

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: P915102

Luminaire Tested: DFN2DIP-SQ4F0-140D060US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915102
REPORT IS A COMBINATION OF REPORTS P900074 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D060US927-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

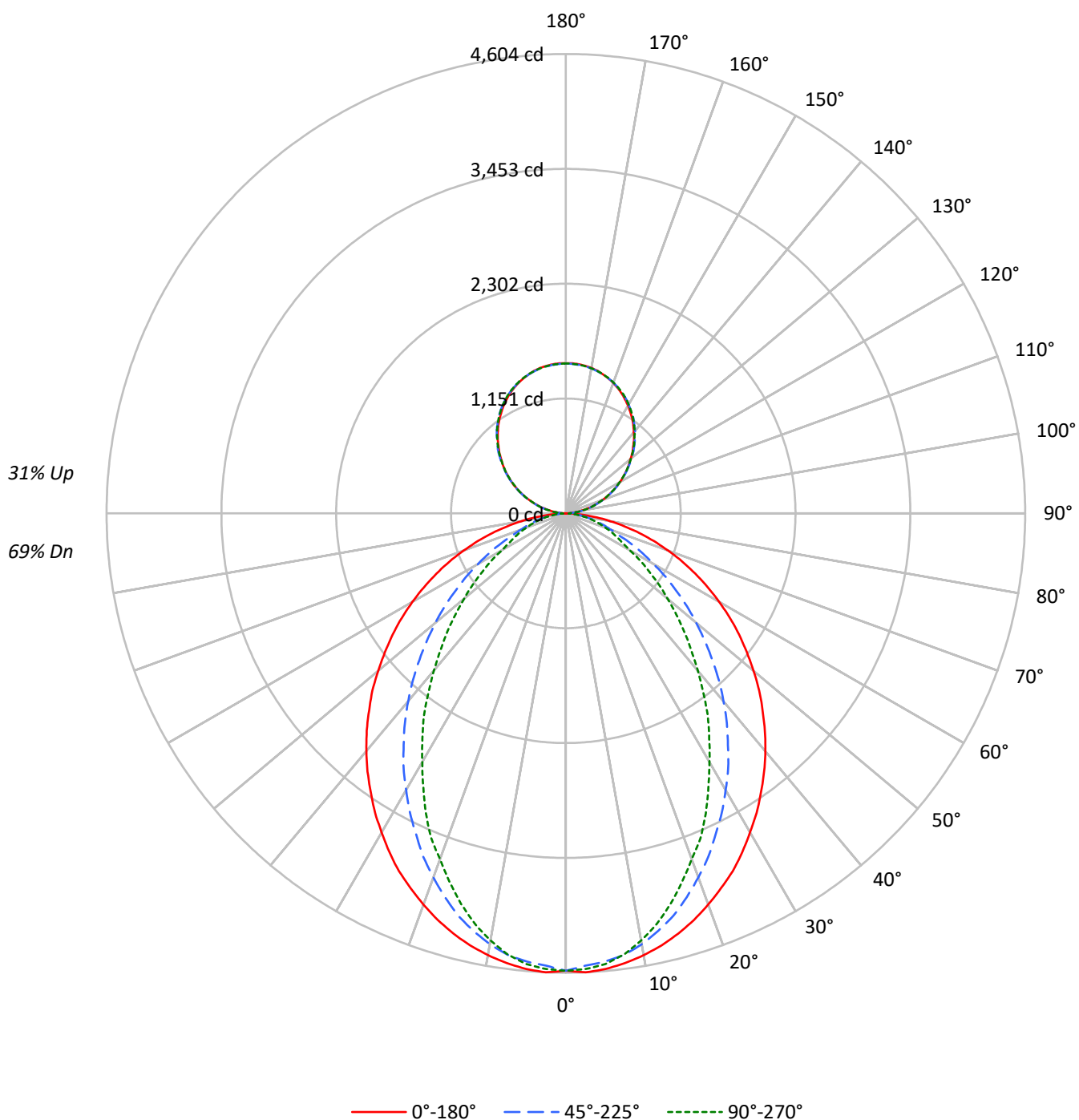
Lumens per Lamp: N/A
Luminaire Lumens: 13633.4 lumens
Efficiency: N/A
Efficacy: 72.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 189
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	103	99	95	91	97	93	90	87	84	81	79	75	73	71	66	65	64
2	94	87	81	76	89	82	77	73	74	70	66	66	63	60	59	57	55
3	86	77	70	64	81	73	67	62	66	61	57	59	55	52	53	50	47
4	79	69	61	55	75	65	58	53	59	53	49	53	49	45	48	44	41
5	73	62	54	48	69	59	51	46	53	47	43	48	43	40	43	40	36
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	40	36	32
7	63	51	43	37	59	48	41	36	44	38	34	40	35	31	36	32	29
8	59	46	39	33	55	44	37	32	41	35	30	37	32	28	34	29	26
9	55	43	35	30	52	41	34	29	37	31	27	34	29	26	31	27	24
10	51	39	32	27	49	38	31	26	35	29	25	32	27	23	29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3216	3216	3216
5°	3221	3166	3186
10°	3189	3104	3084
15°	3145	3002	2924
20°	3087	2862	2728
25°	3028	2704	2539
30°	2948	2542	2299
35°	2870	2367	2087
40°	2790	2187	1845
45°	2697	1987	1625
50°	2602	1784	1411
55°	2502	1568	1205
60°	2386	1342	992
65°	2253	1112	894
70°	2092	898	811
75°	1889	793	740
80°	1595	667	645
85°	1111	448	490

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2697 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	3.2
10°-20°	1179.3	8.7
20°-30°	1655.7	12.1
30°-40°	1804.8	13.2
40°-50°	1658.8	12.2
50°-60°	1302.8	9.6
60°-70°	848.0	6.2
70°-80°	436.5	3.2
80°-90°	115.7	0.8
90°-100°	93.0	0.7
100°-110°	295.6	2.2
110°-120°	505.8	3.7
120°-130°	665.2	4.9
130°-140°	746.6	5.5
140°-150°	732.2	5.4
150°-160°	614.2	4.5
160°-170°	407.3	3.0
170°-180°	142.4	1.0
0°-30°	3264.6	23.9
0°-40°	5069.5	37.2
0°-60°	8031.0	58.9
0°-90°	9431.2	69.2
90°-120°	894.4	6.6
90°-150°	3038.4	22.3
90°-180°	4202.0	30.8
0°-180°	13633.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1229
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2510	2074	1779	1680	2153
55°	2120	1796	1348	1099	1021	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	1	16	44	42	43	13
95°	66	79	81	81	79	74
105°	273	276	279	282	282	288
115°	508	515	512	511	508	502
125°	738	750	746	742	740	660
135°	955	969	972	970	967	738
145°	1159	1168	1176	1177	1172	724
155°	1326	1329	1333	1340	1336	610
165°	1442	1441	1441	1450	1443	407
175°	1500	1497	1494	1503	1496	143
180°	1503	1503	1503	1503	1503	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.7	4583.7	4583.7	4583.7	4583.7
2.5°	4604.4	4583.7	4537.9	4579.8	4571.4
5°	4583.7	4563.0	4508.9	4546.3	4534.0
7.5°	4546.3	4521.6	4463.5	4479.9	4459.2
10°	4496.6	4467.5	4384.8	4372.0	4347.3
12.5°	4434.5	4397.1	4284.8	4260.2	4214.5
15°	4359.7	4313.9	4173.1	4094.3	4053.0
17.5°	4272.5	4206.1	4031.8	3940.7	3874.2
20°	4173.1	4089.9	3882.6	3779.2	3687.7
22.5°	4065.2	3969.8	3729.0	3588.2	3526.2
25°	3957.4	3824.5	3550.8	3380.9	3318.4
27.5°	3828.9	3687.7	3384.8	3189.9	3094.4
30°	3692.0	3534.1	3202.2	2991.0	2878.7
32.5°	3559.1	3368.1	3028.4	2779.3	2675.4
35°	3409.9	3198.3	2833.4	2572.0	2480.4
37.5°	3264.7	3036.3	2650.7	2364.3	2260.8
40°	3111.1	2862.5	2459.7	2165.3	2057.5
42.5°	2953.6	2688.2	2269.2	1962.0	1858.5
45°	2787.6	2509.5	2074.2	1779.3	1679.9
47.5°	2630.0	2335.7	1887.6	1592.8	1501.7
50°	2455.8	2161.4	1704.9	1418.5	1331.7
52.5°	2285.4	1974.3	1530.7	1257.0	1178.1
55°	2119.6	1796.0	1348.1	1099.4	1020.6
57.5°	1949.6	1617.8	1186.5	954.2	887.7
60°	1775.4	1443.5	1016.2	804.9	738.5
62.5°	1605.5	1273.7	871.0	672.0	639.1
65°	1431.2	1095.0	721.8	580.9	568.2
67.5°	1265.3	929.1	580.9	510.1	497.7
70°	1091.0	767.5	481.0	439.7	422.9
72.5°	925.1	617.9	402.3	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.7	335.8	261.4	244.7	236.3
80°	452.0	240.7	198.9	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.1	78.7	78.7	78.7
87.5°	66.5	33.0	33.0	29.1	29.1
90°	1.3	16.3	44.4	41.7	43.0
92.5°	28.1	38.1	39.5	40.8	40.8
95°	66.1	78.8	81.1	81.1	78.8
97.5°	110.1	121.9	126.9	126.9	126.9
100°	160.9	171.3	174.9	174.9	173.6
102.5°	214.4	222.0	227.0	228.4	227.0
105°	272.8	276.5	279.2	281.5	281.5
107.5°	330.8	336.3	336.3	337.2	330.8
110°	387.1	394.3	394.3	394.3	390.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	447.7	455.4	454.1	450.4	447.7
115°	507.6	514.8	512.5	511.2	507.6
117.5°	567.0	576.9	570.5	567.0	563.3
120°	626.8	636.8	626.8	626.8	622.7
122.5°	681.1	693.8	687.5	683.9	681.1
125°	738.2	749.6	745.9	741.9	740.5
127.5°	794.0	808.0	803.0	797.6	794.0
130°	846.1	862.4	860.2	857.5	852.5
132.5°	904.6	917.3	918.1	911.8	908.2
135°	954.9	968.9	971.6	970.3	966.6
137.5°	1011.1	1022.4	1024.7	1023.7	1018.3
140°	1060.5	1071.8	1078.2	1078.2	1073.2
142.5°	1111.2	1122.5	1126.2	1127.5	1122.5
145°	1159.3	1168.3	1175.6	1176.9	1172.0
147.5°	1202.3	1213.6	1219.1	1221.3	1216.3
150°	1246.7	1254.4	1259.4	1263.4	1259.4
152.5°	1286.1	1293.9	1300.2	1305.2	1300.2
155°	1325.6	1329.2	1333.2	1339.7	1335.5
157.5°	1359.5	1362.3	1364.5	1373.6	1367.3
160°	1390.0	1392.7	1394.0	1401.7	1396.3
162.5°	1418.0	1418.0	1419.4	1428.0	1421.6
165°	1442.0	1440.7	1440.7	1449.8	1443.4
167.5°	1463.8	1459.8	1459.8	1468.8	1462.4
170°	1480.1	1476.5	1475.1	1484.2	1476.5
172.5°	1491.4	1487.8	1486.4	1495.5	1487.8
175°	1500.5	1496.9	1494.1	1503.2	1495.5
177.5°	1505.5	1501.9	1499.1	1506.8	1499.1
180°	1503.2	1503.2	1503.2	1503.2	1503.2

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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	12.85	13.86	13.63	14.66	15.63	8.81	9.82	9.59	10.62	11.59
	3H	14.54	15.45	15.34	16.26	17.26	10.01	10.92	10.80	11.73	12.73
	4H	15.16	16.02	15.97	16.83	17.85	10.47	11.33	11.28	12.14	13.15
	6H	15.60	16.39	16.42	17.21	18.24	10.80	11.59	11.62	12.41	13.44
	8H	15.73	16.48	16.56	17.32	18.35	10.90	11.65	11.73	12.49	13.52
	12H	15.80	16.52	16.64	17.35	18.40	10.95	11.66	11.78	12.50	13.55
4H	2H	12.89	13.74	13.70	14.56	15.57	9.43	10.28	10.24	11.10	12.11
	3H	14.74	15.45	15.56	16.30	17.33	10.80	11.51	11.62	12.36	13.38
	4H	15.44	16.09	16.28	16.93	17.99	11.35	12.00	12.19	12.84	13.90
	6H	15.97	16.53	16.83	17.40	18.46	11.78	12.34	12.64	13.21	14.27
	8H	16.15	16.67	17.01	17.54	18.61	11.91	12.43	12.77	13.30	14.37
	12H	16.26	16.72	17.14	17.61	18.69	11.99	12.46	12.87	13.34	14.42
8H	4H	15.42	15.94	16.28	16.81	17.88	11.65	12.17	12.51	13.03	14.11
	6H	16.00	16.43	16.89	17.34	18.41	12.17	12.60	13.06	13.51	14.59
	8H	16.22	16.60	17.12	17.50	18.59	12.37	12.75	13.26	13.65	14.74
	12H	16.37	16.71	17.27	17.60	18.74	12.49	12.83	13.39	13.72	14.87
12H	4H	15.38	15.85	16.26	16.74	17.82	11.66	12.13	12.54	13.02	14.09
	6H	15.98	16.36	16.87	17.26	18.35	12.22	12.61	13.12	13.51	14.60
	8H	16.21	16.54	17.11	17.44	18.58	12.44	12.78	13.34	13.67	14.82