

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: P917605

Luminaire Tested: DFN2DIP-SQ4F0-060D140US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917605
REPORT IS A COMBINATION OF REPORTS P901705 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D140US930-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

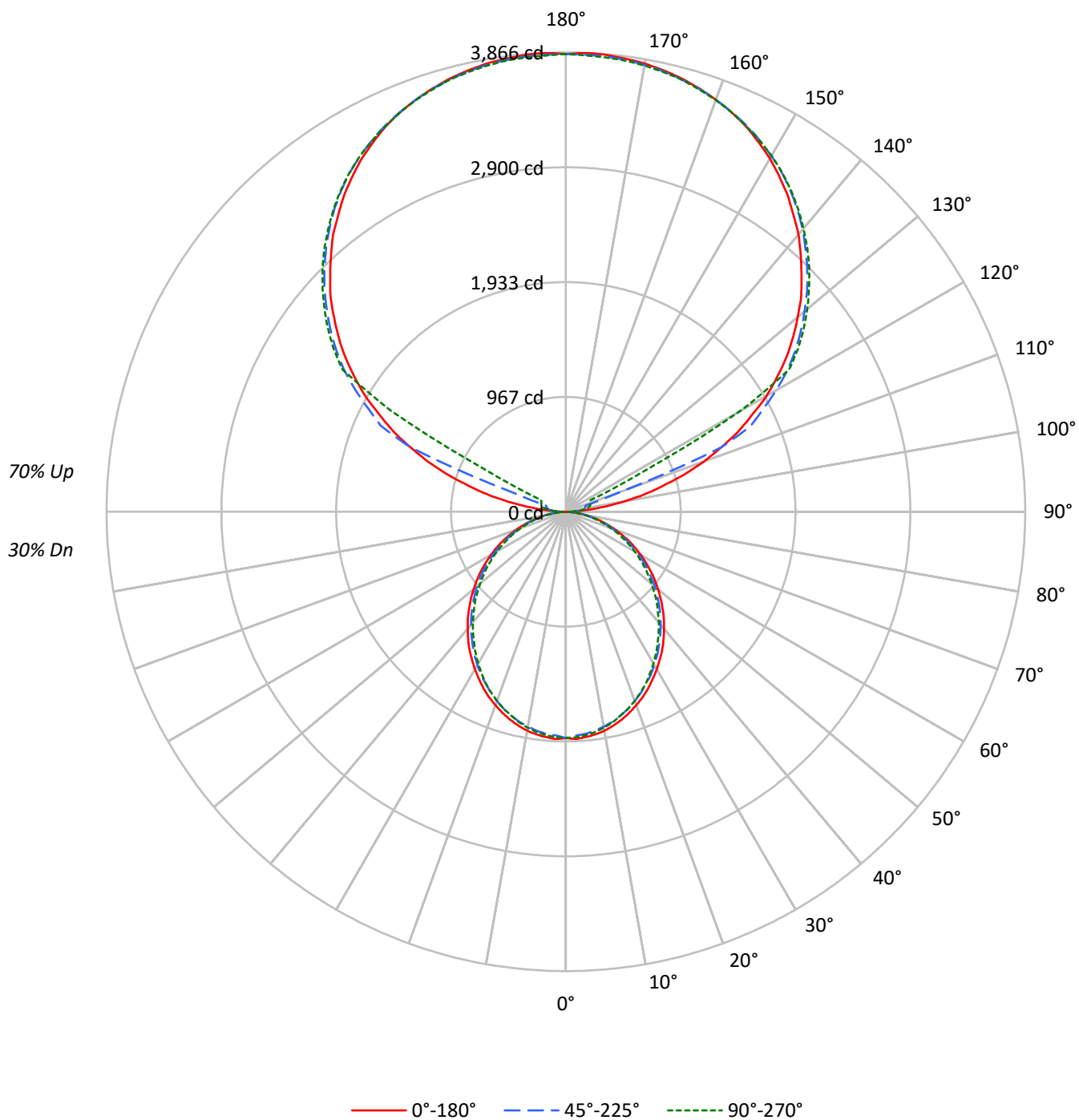
Lumens per Lamp: N/A
Luminaire Lumens: 16142.9 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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

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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					0
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		38	38	38
1	93	89	85	82		84	80	77	74		63	61	59		48	46	45		33	33	32
2	85	78	72	67		76	70	65	61		55	52	49		42	40	38		29	28	27
3	77	68	61	56		69	62	56	51		49	45	41		37	34	32		26	24	23
4	71	60	53	47		63	54	48	43		43	39	35		33	30	27		23	21	20
5	65	54	46	40		58	48	42	37		39	34	30		29	26	23		21	19	17
6	60	48	40	35		53	43	37	32		35	30	26		27	23	20		19	17	15
7	55	43	35	30		49	39	32	28		31	26	23		24	21	18		17	15	13
8	51	39	32	26		46	35	29	24		28	24	20		22	19	16		16	14	12
9	47	36	28	23		42	32	26	22		26	21	18		20	17	14		15	12	11
10	44	32	26	21		40	30	23	19		24	19	16		19	15	13		14	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1336	1336	1336
5°	1338	1317	1326
10°	1327	1300	1309
15°	1307	1279	1281
20°	1281	1249	1253
25°	1255	1214	1220
30°	1222	1181	1178
35°	1191	1142	1134
40°	1152	1103	1092
45°	1114	1064	1048
50°	1072	1023	999
55°	1028	975	953
60°	979	919	900
65°	925	860	838
70°	856	789	772
75°	761	704	711
80°	646	595	594
85°	467	407	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2067 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.1
10°-20°	504.1	3.1
20°-30°	740.8	4.6
30°-40°	860.4	5.3
40°-50°	859.3	5.3
50°-60°	749.3	4.6
60°-70°	553.9	3.4
70°-80°	313.4	1.9
80°-90°	89.5	0.6
90°-100°	127.0	0.8
100°-110°	473.5	2.9
110°-120°	1255.8	7.8
120°-130°	2082.9	12.9
130°-140°	2212.5	13.7
140°-150°	2056.3	12.7
150°-160°	1653.2	10.2
160°-170°	1065.3	6.6
170°-180°	366.7	2.3
0°-30°	1424.0	8.8
0°-40°	2284.3	14.2
0°-60°	3892.9	24.1
0°-90°	4849.6	30.0
90°-120°	1856.4	11.5
90°-150°	8208.1	50.8
90°-180°	11293.0	70.0
0°-180°	16142.9	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°	3	33	56	70	75	15
95°	181	89	109	123	120	214
105°	847	931	170	201	212	905
115°	1603	1650	1720	429	229	1578
125°	2266	2302	2355	2375	2383	2021
135°	2804	2849	2874	2902	2896	2166
145°	3253	3250	3297	3317	3303	2035
155°	3582	3557	3590	3607	3585	1650
165°	3774	3758	3766	3785	3766	1066
175°	3860	3841	3846	3866	3838	367
180°	3852	3852	3852	3852	3852	

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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°	2.6	33.4	55.6	69.9	75.2
92.5°	69.9	58.6	66.9	72.5	75.2
95°	181.1	89.0	108.6	122.8	119.8
97.5°	326.0	97.7	142.0	150.6	153.3
100°	493.5	111.5	158.9	181.1	186.7
102.5°	677.2	671.9	164.5	194.9	203.6
105°	847.3	931.1	170.2	200.6	211.8
107.5°	1045.3	1114.8	175.8	206.2	217.4
110°	1234.9	1293.2	487.9	209.2	220.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1413.3	1463.3	1416.0	214.5	223.1
115°	1602.7	1650.0	1719.9	429.3	228.7
117.5°	1767.2	1822.8	1870.5	1471.6	741.4
120°	1951.3	1992.9	2043.2	2076.6	1700.3
122.5°	2107.1	2151.8	2207.7	2224.3	2227.3
125°	2266.0	2302.4	2355.4	2374.9	2383.2
127.5°	2411.0	2450.1	2492.0	2519.8	2522.5
130°	2547.6	2592.4	2622.8	2653.6	2650.9
132.5°	2687.1	2723.4	2753.9	2779.0	2776.4
135°	2804.2	2848.9	2873.7	2901.8	2896.2
137.5°	2926.7	2960.1	2988.2	3016.0	3007.8
140°	3046.5	3069.0	3099.4	3124.6	3110.7
142.5°	3147.1	3166.6	3202.7	3224.9	3211.0
145°	3253.0	3250.0	3297.4	3317.0	3303.0
147.5°	3344.8	3336.4	3383.8	3397.7	3386.7
150°	3434.1	3414.6	3459.2	3475.8	3461.9
152.5°	3509.2	3487.0	3528.8	3545.7	3526.1
155°	3581.7	3556.9	3590.3	3606.9	3584.7
157.5°	3640.3	3618.1	3643.3	3662.8	3640.3
160°	3690.6	3673.7	3690.6	3707.2	3687.7
162.5°	3735.0	3718.4	3732.4	3751.8	3726.7
165°	3774.0	3757.5	3765.8	3785.3	3765.8
167.5°	3804.8	3788.0	3796.5	3816.1	3790.9
170°	3829.9	3813.1	3818.7	3838.3	3813.1
172.5°	3846.5	3829.9	3835.6	3855.1	3829.9
175°	3860.4	3840.9	3846.5	3866.1	3838.3
177.5°	3866.1	3846.5	3849.5	3869.0	3843.9
180°	3852.1	3852.1	3852.1	3852.1	3852.1

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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	6.08	6.79	7.19	7.90	9.43	5.64	6.34	6.75	7.45	8.98
	3H	7.74	8.37	8.86	9.48	11.03	7.24	7.88	8.36	8.99	10.54
	4H	8.32	8.92	9.45	10.03	11.59	7.82	8.42	8.95	9.54	11.09
	6H	8.71	9.27	9.85	10.38	11.95	8.21	8.77	9.35	9.88	11.45
	8H	8.82	9.34	9.96	10.48	12.03	8.31	8.84	9.45	9.97	11.53
	12H	8.86	9.36	10.01	10.49	12.07	8.35	8.85	9.50	9.98	11.56
4H	2H	6.52	7.13	7.66	8.24	9.79	6.17	6.77	7.31	7.89	9.44
	3H	8.38	8.88	9.52	10.02	11.59	7.97	8.47	9.12	9.62	11.18
	4H	9.09	9.55	10.24	10.68	12.27	8.67	9.13	9.81	10.26	11.84
	6H	9.60	10.00	10.75	11.15	12.73	9.17	9.57	10.32	10.72	12.29
	8H	9.75	10.12	10.90	11.27	12.86	9.31	9.68	10.46	10.83	12.42
	12H	9.82	10.15	10.99	11.31	12.91	9.37	9.70	10.54	10.86	12.46
8H	4H	9.28	9.65	10.43	10.79	12.38	8.90	9.27	10.05	10.41	12.01
	6H	9.91	10.21	11.08	11.40	12.99	9.52	9.83	10.69	11.01	12.60
	8H	10.13	10.39	11.31	11.56	13.17	9.74	10.00	10.91	11.17	12.78
	12H	10.26	10.49	11.44	11.65	13.29	9.84	10.08	11.03	11.24	12.88
12H	4H	9.25	9.59	10.42	10.75	12.34	8.89	9.22	10.05	10.38	11.97
	6H	9.93	10.20	11.11	11.37	12.98	9.56	9.83	10.74	11.00	12.60
	8H	10.17	10.41	11.35	11.57	13.21	9.79	10.03	10.97	11.19	12.83