

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: P910063

Luminaire Tested: DFN2DIP-TR4F0-050D110US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910063
REPORT IS A COMBINATION OF REPORTS P902017 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D110US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

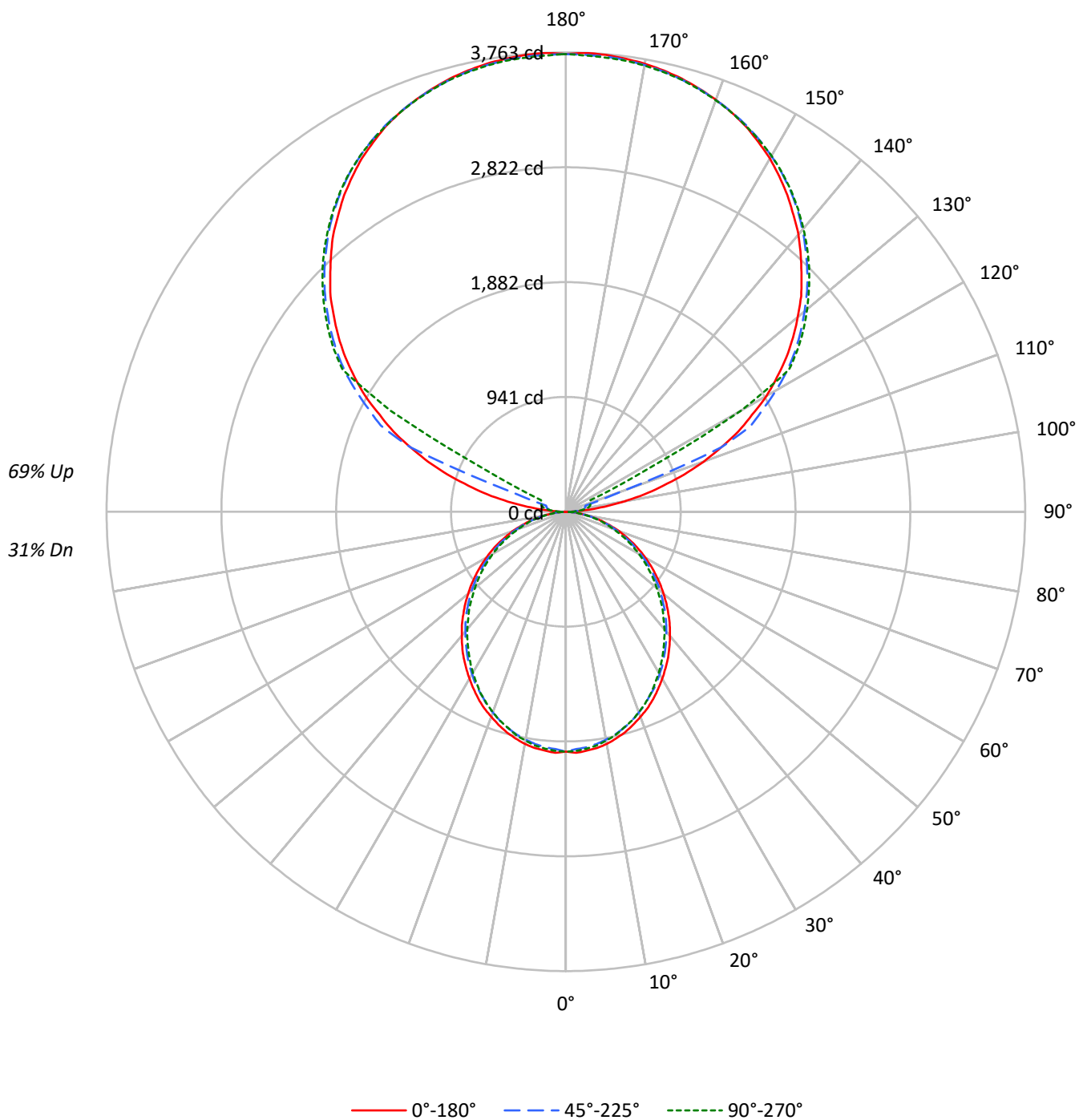
Lumens per Lamp: N/A
Luminaire Lumens: 15996.2 lumens
Efficiency: N/A
Efficacy: 126.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 126.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	103	103	103	103	92	92	92	92	73	73	73		55	55	55		39
1	94	89	86	82	84	80	77	74	64	62	60		48	47	46		34
2	85	78	72	67	76	70	65	61	56	52	49		43	40	38		30
3	78	69	61	56	70	62	56	51	49	45	41		38	35	32		27
4	71	61	53	47	64	55	48	43	44	39	35		33	30	28		24
5	65	54	46	40	58	49	42	37	39	34	30		30	27	24		22
6	60	48	40	35	54	44	37	32	35	30	26		27	24	21		20
7	55	43	36	30	50	39	33	28	32	27	23		25	21	18		18
8	51	39	32	27	46	36	29	24	29	24	20		22	19	16		16
9	48	36	28	24	43	32	26	22	26	22	18		21	17	15		15
10	44	33	26	21	40	30	24	19	24	19	16		19	16	13		14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1561	1561	1561
5°	1563	1539	1549
10°	1551	1518	1528
15°	1528	1493	1496
20°	1497	1459	1462
25°	1466	1417	1423
30°	1428	1378	1374
35°	1392	1333	1322
40°	1347	1287	1272
45°	1302	1241	1221
50°	1253	1192	1162
55°	1202	1136	1108
60°	1144	1069	1046
65°	1081	1000	973
70°	1001	917	894
75°	890	816	821
80°	756	688	682
85°	547	466	452

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1989 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.2
10°-20°	520.3	3.3
20°-30°	764.6	4.8
30°-40°	888.1	5.6
40°-50°	887.0	5.5
50°-60°	773.4	4.8
60°-70°	571.7	3.6
70°-80°	323.5	2.0
80°-90°	92.0	0.6
90°-100°	123.6	0.8
100°-110°	460.8	2.9
110°-120°	1222.2	7.6
120°-130°	2027.1	12.7
130°-140°	2153.3	13.5
140°-150°	2001.2	12.5
150°-160°	1608.9	10.1
160°-170°	1036.7	6.5
170°-180°	356.8	2.2
0°-30°	1469.8	9.2
0°-40°	2357.9	14.7
0°-60°	4018.3	25.1
0°-90°	5005.4	31.3
90°-120°	1806.7	11.3
90°-150°	7988.3	49.9
90°-180°	10991.0	68.7
0°-180°	15996.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	3	32	54	68	73	15
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1536
125°	2205	2241	2292	2311	2319	1967
135°	2729	2773	2797	2824	2819	2108
145°	3166	3163	3209	3228	3215	1980
155°	3486	3462	3494	3510	3489	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3744	3763	3736	358
180°	3749	3749	3749	3749	3749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.2
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.9	160.1	189.8	198.1
105°	824.7	906.2	165.6	195.2	206.2
107.5°	1017.3	1084.9	171.1	200.7	211.7
110°	1201.8	1258.6	474.8	203.6	214.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.5	1424.1	1378.1	208.7	217.1
115°	1559.7	1605.8	1673.9	417.8	222.6
117.5°	1719.9	1774.0	1820.4	1432.2	721.5
120°	1899.0	1939.5	1988.5	2021.0	1654.8
122.5°	2050.7	2094.2	2148.6	2164.7	2167.7
125°	2205.3	2240.8	2292.3	2311.3	2319.4
127.5°	2346.4	2384.4	2425.3	2452.4	2455.0
130°	2479.4	2522.9	2552.5	2582.5	2580.0
132.5°	2615.0	2650.5	2680.2	2704.6	2702.1
135°	2729.2	2772.6	2796.7	2824.2	2818.6
137.5°	2848.3	2880.8	2908.2	2935.3	2927.2
140°	2965.0	2986.8	3016.5	3040.9	3027.4
142.5°	3062.8	3081.8	3116.9	3138.6	3125.0
145°	3165.9	3163.0	3209.0	3228.1	3214.6
147.5°	3255.2	3247.1	3293.2	3306.7	3296.1
150°	3342.2	3323.2	3366.6	3382.7	3369.2
152.5°	3415.3	3393.7	3434.2	3450.7	3431.7
155°	3485.9	3461.6	3494.1	3510.3	3488.7
157.5°	3542.8	3521.2	3545.7	3564.7	3542.8
160°	3591.8	3575.3	3591.8	3607.8	3588.9
162.5°	3634.9	3618.9	3632.4	3651.4	3626.9
165°	3673.0	3656.8	3664.9	3683.9	3664.9
167.5°	3702.9	3686.5	3694.9	3713.9	3689.4
170°	3727.4	3711.0	3716.4	3735.5	3711.0
172.5°	3743.5	3727.4	3732.9	3751.9	3727.4
175°	3757.0	3738.0	3743.5	3762.6	3735.5
177.5°	3762.6	3743.5	3746.4	3765.4	3740.9
180°	3749.0	3749.0	3749.0	3749.0	3749.0

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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	6.77	7.49	7.88	8.59	10.10	6.34	7.06	7.44	8.16	9.67
	3H	8.42	9.06	9.53	10.17	11.70	7.95	8.59	9.06	9.70	11.23
	4H	9.00	9.61	10.12	10.72	12.26	8.53	9.14	9.65	10.25	11.78
	6H	9.39	9.95	10.52	11.07	12.62	8.92	9.48	10.05	10.59	12.14
	8H	9.50	10.03	10.63	11.15	12.70	9.02	9.55	10.15	10.68	12.22
	12H	9.54	10.04	10.68	11.16	12.73	9.06	9.56	10.20	10.68	12.25
4H	2H	7.22	7.82	8.35	8.93	10.47	6.87	7.48	8.00	8.59	10.13
	3H	9.07	9.58	10.20	10.71	12.26	8.68	9.18	9.81	10.32	11.87
	4H	9.78	10.24	10.92	11.37	12.94	9.37	9.84	10.51	10.96	12.53
	6H	10.28	10.68	11.43	11.83	13.39	9.87	10.27	11.02	11.42	12.98
	8H	10.43	10.80	11.57	11.94	13.52	10.02	10.39	11.16	11.53	13.11
	12H	10.50	10.83	11.66	11.98	13.57	10.07	10.41	11.24	11.56	13.15
8H	4H	9.96	10.34	11.11	11.47	13.05	9.60	9.98	10.75	11.11	12.69
	6H	10.59	10.90	11.75	12.08	13.65	10.22	10.53	11.39	11.71	13.29
	8H	10.81	11.08	11.98	12.24	13.83	10.44	10.71	11.61	11.87	13.46
	12H	10.93	11.17	12.11	12.32	13.95	10.55	10.78	11.72	11.94	13.57
12H	4H	9.94	10.28	11.10	11.43	13.01	9.59	9.93	10.75	11.08	12.66
	6H	10.62	10.89	11.79	12.05	13.64	10.26	10.53	11.43	11.69	13.29
	8H	10.85	11.09	12.03	12.24	13.87	10.49	10.73	11.67	11.89	13.52

END OF REPORT