

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: P921092

Luminaire Tested: DFN2DIP-TR4F0-090D040US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921092
REPORT IS A COMBINATION OF REPORTS P900380 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D040US935-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

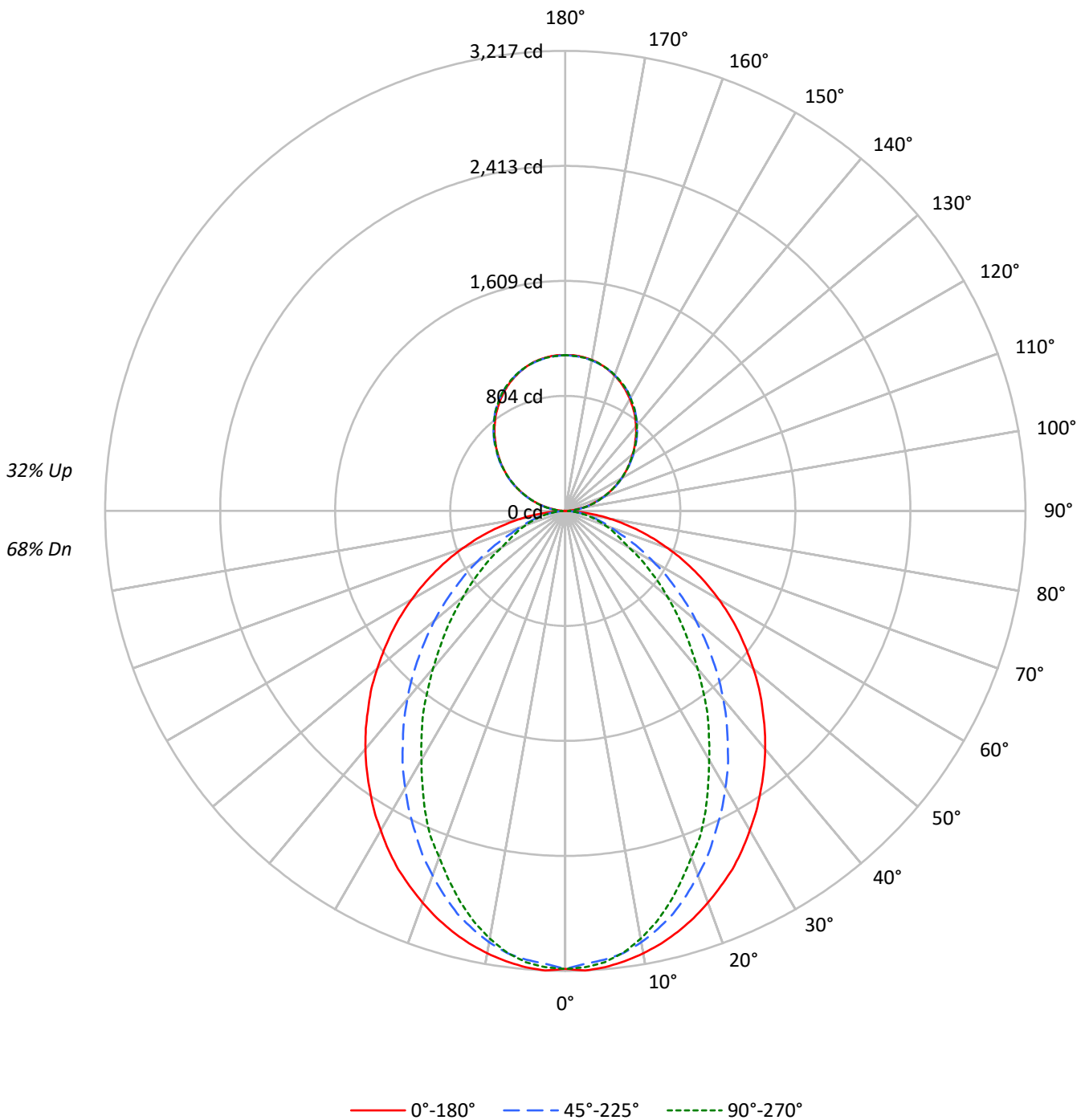
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9634.6 lumens
Efficiency: N/A
Efficacy: 81.8 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: 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				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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	68				68
1	103	98	95	91	97	93	90	87	83	81	78	74	72	70	66	64	63	59				59
2	94	87	81	76	89	82	77	72	74	70	66	66	63	60	59	56	54	50				50
3	86	77	70	64	81	73	67	61	66	61	56	59	55	51	52	49	47	44				44
4	79	69	61	55	75	65	58	53	59	53	49	53	48	45	47	44	41	38				38
5	73	62	53	48	69	59	51	46	53	47	43	48	43	39	43	39	36	33				33
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	39	35	32	30				30
7	63	51	43	37	59	48	41	36	44	38	33	40	35	31	36	32	29	27				27
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24				24
9	55	42	35	30	52	41	34	29	37	31	27	34	29	25	31	27	24	22				22
10	51	39	32	27	48	37	31	26	34	29	25	32	27	23	29	25	22	20				20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2544	2544	2544
5°	2548	2504	2520
10°	2523	2455	2438
15°	2488	2374	2311
20°	2443	2262	2155
25°	2396	2136	2005
30°	2332	2008	1815
35°	2271	1870	1647
40°	2208	1726	1455
45°	2134	1568	1281
50°	2059	1408	1111
55°	1980	1236	948
60°	1888	1058	780
65°	1783	876	702
70°	1656	706	635
75°	1496	622	578
80°	1264	522	501
85°	880	348	376

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2134 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	3.1
10°-20°	824.0	8.6
20°-30°	1156.9	12.0
30°-40°	1261.0	13.1
40°-50°	1159.0	12.0
50°-60°	910.3	9.4
60°-70°	592.5	6.1
70°-80°	305.0	3.2
80°-90°	80.9	0.8
90°-100°	67.4	0.7
100°-110°	214.2	2.2
110°-120°	366.5	3.8
120°-130°	482.0	5.0
130°-140°	541.0	5.6
140°-150°	530.5	5.5
150°-160°	445.0	4.6
160°-170°	295.1	3.1
170°-180°	103.2	1.1
0°-30°	2281.0	23.7
0°-40°	3542.0	36.8
0°-60°	5611.3	58.2
0°-90°	6589.7	68.4
90°-120°	648.0	6.7
90°-150°	2201.5	22.9
90°-180°	3045.0	31.6
0°-180°	9634.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	1	12	32	30	31	9
95°	48	57	59	59	57	53
105°	198	200	202	204	204	209
115°	368	373	371	370	368	364
125°	535	543	540	538	537	478
135°	692	702	704	703	700	535
145°	840	846	852	853	849	525
155°	960	963	966	971	968	442
165°	1045	1044	1044	1050	1046	295
175°	1087	1085	1083	1089	1084	103
180°	1089	1089	1089	1089	1089	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	0.9	11.8	32.2	30.2	31.2
92.5°	20.3	27.6	28.6	29.5	29.5
95°	48.0	57.2	58.8	58.8	57.2
97.5°	79.8	88.3	92.0	92.0	92.0
100°	116.6	124.2	126.7	126.7	125.8
102.5°	155.3	160.9	164.5	165.5	164.5
105°	197.7	200.3	202.2	203.9	203.9
107.5°	239.7	243.7	243.7	244.3	239.7
110°	280.4	285.7	285.7	285.7	283.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	324.4	330.0	329.0	326.4	324.4
115°	367.7	373.1	371.3	370.4	367.7
117.5°	410.8	418.0	413.5	410.8	408.2
120°	454.2	461.3	454.2	454.2	451.2
122.5°	493.5	502.7	498.2	495.5	493.5
125°	534.9	543.1	540.5	537.5	536.6
127.5°	575.3	585.5	581.9	577.9	575.3
130°	613.0	624.9	623.3	621.3	617.7
132.5°	655.4	664.6	665.3	660.6	658.1
135°	691.9	702.1	704.0	703.0	700.4
137.5°	732.6	740.8	742.4	741.7	737.9
140°	768.4	776.6	781.2	781.2	777.6
142.5°	805.2	813.4	816.0	817.0	813.4
145°	840.0	846.5	851.8	852.8	849.2
147.5°	871.2	879.3	883.3	884.9	881.3
150°	903.4	909.0	912.6	915.5	912.6
152.5°	931.9	937.5	942.1	945.7	942.1
155°	960.4	963.1	966.0	970.7	967.7
157.5°	985.2	987.0	988.7	995.3	990.7
160°	1007.1	1009.1	1010.0	1015.6	1011.7
162.5°	1027.4	1027.4	1028.5	1034.7	1030.1
165°	1044.9	1043.9	1043.9	1050.4	1045.9
167.5°	1060.7	1057.6	1057.6	1064.3	1059.6
170°	1072.5	1069.8	1068.8	1075.4	1069.8
172.5°	1080.6	1078.1	1077.0	1083.7	1078.1
175°	1087.3	1084.6	1082.6	1089.2	1083.7
177.5°	1090.9	1088.2	1086.2	1091.8	1086.2
180°	1089.2	1089.2	1089.2	1089.2	1089.2



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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	11.95	12.96	12.74	13.77	14.75	7.93	8.93	8.72	9.74	10.72
	3H	13.64	14.54	14.45	15.36	16.37	9.13	10.03	9.93	10.85	11.86
	4H	14.26	15.11	15.08	15.93	16.96	9.59	10.44	10.41	11.26	12.29
	6H	14.69	15.47	15.52	16.30	17.34	9.92	10.70	10.75	11.53	12.57
	8H	14.82	15.57	15.66	16.42	17.45	10.02	10.76	10.86	11.61	12.65
	12H	14.89	15.60	15.73	16.44	17.51	10.07	10.77	10.91	11.62	12.68
4H	2H	11.99	12.84	12.82	13.67	14.69	8.54	9.39	9.37	10.22	11.24
	3H	13.84	14.54	14.67	15.40	16.44	9.91	10.62	10.75	11.47	12.51
	4H	14.54	15.18	15.38	16.03	17.10	10.47	11.11	11.31	11.96	13.03
	6H	15.06	15.61	15.93	16.49	17.57	10.90	11.45	11.76	12.33	13.40
	8H	15.24	15.76	16.11	16.63	17.72	11.03	11.54	11.90	12.42	13.50
	12H	15.34	15.81	16.23	16.70	17.79	11.10	11.57	11.99	12.46	13.55
8H	4H	14.52	15.03	15.38	15.91	16.99	10.76	11.27	11.63	12.15	13.23
	6H	15.09	15.52	15.98	16.43	17.52	11.28	11.71	12.18	12.63	13.71
	8H	15.31	15.68	16.21	16.60	17.70	11.48	11.85	12.38	12.77	13.87
	12H	15.45	15.79	16.36	16.69	17.84	11.60	11.94	12.51	12.84	14.00
12H	4H	14.48	14.94	15.36	15.84	16.93	10.77	11.24	11.66	12.13	13.22
	6H	15.07	15.44	15.97	16.35	17.46	11.33	11.71	12.24	12.62	13.73
	8H	15.29	15.63	16.20	16.53	17.68	11.55	11.89	12.46	12.79	13.94