

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: P920318

Luminaire Tested: DFN2DIP-SQ4F0-060D090US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920318
REPORT IS A COMBINATION OF REPORTS P900114 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D090US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

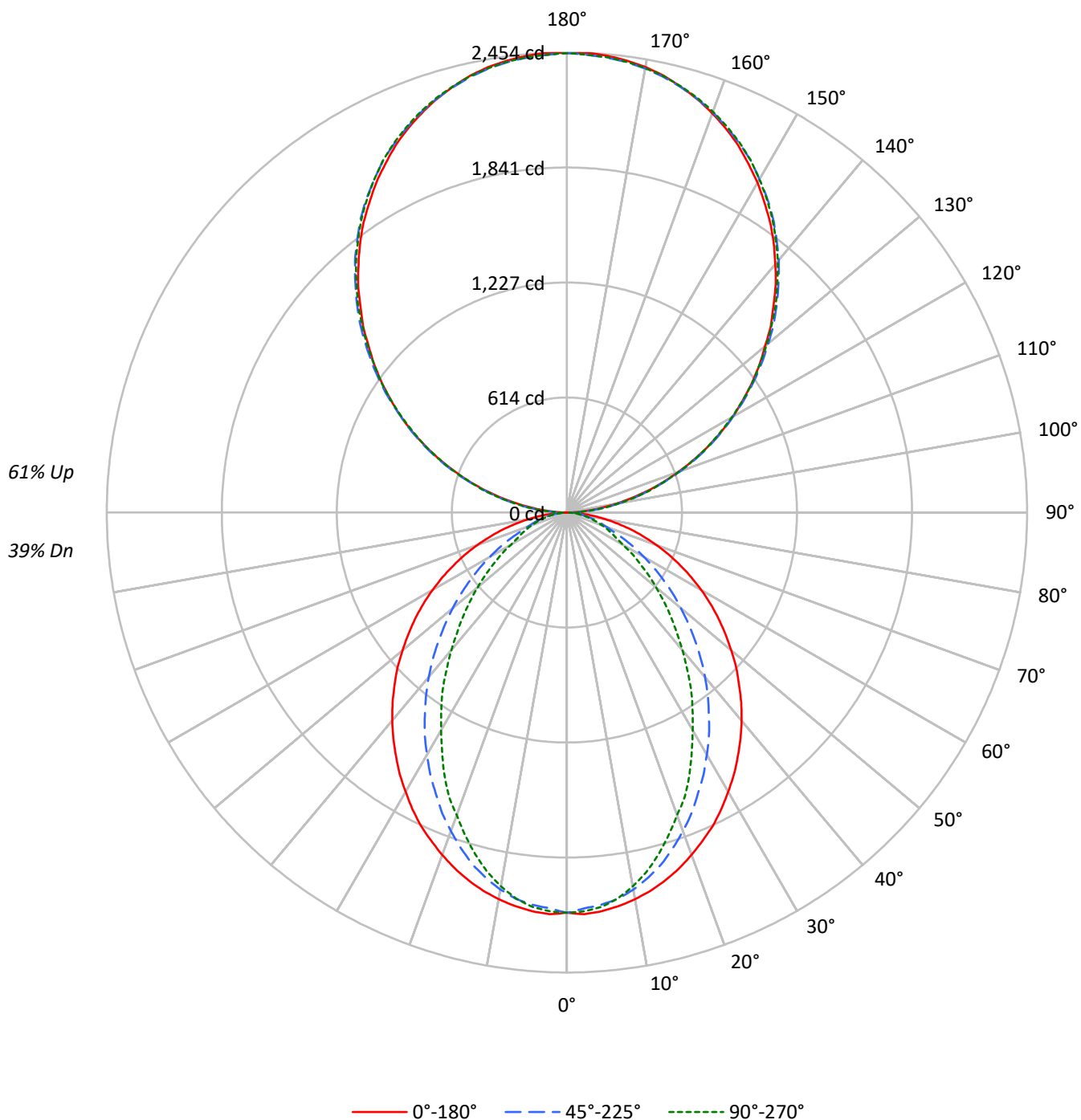
Lumens per Lamp: N/A
Luminaire Lumens: 11248.9 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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
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	95	95	95	95	77	77	77	61	61	61	46	46	46	39		
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40	34		
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34	29		
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29	25		
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26	22		
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22	19		
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20	17		
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18	15		
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16	14		
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15	12		
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1498	1498	1498
5°	1501	1475	1484
10°	1486	1446	1436
15°	1465	1399	1362
20°	1438	1333	1271
25°	1410	1259	1183
30°	1373	1184	1071
35°	1337	1103	972
40°	1299	1019	859
45°	1256	925	757
50°	1212	831	657
55°	1165	730	561
60°	1111	625	462
65°	1049	518	417
70°	974	418	378
75°	880	369	345
80°	743	311	300
85°	517	209	229

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1929 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	200.1	1.8
10°-20°	549.3	4.9
20°-30°	771.2	6.9
30°-40°	840.7	7.5
40°-50°	772.7	6.9
50°-60°	606.8	5.4
60°-70°	395.0	3.5
70°-80°	203.3	1.8
80°-90°	58.9	0.5
90°-100°	151.6	1.3
100°-110°	481.8	4.3
110°-120°	824.6	7.3
120°-130°	1084.4	9.6
130°-140°	1217.2	10.8
140°-150°	1193.6	10.6
150°-160°	1001.3	8.9
160°-170°	664.0	5.9
170°-180°	232.1	2.1
0°-30°	1520.7	13.5
0°-40°	2361.4	21.0
0°-60°	3740.9	33.3
0°-90°	4398.0	39.1
90°-120°	1458.0	13.0
90°-150°	4953.4	44.0
90°-180°	6851.0	60.9
0°-180°	11248.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	2	27	72	68	70	11
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7

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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	7.45	8.20	8.50	9.25	10.67	3.41	4.16	4.46	5.21	6.63
	3H	9.13	9.80	10.19	10.86	12.30	4.59	5.26	5.66	6.32	7.76
	4H	9.73	10.37	10.81	11.43	12.88	5.04	5.68	6.11	6.74	8.18
	6H	10.16	10.74	11.24	11.80	13.26	5.36	5.94	6.44	7.01	8.47
	8H	10.28	10.84	11.37	11.92	13.37	5.45	6.00	6.53	7.08	8.54
	12H	10.34	10.87	11.43	11.94	13.42	5.49	6.02	6.58	7.09	8.57
4H	2H	7.46	8.09	8.54	9.16	10.60	4.00	4.63	5.08	5.70	7.14
	3H	9.29	9.81	10.37	10.90	12.36	5.34	5.87	6.43	6.96	8.42
	4H	9.98	10.46	11.07	11.54	13.02	5.89	6.37	6.98	7.45	8.93
	6H	10.49	10.91	11.59	12.01	13.48	6.30	6.72	7.40	7.82	9.30
	8H	10.67	11.06	11.77	12.15	13.64	6.43	6.82	7.53	7.91	9.40
	12H	10.76	11.11	11.88	12.22	13.72	6.49	6.84	7.61	7.95	9.45
8H	4H	9.94	10.33	11.04	11.42	12.91	6.16	6.55	7.26	7.65	9.14
	6H	10.51	10.83	11.63	11.96	13.45	6.68	7.00	7.80	8.14	9.63
	8H	10.73	11.01	11.85	12.12	13.63	6.87	7.15	8.00	8.27	9.78
	12H	10.86	11.11	12.00	12.23	13.77	6.99	7.23	8.12	8.35	9.89
12H	4H	9.89	10.24	11.00	11.35	12.84	6.17	6.52	7.28	7.62	9.12
	6H	10.48	10.76	11.61	11.88	13.39	6.73	7.01	7.86	8.13	9.64
	8H	10.70	10.95	11.83	12.06	13.61	6.94	7.19	8.07	8.30	9.84