

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: P922660

Luminaire Tested: DFN2DIP-SQ2F0-070D030US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922660
REPORT IS A COMBINATION OF REPORTS P899779 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-070D030US940-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

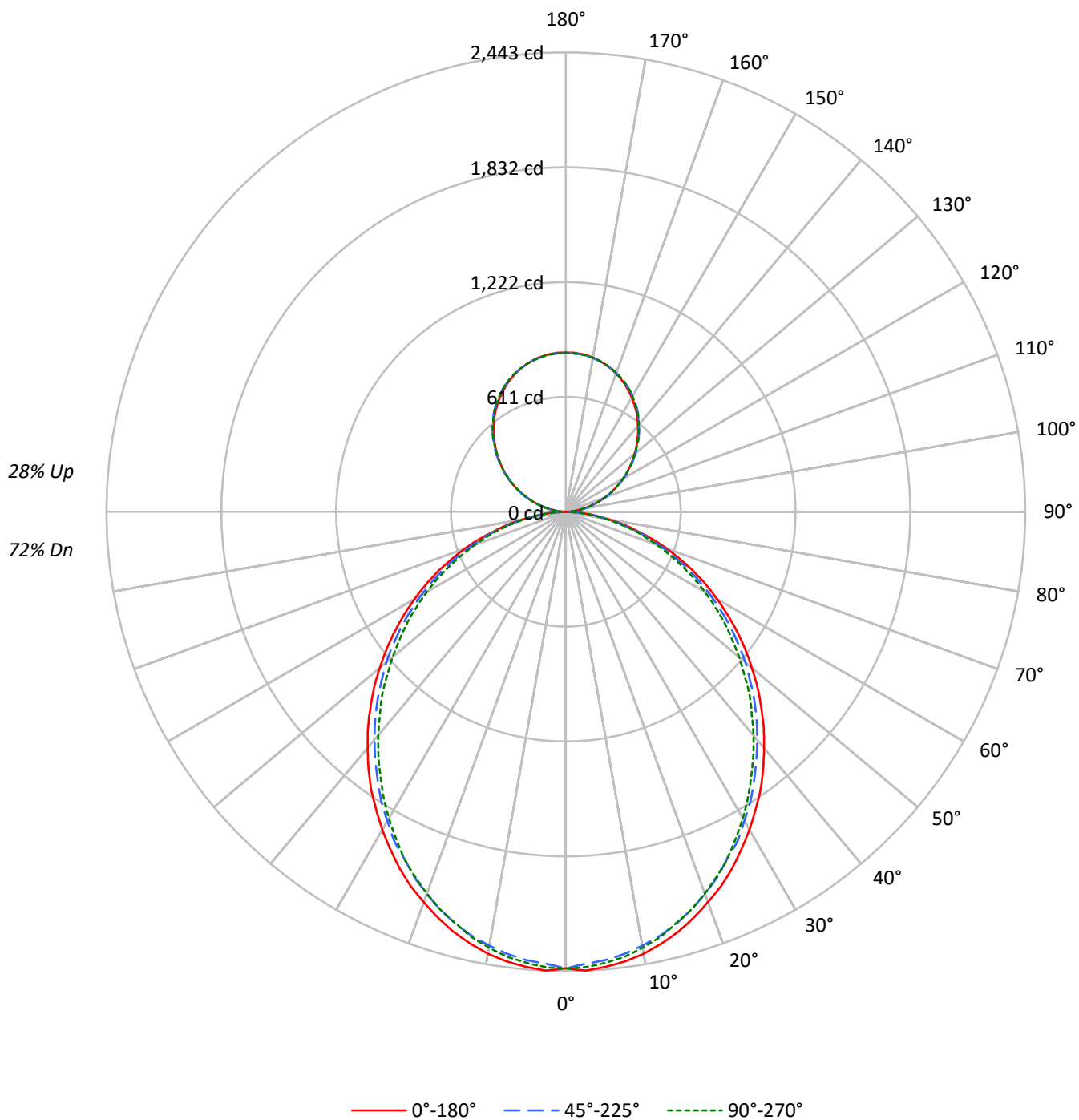
Lumens per Lamp: N/A
Luminaire Lumens: 8547.1 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 90.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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
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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	77	77	77
1	103	98	94	91	97	93	90	87	84	81	79	76	74	72	68	66	65
2	94	86	80	74	89	82	76	71	74	69	65	66	63	60	60	57	55
3	85	76	68	62	81	72	65	60	65	60	55	59	54	51	53	49	46
4	78	67	59	52	74	64	56	51	58	52	47	52	48	44	47	43	40
5	72	60	51	45	68	57	49	44	52	46	41	47	42	38	43	38	35
6	66	54	45	39	63	51	44	38	47	40	36	43	37	33	39	34	31
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	35	31	27
8	57	44	36	31	54	43	35	30	39	33	28	36	30	26	33	28	25
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	22	28	24	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5341	5341	5341
5°	5340	5255	5294
10°	5287	5172	5215
15°	5200	5075	5096
20°	5086	4946	4974
25°	4972	4793	4834
30°	4832	4650	4658
35°	4698	4482	4473
40°	4534	4313	4295
45°	4371	4143	4114
50°	4192	3964	3904
55°	4004	3758	3709
60°	3791	3514	3487
65°	3557	3260	3224
70°	3259	2950	2939
75°	2852	2578	2666
80°	2355	2105	2165
85°	1592	1330	1361

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4371 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	2.7
10°-20°	643.2	7.5
20°-30°	945.2	11.1
30°-40°	1097.8	12.8
40°-50°	1096.5	12.8
50°-60°	956.1	11.2
60°-70°	706.8	8.3
70°-80°	399.9	4.7
80°-90°	108.0	1.3
90°-100°	52.3	0.6
100°-110°	166.3	1.9
110°-120°	284.7	3.3
120°-130°	374.4	4.4
130°-140°	420.2	4.9
140°-150°	412.1	4.8
150°-160°	345.7	4.0
160°-170°	229.2	2.7
170°-180°	80.1	0.9
0°-30°	1817.0	21.3
0°-40°	2914.9	34.1
0°-60°	4967.4	58.1
0°-90°	6182.0	72.3
90°-120°	503.4	5.9
90°-150°	1710.0	20.0
90°-180°	2365.0	27.7
0°-180°	8547.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	1	9	25	24	24	8
95°	37	44	46	46	44	41
105°	154	156	157	158	158	162
115°	286	290	288	288	286	283
125°	416	422	420	418	417	371
135°	537	545	547	546	544	415
145°	652	658	662	662	660	408
155°	746	748	750	754	752	343
165°	812	811	811	816	812	229
175°	844	842	841	846	842	80
180°	846	846	846	846	846	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	0.8	9.2	25.0	23.5	24.3
92.5°	15.8	21.4	22.2	22.9	22.9
95°	37.3	44.4	45.7	45.7	44.4
97.5°	62.0	68.6	71.4	71.4	71.4
100°	90.5	96.4	98.4	98.4	97.7
102.5°	120.6	125.0	127.8	128.6	127.8
105°	153.6	155.6	157.1	158.4	158.4
107.5°	186.2	189.2	189.2	189.8	186.2
110°	217.8	221.9	221.9	221.9	219.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	252.0	256.4	255.6	253.5	252.0
115°	285.7	289.7	288.5	287.8	285.7
117.5°	319.1	324.7	321.1	319.1	317.0
120°	352.8	358.4	352.8	352.8	350.4
122.5°	383.3	390.5	386.9	384.9	383.3
125°	415.5	421.9	419.8	417.5	416.8
127.5°	446.8	454.8	452.0	448.9	446.8
130°	476.2	485.4	484.1	482.6	479.7
132.5°	509.1	516.2	516.7	513.2	511.1
135°	537.4	545.3	546.9	546.1	544.0
137.5°	569.0	575.4	576.7	576.2	573.1
140°	596.8	603.2	606.8	606.8	604.0
142.5°	625.4	631.8	633.8	634.6	631.8
145°	652.5	657.5	661.6	662.4	659.6
147.5°	676.7	683.1	686.1	687.4	684.6
150°	701.7	706.1	708.8	711.1	708.8
152.5°	723.9	728.2	731.7	734.6	731.7
155°	746.1	748.1	750.4	753.9	751.7
157.5°	765.2	766.7	768.0	773.1	769.5
160°	782.3	783.8	784.6	788.9	785.9
162.5°	798.1	798.1	798.9	803.7	800.1
165°	811.6	810.8	810.8	815.9	812.3
167.5°	823.9	821.5	821.5	826.6	823.0
170°	833.0	831.0	830.3	835.4	831.0
172.5°	839.4	837.4	836.6	841.7	837.4
175°	844.5	842.5	841.0	846.1	841.7
177.5°	847.3	845.3	843.7	848.1	843.7
180°	846.1	846.1	846.1	846.1	846.1

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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	14.82	15.93	15.56	16.69	17.60	14.38	15.48	15.12	16.24	17.16
	3H	16.48	17.48	17.23	18.25	19.19	15.99	16.99	16.74	17.76	18.70
	4H	17.07	18.01	17.84	18.78	19.74	16.57	17.51	17.34	18.29	19.25
	6H	17.47	18.33	18.25	19.12	20.09	16.97	17.83	17.75	18.62	19.59
	8H	17.57	18.39	18.36	19.20	20.17	17.07	17.89	17.86	18.70	19.67
	12H	17.62	18.41	18.42	19.21	20.20	17.11	17.90	17.91	18.70	19.70
4H	2H	15.30	16.24	16.08	17.02	17.97	14.95	15.88	15.72	16.66	17.62
	3H	17.17	17.95	17.95	18.76	19.74	16.76	17.54	17.54	18.36	19.33
	4H	17.88	18.59	18.68	19.40	20.40	17.45	18.16	18.25	18.98	19.98
	6H	18.39	19.00	19.20	19.84	20.85	17.95	18.57	18.77	19.41	20.41
	8H	18.53	19.11	19.35	19.94	20.96	18.09	18.67	18.92	19.51	20.52
	12H	18.61	19.13	19.45	19.98	21.01	18.16	18.68	19.00	19.53	20.56
8H	4H	18.08	18.66	18.90	19.49	20.51	17.70	18.28	18.52	19.11	20.13
	6H	18.70	19.18	19.55	20.05	21.07	18.31	18.79	19.16	19.67	20.69
	8H	18.91	19.33	19.77	20.20	21.24	18.51	18.94	19.38	19.81	20.85
	12H	19.04	19.41	19.90	20.27	21.37	18.63	19.00	19.49	19.86	20.95
12H	4H	18.07	18.59	18.92	19.45	20.47	17.70	18.22	18.55	19.08	20.10
	6H	18.72	19.15	19.59	20.02	21.06	18.35	18.78	19.21	19.65	20.68
	8H	18.96	19.34	19.83	20.20	21.29	18.58	18.96	19.45	19.82	20.91