

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: P915802

Luminaire Tested: DFN2DIP-4P2F0-040D020US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915802
REPORT IS A COMBINATION OF REPORTS P899015 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D020US930-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

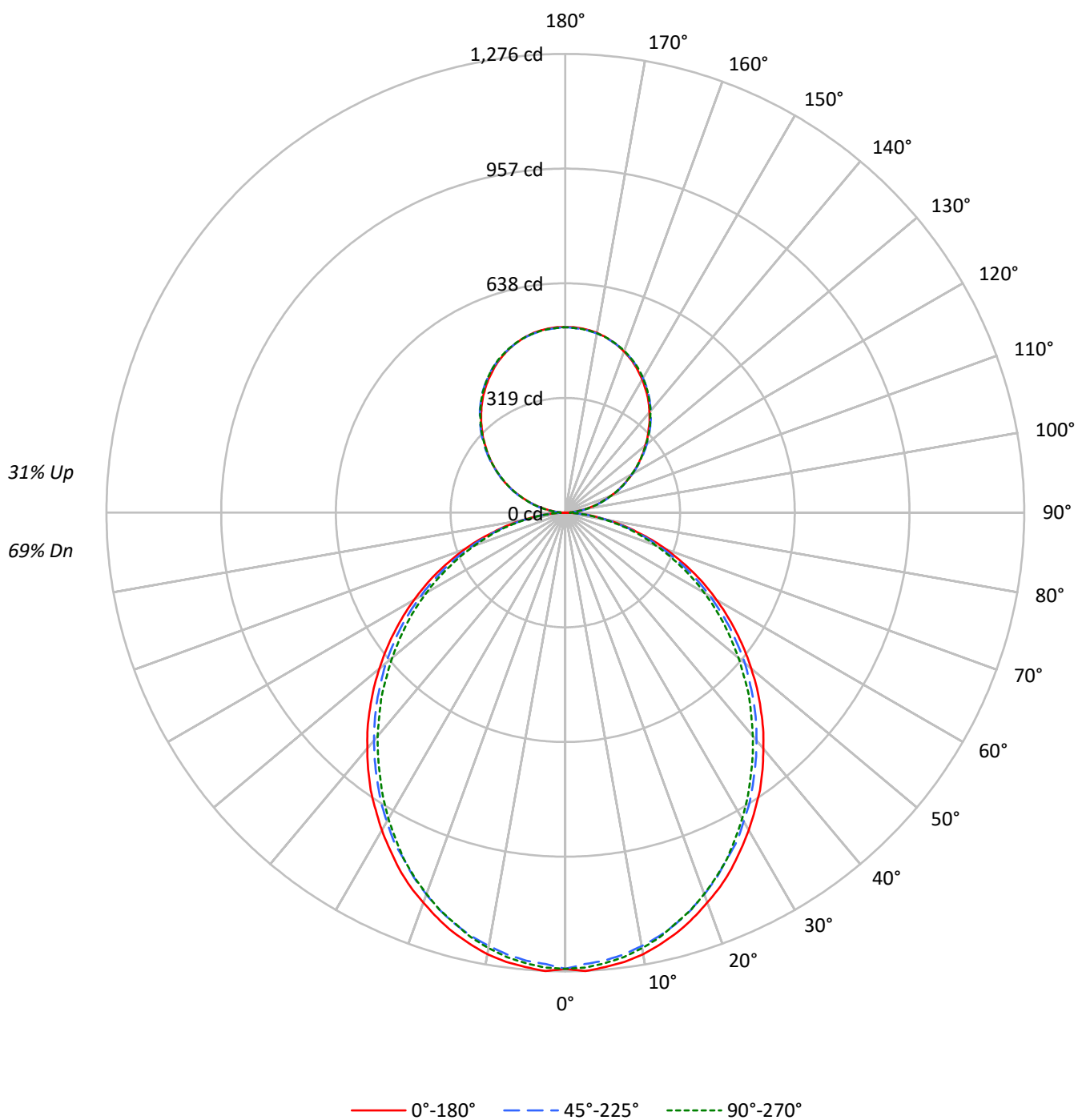
Lumens per Lamp: N/A
Luminaire Lumens: 4671.7 lumens
Efficiency: N/A
Efficacy: 83.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 56.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915802

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P915802

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US930-FLLFLL

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	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3177	3177	3177
5°	3176	3125	3149
10°	3144	3075	3101
15°	3091	3016	3029
20°	3023	2938	2956
25°	2954	2846	2872
30°	2870	2760	2767
35°	2789	2659	2656
40°	2691	2558	2549
45°	2593	2455	2440
50°	2485	2347	2315
55°	2373	2223	2198
60°	2244	2077	2064
65°	2104	1924	1907
70°	1924	1737	1736
75°	1681	1515	1571
80°	1383	1230	1272
85°	926	768	791

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2593 cd/sqm

TEST NUMBER: P915802

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	2.6
10°-20°	336.0	7.2
20°-30°	493.8	10.6
30°-40°	573.6	12.3
40°-50°	572.9	12.3
50°-60°	499.5	10.7
60°-70°	369.3	7.9
70°-80°	208.9	4.5
80°-90°	56.6	1.2
90°-100°	31.9	0.7
100°-110°	101.4	2.2
110°-120°	173.5	3.7
120°-130°	228.2	4.9
130°-140°	256.1	5.5
140°-150°	251.2	5.4
150°-160°	210.7	4.5
160°-170°	139.7	3.0
170°-180°	48.8	1.0
0°-30°	949.3	20.3
0°-40°	1522.9	32.6
0°-60°	2595.3	55.6
0°-90°	3230.1	69.1
90°-120°	306.8	6.6
90°-150°	1042.3	22.3
90°-180°	1442.0	30.9
0°-180°	4671.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
90°	0	6	15	14	15	4
95°	23	27	28	28	27	25
105°	94	95	96	96	96	99
115°	174	177	176	175	174	172
125°	253	257	256	254	254	226
135°	328	332	333	333	332	253
145°	398	401	403	404	402	248
155°	455	456	457	460	458	209
165°	495	494	494	497	495	140
175°	515	514	513	516	513	49
180°	516	516	516	516	516	

TEST NUMBER: P915802

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
90°	0.5	5.6	15.2	14.3	14.8
92.5°	9.6	13.0	13.5	14.0	14.0
95°	22.7	27.1	27.8	27.8	27.1
97.5°	37.7	41.8	43.5	43.5	43.5
100°	55.2	58.8	60.0	60.0	59.5
102.5°	73.5	76.1	77.9	78.4	77.9
105°	93.6	94.8	95.8	96.5	96.5
107.5°	113.5	115.4	115.4	115.7	113.5
110°	132.8	135.3	135.3	135.3	134.0

TEST NUMBER: P915802

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	153.6	156.2	155.8	154.5	153.6
115°	174.1	176.6	175.9	175.4	174.1
117.5°	194.5	198.0	195.8	194.5	193.2
120°	215.0	218.4	215.0	215.0	213.6
122.5°	233.7	238.0	235.9	234.6	233.7
125°	253.2	257.1	255.9	254.5	254.0
127.5°	272.4	277.2	275.5	273.6	272.4
130°	290.2	295.9	295.1	294.2	292.4
132.5°	310.3	314.7	314.9	312.8	311.5
135°	327.6	332.4	333.3	332.9	331.6
137.5°	346.8	350.7	351.6	351.2	349.4
140°	363.8	367.7	369.9	369.9	368.2
142.5°	381.2	385.1	386.4	386.8	385.1
145°	397.7	400.8	403.3	403.7	402.0
147.5°	412.5	416.4	418.2	419.0	417.3
150°	427.7	430.3	432.0	433.4	432.0
152.5°	441.2	443.8	446.0	447.8	446.0
155°	454.8	456.0	457.4	459.6	458.2
157.5°	466.4	467.3	468.1	471.2	469.0
160°	476.9	477.8	478.3	480.9	479.0
162.5°	486.5	486.5	486.9	489.9	487.7
165°	494.7	494.2	494.2	497.3	495.2
167.5°	502.1	500.8	500.8	503.9	501.7
170°	507.8	506.5	506.1	509.2	506.5
172.5°	511.7	510.4	510.0	513.1	510.4
175°	514.8	513.6	512.6	515.7	513.1
177.5°	516.5	515.3	514.3	516.9	514.3
180°	515.7	515.7	515.7	515.7	515.7

TEST NUMBER: P915802

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US930-FLLFLL

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	12.76	13.82	13.53	14.62	15.59	12.31	13.38	13.09	14.17	15.14
	3H	14.41	15.37	15.20	16.17	17.17	13.92	14.88	14.71	15.68	16.68
	4H	14.99	15.89	15.80	16.71	17.72	14.50	15.40	15.30	16.21	17.22
	6H	15.38	16.22	16.20	17.04	18.06	14.88	15.72	15.70	16.54	17.56
	8H	15.49	16.28	16.31	17.12	18.14	14.98	15.78	15.81	16.62	17.64
	12H	15.53	16.29	16.36	17.12	18.18	15.02	15.78	15.86	16.62	17.67
4H	2H	13.23	14.13	14.04	14.95	15.96	12.87	13.78	13.68	14.59	15.60
	3H	15.09	15.84	15.91	16.69	17.71	14.68	15.43	15.50	16.28	17.31
	4H	15.79	16.48	16.62	17.32	18.38	15.37	16.05	16.20	16.90	17.95
	6H	16.30	16.89	17.15	17.76	18.82	15.86	16.46	16.71	17.33	18.39
	8H	16.44	16.99	17.29	17.86	18.93	16.00	16.56	16.86	17.42	18.49
	12H	16.51	17.01	17.39	17.90	18.97	16.06	16.56	16.94	17.45	18.53
8H	4H	15.99	16.55	16.84	17.41	18.48	15.61	16.17	16.47	17.03	18.10
	6H	16.60	17.06	17.48	17.97	19.04	16.22	16.68	17.10	17.58	18.66
	8H	16.81	17.22	17.70	18.12	19.21	16.42	16.82	17.31	17.73	18.81
	12H	16.94	17.30	17.83	18.19	19.33	16.53	16.89	17.42	17.78	18.92
12H	4H	15.98	16.48	16.86	17.37	18.45	15.61	16.11	16.49	17.00	18.08
	6H	16.63	17.04	17.52	17.94	19.03	16.25	16.66	17.15	17.57	18.65
	8H	16.86	17.22	17.76	18.12	19.26	16.48	16.84	17.38	17.73	18.88