

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: P906164

Luminaire Tested: DFN2DIP-PN4F0-120D050US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906164
REPORT IS A COMBINATION OF REPORTS P899643 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US835-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

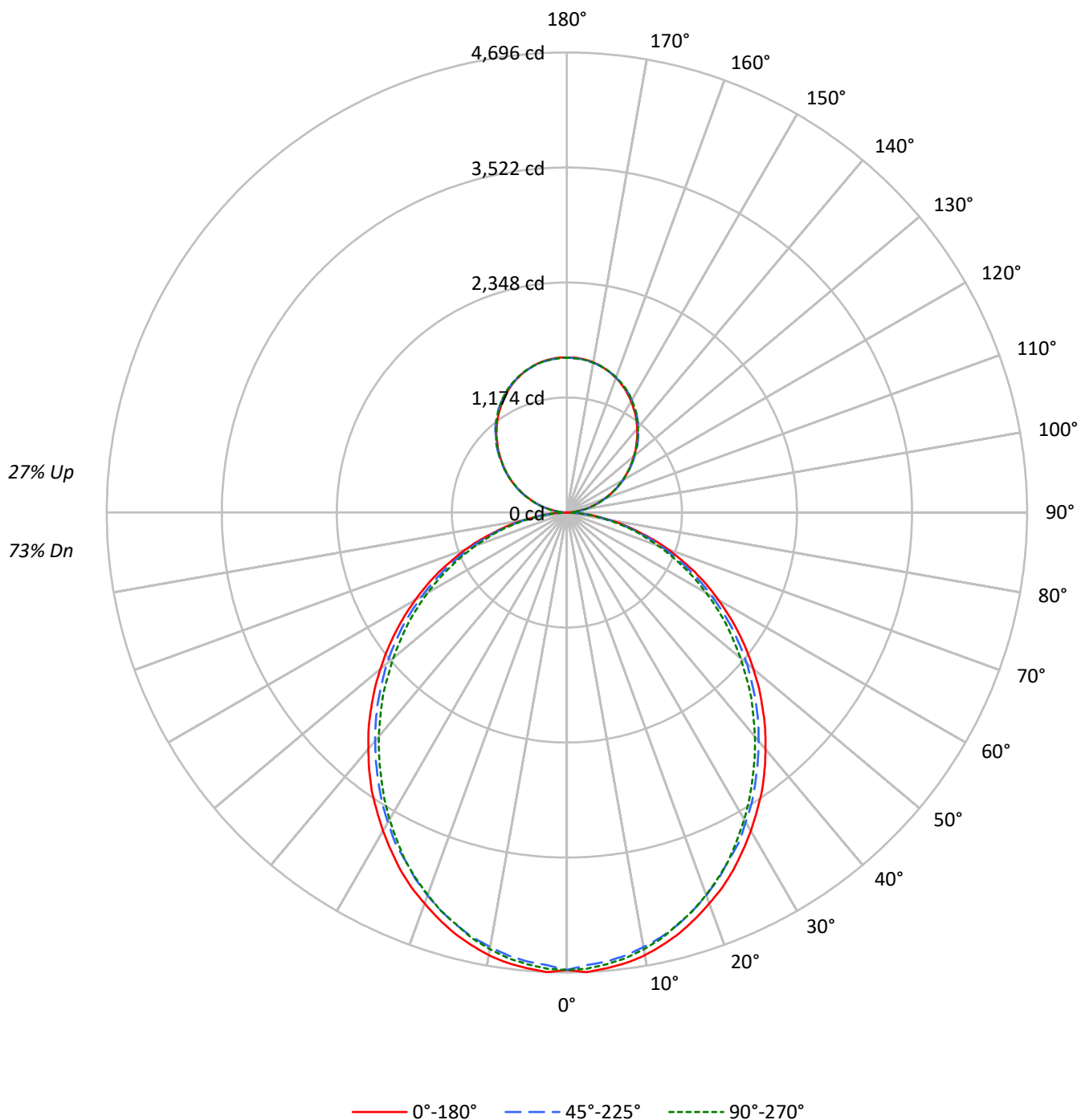
Lumens per Lamp: N/A
Luminaire Lumens: 16305.0 lumens
Efficiency: N/A
Efficacy: 99.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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
RCR																	
0	113	113	113	113	107	107	107	107	96	96	96		86	86	86		77
1	103	98	94	91	97	94	90	87	84	82	79		76	74	72		68
2	94	86	80	74	89	82	76	71	74	69	66		67	63	60		60
3	86	76	68	62	81	72	65	60	65	60	55		59	55	51		53
4	78	67	59	53	74	64	57	51	58	52	47		53	48	44		48
5	72	60	51	45	68	57	50	44	52	46	41		47	42	38		43
6	67	54	45	39	63	52	44	38	47	41	36		43	38	33		39
7	62	49	41	35	58	47	39	34	43	36	32		39	34	30		36
8	57	45	36	31	54	43	35	30	39	33	28		36	30	27		33
9	53	41	33	28	51	39	32	27	36	30	25		33	28	24		30
10	50	38	30	25	48	36	29	24	33	27	23		31	25	22		28

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3408	3408	3408
5°	3414	3361	3384
10°	3386	3317	3339
15°	3336	3262	3268
20°	3269	3187	3195
25°	3202	3097	3111
30°	3118	3013	3004
35°	3039	2914	2891
40°	2941	2814	2783
45°	2843	2713	2673
50°	2737	2608	2545
55°	2625	2486	2428
60°	2499	2342	2293
65°	2361	2192	2135
70°	2186	2010	1965
75°	1943	1792	1808
80°	1651	1514	1508
85°	1194	1033	1009

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2843 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	439.5	2.7
10°-20°	1236.5	7.6
20°-30°	1817.2	11.1
30°-40°	2110.5	12.9
40°-50°	2107.9	12.9
50°-60°	1838.0	11.3
60°-70°	1358.7	8.3
70°-80°	768.7	4.7
80°-90°	207.4	1.3
90°-100°	97.8	0.6
100°-110°	310.9	1.9
110°-120°	532.1	3.3
120°-130°	699.7	4.3
130°-140°	785.4	4.8
140°-150°	770.2	4.7
150°-160°	646.1	4.0
160°-170°	428.5	2.6
170°-180°	149.8	0.9
0°-30°	3493.1	21.4
0°-40°	5603.7	34.4
0°-60°	9549.6	58.6
0°-90°	11884.5	72.9
90°-120°	940.8	5.8
90°-150°	3196.2	19.6
90°-180°	4421.0	27.1
0°-180°	16305.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4669	4669	4669	4669	4669	
5°	4669	4652	4602	4638	4629	443
15°	4445	4418	4360	4378	4355	1252
25°	4023	3987	3911	3920	3911	1851
35°	3471	3426	3354	3327	3304	2167
45°	2824	2793	2725	2676	2658	2180
55°	2137	2110	2056	2003	1980	1911
65°	1442	1414	1370	1329	1307	1425
75°	754	746	723	696	705	805
85°	184	180	175	162	157	205
90°	1	17	47	44	45	16
95°	70	83	85	85	83	77
105°	287	291	294	296	296	303
115°	534	542	539	538	534	528
125°	777	788	785	780	779	694
135°	1004	1019	1022	1021	1017	776
145°	1220	1229	1237	1238	1233	762
155°	1394	1398	1402	1409	1405	642
165°	1517	1516	1516	1525	1518	428
175°	1578	1575	1572	1581	1573	150
180°	1581	1581	1581	1581	1581	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4669.3	4669.3	4669.3	4669.3	4669.3
2.5°	4696.4	4674.0	4624.5	4669.3	4660.7
5°	4669.3	4651.6	4602.1	4637.8	4629.2
7.5°	4637.8	4611.1	4561.6	4597.8	4588.8
10°	4588.8	4557.3	4503.5	4539.2	4525.9
12.5°	4521.1	4494.4	4440.6	4463.0	4453.9
15°	4444.9	4418.2	4359.6	4377.7	4355.3
17.5°	4350.6	4323.9	4265.3	4287.7	4265.3
20°	4247.2	4220.5	4157.7	4171.0	4153.4
22.5°	4144.3	4103.8	4045.2	4045.2	4036.2
25°	4022.8	3987.1	3910.9	3919.5	3910.9
27.5°	3888.0	3856.6	3798.5	3785.1	3762.8
30°	3753.7	3717.5	3650.3	3637.0	3618.9
32.5°	3609.8	3583.2	3511.2	3484.1	3466.0
35°	3470.7	3426.0	3354.0	3326.9	3304.5
37.5°	3313.5	3273.1	3201.1	3169.7	3147.3
40°	3152.1	3115.9	3043.9	3003.9	2985.8
42.5°	2994.9	2958.7	2887.2	2842.0	2815.3
45°	2824.3	2792.9	2725.2	2676.2	2658.1
47.5°	2658.1	2626.6	2554.7	2505.2	2478.5
50°	2482.8	2460.4	2397.5	2334.6	2312.2
52.5°	2312.2	2280.8	2222.7	2173.1	2141.7
55°	2137.4	2110.3	2056.4	2002.6	1980.2
57.5°	1962.1	1939.7	1881.1	1827.3	1809.2
60°	1786.8	1769.2	1706.3	1656.8	1643.4
62.5°	1616.3	1584.8	1540.1	1495.3	1477.2
65°	1441.5	1414.3	1369.5	1329.0	1306.7
67.5°	1261.9	1239.0	1199.0	1167.6	1149.5
70°	1095.6	1077.5	1037.0	1005.6	988.0
72.5°	925.1	907.0	884.6	853.2	839.8
75°	754.1	745.5	722.6	696.0	705.0
77.5°	601.6	583.5	574.5	561.1	547.8
80°	449.2	444.4	435.4	422.1	413.0
82.5°	305.3	305.3	301.1	283.0	283.0
85°	183.9	179.6	175.3	161.5	157.2
87.5°	81.0	71.9	62.9	49.5	44.8
90°	1.4	17.2	46.7	43.9	45.3
92.5°	29.6	40.0	41.5	42.9	42.9
95°	69.6	83.0	85.3	85.3	83.0
97.5°	115.8	128.2	133.5	133.5	133.5
100°	169.2	180.2	184.0	184.0	182.6
102.5°	225.5	233.6	238.8	240.3	238.8
105°	287.0	290.8	293.7	296.0	296.0
107.5°	348.0	353.7	353.7	354.7	348.0
110°	407.1	414.8	414.8	414.8	410.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	471.0	479.1	477.7	473.9	471.0
115°	533.9	541.6	539.2	537.8	533.9
117.5°	596.4	606.9	600.2	596.4	592.6
120°	659.3	669.8	659.3	659.3	655.0
122.5°	716.5	729.9	723.2	719.4	716.5
125°	776.6	788.5	784.7	780.4	779.0
127.5°	835.2	850.0	844.8	839.0	835.2
130°	890.1	907.2	904.8	902.0	896.7
132.5°	951.6	964.9	965.9	959.2	955.4
135°	1004.5	1019.2	1022.1	1020.7	1016.9
137.5°	1063.6	1075.5	1077.9	1076.9	1071.2
140°	1115.5	1127.5	1134.1	1134.1	1128.9
142.5°	1168.9	1180.9	1184.7	1186.1	1180.9
145°	1219.5	1229.0	1236.6	1238.1	1232.8
147.5°	1264.8	1276.7	1282.4	1284.8	1279.5
150°	1311.5	1319.6	1324.8	1329.1	1324.8
152.5°	1353.0	1361.1	1367.7	1373.0	1367.7
155°	1394.4	1398.2	1402.5	1409.2	1404.9
157.5°	1430.2	1433.0	1435.4	1445.0	1438.3
160°	1462.1	1465.0	1466.4	1474.5	1468.8
162.5°	1491.7	1491.7	1493.1	1502.2	1495.5
165°	1517.0	1515.5	1515.5	1525.1	1518.4
167.5°	1539.8	1535.5	1535.5	1545.1	1538.4
170°	1557.0	1553.2	1551.8	1561.3	1553.2
172.5°	1568.9	1565.1	1563.7	1573.2	1565.1
175°	1578.5	1574.6	1571.8	1581.3	1573.2
177.5°	1583.7	1579.9	1577.0	1585.1	1577.0
180°	1581.3	1581.3	1581.3	1581.3	1581.3

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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	13.43	14.54	14.16	15.29	16.20	12.99	14.10	13.72	14.85	15.76
	3H	15.11	16.11	15.85	16.87	17.81	14.62	15.62	15.37	16.39	17.32
	4H	15.71	16.65	16.47	17.43	18.37	15.22	16.17	15.99	16.94	17.88
	6H	16.12	17.00	16.90	17.78	18.74	15.63	16.50	16.41	17.29	18.24
	8H	16.24	17.07	17.02	17.87	18.83	15.74	16.58	16.53	17.38	18.34
	12H	16.30	17.09	17.09	17.88	18.87	15.80	16.59	16.59	17.38	18.37
4H	2H	13.92	14.86	14.69	15.63	16.58	13.57	14.51	14.33	15.28	16.23
	3H	15.81	16.60	16.59	17.41	18.37	15.41	16.20	16.19	17.00	17.97
	4H	16.54	17.25	17.33	18.06	19.05	16.12	16.84	16.91	17.64	18.63
	6H	17.07	17.69	17.88	18.52	19.52	16.64	17.27	17.46	18.10	19.09
	8H	17.23	17.81	18.04	18.63	19.64	16.80	17.38	17.61	18.21	19.21
	12H	17.31	17.84	18.15	18.68	19.70	16.87	17.40	17.71	18.24	19.26
8H	4H	16.75	17.33	17.57	18.16	19.17	16.38	16.96	17.20	17.79	18.80
	6H	17.40	17.88	18.24	18.75	19.76	17.02	17.50	17.87	18.37	19.38
	8H	17.62	18.05	18.48	18.92	19.94	17.24	17.67	18.09	18.53	19.56
	12H	17.77	18.15	18.63	19.00	20.08	17.37	17.74	18.23	18.60	19.68
12H	4H	16.75	17.27	17.59	18.12	19.14	16.39	16.91	17.22	17.76	18.78
	6H	17.43	17.86	18.29	18.73	19.75	17.07	17.49	17.92	18.36	19.39
	8H	17.69	18.06	18.55	18.92	20.00	17.31	17.69	18.17	18.55	19.63