1171.4	824.7	653.2	599.3
62.5°	1302.9	1033.6	706.8	545.4	518.6
65°	1161.4	888.6	585.7	471.4	461.1
67.5°	1026.8	753.9	471.4	413.9	403.9
70°	885.4	622.9	390.4	356.8	343.2
72.5°	750.7	501.4	326.4	299.6	292.9
75°	619.3	383.6	269.3	245.7	242.5
77.5°	488.2	272.5	212.1	198.6	191.8
80°	366.8	195.4	161.4	148.2	148.2
82.5°	255.7	131.4	111.1	104.3	104.3
85°	144.6	73.9	63.9	63.9	63.9
87.5°	53.9	26.8	26.8	23.6	23.6
90°	1.1	13.7	37.4	35.1	36.2
92.5°	23.6	32.0	33.2	34.3	34.3
95°	55.7	66.4	68.3	68.3	66.4
97.5°	92.7	102.6	106.8	106.8	106.8
100°	135.4	144.2	147.2	147.2	146.1
102.5°	180.4	186.9	191.1	192.2	191.1
105°	229.6	232.6	234.9	236.8	236.8
107.5°	278.4	283.0	283.0	283.7	278.4
110°	325.7	331.8	331.8	331.8	328.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	376.8	383.3	382.1	379.1	376.8
115°	427.1	433.3	431.3	430.2	427.1
117.5°	477.1	485.5	480.2	477.1	474.1
120°	527.5	535.8	527.5	527.5	524.0
122.5°	573.2	583.9	578.6	575.5	573.2
125°	621.3	630.8	627.8	624.3	623.2
127.5°	668.2	680.0	675.8	671.2	668.2
130°	712.0	725.8	723.9	721.6	717.4
132.5°	761.2	771.9	772.7	767.3	764.3
135°	803.6	815.4	817.7	816.5	813.5
137.5°	850.9	860.4	862.3	861.5	857.0
140°	892.4	902.0	907.3	907.3	903.1
142.5°	935.2	944.7	947.7	948.9	944.7
145°	975.6	983.2	989.3	990.5	986.3
147.5°	1011.8	1021.3	1025.9	1027.8	1023.6
150°	1049.2	1055.7	1059.9	1063.3	1059.9
152.5°	1082.4	1088.8	1094.2	1098.4	1094.2
155°	1115.5	1118.6	1122.0	1127.4	1123.9
157.5°	1144.2	1146.4	1148.3	1156.0	1150.6
160°	1169.7	1172.0	1173.1	1179.6	1175.0
162.5°	1193.3	1193.3	1194.5	1201.7	1196.4
165°	1213.6	1212.4	1212.4	1220.0	1214.7
167.5°	1231.9	1228.4	1228.4	1236.1	1230.7
170°	1245.6	1242.5	1241.4	1249.0	1242.5
172.5°	1255.1	1252.1	1250.9	1258.6	1252.1
175°	1262.8	1259.7	1257.4	1265.0	1258.6
177.5°	1267.0	1263.9	1261.6	1268.1	1261.6
180°	1265.0	1265.0	1265.0	1265.0	1265.0

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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	12.25	13.26	13.04	14.06	15.05	8.22	9.23	9.01	10.04	11.02
	3H	13.94	14.84	14.74	15.66	16.67	9.43	10.33	10.23	11.14	12.16
	4H	14.56	15.41	15.38	16.23	17.26	9.89	10.73	10.71	11.56	12.58
	6H	14.99	15.77	15.82	16.60	17.64	10.22	11.00	11.05	11.83	12.87
	8H	15.12	15.87	15.96	16.72	17.75	10.31	11.06	11.15	11.91	12.95
	12H	15.19	15.90	16.04	16.74	17.81	10.36	11.07	11.21	11.92	12.98
4H	2H	12.29	13.14	13.11	13.96	14.99	8.84	9.69	9.66	10.51	11.54
	3H	14.14	14.84	14.97	15.70	16.74	10.21	10.91	11.04	11.77	12.81
	4H	14.84	15.48	15.68	16.33	17.40	10.76	11.40	11.61	12.26	13.33
	6H	15.36	15.91	16.23	16.79	17.87	11.19	11.75	12.06	12.63	13.70
	8H	15.54	16.06	16.41	16.93	18.02	11.33	11.84	12.20	12.72	13.80
	12H	15.64	16.11	16.53	17.00	18.09	11.40	11.87	12.29	12.76	13.85
8H	4H	14.82	15.33	15.68	16.21	17.29	11.06	11.57	11.92	12.45	13.53
	6H	15.39	15.82	16.28	16.73	17.82	11.58	12.01	12.48	12.93	14.01
	8H	15.61	15.99	16.51	16.90	18.00	11.78	12.16	12.68	13.07	14.17
	12H	15.75	16.09	16.66	16.99	18.15	11.91	12.24	12.81	13.14	14.30
12H	4H	14.78	15.24	15.66	16.13	17.23	11.07	11.53	11.96	12.43	13.52
	6H	15.37	15.74	16.27	16.65	17.76	11.63	12.01	12.54	12.92	14.03
	8H	15.60	15.93	16.50	16.83	17.99	11.85	12.19	12.76	13.09	14.25