

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: P915823

Luminaire Tested: DFN2DIP-4P3F0-020D040US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915823
REPORT IS A COMBINATION OF REPORTS P900569 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D040US930-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

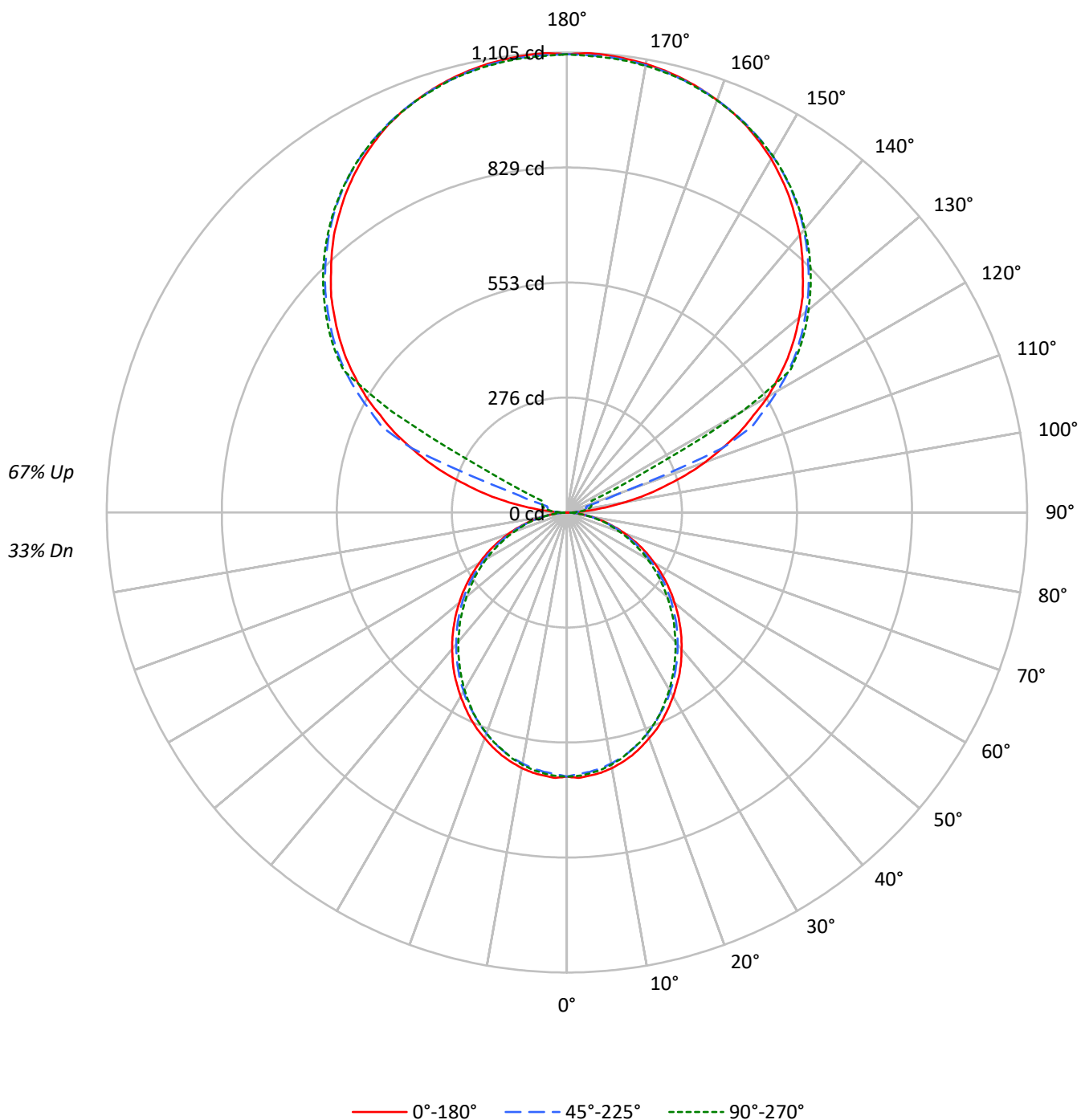
Lumens per Lamp: N/A
Luminaire Lumens: 4842.9 lumens
Efficiency: N/A
Efficacy: 106.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 45.4
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				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	723	723	723
5°	724	712	718
10°	717	702	708
15°	706	690	692
20°	692	674	676
25°	677	654	658
30°	659	636	635
35°	642	614	611
40°	620	592	587
45°	599	571	564
50°	576	548	536
55°	551	521	511
60°	524	490	482
65°	494	457	448
70°	455	417	411
75°	402	369	376
80°	339	308	311
85°	237	204	204

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 750 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.7	1.2
10°-20°	168.0	3.5
20°-30°	246.9	5.1
30°-40°	286.8	5.9
40°-50°	286.4	5.9
50°-60°	249.7	5.2
60°-70°	184.6	3.8
70°-80°	104.5	2.2
80°-90°	29.5	0.6
90°-100°	36.3	0.7
100°-110°	135.3	2.8
110°-120°	358.8	7.4
120°-130°	595.1	12.3
130°-140°	632.1	13.1
140°-150°	587.5	12.1
150°-160°	472.3	9.8
160°-170°	304.4	6.3
170°-180°	104.8	2.2
0°-30°	474.7	9.8
0°-40°	761.5	15.7
0°-60°	1297.6	26.8
0°-90°	1616.2	33.4
90°-120°	530.4	11.0
90°-150°	2345.2	48.4
90°-180°	3227.0	66.6
0°-180°	4842.9	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°	1	10	16	20	21	4
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	679	681	577
135°	801	814	821	829	828	619
145°	929	929	942	948	944	581
155°	1023	1016	1026	1030	1024	472
165°	1078	1074	1076	1082	1076	305
175°	1103	1097	1099	1105	1097	105
180°	1101	1101	1101	1101	1101	

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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°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.1	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	141.0	31.9	45.4	51.7	53.3
102.5°	193.5	192.0	47.0	55.7	58.1
105°	242.1	266.0	48.6	57.3	60.5
107.5°	298.6	318.5	50.2	58.9	62.1
110°	352.9	369.5	139.4	59.8	62.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.8	418.1	404.6	61.3	63.8
115°	457.9	471.4	491.4	122.6	65.4
117.5°	504.9	520.8	534.4	420.4	211.8
120°	557.5	569.4	583.8	593.4	485.8
122.5°	602.0	614.8	630.8	635.5	636.3
125°	647.4	657.9	672.9	678.6	680.9
127.5°	688.8	700.0	712.0	720.0	720.7
130°	727.9	740.7	749.3	758.1	757.4
132.5°	767.7	778.1	786.8	794.0	793.3
135°	801.2	814.0	821.1	829.1	827.5
137.5°	836.2	845.7	853.8	861.7	859.3
140°	870.4	876.9	885.6	892.8	888.8
142.5°	899.2	904.7	915.1	921.4	917.5
145°	929.4	928.6	942.1	947.7	943.7
147.5°	955.6	953.2	966.8	970.8	967.7
150°	981.1	975.6	988.4	993.1	989.1
152.5°	1002.7	996.3	1008.2	1013.0	1007.5
155°	1023.4	1016.3	1025.8	1030.5	1024.2
157.5°	1040.1	1033.7	1041.0	1046.5	1040.1
160°	1054.4	1049.6	1054.4	1059.2	1053.6
162.5°	1067.1	1062.4	1066.4	1072.0	1064.8
165°	1078.3	1073.6	1075.9	1081.5	1075.9
167.5°	1087.1	1082.2	1084.8	1090.3	1083.1
170°	1094.3	1089.5	1091.0	1096.7	1089.5
172.5°	1099.0	1094.3	1095.9	1101.5	1094.3
175°	1102.9	1097.4	1099.0	1104.6	1096.7
177.5°	1104.6	1099.0	1099.8	1105.5	1098.3
180°	1100.7	1100.7	1100.7	1100.7	1100.7

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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	4.34	5.07	5.43	6.16	7.65	3.89	4.62	4.98	5.71	7.20
	3H	5.99	6.64	7.08	7.73	9.24	5.49	6.15	6.59	7.24	8.75
	4H	6.56	7.18	7.67	8.28	9.79	6.07	6.69	7.18	7.79	9.30
	6H	6.95	7.52	8.07	8.62	10.15	6.45	7.02	7.57	8.12	9.65
	8H	7.05	7.60	8.17	8.71	10.23	6.55	7.09	7.67	8.21	9.73
	12H	7.10	7.61	8.22	8.72	10.26	6.59	7.10	7.71	8.21	9.75
4H	2H	4.78	5.40	5.90	6.50	8.01	4.42	5.05	5.54	6.14	7.66
	3H	6.63	7.15	7.75	8.27	9.80	6.22	6.74	7.34	7.86	9.39
	4H	7.33	7.81	8.46	8.92	10.47	6.91	7.39	8.03	8.50	10.04
	6H	7.84	8.25	8.97	9.38	10.92	7.40	7.81	8.54	8.95	10.49
	8H	7.98	8.36	9.11	9.49	11.04	7.54	7.92	8.67	9.05	10.61
	12H	8.05	8.39	9.19	9.53	11.09	7.60	7.94	8.74	9.08	10.64
8H	4H	7.52	7.90	8.65	9.02	10.58	7.14	7.52	8.27	8.65	10.20
	6H	8.14	8.45	9.29	9.62	11.17	7.75	8.06	8.90	9.23	10.79
	8H	8.35	8.63	9.51	9.78	11.35	7.96	8.23	9.12	9.38	10.95
	12H	8.47	8.72	9.64	9.86	11.47	8.06	8.30	9.22	9.45	11.06
12H	4H	7.49	7.84	8.64	8.98	10.54	7.12	7.47	8.27	8.61	10.17
	6H	8.16	8.44	9.32	9.59	11.16	7.79	8.06	8.95	9.21	10.78
	8H	8.39	8.64	9.56	9.78	11.39	8.01	8.25	9.17	9.40	11.01