

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: P923154

Luminaire Tested: DFN2DIP-SQ4F0-090D090US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923154
REPORT IS A COMBINATION OF REPORTS P900120 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D090US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

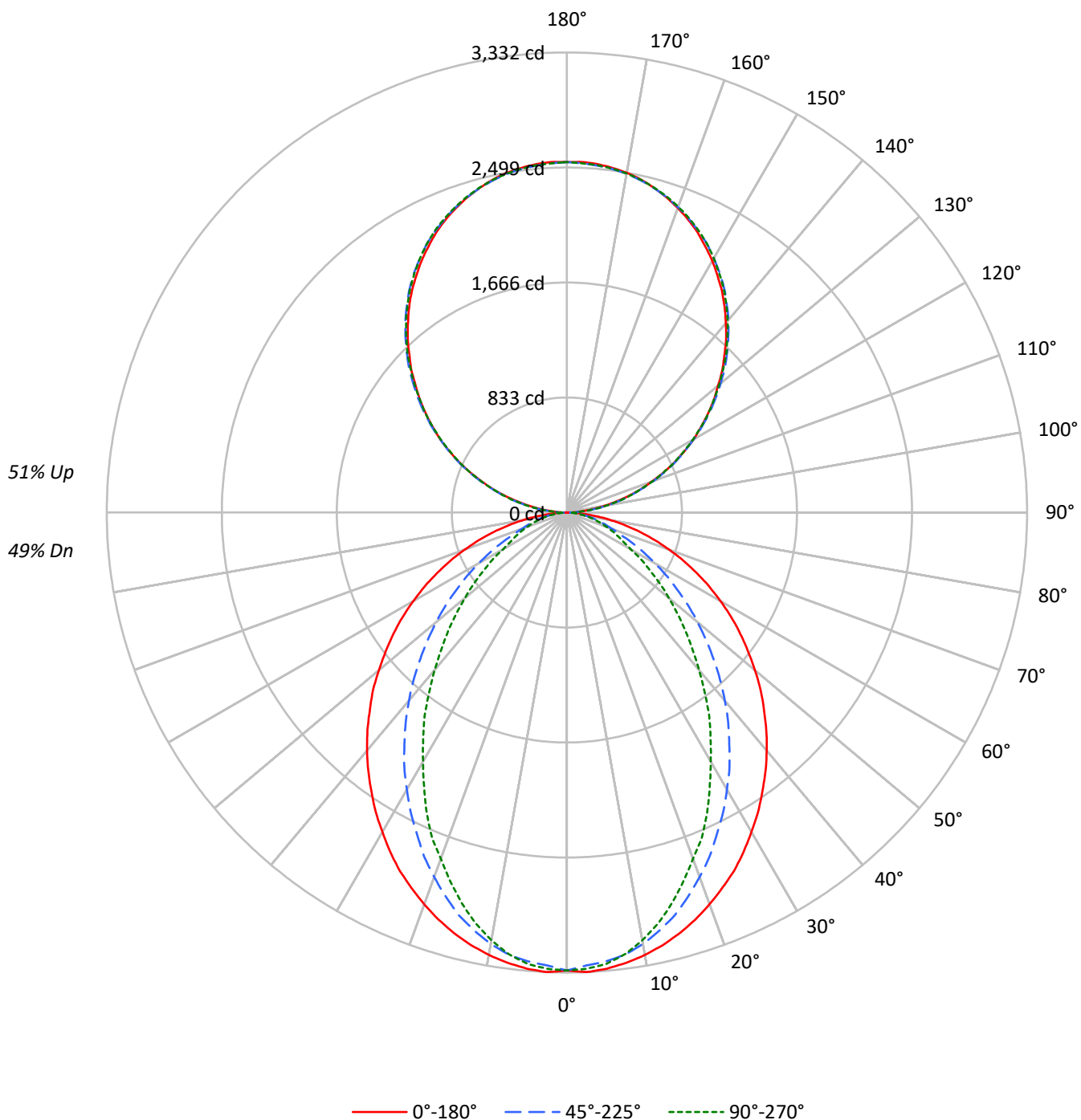
Lumens per Lamp: N/A
Luminaire Lumens: 13924.1 lumens
Efficiency: N/A
Efficacy: 93.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 149.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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
RCR																	
0	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2327	2327	2327
5°	2331	2291	2306
10°	2308	2246	2231
15°	2276	2173	2116
20°	2234	2071	1974
25°	2191	1956	1837
30°	2133	1839	1663
35°	2077	1713	1510
40°	2019	1582	1335
45°	1952	1437	1176
50°	1883	1291	1021
55°	1810	1135	872
60°	1727	971	718
65°	1630	805	647
70°	1514	650	587
75°	1367	574	535
80°	1155	483	467
85°	803	325	355

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1998 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.9	2.2
10°-20°	853.4	6.1
20°-30°	1198.1	8.6
30°-40°	1306.0	9.4
40°-50°	1200.4	8.6
50°-60°	942.7	6.8
60°-70°	613.6	4.4
70°-80°	315.9	2.3
80°-90°	87.9	0.6
90°-100°	157.1	1.1
100°-110°	499.0	3.6
110°-120°	854.0	6.1
120°-130°	1123.1	8.1
130°-140°	1260.7	9.1
140°-150°	1236.2	8.9
150°-160°	1037.0	7.4
160°-170°	687.7	4.9
170°-180°	240.4	1.7
0°-30°	2362.4	17.0
0°-40°	3668.4	26.3
0°-60°	5811.5	41.7
0°-90°	6828.8	49.0
90°-120°	1510.1	10.8
90°-150°	5130.1	36.8
90°-180°	7095.0	51.0
0°-180°	13924.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3317	3317	3317	3317	3317	
5°	3317	3302	3263	3290	3281	315
15°	3155	3122	3020	2963	2933	889
25°	2864	2768	2570	2446	2401	1317
35°	2468	2314	2050	1861	1795	1544
45°	2017	1816	1501	1288	1216	1558
55°	1534	1300	975	796	738	1371
65°	1036	792	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	2	28	75	70	73	14
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3316.9	3316.9	3316.9	3316.9	3316.9
2.5°	3331.9	3316.9	3283.7	3314.0	3308.0
5°	3316.9	3301.9	3262.8	3289.8	3280.9
7.5°	3289.8	3272.0	3230.0	3241.7	3226.7
10°	3253.9	3232.8	3173.0	3163.7	3145.9
12.5°	3208.9	3181.9	3100.7	3082.8	3049.6
15°	3154.8	3121.7	3019.8	2962.7	2932.8
17.5°	3091.7	3043.7	2917.5	2851.6	2803.5
20°	3019.8	2959.6	2809.5	2734.7	2668.4
22.5°	2941.8	2872.6	2698.4	2596.5	2551.6
25°	2863.7	2767.5	2569.5	2446.5	2401.3
27.5°	2770.7	2668.4	2449.4	2308.3	2239.2
30°	2671.7	2557.3	2317.2	2164.4	2083.1
32.5°	2575.4	2437.2	2191.4	2011.2	1936.0
35°	2467.5	2314.3	2050.3	1861.2	1794.9
37.5°	2362.4	2197.2	1918.2	1710.8	1636.0
40°	2251.3	2071.4	1779.9	1566.9	1488.9
42.5°	2137.3	1945.3	1642.0	1419.8	1344.9
45°	2017.2	1816.0	1500.9	1287.5	1215.6
47.5°	1903.2	1690.1	1365.9	1152.5	1086.6
50°	1777.1	1564.0	1233.8	1026.4	963.7
52.5°	1653.9	1428.7	1107.7	909.5	852.6
55°	1533.7	1299.7	975.4	795.6	738.5
57.5°	1410.9	1170.7	858.6	690.5	642.4
60°	1284.7	1044.5	735.4	582.5	534.4
62.5°	1161.8	921.7	630.3	486.3	462.4
65°	1035.6	792.4	522.3	420.4	411.2
67.5°	915.6	672.3	420.4	369.1	360.2
70°	789.5	555.4	348.1	318.2	306.0
72.5°	669.4	447.1	291.1	267.2	261.2
75°	552.2	342.1	240.1	219.1	216.2
77.5°	435.3	243.0	189.1	177.1	171.0
80°	327.1	174.2	143.9	132.2	132.2
82.5°	228.0	117.2	99.1	93.0	93.0
85°	128.9	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.0	21.0
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2



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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	10.00	10.83	10.97	11.81	13.09	5.96	6.79	6.94	7.77	9.06
	3H	11.68	12.42	12.67	13.41	14.72	7.15	7.89	8.14	8.88	10.19
	4H	12.30	12.99	13.29	13.98	15.30	7.60	8.30	8.60	9.29	10.61
	6H	12.72	13.36	13.73	14.36	15.69	7.92	8.56	8.93	9.56	10.89
	8H	12.85	13.46	13.86	14.47	15.80	8.01	8.62	9.03	9.64	10.97
	12H	12.91	13.49	13.93	14.50	15.85	8.06	8.64	9.08	9.65	11.00
4H	2H	10.02	10.72	11.02	11.71	13.03	6.56	7.26	7.56	8.25	9.57
	3H	11.85	12.43	12.86	13.45	14.79	7.91	8.49	8.92	9.51	10.84
	4H	12.55	13.08	13.57	14.09	15.45	8.46	8.99	9.48	10.00	11.36
	6H	13.07	13.52	14.10	14.56	15.91	8.88	9.33	9.91	10.37	11.72
	8H	13.25	13.67	14.28	14.70	16.07	9.01	9.43	10.04	10.46	11.83
	12H	13.34	13.72	14.39	14.77	16.14	9.07	9.46	10.12	10.50	11.87
8H	4H	12.52	12.94	13.55	13.97	15.34	8.74	9.16	9.77	10.20	11.56
	6H	13.09	13.44	14.14	14.51	15.87	9.26	9.61	10.31	10.68	12.05
	8H	13.31	13.61	14.37	14.67	16.05	9.45	9.76	10.51	10.82	12.20
	12H	13.45	13.72	14.51	14.77	16.20	9.57	9.84	10.64	10.90	12.32
12H	4H	12.47	12.85	13.52	13.90	15.27	8.75	9.13	9.79	10.18	11.55
	6H	13.06	13.37	14.12	14.43	15.81	9.31	9.62	10.37	10.68	12.06
	8H	13.29	13.56	14.35	14.61	16.03	9.52	9.79	10.59	10.85	12.27

END OF REPORT