

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: P915024

Luminaire Tested: DFN2DIP-SQ4F0-100D160US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915024
REPORT IS A COMBINATION OF REPORTS P900211 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D160US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

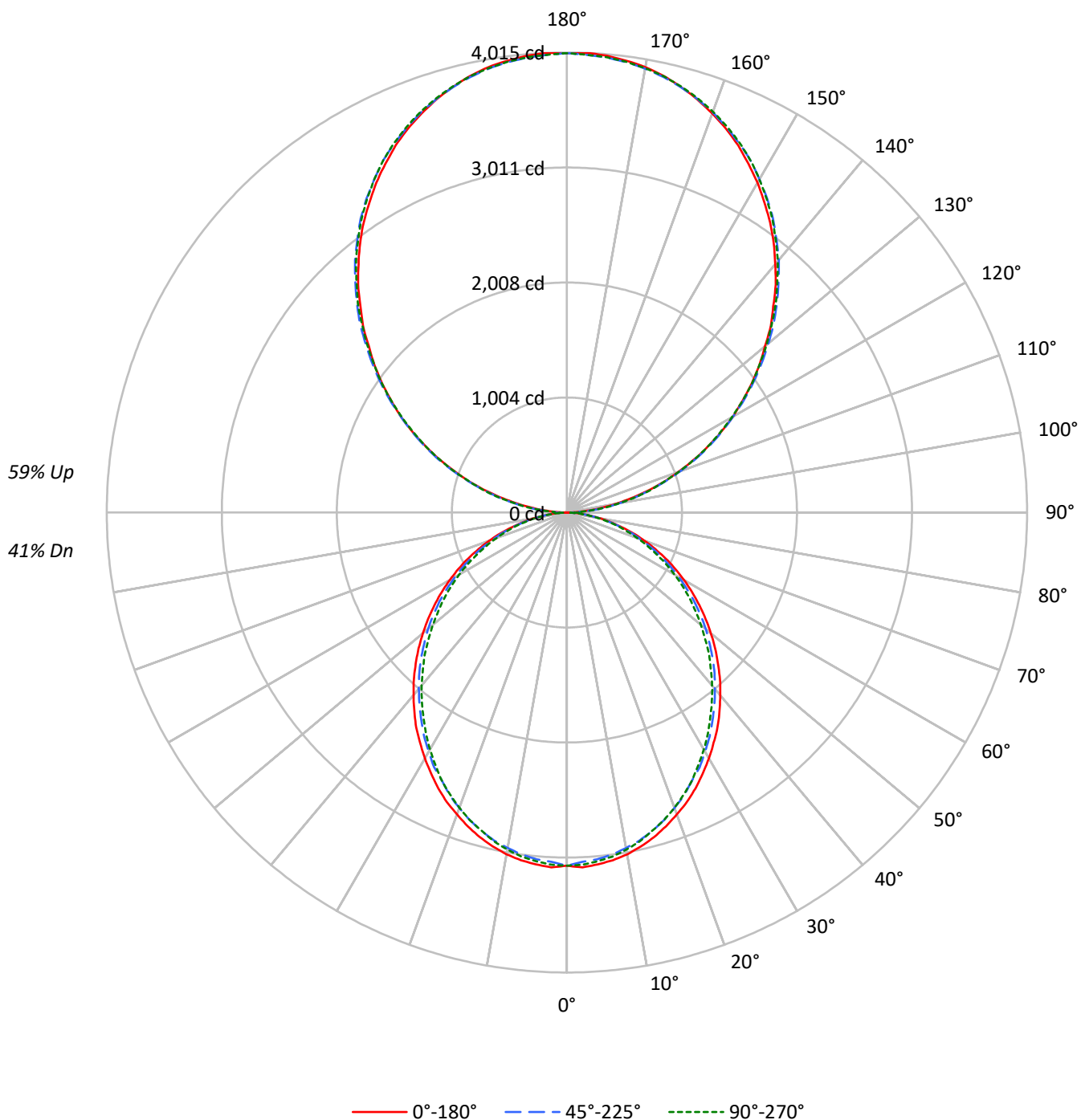
Lumens per Lamp: N/A
Luminaire Lumens: 19060.6 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 214.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915024

CATALOG NUMBER: DFN2DIP-SQ4F0-100D160US927-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P915024

CATALOG NUMBER: DFN2DIP-SQ4F0-100D160US927-FLLFL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48	41		
1	96	92	88	84	87	84	80	77	69	66	64	55	53	52	42	41	41	35		
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34	29		
3	80	70	63	57	72	64	58	53	53	48	45	43	39	37	33	31	29	25		
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25	21		
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22	18		
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19	16		
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17	14		
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15	13		
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14	12		
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13	10		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2163	2163	2163
5°	2166	2133	2148
10°	2149	2105	2119
15°	2117	2071	2074
20°	2074	2023	2028
25°	2032	1966	1975
30°	1979	1913	1908
35°	1928	1850	1836
40°	1866	1786	1768
45°	1804	1723	1698
50°	1736	1656	1617
55°	1665	1579	1543
60°	1585	1488	1458
65°	1498	1393	1358
70°	1387	1278	1250
75°	1232	1140	1152
80°	1047	964	963
85°	757	659	647

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3155 cd/sqm

TEST NUMBER: P915024

CATALOG NUMBER: DFN2DIP-SQ4F0-100D160US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	290.1	1.5
10°-20°	816.3	4.3
20°-30°	1199.6	6.3
30°-40°	1393.3	7.3
40°-50°	1391.5	7.3
50°-60°	1213.4	6.4
60°-70°	897.0	4.7
70°-80°	507.5	2.7
80°-90°	145.3	0.8
90°-100°	248.1	1.3
100°-110°	788.2	4.1
110°-120°	1348.9	7.1
120°-130°	1774.0	9.3
130°-140°	1991.2	10.4
140°-150°	1952.6	10.2
150°-160°	1637.9	8.6
160°-170°	1086.2	5.7
170°-180°	379.7	2.0
0°-30°	2306.0	12.1
0°-40°	3699.3	19.4
0°-60°	6304.2	33.1
0°-90°	7854.0	41.2
90°-120°	2385.1	12.5
90°-150°	8102.8	42.5
90°-180°	11207.0	58.8
0°-180°	19060.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3082	3082	3082	3082	3082	
5°	3082	3071	3038	3062	3056	293
15°	2934	2917	2878	2890	2875	826
25°	2656	2632	2582	2587	2582	1222
35°	2291	2262	2214	2196	2181	1431
45°	1864	1844	1799	1767	1755	1439
55°	1411	1393	1358	1322	1307	1262
65°	952	934	904	877	863	941
75°	498	492	477	460	465	531
85°	121	119	116	107	104	135
90°	4	44	118	111	115	19
95°	176	210	216	216	210	196
105°	728	737	744	750	750	768
115°	1354	1373	1367	1363	1354	1339
125°	1969	1999	1989	1978	1975	1759
135°	2546	2584	2591	2588	2578	1968
145°	3092	3116	3135	3139	3125	1932
155°	3535	3545	3556	3573	3562	1627
165°	3846	3842	3842	3866	3849	1085
175°	4002	3992	3985	4009	3988	380
180°	4009	4009	4009	4009	4009	

TEST NUMBER: P915024

CATALOG NUMBER: DFN2DIP-SQ4F0-100D160US927-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3082.5	3082.5	3082.5	3082.5	3082.5
2.5°	3100.4	3085.5	3052.8	3082.5	3076.8
5°	3082.5	3070.8	3038.1	3061.7	3056.0
7.5°	3061.7	3044.0	3011.3	3035.2	3029.3
10°	3029.3	3008.5	2973.0	2996.6	2987.8
12.5°	2984.6	2967.0	2931.5	2946.3	2940.3
15°	2934.3	2916.7	2878.0	2890.0	2875.2
17.5°	2872.1	2854.5	2815.7	2830.5	2815.7
20°	2803.8	2786.2	2744.7	2753.5	2741.8
22.5°	2735.9	2709.2	2670.4	2670.4	2664.5
25°	2655.7	2632.1	2581.8	2587.4	2581.8
27.5°	2566.7	2545.9	2507.6	2498.8	2484.0
30°	2478.0	2454.1	2409.7	2400.9	2389.0
32.5°	2383.0	2365.5	2317.9	2300.0	2288.1
35°	2291.2	2261.7	2214.1	2196.2	2181.4
37.5°	2187.4	2160.7	2113.2	2092.5	2077.7
40°	2080.8	2056.9	2009.4	1983.1	1971.1
42.5°	1977.0	1953.1	1906.0	1876.1	1858.5
45°	1864.5	1843.7	1799.0	1766.6	1754.8
47.5°	1754.8	1734.0	1686.5	1653.8	1636.2
50°	1639.0	1624.2	1582.7	1541.2	1526.5
52.5°	1526.5	1505.7	1467.3	1434.6	1413.9
55°	1411.0	1393.1	1357.6	1322.0	1307.3
57.5°	1295.3	1280.5	1241.8	1206.3	1194.4
60°	1179.6	1167.9	1126.4	1093.7	1084.9
62.5°	1067.0	1046.2	1016.7	987.1	975.2
65°	951.6	933.7	904.1	877.3	862.6
67.5°	833.1	817.9	791.5	770.8	758.8
70°	723.3	711.3	684.6	663.8	652.2
72.5°	610.7	598.7	584.0	563.2	554.4
75°	497.8	492.2	477.1	459.5	465.4
77.5°	397.2	385.2	379.2	370.4	361.6
80°	296.5	293.4	287.4	278.6	272.7
82.5°	201.6	201.6	198.8	186.8	186.8
85°	121.4	118.6	115.7	106.6	103.8
87.5°	53.5	47.5	41.5	32.7	29.5
90°	3.6	43.5	118.4	111.2	114.8
92.5°	74.9	101.6	105.1	108.8	108.8
95°	176.4	210.3	216.3	216.3	210.3
97.5°	293.7	325.1	338.4	338.4	338.4
100°	429.0	456.9	466.5	466.5	462.9
102.5°	571.6	592.2	605.5	609.1	605.5
105°	727.5	737.2	744.5	750.5	750.5
107.5°	882.3	896.7	896.7	899.2	882.3
110°	1032.1	1051.5	1051.5	1051.5	1041.8

TEST NUMBER: P915024

CATALOG NUMBER: DFN2DIP-SQ4F0-100D160US927-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1194.1	1214.7	1211.0	1201.3	1194.1
115°	1353.6	1372.9	1366.9	1363.3	1353.6
117.5°	1512.0	1538.5	1521.6	1512.0	1502.3
120°	1671.5	1698.0	1671.5	1671.5	1660.6
122.5°	1816.5	1850.4	1833.4	1823.8	1816.5
125°	1968.8	1999.0	1989.3	1978.5	1974.8
127.5°	2117.4	2154.9	2141.6	2127.1	2117.4
130°	2256.4	2299.9	2293.9	2286.6	2273.3
132.5°	2412.4	2446.2	2448.6	2431.7	2422.0
135°	2546.5	2583.9	2591.2	2587.6	2577.9
137.5°	2696.3	2726.5	2732.6	2730.2	2715.7
140°	2828.1	2858.3	2875.2	2875.2	2861.9
142.5°	2963.5	2993.7	3003.3	3007.0	2993.7
145°	3091.6	3115.7	3135.1	3138.7	3125.4
147.5°	3206.4	3236.6	3251.1	3257.1	3243.8
150°	3324.8	3345.4	3358.7	3369.5	3358.7
152.5°	3430.0	3450.5	3467.5	3480.7	3467.5
155°	3535.1	3544.8	3555.6	3572.6	3561.7
157.5°	3625.7	3633.0	3639.0	3663.2	3646.3
160°	3706.7	3714.0	3717.6	3738.1	3723.6
162.5°	3781.6	3781.6	3785.3	3808.3	3791.3
165°	3845.7	3842.1	3842.1	3866.2	3849.4
167.5°	3903.7	3892.9	3892.9	3917.0	3900.1
170°	3947.2	3937.5	3934.0	3958.1	3937.5
172.5°	3977.5	3967.8	3964.2	3988.3	3967.8
175°	4001.6	3992.0	3984.7	4008.9	3988.3
177.5°	4014.9	4005.3	3998.0	4018.6	3998.0
180°	4008.9	4008.9	4008.9	4008.9	4008.9

TEST NUMBER: P915024

CATALOG NUMBER: DFN2DIP-SQ4F0-100D160US927-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	9.09	9.88	10.12	10.91	12.31	8.65	9.43	9.68	10.47	11.86
	3H	10.75	11.46	11.79	12.50	13.91	10.26	10.97	11.30	12.01	13.42
	4H	11.34	12.01	12.39	13.05	14.47	10.84	11.51	11.89	12.56	13.98
	6H	11.74	12.35	12.80	13.40	14.84	11.24	11.85	12.30	12.90	14.33
	8H	11.84	12.43	12.91	13.50	14.92	11.34	11.93	12.40	12.99	14.42
	12H	11.89	12.45	12.96	13.51	14.96	11.38	11.94	12.45	13.00	14.45
4H	2H	9.54	10.21	10.60	11.26	12.68	9.19	9.86	10.25	10.91	12.32
	3H	11.41	11.97	12.47	13.04	14.47	11.00	11.56	12.07	12.63	14.06
	4H	12.12	12.63	13.19	13.70	15.15	11.70	12.21	12.77	13.28	14.73
	6H	12.64	13.08	13.72	14.17	15.61	12.20	12.64	13.29	13.73	15.18
	8H	12.79	13.20	13.87	14.28	15.74	12.35	12.76	13.43	13.84	15.31
	12H	12.86	13.23	13.96	14.33	15.79	12.41	12.78	13.51	13.88	15.34
8H	4H	12.31	12.72	13.39	13.81	15.27	11.94	12.35	13.02	13.43	14.89
	6H	12.95	13.29	14.05	14.41	15.87	12.56	12.90	13.67	14.03	15.49
	8H	13.17	13.47	14.28	14.57	16.05	12.78	13.07	13.89	14.18	15.66
	12H	13.30	13.56	14.41	14.66	16.18	12.89	13.15	14.00	14.25	15.77
12H	4H	12.30	12.67	13.39	13.76	15.23	11.93	12.30	13.03	13.39	14.86
	6H	12.98	13.27	14.09	14.38	15.86	12.60	12.90	13.71	14.01	15.49
	8H	13.22	13.48	14.33	14.58	16.10	12.84	13.10	13.95	14.20	15.72