

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: P923098

Luminaire Tested: DFN2DIP-SQ4F0-070D140US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923098
REPORT IS A COMBINATION OF REPORTS P900188 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

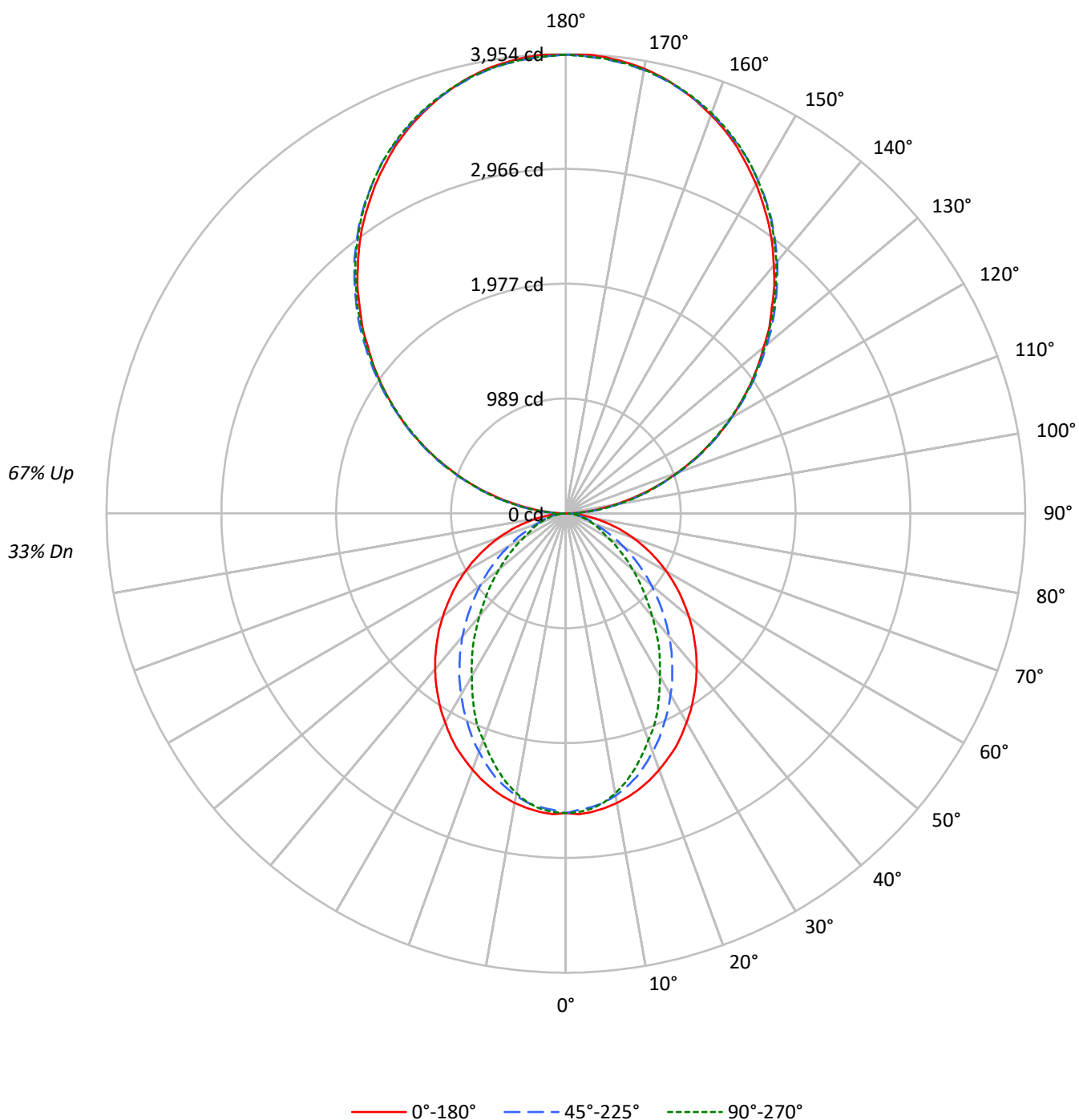
Lumens per Lamp: N/A
Luminaire Lumens: 16353.9 lumens
Efficiency: N/A
Efficacy: 97.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1810	1810	1810
5°	1813	1782	1793
10°	1795	1747	1736
15°	1770	1690	1646
20°	1738	1611	1536
25°	1704	1522	1429
30°	1659	1430	1294
35°	1615	1332	1175
40°	1570	1231	1038
45°	1518	1118	915
50°	1464	1004	794
55°	1408	883	678
60°	1343	755	559
65°	1268	626	503
70°	1177	505	456
75°	1063	446	416
80°	898	376	363
85°	625	252	276

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3108 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.8	1.5
10°-20°	663.7	4.1
20°-30°	931.9	5.7
30°-40°	1015.8	6.2
40°-50°	933.6	5.7
50°-60°	733.2	4.5
60°-70°	477.3	2.9
70°-80°	245.7	1.5
80°-90°	73.9	0.5
90°-100°	244.3	1.5
100°-110°	776.3	4.7
110°-120°	1328.4	8.1
120°-130°	1747.1	10.7
130°-140°	1961.0	12.0
140°-150°	1923.0	11.8
150°-160°	1613.2	9.9
160°-170°	1069.8	6.5
170°-180°	373.9	2.3
0°-30°	1837.4	11.2
0°-40°	2853.2	17.4
0°-60°	4520.0	27.6
0°-90°	5316.9	32.5
90°-120°	2349.0	14.4
90°-150°	7980.2	48.8
90°-180°	11037.0	67.5
0°-180°	16353.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	4	43	117	110	113	16
95°	174	207	213	213	207	193
105°	717	726	733	739	739	756
115°	1333	1352	1346	1343	1333	1319
125°	1939	1969	1959	1948	1945	1733
135°	2508	2545	2552	2548	2539	1938
145°	3045	3069	3088	3091	3078	1902
155°	3482	3491	3502	3518	3508	1603
165°	3788	3784	3784	3808	3791	1068
175°	3941	3932	3924	3948	3928	374
180°	3948	3948	3948	3948	3948	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	3.6	42.9	116.6	109.5	113.1
92.5°	73.8	100.0	103.5	107.1	107.1
95°	173.8	207.1	213.0	213.0	207.1
97.5°	289.3	320.2	333.3	333.3	333.3
100°	422.6	450.0	459.4	459.4	455.8
102.5°	563.0	583.3	596.4	599.9	596.4
105°	716.6	726.1	733.3	739.1	739.1
107.5°	868.9	883.2	883.2	885.6	868.9
110°	1016.5	1035.5	1035.5	1035.5	1026.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.0	1196.2	1192.7	1183.1	1176.0
115°	1333.1	1352.2	1346.2	1342.6	1333.1
117.5°	1489.1	1515.3	1498.6	1489.1	1479.5
120°	1646.2	1672.4	1646.2	1646.2	1635.5
122.5°	1789.0	1822.3	1805.7	1796.2	1789.0
125°	1939.0	1968.7	1959.2	1948.5	1944.9
127.5°	2085.4	2122.3	2109.2	2094.9	2085.4
130°	2222.2	2265.1	2259.1	2252.0	2238.9
132.5°	2375.8	2409.1	2411.5	2394.9	2385.3
135°	2507.9	2544.9	2552.0	2548.4	2538.9
137.5°	2655.5	2685.3	2691.3	2688.9	2674.6
140°	2785.3	2815.0	2831.7	2831.7	2818.6
142.5°	2918.6	2948.4	2957.9	2961.5	2948.4
145°	3044.7	3068.6	3087.6	3091.2	3078.1
147.5°	3157.8	3187.6	3201.9	3207.8	3194.7
150°	3274.4	3294.7	3307.8	3318.5	3307.8
152.5°	3378.1	3398.3	3415.0	3428.0	3415.0
155°	3481.6	3491.1	3501.8	3518.5	3507.8
157.5°	3570.9	3578.0	3584.0	3607.8	3591.1
160°	3650.7	3657.8	3661.4	3681.6	3667.2
162.5°	3724.4	3724.4	3728.0	3750.6	3733.9
165°	3787.5	3784.0	3784.0	3807.8	3791.1
167.5°	3844.6	3833.9	3833.9	3857.7	3841.0
170°	3887.5	3878.0	3874.4	3898.2	3878.0
172.5°	3917.3	3907.7	3904.2	3928.0	3907.7
175°	3941.1	3931.6	3924.4	3948.2	3928.0
177.5°	3954.1	3944.7	3937.5	3957.7	3937.5
180°	3948.2	3948.2	3948.2	3948.2	3948.2

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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	7.32	8.03	8.42	9.12	10.62	3.28	3.99	4.38	5.08	6.58
	3H	8.99	9.62	10.10	10.72	12.24	4.46	5.09	5.57	6.19	7.71
	4H	9.60	10.20	10.72	11.30	12.82	4.90	5.50	6.02	6.61	8.13
	6H	10.02	10.57	11.14	11.67	13.21	5.22	5.77	6.35	6.88	8.41
	8H	10.14	10.66	11.27	11.79	13.32	5.31	5.83	6.44	6.95	8.48
	12H	10.20	10.70	11.34	11.81	13.37	5.35	5.84	6.48	6.96	8.51
4H	2H	7.32	7.92	8.45	9.02	10.55	3.86	4.46	4.99	5.56	7.09
	3H	9.14	9.64	10.28	10.77	12.31	5.20	5.70	6.33	6.83	8.37
	4H	9.84	10.29	10.97	11.41	12.97	5.75	6.20	6.88	7.32	8.88
	6H	10.35	10.74	11.49	11.88	13.43	6.16	6.55	7.30	7.69	9.24
	8H	10.52	10.89	11.66	12.02	13.59	6.29	6.65	7.43	7.78	9.35
	12H	10.62	10.95	11.77	12.09	13.66	6.35	6.68	7.50	7.82	9.39
8H	4H	9.79	10.16	10.93	11.29	12.86	6.02	6.38	7.16	7.52	9.08
	6H	10.36	10.66	11.52	11.84	13.40	6.53	6.84	7.70	8.01	9.57
	8H	10.58	10.84	11.75	12.00	13.58	6.73	6.99	7.89	8.14	9.73
	12H	10.72	10.95	11.89	12.10	13.72	6.84	7.07	8.01	8.22	9.84
12H	4H	9.74	10.07	10.90	11.22	12.79	6.02	6.35	7.18	7.50	9.07
	6H	10.34	10.60	11.50	11.75	13.34	6.58	6.85	7.75	8.00	9.59
	8H	10.55	10.78	11.72	11.94	13.55	6.79	7.02	7.96	8.17	9.79

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

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