

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: P913059

Luminaire Tested: DFN2DIP-4P2F0-020D040US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913059
REPORT IS A COMBINATION OF REPORTS P900543 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US927-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

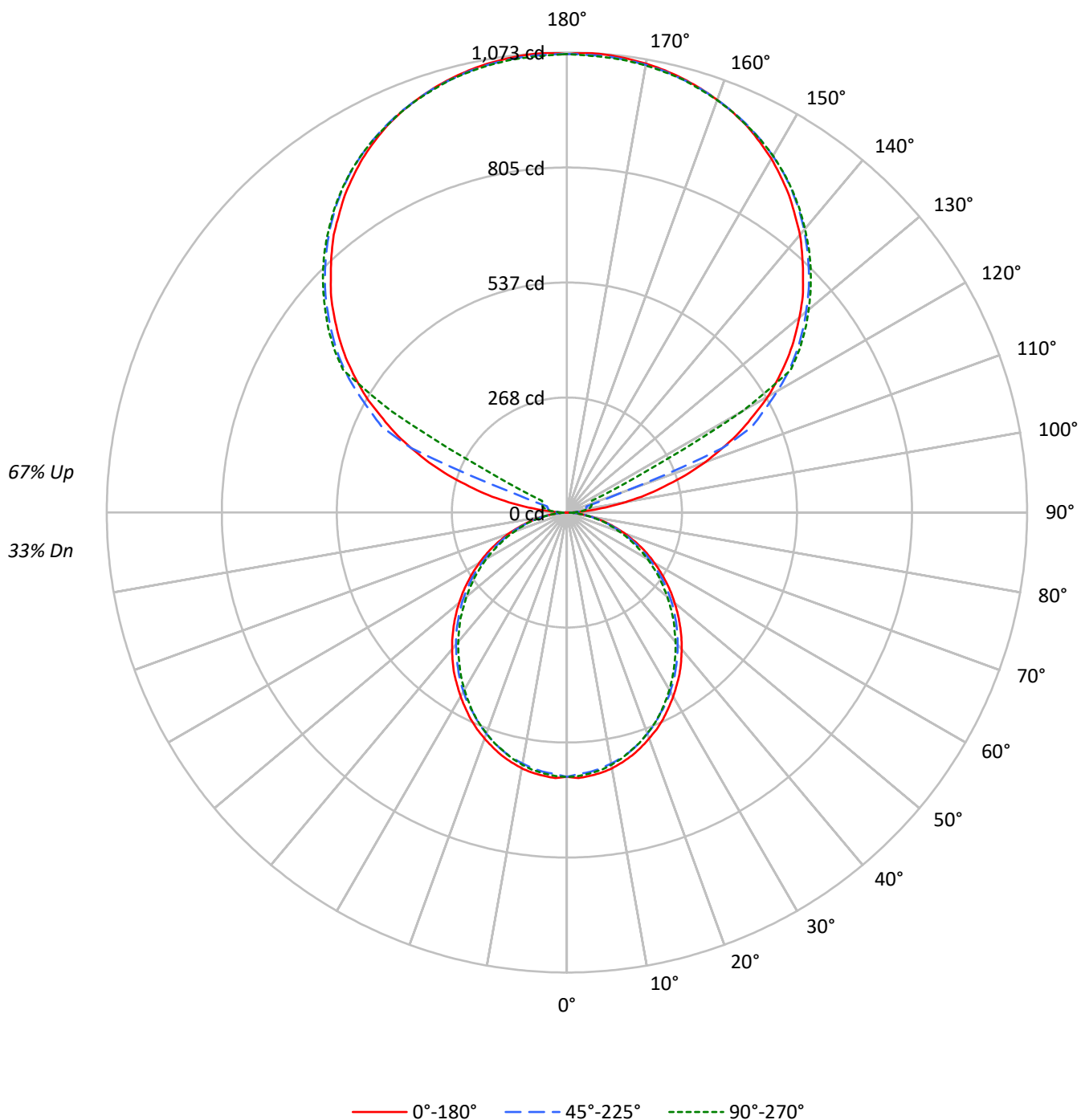
Lumens per Lamp: N/A
Luminaire Lumens: 4705.5 lumens
Efficiency: N/A
Efficacy: 95.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
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
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°	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

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.0	1.2
10°-20°	163.3	3.5
20°-30°	239.9	5.1
30°-40°	278.7	5.9
40°-50°	278.3	5.9
50°-60°	242.7	5.2
60°-70°	179.4	3.8
70°-80°	101.5	2.2
80°-90°	28.7	0.6
90°-100°	35.2	0.7
100°-110°	131.5	2.8
110°-120°	348.6	7.4
120°-130°	578.2	12.3
130°-140°	614.2	13.1
140°-150°	570.9	12.1
150°-160°	458.9	9.8
160°-170°	295.7	6.3
170°-180°	101.8	2.2
0°-30°	461.2	9.8
0°-40°	739.9	15.7
0°-60°	1260.8	26.8
0°-90°	1570.4	33.4
90°-120°	515.3	11.0
90°-150°	2278.7	48.4
90°-180°	3135.0	66.6
0°-180°	4705.5	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°	1	9	15	19	21	4
95°	50	25	30	34	33	60
105°	235	258	47	56	59	251
115°	445	458	477	119	64	438
125°	629	639	654	659	662	561
135°	778	791	798	806	804	601
145°	903	902	915	921	917	565
155°	994	988	997	1001	995	458
165°	1048	1043	1045	1051	1045	296
175°	1072	1066	1068	1073	1066	102
180°	1069	1069	1069	1069	1069	

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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°	0.7	9.3	15.4	19.4	20.8
92.5°	19.4	16.2	18.5	20.1	20.8
95°	50.2	24.7	30.1	34.1	33.3
97.5°	90.5	27.1	39.5	41.8	42.5
100°	137.0	31.0	44.1	50.2	51.8
102.5°	188.0	186.6	45.6	54.1	56.5
105°	235.2	258.5	47.2	55.7	58.8
107.5°	290.2	309.5	48.8	57.3	60.4
110°	342.9	359.0	135.5	58.1	61.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	392.4	406.2	393.1	59.6	61.9
115°	444.9	458.0	477.4	119.1	63.5
117.5°	490.6	506.0	519.3	408.5	205.8
120°	541.7	553.3	567.2	576.5	472.1
122.5°	584.9	597.4	612.9	617.5	618.3
125°	629.1	639.2	653.9	659.3	661.6
127.5°	669.3	680.2	691.8	699.6	700.3
130°	707.3	719.7	728.1	736.6	735.9
132.5°	745.9	756.1	764.5	771.5	770.8
135°	778.5	790.9	797.8	805.6	804.1
137.5°	812.5	821.7	829.6	837.3	835.0
140°	845.7	852.0	860.5	867.4	863.6
142.5°	873.7	879.1	889.1	895.2	891.4
145°	903.1	902.3	915.4	920.8	916.9
147.5°	928.5	926.2	939.4	943.3	940.2
150°	953.3	947.9	960.4	965.0	961.1
152.5°	974.2	968.0	979.6	984.3	978.9
155°	994.3	987.5	996.7	1001.3	995.1
157.5°	1010.6	1004.4	1011.5	1016.8	1010.6
160°	1024.5	1019.9	1024.5	1029.1	1023.7
162.5°	1036.9	1032.3	1036.2	1041.6	1034.6
165°	1047.7	1043.1	1045.4	1050.8	1045.4
167.5°	1056.3	1051.5	1054.0	1059.4	1052.4
170°	1063.3	1058.6	1060.1	1065.6	1058.6
172.5°	1067.9	1063.3	1064.8	1070.2	1063.3
175°	1071.7	1066.3	1067.9	1073.2	1065.6
177.5°	1073.2	1067.9	1068.7	1074.1	1067.1
180°	1069.4	1069.4	1069.4	1069.4	1069.4

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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	6.87	7.60	7.96	8.69	10.18	6.43	7.16	7.52	8.25	9.74
	3H	8.50	9.15	9.60	10.25	11.76	8.01	8.67	9.11	9.76	11.27
	4H	9.07	9.69	10.18	10.78	12.30	8.57	9.19	9.68	10.29	11.80
	6H	9.44	10.01	10.56	11.11	12.64	8.94	9.51	10.06	10.61	12.14
	8H	9.54	10.08	10.66	11.19	12.71	9.03	9.58	10.15	10.69	12.21
	12H	9.57	10.09	10.69	11.20	12.74	9.06	9.58	10.19	10.69	12.23
4H	2H	7.31	7.93	8.42	9.02	10.54	6.95	7.57	8.07	8.67	10.18
	3H	9.13	9.65	10.25	10.77	12.30	8.73	9.24	9.85	10.37	11.89
	4H	9.82	10.30	10.95	11.41	12.96	9.40	9.88	10.52	10.99	12.53
	6H	10.31	10.72	11.44	11.85	13.39	9.88	10.28	11.01	11.42	12.96
	8H	10.45	10.83	11.58	11.95	13.51	10.01	10.39	11.14	11.52	13.07
	12H	10.50	10.85	11.65	11.99	13.55	10.05	10.40	11.20	11.54	13.10
8H	4H	10.00	10.38	11.13	11.50	13.06	9.62	10.00	10.75	11.13	12.68
	6H	10.59	10.91	11.75	12.08	13.63	10.21	10.52	11.36	11.69	13.24
	8H	10.80	11.07	11.96	12.22	13.79	10.40	10.68	11.56	11.83	13.40
	12H	10.91	11.15	12.07	12.30	13.90	10.50	10.74	11.66	11.89	13.49
12H	4H	9.97	10.32	11.12	11.46	13.02	9.60	9.95	10.75	11.09	12.65
	6H	10.62	10.89	11.78	12.04	13.61	10.24	10.52	11.40	11.67	13.24
	8H	10.84	11.08	12.00	12.22	13.83	10.45	10.69	11.62	11.84	13.45

END OF REPORT