

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: P914881

Luminaire Tested: DFN2DIP-SQ4F0-060D160US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914881
REPORT IS A COMBINATION OF REPORTS P901723 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

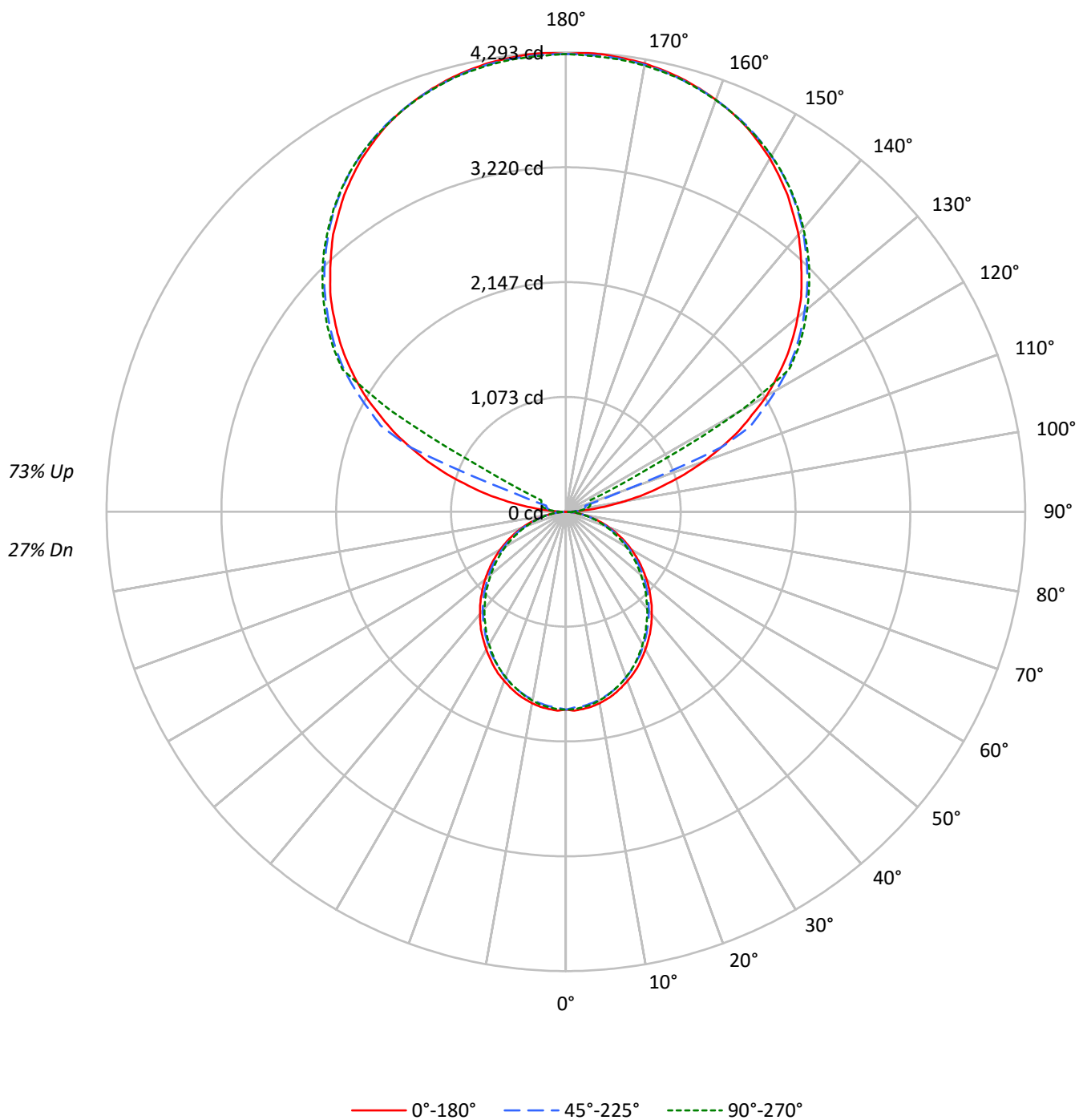
Lumens per Lamp: N/A
Luminaire Lumens: 17253.7 lumens
Efficiency: N/A
Efficacy: 100.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	89	85	81	83	79	76	73	62	60	58	46	45	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	36	33	31	24	23	21
4	70	60	52	47	63	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	23	19	18	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	12	10
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1298	1298	1298
5°	1300	1280	1289
10°	1289	1263	1272
15°	1270	1242	1245
20°	1245	1214	1217
25°	1219	1179	1185
30°	1187	1148	1145
35°	1157	1110	1101
40°	1120	1072	1061
45°	1082	1034	1019
50°	1042	994	970
55°	999	948	926
60°	951	893	875
65°	899	836	815
70°	832	767	750
75°	739	684	691
80°	628	579	577
85°	454	396	388

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2292 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.1	1.0
10°-20°	489.8	2.8
20°-30°	719.8	4.2
30°-40°	836.0	4.8
40°-50°	834.9	4.8
50°-60°	728.0	4.2
60°-70°	538.2	3.1
70°-80°	304.5	1.8
80°-90°	87.9	0.5
90°-100°	141.0	0.8
100°-110°	525.8	3.0
110°-120°	1394.6	8.1
120°-130°	2313.0	13.4
130°-140°	2456.9	14.2
140°-150°	2283.4	13.2
150°-160°	1835.8	10.6
160°-170°	1182.9	6.9
170°-180°	407.2	2.4
0°-30°	1383.6	8.0
0°-40°	2219.6	12.9
0°-60°	3782.5	21.9
0°-90°	4713.1	27.3
90°-120°	2061.4	11.9
90°-150°	9114.7	52.8
90°-180°	12541.0	72.7
0°-180°	17253.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1823	1837	1834	176
15°	1760	1750	1727	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1375	1357	1328	1318	1309	858
45°	1119	1106	1079	1060	1053	863
55°	847	836	814	793	784	757
65°	571	560	542	526	518	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	3	37	62	78	83	16
95°	201	99	121	136	133	238
105°	941	1034	189	223	235	1005
115°	1780	1832	1910	477	254	1752
125°	2516	2557	2616	2637	2646	2244
135°	3114	3164	3191	3222	3216	2405
145°	3612	3609	3662	3683	3668	2259
155°	3977	3950	3987	4005	3981	1833
165°	4191	4172	4182	4203	4182	1184
175°	4287	4265	4271	4293	4262	408
180°	4278	4278	4278	4278	4278	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.4	1849.4	1849.4	1849.4	1849.4
2.5°	1860.2	1851.3	1831.7	1849.4	1846.0
5°	1849.4	1842.5	1822.8	1837.0	1833.6
7.5°	1837.0	1826.5	1806.8	1821.1	1817.6
10°	1817.6	1805.1	1783.8	1797.9	1792.6
12.5°	1790.8	1780.2	1758.9	1767.8	1764.2
15°	1760.5	1750.0	1726.8	1734.0	1725.1
17.5°	1723.2	1712.7	1689.5	1698.3	1689.5
20°	1682.3	1671.7	1646.8	1652.1	1645.1
22.5°	1641.6	1625.5	1602.3	1602.3	1598.7
25°	1593.4	1579.3	1549.0	1552.4	1549.0
27.5°	1540.0	1527.6	1504.5	1499.3	1490.4
30°	1486.8	1472.4	1445.9	1440.6	1433.4
32.5°	1429.8	1419.3	1390.8	1380.0	1372.8
35°	1374.8	1357.0	1328.5	1317.7	1308.8
37.5°	1312.5	1296.4	1268.0	1255.4	1246.6
40°	1248.5	1234.1	1205.7	1189.9	1182.6
42.5°	1186.2	1171.9	1143.6	1125.7	1115.1
45°	1118.7	1106.2	1079.4	1060.0	1052.8
47.5°	1052.8	1040.4	1011.9	992.3	981.7
50°	983.4	974.5	949.7	924.7	915.8
52.5°	915.8	903.4	880.4	860.8	848.3
55°	846.6	835.8	814.5	793.2	784.3
57.5°	777.2	768.3	745.1	723.8	716.6
60°	707.7	700.8	675.9	656.2	650.9
62.5°	640.2	627.7	610.0	592.2	585.1
65°	570.9	560.2	542.5	526.4	517.5
67.5°	499.8	490.8	474.9	462.5	455.3
70°	434.0	426.8	410.7	398.3	391.3
72.5°	366.4	359.3	350.4	337.9	332.6
75°	298.7	295.3	286.2	275.7	279.2
77.5°	238.3	231.2	227.5	222.3	217.0
80°	177.9	176.0	172.5	167.2	163.6
82.5°	121.0	121.0	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	2.9	37.2	61.7	77.6	83.4
92.5°	77.6	65.0	74.2	80.5	83.4
95°	201.1	98.9	120.6	136.3	133.1
97.5°	362.0	108.4	157.6	167.2	170.2
100°	548.0	123.9	176.4	201.1	207.3
102.5°	752.0	746.2	182.7	216.5	226.0
105°	941.0	1034.0	188.9	222.8	235.2
107.5°	1160.7	1237.9	195.2	229.0	241.5
110°	1371.3	1436.1	541.8	232.3	244.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1569.5	1625.0	1572.4	238.2	247.7
115°	1779.7	1832.2	1909.8	476.7	254.0
117.5°	1962.4	2024.1	2077.1	1634.2	823.3
120°	2166.8	2213.0	2268.9	2306.0	1888.2
122.5°	2339.9	2389.5	2451.6	2469.9	2473.3
125°	2516.3	2556.7	2615.5	2637.3	2646.4
127.5°	2677.3	2720.7	2767.3	2798.2	2801.2
130°	2829.1	2878.7	2912.5	2946.7	2943.7
132.5°	2983.8	3024.2	3058.1	3086.0	3083.1
135°	3113.9	3163.6	3191.1	3222.4	3216.1
137.5°	3249.9	3287.1	3318.3	3349.2	3340.0
140°	3383.0	3408.0	3441.8	3469.8	3454.3
142.5°	3494.7	3516.4	3556.5	3581.1	3565.7
145°	3612.3	3609.0	3661.6	3683.2	3667.9
147.5°	3714.1	3705.0	3757.6	3773.0	3760.8
150°	3813.4	3791.7	3841.4	3859.7	3844.3
152.5°	3896.8	3872.2	3918.5	3937.3	3915.6
155°	3977.3	3949.7	3986.9	4005.3	3980.6
157.5°	4042.4	4017.8	4045.7	4067.4	4042.4
160°	4098.3	4079.5	4098.3	4116.6	4094.9
162.5°	4147.5	4129.2	4144.5	4166.2	4138.4
165°	4190.9	4172.5	4181.7	4203.4	4181.7
167.5°	4225.1	4206.3	4215.9	4237.5	4209.7
170°	4253.0	4234.3	4240.5	4262.2	4234.3
172.5°	4271.4	4253.0	4259.2	4280.9	4253.0
175°	4286.8	4265.1	4271.4	4293.1	4262.2
177.5°	4293.1	4271.4	4274.7	4296.4	4268.4
180°	4277.6	4277.6	4277.6	4277.6	4277.6

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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	5.60	6.28	6.73	7.41	8.97	5.15	5.84	6.28	6.96	8.52
	3H	7.25	7.86	8.39	8.99	10.57	6.76	7.37	7.89	8.50	10.08
	4H	7.83	8.42	8.98	9.55	11.13	7.33	7.92	8.48	9.05	10.63
	6H	8.22	8.76	9.38	9.90	11.49	7.72	8.26	8.88	9.40	10.99
	8H	8.33	8.84	9.48	9.99	11.57	7.82	8.34	8.98	9.48	11.07
	12H	8.37	8.86	9.53	10.00	11.61	7.86	8.35	9.02	9.49	11.10
4H	2H	6.04	6.62	7.19	7.75	9.34	5.68	6.27	6.84	7.40	8.98
	3H	7.89	8.38	9.05	9.54	11.13	7.48	7.97	8.64	9.13	10.72
	4H	8.60	9.05	9.76	10.20	11.81	8.18	8.63	9.34	9.77	11.39
	6H	9.11	9.50	10.28	10.66	12.27	8.68	9.06	9.85	10.23	11.84
	8H	9.26	9.62	10.43	10.78	12.40	8.82	9.18	9.99	10.34	11.96
	12H	9.33	9.65	10.51	10.82	12.45	8.88	9.20	10.06	10.37	12.00
8H	4H	8.78	9.14	9.95	10.30	11.92	8.41	8.77	9.57	9.93	11.55
	6H	9.41	9.71	10.60	10.91	12.53	9.03	9.33	10.22	10.53	12.15
	8H	9.63	9.89	10.83	11.07	12.71	9.24	9.50	10.43	10.68	12.32
	12H	9.76	9.99	10.96	11.17	12.84	9.35	9.58	10.55	10.75	12.43
12H	4H	8.76	9.09	9.94	10.26	11.88	8.39	8.72	9.58	9.89	11.52
	6H	9.44	9.70	10.63	10.88	12.52	9.07	9.33	10.26	10.51	12.15
	8H	9.68	9.91	10.87	11.08	12.75	9.30	9.53	10.49	10.70	12.37

END OF REPORT