

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: P915778

Luminaire Tested: DFN2DIP-4P2F0-020D020US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915778
REPORT IS A COMBINATION OF REPORTS P899011 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D020US930-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

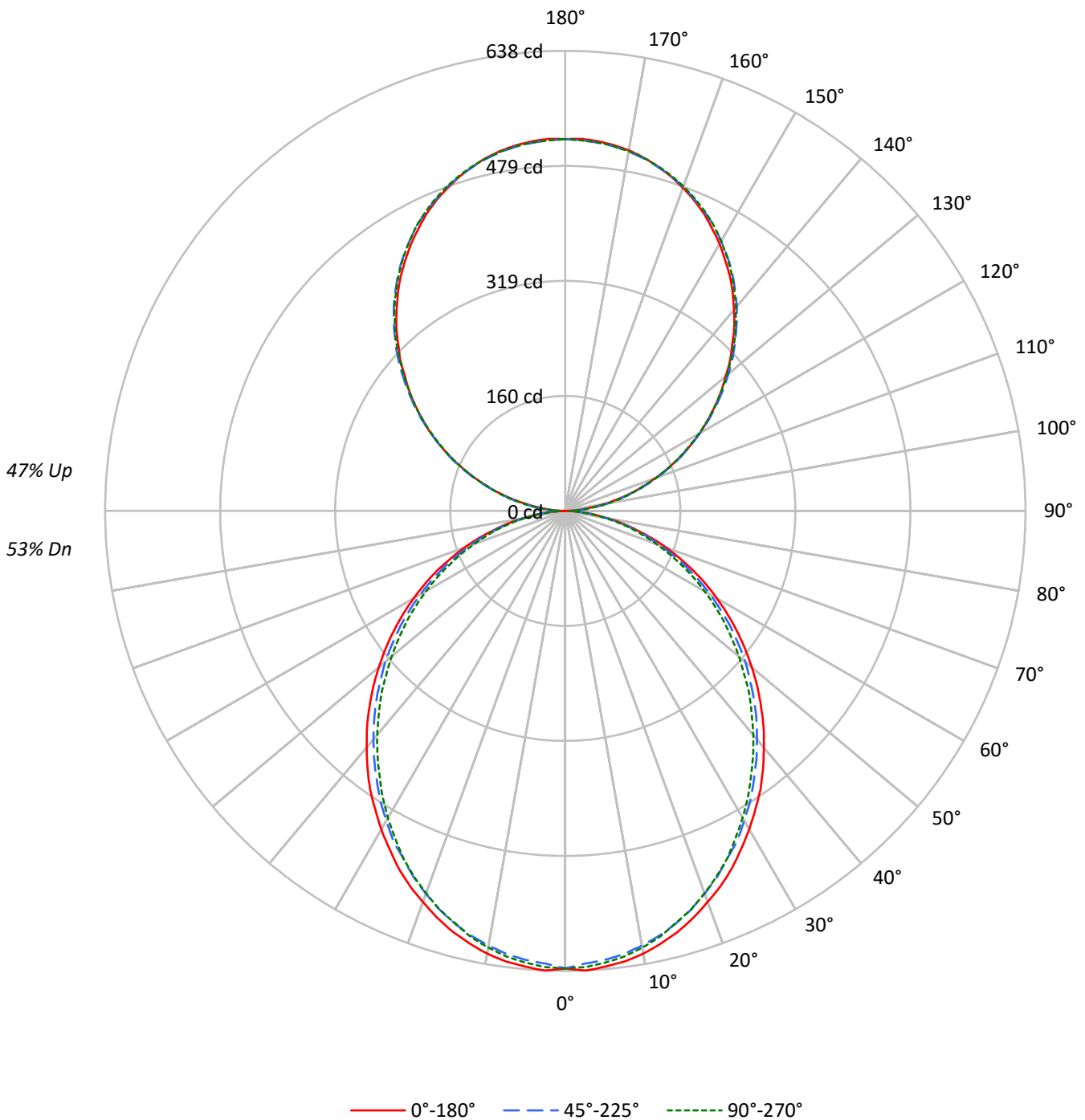
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3057.4 lumens
Efficiency: N/A
Efficacy: 94.7 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

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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				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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	59	59	59	53
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	41	38	36	32
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	23	20	17	15
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	21	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1589	1589	1589
5°	1588	1562	1574
10°	1572	1538	1551
15°	1546	1508	1515
20°	1511	1469	1478
25°	1477	1423	1436
30°	1435	1380	1383
35°	1395	1330	1328
40°	1346	1279	1275
45°	1297	1228	1220
50°	1243	1174	1157
55°	1186	1111	1099
60°	1122	1039	1032
65°	1051	962	954
70°	963	869	868
75°	840	757	785
80°	692	616	635
85°	461	384	396

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1297 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.7	2.0
10°-20°	168.0	5.5
20°-30°	246.9	8.1
30°-40°	286.8	9.4
40°-50°	286.4	9.4
50°-60°	249.7	8.2
60°-70°	184.6	6.0
70°-80°	104.5	3.4
80°-90°	29.0	1.0
90°-100°	31.9	1.0
100°-110°	101.4	3.3
110°-120°	173.5	5.7
120°-130°	228.2	7.5
130°-140°	256.1	8.4
140°-150°	251.2	8.2
150°-160°	210.7	6.9
160°-170°	139.7	4.6
170°-180°	48.8	1.6
0°-30°	474.7	15.5
0°-40°	761.5	24.9
0°-60°	1297.6	42.4
0°-90°	1615.8	52.8
90°-120°	306.8	10.0
90°-150°	1042.3	34.1
90°-180°	1442.0	47.2
0°-180°	3057.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	634	634	634	634	634	
5°	634	632	625	630	629	60
15°	604	600	592	595	592	170
25°	547	542	531	533	531	252
35°	472	466	456	452	449	295
45°	384	380	370	364	361	296
55°	290	287	279	272	269	260
65°	196	192	186	181	178	194
75°	102	101	98	95	96	109
85°	25	24	24	22	21	28
90°	0	6	15	14	15	3
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	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	634.5	634.5	634.5	634.5	634.5
2.5°	638.1	635.1	628.4	634.5	633.3
5°	634.5	632.1	625.3	630.2	629.0
7.5°	630.2	626.6	619.9	624.8	623.5
10°	623.5	619.3	612.0	616.8	615.0
12.5°	614.3	610.7	603.4	606.4	605.2
15°	604.0	600.4	592.4	594.8	591.8
17.5°	591.2	587.6	579.6	582.6	579.6
20°	577.1	573.5	564.9	566.8	564.3
22.5°	563.1	557.7	549.7	549.7	548.5
25°	546.7	541.8	531.4	532.6	531.4
27.5°	528.3	524.1	516.2	514.4	511.3
30°	510.1	505.2	496.0	494.2	491.7
32.5°	490.5	486.9	477.1	473.4	471.0
35°	471.7	465.5	455.8	452.1	449.0
37.5°	450.3	444.7	435.0	430.7	427.6
40°	428.3	423.4	413.6	408.2	405.7
42.5°	406.9	402.0	392.3	386.2	382.5
45°	383.8	379.5	370.3	363.6	361.2
47.5°	361.2	356.9	347.2	340.4	336.8
50°	337.4	334.4	325.8	317.2	314.2
52.5°	314.2	309.9	302.0	295.3	291.1
55°	290.4	286.7	279.4	272.1	269.0
57.5°	266.6	263.6	255.6	248.3	245.8
60°	242.8	240.4	231.9	225.1	223.3
62.5°	219.6	215.3	209.3	203.2	200.7
65°	195.8	192.2	186.1	180.6	177.6
67.5°	171.5	168.4	162.9	158.7	156.2
70°	148.9	146.4	140.9	136.6	134.3
72.5°	125.7	123.3	120.2	115.9	114.1
75°	102.5	101.3	98.2	94.6	95.8
77.5°	81.8	79.3	78.0	76.2	74.4
80°	61.1	60.4	59.2	57.3	56.1
82.5°	41.5	41.5	40.9	38.5	38.5
85°	24.9	24.4	23.8	21.9	21.4
87.5°	11.0	9.8	8.6	6.8	6.1
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



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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



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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	9.00	9.89	9.94	10.84	12.07	8.56	9.45	9.49	10.40	11.63
	3H	10.64	11.44	11.59	12.40	13.65	10.15	10.95	11.10	11.91	13.16
	4H	11.22	11.97	12.18	12.94	14.20	10.72	11.48	11.68	12.44	13.70
	6H	11.60	12.30	12.57	13.27	14.54	11.10	11.80	12.07	12.76	14.04
	8H	11.70	12.36	12.67	13.35	14.62	11.20	11.86	12.17	12.84	14.12
	12H	11.74	12.37	12.72	13.35	14.65	11.23	11.86	12.21	12.84	14.14
4H	2H	9.46	10.21	10.42	11.17	12.44	9.10	9.85	10.06	10.82	12.08
	3H	11.30	11.93	12.27	12.92	14.20	10.89	11.52	11.86	12.51	13.79
	4H	11.99	12.57	12.98	13.56	14.86	11.57	12.15	12.55	13.13	14.43
	6H	12.49	12.99	13.48	14.00	15.29	12.06	12.55	13.05	13.56	14.86
	8H	12.63	13.09	13.63	14.10	15.41	12.19	12.65	13.19	13.66	14.97
	12H	12.69	13.11	13.71	14.13	15.45	12.24	12.66	13.26	13.68	15.00
8H	4H	12.18	12.64	13.18	13.65	14.96	11.80	12.26	12.80	13.27	14.58
	6H	12.79	13.17	13.81	14.21	15.52	12.40	12.78	13.42	13.83	15.14
	8H	12.99	13.33	14.02	14.36	15.69	12.60	12.93	13.63	13.97	15.30
	12H	13.11	13.41	14.14	14.43	15.81	12.70	12.99	13.73	14.02	15.39
12H	4H	12.16	12.58	13.18	13.60	14.92	11.79	12.21	12.81	13.23	14.55
	6H	12.81	13.15	13.84	14.18	15.51	12.43	12.77	13.46	13.80	15.13
	8H	13.04	13.33	14.07	14.36	15.73	12.65	12.95	13.69	13.98	15.35