

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: P913339

Luminaire Tested: DFN2DIP-HX2F0-020D040US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913339
REPORT IS A COMBINATION OF REPORTS P900691 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-020D040US927-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

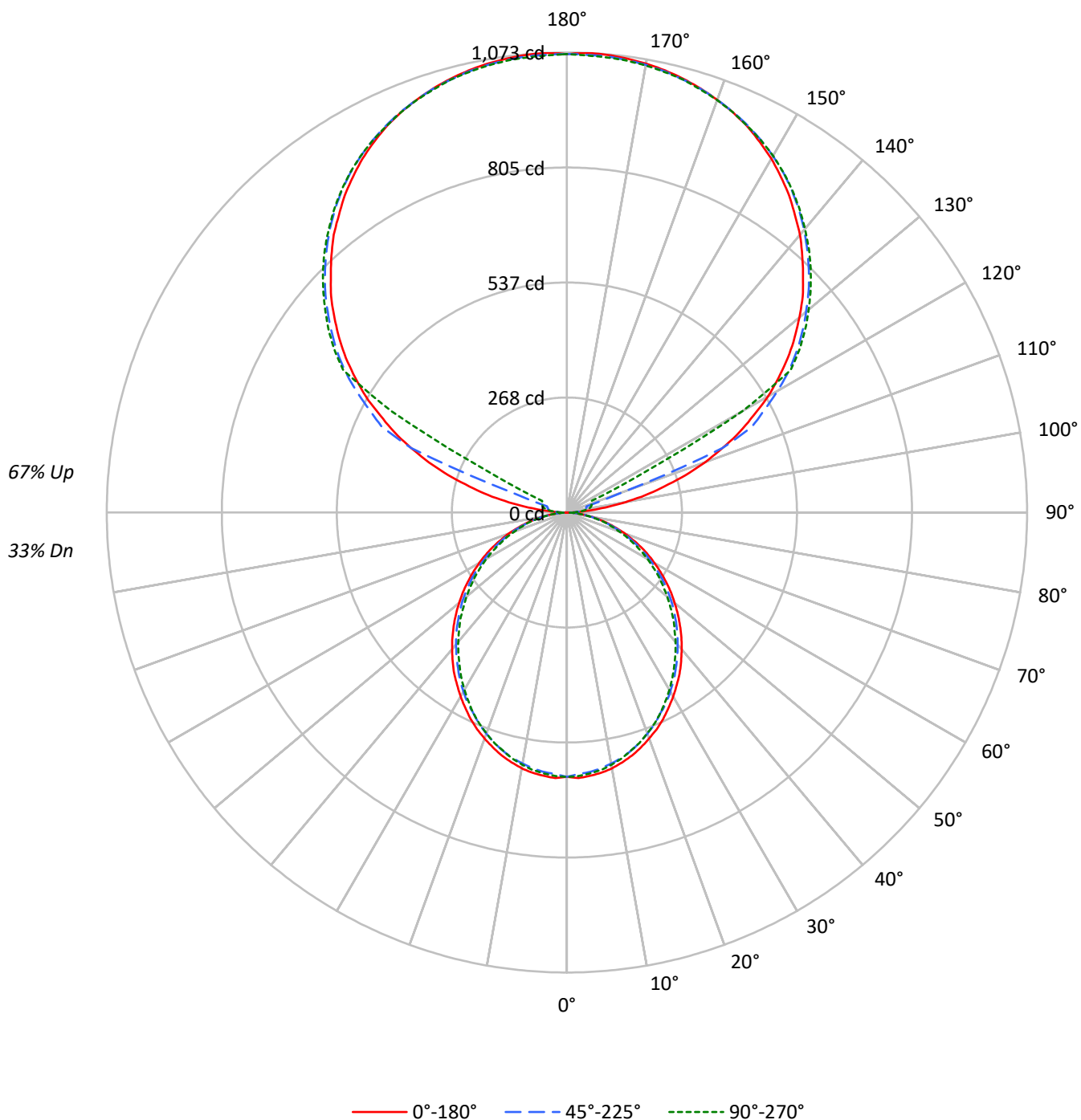
Lumens per Lamp: N/A
Luminaire Lumens: 4705.5 lumens
Efficiency: N/A
Efficacy: 105.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 44.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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°	1453	1453	1453
5°	1453	1429	1439
10°	1439	1406	1417
15°	1415	1380	1384
20°	1384	1344	1350
25°	1353	1302	1311
30°	1315	1263	1263
35°	1279	1217	1212
40°	1235	1171	1163
45°	1191	1124	1113
50°	1142	1075	1056
55°	1091	1019	1002
60°	1034	952	941
65°	970	883	868
70°	890	798	790
75°	780	696	714
80°	645	567	575
85°	437	355	357

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1191 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	6.66	7.39	7.75	8.48	9.97	6.24	6.97	7.32	8.05	9.54
	3H	8.28	8.94	9.38	10.03	11.54	7.83	8.48	8.92	9.57	11.08
	4H	8.85	9.47	9.96	10.57	12.08	8.39	9.01	9.50	10.11	11.62
	6H	9.22	9.79	10.34	10.89	12.42	8.76	9.33	9.88	10.43	11.96
	8H	9.31	9.86	10.43	10.97	12.49	8.86	9.40	9.98	10.52	12.03
	12H	9.35	9.87	10.47	10.97	12.52	8.89	9.40	10.01	10.51	12.05
4H	2H	7.10	7.72	8.21	8.81	10.33	6.76	7.38	7.87	8.47	9.99
	3H	8.92	9.44	10.04	10.56	12.09	8.54	9.05	9.66	10.18	11.70
	4H	9.61	10.09	10.73	11.20	12.74	9.22	9.69	10.34	10.80	12.35
	6H	10.09	10.50	11.23	11.64	13.18	9.70	10.11	10.83	11.24	12.78
	8H	10.23	10.61	11.36	11.74	13.29	9.83	10.21	10.96	11.34	12.89
	12H	10.28	10.63	11.43	11.77	13.33	9.88	10.22	11.03	11.36	12.92
8H	4H	9.78	10.16	10.92	11.29	12.85	9.43	9.81	10.56	10.94	12.50
	6H	10.38	10.70	11.53	11.86	13.42	10.03	10.34	11.18	11.51	13.06
	8H	10.58	10.86	11.74	12.01	13.58	10.23	10.50	11.39	11.65	13.22
	12H	10.69	10.93	11.85	12.08	13.69	10.32	10.57	11.49	11.71	13.32
12H	4H	9.76	10.11	10.91	11.25	12.81	9.42	9.76	10.57	10.90	12.46
	6H	10.40	10.68	11.56	11.83	13.40	10.06	10.34	11.22	11.49	13.06
	8H	10.62	10.86	11.78	12.01	13.62	10.28	10.52	11.44	11.66	13.27