

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: P910025

Luminaire Tested: DFN2DIP-TR4F0-040D100US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910025
REPORT IS A COMBINATION OF REPORTS P901998 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D100US840-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

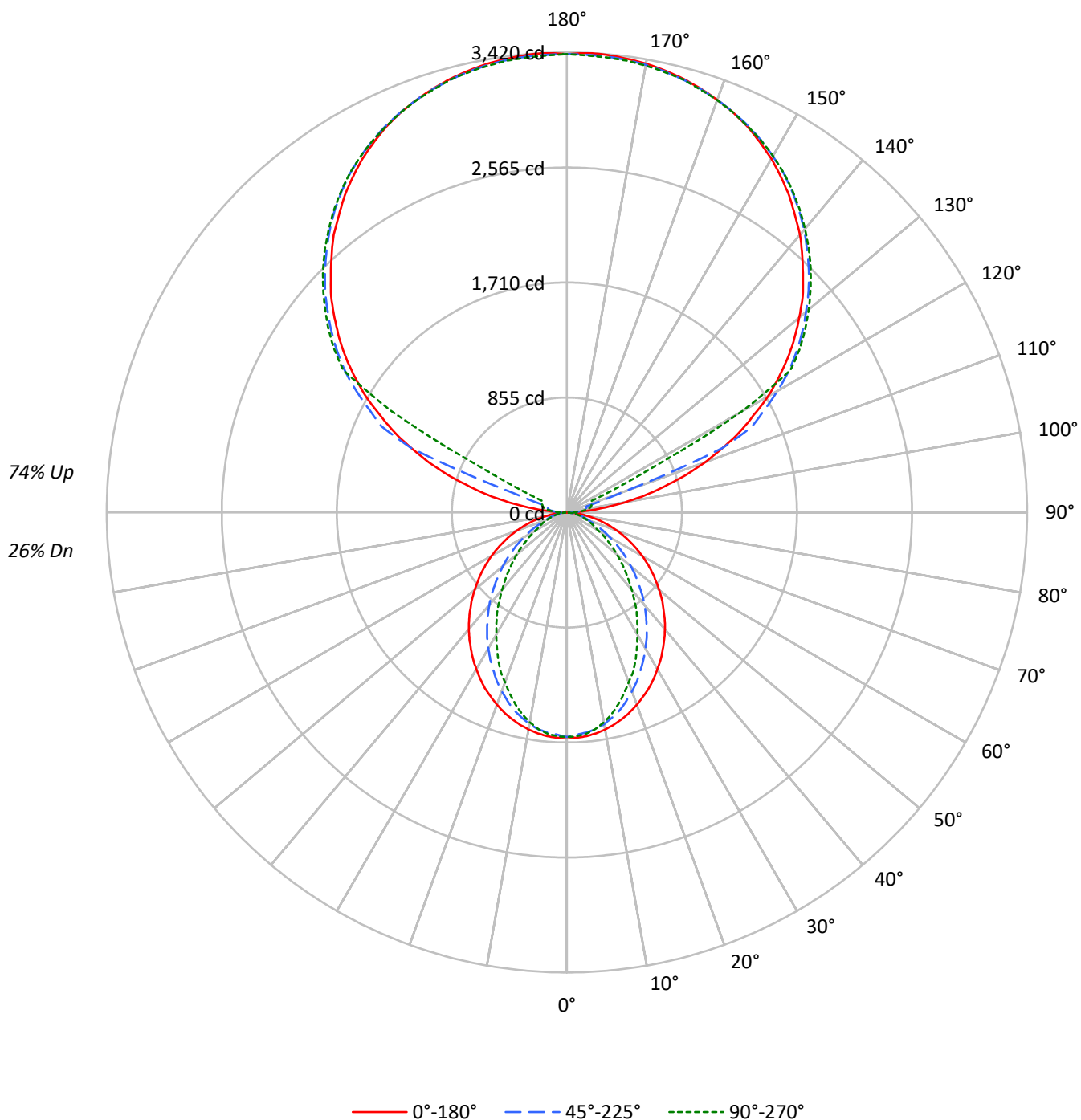
Lumens per Lamp: N/A
Luminaire Lumens: 13431.2 lumens
Efficiency: N/A
Efficacy: 124.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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					0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	101	101	101	101		90	90	90	90		70	70	70		51	51	51		34	34	34
1	93	88	85	82		82	79	76	73		61	59	58		45	44	43		30	29	29
2	84	77	72	67		75	69	65	60		54	51	48		40	38	36		27	26	25
3	77	68	61	56		69	61	55	51		48	44	41		35	33	31		24	23	21
4	71	60	53	47		63	54	48	43		43	38	35		32	29	26		22	20	19
5	65	54	46	41		58	48	42	37		38	33	30		28	25	23		19	18	16
6	60	48	41	35		53	43	37	32		34	30	26		26	23	20		18	16	14
7	55	43	36	31		49	39	33	28		31	26	23		23	20	18		16	14	13
8	51	39	32	27		45	36	29	25		28	24	20		21	18	16		15	13	12
9	47	36	29	24		42	32	26	22		26	21	18		20	16	14		14	12	10
10	44	33	26	21		39	30	24	20		24	19	16		18	15	13		13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1326	1326	1326
5°	1328	1305	1314
10°	1315	1280	1271
15°	1297	1237	1205
20°	1273	1179	1124
25°	1249	1114	1045
30°	1216	1047	946
35°	1184	975	859
40°	1151	900	759
45°	1113	817	668
50°	1073	734	579
55°	1032	645	494
60°	984	551	407
65°	930	456	366
70°	863	368	331
75°	779	324	301
80°	659	272	261
85°	459	182	196

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1807 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.5	1.2
10°-20°	429.5	3.2
20°-30°	603.0	4.5
30°-40°	657.4	4.9
40°-50°	604.2	4.5
50°-60°	474.5	3.5
60°-70°	308.9	2.3
70°-80°	159.0	1.2
80°-90°	46.6	0.3
90°-100°	112.4	0.8
100°-110°	418.9	3.1
110°-120°	1111.1	8.3
120°-130°	1842.9	13.7
130°-140°	1957.5	14.6
140°-150°	1819.3	13.5
150°-160°	1462.7	10.9
160°-170°	942.5	7.0
170°-180°	324.4	2.4
0°-30°	1189.0	8.9
0°-40°	1846.4	13.7
0°-60°	2925.1	21.8
0°-90°	3439.5	25.6
90°-120°	1642.4	12.2
90°-150°	7262.1	54.1
90°-180°	9992.0	74.4
0°-180°	13431.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1670	1670	1670	1670	1670	
5°	1670	1662	1642	1656	1651	158
15°	1588	1571	1520	1491	1476	447
25°	1441	1393	1293	1231	1209	663
35°	1242	1165	1032	937	903	777
45°	1015	914	756	648	612	784
55°	772	654	491	400	372	690
65°	521	399	263	212	207	517
75°	278	172	121	110	109	294
85°	65	33	29	29	29	75
90°	2	30	49	62	66	12
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2876	2917	2935	2922	1800
155°	3169	3147	3176	3191	3172	1460
165°	3339	3324	3332	3349	3332	943
175°	3416	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1669.5	1669.5	1669.5	1669.5	1669.5
2.5°	1677.1	1669.5	1652.8	1668.1	1665.0
5°	1669.5	1661.9	1642.2	1655.9	1651.4
7.5°	1655.9	1646.9	1625.8	1631.6	1624.2
10°	1637.8	1627.2	1597.0	1592.4	1583.5
12.5°	1615.2	1601.5	1560.6	1551.7	1535.0
15°	1587.9	1571.2	1519.9	1491.3	1476.2
17.5°	1556.2	1532.0	1468.4	1435.3	1411.1
20°	1519.9	1489.7	1414.1	1376.4	1343.1
22.5°	1480.7	1445.9	1358.2	1306.9	1284.3
25°	1441.4	1393.0	1293.2	1231.4	1208.6
27.5°	1394.6	1343.1	1232.8	1161.9	1127.0
30°	1344.7	1287.2	1166.3	1089.3	1048.5
32.5°	1296.4	1226.8	1103.0	1012.3	974.4
35°	1242.0	1164.9	1032.0	936.8	903.4
37.5°	1189.1	1105.9	965.4	861.1	823.4
40°	1133.2	1042.6	896.0	788.7	749.4
42.5°	1075.7	979.1	826.5	714.6	676.9
45°	1015.3	914.0	755.5	648.1	611.9
47.5°	958.0	850.7	687.5	580.2	546.9
50°	894.4	787.2	621.0	516.6	485.0
52.5°	832.4	719.1	557.5	457.8	429.1
55°	772.0	654.2	491.0	400.4	371.7
57.5°	710.1	589.3	432.1	347.5	323.4
60°	646.6	525.7	370.1	293.2	269.0
62.5°	584.8	463.9	317.2	244.8	232.8
65°	521.3	398.8	262.9	211.6	206.9
67.5°	460.9	338.4	211.6	185.8	181.3
70°	397.4	279.5	175.2	160.2	154.0
72.5°	337.0	225.1	146.5	134.5	131.5
75°	277.9	172.2	120.9	110.3	108.9
77.5°	219.1	122.3	95.2	89.2	86.0
80°	164.6	87.7	72.4	66.6	66.6
82.5°	114.8	59.0	49.9	46.8	46.8
85°	64.9	33.2	28.7	28.7	28.7
87.5°	24.2	12.0	12.0	10.6	10.6
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.7	98.7	140.6	160.2	165.2
102.5°	599.2	594.5	145.5	172.5	180.1
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.6	1144.2	431.6	185.1	194.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.4	1294.6	1252.8	189.8	197.4
115°	1418.0	1459.9	1521.7	379.8	202.4
117.5°	1563.5	1612.8	1654.9	1302.0	656.0
120°	1726.4	1763.2	1807.8	1837.3	1504.4
122.5°	1864.3	1903.8	1953.3	1967.9	1970.6
125°	2004.9	2037.1	2084.0	2101.2	2108.5
127.5°	2133.1	2167.7	2204.8	2229.5	2231.8
130°	2254.0	2293.6	2320.6	2347.7	2345.4
132.5°	2377.3	2409.5	2436.5	2458.7	2456.4
135°	2481.0	2520.5	2542.5	2567.4	2562.4
137.5°	2589.4	2619.0	2643.8	2668.5	2661.1
140°	2695.3	2715.3	2742.2	2764.5	2752.2
142.5°	2784.4	2801.7	2833.6	2853.2	2841.0
145°	2878.1	2875.5	2917.4	2934.7	2922.3
147.5°	2959.2	2951.9	2993.7	3006.1	2996.5
150°	3038.3	3021.0	3060.6	3075.2	3062.9
152.5°	3104.7	3085.1	3122.1	3136.9	3119.7
155°	3169.0	3146.9	3176.5	3191.2	3171.6
157.5°	3220.8	3201.2	3223.4	3240.7	3220.8
160°	3265.3	3250.4	3265.3	3279.9	3262.7
162.5°	3304.5	3289.8	3302.2	3319.4	3297.2
165°	3339.0	3324.4	3331.7	3349.0	3331.7
167.5°	3366.3	3351.3	3359.0	3376.3	3354.0
170°	3388.5	3373.7	3378.6	3395.9	3373.7
172.5°	3403.1	3388.5	3393.6	3410.8	3388.5
175°	3415.5	3398.2	3403.1	3420.5	3395.9
177.5°	3420.5	3403.1	3405.9	3423.1	3400.8
180°	3408.2	3408.2	3408.2	3408.2	3408.2

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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	5.25	5.91	6.39	7.04	8.63	1.22	1.89	2.37	3.02	4.60
	3H	6.91	7.51	8.07	8.65	10.25	2.40	2.99	3.55	4.13	5.73
	4H	7.51	8.08	8.68	9.22	10.82	2.84	3.41	4.00	4.55	6.15
	6H	7.93	8.44	9.10	9.59	11.20	3.16	3.67	4.33	4.82	6.43
	8H	8.05	8.54	9.22	9.70	11.30	3.24	3.73	4.41	4.89	6.50
	12H	8.10	8.57	9.28	9.72	11.35	3.28	3.75	4.46	4.90	6.53
4H	2H	5.25	5.81	6.42	6.95	8.55	1.80	2.36	2.97	3.50	5.10
	3H	7.06	7.53	8.23	8.70	10.31	3.13	3.60	4.31	4.77	6.38
	4H	7.74	8.18	8.92	9.33	10.97	3.67	4.11	4.85	5.26	6.90
	6H	8.25	8.62	9.43	9.80	11.42	4.09	4.46	5.27	5.63	7.26
	8H	8.42	8.77	9.60	9.94	11.58	4.21	4.56	5.39	5.73	7.37
	12H	8.51	8.82	9.71	10.00	11.65	4.27	4.58	5.47	5.76	7.41
8H	4H	7.70	8.05	8.88	9.21	10.85	3.94	4.29	5.12	5.46	7.10
	6H	8.26	8.54	9.46	9.76	11.39	4.46	4.74	5.66	5.95	7.59
	8H	8.48	8.72	9.68	9.91	11.57	4.65	4.89	5.85	6.08	7.74
	12H	8.61	8.82	9.81	10.01	11.70	4.76	4.98	5.97	6.16	7.85
12H	4H	7.64	7.96	8.84	9.14	10.78	3.94	4.25	5.13	5.43	7.08
	6H	8.24	8.48	9.44	9.67	11.33	4.50	4.75	5.71	5.94	7.60
	8H	8.45	8.67	9.66	9.85	11.54	4.71	4.93	5.92	6.11	7.80

END OF REPORT