

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: P923062

Luminaire Tested: DFN2DIP-SQ4F0-060D140US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923062
REPORT IS A COMBINATION OF REPORTS P900186 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D140US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

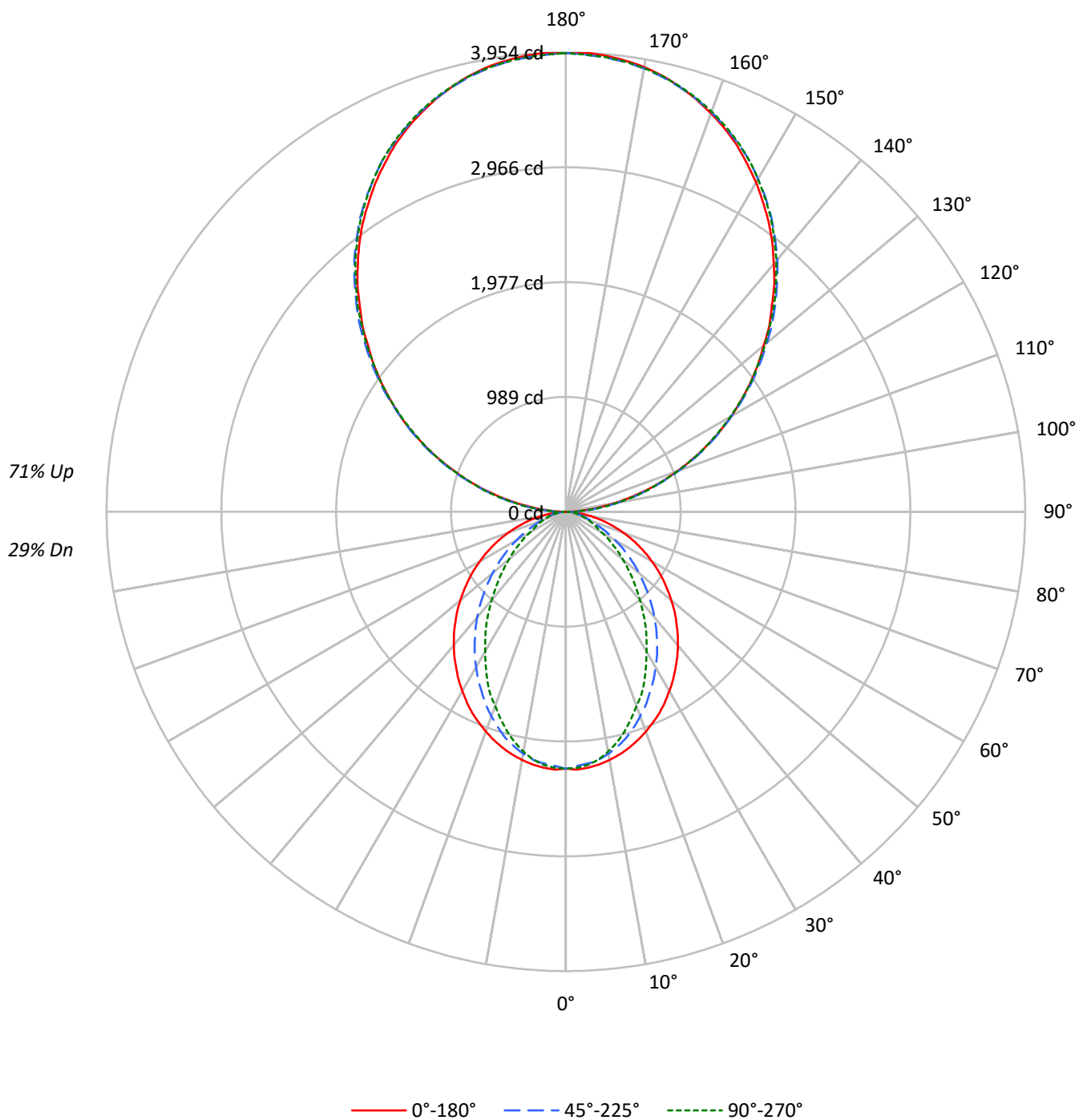
Lumens per Lamp: N/A
Luminaire Lumens: 15596.0 lumens
Efficiency: N/A
Efficacy: 100.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 155.8
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

TEST NUMBER: P923062

CATALOG NUMBER: DFN2DIP-SQ4F0-060D140US940-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923062

CATALOG NUMBER: DFN2DIP-SQ4F0-060D140US940-RLFL

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	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	74	63	61	59	48	46	45	33	32	32
2	85	78	72	68	76	70	66	61	56	52	49	42	40	38	29	28	27
3	78	69	62	57	70	62	56	52	49	45	42	37	35	32	26	25	23
4	71	61	54	48	64	55	49	44	44	39	36	33	30	28	24	22	20
5	65	54	47	41	59	49	43	38	39	35	31	30	27	24	21	19	18
6	60	49	41	36	54	44	38	33	35	31	27	27	24	21	20	17	16
7	56	44	36	31	50	40	33	29	32	27	24	25	21	19	18	16	14
8	52	40	33	27	46	36	30	25	29	24	21	23	19	17	16	14	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°	1552	1552	1552
5°	1554	1527	1537
10°	1539	1498	1488
15°	1517	1448	1411
20°	1489	1380	1316
25°	1461	1304	1225
30°	1422	1226	1109
35°	1384	1142	1007
40°	1346	1055	890
45°	1301	958	784
50°	1255	861	681
55°	1207	757	581
60°	1151	648	479
65°	1087	537	431
70°	1009	433	391
75°	911	382	357
80°	769	322	311
85°	536	217	237

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3108 cd/sqm

TEST NUMBER: P923062

CATALOG NUMBER: DFN2DIP-SQ4F0-060D140US940-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.2	1.3
10°-20°	568.9	3.6
20°-30°	798.7	5.1
30°-40°	870.7	5.6
40°-50°	800.3	5.1
50°-60°	628.5	4.0
60°-70°	409.1	2.6
70°-80°	210.6	1.4
80°-90°	65.0	0.4
90°-100°	244.3	1.6
100°-110°	776.3	5.0
110°-120°	1328.4	8.5
120°-130°	1747.1	11.2
130°-140°	1961.0	12.6
140°-150°	1923.0	12.3
150°-160°	1613.2	10.3
160°-170°	1069.8	6.9
170°-180°	373.9	2.4
0°-30°	1574.9	10.1
0°-40°	2445.6	15.7
0°-60°	3874.3	24.8
0°-90°	4558.9	29.2
90°-120°	2349.0	15.1
90°-150°	7980.2	51.2
90°-180°	11037.0	70.8
0°-180°	15596.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2211	2211	2211	2211	2211	
5°	2211	2201	2175	2193	2187	210
15°	2103	2081	2013	1975	1955	593
25°	1909	1845	1713	1631	1601	878
35°	1645	1543	1367	1241	1197	1030
45°	1345	1211	1001	858	810	1039
55°	1022	866	650	530	492	914
65°	690	528	348	280	274	685
75°	368	228	160	146	144	389
85°	86	44	38	38	38	99
90°	4	43	117	110	113	15
95°	174	207	213	213	207	193
105°	717	726	733	739	739	756
115°	1333	1352	1346	1343	1333	1319
125°	1939	1969	1959	1948	1945	1733
135°	2508	2545	2552	2548	2539	1938
145°	3045	3069	3088	3091	3078	1902
155°	3482	3491	3502	3518	3508	1603
165°	3788	3784	3784	3808	3791	1068
175°	3941	3932	3924	3948	3928	374
180°	3948	3948	3948	3948	3948	

TEST NUMBER: P923062

CATALOG NUMBER: DFN2DIP-SQ4F0-060D140US940-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2211.3	2211.3	2211.3	2211.3	2211.3
2.5°	2221.3	2211.3	2189.1	2209.3	2205.3
5°	2211.3	2201.3	2175.1	2193.3	2187.3
7.5°	2193.3	2181.3	2153.3	2161.1	2151.2
10°	2169.2	2155.2	2115.3	2109.2	2097.2
12.5°	2139.3	2121.2	2067.1	2055.2	2033.1
15°	2103.2	2081.1	2013.1	1975.1	1955.2
17.5°	2061.2	2029.1	1945.0	1901.0	1869.0
20°	2013.1	1973.0	1873.0	1823.1	1779.0
22.5°	1961.1	1915.0	1798.9	1731.0	1701.0
25°	1909.2	1845.0	1713.0	1631.0	1600.9
27.5°	1847.2	1779.0	1632.9	1538.8	1492.8
30°	1781.1	1704.9	1544.8	1442.9	1388.7
32.5°	1717.0	1624.9	1461.0	1340.8	1290.7
35°	1645.0	1542.9	1366.9	1240.7	1196.6
37.5°	1574.9	1464.7	1278.8	1140.6	1090.7
40°	1500.8	1380.9	1186.6	1044.5	992.6
42.5°	1424.9	1296.8	1094.7	946.5	896.6
45°	1344.8	1210.6	1000.7	858.4	810.4
47.5°	1268.8	1126.8	910.6	768.4	724.4
50°	1184.7	1042.7	822.5	684.3	642.5
52.5°	1102.5	952.4	738.4	606.4	568.4
55°	1022.5	866.5	650.3	530.4	492.3
57.5°	940.6	780.4	572.4	460.3	428.2
60°	856.5	696.4	490.3	388.3	356.2
62.5°	774.5	614.5	420.2	324.2	308.3
65°	690.5	528.2	348.2	280.3	274.1
67.5°	610.4	448.2	280.3	246.1	240.1
70°	526.3	370.2	232.0	212.1	204.0
72.5°	446.3	298.1	194.0	178.2	174.1
75°	368.2	228.0	160.1	146.1	144.2
77.5°	290.3	162.0	126.1	118.1	114.0
80°	218.0	116.1	95.9	88.1	88.1
82.5°	152.0	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
90°	3.6	42.9	116.6	109.5	113.1
92.5°	73.8	100.0	103.5	107.1	107.1
95°	173.8	207.1	213.0	213.0	207.1
97.5°	289.3	320.2	333.3	333.3	333.3
100°	422.6	450.0	459.4	459.4	455.8
102.5°	563.0	583.3	596.4	599.9	596.4
105°	716.6	726.1	733.3	739.1	739.1
107.5°	868.9	883.2	883.2	885.6	868.9
110°	1016.5	1035.5	1035.5	1035.5	1026.0

TEST NUMBER: P923062

CATALOG NUMBER: DFN2DIP-SQ4F0-060D140US940-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.0	1196.2	1192.7	1183.1	1176.0
115°	1333.1	1352.2	1346.2	1342.6	1333.1
117.5°	1489.1	1515.3	1498.6	1489.1	1479.5
120°	1646.2	1672.4	1646.2	1646.2	1635.5
122.5°	1789.0	1822.3	1805.7	1796.2	1789.0
125°	1939.0	1968.7	1959.2	1948.5	1944.9
127.5°	2085.4	2122.3	2109.2	2094.9	2085.4
130°	2222.2	2265.1	2259.1	2252.0	2238.9
132.5°	2375.8	2409.1	2411.5	2394.9	2385.3
135°	2507.9	2544.9	2552.0	2548.4	2538.9
137.5°	2655.5	2685.3	2691.3	2688.9	2674.6
140°	2785.3	2815.0	2831.7	2831.7	2818.6
142.5°	2918.6	2948.4	2957.9	2961.5	2948.4
145°	3044.7	3068.6	3087.6	3091.2	3078.1
147.5°	3157.8	3187.6	3201.9	3207.8	3194.7
150°	3274.4	3294.7	3307.8	3318.5	3307.8
152.5°	3378.1	3398.3	3415.0	3428.0	3415.0
155°	3481.6	3491.1	3501.8	3518.5	3507.8
157.5°	3570.9	3578.0	3584.0	3607.8	3591.1
160°	3650.7	3657.8	3661.4	3681.6	3667.2
162.5°	3724.4	3724.4	3728.0	3750.6	3733.9
165°	3787.5	3784.0	3784.0	3807.8	3791.1
167.5°	3844.6	3833.9	3833.9	3857.7	3841.0
170°	3887.5	3878.0	3874.4	3898.2	3878.0
172.5°	3917.3	3907.7	3904.2	3928.0	3907.7
175°	3941.1	3931.6	3924.4	3948.2	3928.0
177.5°	3954.1	3944.7	3937.5	3957.7	3937.5
180°	3948.2	3948.2	3948.2	3948.2	3948.2

TEST NUMBER: P923062

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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	6.34	7.03	7.47	8.14	9.68	2.30	2.99	3.43	4.10	5.64
	3H	8.01	8.63	9.14	9.75	11.31	3.48	4.09	4.61	5.22	6.77
	4H	8.62	9.20	9.76	10.32	11.88	3.93	4.51	5.07	5.63	7.19
	6H	9.04	9.57	10.18	10.70	12.27	4.24	4.78	5.39	5.90	7.47
	8H	9.16	9.67	10.31	10.81	12.38	4.33	4.84	5.48	5.97	7.54
	12H	9.22	9.70	10.37	10.83	12.42	4.37	4.85	5.52	5.98	7.57
4H	2H	6.34	6.92	7.49	8.05	9.61	2.88	3.47	4.03	4.59	6.15
	3H	8.16	8.65	9.32	9.80	11.37	4.22	4.71	5.37	5.85	7.43
	4H	8.85	9.30	10.01	10.43	12.03	4.76	5.21	5.92	6.35	7.94
	6H	9.37	9.75	10.53	10.90	12.49	5.18	5.56	6.34	6.72	8.30
	8H	9.54	9.90	10.70	11.05	12.65	5.30	5.66	6.46	6.81	8.41
	12H	9.63	9.95	10.81	11.11	12.72	5.36	5.68	6.54	6.85	8.45
8H	4H	8.81	9.17	9.97	10.32	11.92	5.04	5.39	6.20	6.54	8.14
	6H	9.38	9.67	10.56	10.86	12.46	5.55	5.84	6.73	7.04	8.64
	8H	9.60	9.85	10.78	11.02	12.64	5.74	6.00	6.93	7.17	8.79
	12H	9.73	9.96	10.92	11.12	12.78	5.86	6.08	7.04	7.25	8.90
12H	4H	8.76	9.08	9.93	10.24	11.85	5.04	5.36	6.21	6.52	8.13
	6H	9.35	9.61	10.54	10.78	12.40	5.60	5.86	6.79	7.03	8.65
	8H	9.57	9.79	10.76	10.96	12.61	5.81	6.03	6.99	7.20	8.85

END OF REPORT