

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: P924001

Luminaire Tested: DFN2DIP-4P3F0-020D020US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924001
REPORT IS A COMBINATION OF REPORTS P900550 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D020US950-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

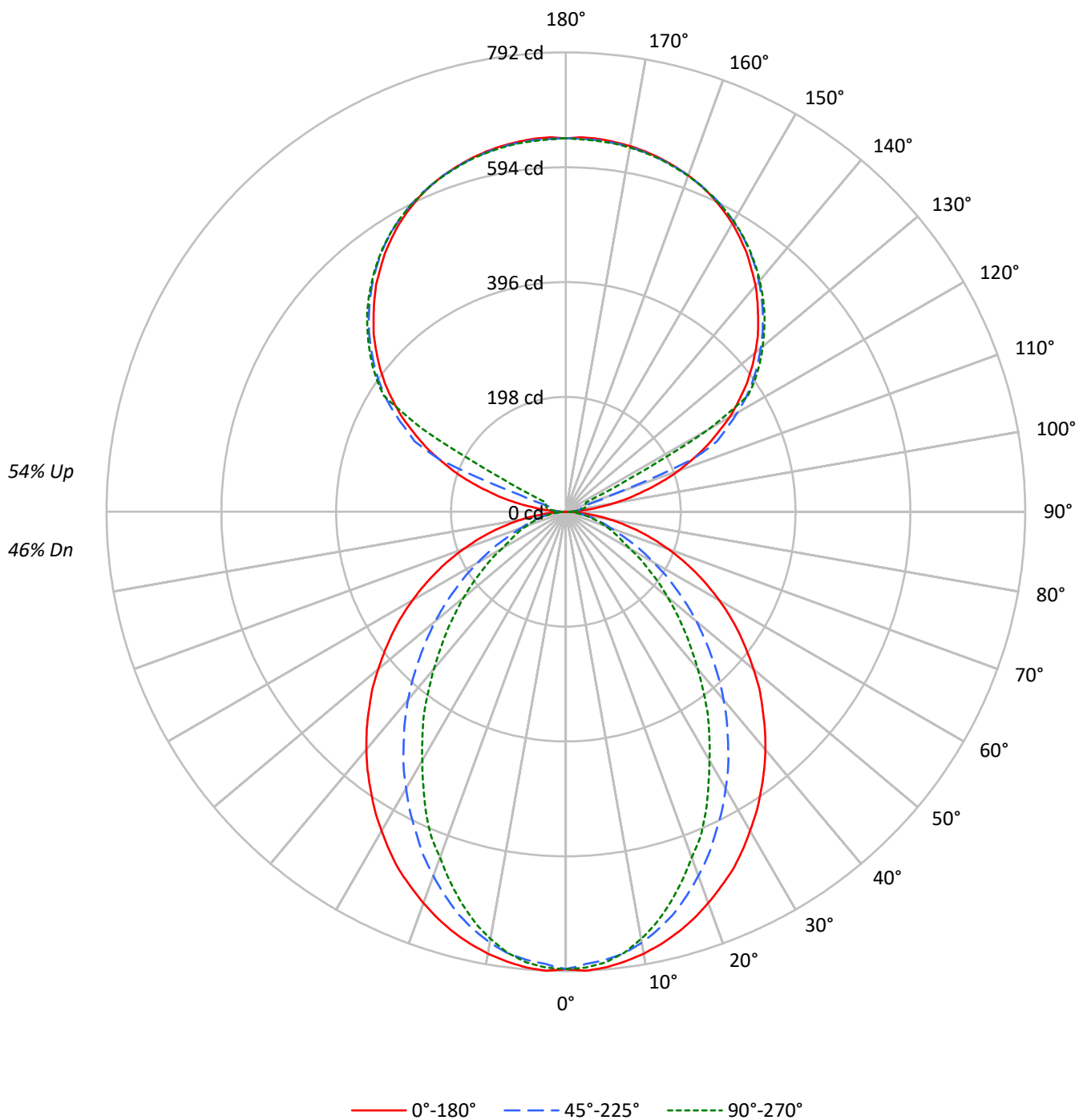
Lumens per Lamp: N/A
Luminaire Lumens: 3510.7 lumens
Efficiency: N/A
Efficacy: 113.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 31
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34		
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29		
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	899	899	899
5°	900	884	890
10°	890	866	861
15°	877	837	816
20°	860	797	760
25°	843	752	707
30°	820	706	640
35°	798	657	580
40°	775	606	512
45°	749	550	451
50°	721	493	391
55°	692	432	333
60°	659	369	274
65°	621	305	247
70°	574	245	223
75°	516	214	202
80°	431	178	174
85°	292	116	129

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 749 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.9	2.1
10°-20°	202.9	5.8
20°-30°	284.8	8.1
30°-40°	310.5	8.8
40°-50°	285.4	8.1
50°-60°	224.1	6.4
60°-70°	145.9	4.2
70°-80°	75.1	2.1
80°-90°	20.3	0.6
90°-100°	21.2	0.6
100°-110°	79.1	2.3
110°-120°	209.9	6.0
120°-130°	348.2	9.9
130°-140°	369.8	10.5
140°-150°	343.7	9.8
150°-160°	276.4	7.9
160°-170°	178.1	5.1
170°-180°	61.3	1.7
0°-30°	561.6	16.0
0°-40°	872.1	24.8
0°-60°	1381.7	39.4
0°-90°	1622.9	46.2
90°-120°	310.3	8.8
90°-150°	1372.0	39.1
90°-180°	1888.0	53.8
0°-180°	3510.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	789	789	789	789	789	
5°	789	785	776	782	780	75
15°	750	742	718	704	697	211
25°	681	658	611	582	571	313
35°	587	550	488	442	427	367
45°	480	432	357	306	289	370
55°	365	309	232	189	176	326
65°	246	188	124	100	98	244
75°	131	81	57	52	51	139
85°	31	16	14	14	14	35
90°	0	6	9	12	13	3
95°	30	15	18	20	20	36
105°	142	156	28	34	35	151
115°	268	276	288	72	38	264
125°	379	385	394	397	398	338
135°	469	476	480	485	484	362
145°	544	543	551	554	552	340
155°	599	594	600	603	599	276
165°	631	628	629	633	629	178
175°	645	642	643	646	642	61
180°	644	644	644	644	644	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	788.6	788.6	788.6	788.6	788.6
2.5°	792.1	788.6	780.7	787.9	786.5
5°	788.6	785.0	775.7	782.2	780.0
7.5°	782.2	777.9	767.9	770.7	767.1
10°	773.6	768.5	754.3	752.1	747.9
12.5°	762.9	756.4	737.2	733.0	725.0
15°	750.0	742.1	717.9	704.3	697.3
17.5°	735.1	723.6	693.7	677.9	666.6
20°	717.9	703.6	668.0	650.2	634.4
22.5°	699.4	683.0	641.6	617.3	606.6
25°	680.9	658.0	610.8	581.7	570.9
27.5°	658.7	634.4	582.3	548.7	532.3
30°	635.2	608.0	550.9	514.6	495.2
32.5°	612.3	579.5	521.0	478.1	460.3
35°	586.6	550.3	487.5	442.5	426.7
37.5°	561.6	522.3	456.0	406.8	388.9
40°	535.2	492.5	423.2	372.5	353.9
42.5°	508.1	462.5	390.4	337.5	319.8
45°	479.6	431.7	356.9	306.1	289.0
47.5°	452.5	401.8	324.7	274.0	258.3
50°	422.5	371.9	293.4	244.0	229.2
52.5°	393.1	339.6	263.3	216.3	202.7
55°	364.6	309.0	231.9	189.2	175.5
57.5°	335.4	278.3	204.2	164.2	152.7
60°	305.5	248.3	174.9	138.5	127.1
62.5°	276.2	219.1	149.9	115.6	109.9
65°	246.2	188.4	124.2	100.0	97.8
67.5°	217.7	159.8	100.0	87.8	85.7
70°	187.7	132.0	82.7	75.7	72.8
72.5°	159.1	106.3	69.2	63.5	62.1
75°	131.3	81.3	57.0	52.1	51.4
77.5°	103.5	57.8	44.9	42.1	40.6
80°	77.8	41.4	34.2	31.4	31.4
82.5°	54.2	27.9	23.6	22.1	22.1
85°	30.6	15.6	13.5	13.5	13.5
87.5°	11.4	5.7	5.7	5.0	5.0
90°	0.5	5.6	9.3	11.6	12.6
92.5°	11.6	9.8	11.2	12.1	12.6
95°	30.2	14.9	18.1	20.5	20.0
97.5°	54.5	16.3	23.8	25.2	25.7
100°	82.5	18.6	26.5	30.2	31.2
102.5°	113.2	112.3	27.5	32.6	34.1
105°	141.7	155.6	28.4	33.5	35.4
107.5°	174.8	186.3	29.4	34.4	36.3
110°	206.4	216.2	81.6	35.0	36.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	236.2	244.6	236.7	35.9	37.3
115°	267.9	275.8	287.5	71.7	38.3
117.5°	295.4	304.7	312.6	246.0	123.9
120°	326.2	333.1	341.5	347.2	284.2
122.5°	352.2	359.7	369.0	371.8	372.3
125°	378.8	384.8	393.7	397.0	398.4
127.5°	403.1	409.6	416.6	421.2	421.7
130°	425.9	433.3	438.5	443.6	443.1
132.5°	449.1	455.2	460.3	464.5	464.1
135°	468.8	476.2	480.3	485.1	484.2
137.5°	489.2	494.8	499.5	504.2	502.8
140°	509.2	513.1	518.1	522.3	520.0
142.5°	526.0	529.4	535.4	539.1	536.7
145°	543.8	543.3	551.2	554.5	552.2
147.5°	559.1	557.7	565.6	567.9	566.1
150°	574.0	570.8	578.2	581.0	578.7
152.5°	586.6	582.9	589.9	592.7	589.4
155°	598.7	594.5	600.2	602.9	599.2
157.5°	608.6	604.8	609.0	612.3	608.6
160°	617.0	614.1	617.0	619.7	616.5
162.5°	624.3	621.5	623.9	627.2	623.0
165°	630.9	628.1	629.4	632.8	629.4
167.5°	636.0	633.2	634.6	637.9	633.6
170°	640.2	637.4	638.3	641.6	637.4
172.5°	643.0	640.2	641.2	644.4	640.2
175°	645.3	642.0	643.0	646.2	641.6
177.5°	646.2	643.0	643.5	646.7	642.5
180°	643.9	643.9	643.9	643.9	643.9

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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	6.38	7.18	7.37	8.18	9.51	2.34	3.14	3.34	4.14	5.47
	3H	8.05	8.77	9.06	9.78	11.12	3.52	4.24	4.53	5.25	6.60
	4H	8.65	9.33	9.67	10.35	11.70	3.97	4.64	4.99	5.66	7.01
	6H	9.07	9.69	10.10	10.71	12.08	4.28	4.90	5.31	5.92	7.29
	8H	9.19	9.79	10.23	10.82	12.19	4.37	4.96	5.40	5.99	7.36
	12H	9.25	9.82	10.29	10.84	12.23	4.41	4.97	5.44	6.00	7.38
4H	2H	6.39	7.07	7.42	8.08	9.44	2.93	3.61	3.96	4.62	5.98
	3H	8.21	8.78	9.25	9.82	11.19	4.27	4.83	5.31	5.88	7.25
	4H	8.90	9.41	9.94	10.45	11.84	4.81	5.33	5.85	6.36	7.75
	6H	9.41	9.85	10.46	10.91	12.30	5.22	5.66	6.27	6.72	8.11
	8H	9.58	9.99	10.63	11.04	12.45	5.35	5.76	6.40	6.81	8.21
	12H	9.67	10.04	10.74	11.11	12.52	5.41	5.78	6.47	6.84	8.25
8H	4H	8.86	9.28	9.91	10.33	11.73	5.09	5.50	6.14	6.55	7.95
	6H	9.42	9.76	10.50	10.86	12.26	5.60	5.94	6.67	7.03	8.43
	8H	9.64	9.94	10.72	11.01	12.43	5.78	6.08	6.86	7.16	8.58
	12H	9.77	10.03	10.86	11.11	12.57	5.89	6.16	6.98	7.23	8.69
12H	4H	8.81	9.19	9.88	10.25	11.66	5.09	5.46	6.16	6.53	7.93
	6H	9.40	9.70	10.48	10.77	12.19	5.64	5.94	6.72	7.02	8.44
	8H	9.61	9.88	10.70	10.95	12.41	5.85	6.11	6.93	7.18	8.64

END OF REPORT