

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: P922442

Luminaire Tested: DFN2DIP-PN4F0-090D090US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922442
REPORT IS A COMBINATION OF REPORTS P899710 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D090US940-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

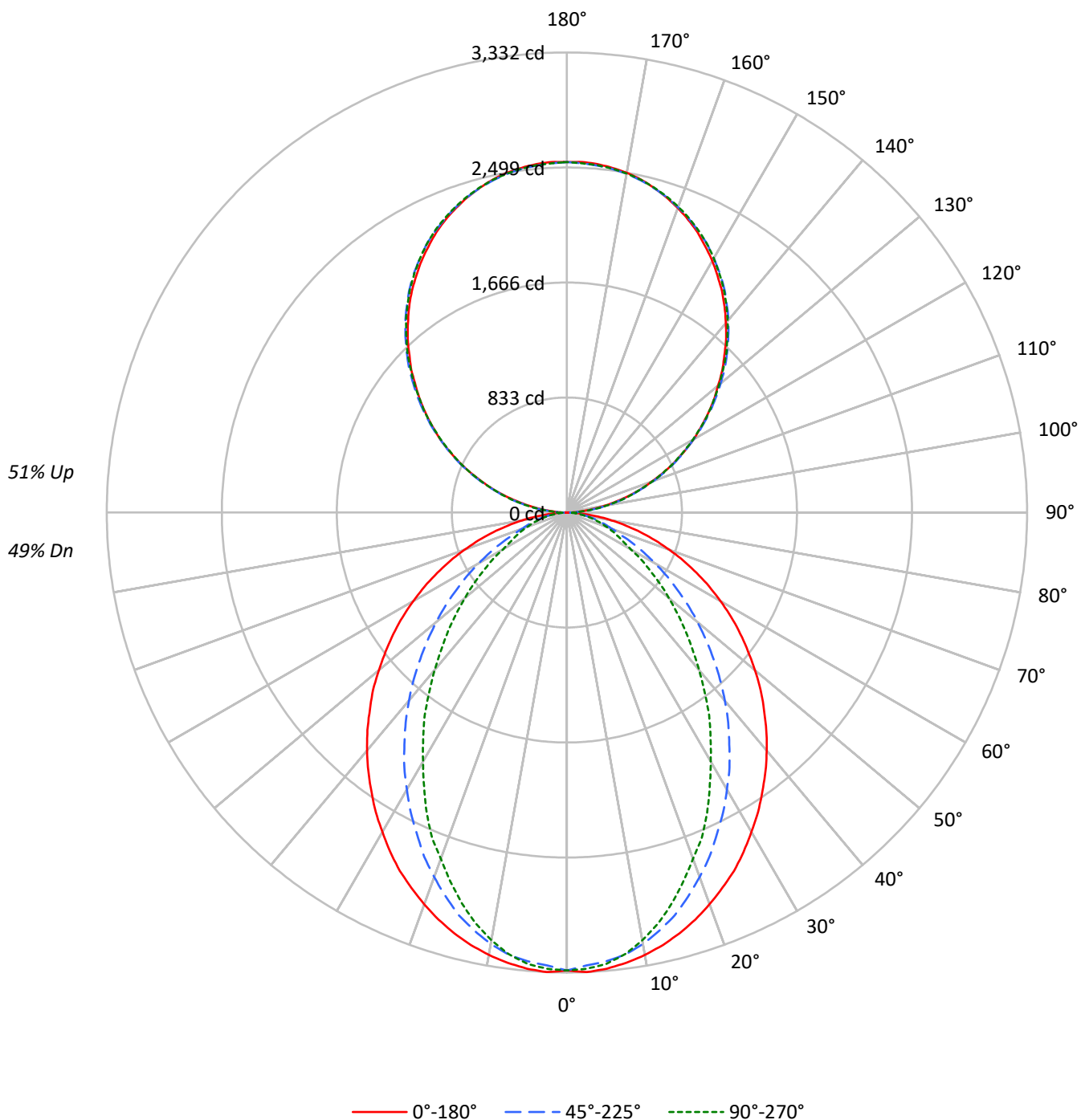
Lumens per Lamp: N/A
Luminaire Lumens: 13924.1 lumens
Efficiency: N/A
Efficacy: 89.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 155
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P922442

CATALOG NUMBER: DFN2DIP-PN4F0-090D090US940-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P922442

CATALOG NUMBER: DFN2DIP-PN4F0-090D090US940-RLLFLL

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2421	2421	2421
5°	2425	2383	2398
10°	2401	2337	2321
15°	2368	2260	2201
20°	2324	2154	2053
25°	2279	2035	1910
30°	2219	1912	1729
35°	2160	1781	1570
40°	2100	1645	1388
45°	2031	1494	1222
50°	1959	1342	1061
55°	1884	1179	905
60°	1797	1009	746
65°	1696	836	672
70°	1575	675	608
75°	1423	595	554
80°	1202	500	483
85°	837	336	366

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2031 cd/sqm

TEST NUMBER: P922442

CATALOG NUMBER: DFN2DIP-PN4F0-090D090US940-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.9	2.2
10°-20°	853.4	6.1
20°-30°	1198.1	8.6
30°-40°	1306.0	9.4
40°-50°	1200.4	8.6
50°-60°	942.7	6.8
60°-70°	613.6	4.4
70°-80°	315.9	2.3
80°-90°	87.9	0.6
90°-100°	157.1	1.1
100°-110°	499.0	3.6
110°-120°	854.0	6.1
120°-130°	1123.1	8.1
130°-140°	1260.7	9.1
140°-150°	1236.2	8.9
150°-160°	1037.0	7.4
160°-170°	687.7	4.9
170°-180°	240.4	1.7
0°-30°	2362.4	17.0
0°-40°	3668.4	26.3
0°-60°	5811.5	41.7
0°-90°	6828.8	49.0
90°-120°	1510.1	10.8
90°-150°	5130.1	36.8
90°-180°	7095.0	51.0
0°-180°	13924.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3317	3317	3317	3317	3317	
5°	3317	3302	3263	3290	3281	315
15°	3155	3122	3020	2963	2933	889
25°	2864	2768	2570	2446	2401	1317
35°	2468	2314	2050	1861	1795	1544
45°	2017	1816	1501	1288	1216	1558
55°	1534	1300	975	796	738	1371
65°	1036	792	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	2	28	75	70	73	14
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	

TEST NUMBER: P922442

CATALOG NUMBER: DFN2DIP-PN4F0-090D090US940-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3316.9	3316.9	3316.9	3316.9	3316.9
2.5°	3331.9	3316.9	3283.7	3314.0	3308.0
5°	3316.9	3301.9	3262.8	3289.8	3280.9
7.5°	3289.8	3272.0	3230.0	3241.7	3226.7
10°	3253.9	3232.8	3173.0	3163.7	3145.9
12.5°	3208.9	3181.9	3100.7	3082.8	3049.6
15°	3154.8	3121.7	3019.8	2962.7	2932.8
17.5°	3091.7	3043.7	2917.5	2851.6	2803.5
20°	3019.8	2959.6	2809.5	2734.7	2668.4
22.5°	2941.8	2872.6	2698.4	2596.5	2551.6
25°	2863.7	2767.5	2569.5	2446.5	2401.3
27.5°	2770.7	2668.4	2449.4	2308.3	2239.2
30°	2671.7	2557.3	2317.2	2164.4	2083.1
32.5°	2575.4	2437.2	2191.4	2011.2	1936.0
35°	2467.5	2314.3	2050.3	1861.2	1794.9
37.5°	2362.4	2197.2	1918.2	1710.8	1636.0
40°	2251.3	2071.4	1779.9	1566.9	1488.9
42.5°	2137.3	1945.3	1642.0	1419.8	1344.9
45°	2017.2	1816.0	1500.9	1287.5	1215.6
47.5°	1903.2	1690.1	1365.9	1152.5	1086.6
50°	1777.1	1564.0	1233.8	1026.4	963.7
52.5°	1653.9	1428.7	1107.7	909.5	852.6
55°	1533.7	1299.7	975.4	795.6	738.5
57.5°	1410.9	1170.7	858.6	690.5	642.4
60°	1284.7	1044.5	735.4	582.5	534.4
62.5°	1161.8	921.7	630.3	486.3	462.4
65°	1035.6	792.4	522.3	420.4	411.2
67.5°	915.6	672.3	420.4	369.1	360.2
70°	789.5	555.4	348.1	318.2	306.0
72.5°	669.4	447.1	291.1	267.2	261.2
75°	552.2	342.1	240.1	219.1	216.2
77.5°	435.3	243.0	189.1	177.1	171.0
80°	327.1	174.2	143.9	132.2	132.2
82.5°	228.0	117.2	99.1	93.0	93.0
85°	128.9	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.0	21.0
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6



TEST NUMBER: P922442

CATALOG NUMBER: DFN2DIP-PN4F0-090D090US940-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2



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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	10.13	10.96	11.11	11.94	13.23	6.10	6.92	7.07	7.90	9.19
	3H	11.81	12.55	12.80	13.54	14.85	7.29	8.02	8.27	9.01	10.32
	4H	12.42	13.12	13.42	14.11	15.43	7.74	8.43	8.74	9.43	10.75
	6H	12.85	13.49	13.85	14.49	15.82	8.06	8.70	9.07	9.70	11.03
	8H	12.98	13.58	13.99	14.60	15.93	8.15	8.76	9.16	9.78	11.10
	12H	13.04	13.62	14.06	14.63	15.98	8.19	8.77	9.21	9.78	11.13
4H	2H	10.15	10.85	11.15	11.84	13.16	6.70	7.39	7.70	8.39	9.70
	3H	11.98	12.56	12.99	13.58	14.92	8.05	8.62	9.06	9.65	10.98
	4H	12.68	13.21	13.70	14.22	15.58	8.59	9.12	9.61	10.14	11.49
	6H	13.19	13.65	14.22	14.69	16.04	9.01	9.47	10.04	10.51	11.86
	8H	13.37	13.80	14.40	14.83	16.19	9.14	9.57	10.17	10.60	11.97
	12H	13.47	13.85	14.52	14.90	16.27	9.21	9.59	10.26	10.64	12.01
8H	4H	12.64	13.07	13.68	14.10	15.47	8.88	9.30	9.91	10.33	11.70
	6H	13.21	13.56	14.27	14.64	16.00	9.40	9.74	10.45	10.82	12.18
	8H	13.43	13.74	14.49	14.80	16.18	9.59	9.89	10.65	10.95	12.34
	12H	13.57	13.84	14.64	14.90	16.32	9.71	9.98	10.77	11.03	12.46
12H	4H	12.60	12.98	13.64	14.03	15.40	8.88	9.26	9.93	10.31	11.68
	6H	13.19	13.50	14.25	14.56	15.94	9.45	9.75	10.51	10.81	12.19
	8H	13.41	13.68	14.48	14.74	16.16	9.66	9.93	10.72	10.98	12.41

END OF REPORT