

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: P923278

Luminaire Tested: DFN2DIP-SQ4F0-120D140US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923278
REPORT IS A COMBINATION OF REPORTS P900198 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D140US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

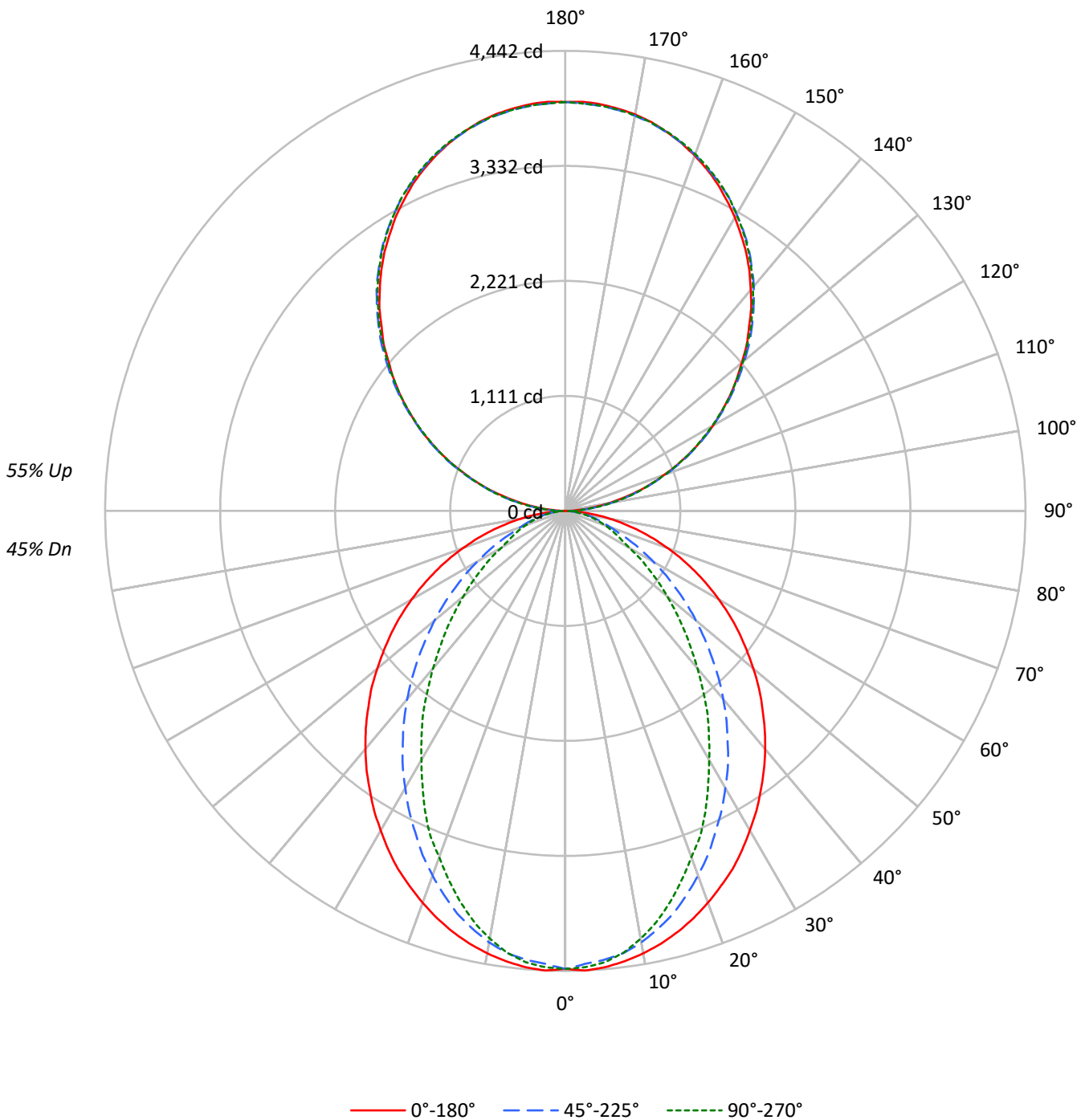
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20143.7 lumens
Efficiency: N/A
Efficacy: 90.2 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: General Diffuse

Input Watts (W): 223.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923278
CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US940-RLFL

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			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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45	45	45	45
1	97	93	89	86	89	85	82	79	71	69	67	58	57	55	46	45	44	39	39	39	39
2	89	82	76	71	81	75	70	66	63	59	56	52	49	47	41	40	38	33	33	33	33
3	81	72	65	60	74	67	60	56	56	51	48	46	43	40	37	35	33	29	29	29	29
4	75	64	57	51	68	59	53	47	50	45	41	41	38	35	33	31	29	25	25	25	25
5	69	57	50	44	63	53	46	41	45	40	36	37	33	30	30	28	25	22	22	22	22
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20	20	20	20
7	59	47	39	34	54	43	36	32	37	32	28	31	27	24	25	22	20	18	18	18	18
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	22	26	22	19	22	19	17	14	14	14	14
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3103	3103	3103
5°	3108	3055	3074
10°	3077	2995	2975
15°	3035	2897	2821
20°	2979	2761	2632
25°	2921	2608	2450
30°	2844	2452	2218
35°	2769	2284	2014
40°	2692	2110	1780
45°	2602	1917	1568
50°	2510	1722	1361
55°	2414	1513	1162
60°	2302	1295	958
65°	2174	1073	863
70°	2018	866	782
75°	1823	765	714
80°	1539	644	622
85°	1072	433	474

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3108 cd/sqm



TEST NUMBER: P923278

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US940-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.5	2.1
10°-20°	1137.8	5.6
20°-30°	1597.5	7.9
30°-40°	1741.4	8.6
40°-50°	1600.5	7.9
50°-60°	1256.9	6.2
60°-70°	818.2	4.1
70°-80°	421.2	2.1
80°-90°	118.7	0.6
90°-100°	244.3	1.2
100°-110°	776.3	3.9
110°-120°	1328.4	6.6
120°-130°	1747.1	8.7
130°-140°	1961.0	9.7
140°-150°	1923.0	9.5
150°-160°	1613.2	8.0
160°-170°	1069.8	5.3
170°-180°	373.9	1.9
0°-30°	3149.8	15.6
0°-40°	4891.2	24.3
0°-60°	7748.6	38.5
0°-90°	9106.7	45.2
90°-120°	2349.0	11.7
90°-150°	7980.2	39.6
90°-180°	11037.0	54.8
0°-180°	20143.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4422	4422	4422	4422	4422	
5°	4422	4403	4350	4386	4375	419
15°	4206	4162	4026	3950	3910	1185
25°	3818	3690	3426	3262	3202	1756
35°	3290	3086	2734	2482	2393	2059
45°	2690	2421	2001	1717	1621	2077
55°	2045	1733	1301	1061	985	1827
65°	1381	1056	696	560	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	197
90°	4	43	117	110	113	20
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	



TEST NUMBER: P923278

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US940-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4422.5	4422.5	4422.5	4422.5	4422.5
2.5°	4442.5	4422.5	4378.4	4418.7	4410.6
5°	4422.5	4402.6	4350.3	4386.4	4374.6
7.5°	4386.4	4362.6	4306.6	4322.3	4302.3
10°	4338.4	4310.4	4230.5	4218.2	4194.5
12.5°	4278.5	4242.5	4134.1	4110.4	4066.3
15°	4206.4	4162.2	4026.3	3950.3	3910.4
17.5°	4122.3	4058.2	3890.0	3802.2	3738.0
20°	4026.3	3946.1	3746.1	3646.3	3557.9
22.5°	3922.3	3830.2	3597.9	3462.0	3402.1
25°	3818.3	3690.0	3425.9	3262.0	3201.7
27.5°	3694.3	3557.9	3265.8	3077.7	2985.5
30°	3562.2	3409.8	3089.6	2885.8	2777.5
32.5°	3434.0	3249.7	2921.9	2681.6	2581.3
35°	3290.1	3085.8	2733.7	2481.5	2393.2
37.5°	3149.9	2929.5	2557.5	2281.1	2181.3
40°	3001.7	2761.8	2373.3	2089.2	1985.1
42.5°	2849.6	2593.6	2189.4	1893.0	1793.2
45°	2689.6	2421.3	2001.3	1716.8	1620.8
47.5°	2537.5	2253.5	1821.2	1536.8	1448.9
50°	2369.5	2085.4	1645.0	1368.6	1285.0
52.5°	2205.1	1904.9	1476.9	1212.7	1136.8
55°	2045.0	1732.9	1300.6	1060.7	984.7
57.5°	1881.1	1560.9	1144.8	920.6	856.5
60°	1713.0	1392.8	980.4	776.7	712.6
62.5°	1549.1	1228.9	840.3	648.5	616.5
65°	1380.9	1056.5	696.4	560.5	548.2
67.5°	1220.8	896.3	560.5	492.1	480.3
70°	1052.7	740.6	464.1	424.2	408.0
72.5°	892.6	596.2	388.1	356.2	348.2
75°	736.3	456.0	320.2	292.1	288.3
77.5°	580.5	324.0	252.3	236.1	228.0
80°	436.1	232.3	191.9	176.2	176.2
82.5°	304.1	156.2	132.1	123.9	123.9
85°	172.0	87.9	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
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



TEST NUMBER: P923278

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US940-RLFL

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	10.63	11.42	11.63	12.43	13.77	6.59	7.38	7.59	8.39	9.73
	3H	12.31	13.02	13.32	14.03	15.40	7.77	8.48	8.79	9.50	10.86
	4H	12.92	13.59	13.94	14.61	15.98	8.22	8.89	9.25	9.92	11.28
	6H	13.34	13.96	14.38	14.98	16.36	8.54	9.16	9.58	10.19	11.57
	8H	13.47	14.05	14.51	15.10	16.47	8.63	9.22	9.67	10.26	11.64
	12H	13.53	14.09	14.58	15.12	16.52	8.68	9.23	9.72	10.27	11.67
4H	2H	10.64	11.31	11.67	12.33	13.70	7.18	7.85	8.21	8.87	10.24
	3H	12.47	13.03	13.51	14.08	15.46	8.53	9.09	9.57	10.14	11.52
	4H	13.17	13.68	14.21	14.72	16.12	9.08	9.59	10.12	10.63	12.03
	6H	13.68	14.12	14.74	15.19	16.59	9.49	9.93	10.55	11.00	12.40
	8H	13.86	14.27	14.92	15.33	16.74	9.62	10.03	10.68	11.09	12.50
	12H	13.96	14.32	15.03	15.40	16.82	9.69	10.06	10.76	11.13	12.55
8H	4H	13.13	13.54	14.19	14.60	16.01	9.36	9.76	10.41	10.82	12.24
	6H	13.70	14.04	14.78	15.14	16.55	9.87	10.21	10.96	11.31	12.72
	8H	13.92	14.22	15.01	15.30	16.73	10.07	10.36	11.15	11.45	12.88
	12H	14.06	14.32	15.15	15.40	16.87	10.18	10.44	11.28	11.52	13.00
12H	4H	13.08	13.45	14.16	14.52	15.94	9.36	9.73	10.44	10.80	12.22
	6H	13.68	13.97	14.76	15.06	16.49	9.92	10.22	11.01	11.30	12.74
	8H	13.90	14.16	14.99	15.24	16.71	10.13	10.39	11.23	11.47	12.95