

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: P912445

Luminaire Tested: DFN2DIP-TR2F0-020D020US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912445
REPORT IS A COMBINATION OF REPORTS P901741 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-020D020US850-FLLONL
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

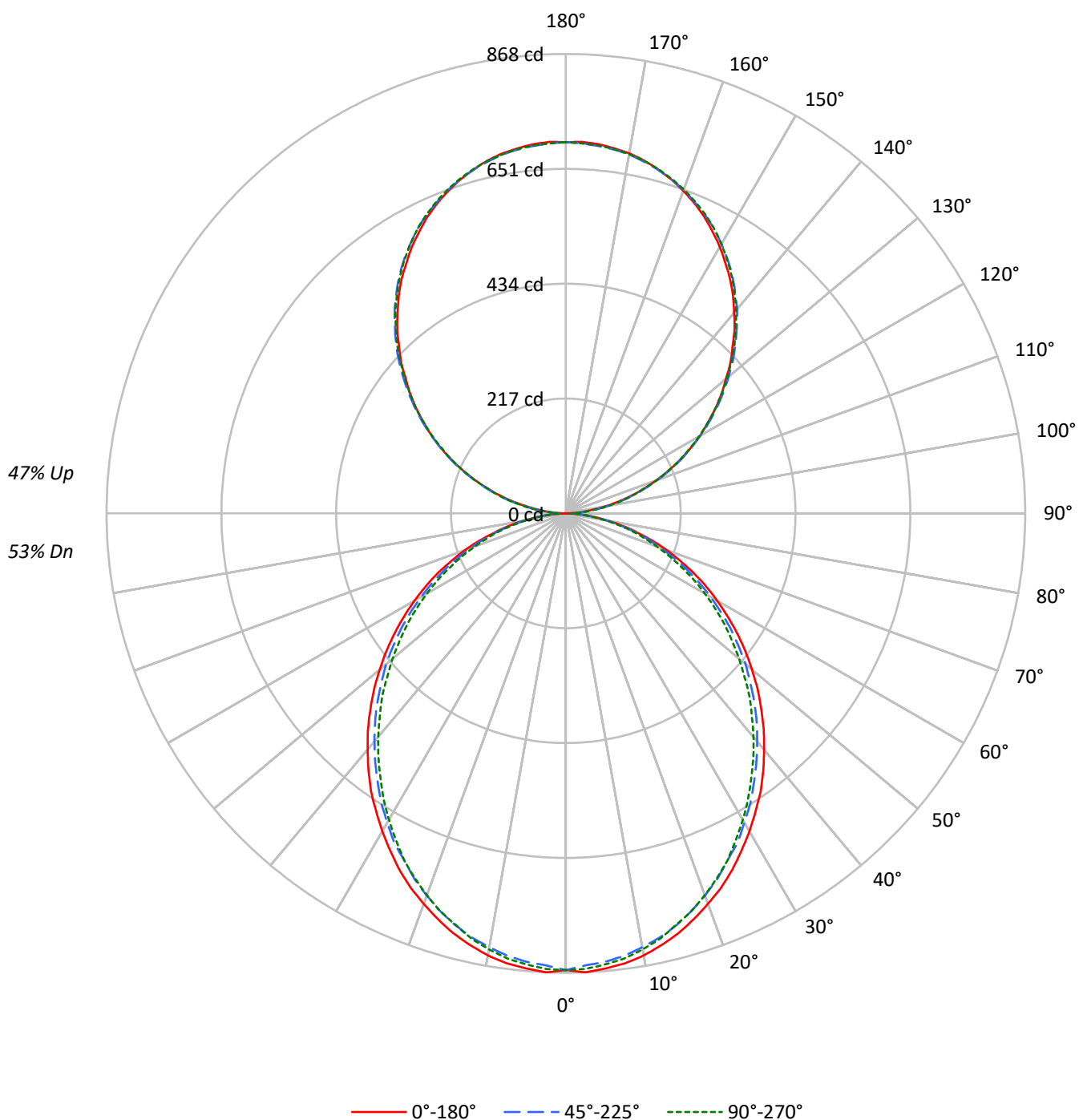
Lumens per Lamp: N/A
Luminaire Lumens: 4158.8 lumens
Efficiency: N/A
Efficacy: 136.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 30.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912445

CATALOG NUMBER: DFN2DIP-TR2F0-020D020US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912445

CATALOG NUMBER: DFN2DIP-TR2F0-020D020US850-FLONL

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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1925	1925	1925
5°	1925	1894	1907
10°	1907	1864	1878
15°	1876	1829	1835
20°	1835	1782	1790
25°	1795	1727	1739
30°	1744	1675	1675
35°	1697	1615	1608
40°	1638	1554	1543
45°	1580	1492	1477
50°	1516	1428	1401
55°	1448	1353	1330
60°	1373	1265	1249
65°	1289	1174	1154
70°	1183	1061	1050
75°	1037	927	950
80°	861	757	767
85°	585	477	478

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1580 cd/sqm

TEST NUMBER: P912445

CATALOG NUMBER: DFN2DIP-TR2F0-020D020US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.2	2.0
10°-20°	228.6	5.5
20°-30°	335.9	8.1
30°-40°	390.1	9.4
40°-50°	389.6	9.4
50°-60°	339.7	8.2
60°-70°	251.1	6.0
70°-80°	142.1	3.4
80°-90°	39.5	0.9
90°-100°	43.4	1.0
100°-110°	137.9	3.3
110°-120°	236.0	5.7
120°-130°	310.4	7.5
130°-140°	348.4	8.4
140°-150°	341.7	8.2
150°-160°	286.6	6.9
160°-170°	190.1	4.6
170°-180°	66.4	1.6
0°-30°	645.7	15.5
0°-40°	1035.8	24.9
0°-60°	1765.1	42.4
0°-90°	2197.8	52.8
90°-120°	417.3	10.0
90°-150°	1417.8	34.1
90°-180°	1961.0	47.2
0°-180°	4158.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	863	863	863	863	863	
5°	863	860	851	857	856	82
15°	822	817	806	809	805	231
25°	744	737	723	724	723	342
35°	642	633	620	615	611	401
45°	522	516	504	495	491	403
55°	395	390	380	370	366	353
65°	266	261	253	246	242	263
75°	139	138	134	129	130	149
85°	34	33	32	30	29	38
90°	1	8	21	19	20	4
95°	31	37	38	38	37	34
105°	127	129	130	131	131	134
115°	237	240	239	238	237	234
125°	344	350	348	346	346	308
135°	446	452	453	453	451	344
145°	541	545	549	549	547	338
155°	619	620	622	625	623	285
165°	673	672	672	676	674	190
175°	700	699	697	701	698	67
180°	701	701	701	701	701	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	863.0	863.0	863.0	863.0	863.0
2.5°	868.0	863.9	854.7	863.0	861.5
5°	863.0	859.8	850.6	857.3	855.6
7.5°	857.3	852.3	843.2	849.8	848.2
10°	848.2	842.4	832.4	839.0	836.5
12.5°	835.6	830.8	820.8	824.9	823.2
15°	821.5	816.7	805.8	809.1	805.0
17.5°	804.1	799.3	788.4	792.5	788.4
20°	785.1	780.1	768.4	771.0	767.6
22.5°	766.0	758.6	747.7	747.7	746.0
25°	743.6	736.9	722.8	724.4	722.8
27.5°	718.6	712.9	702.1	699.7	695.5
30°	693.8	687.1	674.7	672.3	668.8
32.5°	667.2	662.3	649.0	644.0	640.7
35°	641.6	633.2	619.9	614.9	610.7
37.5°	612.5	605.0	591.7	585.9	581.7
40°	582.6	575.9	562.6	555.3	551.8
42.5°	553.5	546.8	533.7	525.3	520.3
45°	522.0	516.2	503.7	494.6	491.3
47.5°	491.3	485.5	472.2	463.0	458.1
50°	458.9	454.8	443.2	431.5	427.4
52.5°	427.4	421.5	410.8	401.7	395.9
55°	395.0	390.0	380.1	370.2	366.0
57.5°	362.6	358.5	347.7	337.8	334.4
60°	330.3	327.0	315.4	306.2	303.8
62.5°	298.8	292.9	284.7	276.4	273.0
65°	266.4	261.4	253.2	245.6	241.5
67.5°	233.2	229.0	221.6	215.8	212.5
70°	202.5	199.2	191.6	185.9	182.7
72.5°	171.0	167.7	163.5	157.7	155.3
75°	139.4	137.8	133.5	128.6	130.3
77.5°	111.2	107.9	106.1	103.7	101.3
80°	83.1	82.2	80.5	78.0	76.3
82.5°	56.4	56.4	55.7	52.3	52.3
85°	33.9	33.2	32.4	29.8	29.1
87.5°	15.0	13.3	11.6	9.2	8.3
90°	0.7	7.7	20.7	19.4	20.1
92.5°	13.1	17.7	18.4	19.1	19.1
95°	30.8	36.8	37.8	37.8	36.8
97.5°	51.3	56.9	59.2	59.2	59.2
100°	75.1	80.0	81.6	81.6	81.0
102.5°	100.0	103.6	105.9	106.6	105.9
105°	127.3	129.0	130.3	131.3	131.3
107.5°	154.4	156.9	156.9	157.4	154.4
110°	180.7	184.0	184.0	184.0	182.3



TEST NUMBER: P912445

CATALOG NUMBER: DFN2DIP-TR2F0-020D020US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	208.9	212.5	211.9	210.2	208.9
115°	236.9	240.2	239.2	238.5	236.9
117.5°	264.6	269.3	266.3	264.6	262.8
120°	292.4	297.1	292.4	292.4	290.6
122.5°	317.8	323.7	320.8	319.2	317.8
125°	344.5	349.8	348.1	346.2	345.6
127.5°	370.5	377.1	374.7	372.2	370.5
130°	394.8	402.5	401.3	400.1	397.8
132.5°	422.1	428.1	428.4	425.5	423.7
135°	445.6	452.1	453.4	452.8	451.0
137.5°	471.8	477.1	478.2	477.8	475.2
140°	494.8	500.2	503.2	503.2	500.8
142.5°	518.6	523.8	525.6	526.1	523.8
145°	541.0	545.2	548.6	549.2	546.8
147.5°	561.0	566.4	568.9	569.9	567.6
150°	581.8	585.3	587.7	589.5	587.7
152.5°	600.2	603.7	606.7	609.1	606.7
155°	618.6	620.3	622.1	625.1	623.3
157.5°	634.5	635.7	636.8	641.0	638.0
160°	648.7	649.9	650.5	654.1	651.5
162.5°	661.7	661.7	662.3	666.4	663.4
165°	672.9	672.3	672.3	676.5	673.6
167.5°	683.0	681.1	681.1	685.4	682.5
170°	690.7	689.0	688.4	692.6	689.0
172.5°	696.0	694.2	693.7	697.9	694.2
175°	700.2	698.6	697.2	701.4	697.9
177.5°	702.6	700.9	699.6	703.1	699.6
180°	701.4	701.4	701.4	701.4	701.4

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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	9.68	10.56	10.61	11.51	12.74	9.25	10.14	10.19	11.09	12.32
	3H	11.32	12.11	12.26	13.07	14.32	10.86	11.65	11.80	12.61	13.86
	4H	11.89	12.64	12.85	13.61	14.87	11.43	12.18	12.39	13.15	14.41
	6H	12.27	12.97	13.24	13.94	15.21	11.81	12.51	12.78	13.48	14.75
	8H	12.37	13.03	13.34	14.02	15.29	11.91	12.57	12.89	13.56	14.83
	12H	12.41	13.04	13.39	14.02	15.32	11.95	12.58	12.93	13.56	14.85
4H	2H	10.13	10.89	11.10	11.85	13.11	9.79	10.55	10.76	11.51	12.77
	3H	11.97	12.60	12.95	13.60	14.87	11.59	12.22	12.56	13.21	14.49
	4H	12.67	13.25	13.65	14.23	15.53	12.28	12.85	13.26	13.84	15.14
	6H	13.17	13.66	14.16	14.67	15.97	12.77	13.26	13.76	14.27	15.57
	8H	13.30	13.77	14.30	14.77	16.08	12.91	13.37	13.90	14.37	15.69
	12H	13.37	13.78	14.38	14.80	16.12	12.96	13.38	13.98	14.40	15.72
8H	4H	12.86	13.32	13.85	14.32	15.64	12.51	12.97	13.50	13.97	15.29
	6H	13.46	13.85	14.48	14.89	16.20	13.11	13.49	14.13	14.54	15.85
	8H	13.67	14.01	14.70	15.04	16.37	13.31	13.65	14.34	14.68	16.01
	12H	13.79	14.08	14.82	15.11	16.48	13.42	13.71	14.45	14.74	16.11
12H	4H	12.84	13.26	13.86	14.28	15.60	12.50	12.92	13.51	13.94	15.26
	6H	13.49	13.83	14.52	14.86	16.19	13.15	13.49	14.18	14.52	15.85
	8H	13.71	14.01	14.75	15.04	16.41	13.37	13.67	14.40	14.69	16.07