

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: P918363

Luminaire Tested: DFN2DIP-TR4F0-090D040US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918363
REPORT IS A COMBINATION OF REPORTS P901899 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D040US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

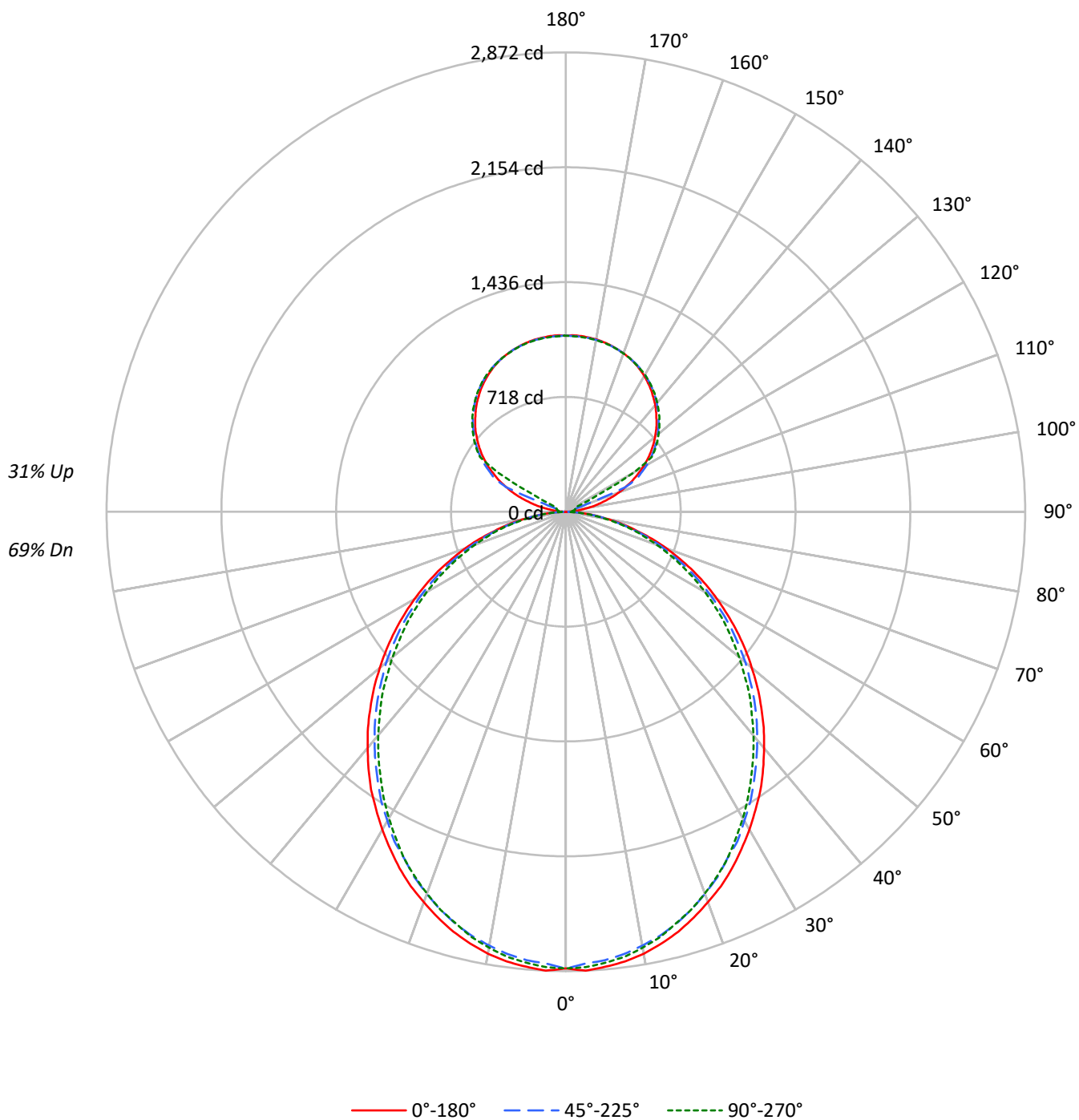
Lumens per Lamp: N/A
Luminaire Lumens: 10492.9 lumens
Efficiency: N/A
Efficacy: 89.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 117.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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
RCR																	
0	112	112	112	112	106	106	106	106	94	94	94		83	83	83		74
1	102	98	94	90	96	92	89	86	83	80	77		74	72	70		65
2	93	85	79	74	88	81	75	70	72	68	64		65	61	58		57
3	85	75	67	61	80	71	64	59	64	59	54		57	53	49		51
4	78	67	58	52	73	63	56	50	57	51	46		51	46	42		46
5	71	59	51	45	67	57	49	43	51	45	40		46	41	37		41
6	66	53	45	39	62	51	43	38	46	40	35		42	36	32		37
7	61	48	40	34	58	46	39	33	42	36	31		38	33	29		34
8	57	44	36	31	54	42	35	30	38	32	28		35	29	26		31
9	53	40	33	27	50	39	31	27	35	29	25		32	27	23		29
10	50	37	30	25	47	36	29	24	32	27	22		30	25	21		27

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2268	2268	2268
5°	2272	2237	2252
10°	2253	2206	2221
15°	2220	2170	2173
20°	2176	2120	2125
25°	2131	2059	2068
30°	2075	2003	1996
35°	2022	1937	1920
40°	1957	1870	1848
45°	1892	1803	1774
50°	1821	1732	1689
55°	1747	1651	1610
60°	1663	1554	1520
65°	1572	1454	1413
70°	1455	1332	1299
75°	1293	1186	1193
80°	1099	1000	991
85°	795	678	657

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1892 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.7	2.6
10°-20°	756.1	7.2
20°-30°	1111.2	10.6
30°-40°	1290.5	12.3
40°-50°	1288.9	12.3
50°-60°	1123.9	10.7
60°-70°	830.8	7.9
70°-80°	470.1	4.5
80°-90°	126.0	1.2
90°-100°	36.3	0.3
100°-110°	135.3	1.3
110°-120°	358.8	3.4
120°-130°	595.1	5.7
130°-140°	632.1	6.0
140°-150°	587.5	5.6
150°-160°	472.3	4.5
160°-170°	304.4	2.9
170°-180°	104.8	1.0
0°-30°	2136.0	20.4
0°-40°	3426.5	32.7
0°-60°	5839.4	55.7
0°-90°	7266.3	69.2
90°-120°	530.4	5.1
90°-150°	2345.2	22.3
90°-180°	3227.0	30.8
0°-180°	10492.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	1	10	16	20	21	10
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	679	681	577
135°	801	814	821	829	828	619
145°	929	929	942	948	944	581
155°	1023	1016	1026	1030	1024	472
165°	1078	1074	1076	1082	1076	305
175°	1103	1097	1099	1105	1097	105
180°	1101	1101	1101	1101	1101	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.1	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	141.0	31.9	45.4	51.7	53.3
102.5°	193.5	192.0	47.0	55.7	58.1
105°	242.1	266.0	48.6	57.3	60.5
107.5°	298.6	318.5	50.2	58.9	62.1
110°	352.9	369.5	139.4	59.8	62.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.8	418.1	404.6	61.3	63.8
115°	457.9	471.4	491.4	122.6	65.4
117.5°	504.9	520.8	534.4	420.4	211.8
120°	557.5	569.4	583.8	593.4	485.8
122.5°	602.0	614.8	630.8	635.5	636.3
125°	647.4	657.9	672.9	678.6	680.9
127.5°	688.8	700.0	712.0	720.0	720.7
130°	727.9	740.7	749.3	758.1	757.4
132.5°	767.7	778.1	786.8	794.0	793.3
135°	801.2	814.0	821.1	829.1	827.5
137.5°	836.2	845.7	853.8	861.7	859.3
140°	870.4	876.9	885.6	892.8	888.8
142.5°	899.2	904.7	915.1	921.4	917.5
145°	929.4	928.6	942.1	947.7	943.7
147.5°	955.6	953.2	966.8	970.8	967.7
150°	981.1	975.6	988.4	993.1	989.1
152.5°	1002.7	996.3	1008.2	1013.0	1007.5
155°	1023.4	1016.3	1025.8	1030.5	1024.2
157.5°	1040.1	1033.7	1041.0	1046.5	1040.1
160°	1054.4	1049.6	1054.4	1059.2	1053.6
162.5°	1067.1	1062.4	1066.4	1072.0	1064.8
165°	1078.3	1073.6	1075.9	1081.5	1075.9
167.5°	1087.1	1082.2	1084.8	1090.3	1083.1
170°	1094.3	1089.5	1091.0	1096.7	1089.5
172.5°	1099.0	1094.3	1095.9	1101.5	1094.3
175°	1102.9	1097.4	1099.0	1104.6	1096.7
177.5°	1104.6	1099.0	1099.8	1105.5	1098.3
180°	1100.7	1100.7	1100.7	1100.7	1100.7

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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	11.72	12.79	12.50	13.58	14.55	11.29	12.36	12.06	13.15	14.12
	3H	13.40	14.36	14.18	15.16	16.16	12.93	13.88	13.71	14.69	15.69
	4H	14.00	14.90	14.80	15.71	16.72	13.52	14.43	14.33	15.24	16.25
	6H	14.41	15.24	15.22	16.06	17.08	13.93	14.77	14.75	15.59	16.61
	8H	14.52	15.31	15.34	16.15	17.17	14.04	14.84	14.87	15.68	16.70
	12H	14.57	15.33	15.40	16.16	17.21	14.09	14.85	14.92	15.68	16.73
4H	2H	12.21	13.11	13.02	13.93	14.93	11.87	12.77	12.67	13.58	14.59
	3H	14.09	14.85	14.91	15.70	16.72	13.70	14.46	14.52	15.30	16.33
	4H	14.82	15.50	15.65	16.35	17.40	14.41	15.10	15.24	15.94	17.00
	6H	15.34	15.94	16.19	16.81	17.86	14.93	15.53	15.78	16.40	17.45
	8H	15.50	16.05	16.35	16.92	17.99	15.09	15.64	15.94	16.51	17.58
	12H	15.58	16.08	16.45	16.97	18.04	15.16	15.66	16.03	16.54	17.62
8H	4H	15.03	15.59	15.88	16.45	17.52	14.67	15.23	15.52	16.09	17.16
	6H	15.67	16.13	16.55	17.04	18.11	15.31	15.77	16.19	16.67	17.74
	8H	15.89	16.30	16.78	17.20	18.29	15.52	15.93	16.41	16.83	17.92
	12H	16.03	16.39	16.93	17.29	18.42	15.65	16.01	16.54	16.90	18.04
12H	4H	15.02	15.53	15.90	16.41	17.49	14.67	15.17	15.55	16.06	17.13
	6H	15.70	16.11	16.59	17.01	18.10	15.35	15.76	16.24	16.66	17.75
	8H	15.95	16.31	16.85	17.21	18.34	15.60	15.96	16.49	16.85	17.99