

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: P920374

Luminaire Tested: DFN2DIP-SQ4F0-070D160US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920374
REPORT IS A COMBINATION OF REPORTS P900206 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

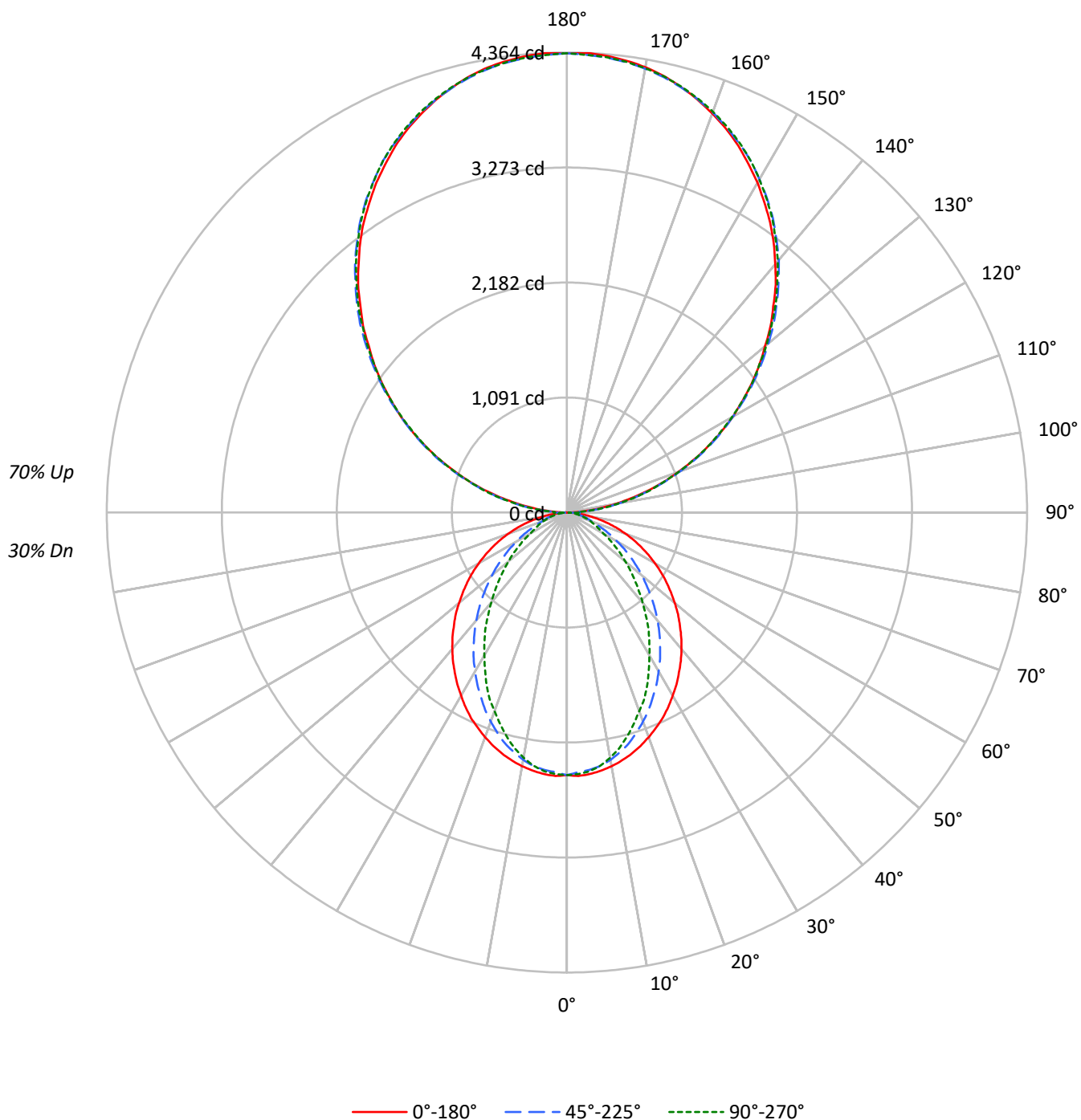
Lumens per Lamp: N/A
Luminaire Lumens: 17315.5 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
Input Voltage (V):
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

TEST NUMBER: P920374

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US935-RLFL

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					0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	102	102	102	102		92	92	92	92		72	72	72		54	54	54		37	37	37
1	93	89	86	82		84	80	77	75		63	61	59		48	47	45		33	33	32
2	85	78	73	68		76	71	66	62		56	53	50		42	40	38		30	29	27
3	78	69	62	57		70	62	56	52		49	45	42		38	35	33		27	25	24
4	71	61	54	48		64	55	49	44		44	40	36		34	31	28		24	22	21
5	66	55	47	41		59	49	43	38		39	35	31		30	27	25		22	20	18
6	60	49	41	36		54	44	38	33		36	31	27		27	24	22		20	18	16
7	56	44	37	31		50	40	33	29		32	27	24		25	22	19		18	16	14
8	52	40	33	28		46	36	30	25		29	25	21		23	19	17		17	15	13
9	48	36	29	24		43	33	27	23		27	22	19		21	18	15		15	13	12
10	45	33	26	22		40	30	24	20		25	20	17		19	16	14		14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1748	1748	1748
5°	1751	1720	1732
10°	1733	1687	1676
15°	1709	1632	1589
20°	1678	1555	1483
25°	1645	1469	1380
30°	1602	1381	1249
35°	1559	1286	1134
40°	1516	1188	1003
45°	1466	1080	883
50°	1414	970	767
55°	1359	852	655
60°	1297	729	539
65°	1224	605	486
70°	1137	488	441
75°	1026	431	402
80°	867	363	350
85°	604	244	267

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3430 cd/sqm

TEST NUMBER: P920374

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US935-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.5	1.3
10°-20°	640.9	3.7
20°-30°	899.8	5.2
30°-40°	980.8	5.7
40°-50°	901.5	5.2
50°-60°	708.0	4.1
60°-70°	460.8	2.7
70°-80°	237.2	1.4
80°-90°	72.9	0.4
90°-100°	269.6	1.6
100°-110°	856.6	4.9
110°-120°	1466.0	8.5
120°-130°	1928.1	11.1
130°-140°	2164.2	12.5
140°-150°	2122.2	12.3
150°-160°	1780.2	10.3
160°-170°	1180.6	6.8
170°-180°	412.7	2.4
0°-30°	1774.1	10.2
0°-40°	2754.9	15.9
0°-60°	4364.3	25.2
0°-90°	5135.3	29.7
90°-120°	2592.3	15.0
90°-150°	8806.7	50.9
90°-180°	12180.0	70.3
0°-180°	17315.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2491	2491	2491	2491	2491	
5°	2491	2480	2450	2471	2464	236
15°	2369	2344	2268	2225	2202	668
25°	2151	2078	1930	1837	1803	989
35°	1853	1738	1540	1398	1348	1160
45°	1515	1364	1127	967	913	1170
55°	1152	976	732	597	555	1029
65°	778	595	392	316	309	771
75°	415	257	180	164	162	439
85°	97	50	43	43	43	111
90°	4	47	129	121	125	17
95°	192	229	235	235	229	213
105°	791	801	809	816	816	834
115°	1471	1492	1486	1482	1471	1455
125°	2140	2173	2162	2150	2146	1912
135°	2768	2808	2816	2812	2802	2139
145°	3360	3386	3407	3411	3397	2099
155°	3842	3853	3864	3883	3871	1768
165°	4180	4176	4176	4202	4184	1179
175°	4349	4339	4331	4357	4335	413
180°	4357	4357	4357	4357	4357	

TEST NUMBER: P920374

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US935-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2491.0	2491.0	2491.0	2491.0	2491.0
2.5°	2502.1	2491.0	2466.1	2488.8	2484.2
5°	2491.0	2479.7	2450.3	2470.6	2463.9
7.5°	2470.6	2457.2	2425.7	2434.5	2423.3
10°	2443.6	2427.8	2382.8	2375.9	2362.5
12.5°	2409.8	2389.5	2328.6	2315.1	2290.3
15°	2369.2	2344.3	2267.8	2225.0	2202.5
17.5°	2321.9	2285.8	2191.1	2141.5	2105.4
20°	2267.8	2222.6	2110.0	2053.7	2004.0
22.5°	2209.2	2157.3	2026.4	1949.9	1916.2
25°	2150.6	2078.4	1929.6	1837.3	1803.4
27.5°	2080.8	2004.0	1839.4	1733.5	1681.6
30°	2006.4	1920.5	1740.2	1625.4	1564.4
32.5°	1934.1	1830.4	1645.7	1510.4	1453.9
35°	1853.0	1738.0	1539.8	1397.7	1348.0
37.5°	1774.2	1650.0	1440.5	1284.8	1228.6
40°	1690.7	1555.6	1336.7	1176.7	1118.1
42.5°	1605.1	1460.9	1233.1	1066.2	1010.0
45°	1514.9	1363.7	1127.2	967.0	912.9
47.5°	1429.3	1269.3	1025.8	865.6	816.1
50°	1334.5	1174.6	926.5	770.9	723.8
52.5°	1242.0	1072.9	831.8	683.0	640.2
55°	1151.8	976.0	732.5	597.4	554.7
57.5°	1059.5	879.2	644.8	518.5	482.4
60°	964.8	784.5	552.2	437.5	401.3
62.5°	872.4	692.2	473.3	365.2	347.2
65°	777.7	595.0	392.3	315.7	308.8
67.5°	687.6	504.9	315.7	277.2	270.5
70°	592.9	417.1	261.4	238.9	229.8
72.5°	502.7	335.8	218.6	200.7	196.1
75°	414.7	256.8	180.3	164.5	162.4
77.5°	326.9	182.4	142.1	132.9	128.5
80°	245.6	130.8	108.1	99.3	99.3
82.5°	171.3	88.0	74.4	69.8	69.8
85°	96.9	49.5	42.8	42.8	42.8
87.5°	36.1	17.9	17.9	15.8	15.8
90°	4.0	47.3	128.7	120.9	124.8
92.5°	81.5	110.4	114.3	118.2	118.2
95°	191.7	228.6	235.1	235.1	228.6
97.5°	319.2	353.4	367.8	367.8	367.8
100°	466.3	496.5	507.0	507.0	503.1
102.5°	621.3	643.7	658.1	662.0	658.1
105°	790.7	801.2	809.2	815.7	815.7
107.5°	958.9	974.6	974.6	977.3	958.9
110°	1121.8	1142.8	1142.8	1142.8	1132.3

TEST NUMBER: P920374

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US935-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1297.8	1320.2	1316.2	1305.7	1297.8
115°	1471.2	1492.2	1485.7	1481.7	1471.2
117.5°	1643.3	1672.1	1653.8	1643.3	1632.8
120°	1816.7	1845.5	1816.7	1816.7	1804.8
122.5°	1974.3	2011.1	1992.7	1982.2	1974.3
125°	2139.8	2172.6	2162.1	2150.3	2146.4
127.5°	2301.4	2342.1	2327.6	2311.9	2301.4
130°	2452.5	2499.7	2493.2	2485.3	2470.8
132.5°	2621.9	2658.7	2661.3	2642.9	2632.4
135°	2767.7	2808.4	2816.3	2812.4	2801.9
137.5°	2930.6	2963.4	2970.0	2967.3	2951.6
140°	3073.8	3106.6	3125.0	3125.0	3110.5
142.5°	3220.9	3253.7	3264.2	3268.2	3253.7
145°	3360.1	3386.4	3407.4	3411.4	3396.9
147.5°	3484.9	3517.8	3533.5	3540.1	3525.6
150°	3613.6	3636.0	3650.5	3662.3	3650.5
152.5°	3727.9	3750.2	3768.7	3783.1	3768.7
155°	3842.2	3852.7	3864.5	3882.9	3871.1
157.5°	3940.7	3948.6	3955.2	3981.4	3963.1
160°	4028.7	4036.6	4040.6	4062.9	4047.1
162.5°	4110.1	4110.1	4114.1	4139.1	4120.6
165°	4179.8	4175.8	4175.8	4202.1	4183.8
167.5°	4242.8	4231.0	4231.0	4257.3	4238.9
170°	4290.1	4279.6	4275.7	4302.0	4279.6
172.5°	4323.0	4312.5	4308.5	4334.8	4312.5
175°	4349.2	4338.7	4330.8	4357.2	4334.8
177.5°	4363.7	4353.2	4345.3	4367.7	4345.3
180°	4357.2	4357.2	4357.2	4357.2	4357.2



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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	6.82	7.51	7.94	8.61	10.15	2.78	3.47	3.90	4.57	6.11
	3H	8.49	9.10	9.61	10.22	11.77	3.96	4.57	5.08	5.69	7.24
	4H	9.09	9.68	10.23	10.79	12.35	4.40	4.98	5.54	6.10	7.66
	6H	9.51	10.05	10.66	11.17	12.74	4.71	5.25	5.86	6.37	7.94
	8H	9.63	10.15	10.78	11.28	12.84	4.80	5.31	5.95	6.45	8.01
	12H	9.69	10.18	10.85	11.31	12.89	4.84	5.32	5.99	6.45	8.04
4H	2H	6.82	7.40	7.96	8.52	10.08	3.36	3.94	4.50	5.06	6.62
	3H	8.64	9.12	9.79	10.27	11.84	4.70	5.18	5.84	6.33	7.90
	4H	9.33	9.77	10.48	10.91	12.50	5.24	5.69	6.39	6.82	8.41
	6H	9.84	10.22	11.00	11.38	12.96	5.65	6.03	6.81	7.19	8.77
	8H	10.01	10.37	11.17	11.52	13.12	5.78	6.13	6.93	7.28	8.88
	12H	10.11	10.43	11.28	11.59	13.19	5.84	6.16	7.01	7.32	8.92
8H	4H	9.29	9.64	10.44	10.79	12.39	5.51	5.87	6.67	7.02	8.61
	6H	9.85	10.14	11.03	11.34	12.93	6.03	6.32	7.20	7.51	9.10
	8H	10.07	10.33	11.25	11.49	13.11	6.22	6.47	7.40	7.64	9.26
	12H	10.21	10.43	11.39	11.60	13.24	6.33	6.56	7.52	7.72	9.37
12H	4H	9.23	9.55	10.40	10.71	12.32	5.51	5.83	6.68	6.99	8.59
	6H	9.83	10.08	11.01	11.25	12.87	6.08	6.33	7.26	7.50	9.11
	8H	10.04	10.27	11.23	11.43	13.08	6.28	6.51	7.47	7.67	9.32