

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: P923779

Luminaire Tested: DFN2DIP-TR4F0-070D120US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923779
REPORT IS A COMBINATION OF REPORTS P902039 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D120US940-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

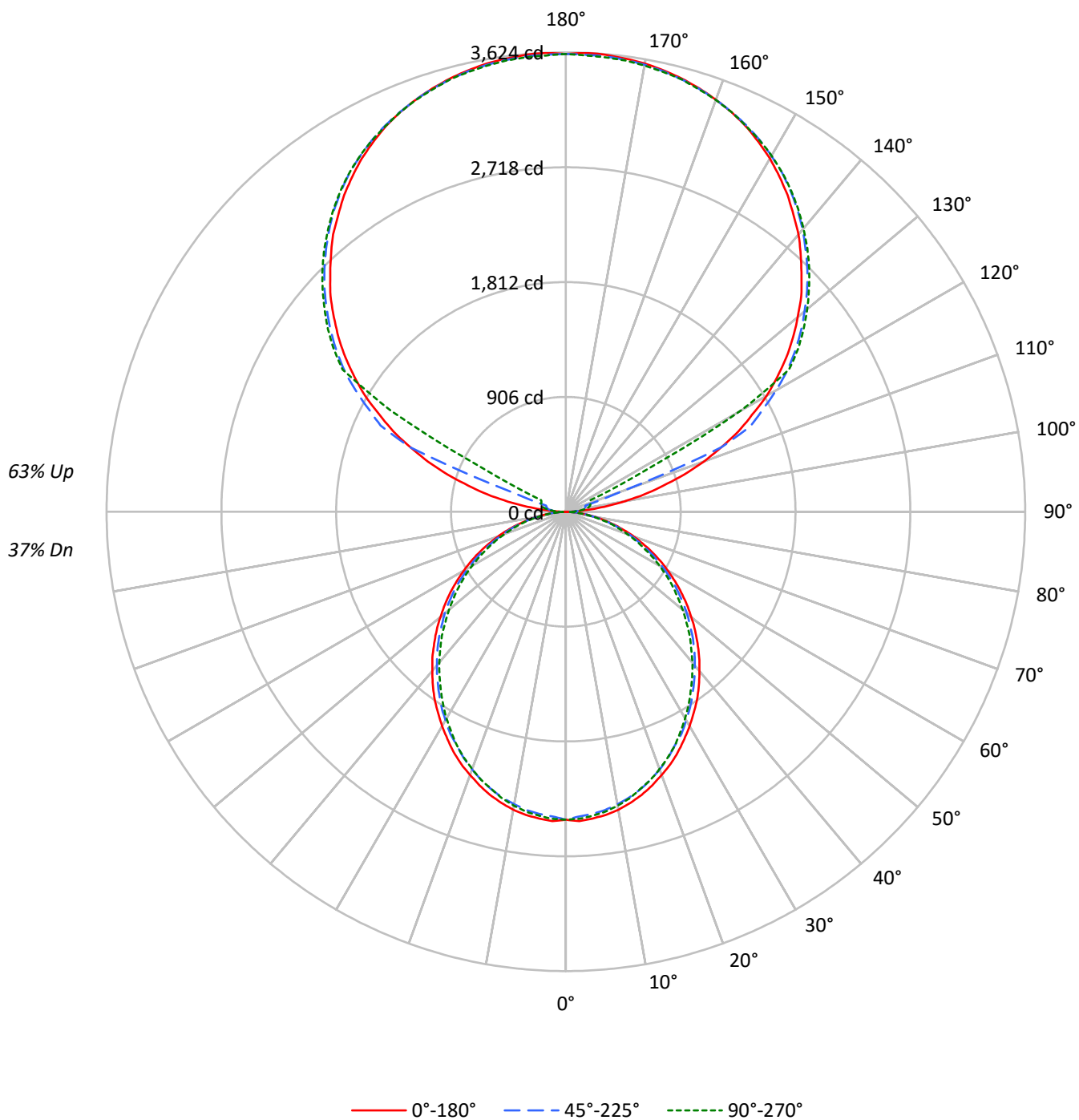
Lumens per Lamp: N/A
Luminaire Lumens: 16773.1 lumens
Efficiency: N/A
Efficacy: 106.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 156.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1930	1930	1930
5°	1933	1903	1915
10°	1917	1877	1889
15°	1889	1846	1849
20°	1851	1803	1807
25°	1813	1752	1759
30°	1765	1704	1698
35°	1720	1648	1634
40°	1665	1591	1572
45°	1610	1534	1509
50°	1549	1474	1436
55°	1486	1404	1370
60°	1415	1322	1293
65°	1337	1237	1202
70°	1238	1133	1105
75°	1100	1009	1015
80°	935	850	843
85°	677	577	559

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1916 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	1.4
10°-20°	643.2	3.8
20°-30°	945.2	5.6
30°-40°	1097.8	6.5
40°-50°	1096.5	6.5
50°-60°	956.1	5.7
60°-70°	706.8	4.2
70°-80°	399.9	2.4
80°-90°	111.9	0.7
90°-100°	119.1	0.7
100°-110°	443.9	2.6
110°-120°	1177.3	7.0
120°-130°	1952.7	11.6
130°-140°	2074.2	12.4
140°-150°	1927.7	11.5
150°-160°	1549.8	9.2
160°-170°	998.7	6.0
170°-180°	343.7	2.0
0°-30°	1817.0	10.8
0°-40°	2914.9	17.4
0°-60°	4967.4	29.6
0°-90°	6185.9	36.9
90°-120°	1740.3	10.4
90°-150°	7694.9	45.9
90°-180°	10587.0	63.1
0°-180°	16773.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	2	31	52	66	70	15
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3

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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	8.20	8.95	9.26	10.02	11.47	7.77	8.52	8.83	9.59	11.03
	3H	9.85	10.53	10.92	11.60	13.07	9.38	10.05	10.45	11.13	12.59
	4H	10.43	11.08	11.52	12.15	13.62	9.96	10.60	11.04	11.68	13.15
	6H	10.83	11.42	11.92	12.50	13.98	10.35	10.94	11.44	12.02	13.51
	8H	10.93	11.49	12.03	12.59	14.06	10.45	11.02	11.55	12.11	13.59
	12H	10.97	11.51	12.07	12.60	14.10	10.49	11.03	11.59	12.12	13.62
4H	2H	8.65	9.29	9.74	10.36	11.84	8.30	8.94	9.39	10.02	11.49
	3H	10.50	11.04	11.60	12.14	13.63	10.11	10.65	11.21	11.75	13.23
	4H	11.21	11.71	12.32	12.80	14.30	10.81	11.30	11.91	12.39	13.90
	6H	11.72	12.14	12.83	13.26	14.76	11.31	11.73	12.42	12.85	14.35
	8H	11.87	12.26	12.98	13.37	14.89	11.46	11.85	12.57	12.96	14.47
	12H	11.94	12.29	13.06	13.41	14.93	11.52	11.87	12.64	12.99	14.51
8H	4H	11.40	11.80	12.51	12.90	14.42	11.04	11.44	12.15	12.54	14.06
	6H	12.03	12.35	13.16	13.50	15.01	11.67	11.99	12.80	13.14	14.65
	8H	12.25	12.53	13.39	13.66	15.19	11.88	12.16	13.02	13.29	14.83
	12H	12.37	12.62	13.52	13.75	15.32	11.99	12.24	13.13	13.37	14.94
12H	4H	11.38	11.74	12.51	12.86	14.38	11.03	11.39	12.16	12.51	14.03
	6H	12.06	12.34	13.19	13.47	15.00	11.71	11.99	12.84	13.12	14.65
	8H	12.29	12.54	13.44	13.67	15.24	11.94	12.19	13.08	13.31	14.88