

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: P906220

Luminaire Tested: DFN2DIP-SQ2F0-040D030US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P906220  
REPORT IS A COMBINATION OF REPORTS P899773 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-040D030US835-FLLFL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

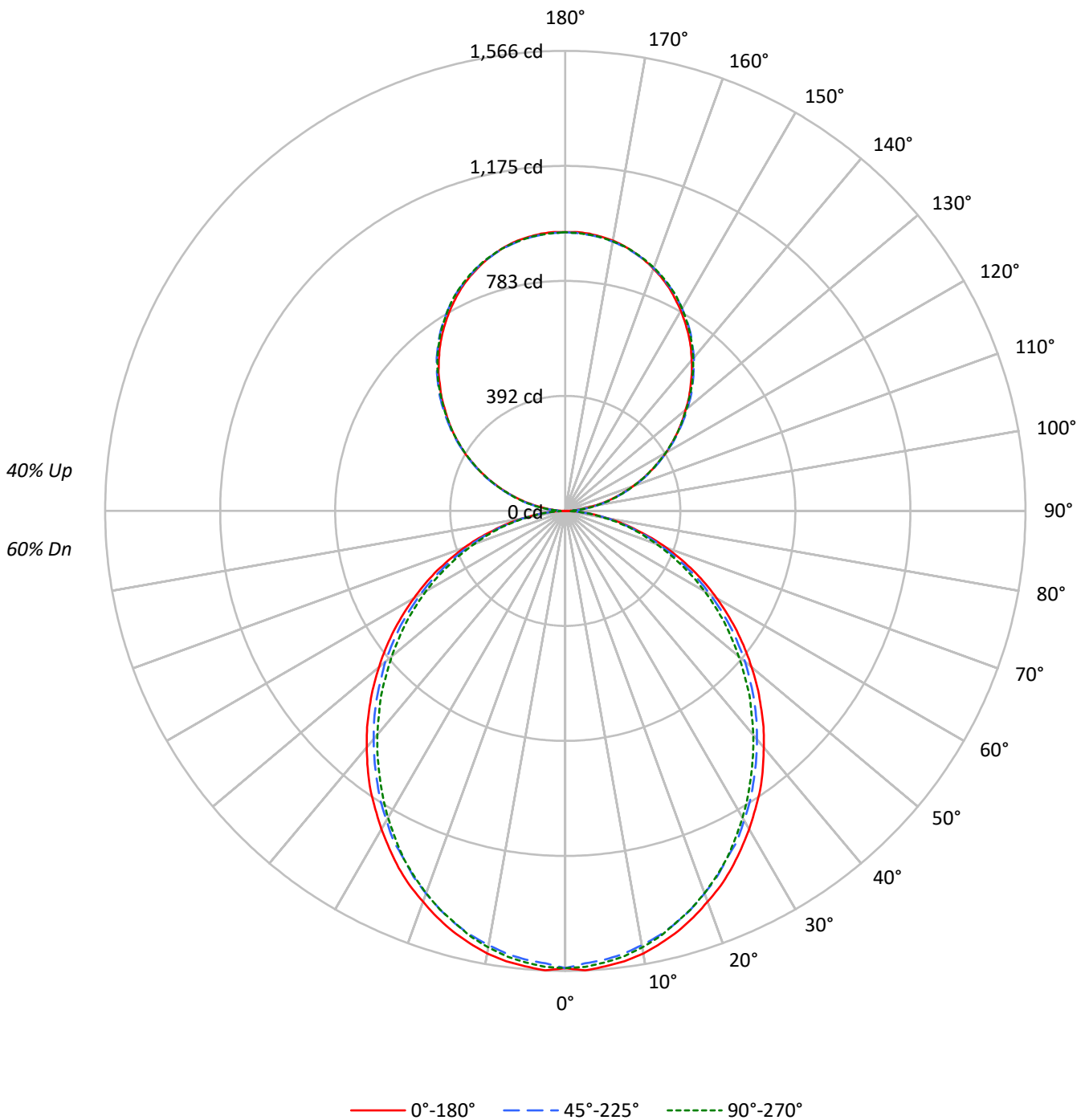
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6615.0 lumens  
Efficiency: N/A  
Efficacy: 117.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 56.5  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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

TEST NUMBER: P906220  
CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US835-FLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P906220  
 CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US835-FLLFLL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	65	65	65	60
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55	55	55	55	50
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46	46	46	46	42
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40	40	40	40	36
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34	34	34	34	31
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30	30	30	30	27
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26	26	26	26	23
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23	23	23	23	21
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21	21	21	21	19
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19	19	19	19	17
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17	17	17	17	15

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3422	3422	3422
5°	3422	3367	3393
10°	3388	3315	3342
15°	3332	3252	3265
20°	3259	3169	3187
25°	3186	3071	3098
30°	3096	2980	2985
35°	3010	2873	2866
40°	2906	2764	2753
45°	2801	2655	2636
50°	2686	2540	2502
55°	2566	2408	2377
60°	2429	2252	2234
65°	2279	2089	2066
70°	2089	1891	1883
75°	1828	1652	1708
80°	1509	1349	1388
85°	1020	851	872

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2801 cd/sqm



TEST NUMBER: P906220  
 CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US835-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	146.5	2.2
10°-20°	412.2	6.2
20°-30°	605.7	9.2
30°-40°	703.5	10.6
40°-50°	702.6	10.6
50°-60°	612.7	9.3
60°-70°	452.9	6.8
70°-80°	256.2	3.9
80°-90°	70.3	1.1
90°-100°	58.7	0.9
100°-110°	186.5	2.8
110°-120°	319.2	4.8
120°-130°	419.8	6.3
130°-140°	471.2	7.1
140°-150°	462.1	7.0
150°-160°	387.7	5.9
160°-170°	257.1	3.9
170°-180°	89.9	1.4
0°-30°	1164.4	17.6
0°-40°	1867.9	28.2
0°-60°	3183.2	48.1
0°-90°	3962.7	59.9
90°-120°	564.5	8.5
90°-150°	1917.7	29.0
90°-180°	2652.0	40.1
0°-180°	6615.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1556	1556	1556	1556	1556	
5°	1556	1550	1534	1546	1543	148
15°	1482	1473	1453	1459	1452	417
25°	1341	1329	1304	1306	1304	617
35°	1157	1142	1118	1109	1102	722
45°	941	931	908	892	886	727
55°	712	703	686	668	660	637
65°	480	471	456	443	436	475
75°	251	248	241	232	235	268
85°	61	60	58	54	52	68
90°	1	10	28	26	27	6
95°	42	50	51	51	50	46
105°	172	174	176	178	178	182
115°	320	325	324	323	320	317
125°	466	473	471	468	467	416
135°	603	612	613	612	610	466
145°	732	737	742	743	740	457
155°	837	839	842	846	843	385
165°	910	909	909	915	911	257
175°	947	945	943	949	944	90
180°	949	949	949	949	949	



TEST NUMBER: P906220

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US835-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1556.4	1556.4	1556.4	1556.4	1556.4
2.5°	1565.5	1558.0	1541.5	1556.4	1553.6
5°	1556.4	1550.5	1534.0	1545.9	1543.1
7.5°	1545.9	1537.0	1520.5	1532.6	1529.6
10°	1529.6	1519.1	1501.2	1513.1	1508.6
12.5°	1507.0	1498.1	1480.2	1487.7	1484.6
15°	1481.6	1472.7	1453.2	1459.2	1451.8
17.5°	1450.2	1441.3	1421.8	1429.2	1421.8
20°	1415.7	1406.8	1385.9	1390.3	1384.5
22.5°	1381.4	1367.9	1348.4	1348.4	1345.4
25°	1340.9	1329.0	1303.6	1306.5	1303.6
27.5°	1296.0	1285.5	1266.2	1261.7	1254.3
30°	1251.2	1239.2	1216.8	1212.3	1206.3
32.5°	1203.3	1194.4	1170.4	1161.4	1155.3
35°	1156.9	1142.0	1118.0	1109.0	1101.5
37.5°	1104.5	1091.0	1067.0	1056.6	1049.1
40°	1050.7	1038.6	1014.6	1001.3	995.3
42.5°	998.3	986.2	962.4	947.3	938.4
45°	941.4	931.0	908.4	892.1	886.0
47.5°	886.0	875.5	851.6	835.1	826.2
50°	827.6	820.1	799.2	778.2	770.7
52.5°	770.7	760.3	740.9	724.4	713.9
55°	712.5	703.4	685.5	667.5	660.1
57.5°	654.0	646.6	627.0	609.1	603.1
60°	595.6	589.7	568.8	552.3	547.8
62.5°	538.8	528.3	513.4	498.4	492.4
65°	480.5	471.4	456.5	443.0	435.6
67.5°	420.6	413.0	399.7	389.2	383.2
70°	365.2	359.2	345.7	335.2	329.3
72.5°	308.4	302.3	294.9	284.4	279.9
75°	251.4	248.5	240.9	232.0	235.0
77.5°	200.5	194.5	191.5	187.0	182.6
80°	149.7	148.1	145.1	140.7	137.7
82.5°	101.8	101.8	100.4	94.3	94.3
85°	61.3	59.9	58.4	53.8	52.4
87.5°	27.0	24.0	21.0	16.5	14.9
90°	0.9	10.3	28.0	26.3	27.2
92.5°	17.7	24.0	24.9	25.7	25.7
95°	41.8	49.8	51.2	51.2	49.8
97.5°	69.5	76.9	80.1	80.1	80.1
100°	101.5	108.1	110.4	110.4	109.6
102.5°	135.3	140.2	143.3	144.2	143.3
105°	172.2	174.5	176.2	177.6	177.6
107.5°	208.8	212.2	212.2	212.8	208.8
110°	244.3	248.9	248.9	248.9	246.6



TEST NUMBER: P906220

CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US835-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	282.6	287.5	286.6	284.3	282.6
115°	320.4	324.9	323.5	322.7	320.4
117.5°	357.8	364.1	360.1	357.8	355.5
120°	395.6	401.9	395.6	395.6	393.0
122.5°	429.9	437.9	433.9	431.6	429.9
125°	466.0	473.1	470.8	468.2	467.4
127.5°	501.1	510.0	506.9	503.4	501.1
130°	534.0	544.3	542.9	541.2	538.0
132.5°	570.9	578.9	579.5	575.5	573.2
135°	602.7	611.5	613.3	612.4	610.1
137.5°	638.1	645.3	646.7	646.2	642.7
140°	669.3	676.5	680.5	680.5	677.3
142.5°	701.4	708.5	710.8	711.7	708.5
145°	731.7	737.4	742.0	742.8	739.7
147.5°	758.9	766.0	769.4	770.9	767.7
150°	786.9	791.8	794.9	797.5	794.9
152.5°	811.8	816.6	820.6	823.8	820.6
155°	836.7	838.9	841.5	845.5	843.0
157.5°	858.1	859.8	861.3	867.0	863.0
160°	877.3	879.0	879.9	884.7	881.3
162.5°	895.0	895.0	895.9	901.3	897.3
165°	910.2	909.3	909.3	915.0	911.0
167.5°	923.9	921.3	921.3	927.0	923.0
170°	934.2	931.9	931.1	936.8	931.9
172.5°	941.3	939.1	938.2	943.9	939.1
175°	947.1	944.8	943.1	948.8	943.9
177.5°	950.2	947.9	946.2	951.1	946.2
180°	948.8	948.8	948.8	948.8	948.8



TEST NUMBER: P906220  
 CATALOG NUMBER: DFN2DIP-SQ2F0-040D030US835-FLLFLL

**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	12.30	13.26	13.16	14.14	15.27	11.85	12.81	12.72	13.70	14.82
	3H	13.95	14.81	14.83	15.70	16.85	13.46	14.32	14.34	15.21	16.36
	4H	14.52	15.34	15.42	16.24	17.40	14.03	14.84	14.93	15.75	16.91
	6H	14.91	15.66	15.82	16.57	17.75	14.41	15.16	15.32	16.07	17.25
	8H	15.01	15.73	15.93	16.66	17.83	14.51	15.23	15.43	16.16	17.33
	12H	15.06	15.74	15.98	16.66	17.86	14.55	15.23	15.47	16.15	17.35
4H	2H	12.76	13.57	13.66	14.48	15.63	12.40	13.22	13.30	14.12	15.28
	3H	14.61	15.29	15.52	16.22	17.40	14.20	14.88	15.11	15.82	16.99
	4H	15.31	15.93	16.24	16.86	18.06	14.89	15.51	15.81	16.44	17.64
	6H	15.82	16.35	16.75	17.30	18.50	15.38	15.92	16.32	16.87	18.07
	8H	15.96	16.46	16.90	17.41	18.62	15.52	16.02	16.46	16.97	18.18
	12H	16.03	16.48	16.98	17.44	18.66	15.58	16.03	16.54	17.00	18.21
8H	4H	15.51	16.01	16.44	16.95	18.17	15.13	15.63	16.07	16.58	17.79
	6H	16.12	16.53	17.08	17.52	18.73	15.73	16.15	16.70	17.14	18.35
	8H	16.33	16.69	17.30	17.67	18.90	15.93	16.30	16.91	17.28	18.51
	12H	16.45	16.77	17.43	17.74	19.02	16.04	16.36	17.02	17.33	18.61
12H	4H	15.49	15.94	16.45	16.91	18.13	15.12	15.57	16.08	16.54	17.76
	6H	16.14	16.51	17.12	17.49	18.72	15.77	16.14	16.74	17.12	18.35
	8H	16.37	16.70	17.35	17.67	18.95	15.99	16.32	16.97	17.29	18.57