

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: P913051

Luminaire Tested: DFN2DIP-4P2F0-020D020US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913051
REPORT IS A COMBINATION OF REPORTS P900531 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D020US927-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

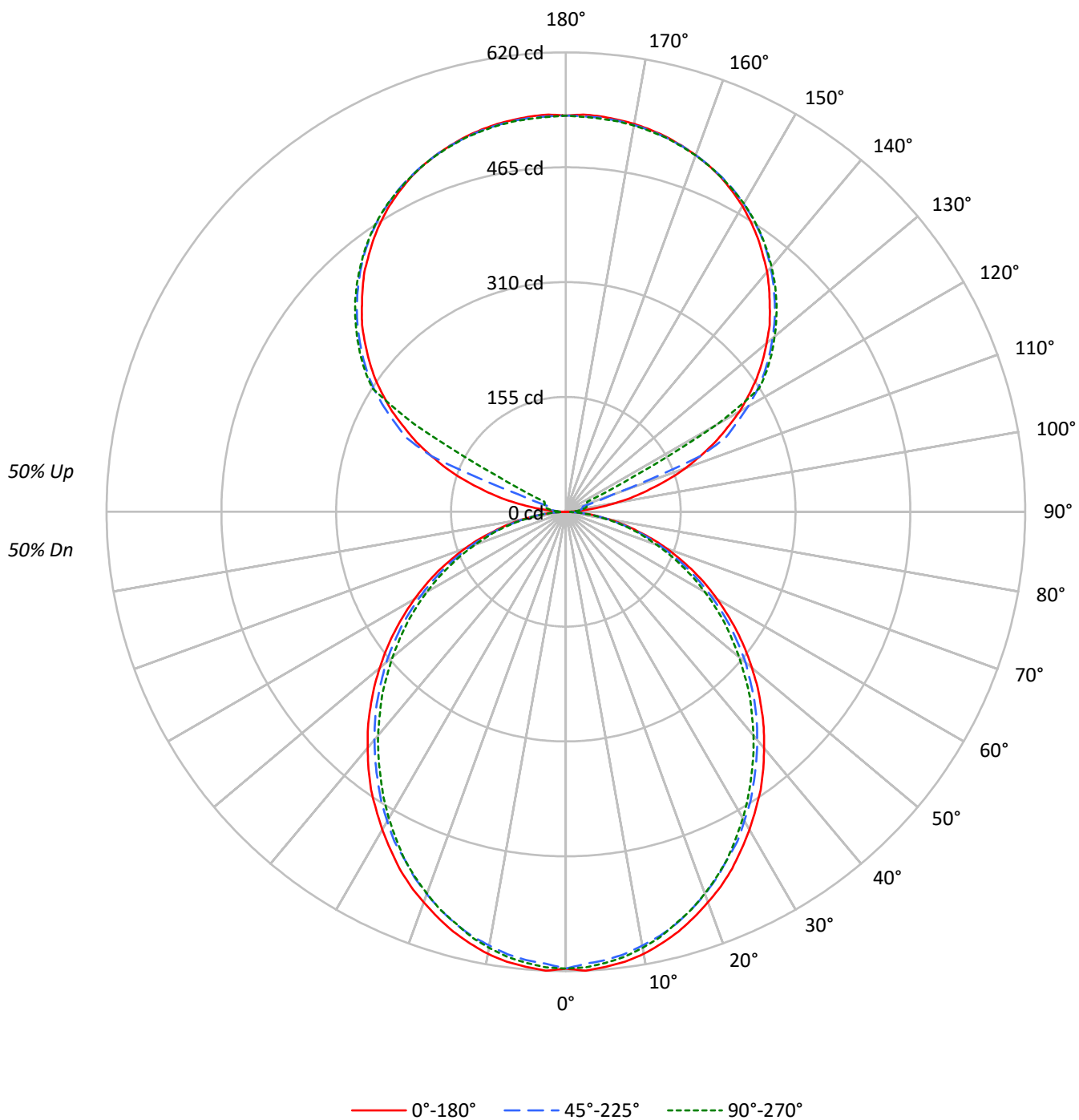
Lumens per Lamp: N/A
Luminaire Lumens: 3137.0 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 32.3
Input Voltage (V): 120
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

TEST NUMBER: P913051

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US927-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P913051

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US927-FLONL

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	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1544	1544	1544
5°	1543	1518	1530
10°	1528	1494	1506
15°	1502	1465	1472
20°	1469	1427	1436
25°	1435	1382	1395
30°	1394	1341	1344
35°	1355	1292	1290
40°	1307	1243	1238
45°	1260	1193	1185
50°	1208	1141	1125
55°	1153	1080	1068
60°	1090	1009	1003
65°	1022	935	926
70°	935	844	844
75°	817	736	763
80°	671	598	617
85°	448	373	385

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1260 cd/sqm

TEST NUMBER: P913051

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US927-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.0	1.8
10°-20°	163.3	5.2
20°-30°	239.9	7.6
30°-40°	278.7	8.9
40°-50°	278.3	8.9
50°-60°	242.7	7.7
60°-70°	179.4	5.7
70°-80°	101.5	3.2
80°-90°	27.7	0.9
90°-100°	17.6	0.6
100°-110°	65.7	2.1
110°-120°	174.3	5.6
120°-130°	289.1	9.2
130°-140°	307.1	9.8
140°-150°	285.4	9.1
150°-160°	229.5	7.3
160°-170°	147.9	4.7
170°-180°	50.9	1.6
0°-30°	461.2	14.7
0°-40°	739.9	23.6
0°-60°	1260.8	40.2
0°-90°	1569.5	50.0
90°-120°	257.7	8.2
90°-150°	1139.3	36.3
90°-180°	1568.0	50.0
0°-180°	3137.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	616	616	616	616	616	
5°	616	614	608	612	611	59
15°	587	583	576	578	575	165
25°	531	526	516	518	516	244
35°	458	452	443	439	436	286
45°	373	369	360	353	351	288
55°	282	279	272	264	261	252
65°	190	187	181	176	172	188
75°	100	98	95	92	93	106
85°	24	24	23	21	21	27
90°	0	5	8	10	10	3
95°	25	12	15	17	17	30
105°	118	129	24	28	29	126
115°	222	229	239	60	32	219
125°	315	320	327	330	331	281
135°	389	396	399	403	402	301
145°	452	451	458	460	458	282
155°	497	494	498	501	498	229
165°	524	522	523	526	523	148
175°	536	533	534	537	533	51
180°	535	535	535	535	535	

TEST NUMBER: P913051

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US927-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	616.5	616.5	616.5	616.5	616.5
2.5°	620.0	617.1	610.5	616.5	615.4
5°	616.5	614.2	607.6	612.4	611.2
7.5°	612.4	608.8	602.3	607.0	605.9
10°	605.9	601.7	594.6	599.3	597.5
12.5°	596.9	593.4	586.3	589.2	588.0
15°	586.8	583.4	575.6	578.0	575.0
17.5°	574.4	570.9	563.2	566.1	563.2
20°	560.8	557.2	548.9	550.7	548.3
22.5°	547.2	541.9	534.1	534.1	532.9
25°	531.2	526.4	516.3	517.5	516.3
27.5°	513.3	509.2	501.5	499.8	496.8
30°	495.6	490.8	482.0	480.2	477.8
32.5°	476.6	473.1	463.6	460.0	457.6
35°	458.3	452.3	442.8	439.3	436.3
37.5°	437.5	432.1	422.6	418.5	415.5
40°	416.1	411.4	401.9	396.6	394.2
42.5°	395.4	390.6	381.2	375.3	371.7
45°	372.9	368.8	359.8	353.3	350.9
47.5°	350.9	346.8	337.3	330.7	327.3
50°	327.8	324.9	316.6	308.2	305.3
52.5°	305.3	301.1	293.4	286.9	282.8
55°	282.2	278.6	271.5	264.4	261.4
57.5°	259.0	256.1	248.3	241.3	238.8
60°	235.9	233.6	225.3	218.7	217.0
62.5°	213.4	209.2	203.4	197.4	195.0
65°	190.3	186.7	180.9	175.5	172.5
67.5°	166.6	163.6	158.3	154.2	151.8
70°	144.7	142.3	136.9	132.8	130.5
72.5°	122.2	119.8	116.8	112.6	110.9
75°	99.6	98.5	95.4	91.9	93.1
77.5°	79.5	77.1	75.8	74.1	72.3
80°	59.3	58.7	57.5	55.7	54.5
82.5°	40.3	40.3	39.8	37.4	37.4
85°	24.2	23.7	23.1	21.3	20.8
87.5°	10.7	9.5	8.3	6.6	5.9
90°	0.4	4.7	7.7	9.7	10.5
92.5°	9.7	8.2	9.3	10.1	10.5
95°	25.1	12.4	15.1	17.0	16.6
97.5°	45.2	13.5	19.7	20.9	21.3
100°	68.5	15.4	22.0	25.1	25.9
102.5°	94.0	93.2	22.8	27.1	28.3
105°	117.6	129.2	23.6	27.8	29.4
107.5°	145.1	154.7	24.4	28.6	30.2
110°	171.4	179.5	67.7	29.1	30.6



TEST NUMBER: P913051

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US927-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	196.1	203.1	196.5	29.8	31.0
115°	222.4	229.0	238.8	59.6	31.8
117.5°	245.3	253.0	259.6	204.3	102.9
120°	270.8	276.6	283.6	288.3	236.0
122.5°	292.5	298.7	306.4	308.7	309.2
125°	314.6	319.6	326.9	329.6	330.8
127.5°	334.7	340.1	345.9	349.7	350.1
130°	353.6	359.8	364.1	368.4	368.0
132.5°	373.0	378.0	382.2	385.7	385.4
135°	389.3	395.5	398.9	402.8	402.0
137.5°	406.2	410.9	414.8	418.7	417.5
140°	422.9	426.0	430.2	433.7	431.8
142.5°	436.8	439.6	444.6	447.7	445.7
145°	451.5	451.1	457.7	460.4	458.5
147.5°	464.3	463.1	469.7	471.6	470.1
150°	476.7	474.0	480.1	482.4	480.5
152.5°	487.1	484.0	489.8	492.2	489.4
155°	497.2	493.7	498.4	500.7	497.6
157.5°	505.3	502.2	505.7	508.4	505.3
160°	512.3	509.9	512.3	514.6	511.9
162.5°	518.4	516.1	518.1	520.8	517.3
165°	523.9	521.6	522.7	525.5	522.7
167.5°	528.1	525.8	527.0	529.7	526.2
170°	531.6	529.3	530.0	532.7	529.3
172.5°	533.9	531.6	532.4	535.1	531.6
175°	535.8	533.1	533.9	536.6	532.7
177.5°	536.6	533.9	534.3	537.0	533.5
180°	534.7	534.7	534.7	534.7	534.7

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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	8.65	9.51	9.61	10.48	11.75	8.20	9.07	9.16	10.04	11.31
	3H	10.29	11.06	11.25	12.04	13.33	9.80	10.57	10.77	11.55	12.84
	4H	10.86	11.59	11.84	12.58	13.88	10.37	11.10	11.35	12.08	13.38
	6H	11.24	11.92	12.24	12.91	14.22	10.74	11.42	11.73	12.41	13.72
	8H	11.34	11.98	12.34	12.99	14.30	10.84	11.48	11.84	12.49	13.80
	12H	11.38	11.99	12.38	12.99	14.33	10.87	11.48	11.87	12.48	13.82
4H	2H	9.10	9.83	10.09	10.81	12.12	8.74	9.47	9.73	10.46	11.76
	3H	10.94	11.55	11.93	12.56	13.88	10.53	11.14	11.53	12.15	13.47
	4H	11.63	12.19	12.64	13.20	14.54	11.21	11.77	12.22	12.78	14.11
	6H	12.13	12.61	13.14	13.64	14.98	11.69	12.18	12.71	13.21	14.54
	8H	12.27	12.72	13.28	13.74	15.09	11.83	12.28	12.85	13.30	14.65
	12H	12.33	12.73	13.36	13.77	15.13	11.88	12.29	12.92	13.33	14.68
8H	4H	11.82	12.27	12.84	13.29	14.64	11.44	11.89	12.46	12.91	14.26
	6H	12.42	12.79	13.46	13.86	15.21	12.04	12.41	13.08	13.47	14.82
	8H	12.63	12.95	13.68	14.00	15.37	12.23	12.56	13.28	13.61	14.98
	12H	12.74	13.03	13.80	14.08	15.49	12.33	12.62	13.39	13.67	15.08
12H	4H	11.80	12.21	12.84	13.24	14.60	11.43	11.84	12.47	12.87	14.23
	6H	12.45	12.77	13.50	13.82	15.19	12.07	12.40	13.12	13.45	14.82
	8H	12.67	12.96	13.72	14.00	15.41	12.29	12.57	13.34	13.62	15.03