

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: P917578

Luminaire Tested: DFN2DIP-SQ4F0-060D060US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917578
REPORT IS A COMBINATION OF REPORTS P900060 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D060US930-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

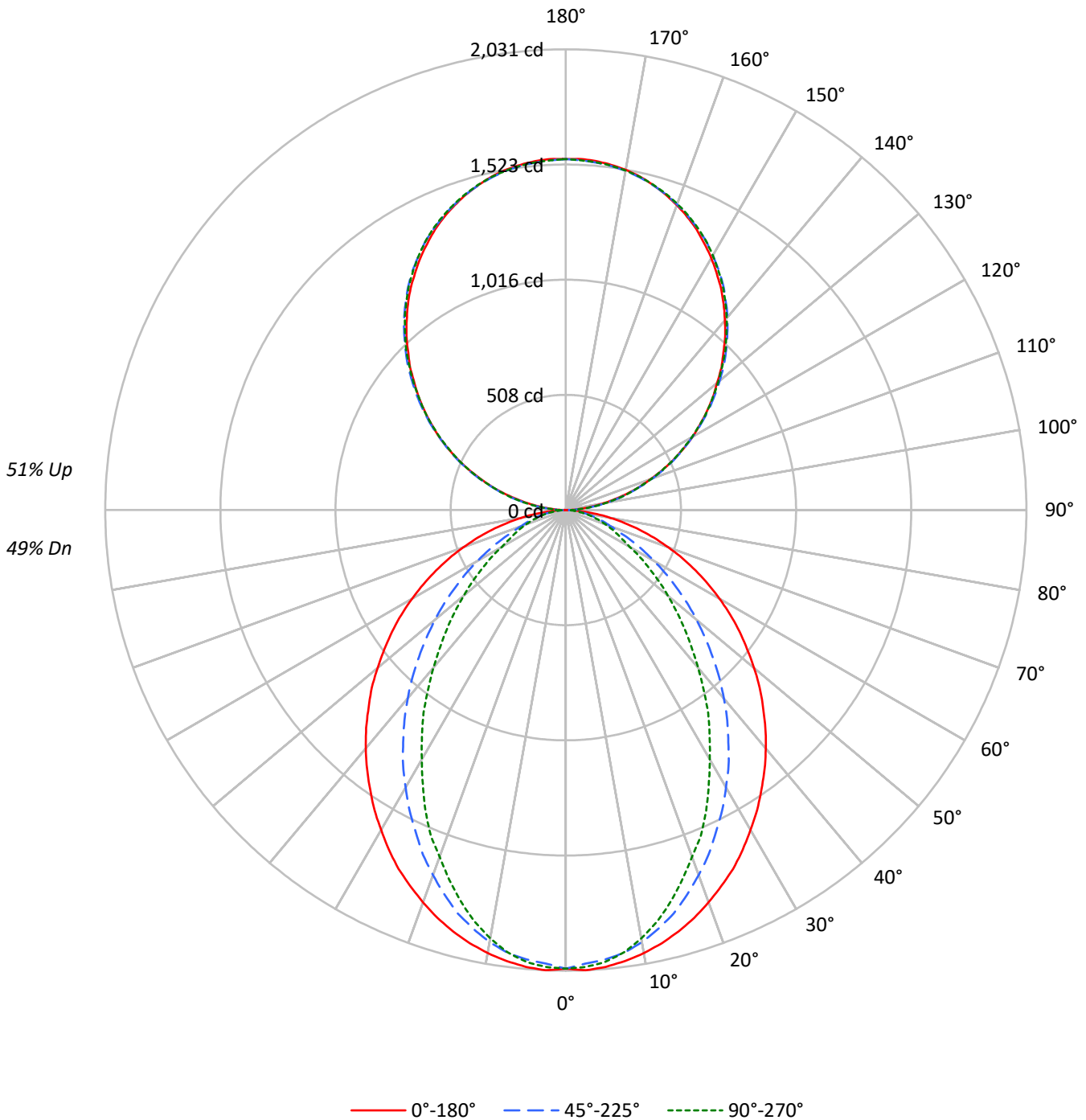
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8487.2 lumens
Efficiency: N/A
Efficacy: 89.2 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): 95.2
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55	49			49
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48	42			42
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41	36			36
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35	31			31
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31	27			27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27	24			24
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24	21			21
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22	19			19
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20	17			17
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	16			16
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16	14			14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1419	1419	1419
5°	1421	1396	1405
10°	1407	1369	1360
15°	1387	1324	1290
20°	1362	1262	1203
25°	1336	1192	1120
30°	1300	1121	1014
35°	1266	1044	921
40°	1231	965	814
45°	1190	876	717
50°	1148	787	622
55°	1103	692	531
60°	1052	592	438
65°	994	491	394
70°	923	396	358
75°	833	350	326
80°	703	294	284
85°	490	198	216

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1217 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.5	2.2
10°-20°	520.2	6.1
20°-30°	730.3	8.6
30°-40°	796.1	9.4
40°-50°	731.7	8.6
50°-60°	574.6	6.8
60°-70°	374.0	4.4
70°-80°	192.5	2.3
80°-90°	53.5	0.6
90°-100°	95.7	1.1
100°-110°	304.2	3.6
110°-120°	520.6	6.1
120°-130°	684.6	8.1
130°-140°	768.4	9.1
140°-150°	753.5	8.9
150°-160°	632.1	7.4
160°-170°	419.2	4.9
170°-180°	146.5	1.7
0°-30°	1439.9	17.0
0°-40°	2236.0	26.3
0°-60°	3542.3	41.7
0°-90°	4162.4	49.0
90°-120°	920.5	10.8
90°-150°	3127.0	36.8
90°-180°	4325.0	51.0
0°-180°	8487.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2022	2022	2022	2022	2022	
5°	2022	2013	1989	2005	2000	192
15°	1923	1903	1841	1806	1788	542
25°	1746	1687	1566	1491	1464	803
35°	1504	1411	1250	1134	1094	941
45°	1230	1107	915	785	741	950
55°	935	792	595	485	450	835
65°	631	483	318	256	251	626
75°	337	208	146	134	132	356
85°	79	40	35	35	35	90
90°	1	17	46	43	44	8
95°	68	81	84	84	81	76
105°	281	284	287	290	290	296
115°	522	530	528	526	522	517
125°	760	771	768	764	762	679
135°	983	997	1000	999	995	760
145°	1193	1202	1210	1211	1206	745
155°	1364	1368	1372	1379	1374	628
165°	1484	1483	1483	1492	1486	419
175°	1544	1541	1538	1547	1539	147
180°	1547	1547	1547	1547	1547	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2021.8	2021.8	2021.8	2021.8	2021.8
2.5°	2030.9	2021.8	2001.6	2020.0	2016.3
5°	2021.8	2012.6	1988.8	2005.3	1999.8
7.5°	2005.3	1994.4	1968.8	1976.0	1966.8
10°	1983.3	1970.5	1934.1	1928.4	1917.5
12.5°	1956.0	1939.4	1889.9	1879.1	1858.9
15°	1923.0	1902.7	1840.6	1805.9	1787.6
17.5°	1884.6	1855.2	1778.3	1738.1	1708.9
20°	1840.6	1803.9	1712.5	1666.9	1626.5
22.5°	1793.1	1750.9	1644.8	1582.7	1555.3
25°	1745.6	1686.9	1566.2	1491.3	1463.7
27.5°	1688.9	1626.5	1493.0	1407.0	1364.9
30°	1628.5	1558.8	1412.4	1319.2	1269.7
32.5°	1569.9	1485.6	1335.8	1225.9	1180.1
35°	1504.1	1410.7	1249.8	1134.4	1094.0
37.5°	1440.0	1339.2	1169.2	1042.8	997.2
40°	1372.2	1262.6	1084.9	955.0	907.5
42.5°	1302.8	1185.7	1000.9	865.4	819.8
45°	1229.6	1106.8	914.9	784.8	740.9
47.5°	1160.1	1030.2	832.6	702.5	662.3
50°	1083.2	953.3	752.0	625.7	587.4
52.5°	1008.0	870.8	675.1	554.4	519.7
55°	934.9	792.2	594.6	484.9	450.1
57.5°	860.0	713.5	523.3	420.9	391.5
60°	783.1	636.7	448.3	355.1	325.7
62.5°	708.2	561.8	384.2	296.4	281.8
65°	631.3	483.0	318.4	256.2	250.6
67.5°	558.1	409.8	256.2	225.0	219.6
70°	481.2	338.5	212.1	194.0	186.5
72.5°	408.1	272.6	177.4	162.9	159.1
75°	336.6	208.5	146.3	133.5	131.8
77.5°	265.4	148.1	115.3	107.9	104.3
80°	199.3	106.2	87.7	80.6	80.6
82.5°	139.0	71.4	60.3	56.7	56.7
85°	78.6	40.2	34.7	34.7	34.7
87.5°	29.4	14.6	14.6	12.8	12.8
90°	1.4	16.8	45.7	42.9	44.3
92.5°	28.9	39.2	40.6	42.0	42.0
95°	68.1	81.1	83.5	83.5	81.1
97.5°	113.3	125.5	130.6	130.6	130.6
100°	165.6	176.3	180.0	180.0	178.6
102.5°	220.6	228.5	233.7	235.1	233.7
105°	280.8	284.5	287.3	289.7	289.7
107.5°	340.5	346.1	346.1	347.0	340.5
110°	398.4	405.8	405.8	405.8	402.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	460.8	468.7	467.3	463.6	460.8
115°	522.4	529.9	527.5	526.1	522.4
117.5°	583.5	593.8	587.2	583.5	579.8
120°	645.1	655.3	645.1	645.1	640.8
122.5°	701.0	714.0	707.5	703.8	701.0
125°	759.8	771.4	767.7	763.5	762.1
127.5°	817.2	831.6	826.5	820.9	817.2
130°	870.8	887.6	885.3	882.5	877.3
132.5°	931.0	944.0	944.9	938.4	934.7
135°	982.8	997.2	1000.0	998.6	994.8
137.5°	1040.6	1052.2	1054.6	1053.6	1048.1
140°	1091.4	1103.1	1109.6	1109.6	1104.5
142.5°	1143.6	1155.3	1159.0	1160.4	1155.3
145°	1193.1	1202.4	1209.9	1211.3	1206.2
147.5°	1237.4	1249.0	1254.7	1256.9	1251.8
150°	1283.1	1291.0	1296.2	1300.3	1296.2
152.5°	1323.6	1331.6	1338.1	1343.3	1338.1
155°	1364.2	1368.0	1372.1	1378.8	1374.5
157.5°	1399.2	1402.1	1404.4	1413.7	1407.2
160°	1430.5	1433.3	1434.7	1442.6	1437.0
162.5°	1459.4	1459.4	1460.8	1469.7	1463.1
165°	1484.1	1482.7	1482.7	1492.1	1485.6
167.5°	1506.5	1502.4	1502.4	1511.6	1505.1
170°	1523.3	1519.6	1518.2	1527.5	1519.6
172.5°	1535.0	1531.2	1529.8	1539.1	1531.2
175°	1544.3	1540.6	1537.7	1547.1	1539.1
177.5°	1549.4	1545.7	1542.9	1550.8	1542.9
180°	1547.1	1547.1	1547.1	1547.1	1547.1



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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	8.28	9.10	9.25	10.09	11.37	4.24	5.07	5.22	6.05	7.34
	3H	9.96	10.70	10.95	11.69	13.00	5.43	6.17	6.42	7.16	8.47
	4H	10.57	11.27	11.57	12.26	13.58	5.88	6.58	6.88	7.57	8.89
	6H	11.00	11.64	12.01	12.64	13.97	6.20	6.84	7.21	7.84	9.17
	8H	11.13	11.74	12.14	12.75	14.08	6.29	6.90	7.31	7.92	9.25
	12H	11.19	11.77	12.21	12.78	14.13	6.34	6.92	7.36	7.93	9.28
4H	2H	8.30	8.99	9.30	9.99	11.31	4.84	5.54	5.84	6.53	7.85
	3H	10.13	10.71	11.14	11.73	13.07	6.19	6.77	7.20	7.79	9.12
	4H	10.83	11.36	11.85	12.37	13.73	6.74	7.27	7.76	8.28	9.64
	6H	11.35	11.80	12.38	12.84	14.19	7.16	7.61	8.19	8.65	10.00
	8H	11.52	11.95	12.56	12.98	14.35	7.29	7.71	8.32	8.74	10.11
	12H	11.62	12.00	12.67	13.05	14.42	7.35	7.74	8.40	8.78	10.15
8H	4H	10.80	11.22	11.83	12.25	13.62	7.02	7.44	8.05	8.48	9.84
	6H	11.37	11.72	12.42	12.79	14.15	7.54	7.89	8.59	8.96	10.33
	8H	11.59	11.89	12.65	12.95	14.33	7.73	8.04	8.79	9.10	10.48
	12H	11.73	12.00	12.79	13.05	14.48	7.85	8.12	8.92	9.18	10.60
12H	4H	10.75	11.13	11.80	12.18	13.55	7.03	7.41	8.07	8.46	9.83
	6H	11.34	11.65	12.40	12.71	14.09	7.59	7.90	8.65	8.96	10.34
	8H	11.56	11.84	12.63	12.89	14.31	7.80	8.07	8.87	9.13	10.55