

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: P913098

Luminaire Tested: DFN2DIP-4P3F0-020D050US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

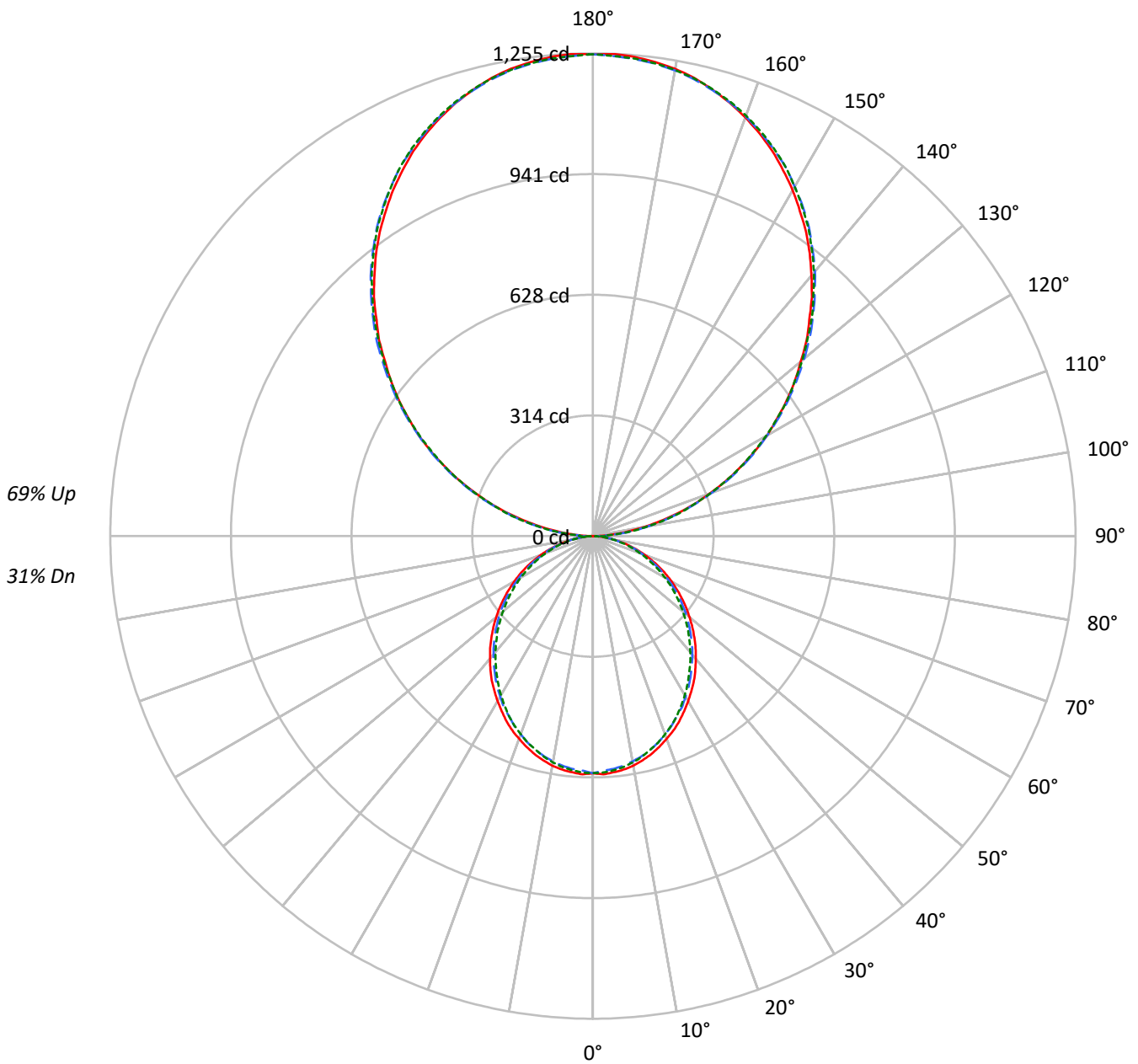
Test Method: LM-79-2019  
Report Number: P913098  
REPORT IS A COMBINATION OF REPORTS P899059 AND P895917  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-020D050US927-FLLFLL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5074.0 lumens  
Efficiency: N/A  
Efficacy: 94.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 53.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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



— 0°-180°    - - 45°-225°    - - - 90°-270°



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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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	39	39	39	39	39	39	31
1	94	89	86	82	84	80	77	74	64	61	60	48	47	46	34	33	33	34	33	33	26
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27	30	29	27	22
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	27	25	23	27	25	23	18
4	71	60	53	47	63	55	48	43	44	39	35	33	30	28	24	22	20	24	22	20	16
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17	21	19	17	14
6	60	48	40	35	54	44	37	32	35	30	26	27	23	21	19	17	15	19	17	15	12
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14	18	15	14	11
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12	16	14	12	10
9	47	36	28	24	43	32	26	22	26	21	18	20	17	15	15	13	11	15	13	11	9
10	44	33	26	21	40	30	24	19	24	19	16	19	15	13	14	12	10	14	12	10	8

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

	0°	45°	90°
0°	703	703	703
5°	703	692	697
10°	697	683	687
15°	686	671	673
20°	672	655	657
25°	658	636	639
30°	640	618	617
35°	623	597	593
40°	603	576	571
45°	582	554	548
50°	559	532	521
55°	536	506	496
60°	509	476	468
65°	480	444	435
70°	443	405	399
75°	391	358	366
80°	329	299	302
85°	231	198	198

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1257 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	58.0	1.1
10°-20°	163.3	3.2
20°-30°	239.9	4.7
30°-40°	278.7	5.5
40°-50°	278.3	5.5
50°-60°	242.7	4.8
60°-70°	179.4	3.5
70°-80°	101.5	2.0
80°-90°	30.4	0.6
90°-100°	77.5	1.5
100°-110°	246.3	4.9
110°-120°	421.5	8.3
120°-130°	554.3	10.9
130°-140°	622.2	12.3
140°-150°	610.1	12.0
150°-160°	511.8	10.1
160°-170°	339.4	6.7
170°-180°	118.6	2.3
0°-30°	461.2	9.1
0°-40°	739.9	14.6
0°-60°	1260.8	24.8
0°-90°	1572.1	31.0
90°-120°	745.3	14.7
90°-150°	2532.0	49.9
90°-180°	3502.0	69.0
0°-180°	5074.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	616	616	616	616	616	
5°	616	614	608	612	611	59
15°	587	583	576	578	575	165
25°	531	526	516	518	516	244
35°	458	452	443	439	436	286
45°	373	369	360	353	351	288
55°	282	279	272	264	261	252
65°	190	187	181	176	172	188
75°	100	98	95	92	93	106
85°	24	24	23	21	21	27
90°	1	14	37	35	36	5
95°	55	66	68	68	66	61
105°	227	230	233	234	234	240
115°	423	429	427	426	423	418
125°	615	625	622	618	617	550
135°	796	807	810	809	806	615
145°	966	974	980	981	977	604
155°	1105	1108	1111	1116	1113	508
165°	1202	1201	1201	1208	1203	339
175°	1250	1247	1245	1253	1246	119
180°	1253	1253	1253	1253	1253	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	616.5	616.5	616.5	616.5	616.5
2.5°	620.0	617.1	610.5	616.5	615.4
5°	616.5	614.2	607.6	612.4	611.2
7.5°	612.4	608.8	602.3	607.0	605.9
10°	605.9	601.7	594.6	599.3	597.5
12.5°	596.9	593.4	586.3	589.2	588.0
15°	586.8	583.4	575.6	578.0	575.0
17.5°	574.4	570.9	563.2	566.1	563.2
20°	560.8	557.2	548.9	550.7	548.3
22.5°	547.2	541.9	534.1	534.1	532.9
25°	531.2	526.4	516.3	517.5	516.3
27.5°	513.3	509.2	501.5	499.8	496.8
30°	495.6	490.8	482.0	480.2	477.8
32.5°	476.6	473.1	463.6	460.0	457.6
35°	458.3	452.3	442.8	439.3	436.3
37.5°	437.5	432.1	422.6	418.5	415.5
40°	416.1	411.4	401.9	396.6	394.2
42.5°	395.4	390.6	381.2	375.3	371.7
45°	372.9	368.8	359.8	353.3	350.9
47.5°	350.9	346.8	337.3	330.7	327.3
50°	327.8	324.9	316.6	308.2	305.3
52.5°	305.3	301.1	293.4	286.9	282.8
55°	282.2	278.6	271.5	264.4	261.4
57.5°	259.0	256.1	248.3	241.3	238.8
60°	235.9	233.6	225.3	218.7	217.0
62.5°	213.4	209.2	203.4	197.4	195.0
65°	190.3	186.7	180.9	175.5	172.5
67.5°	166.6	163.6	158.3	154.2	151.8
70°	144.7	142.3	136.9	132.8	130.5
72.5°	122.2	119.8	116.8	112.6	110.9
75°	99.6	98.5	95.4	91.9	93.1
77.5°	79.5	77.1	75.8	74.1	72.3
80°	59.3	58.7	57.5	55.7	54.5
82.5°	40.3	40.3	39.8	37.4	37.4
85°	24.2	23.7	23.1	21.3	20.8
87.5°	10.7	9.5	8.3	6.6	5.9
90°	1.1	13.6	37.0	34.8	35.9
92.5°	23.4	31.7	32.9	34.0	34.0
95°	55.1	65.8	67.6	67.6	65.8
97.5°	91.7	101.6	105.8	105.8	105.8
100°	134.0	142.8	145.8	145.8	144.7
102.5°	178.6	185.1	189.2	190.4	189.2
105°	227.4	230.4	232.7	234.5	234.5
107.5°	275.7	280.2	280.2	281.0	275.7
110°	322.5	328.6	328.6	328.6	325.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	373.1	379.5	378.4	375.4	373.1
115°	422.9	429.0	427.1	426.0	422.9
117.5°	472.5	480.8	475.5	472.5	469.4
120°	522.3	530.6	522.3	522.3	518.9
122.5°	567.6	578.2	572.9	569.9	567.6
125°	615.2	624.6	621.6	618.2	617.1
127.5°	661.6	673.4	669.2	664.6	661.6
130°	705.1	718.7	716.8	714.5	710.3
132.5°	753.8	764.4	765.2	759.9	756.8
135°	795.7	807.4	809.7	808.6	805.6
137.5°	842.6	852.0	853.9	853.1	848.6
140°	883.7	893.2	898.4	898.4	894.3
142.5°	926.0	935.5	938.5	939.6	935.5
145°	966.1	973.6	979.6	980.8	976.6
147.5°	1002.0	1011.4	1015.9	1017.8	1013.6
150°	1038.9	1045.4	1049.5	1052.9	1049.5
152.5°	1071.8	1078.2	1083.5	1087.7	1083.5
155°	1104.6	1107.6	1111.0	1116.3	1112.9
157.5°	1133.0	1135.2	1137.1	1144.7	1139.4
160°	1158.2	1160.5	1161.7	1168.1	1163.6
162.5°	1181.7	1181.7	1182.8	1190.0	1184.7
165°	1201.7	1200.6	1200.6	1208.2	1202.8
167.5°	1219.8	1216.4	1216.4	1224.0	1218.7
170°	1233.4	1230.4	1229.3	1236.8	1230.4
172.5°	1242.9	1239.8	1238.7	1246.3	1239.8
175°	1250.5	1247.4	1245.2	1252.7	1246.3
177.5°	1254.6	1251.6	1249.3	1255.7	1249.3
180°	1252.7	1252.7	1252.7	1252.7	1252.7



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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	3.93	4.64	5.03	5.74	7.26	3.48	4.20	4.59	5.30	6.82
	3H	5.57	6.21	6.69	7.32	8.86	5.08	5.72	6.20	6.83	8.37
	4H	6.15	6.76	7.27	7.87	9.41	5.66	6.26	6.78	7.37	8.91
	6H	6.54	7.10	7.67	8.21	9.76	6.04	6.60	7.17	7.71	9.26
	8H	6.64	7.17	7.77	8.30	9.84	6.14	6.67	7.27	7.80	9.34
	12H	6.68	7.18	7.82	8.31	9.88	6.17	6.67	7.31	7.80	9.37
4H	2H	4.37	4.97	5.50	6.08	7.63	4.01	4.62	5.14	5.73	7.27
	3H	6.21	6.72	7.35	7.86	9.41	5.81	6.31	6.94	7.45	9.00
	4H	6.92	7.38	8.06	8.51	10.08	6.49	6.96	7.63	8.09	9.66
	6H	7.42	7.82	8.57	8.97	10.53	6.99	7.39	8.13	8.54	10.10
	8H	7.57	7.94	8.71	9.08	10.66	7.13	7.50	8.27	8.64	10.22
	12H	7.63	7.97	8.79	9.12	10.70	7.18	7.52	8.34	8.67	10.26
8H	4H	7.10	7.47	8.24	8.61	10.19	6.72	7.09	7.87	8.23	9.82
	6H	7.72	8.03	8.88	9.21	10.79	7.33	7.64	8.50	8.82	10.40
	8H	7.93	8.20	9.11	9.36	10.96	7.54	7.81	8.71	8.97	10.57
	12H	8.05	8.29	9.23	9.45	11.08	7.64	7.88	8.82	9.04	10.67
12H	4H	7.08	7.41	8.24	8.57	10.15	6.71	7.05	7.87	8.20	9.78
	6H	7.75	8.01	8.92	9.18	10.77	7.37	7.64	8.54	8.80	10.40
	8H	7.98	8.21	9.15	9.37	11.00	7.59	7.83	8.77	8.99	10.62