

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: P921192

Luminaire Tested: DFN2DIP-TR4F0-110D110US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921192
REPORT IS A COMBINATION OF REPORTS P900510 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D110US935-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

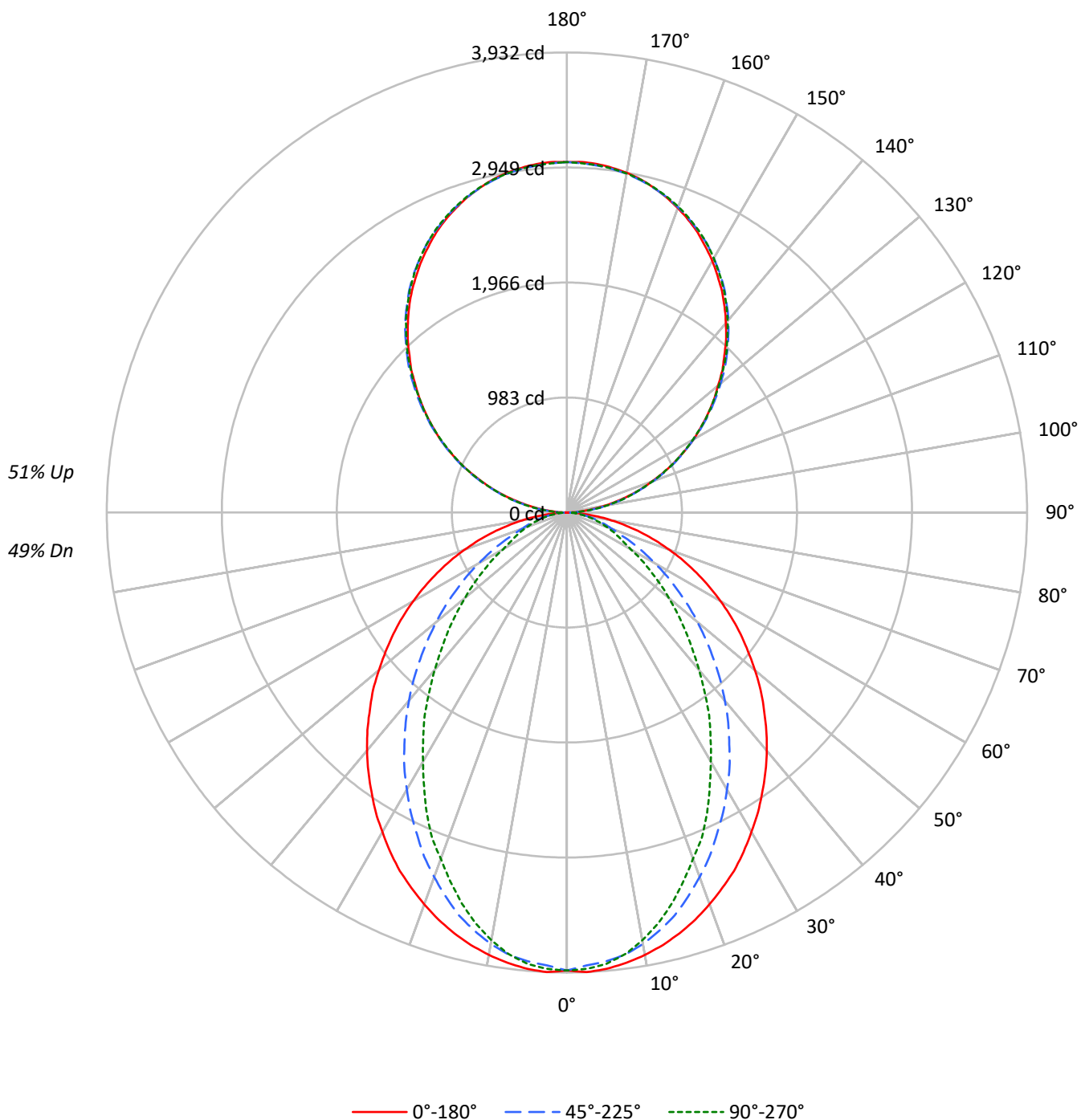
Lumens per Lamp: N/A
Luminaire Lumens: 16432.2 lumens
Efficiency: N/A
Efficacy: 83.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 197.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3110	3110	3110
5°	3115	3060	3080
10°	3084	3000	2979
15°	3041	2901	2824
20°	2985	2764	2634
25°	2928	2611	2451
30°	2851	2454	2218
35°	2775	2285	2013
40°	2698	2110	1779
45°	2609	1916	1566
50°	2516	1721	1358
55°	2420	1511	1159
60°	2308	1293	954
65°	2179	1070	858
70°	2024	863	777
75°	1828	761	706
80°	1544	638	612
85°	1076	425	459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2609 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.2
10°-20°	1007.1	6.1
20°-30°	1413.9	8.6
30°-40°	1541.3	9.4
40°-50°	1416.6	8.6
50°-60°	1112.5	6.8
60°-70°	724.2	4.4
70°-80°	372.8	2.3
80°-90°	103.7	0.6
90°-100°	185.3	1.1
100°-110°	588.9	3.6
110°-120°	1007.8	6.1
120°-130°	1325.4	8.1
130°-140°	1487.7	9.1
140°-150°	1458.9	8.9
150°-160°	1223.8	7.4
160°-170°	811.6	4.9
170°-180°	283.7	1.7
0°-30°	2787.9	17.0
0°-40°	4329.1	26.3
0°-60°	6858.3	41.7
0°-90°	8058.9	49.0
90°-120°	1782.1	10.8
90°-150°	6054.2	36.8
90°-180°	8373.0	51.0
0°-180°	16432.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	3	32	88	83	86	16
95°	132	157	162	162	157	147
105°	544	551	556	561	561	574
115°	1011	1026	1021	1019	1011	1000
125°	1471	1494	1486	1478	1476	1315
135°	1903	1931	1936	1933	1926	1471
145°	2310	2328	2342	2345	2335	1443
155°	2641	2648	2657	2669	2661	1216
165°	2873	2871	2871	2889	2876	811
175°	2990	2983	2977	2995	2980	284
180°	2995	2995	2995	2995	2995	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.5	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.0	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.0	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.2	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.6	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.8	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.8	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
90°	2.7	32.5	88.5	83.1	85.8
92.5°	56.0	75.9	78.5	81.3	81.3
95°	131.8	157.1	161.6	161.6	157.1
97.5°	219.5	242.9	252.9	252.9	252.9
100°	320.5	341.3	348.5	348.5	345.9
102.5°	427.1	442.5	452.5	455.1	452.5
105°	543.6	550.9	556.3	560.8	560.8
107.5°	659.2	670.0	670.0	671.8	659.2
110°	771.2	785.7	785.7	785.7	778.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	892.2	907.5	904.8	897.6	892.2
115°	1011.4	1025.8	1021.3	1018.6	1011.4
117.5°	1129.7	1149.5	1136.9	1129.7	1122.5
120°	1248.9	1268.8	1248.9	1248.9	1240.8
122.5°	1357.3	1382.5	1369.8	1362.6	1357.3
125°	1471.0	1493.6	1486.3	1478.2	1475.5
127.5°	1582.1	1610.1	1600.2	1589.3	1582.1
130°	1685.9	1718.5	1713.9	1708.5	1698.6
132.5°	1802.4	1827.7	1829.5	1816.9	1809.6
135°	1902.6	1930.6	1936.0	1933.4	1926.1
137.5°	2014.6	2037.2	2041.7	2039.9	2029.1
140°	2113.1	2135.6	2148.3	2148.3	2138.4
142.5°	2214.2	2236.8	2244.0	2246.7	2236.8
145°	2309.9	2328.0	2342.4	2345.1	2335.2
147.5°	2395.7	2418.3	2429.1	2433.6	2423.7
150°	2484.2	2499.6	2509.5	2517.6	2509.5
152.5°	2562.8	2578.1	2590.7	2600.7	2590.7
155°	2641.4	2648.5	2656.7	2669.4	2661.2
157.5°	2709.0	2714.5	2718.9	2737.0	2724.4
160°	2769.6	2775.0	2777.7	2793.1	2782.2
162.5°	2825.5	2825.5	2828.3	2845.4	2832.8
165°	2873.4	2870.7	2870.7	2888.7	2876.1
167.5°	2916.7	2908.6	2908.6	2926.7	2914.0
170°	2949.3	2942.0	2939.4	2957.4	2942.0
172.5°	2971.8	2964.6	2961.9	2980.0	2964.6
175°	2989.9	2982.7	2977.2	2995.3	2980.0
177.5°	2999.8	2992.6	2987.1	3002.6	2987.1
180°	2995.3	2995.3	2995.3	2995.3	2995.3

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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	10.99	11.81	11.96	12.80	14.08	6.96	7.79	7.94	8.77	10.06
	3H	12.67	13.40	13.65	14.39	15.70	8.15	8.89	9.14	9.88	11.19
	4H	13.28	13.97	14.27	14.97	16.28	8.60	9.30	9.60	10.29	11.61
	6H	13.70	14.34	14.70	15.34	16.67	8.93	9.57	9.93	10.57	11.90
	8H	13.82	14.43	14.84	15.45	16.77	9.02	9.63	10.03	10.64	11.97
	12H	13.89	14.46	14.90	15.47	16.82	9.06	9.64	10.08	10.65	12.00
4H	2H	11.01	11.70	12.01	12.70	14.02	7.56	8.25	8.56	9.25	10.57
	3H	12.84	13.42	13.85	14.44	15.77	8.91	9.49	9.92	10.51	11.84
	4H	13.53	14.06	14.55	15.07	16.43	9.46	9.99	10.48	11.00	12.36
	6H	14.04	14.50	15.07	15.54	16.89	9.88	10.33	10.91	11.37	12.72
	8H	14.22	14.64	15.25	15.67	17.04	10.01	10.43	11.04	11.46	12.83
	12H	14.31	14.70	15.36	15.74	17.11	10.07	10.46	11.12	11.50	12.87
8H	4H	13.50	13.92	14.53	14.95	16.32	9.74	10.16	10.77	11.19	12.56
	6H	14.06	14.41	15.12	15.49	16.85	10.26	10.61	11.31	11.68	13.04
	8H	14.28	14.59	15.34	15.65	17.03	10.45	10.76	11.51	11.82	13.20
	12H	14.42	14.69	15.48	15.74	17.17	10.57	10.84	11.63	11.89	13.32
12H	4H	13.45	13.83	14.50	14.88	16.25	9.74	10.12	10.79	11.17	12.54
	6H	14.04	14.35	15.10	15.40	16.79	10.31	10.61	11.37	11.67	13.06
	8H	14.26	14.53	15.32	15.58	17.01	10.52	10.79	11.58	11.84	13.27

END OF REPORT