

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: P914913

Luminaire Tested: DFN2DIP-SQ4F0-070D140US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914913
REPORT IS A COMBINATION OF REPORTS P901707 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

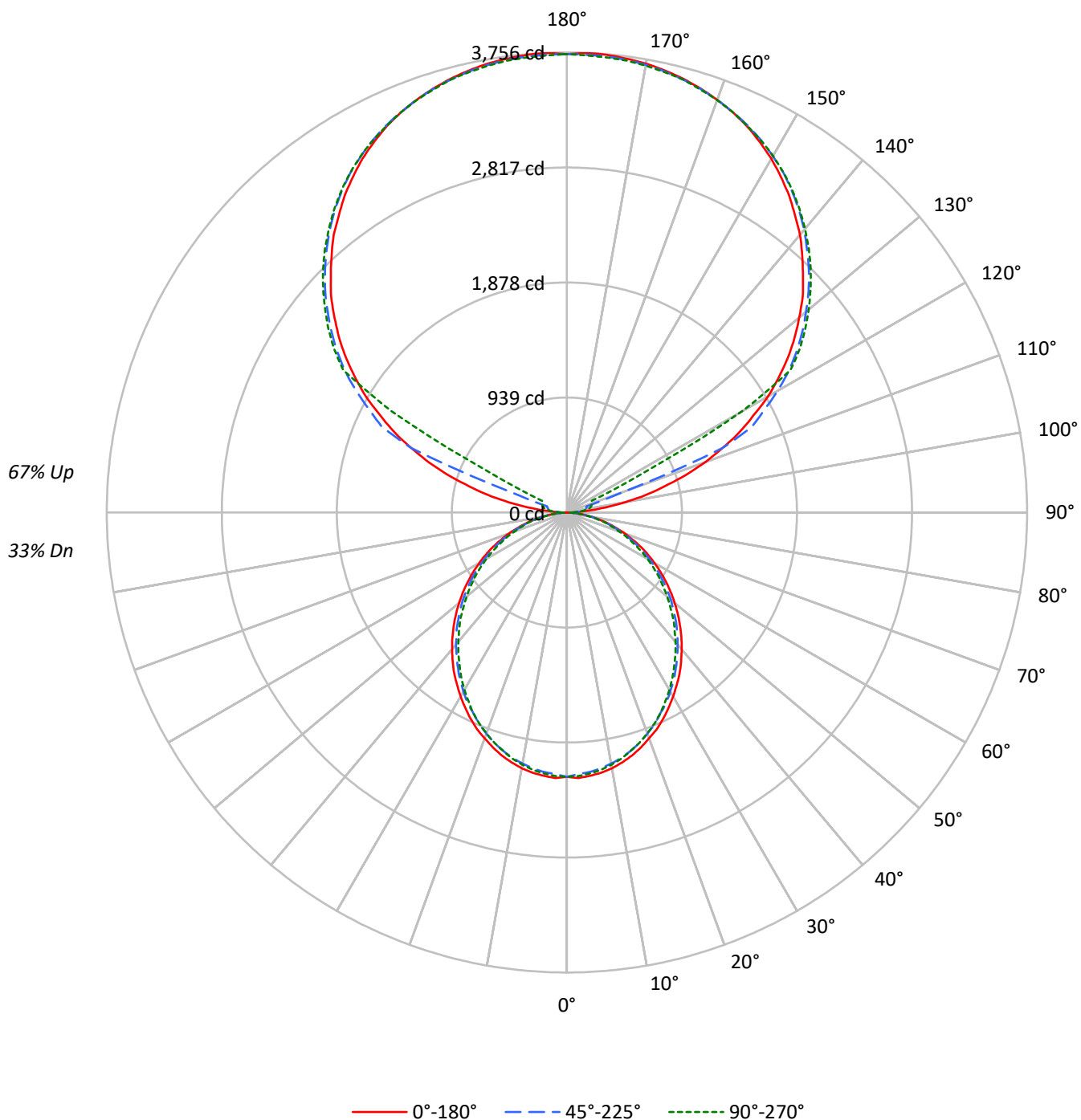
Lumens per Lamp: N/A
Luminaire Lumens: 16469.4 lumens
Efficiency: N/A
Efficacy: 98.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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°	1514	1514	1514
5°	1516	1493	1503
10°	1504	1473	1483
15°	1482	1449	1452
20°	1452	1416	1420
25°	1422	1376	1383
30°	1385	1339	1335
35°	1350	1295	1285
40°	1306	1251	1237
45°	1263	1206	1189
50°	1215	1160	1132
55°	1166	1106	1080
60°	1110	1041	1021
65°	1049	975	950
70°	971	894	875
75°	863	798	806
80°	733	675	673
85°	530	462	452

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2006 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	1.2
10°-20°	571.4	3.5
20°-30°	839.7	5.1
30°-40°	975.3	5.9
40°-50°	974.1	5.9
50°-60°	849.4	5.2
60°-70°	627.9	3.8
70°-80°	355.2	2.2
80°-90°	100.4	0.6
90°-100°	123.4	0.7
100°-110°	460.1	2.8
110°-120°	1220.2	7.4
120°-130°	2023.8	12.3
130°-140°	2149.8	13.1
140°-150°	1998.0	12.1
150°-160°	1606.3	9.8
160°-170°	1035.1	6.3
170°-180°	356.3	2.2
0°-30°	1614.2	9.8
0°-40°	2589.5	15.7
0°-60°	4412.9	26.8
0°-90°	5496.4	33.4
90°-120°	1803.7	11.0
90°-150°	7975.4	48.4
90°-180°	10973.0	66.6
0°-180°	16469.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2127	2143	2139	205
15°	2054	2042	2015	2023	2013	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1002
45°	1305	1291	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	2	32	54	68	73	15
95°	176	86	106	119	116	208
105°	823	905	165	195	206	880
115°	1557	1603	1671	417	222	1533
125°	2202	2237	2289	2308	2316	1964
135°	2725	2768	2792	2820	2814	2105
145°	3161	3158	3204	3223	3209	1977
155°	3480	3456	3488	3505	3483	1604
165°	3667	3651	3659	3678	3659	1036
175°	3751	3732	3737	3756	3729	357
180°	3743	3743	3743	3743	3743	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.7	2157.7	2157.7	2157.7	2157.7
2.5°	2170.3	2159.9	2137.0	2157.7	2153.7
5°	2157.7	2149.6	2126.7	2143.2	2139.2
7.5°	2143.2	2130.8	2107.9	2124.7	2120.5
10°	2120.5	2105.9	2081.1	2097.6	2091.4
12.5°	2089.2	2076.9	2052.1	2062.4	2058.2
15°	2054.0	2041.7	2014.6	2023.0	2012.6
17.5°	2010.4	1998.1	1971.0	1981.4	1971.0
20°	1962.6	1950.4	1921.3	1927.5	1919.3
22.5°	1915.1	1896.4	1869.3	1869.3	1865.1
25°	1859.0	1842.5	1807.3	1811.2	1807.3
27.5°	1796.7	1782.2	1755.3	1749.1	1738.8
30°	1734.6	1717.8	1686.9	1680.7	1672.3
32.5°	1668.1	1655.8	1622.5	1610.0	1601.6
35°	1603.8	1583.2	1549.9	1537.4	1527.0
37.5°	1531.2	1512.5	1479.2	1464.7	1454.4
40°	1456.6	1439.9	1406.6	1388.1	1379.7
42.5°	1383.9	1367.2	1334.2	1313.3	1300.9
45°	1305.1	1290.6	1259.3	1236.7	1228.3
47.5°	1228.3	1213.8	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.9	1068.5
52.5°	1068.5	1054.0	1027.1	1004.2	989.7
55°	987.7	975.2	950.3	925.4	915.0
57.5°	906.7	896.4	869.3	844.4	836.1
60°	825.7	817.5	788.5	765.6	759.5
62.5°	746.9	732.4	711.7	691.0	682.6
65°	666.1	653.5	632.9	614.2	603.8
67.5°	583.1	572.6	554.1	539.6	531.2
70°	506.3	498.0	479.2	464.7	456.5
72.5°	427.5	419.1	408.8	394.3	388.1
75°	348.5	344.5	333.9	321.6	325.8
77.5°	278.1	269.7	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.0	190.8
82.5°	141.1	141.1	139.1	130.8	130.8
85°	85.0	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.9	20.7
90°	2.5	32.5	54.0	67.9	73.0
92.5°	67.9	57.0	65.0	70.4	73.0
95°	175.9	86.5	105.5	119.3	116.5
97.5°	316.8	94.9	138.0	146.3	148.9
100°	479.5	108.4	154.4	175.9	181.4
102.5°	658.0	652.8	159.9	189.4	197.8
105°	823.3	904.7	165.3	194.9	205.8
107.5°	1015.7	1083.1	170.8	200.3	211.3
110°	1199.9	1256.6	474.0	203.3	213.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1373.2	1421.8	1375.9	208.4	216.7
115°	1557.3	1603.2	1671.1	417.2	222.2
117.5°	1717.1	1771.1	1817.4	1429.9	720.4
120°	1895.9	1936.4	1985.3	2017.8	1652.1
122.5°	2047.4	2090.8	2145.1	2161.2	2164.2
125°	2201.8	2237.1	2288.6	2307.5	2315.6
127.5°	2342.6	2380.6	2421.4	2448.4	2451.0
130°	2475.4	2518.9	2548.4	2578.4	2575.8
132.5°	2610.9	2646.2	2675.8	2700.2	2697.7
135°	2724.7	2768.1	2792.2	2819.5	2814.1
137.5°	2843.7	2876.2	2903.5	2930.5	2922.5
140°	2960.1	2982.0	3011.6	3036.0	3022.5
142.5°	3057.9	3076.8	3111.9	3133.5	3119.9
145°	3160.8	3157.9	3203.9	3222.9	3209.4
147.5°	3249.9	3241.8	3287.9	3301.3	3290.7
150°	3336.7	3317.7	3361.1	3377.2	3363.8
152.5°	3409.7	3388.2	3428.7	3445.1	3426.1
155°	3480.1	3456.0	3488.5	3504.6	3483.1
157.5°	3537.1	3515.5	3540.0	3559.0	3537.1
160°	3586.0	3569.6	3586.0	3602.0	3583.1
162.5°	3629.1	3613.0	3626.5	3645.5	3621.1
165°	3667.0	3650.9	3659.0	3677.9	3659.0
167.5°	3697.0	3680.6	3688.9	3707.9	3683.4
170°	3721.4	3705.0	3710.4	3729.4	3705.0
172.5°	3737.4	3721.4	3726.8	3745.8	3721.4
175°	3751.0	3732.0	3737.4	3756.4	3729.4
177.5°	3756.4	3737.4	3740.4	3759.3	3734.9
180°	3742.9	3742.9	3742.9	3742.9	3742.9

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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	6.95	7.68	8.04	8.77	10.26	6.51	7.24	7.60	8.32	9.81
	3H	8.61	9.26	9.70	10.36	11.86	8.12	8.77	9.21	9.87	11.37
	4H	9.19	9.81	10.30	10.91	12.42	8.70	9.32	9.80	10.41	11.93
	6H	9.59	10.16	10.70	11.26	12.78	9.09	9.66	10.20	10.76	12.28
	8H	9.69	10.23	10.81	11.35	12.87	9.19	9.73	10.31	10.85	12.37
	12H	9.74	10.25	10.86	11.36	12.90	9.23	9.74	10.35	10.85	12.39
4H	2H	7.40	8.02	8.51	9.11	10.63	7.04	7.66	8.16	8.76	10.27
	3H	9.26	9.77	10.38	10.90	12.42	8.85	9.37	9.97	10.49	12.02
	4H	9.97	10.44	11.09	11.56	13.10	9.54	10.02	10.67	11.13	12.68
	6H	10.48	10.89	11.61	12.02	13.56	10.05	10.46	11.18	11.59	13.13
	8H	10.63	11.01	11.76	12.14	13.69	10.19	10.57	11.32	11.70	13.25
	12H	10.70	11.04	11.85	12.18	13.74	10.25	10.59	11.40	11.73	13.29
8H	4H	10.16	10.54	11.29	11.66	13.22	9.78	10.16	10.91	11.29	12.84
	6H	10.79	11.10	11.94	12.27	13.82	10.40	10.72	11.55	11.89	13.44
	8H	11.01	11.28	12.17	12.43	14.00	10.62	10.89	11.77	12.04	13.61
	12H	11.14	11.38	12.30	12.52	14.13	10.73	10.97	11.89	12.11	13.72
12H	4H	10.13	10.48	11.28	11.62	13.18	9.77	10.11	10.91	11.25	12.81
	6H	10.81	11.09	11.97	12.24	13.81	10.44	10.72	11.60	11.87	13.44
	8H	11.05	11.30	12.22	12.44	14.05	10.67	10.91	11.84	12.06	13.67