

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: P923397

Luminaire Tested: DFN2DIP-TR2F0-040D020US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923397
REPORT IS A COMBINATION OF REPORTS P901745 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-040D020US940-FLLONL
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

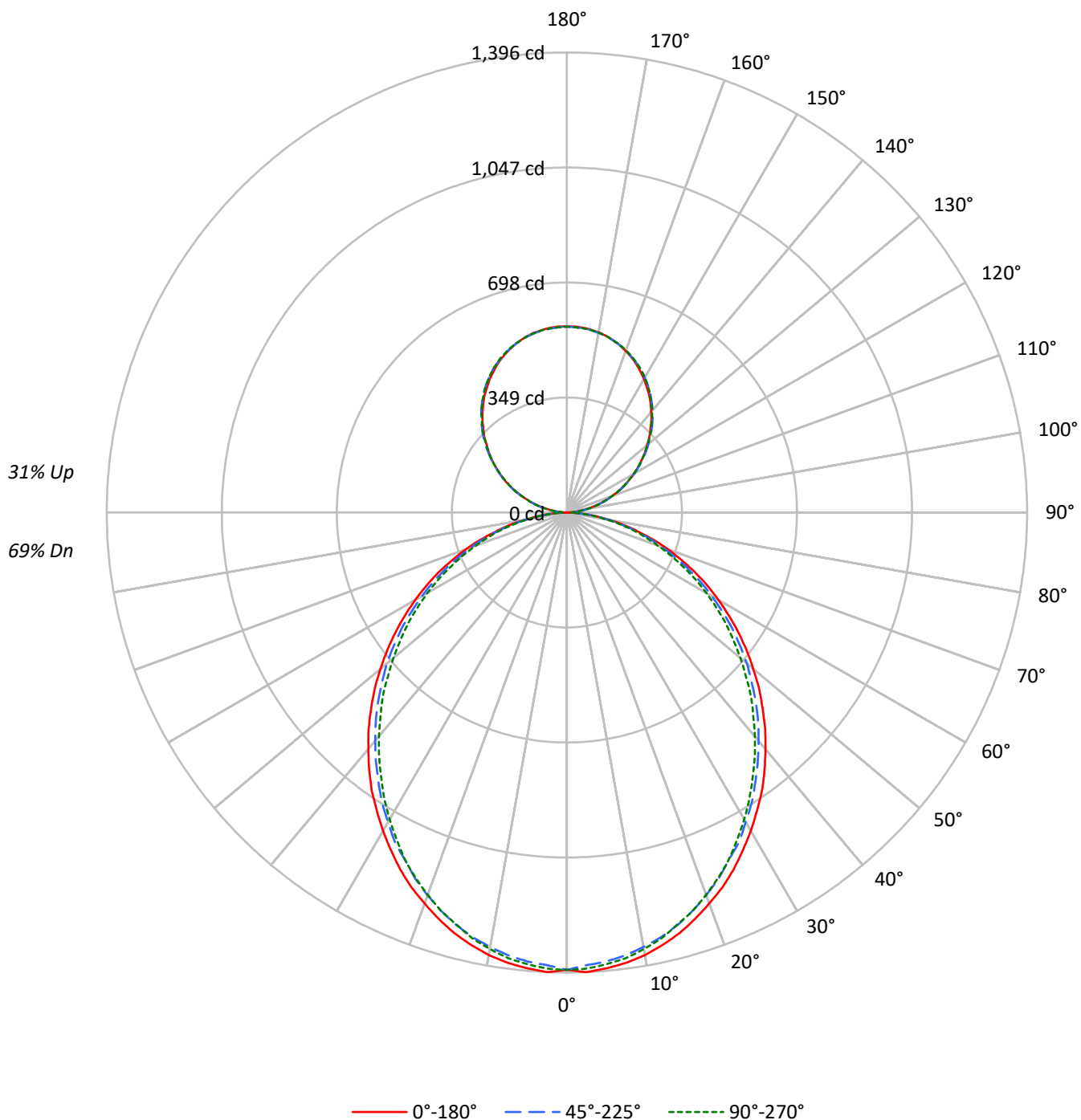
Lumens per Lamp: N/A
Luminaire Lumens: 5109.5 lumens
Efficiency: N/A
Efficacy: 99.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 51.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	112	112	112	112	106	106	106	106	94	94	94		83	83	83		74
1	102	98	94	90	96	92	89	86	83	80	77		74	71	70		65
2	93	85	79	74	88	81	75	70	72	68	64		65	61	58		57
3	85	75	67	61	80	71	64	59	64	58	54		57	53	49		51
4	78	67	58	52	73	63	56	50	57	51	46		51	46	42		46
5	71	59	51	45	67	56	49	43	51	45	40		46	41	37		41
6	66	53	45	39	62	51	43	38	46	40	35		41	36	32		37
7	61	48	40	34	58	46	39	33	42	35	31		38	33	29		34
8	57	44	36	31	54	42	35	30	38	32	28		35	29	26		31
9	53	40	33	27	50	39	31	26	35	29	25		32	27	23		29
10	50	37	30	25	47	36	29	24	32	27	22		30	25	21		27

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3096	3096	3096
5°	3096	3045	3068
10°	3066	2998	3021
15°	3017	2941	2951
20°	2951	2866	2879
25°	2886	2777	2797
30°	2805	2694	2694
35°	2728	2597	2586
40°	2634	2499	2482
45°	2540	2400	2376
50°	2438	2296	2253
55°	2330	2177	2139
60°	2207	2035	2009
65°	2073	1887	1855
70°	1903	1708	1688
75°	1668	1492	1527
80°	1383	1217	1235
85°	943	767	767

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2540 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	2.6
10°-20°	367.5	7.2
20°-30°	540.1	10.6
30°-40°	627.3	12.3
40°-50°	626.6	12.3
50°-60°	546.3	10.7
60°-70°	403.9	7.9
70°-80°	228.5	4.5
80°-90°	61.9	1.2
90°-100°	34.9	0.7
100°-110°	110.9	2.2
110°-120°	189.8	3.7
120°-130°	249.6	4.9
130°-140°	280.2	5.5
140°-150°	274.7	5.4
150°-160°	230.4	4.5
160°-170°	152.8	3.0
170°-180°	53.4	1.0
0°-30°	1038.3	20.3
0°-40°	1665.6	32.6
0°-60°	2838.5	55.6
0°-90°	3532.8	69.1
90°-120°	335.6	6.6
90°-150°	1140.0	22.3
90°-180°	1577.0	30.9
0°-180°	5109.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	0	6	17	16	16	5
95°	25	30	30	30	30	28
105°	102	104	105	106	106	108
115°	190	193	192	192	190	188
125°	277	281	280	278	278	248
135°	358	364	364	364	363	277
145°	435	438	441	442	440	272
155°	497	499	500	503	501	229
165°	541	541	541	544	542	153
175°	563	562	561	564	561	53
180°	564	564	564	564	564	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	0.5	6.2	16.7	15.6	16.1
92.5°	10.5	14.3	14.8	15.3	15.3
95°	24.8	29.6	30.4	30.4	29.6
97.5°	41.3	45.7	47.6	47.6	47.6
100°	60.4	64.3	65.6	65.6	65.1
102.5°	80.4	83.3	85.2	85.7	85.2
105°	102.4	103.7	104.8	105.6	105.6
107.5°	124.1	126.2	126.2	126.5	124.1
110°	145.3	147.9	147.9	147.9	146.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	168.0	170.9	170.4	169.0	168.0
115°	190.5	193.1	192.3	191.8	190.5
117.5°	212.8	216.5	214.1	212.8	211.3
120°	235.1	238.9	235.1	235.1	233.6
122.5°	255.6	260.3	258.0	256.6	255.6
125°	277.0	281.2	279.9	278.4	277.9
127.5°	297.9	303.2	301.3	299.3	297.9
130°	317.4	323.6	322.7	321.7	319.9
132.5°	339.4	344.2	344.5	342.1	340.7
135°	358.3	363.6	364.5	364.1	362.7
137.5°	379.3	383.6	384.5	384.1	382.1
140°	397.9	402.2	404.6	404.6	402.7
142.5°	417.0	421.2	422.6	423.0	421.2
145°	435.0	438.4	441.1	441.6	439.7
147.5°	451.1	455.4	457.4	458.2	456.4
150°	467.8	470.6	472.5	474.0	472.5
152.5°	482.6	485.4	487.9	489.7	487.9
155°	497.4	498.7	500.2	502.7	501.1
157.5°	510.1	511.1	512.0	515.4	513.0
160°	521.6	522.5	523.1	525.9	523.9
162.5°	532.1	532.1	532.5	535.8	533.4
165°	541.1	540.6	540.6	543.9	541.6
167.5°	549.2	547.7	547.7	551.1	548.8
170°	555.4	554.0	553.5	556.9	554.0
172.5°	559.6	558.2	557.8	561.2	558.2
175°	563.0	561.7	560.6	564.0	561.2
177.5°	564.9	563.6	562.5	565.3	562.5
180°	564.0	564.0	564.0	564.0	564.0

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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	12.67	13.74	13.45	14.53	15.50	12.25	13.31	13.02	14.11	15.08
	3H	14.32	15.28	15.11	16.09	17.08	13.86	14.82	14.65	15.62	16.62
	4H	14.91	15.81	15.71	16.62	17.63	14.44	15.35	15.25	16.16	17.17
	6H	15.30	16.13	16.11	16.95	17.98	14.84	15.67	15.65	16.49	17.52
	8H	15.40	16.19	16.22	17.03	18.06	14.94	15.73	15.77	16.57	17.60
	12H	15.45	16.20	16.28	17.04	18.09	14.98	15.74	15.81	16.57	17.62
4H	2H	13.15	14.05	13.96	14.87	15.88	12.81	13.71	13.62	14.53	15.54
	3H	15.01	15.76	15.83	16.61	17.63	14.62	15.38	15.44	16.22	17.25
	4H	15.71	16.40	16.54	17.24	18.30	15.31	16.00	16.15	16.85	17.90
	6H	16.21	16.81	17.06	17.68	18.74	15.82	16.41	16.67	17.28	18.34
	8H	16.36	16.91	17.21	17.78	18.85	15.96	16.51	16.81	17.38	18.45
	12H	16.43	16.93	17.30	17.81	18.89	16.02	16.52	16.90	17.41	18.49
8H	4H	15.91	16.47	16.77	17.33	18.40	15.56	16.12	16.41	16.98	18.05
	6H	16.52	16.98	17.41	17.89	18.96	16.17	16.63	17.05	17.54	18.61
	8H	16.73	17.14	17.62	18.04	19.13	16.37	16.78	17.27	17.68	18.77
	12H	16.86	17.22	17.75	18.11	19.25	16.49	16.85	17.38	17.74	18.88
12H	4H	15.91	16.41	16.78	17.29	18.37	15.56	16.06	16.43	16.95	18.02
	6H	16.55	16.96	17.44	17.86	18.95	16.21	16.62	17.10	17.52	18.61
	8H	16.78	17.14	17.68	18.04	19.18	16.44	16.80	17.33	17.69	18.83