

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: P923004

Luminaire Tested: DFN2DIP-SQ3F0-120D060US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923004
REPORT IS A COMBINATION OF REPORTS P899913 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D060US940-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

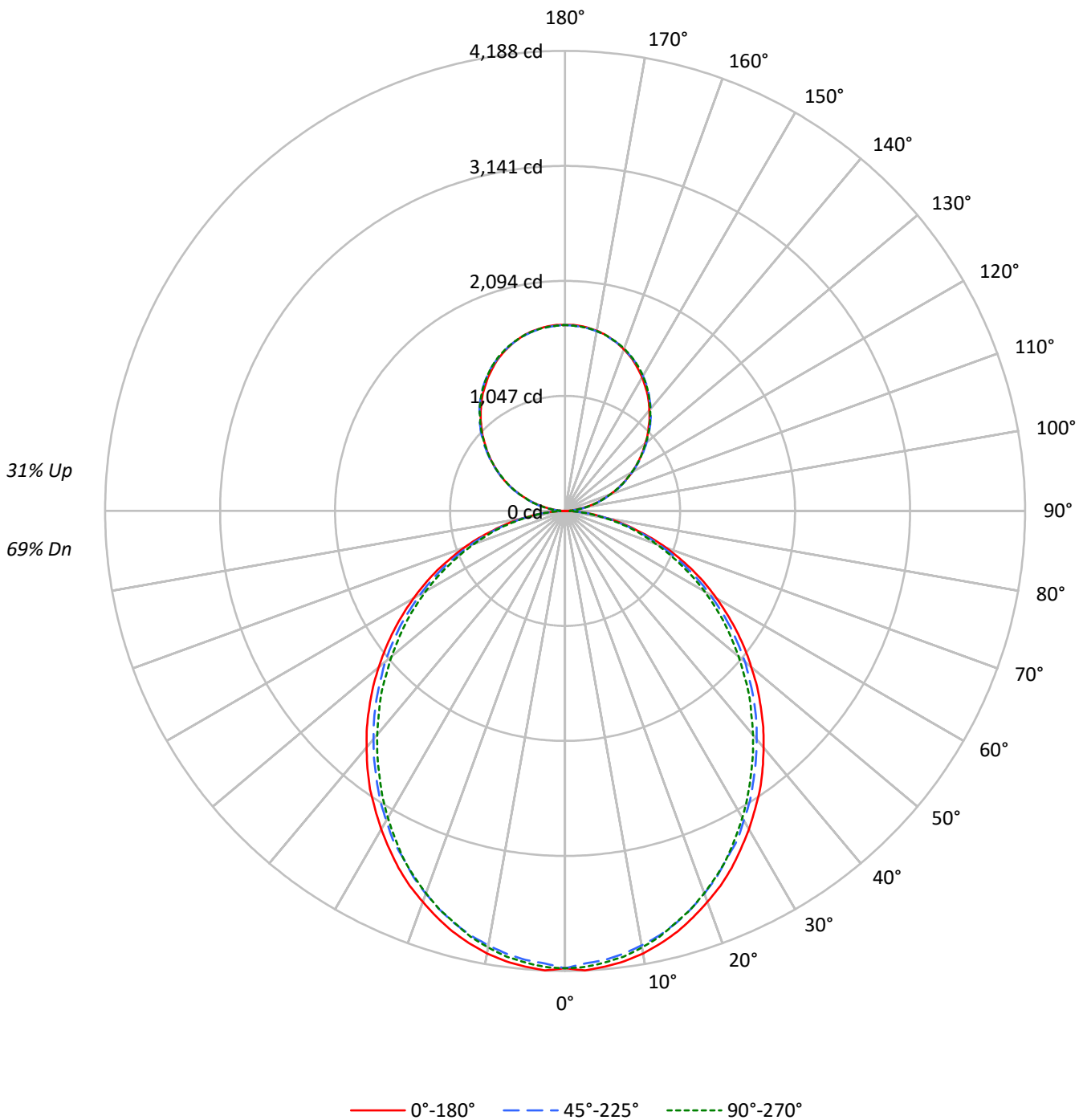
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15328.5 lumens
Efficiency: N/A
Efficacy: 89.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 170.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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				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°	4771	4771	4771
5°	4775	4701	4734
10°	4734	4635	4669
15°	4661	4555	4567
20°	4564	4446	4463
25°	4467	4316	4343
30°	4347	4195	4191
35°	4232	4052	4030
40°	4092	3909	3876
45°	3952	3764	3719
50°	3799	3612	3538
55°	3638	3437	3370
60°	3456	3229	3178
65°	3257	3013	2953
70°	3004	2749	2709
75°	2654	2433	2481
80°	2231	2031	2051
85°	1570	1345	1343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3952 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.9	2.6
10°-20°	1102.6	7.2
20°-30°	1620.4	10.6
30°-40°	1882.0	12.3
40°-50°	1879.7	12.3
50°-60°	1639.0	10.7
60°-70°	1211.6	7.9
70°-80°	685.5	4.5
80°-90°	185.7	1.2
90°-100°	104.7	0.7
100°-110°	332.7	2.2
110°-120°	569.3	3.7
120°-130°	748.8	4.9
130°-140°	840.5	5.5
140°-150°	824.2	5.4
150°-160°	691.4	4.5
160°-170°	458.5	3.0
170°-180°	160.3	1.0
0°-30°	3114.9	20.3
0°-40°	4996.9	32.6
0°-60°	8515.5	55.6
0°-90°	10598.3	69.1
90°-120°	1006.7	6.6
90°-150°	3420.1	22.3
90°-180°	4730.0	30.9
0°-180°	15328.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4164	4164	4164	4164	4164	
5°	4164	4148	4104	4136	4128	395
15°	3964	3940	3888	3904	3884	1116
25°	3587	3555	3487	3495	3487	1651
35°	3095	3055	2991	2967	2947	1933
45°	2518	2490	2430	2386	2370	1944
55°	1906	1882	1834	1786	1766	1704
65°	1285	1261	1221	1185	1165	1271
75°	672	665	644	621	629	718
85°	164	160	156	144	140	183
90°	2	18	50	47	48	15
95°	74	89	91	91	89	83
105°	307	311	314	317	317	324
115°	571	580	577	575	571	565
125°	831	844	840	835	834	743
135°	1075	1091	1094	1092	1088	831
145°	1305	1315	1323	1325	1319	815
155°	1492	1496	1501	1508	1503	687
165°	1623	1622	1622	1632	1625	458
175°	1689	1685	1682	1692	1683	160
180°	1692	1692	1692	1692	1692	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4163.7	4163.7	4163.7	4163.7	4163.7
2.5°	4187.8	4167.9	4123.7	4163.7	4156.0
5°	4163.7	4147.9	4103.7	4135.6	4127.9
7.5°	4135.6	4111.8	4067.6	4099.9	4091.9
10°	4091.9	4063.8	4015.8	4047.7	4035.8
12.5°	4031.5	4007.7	3959.7	3979.7	3971.6
15°	3963.6	3939.8	3887.5	3903.6	3883.7
17.5°	3879.5	3855.7	3803.4	3823.4	3803.4
20°	3787.3	3763.5	3707.5	3719.3	3703.6
22.5°	3695.5	3659.4	3607.1	3607.1	3599.1
25°	3587.2	3555.3	3487.4	3495.1	3487.4
27.5°	3467.0	3439.0	3387.2	3375.2	3355.3
30°	3347.2	3314.9	3255.0	3243.2	3227.0
32.5°	3218.9	3195.2	3131.0	3106.8	3090.7
35°	3094.9	3055.0	2990.8	2966.6	2946.7
37.5°	2954.7	2918.7	2854.5	2826.5	2806.5
40°	2810.8	2778.5	2714.3	2678.6	2662.5
42.5°	2670.6	2638.3	2574.5	2534.2	2510.4
45°	2518.5	2490.5	2430.1	2386.4	2370.3
47.5°	2370.3	2342.2	2278.1	2233.9	2210.1
50°	2213.9	2194.0	2137.9	2081.8	2061.8
52.5°	2061.8	2033.8	1982.0	1937.8	1909.8
55°	1905.9	1881.8	1833.7	1785.7	1765.8
57.5°	1749.6	1729.7	1677.4	1629.4	1613.3
60°	1593.3	1577.6	1521.5	1477.4	1465.4
62.5°	1441.3	1413.2	1373.3	1333.4	1317.2
65°	1285.4	1261.1	1221.2	1185.1	1165.2
67.5°	1125.2	1104.8	1069.2	1041.2	1025.0
70°	977.0	960.8	924.7	896.7	881.0
72.5°	824.9	808.8	788.8	760.8	748.9
75°	672.4	664.8	644.3	620.6	628.7
77.5°	536.5	520.3	512.3	500.3	488.5
80°	400.6	396.3	388.3	376.4	368.3
82.5°	272.2	272.2	268.5	252.4	252.4
85°	164.0	160.2	156.3	144.0	140.2
87.5°	72.2	64.1	56.1	44.1	39.9
90°	1.5	18.4	50.0	46.9	48.4
92.5°	31.7	42.9	44.4	45.9	45.9
95°	74.5	88.7	91.3	91.3	88.7
97.5°	123.9	137.2	142.9	142.9	142.9
100°	181.1	192.8	196.9	196.9	195.4
102.5°	241.3	249.9	255.6	257.1	255.6
105°	307.1	311.2	314.2	316.8	316.8
107.5°	372.4	378.5	378.5	379.5	372.4
110°	435.7	443.8	443.8	443.8	439.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.0	512.6	511.1	507.0	504.0
115°	571.3	579.5	576.9	575.4	571.3
117.5°	638.2	649.4	642.2	638.2	634.1
120°	705.5	716.8	705.5	705.5	700.9
122.5°	766.7	781.0	773.8	769.8	766.7
125°	831.0	843.7	839.6	835.1	833.6
127.5°	893.8	909.5	903.9	897.9	893.8
130°	952.4	970.8	968.2	965.2	959.6
132.5°	1018.2	1032.5	1033.5	1026.4	1022.3
135°	1074.9	1090.7	1093.7	1092.2	1088.1
137.5°	1138.1	1150.8	1153.4	1152.4	1146.3
140°	1193.7	1206.5	1213.6	1213.6	1208.0
142.5°	1250.8	1263.6	1267.7	1269.2	1263.6
145°	1304.9	1315.1	1323.3	1324.8	1319.2
147.5°	1353.3	1366.1	1372.3	1374.7	1369.1
150°	1403.4	1412.0	1417.6	1422.2	1417.6
152.5°	1447.7	1456.4	1463.6	1469.2	1463.6
155°	1492.1	1496.2	1500.7	1508.0	1503.3
157.5°	1530.4	1533.5	1536.0	1546.2	1539.1
160°	1564.6	1567.6	1569.1	1577.8	1571.7
162.5°	1596.2	1596.2	1597.7	1607.4	1600.3
165°	1623.2	1621.7	1621.7	1631.9	1624.8
167.5°	1647.7	1643.2	1643.2	1653.3	1646.2
170°	1666.1	1662.0	1660.5	1670.6	1662.0
172.5°	1678.8	1674.7	1673.2	1683.4	1674.7
175°	1689.0	1685.0	1681.9	1692.1	1683.4
177.5°	1694.6	1690.6	1687.5	1696.1	1687.5
180°	1692.1	1692.1	1692.1	1692.1	1692.1



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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	14.27	15.33	15.04	16.13	17.10	13.82	14.89	14.60	15.69	16.65
	3H	15.94	16.90	16.73	17.70	18.70	15.45	16.41	16.24	17.21	18.21
	4H	16.53	17.44	17.34	18.25	19.26	16.04	16.94	16.84	17.76	18.77
	6H	16.94	17.77	17.76	18.60	19.62	16.44	17.27	17.26	18.10	19.12
	8H	17.05	17.84	17.88	18.68	19.71	16.55	17.34	17.37	18.18	19.21
	12H	17.10	17.86	17.93	18.69	19.75	16.59	17.35	17.43	18.19	19.24
4H	2H	14.75	15.65	15.56	16.47	17.48	14.40	15.30	15.20	16.11	17.12
	3H	16.63	17.38	17.45	18.23	19.26	16.22	16.98	17.04	17.82	18.85
	4H	17.35	18.03	18.18	18.88	19.93	16.92	17.61	17.76	18.46	19.51
	6H	17.87	18.46	18.72	19.33	20.39	17.44	18.03	18.29	18.90	19.96
	8H	18.02	18.58	18.88	19.44	20.51	17.58	18.14	18.44	19.01	20.08
	12H	18.10	18.60	18.98	19.49	20.57	17.65	18.15	18.53	19.04	20.12
8H	4H	17.56	18.11	18.41	18.98	20.05	17.18	17.73	18.03	18.60	19.67
	6H	18.19	18.65	19.07	19.56	20.63	17.81	18.27	18.69	19.17	20.24
	8H	18.41	18.82	19.30	19.72	20.81	18.02	18.43	18.91	19.33	20.41
	12H	18.55	18.91	19.44	19.80	20.94	18.14	18.50	19.03	19.39	20.53
12H	4H	17.55	18.05	18.42	18.94	20.01	17.18	17.68	18.06	18.57	19.64
	6H	18.22	18.63	19.11	19.53	20.62	17.85	18.26	18.74	19.16	20.25
	8H	18.47	18.83	19.36	19.72	20.86	18.09	18.45	18.98	19.34	20.48