

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: P909796

Luminaire Tested: DFN2DIP-TR2F0-060D020US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909796
REPORT IS A COMBINATION OF REPORTS P900229 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-060D020US840-FLLFLL
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

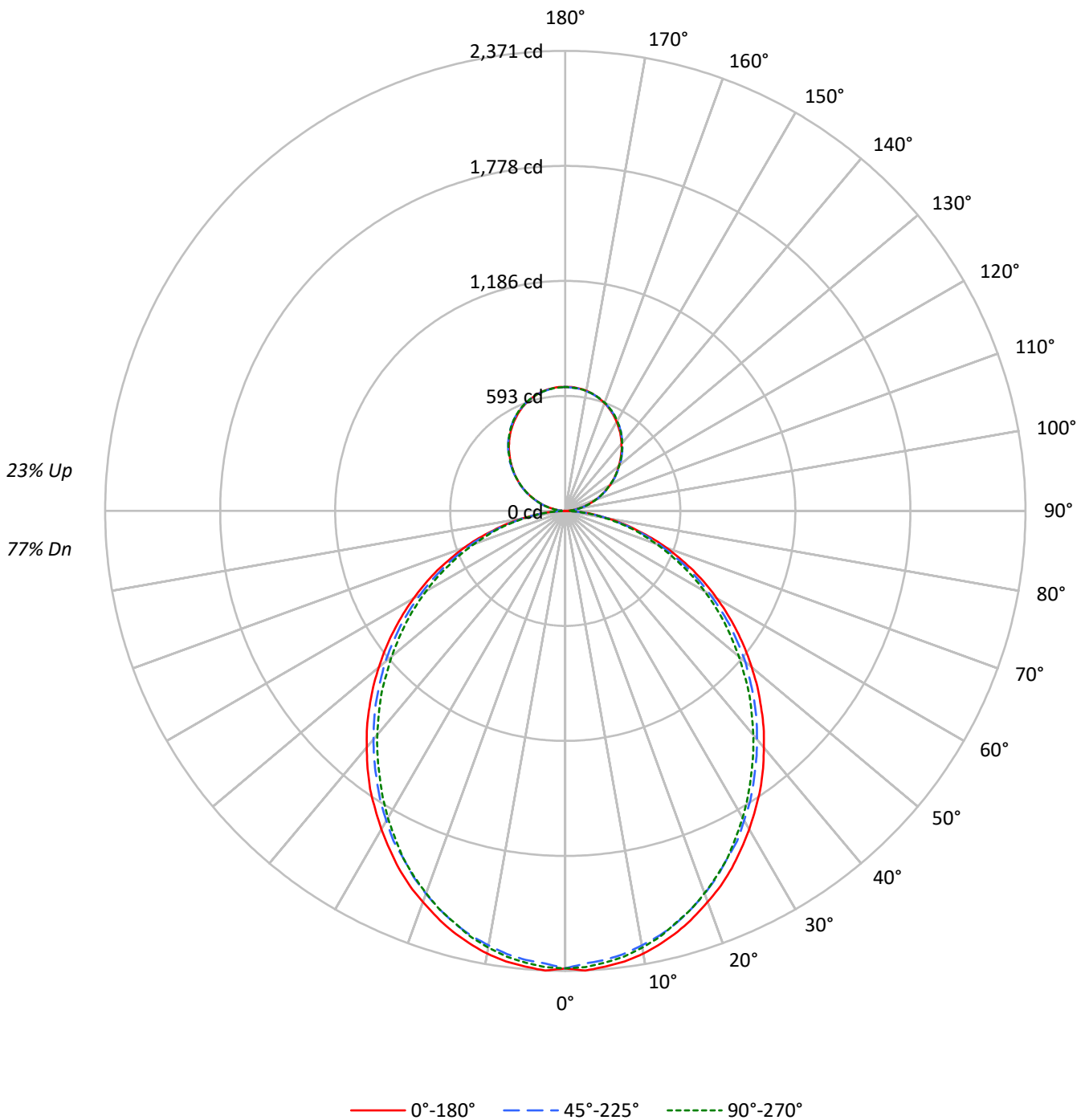
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7786.1 lumens
Efficiency: N/A
Efficacy: 104.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 74.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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			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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81	77			77
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68	65			65
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58	54			54
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49	46			46
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42	40			40
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37	34			34
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33	30			30
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29	27			27
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26	24			24
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24	22			22
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22	20			20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5258	5258	5258
5°	5259	5173	5211
10°	5209	5092	5131
15°	5124	4997	5012
20°	5013	4868	4891
25°	4902	4718	4751
30°	4765	4577	4577
35°	4634	4412	4393
40°	4475	4245	4216
45°	4316	4077	4036
50°	4141	3901	3828
55°	3957	3697	3634
60°	3750	3457	3412
65°	3521	3206	3151
70°	3232	2900	2868
75°	2833	2534	2594
80°	2349	2067	2096
85°	1600	1303	1303

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4316 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.8
10°-20°	624.4	8.0
20°-30°	917.5	11.8
30°-40°	1065.7	13.7
40°-50°	1064.4	13.7
50°-60°	928.1	11.9
60°-70°	686.1	8.8
70°-80°	388.2	5.0
80°-90°	104.3	1.3
90°-100°	39.5	0.5
100°-110°	125.6	1.6
110°-120°	214.9	2.8
120°-130°	282.7	3.6
130°-140°	317.3	4.1
140°-150°	311.1	4.0
150°-160°	261.0	3.4
160°-170°	173.1	2.2
170°-180°	60.5	0.8
0°-30°	1763.8	22.7
0°-40°	2829.5	36.3
0°-60°	4821.9	61.9
0°-90°	6000.4	77.1
90°-120°	380.0	4.9
90°-150°	1291.1	16.6
90°-180°	1786.0	22.9
0°-180°	7786.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	7	19	18	18	7
95°	28	34	34	34	34	31
105°	116	117	119	120	120	122
115°	216	219	218	217	216	213
125°	314	318	317	315	315	280
135°	406	412	413	412	411	314
145°	493	496	500	500	498	308
155°	563	565	566	569	568	259
165°	613	612	612	616	613	173
175°	638	636	635	639	636	61
180°	639	639	639	639	639	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	0.6	7.0	18.9	17.7	18.3
92.5°	11.9	16.2	16.8	17.4	17.4
95°	28.1	33.5	34.4	34.4	33.5
97.5°	46.8	51.8	53.9	53.9	53.9
100°	68.4	72.8	74.3	74.3	73.7
102.5°	91.1	94.3	96.4	97.0	96.4
105°	115.9	117.4	118.7	119.6	119.6
107.5°	140.6	142.9	142.9	143.3	140.6
110°	164.5	167.5	167.5	167.5	166.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	190.3	193.5	193.0	191.4	190.3
115°	215.7	218.7	217.8	217.2	215.7
117.5°	241.0	245.2	242.5	241.0	239.3
120°	266.3	270.5	266.3	266.3	264.6
122.5°	289.4	294.8	292.2	290.6	289.4
125°	313.7	318.5	317.0	315.3	314.7
127.5°	337.4	343.4	341.2	338.9	337.4
130°	359.5	366.5	365.5	364.4	362.2
132.5°	384.4	389.8	390.1	387.5	385.9
135°	405.8	411.7	412.8	412.3	410.7
137.5°	429.6	434.4	435.5	435.1	432.7
140°	450.6	455.4	458.2	458.2	456.1
142.5°	472.2	477.0	478.6	479.1	477.0
145°	492.6	496.4	499.6	500.1	498.0
147.5°	510.9	515.7	518.1	519.0	516.8
150°	529.8	533.0	535.1	536.8	535.1
152.5°	546.5	549.8	552.5	554.6	552.5
155°	563.3	564.8	566.5	569.3	567.5
157.5°	577.7	578.9	579.9	583.7	581.0
160°	590.7	591.8	592.4	595.6	593.3
162.5°	602.6	602.6	603.1	606.8	604.1
165°	612.8	612.2	612.2	616.0	613.4
167.5°	622.0	620.3	620.3	624.1	621.5
170°	628.9	627.4	626.8	630.7	627.4
172.5°	633.8	632.2	631.7	635.5	632.2
175°	637.6	636.1	634.9	638.7	635.5
177.5°	639.7	638.2	637.0	640.3	637.0
180°	638.7	638.7	638.7	638.7	638.7



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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	15.11	16.28	15.79	16.98	17.81	14.69	15.86	15.37	16.56	17.38
	3H	16.77	17.82	17.47	18.53	19.39	16.31	17.36	17.00	18.07	18.93
	4H	17.35	18.35	18.07	19.07	19.94	16.89	17.89	17.61	18.61	19.48
	6H	17.75	18.67	18.48	19.40	20.29	17.29	18.21	18.02	18.94	19.83
	8H	17.86	18.73	18.60	19.48	20.37	17.40	18.27	18.14	19.02	19.91
	12H	17.91	18.74	18.65	19.49	20.40	17.44	18.28	18.19	19.02	19.94
4H	2H	15.60	16.59	16.32	17.31	18.18	15.26	16.25	15.98	16.98	17.84
	3H	17.46	18.29	18.20	19.05	19.94	17.08	17.91	17.81	18.67	19.56
	4H	18.17	18.93	18.92	19.69	20.60	17.78	18.53	18.53	19.29	20.21
	6H	18.68	19.34	19.45	20.12	21.05	18.29	18.94	19.05	19.73	20.65
	8H	18.83	19.44	19.60	20.22	21.16	18.43	19.04	19.20	19.82	20.76
	12H	18.90	19.45	19.70	20.26	21.20	18.50	19.05	19.29	19.85	20.80
8H	4H	18.38	18.99	19.15	19.78	20.71	18.03	18.64	18.80	19.42	20.36
	6H	19.00	19.51	19.80	20.33	21.27	18.65	19.15	19.45	19.98	20.92
	8H	19.21	19.66	20.02	20.48	21.44	18.85	19.30	19.66	20.13	21.08
	12H	19.34	19.74	20.15	20.55	21.56	18.97	19.37	19.78	20.18	21.19
12H	4H	18.38	18.93	19.17	19.74	20.68	18.04	18.59	18.83	19.39	20.33
	6H	19.03	19.48	19.84	20.30	21.26	18.68	19.14	19.50	19.96	20.91
	8H	19.27	19.66	20.08	20.48	21.49	18.92	19.32	19.73	20.13	21.14