

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: P915020

Luminaire Tested: DFN2DIP-SQ4F0-100D140US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915020
REPORT IS A COMBINATION OF REPORTS P900193 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

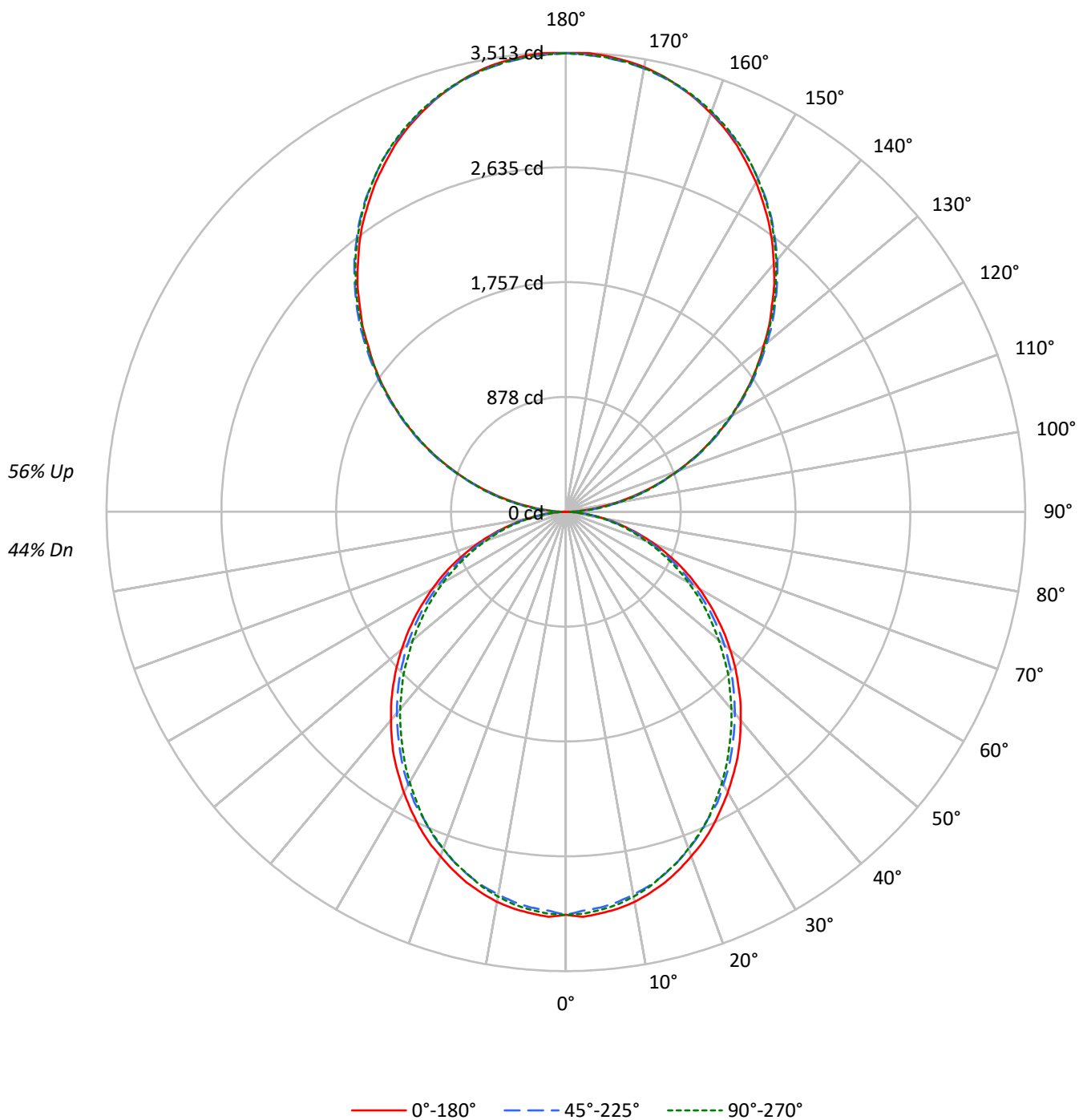
Lumens per Lamp: N/A
Luminaire Lumens: 17657.7 lumens
Efficiency: N/A
Efficacy: 89.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 198.5
Input Voltage (V):
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					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	106	106	106	106	97	97	97	97		80	80	80		65	65	65		51	51	51
1	97	92	88	85	88	85	81	78		70	68	66		57	56	54		45	44	43
2	88	81	74	69	80	74	69	64		62	58	55		50	48	45		40	38	36
3	80	71	64	58	73	65	59	54		54	50	46		44	41	38		35	33	31
4	73	63	55	49	67	58	51	45		48	43	39		40	36	33		31	29	27
5	67	56	48	42	61	51	44	39		43	38	34		35	31	28		28	25	23
6	62	50	42	36	57	46	39	34		39	33	29		32	28	25		26	23	20
7	57	45	37	32	52	42	35	30		35	30	26		29	25	22		23	20	18
8	53	41	33	28	49	38	31	26		32	27	23		27	23	20		22	19	16
9	49	37	30	25	45	35	28	23		29	24	20		24	20	18		20	17	15
10	46	34	27	22	42	32	25	21		27	22	18		23	19	16		18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2163	2163	2163
5°	2166	2133	2148
10°	2149	2105	2119
15°	2117	2071	2074
20°	2074	2023	2028
25°	2032	1966	1975
30°	1979	1913	1908
35°	1928	1850	1836
40°	1866	1786	1768
45°	1804	1723	1698
50°	1736	1656	1617
55°	1665	1579	1543
60°	1585	1488	1458
65°	1498	1393	1358
70°	1387	1278	1250
75°	1232	1140	1152
80°	1047	964	963
85°	757	659	647

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°	290.1	1.6
10°-20°	816.3	4.6
20°-30°	1199.6	6.8
30°-40°	1393.3	7.9
40°-50°	1391.5	7.9
50°-60°	1213.4	6.9
60°-70°	897.0	5.1
70°-80°	507.5	2.9
80°-90°	143.9	0.8
90°-100°	217.0	1.2
100°-110°	689.6	3.9
110°-120°	1180.2	6.7
120°-130°	1552.1	8.8
130°-140°	1742.2	9.9
140°-150°	1708.4	9.7
150°-160°	1433.1	8.1
160°-170°	950.4	5.4
170°-180°	332.2	1.9
0°-30°	2306.0	13.1
0°-40°	3699.3	20.9
0°-60°	6304.2	35.7
0°-90°	7852.5	44.5
90°-120°	2086.8	11.8
90°-150°	7089.5	40.1
90°-180°	9805.0	55.5
0°-180°	17657.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3082	3082	3082	3082	3082	
5°	3082	3071	3038	3062	3056	293
15°	2934	2917	2878	2890	2875	826
25°	2656	2632	2582	2587	2582	1222
35°	2291	2262	2214	2196	2181	1431
45°	1864	1844	1799	1767	1755	1439
55°	1411	1393	1358	1322	1307	1262
65°	952	934	904	877	863	941
75°	498	492	477	460	465	531
85°	121	119	116	107	104	135
90°	3	38	104	97	100	17
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°	3082.5	3082.5	3082.5	3082.5	3082.5
2.5°	3100.4	3085.5	3052.8	3082.5	3076.8
5°	3082.5	3070.8	3038.1	3061.7	3056.0
7.5°	3061.7	3044.0	3011.3	3035.2	3029.3
10°	3029.3	3008.5	2973.0	2996.6	2987.8
12.5°	2984.6	2967.0	2931.5	2946.3	2940.3
15°	2934.3	2916.7	2878.0	2890.0	2875.2
17.5°	2872.1	2854.5	2815.7	2830.5	2815.7
20°	2803.8	2786.2	2744.7	2753.5	2741.8
22.5°	2735.9	2709.2	2670.4	2670.4	2664.5
25°	2655.7	2632.1	2581.8	2587.4	2581.8
27.5°	2566.7	2545.9	2507.6	2498.8	2484.0
30°	2478.0	2454.1	2409.7	2400.9	2389.0
32.5°	2383.0	2365.5	2317.9	2300.0	2288.1
35°	2291.2	2261.7	2214.1	2196.2	2181.4
37.5°	2187.4	2160.7	2113.2	2092.5	2077.7
40°	2080.8	2056.9	2009.4	1983.1	1971.1
42.5°	1977.0	1953.1	1906.0	1876.1	1858.5
45°	1864.5	1843.7	1799.0	1766.6	1754.8
47.5°	1754.8	1734.0	1686.5	1653.8	1636.2
50°	1639.0	1624.2	1582.7	1541.2	1526.5
52.5°	1526.5	1505.7	1467.3	1434.6	1413.9
55°	1411.0	1393.1	1357.6	1322.0	1307.3
57.5°	1295.3	1280.5	1241.8	1206.3	1194.4
60°	1179.6	1167.9	1126.4	1093.7	1084.9
62.5°	1067.0	1046.2	1016.7	987.1	975.2
65°	951.6	933.7	904.1	877.3	862.6
67.5°	833.1	817.9	791.5	770.8	758.8
70°	723.3	711.3	684.6	663.8	652.2
72.5°	610.7	598.7	584.0	563.2	554.4
75°	497.8	492.2	477.1	459.5	465.4
77.5°	397.2	385.2	379.2	370.4	361.6
80°	296.5	293.4	287.4	278.6	272.7
82.5°	201.6	201.6	198.8	186.8	186.8
85°	121.4	118.6	115.7	106.6	103.8
87.5°	53.5	47.5	41.5	32.7	29.5
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	9.43	10.24	10.43	11.26	12.60	8.98	9.80	9.99	10.81	12.16
	3H	11.09	11.82	12.10	12.84	14.21	10.60	11.33	11.61	12.35	13.72
	4H	11.68	12.37	12.70	13.40	14.77	11.18	11.88	12.21	12.90	14.28
	6H	12.08	12.72	13.12	13.75	15.13	11.58	12.22	12.62	13.25	14.63
	8H	12.18	12.79	13.23	13.84	15.22	11.68	12.29	12.72	13.34	14.72
	12H	12.23	12.81	13.28	13.85	15.26	11.72	12.30	12.77	13.34	14.75
4H	2H	9.88	10.58	10.92	11.60	12.98	9.53	10.22	10.56	11.25	12.62
	3H	11.75	12.33	12.79	13.38	14.77	11.34	11.92	12.38	12.97	14.36
	4H	12.47	13.00	13.51	14.04	15.45	12.04	12.57	13.09	13.62	15.03
	6H	12.98	13.44	14.04	14.51	15.91	12.55	13.01	13.61	14.07	15.48
	8H	13.13	13.56	14.19	14.62	16.04	12.70	13.12	13.76	14.18	15.61
	12H	13.21	13.59	14.28	14.67	16.09	12.76	13.14	13.83	14.22	15.64
8H	4H	12.66	13.08	13.72	14.15	15.57	12.28	12.71	13.34	13.77	15.19
	6H	13.29	13.65	14.38	14.75	16.17	12.91	13.26	13.99	14.36	15.78
	8H	13.52	13.83	14.61	14.91	16.35	13.12	13.43	14.21	14.52	15.96
	12H	13.65	13.92	14.74	15.00	16.48	13.24	13.51	14.33	14.59	16.07
12H	4H	12.64	13.03	13.72	14.10	15.53	12.28	12.66	13.35	13.73	15.16
	6H	13.32	13.63	14.41	14.72	16.16	12.95	13.26	14.04	14.35	15.79
	8H	13.57	13.84	14.66	14.92	16.40	13.19	13.46	14.28	14.54	16.02