

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: P904874

Luminaire Tested: DFN2DIP-4P2F0-020D040US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904874
REPORT IS A COMBINATION OF REPORTS P899023 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US835-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

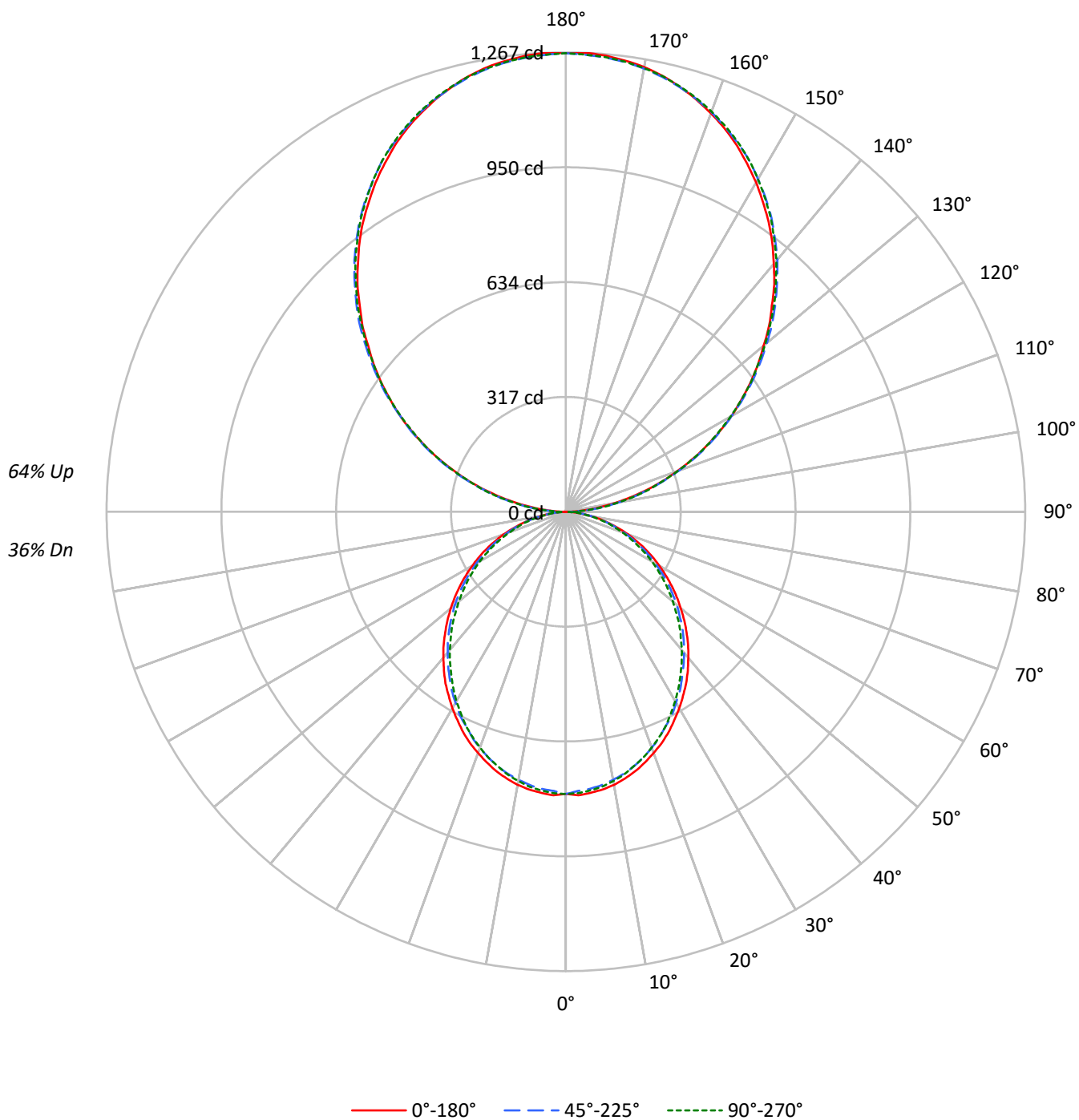
Lumens per Lamp: N/A
Luminaire Lumens: 5520.0 lumens
Efficiency: N/A
Efficacy: 112.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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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CATALOG NUMBER: DFN2DIP-4P2F0-020D040US835-FLLFL

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	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1949	1949	1949
5°	1948	1916	1931
10°	1928	1886	1902
15°	1896	1850	1858
20°	1854	1802	1813
25°	1812	1745	1761
30°	1760	1692	1697
35°	1711	1631	1628
40°	1650	1568	1563
45°	1590	1506	1497
50°	1524	1440	1420
55°	1455	1363	1348
60°	1376	1274	1266
65°	1290	1180	1169
70°	1180	1065	1065
75°	1031	928	963
80°	848	755	779
85°	567	471	485

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1879 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.2	1.3
10°-20°	206.1	3.7
20°-30°	302.9	5.5
30°-40°	351.8	6.4
40°-50°	351.3	6.4
50°-60°	306.3	5.5
60°-70°	226.5	4.1
70°-80°	128.1	2.3
80°-90°	37.4	0.7
90°-100°	78.3	1.4
100°-110°	248.7	4.5
110°-120°	425.6	7.7
120°-130°	559.8	10.1
130°-140°	628.3	11.4
140°-150°	616.2	11.2
150°-160°	516.9	9.4
160°-170°	342.8	6.2
170°-180°	119.8	2.2
0°-30°	582.2	10.5
0°-40°	934.0	16.9
0°-60°	1591.6	28.8
0°-90°	1983.6	35.9
90°-120°	752.7	13.6
90°-150°	2556.9	46.3
90°-180°	3536.0	64.1
0°-180°	5520.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	778	778	778	778	778	
5°	778	775	767	773	772	74
15°	741	736	727	730	726	209
25°	670	664	652	653	652	309
35°	578	571	559	554	551	361
45°	471	466	454	446	443	363
55°	356	352	343	334	330	318
65°	240	236	228	222	218	238
75°	126	124	120	116	118	134
85°	31	30	29	27	26	34
90°	1	14	37	35	36	5
95°	56	66	68	68	66	62
105°	230	233	235	237	237	242
115°	427	433	431	430	427	422
125°	621	631	628	624	623	555
135°	804	815	818	816	814	621
145°	976	983	989	990	986	610
155°	1116	1119	1122	1127	1124	513
165°	1214	1212	1212	1220	1215	342
175°	1263	1260	1257	1265	1259	120
180°	1265	1265	1265	1265	1265	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	778.2	778.2	778.2	778.2	778.2
2.5°	782.7	779.0	770.7	778.2	776.8
5°	778.2	775.3	767.0	773.0	771.5
7.5°	773.0	768.5	760.3	766.3	764.8
10°	764.8	759.6	750.6	756.5	754.3
12.5°	753.5	749.1	740.1	743.8	742.3
15°	740.8	736.4	726.6	729.6	725.9
17.5°	725.1	720.7	710.9	714.6	710.9
20°	707.9	703.4	692.9	695.2	692.2
22.5°	690.7	684.0	674.2	674.2	672.7
25°	670.5	664.5	651.8	653.2	651.8
27.5°	648.0	642.8	633.1	630.9	627.1
30°	625.6	619.6	608.4	606.2	603.1
32.5°	601.6	597.2	585.2	580.7	577.7
35°	578.5	571.0	559.0	554.5	550.7
37.5°	552.3	545.5	533.5	528.3	524.5
40°	525.3	519.3	507.3	500.7	497.6
42.5°	499.1	493.1	481.2	473.7	469.2
45°	470.7	465.5	454.2	446.0	443.0
47.5°	443.0	437.8	425.8	417.5	413.1
50°	413.8	410.1	399.6	389.1	385.4
52.5°	385.4	380.1	370.4	362.2	357.0
55°	356.2	351.7	342.7	333.8	330.0
57.5°	327.0	323.3	313.5	304.6	301.5
60°	297.8	294.9	284.4	276.1	273.9
62.5°	269.4	264.1	256.7	249.2	246.2
65°	240.2	235.7	228.3	221.5	217.8
67.5°	210.3	206.5	199.8	194.6	191.6
70°	182.6	179.6	172.8	167.6	164.7
72.5°	154.2	151.2	147.4	142.2	140.0
75°	125.7	124.3	120.4	116.0	117.5
77.5°	100.3	97.3	95.7	93.5	91.3
80°	74.9	74.1	72.6	70.3	68.8
82.5°	50.9	50.9	50.2	47.2	47.2
85°	30.6	29.9	29.2	26.9	26.2
87.5°	13.5	12.0	10.5	8.3	7.5
90°	1.1	13.7	37.4	35.1	36.2
92.5°	23.6	32.0	33.2	34.3	34.3
95°	55.7	66.4	68.3	68.3	66.4
97.5°	92.7	102.6	106.8	106.8	106.8
100°	135.4	144.2	147.2	147.2	146.1
102.5°	180.4	186.9	191.1	192.2	191.1
105°	229.6	232.6	234.9	236.8	236.8
107.5°	278.4	283.0	283.0	283.7	278.4
110°	325.7	331.8	331.8	331.8	328.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	376.8	383.3	382.1	379.1	376.8
115°	427.1	433.3	431.3	430.2	427.1
117.5°	477.1	485.5	480.2	477.1	474.1
120°	527.5	535.8	527.5	527.5	524.0
122.5°	573.2	583.9	578.6	575.5	573.2
125°	621.3	630.8	627.8	624.3	623.2
127.5°	668.2	680.0	675.8	671.2	668.2
130°	712.0	725.8	723.9	721.6	717.4
132.5°	761.2	771.9	772.7	767.3	764.3
135°	803.6	815.4	817.7	816.5	813.5
137.5°	850.9	860.4	862.3	861.5	857.0
140°	892.4	902.0	907.3	907.3	903.1
142.5°	935.2	944.7	947.7	948.9	944.7
145°	975.6	983.2	989.3	990.5	986.3
147.5°	1011.8	1021.3	1025.9	1027.8	1023.6
150°	1049.2	1055.7	1059.9	1063.3	1059.9
152.5°	1082.4	1088.8	1094.2	1098.4	1094.2
155°	1115.5	1118.6	1122.0	1127.4	1123.9
157.5°	1144.2	1146.4	1148.3	1156.0	1150.6
160°	1169.7	1172.0	1173.1	1179.6	1175.0
162.5°	1193.3	1193.3	1194.5	1201.7	1196.4
165°	1213.6	1212.4	1212.4	1220.0	1214.7
167.5°	1231.9	1228.4	1228.4	1236.1	1230.7
170°	1245.6	1242.5	1241.4	1249.0	1242.5
172.5°	1255.1	1252.1	1250.9	1258.6	1252.1
175°	1262.8	1259.7	1257.4	1265.0	1258.6
177.5°	1267.0	1263.9	1261.6	1268.1	1261.6
180°	1265.0	1265.0	1265.0	1265.0	1265.0

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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	7.99	8.74	9.06	9.81	11.27	7.55	8.30	8.62	9.37	10.82
	3H	9.62	10.29	10.70	11.37	12.85	9.13	9.80	10.21	10.88	12.36
	4H	10.19	10.82	11.28	11.90	13.39	9.69	10.33	10.78	11.41	12.89
	6H	10.56	11.15	11.66	12.23	13.73	10.06	10.65	11.16	11.73	13.23
	8H	10.66	11.21	11.76	12.31	13.80	10.16	10.71	11.26	11.81	13.30
	12H	10.69	11.22	11.80	12.32	13.83	10.18	10.71	11.29	11.81	13.32
4H	2H	8.43	9.06	9.52	10.14	11.63	8.07	8.71	9.17	9.79	11.27
	3H	10.25	10.79	11.36	11.89	13.39	9.85	10.38	10.95	11.49	12.98
	4H	10.95	11.43	12.05	12.53	14.05	10.52	11.01	11.63	12.11	13.62
	6H	11.43	11.85	12.55	12.97	14.48	11.00	11.42	12.12	12.54	14.05
	8H	11.57	11.96	12.68	13.07	14.60	11.13	11.52	12.25	12.63	14.16
	12H	11.63	11.98	12.76	13.11	14.64	11.18	11.53	12.31	12.66	14.19
8H	4H	11.12	11.51	12.24	12.62	14.15	10.74	11.13	11.86	12.25	13.77
	6H	11.72	12.04	12.86	13.20	14.72	11.33	11.66	12.47	12.81	14.33
	8H	11.92	12.21	13.07	13.34	14.88	11.53	11.81	12.67	12.95	14.49
	12H	12.03	12.28	13.18	13.41	14.99	11.62	11.87	12.77	13.00	14.58
12H	4H	11.10	11.45	12.23	12.58	14.11	10.73	11.08	11.86	12.21	13.74
	6H	11.74	12.02	12.89	13.16	14.70	11.37	11.65	12.51	12.79	14.33
	8H	11.96	12.21	13.11	13.34	14.92	11.58	11.83	12.73	12.96	14.54