

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: P920518

Luminaire Tested: DFN2DIP-SQ4F0-110D160US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920518
REPORT IS A COMBINATION OF REPORTS P900214 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D160US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

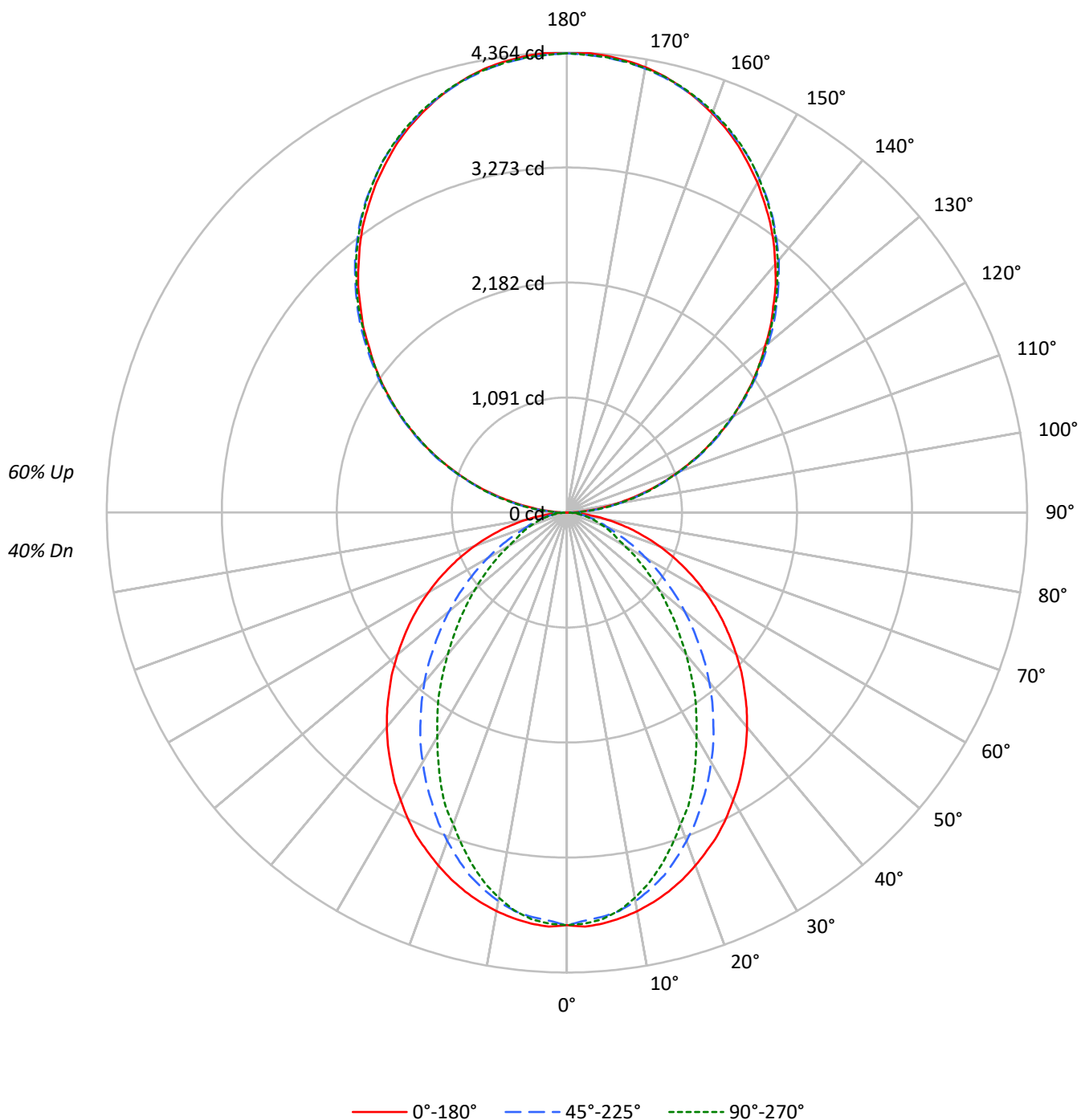
Lumens per Lamp: N/A
Luminaire Lumens: 20242.9 lumens
Efficiency: N/A
Efficacy: 89.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 227.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	92	88	85	87	84	81	78	69	66	64	55	53	52	42	41	40
2	88	81	75	70	80	74	69	64	61	57	54	48	46	44	37	36	34
3	80	71	64	59	73	65	59	54	54	49	46	43	40	38	33	31	30
4	73	63	56	50	67	58	51	46	48	43	39	39	35	33	30	28	26
5	68	56	49	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	22	20
7	58	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	24	26	23	20	21	18	16
9	50	38	31	26	45	35	29	24	30	25	21	24	21	18	19	17	15
10	47	35	28	23	42	32	26	22	27	22	19	23	19	16	18	15	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2747	2747	2747
5°	2751	2704	2721
10°	2724	2651	2633
15°	2686	2564	2497
20°	2637	2444	2330
25°	2586	2309	2168
30°	2517	2170	1963
35°	2451	2022	1783
40°	2383	1868	1576
45°	2304	1696	1388
50°	2222	1524	1205
55°	2136	1339	1029
60°	2038	1146	848
65°	1924	950	764
70°	1786	767	692
75°	1613	677	632
80°	1362	570	551
85°	949	383	419

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3430 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	1.8
10°-20°	1007.1	5.0
20°-30°	1413.9	7.0
30°-40°	1541.3	7.6
40°-50°	1416.6	7.0
50°-60°	1112.5	5.5
60°-70°	724.2	3.6
70°-80°	372.8	1.8
80°-90°	107.5	0.5
90°-100°	269.6	1.3
100°-110°	856.6	4.2
110°-120°	1466.0	7.2
120°-130°	1928.1	9.5
130°-140°	2164.2	10.7
140°-150°	2122.2	10.5
150°-160°	1780.2	8.8
160°-170°	1180.6	5.8
170°-180°	412.7	2.0
0°-30°	2787.9	13.8
0°-40°	4329.1	21.4
0°-60°	6858.3	33.9
0°-90°	8062.7	39.8
90°-120°	2592.3	12.8
90°-150°	8806.7	43.5
90°-180°	12180.0	60.2
0°-180°	20242.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	4	47	129	121	125	20
95°	192	229	235	235	229	213
105°	791	801	809	816	816	834
115°	1471	1492	1486	1482	1471	1455
125°	2140	2173	2162	2150	2146	1912
135°	2768	2808	2816	2812	2802	2139
145°	3360	3386	3407	3411	3397	2099
155°	3842	3853	3864	3883	3871	1768
165°	4180	4176	4176	4202	4184	1179
175°	4349	4339	4331	4357	4335	413
180°	4357	4357	4357	4357	4357	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.5	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.0	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.0	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.2	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.6	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.8	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.8	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
90°	4.0	47.3	128.7	120.9	124.8
92.5°	81.5	110.4	114.3	118.2	118.2
95°	191.7	228.6	235.1	235.1	228.6
97.5°	319.2	353.4	367.8	367.8	367.8
100°	466.3	496.5	507.0	507.0	503.1
102.5°	621.3	643.7	658.1	662.0	658.1
105°	790.7	801.2	809.2	815.7	815.7
107.5°	958.9	974.6	974.6	977.3	958.9
110°	1121.8	1142.8	1142.8	1142.8	1132.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1297.8	1320.2	1316.2	1305.7	1297.8
115°	1471.2	1492.2	1485.7	1481.7	1471.2
117.5°	1643.3	1672.1	1653.8	1643.3	1632.8
120°	1816.7	1845.5	1816.7	1816.7	1804.8
122.5°	1974.3	2011.1	1992.7	1982.2	1974.3
125°	2139.8	2172.6	2162.1	2150.3	2146.4
127.5°	2301.4	2342.1	2327.6	2311.9	2301.4
130°	2452.5	2499.7	2493.2	2485.3	2470.8
132.5°	2621.9	2658.7	2661.3	2642.9	2632.4
135°	2767.7	2808.4	2816.3	2812.4	2801.9
137.5°	2930.6	2963.4	2970.0	2967.3	2951.6
140°	3073.8	3106.6	3125.0	3125.0	3110.5
142.5°	3220.9	3253.7	3264.2	3268.2	3253.7
145°	3360.1	3386.4	3407.4	3411.4	3396.9
147.5°	3484.9	3517.8	3533.5	3540.1	3525.6
150°	3613.6	3636.0	3650.5	3662.3	3650.5
152.5°	3727.9	3750.2	3768.7	3783.1	3768.7
155°	3842.2	3852.7	3864.5	3882.9	3871.1
157.5°	3940.7	3948.6	3955.2	3981.4	3963.1
160°	4028.7	4036.6	4040.6	4062.9	4047.1
162.5°	4110.1	4110.1	4114.1	4139.1	4120.6
165°	4179.8	4175.8	4175.8	4202.1	4183.8
167.5°	4242.8	4231.0	4231.0	4257.3	4238.9
170°	4290.1	4279.6	4275.7	4302.0	4279.6
172.5°	4323.0	4312.5	4308.5	4334.8	4312.5
175°	4349.2	4338.7	4330.8	4357.2	4334.8
177.5°	4363.7	4353.2	4345.3	4367.7	4345.3
180°	4357.2	4357.2	4357.2	4357.2	4357.2

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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	9.64	10.39	10.68	11.44	12.85	5.60	6.35	6.64	7.40	8.81
	3H	11.31	11.99	12.37	13.04	14.47	6.78	7.46	7.84	8.51	9.94
	4H	11.92	12.56	12.99	13.62	15.06	7.23	7.87	8.30	8.93	10.36
	6H	12.34	12.93	13.42	13.99	15.44	7.55	8.13	8.62	9.20	10.65
	8H	12.47	13.03	13.55	14.11	15.55	7.64	8.19	8.72	9.27	10.72
	12H	12.53	13.06	13.62	14.13	15.60	7.68	8.21	8.76	9.28	10.75
4H	2H	9.65	10.29	10.72	11.34	12.78	6.19	6.83	7.26	7.88	9.32
	3H	11.47	12.00	12.55	13.09	14.54	7.53	8.06	8.61	9.15	10.60
	4H	12.17	12.65	13.25	13.73	15.20	8.08	8.56	9.16	9.64	11.11
	6H	12.68	13.10	13.78	14.20	15.66	8.49	8.91	9.59	10.01	11.47
	8H	12.86	13.25	13.95	14.34	15.82	8.62	9.01	9.72	10.10	11.58
	12H	12.95	13.30	14.06	14.41	15.89	8.68	9.03	9.79	10.14	11.63
8H	4H	12.13	12.52	13.22	13.61	15.09	8.35	8.74	9.45	9.83	11.32
	6H	12.70	13.02	13.81	14.15	15.63	8.87	9.19	9.99	10.33	11.80
	8H	12.92	13.20	14.04	14.31	15.81	9.06	9.34	10.19	10.46	11.96
	12H	13.05	13.30	14.18	14.41	15.95	9.18	9.43	10.31	10.54	12.07
12H	4H	12.08	12.43	13.19	13.53	15.02	8.36	8.71	9.47	9.81	11.30
	6H	12.67	12.95	13.79	14.07	15.57	8.92	9.20	10.04	10.32	11.82
	8H	12.89	13.14	14.02	14.25	15.79	9.13	9.38	10.26	10.49	12.02

END OF REPORT