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: P918491

Luminaire Tested: DFN2DIP-TR4F0-120D090US930-FLLONL

Issue Date: 11/21/2024

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Scaled Data Report

Test Information

Test Method:	LM-79-2019
Report Number:	P918491
	REPORT IS A COMBINATION OF REPORTS P901995 AND P898849
Test Lab:	INNOVATION CENTER
Issue Date:	11/21/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	NEO-RAY
Catalog Number:	DFN2DIP-TR4F0-120D090US930-FLLONL
Description:	4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source:	-
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	16950.0 lumens
Efficiency:	N/A
Efficacy:	87.7 lumens/watt
Spacing Criteria (0/90/45):	1.2 / 1.16 / 1.29
Luminous Opening:	Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type:	General Diffuse

Input Watts (W):	193.3
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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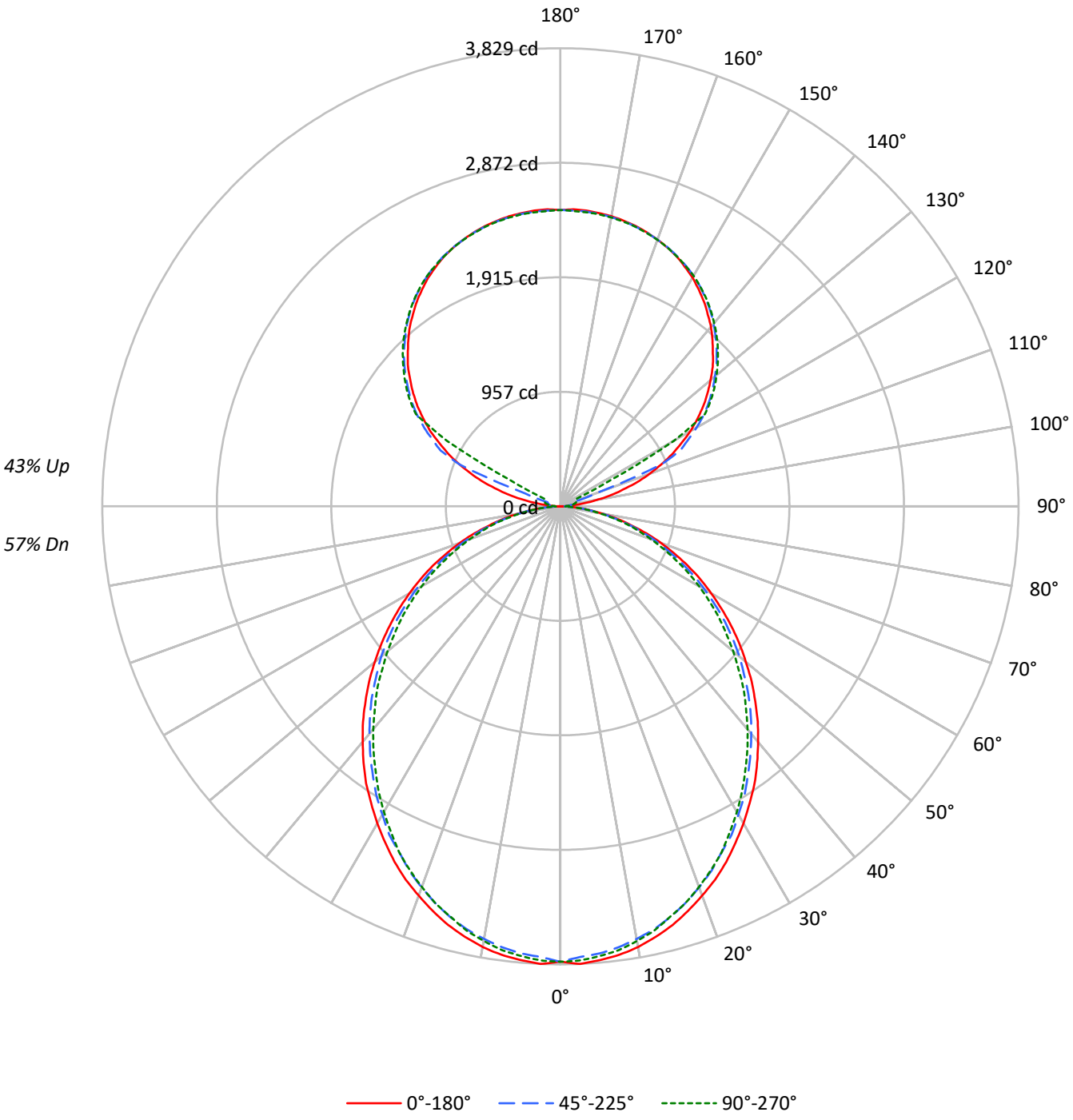
Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20			20			20			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	0
RCR																		
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63	57
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53	48
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45	40
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38	34
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	22
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3024	3024	3024
5°	3029	2982	3002
10°	3005	2942	2961
15°	2960	2893	2898
20°	2901	2826	2833
25°	2841	2746	2757
30°	2767	2671	2662
35°	2697	2582	2561
40°	2610	2493	2464
45°	2523	2404	2366
50°	2429	2310	2252
55°	2329	2201	2147
60°	2218	2072	2026
65°	2096	1939	1885
70°	1940	1776	1732
75°	1724	1581	1591
80°	1465	1333	1322
85°	1060	904	876

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2523 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	358.3	2.1
10°-20°	1008.1	5.9
20°-30°	1481.5	8.7
30°-40°	1720.7	10.2
40°-50°	1718.6	10.1
50°-60°	1498.5	8.8
60°-70°	1107.8	6.5
70°-80°	626.7	3.7
80°-90°	169.8	1.0
90°-100°	81.7	0.5
100°-110°	304.4	1.8
110°-120°	807.3	4.8
120°-130°	1339.0	7.9
130°-140°	1422.3	8.4
140°-150°	1321.9	7.8
150°-160°	1062.8	6.3
160°-170°	684.8	4.0
170°-180°	235.7	1.4
0°-30°	2848.0	16.8
0°-40°	4568.7	27.0
0°-60°	7785.8	45.9
0°-90°	9690.1	57.2
90°-120°	1193.4	7.0
90°-150°	5276.6	31.1
90°-180°	7260.0	42.8
0°-180°	16950.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3807	3807	3807	3807	3807	
5°	3807	3792	3752	3781	3774	361
15°	3624	3602	3554	3569	3551	1021
25°	3280	3251	3188	3196	3188	1509
35°	2830	2793	2734	2712	2694	1767
45°	2303	2277	2222	2182	2167	1777
55°	1743	1720	1677	1633	1614	1558
65°	1175	1153	1117	1084	1065	1162
75°	615	608	589	567	575	656
85°	150	146	143	132	128	167
90°	2	22	36	45	48	16
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	*3806.9*	3806.9	3806.9	3806.9	3806.9
2.5°	*3829.0*	*3810.7*	*3770.3*	*3806.9*	*3799.9*
5°	*3806.9*	3792.4	3752.1	3781.2	3774.2
7.5°	*3781.2*	3759.4	3719.1	3748.6	3741.2
10°	*3741.2*	3715.6	3671.7	3700.8	3690.0
12.5°	*3686.0*	3664.3	3620.4	3638.7	3631.3
15°	*3623.9*	3602.2	3554.4	3569.1	3550.9
17.5°	*3547.0*	3525.3	3477.5	3495.8	3477.5
20°	*3462.7*	3441.0	3389.8	3400.6	3386.3
22.5°	*3378.8*	3345.8	3298.0	3298.0	3290.7
25°	*3279.8*	3250.7	3188.5	3195.6	3188.5
27.5°	*3169.9*	3144.3	3096.9	3086.0	3067.8
30°	*3060.4*	3030.9	2976.1	2965.2	2950.5
32.5°	*2943.1*	2921.4	2862.7	2840.6	2825.8
35°	*2829.7*	2793.2	2734.5	2712.4	2694.2
37.5°	*2701.5*	2668.6	2609.9	2584.3	2566.0
40°	*2569.9*	2540.4	2481.7	2449.1	2434.3
42.5°	*2441.7*	2412.2	2353.9	2317.1	2295.3
45°	*2302.6*	2277.0	2221.9	2181.9	2167.1
47.5°	*2167.1*	2141.5	2082.8	2042.5	2020.7
50°	*2024.2*	2006.0	1954.7	1903.4	1885.1
52.5°	*1885.1*	1859.5	1812.2	1771.7	1746.1
55°	*1742.6*	1720.5	1676.6	1632.7	1614.5
57.5°	*1599.7*	1581.4	1533.7	1489.8	1475.0
60°	*1456.8*	1442.4	1391.1	1350.8	1339.9
62.5°	*1317.8*	1292.1	1255.6	1219.1	1204.4
65°	*1175.3*	1153.1	1116.6	1083.5	1065.4
67.5°	*1028.8*	1010.2	977.5	951.9	937.2
70°	*893.2*	878.5	845.5	819.9	805.5
72.5°	*754.2*	739.5	721.2	695.6	684.7
75°	*614.8*	607.8	589.1	567.4	574.8
77.5°	*490.5*	475.7	468.4	457.5	446.6
80°	*366.2*	362.3	355.0	344.1	336.7
82.5°	*248.9*	248.9	245.5	230.7	230.7
85°	*149.9*	146.4	142.9	131.7	128.2
87.5°	*66.0*	58.6	51.3	40.4	36.5
90°	*1.7*	21.5	35.7	44.9	48.3
92.5°	*44.9*	37.7	43.0	46.6	48.3
95°	*116.4*	57.2	69.8	78.9	77.0
97.5°	*209.6*	62.8	91.3	96.8	98.5
100°	*317.2*	71.7	102.2	116.4	120.0
102.5°	*435.4*	431.9	105.7	125.3	130.9
105°	*544.7*	598.6	109.3	129.0	136.2
107.5°	*672.0*	716.6	113.0	132.6	139.8
110°	*793.9*	831.4	313.6	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	*908.6*	940.7	910.3	137.9	143.4
115°	*1030.3*	1060.7	1105.6	276.0	147.0
117.5°	*1136.0*	1171.8	1202.4	946.1	476.6
120°	*1254.3*	1281.2	1313.5	1335.0	1093.1
122.5°	*1354.6*	1383.3	1419.3	1429.9	1431.8
125°	*1456.7*	1480.1	1514.2	1526.7	1532.0
127.5°	*1549.9*	1575.0	1602.1	1619.9	1621.6
130°	*1637.8*	1666.6	1686.1	1705.8	1704.2
132.5°	*1727.4*	1750.8	1770.3	1786.6	1784.9
135°	*1802.7*	1831.4	1847.4	1865.5	1861.9
137.5°	*1881.5*	1902.9	1921.0	1938.9	1933.6
140°	*1958.4*	1972.9	1992.5	2008.7	1999.8
142.5°	*2023.2*	2035.7	2058.9	2073.1	2064.3
145°	*2091.2*	2089.3	2119.8	2132.3	2123.4
147.5°	*2150.2*	2144.9	2175.3	2184.3	2177.2
150°	*2207.7*	2195.1	2223.8	2234.4	2225.5
152.5°	*2255.9*	2241.7	2268.5	2279.3	2266.8
155°	*2302.6*	2286.6	2308.0	2318.7	2304.4
157.5°	*2340.2*	2326.0	2342.1	2354.7	2340.2
160°	*2372.5*	2361.7	2372.5	2383.2	2370.6
162.5°	*2401.1*	2390.4	2399.3	2411.9	2395.8
165°	*2426.2*	2415.5	2420.9	2433.4	2420.9
167.5°	*2446.0*	2435.1	2440.6	2453.2	2437.0
170°	*2462.1*	2451.3	2454.9	2467.4	2451.3
172.5°	*2472.8*	2462.1	2465.7	2478.3	2462.1
175°	*2481.7*	2469.1	2472.8	2485.3	2467.4
177.5°	*2485.3*	2472.8	2474.7	2487.2	2471.1
180°	*2476.4*	2476.4	2476.4	2476.4	2476.4

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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	11.75	12.68	12.64	13.59	14.76	11.32	12.25	12.21	13.16	14.32
	3H	13.41	14.25	14.32	15.17	16.36	12.94	13.78	13.85	14.70	15.89
	4H	14.00	14.79	14.92	15.72	16.92	13.53	14.32	14.45	15.25	16.45
	6H	14.41	15.13	15.34	16.07	17.28	13.93	14.66	14.86	15.59	16.81
	8H	14.51	15.21	15.45	16.16	17.37	14.04	14.73	14.98	15.68	16.89
	12H	14.56	15.22	15.51	16.17	17.41	14.08	14.74	15.03	15.69	16.93
4H	2H	12.22	13.01	13.14	13.94	15.13	11.87	12.66	12.80	13.59	14.79
	3H	14.09	14.75	15.03	15.71	16.92	13.70	14.36	14.63	15.32	16.53
	4H	14.81	15.41	15.75	16.36	17.60	14.40	15.00	15.35	15.96	17.20
	6H	15.33	15.84	16.29	16.82	18.06	14.92	15.44	15.88	16.41	17.65
	8H	15.48	15.96	16.44	16.93	18.19	15.07	15.55	16.03	16.52	17.77
	12H	15.55	15.99	16.53	16.98	18.24	15.13	15.57	16.11	16.56	17.82
8H	4H	15.01	15.49	15.97	16.46	17.72	14.65	15.13	15.61	16.10	17.36
	6H	15.64	16.04	16.63	17.06	18.31	15.28	15.68	16.27	16.69	17.95
	8H	15.87	16.22	16.86	17.22	18.49	15.50	15.85	16.49	16.85	18.12
	12H	16.00	16.31	17.00	17.31	18.62	15.62	15.93	16.62	16.92	18.24
12H	4H	15.00	15.44	15.98	16.42	17.68	14.65	15.08	15.63	16.07	17.33
	6H	15.67	16.03	16.67	17.03	18.30	15.32	15.68	16.32	16.68	17.95
	8H	15.92	16.23	16.92	17.23	18.54	15.56	15.87	16.56	16.87	18.19

END OF REPORT