

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: P917180

Luminaire Tested: DFN2DIP-SQ2F0-060D030US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P917180  
REPORT IS A COMBINATION OF REPORTS P899777 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-060D030US930-FLLFLL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

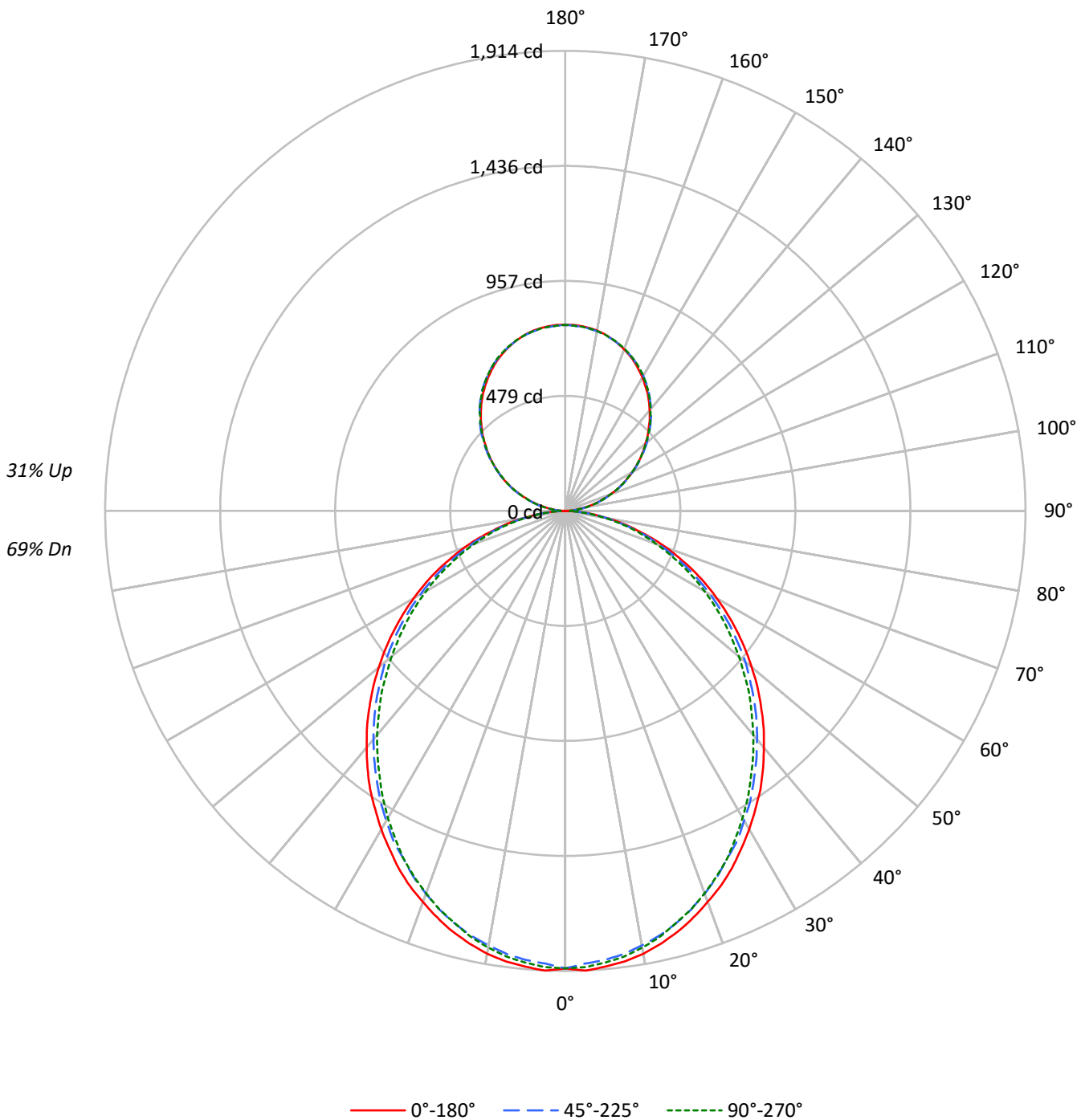
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7007.5 lumens  
Efficiency: N/A  
Efficacy: 90.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: Semi-Direct

Input Watts (W): 77.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			69
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			58
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			49
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			41
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			35
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			31
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			27
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			24
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			22
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			19
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			18

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	4185	4185	4185
5°	4185	4118	4149
10°	4144	4053	4087
15°	4075	3978	3993
20°	3986	3876	3898
25°	3897	3756	3788
30°	3786	3644	3650
35°	3682	3513	3505
40°	3553	3381	3366
45°	3426	3247	3224
50°	3285	3107	3060
55°	3138	2945	2907
60°	2971	2754	2732
65°	2787	2555	2526
70°	2554	2312	2304
75°	2235	2021	2089
80°	1846	1650	1697
85°	1246	1041	1066

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3426 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	179.1	2.6
10°-20°	504.1	7.2
20°-30°	740.8	10.6
30°-40°	860.4	12.3
40°-50°	859.3	12.3
50°-60°	749.3	10.7
60°-70°	553.9	7.9
70°-80°	313.4	4.5
80°-90°	84.9	1.2
90°-100°	47.9	0.7
100°-110°	152.1	2.2
110°-120°	260.3	3.7
120°-130°	342.3	4.9
130°-140°	384.2	5.5
140°-150°	376.8	5.4
150°-160°	316.1	4.5
160°-170°	209.6	3.0
170°-180°	73.3	1.0
0°-30°	1424.0	20.3
0°-40°	2284.3	32.6
0°-60°	3892.9	55.6
0°-90°	4845.1	69.1
90°-120°	460.2	6.6
90°-150°	1563.5	22.3
90°-180°	2162.0	30.9
0°-180°	7007.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	1	8	23	21	22	7
95°	34	41	42	42	41	38
105°	140	142	144	145	145	148
115°	261	265	264	263	261	258
125°	380	386	384	382	381	339
135°	491	499	500	499	497	380
145°	597	601	605	606	603	373
155°	682	684	686	689	687	314
165°	742	741	741	746	743	209
175°	772	770	769	774	770	73
180°	774	774	774	774	774	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	0.7	8.4	22.8	21.4	22.2
92.5°	14.4	19.6	20.3	21.0	21.0
95°	34.1	40.6	41.7	41.7	40.6
97.5°	56.7	62.7	65.3	65.3	65.3
100°	82.8	88.1	90.0	90.0	89.4
102.5°	110.3	114.3	116.8	117.6	116.8
105°	140.4	142.3	143.7	144.8	144.8
107.5°	170.2	173.0	173.0	173.5	170.2
110°	199.2	202.9	202.9	202.9	201.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	230.4	234.4	233.7	231.8	230.4
115°	261.2	264.9	263.7	263.1	261.2
117.5°	291.7	296.9	293.6	291.7	289.8
120°	322.5	327.7	322.5	322.5	320.4
122.5°	350.5	357.0	353.8	351.9	350.5
125°	379.9	385.7	383.8	381.7	381.1
127.5°	408.5	415.8	413.3	410.4	408.5
130°	435.4	443.8	442.6	441.2	438.6
132.5°	465.5	472.0	472.5	469.2	467.3
135°	491.4	498.6	500.0	499.3	497.4
137.5°	520.2	526.1	527.3	526.8	524.0
140°	545.7	551.5	554.8	554.8	552.2
142.5°	571.9	577.6	579.5	580.2	577.6
145°	596.6	601.2	605.0	605.6	603.1
147.5°	618.7	624.5	627.3	628.5	625.9
150°	641.6	645.6	648.1	650.2	648.1
152.5°	661.9	665.8	669.0	671.6	669.0
155°	682.2	684.0	686.1	689.3	687.3
157.5°	699.6	701.0	702.2	706.9	703.6
160°	715.3	716.6	717.4	721.3	718.5
162.5°	729.7	729.7	730.4	734.8	731.6
165°	742.1	741.4	741.4	746.0	742.7
167.5°	753.3	751.1	751.1	755.8	752.5
170°	761.7	759.8	759.1	763.8	759.8
172.5°	767.4	765.6	764.9	769.6	765.6
175°	772.2	770.3	768.9	773.6	769.6
177.5°	774.7	772.8	771.4	775.4	771.4
180°	773.6	773.6	773.6	773.6	773.6



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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	13.73	14.80	14.51	15.59	16.56	13.29	14.35	14.06	15.15	16.12
	3H	15.39	16.35	16.18	17.15	18.15	14.90	15.86	15.69	16.66	17.66
	4H	15.97	16.88	16.78	17.69	18.70	15.48	16.38	16.28	17.20	18.21
	6H	16.37	17.20	17.19	18.02	19.05	15.87	16.70	16.69	17.52	18.55
	8H	16.47	17.27	17.30	18.11	19.13	15.97	16.76	16.80	17.61	18.63
	12H	16.52	17.28	17.35	18.11	19.16	16.01	16.77	16.84	17.60	18.65
4H	2H	14.21	15.11	15.02	15.93	16.94	13.85	14.76	14.66	15.57	16.58
	3H	16.07	16.82	16.89	17.67	18.70	15.66	16.41	16.48	17.26	18.29
	4H	16.78	17.46	17.61	18.31	19.36	16.35	17.04	17.19	17.88	18.94
	6H	17.28	17.88	18.13	18.75	19.81	16.85	17.45	17.70	18.32	19.37
	8H	17.43	17.98	18.28	18.85	19.92	16.99	17.55	17.85	18.41	19.48
	12H	17.50	18.00	18.38	18.89	19.97	17.05	17.55	17.93	18.44	19.52
8H	4H	16.98	17.53	17.83	18.40	19.47	16.60	17.15	17.45	18.02	19.09
	6H	17.59	18.05	18.47	18.96	20.03	17.21	17.67	18.09	18.58	19.65
	8H	17.80	18.21	18.69	19.11	20.20	17.41	17.82	18.30	18.72	19.81
	12H	17.93	18.29	18.83	19.18	20.32	17.52	17.88	18.42	18.77	19.91
12H	4H	16.97	17.47	17.84	18.36	19.43	16.60	17.10	17.47	17.99	19.06
	6H	17.62	18.03	18.51	18.93	20.02	17.25	17.66	18.14	18.56	19.64
	8H	17.86	18.22	18.75	19.11	20.25	17.47	17.83	18.37	18.73	19.87