

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: P914912

Luminaire Tested: DFN2DIP-SQ4F0-070D140US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914912
REPORT IS A COMBINATION OF REPORTS P900187 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

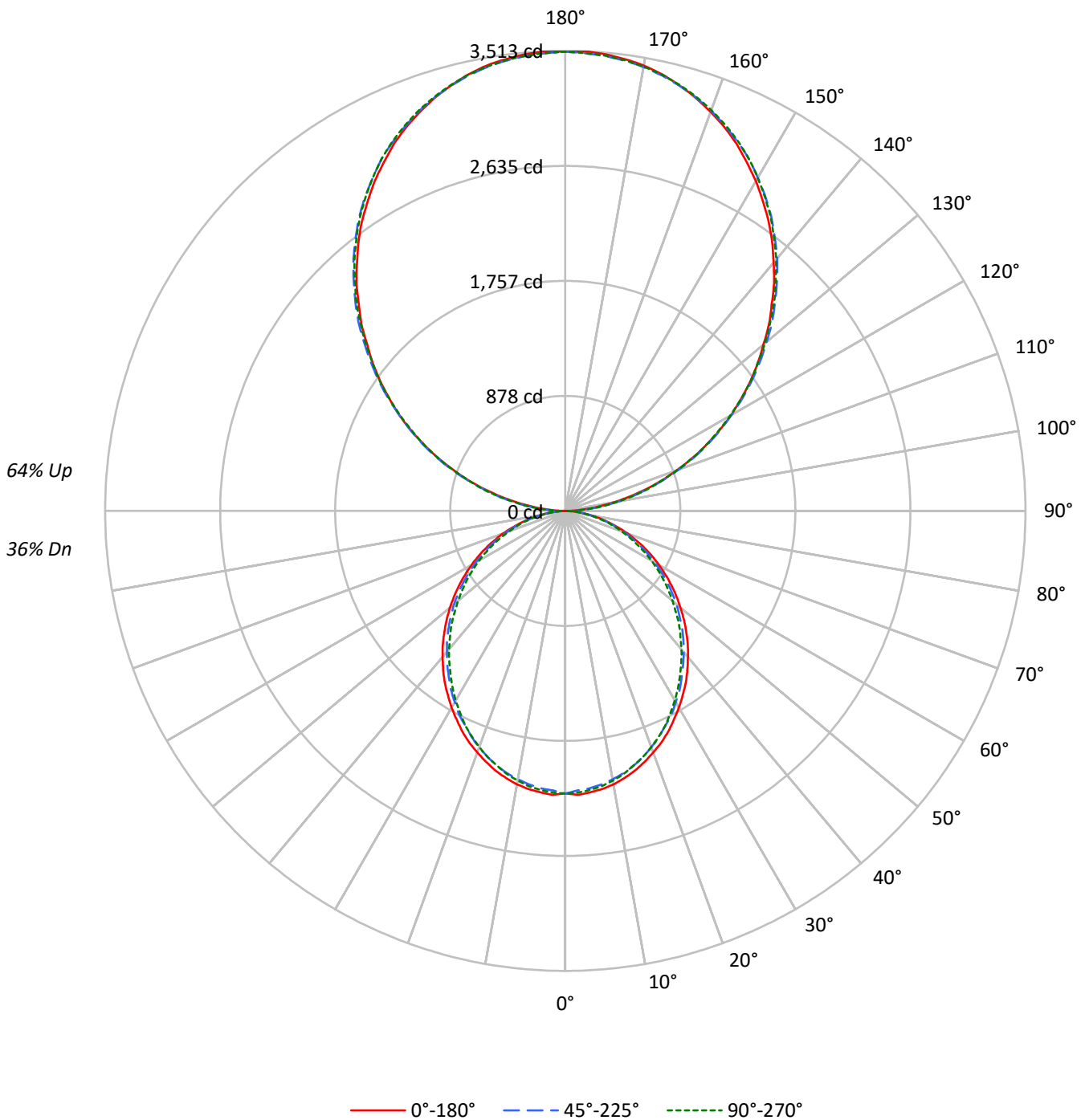
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15305.0 lumens
Efficiency: N/A
Efficacy: 91.6 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 (A_{in}): 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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36	36	36	36
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36	30	30	30	30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31	25	25	25	25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21	21	21	21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22	18	18	18	18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20	16	16	16	16
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17	14	14	14	14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12	12	12	12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11	11	11	11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10	10	10	10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11	9	9	9	9

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: 2759 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	1.3
10°-20°	571.4	3.7
20°-30°	839.7	5.5
30°-40°	975.3	6.4
40°-50°	974.1	6.4
50°-60°	849.4	5.5
60°-70°	627.9	4.1
70°-80°	355.2	2.3
80°-90°	103.7	0.7
90°-100°	217.0	1.4
100°-110°	689.6	4.5
110°-120°	1180.2	7.7
120°-130°	1552.1	10.1
130°-140°	1742.2	11.4
140°-150°	1708.4	11.2
150°-160°	1433.1	9.4
160°-170°	950.4	6.2
170°-180°	332.2	2.2
0°-30°	1614.2	10.5
0°-40°	2589.5	16.9
0°-60°	4412.9	28.8
0°-90°	5499.8	35.9
90°-120°	2086.8	13.6
90°-150°	7089.5	46.3
90°-180°	9805.0	64.1
0°-180°	15305.0	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°	3	38	104	97	100	15
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1723	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2256	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3102	3111	3126	3116	1424
165°	3365	3362	3362	3383	3368	949
175°	3501	3493	3486	3508	3490	333
180°	3508	3508	3508	3508	3508	



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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°	3.2	38.1	103.6	97.3	100.4
92.5°	65.6	88.8	92.0	95.1	95.1
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.2	529.8	533.0	529.8
105°	636.6	645.1	651.4	656.6	656.6
107.5°	771.9	784.7	784.7	786.7	771.9
110°	903.1	920.0	920.0	920.0	911.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.7	1059.5	1051.1	1044.7
115°	1184.3	1201.3	1196.0	1192.8	1184.3
117.5°	1322.9	1346.2	1331.3	1322.9	1314.4
120°	1462.4	1485.7	1462.4	1462.4	1452.9
122.5°	1589.4	1618.9	1604.2	1595.7	1589.4
125°	1722.6	1749.0	1740.5	1731.0	1727.8
127.5°	1852.6	1885.4	1873.7	1861.1	1852.6
130°	1974.2	2012.3	2007.0	2000.7	1989.0
132.5°	2110.6	2140.2	2142.4	2127.6	2119.1
135°	2228.0	2260.8	2267.1	2264.0	2255.5
137.5°	2359.1	2385.6	2390.9	2388.7	2376.1
140°	2474.4	2500.8	2515.7	2515.7	2504.0
142.5°	2592.8	2619.3	2627.7	2630.9	2619.3
145°	2704.9	2726.1	2743.0	2746.2	2734.5
147.5°	2805.4	2831.8	2844.5	2849.8	2838.1
150°	2909.0	2927.0	2938.6	2948.1	2938.6
152.5°	3001.0	3019.0	3033.8	3045.4	3033.8
155°	3093.0	3101.5	3111.0	3125.8	3116.3
157.5°	3172.3	3178.6	3183.9	3205.1	3190.3
160°	3243.2	3249.5	3252.7	3270.7	3257.9
162.5°	3308.7	3308.7	3311.9	3332.0	3317.2
165°	3364.8	3361.6	3361.6	3382.8	3368.0
167.5°	3415.5	3406.0	3406.0	3427.1	3412.3
170°	3453.6	3445.1	3441.9	3463.1	3445.1
172.5°	3480.1	3471.6	3468.4	3489.6	3471.6
175°	3501.2	3492.7	3486.4	3507.5	3489.6
177.5°	3512.8	3504.4	3498.0	3515.9	3498.0
180°	3507.5	3507.5	3507.5	3507.5	3507.5



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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	7.26	8.01	8.33	9.08	10.54	6.82	7.56	7.89	8.64	10.09
	3H	8.92	9.59	10.00	10.67	12.14	8.43	9.10	9.51	10.18	11.65
	4H	9.50	10.14	10.59	11.22	12.70	9.01	9.64	10.10	10.73	12.21
	6H	9.90	10.49	11.00	11.57	13.07	9.40	9.98	10.50	11.07	12.56
	8H	10.00	10.56	11.11	11.66	13.15	9.50	10.06	10.60	11.16	12.65
	12H	10.05	10.58	11.16	11.67	13.19	9.54	10.07	10.65	11.16	12.68
4H	2H	7.71	8.34	8.81	9.43	10.91	7.35	7.99	8.45	9.07	10.55
	3H	9.57	10.10	10.67	11.21	12.70	9.16	9.69	10.26	10.80	12.30
	4H	10.28	10.77	11.39	11.87	13.38	9.86	10.35	10.97	11.44	12.96
	6H	10.80	11.21	11.91	12.33	13.84	10.36	10.78	11.48	11.90	13.41
	8H	10.94	11.33	12.06	12.45	13.97	10.51	10.90	11.62	12.01	13.54
	12H	11.01	11.37	12.15	12.49	14.02	10.56	10.92	11.70	12.04	13.57
8H	4H	10.47	10.86	11.58	11.97	13.50	10.09	10.48	11.21	11.60	13.12
	6H	11.10	11.42	12.24	12.58	14.10	10.72	11.04	11.85	12.20	13.72
	8H	11.32	11.61	12.47	12.74	14.28	10.93	11.21	12.07	12.35	13.89
	12H	11.45	11.70	12.60	12.83	14.41	11.04	11.29	12.19	12.42	14.00
12H	4H	10.45	10.80	11.58	11.93	13.46	10.08	10.44	11.21	11.56	13.09
	6H	11.13	11.41	12.27	12.55	14.09	10.76	11.04	11.90	12.18	13.72
	8H	11.37	11.62	12.52	12.75	14.33	10.99	11.24	12.14	12.37	13.95