

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: P929876

Luminaire Tested: DFN2DS-4P3F0-030DS950-RLL

Issue Date: 11/20/2024

**Test Information**

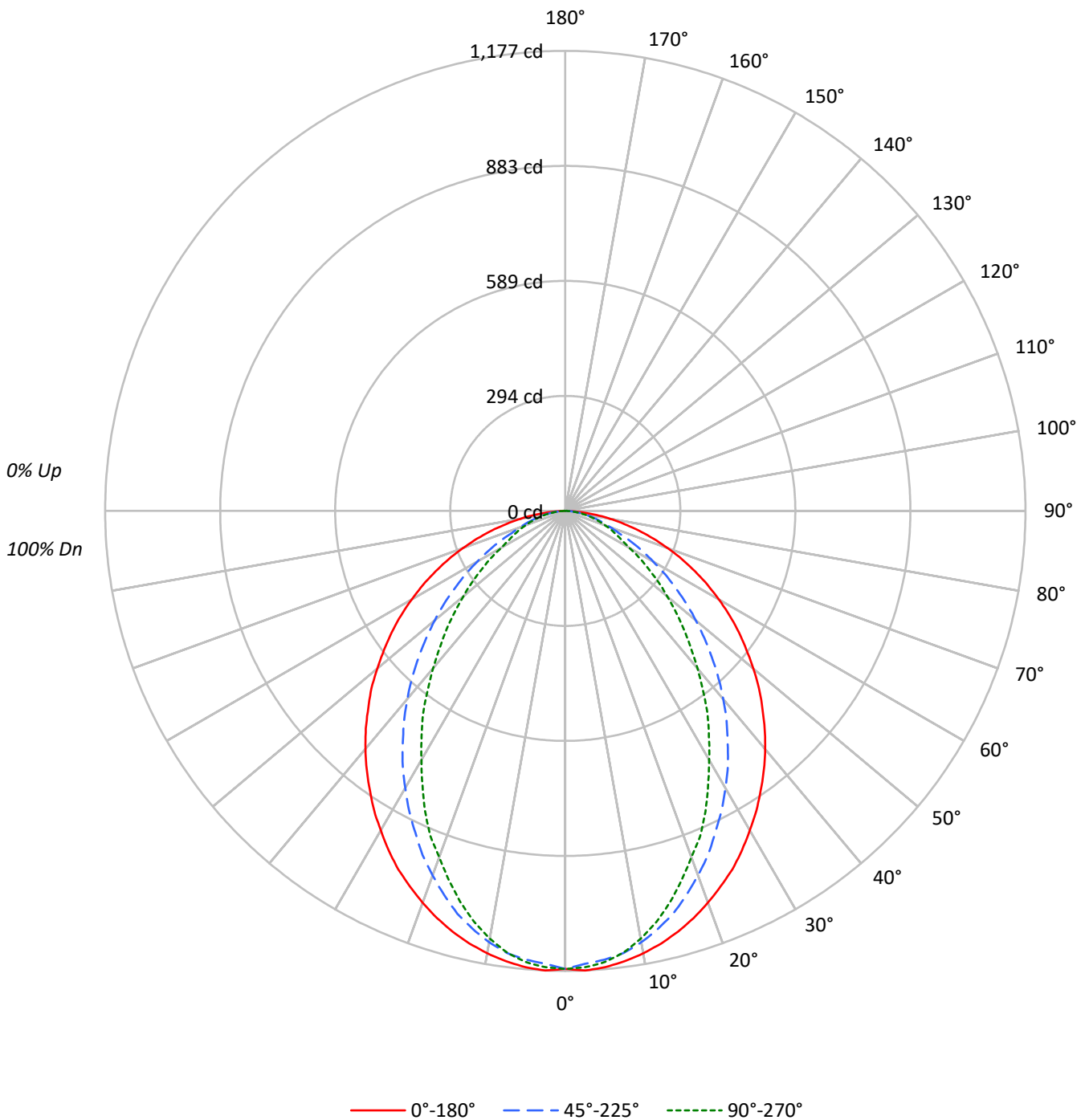
Test Method: LM-79-2019  
Report Number: P929876  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-4P3F0-030DS950-RLL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2409.7 lumens  
Efficiency: N/A  
Efficacy: 83.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.07' x L: 3.07' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 28.9  
Input Voltage (V):  
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

TEST NUMBER: P929876  
CATALOG NUMBER: DFN2DS-4P3F0-030DS950-RLL

### 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			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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	88	88	88	86
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	76	76	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	66	66	66	64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	57	57	57	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	51	51	51	49
6	74	61	53	47	72	60	52	46	58	51	46	57	50	46	55	50	45	45	45	45	43
7	68	56	47	42	67	55	47	42	53	46	41	52	46	41	51	45	41	41	41	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	37	37	37	35
9	60	47	39	34	59	47	39	34	46	39	34	44	38	34	44	38	34	34	34	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	31	31	31	29

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

	0°	45°	90°
0°	1335	1335	1335
5°	1340	1319	1326
10°	1330	1297	1286
15°	1315	1258	1222
20°	1294	1204	1143
25°	1272	1141	1067
30°	1242	1077	968
35°	1213	1007	882
40°	1183	935	782
45°	1148	854	692
50°	1113	773	603
55°	1076	684	518
60°	1034	592	430
65°	986	498	392
70°	929	409	360
75°	859	374	336
80°	759	333	306
85°	595	263	263

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1148 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	109.8	4.6
10°-20°	301.5	12.5
20°-30°	423.2	17.6
30°-40°	461.4	19.1
40°-50°	424.0	17.6
50°-60°	333.0	13.8
60°-70°	216.8	9.0
70°-80°	111.6	4.6
80°-90°	28.5	1.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
<b>0°-30°</b>	<b>834.5</b>	<b>34.6</b>
<b>0°-40°</b>	<b>1295.9</b>	<b>53.8</b>
<b>0°-60°</b>	<b>2052.9</b>	<b>85.2</b>
<b>0°-90°</b>	<b>2409.7</b>	<b>100.0</b>
90°-120°	0.0	0.0
90°-150°	0.0	0.0
<b>90°-180°</b>	<b>0.0</b>	<b>0.0</b>
<b>0°-180°</b>	<b>2409.7</b>	<b>100.0</b>

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1172	1172	1172	1172	1172	
5°	1172	1166	1153	1162	1159	111
15°	1114	1103	1067	1047	1036	314
25°	1012	978	908	864	848	465
35°	872	818	724	657	634	546
45°	713	642	530	455	429	550
55°	542	459	344	281	261	484
65°	366	280	184	148	145	363
75°	195	121	85	77	76	206
85°	46	23	20	20	20	55
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1171.7	1171.7	1171.7	1171.7	1171.7
2.5°	1177.0	1171.7	1160.0	1170.7	1168.6
5°	1171.7	1166.4	1152.6	1162.2	1158.9
7.5°	1162.2	1155.8	1141.0	1145.2	1139.9
10°	1149.4	1142.0	1120.9	1117.6	1111.3
12.5°	1133.5	1124.0	1095.3	1089.0	1077.3
15°	1114.4	1102.7	1066.7	1046.6	1036.0
17.5°	1092.1	1075.2	1030.6	1007.4	990.4
20°	1066.7	1045.5	992.4	966.1	942.6
22.5°	1039.2	1014.7	953.2	917.2	901.3
25°	1011.6	977.6	907.7	864.2	848.2
27.5°	978.7	942.6	865.2	815.4	791.0
30°	943.8	903.4	818.6	764.6	735.9
32.5°	909.8	861.0	774.1	710.5	683.9
35°	871.7	817.5	724.2	657.4	634.1
37.5°	834.5	776.1	677.6	604.3	578.0
40°	795.3	731.7	628.8	553.5	526.0
42.5°	755.0	687.2	580.0	501.5	475.1
45°	712.6	641.5	530.2	454.8	429.4
47.5°	672.3	597.1	482.5	407.1	383.9
50°	627.8	552.4	435.8	362.6	340.4
52.5°	584.2	504.7	391.3	321.3	301.2
55°	541.8	459.1	344.5	281.0	260.9
57.5°	498.4	413.5	303.3	243.9	226.9
60°	453.8	369.0	259.8	205.7	188.8
62.5°	410.4	325.6	222.6	171.8	163.4
65°	365.8	279.9	184.5	148.5	145.2
67.5°	323.5	237.5	148.5	130.4	127.2
70°	278.9	196.2	122.9	112.4	108.1
72.5°	236.4	157.9	102.8	94.4	92.2
75°	195.0	120.9	84.9	77.4	76.4
77.5°	153.8	85.8	66.8	62.6	60.4
80°	115.6	61.5	50.8	46.7	46.7
82.5°	80.5	41.4	35.0	32.9	32.9
85°	45.5	23.2	20.1	20.1	20.1
87.5°	17.0	8.4	8.4	7.5	7.5
90°	0.0	0.0	0.0	0.0	0.0



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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	12.24	13.76	12.60	14.07	14.39	8.20	9.72	8.56	10.03	10.35
	3H	14.00	15.37	14.38	15.70	16.06	9.46	10.83	9.84	11.16	11.52
	4H	14.67	15.95	15.07	16.30	16.68	9.97	11.25	10.37	11.60	11.97
	6H	15.16	16.34	15.57	16.71	17.10	10.35	11.53	10.76	11.90	12.29
	8H	15.32	16.45	15.75	16.84	17.24	10.47	11.60	10.90	11.99	12.39
	12H	15.43	16.51	15.86	16.89	17.32	10.55	11.63	10.98	12.01	12.44
4H	2H	12.34	13.62	12.74	13.97	14.35	8.90	10.18	9.29	10.52	10.90
	3H	14.28	15.34	14.69	15.74	16.14	10.34	11.40	10.75	11.80	12.20
	4H	15.03	15.98	15.46	16.40	16.84	10.94	11.89	11.37	12.31	12.75
	6H	15.62	16.45	16.07	16.89	17.35	11.43	12.26	11.88	12.70	13.16
	8H	15.83	16.61	16.30	17.05	17.52	11.59	12.37	12.05	12.81	13.28
	12H	15.99	16.68	16.47	17.16	17.63	11.71	12.40	12.19	12.88	13.35
8H	4H	15.05	15.83	15.51	16.27	16.74	11.29	12.07	11.75	12.51	12.98
	6H	15.69	16.33	16.18	16.82	17.30	11.88	12.52	12.38	13.01	13.49
	8H	15.94	16.51	16.45	17.02	17.51	12.10	12.68	12.61	13.19	13.67
	12H	16.14	16.65	16.65	17.14	17.71	12.28	12.79	12.79	13.28	13.85
12H	4H	15.03	15.73	15.52	16.21	16.68	11.33	12.03	11.82	12.51	12.98
	6H	15.67	16.25	16.18	16.76	17.24	11.94	12.52	12.46	13.03	13.52
	8H	15.95	16.46	16.46	16.95	17.52	12.22	12.73	12.73	13.22	13.78