

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: P915323

Luminaire Tested: DFN2DIP-TR3F0-040D090US927-RLLFLL

Issue Date: 11/21/2024

**Test Information**

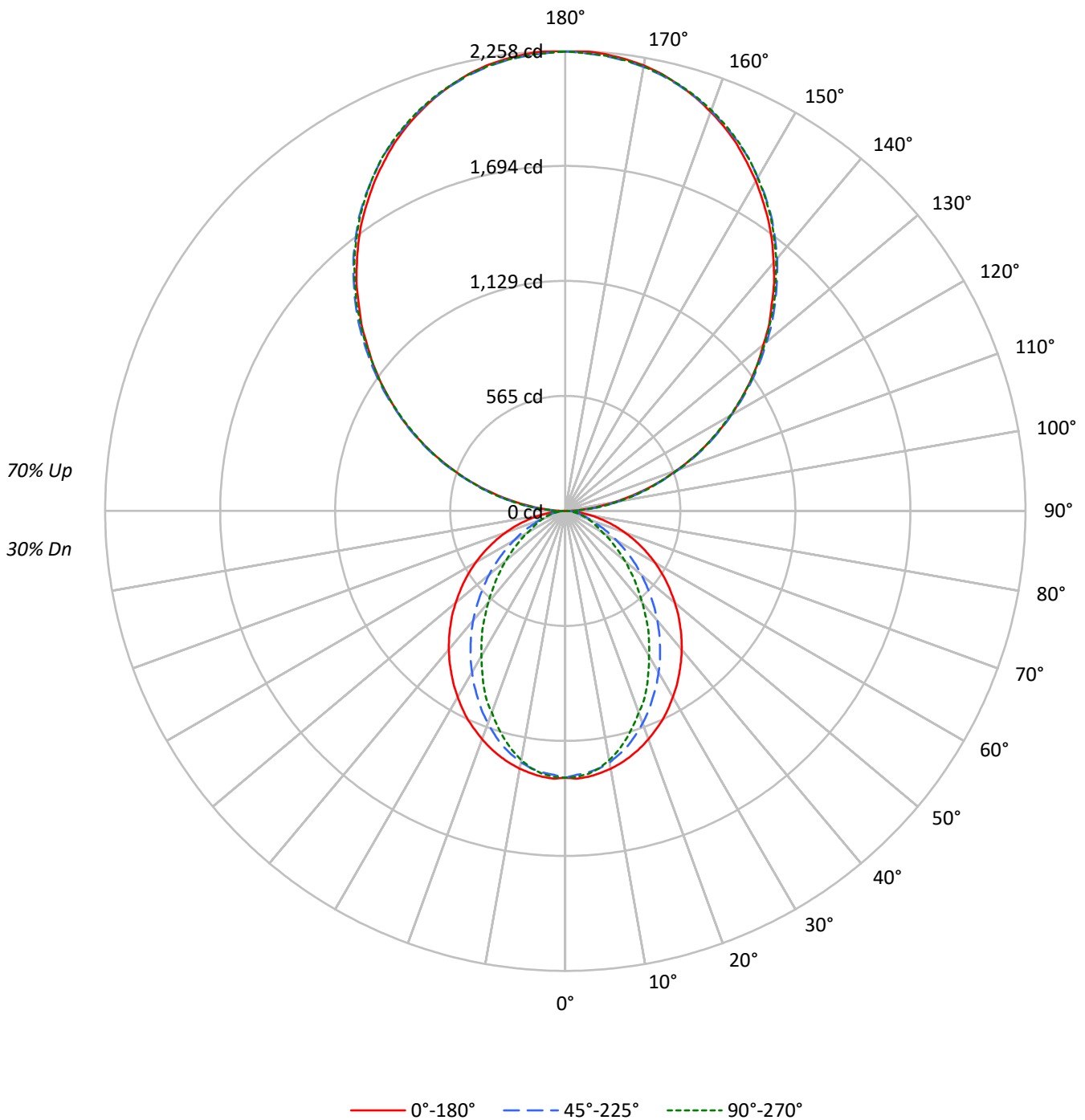
Test Method: LM-79-2019  
Report Number: P915323  
REPORT IS A COMBINATION OF REPORTS P900358 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-040D090US927-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9003.1 lumens  
Efficiency: N/A  
Efficacy: 85.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 105.9  
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





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

RF	20				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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	38	30
1	94	89	86	83	84	80	77	75	64	62	60	48	47	46	34	33	32	34	33	32	26	
2	85	78	73	68	76	71	66	62	56	53	50	43	40	38	30	29	28	30	29	28	22	
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24	27	25	24	19	
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	17	
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18	22	20	18	15	
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	13	
7	56	44	37	31	50	40	33	29	32	27	24	25	22	19	18	16	14	18	16	14	12	
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13	17	15	13	10	
9	48	36	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12	16	13	12	10	
10	45	33	27	22	40	30	24	20	25	20	17	19	16	14	14	12	11	14	12	11	9	

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

	0°	45°	90°
0°	1632	1632	1632
5°	1634	1605	1615
10°	1617	1572	1562
15°	1593	1519	1479
20°	1563	1446	1379
25°	1532	1364	1282
30°	1491	1281	1159
35°	1450	1191	1051
40°	1409	1099	928
45°	1361	996	816
50°	1311	893	707
55°	1259	783	602
60°	1198	668	495
65°	1129	551	444
70°	1045	442	400
75°	939	387	362
80°	785	320	310
85°	534	207	227

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2202 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	122.7	1.4
10°-20°	336.9	3.7
20°-30°	473.1	5.3
30°-40°	515.7	5.7
40°-50°	473.9	5.3
50°-60°	372.2	4.1
60°-70°	242.3	2.7
70°-80°	124.7	1.4
80°-90°	38.2	0.4
90°-100°	139.5	1.5
100°-110°	443.3	4.9
110°-120°	758.7	8.4
120°-130°	997.8	11.1
130°-140°	1120.0	12.4
140°-150°	1098.2	12.2
150°-160°	921.3	10.2
160°-170°	611.0	6.8
170°-180°	213.5	2.4
0°-30°	932.7	10.4
0°-40°	1448.4	16.1
0°-60°	2294.6	25.5
0°-90°	2699.8	30.0
90°-120°	1341.5	14.9
90°-150°	4557.5	50.6
90°-180°	6303.0	70.0
0°-180°	9003.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1310	1310	1310	1310	1310	
5°	1310	1304	1288	1299	1296	124
15°	1246	1233	1192	1170	1158	351
25°	1131	1093	1014	966	948	520
35°	974	914	810	735	709	610
45°	796	717	593	508	480	615
55°	606	513	385	314	292	541
65°	409	313	206	166	162	405
75°	218	135	95	86	85	231
85°	51	26	22	22	22	58
90°	2	24	67	62	65	9
95°	99	118	122	122	118	110
105°	409	415	419	422	422	432
115°	761	772	769	767	761	753
125°	1107	1124	1119	1113	1111	990
135°	1432	1453	1458	1455	1450	1107
145°	1739	1752	1763	1765	1758	1086
155°	1988	1994	2000	2009	2003	915
165°	2163	2161	2161	2175	2165	610
175°	2251	2245	2241	2255	2243	214
180°	2255	2255	2255	2255	2255	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1309.6	1309.6	1309.6	1309.6	1309.6
2.5°	1315.6	1309.6	1296.6	1308.5	1306.1
5°	1309.6	1303.7	1288.2	1298.9	1295.5
7.5°	1298.9	1291.9	1275.3	1279.9	1274.1
10°	1284.8	1276.4	1252.8	1249.1	1242.1
12.5°	1267.0	1256.3	1224.2	1217.2	1204.1
15°	1245.6	1232.6	1192.3	1169.8	1158.0
17.5°	1220.8	1201.7	1151.9	1125.9	1106.9
20°	1192.3	1168.5	1109.3	1079.7	1053.6
22.5°	1161.5	1134.2	1065.4	1025.2	1007.5
25°	1130.7	1092.7	1014.5	966.0	948.1
27.5°	1094.0	1053.6	967.1	911.4	884.1
30°	1054.9	1009.7	914.9	854.5	822.5
32.5°	1016.9	962.3	865.2	794.1	764.4
35°	974.3	913.8	809.5	734.8	708.7
37.5°	932.8	867.5	757.3	675.5	645.9
40°	888.9	817.8	702.8	618.7	587.9
42.5°	843.8	768.0	648.3	560.5	531.0
45°	796.5	717.0	592.6	508.4	480.0
47.5°	751.5	667.3	539.3	455.1	429.0
50°	701.6	617.5	487.1	405.3	380.5
52.5°	653.0	564.1	437.4	359.1	336.6
55°	605.6	513.2	385.2	314.1	291.6
57.5°	557.1	462.2	339.0	272.6	253.7
60°	507.2	412.4	290.3	230.0	211.0
62.5°	458.8	363.9	248.8	192.0	182.6
65°	408.9	312.8	206.2	166.0	162.3
67.5°	361.6	265.5	166.0	145.8	142.2
70°	311.7	219.3	137.4	125.6	120.8
72.5°	264.4	176.6	114.9	105.5	103.1
75°	218.0	135.1	94.8	86.5	85.4
77.5°	171.9	95.9	74.7	69.9	67.5
80°	129.1	68.8	56.8	52.2	52.2
82.5°	90.1	46.3	39.1	36.7	36.7
85°	50.9	26.1	22.5	22.5	22.5
87.5°	19.0	9.4	9.4	8.3	8.3
90°	2.1	24.5	66.6	62.5	64.6
92.5°	42.1	57.1	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.2	182.8	190.4	190.4	190.4
100°	241.3	257.0	262.4	262.4	260.4
102.5°	321.5	333.1	340.6	342.6	340.6
105°	409.2	414.6	418.7	422.2	422.2
107.5°	496.2	504.4	504.4	505.7	496.2
110°	580.5	591.4	591.4	591.4	586.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	671.6	683.2	681.1	675.7	671.6
115°	761.4	772.2	768.8	766.8	761.4
117.5°	850.4	865.4	855.9	850.4	844.9
120°	940.2	955.1	940.2	940.2	934.0
122.5°	1021.7	1040.8	1031.3	1025.8	1021.7
125°	1107.4	1124.3	1119.0	1112.8	1110.8
127.5°	1191.0	1212.0	1204.6	1196.4	1191.0
130°	1269.2	1293.6	1290.2	1286.1	1278.7
132.5°	1356.8	1375.9	1377.2	1367.7	1362.3
135°	1432.3	1453.3	1457.5	1455.4	1450.0
137.5°	1516.6	1533.6	1537.0	1535.6	1527.5
140°	1590.7	1607.7	1617.2	1617.2	1609.7
142.5°	1666.8	1683.8	1689.2	1691.3	1683.8
145°	1738.9	1752.5	1763.3	1765.4	1757.9
147.5°	1803.5	1820.4	1828.6	1832.0	1824.6
150°	1870.1	1881.7	1889.1	1895.2	1889.1
152.5°	1929.2	1940.8	1950.3	1957.8	1950.3
155°	1988.4	1993.8	1999.9	2009.4	2003.3
157.5°	2039.3	2043.4	2046.8	2060.4	2050.9
160°	2084.9	2089.0	2091.0	2102.5	2094.4
162.5°	2127.0	2127.0	2129.1	2142.0	2132.5
165°	2163.1	2161.0	2161.0	2174.6	2165.1
167.5°	2195.7	2189.6	2189.6	2203.1	2193.6
170°	2220.2	2214.7	2212.7	2226.3	2214.7
172.5°	2237.1	2231.7	2229.7	2243.3	2231.7
175°	2250.7	2245.3	2241.2	2254.9	2243.3
177.5°	2258.2	2252.8	2248.7	2260.3	2248.7
180°	2254.9	2254.9	2254.9	2254.9	2254.9



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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	6.56	7.25	7.68	8.36	9.89	2.54	3.23	3.65	4.33	5.87
	3H	8.22	8.83	9.34	9.95	11.50	3.71	4.33	4.83	5.44	6.99
	4H	8.81	9.40	9.95	10.52	12.07	4.15	4.73	5.28	5.85	7.41
	6H	9.22	9.76	10.36	10.88	12.44	4.46	5.00	5.60	6.12	7.68
	8H	9.34	9.85	10.48	10.98	12.54	4.54	5.05	5.69	6.19	7.75
	12H	9.39	9.88	10.54	11.01	12.59	4.58	5.06	5.73	6.19	7.77
4H	2H	6.56	7.14	7.70	8.26	9.82	3.11	3.69	4.25	4.81	6.37
	3H	8.37	8.85	9.51	10.00	11.56	4.44	4.93	5.59	6.07	7.64
	4H	9.04	9.49	10.19	10.62	12.21	4.98	5.43	6.13	6.56	8.14
	6H	9.54	9.93	10.70	11.08	12.66	5.38	5.77	6.54	6.92	8.50
	8H	9.71	10.07	10.87	11.21	12.81	5.51	5.86	6.66	7.01	8.60
	12H	9.79	10.12	10.96	11.28	12.87	5.56	5.88	6.73	7.04	8.64
8H	4H	9.00	9.36	10.16	10.50	12.10	5.24	5.60	6.40	6.75	8.34
	6H	9.55	9.85	10.73	11.03	12.62	5.75	6.04	6.92	7.23	8.82
	8H	9.76	10.02	10.94	11.19	12.80	5.93	6.19	7.11	7.36	8.97
	12H	9.89	10.11	11.07	11.28	12.92	6.04	6.27	7.22	7.43	9.07
12H	4H	8.95	9.27	10.12	10.43	12.03	5.24	5.56	6.41	6.72	8.32
	6H	9.53	9.78	10.71	10.95	12.56	5.79	6.05	6.97	7.22	8.83
	8H	9.73	9.96	10.92	11.12	12.77	5.99	6.22	7.18	7.38	9.03