

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: P916570

Luminaire Tested: DFN2DIP-PN2F0-060D020US930-RLLFLL

Issue Date: 11/21/2024

**Test Information**

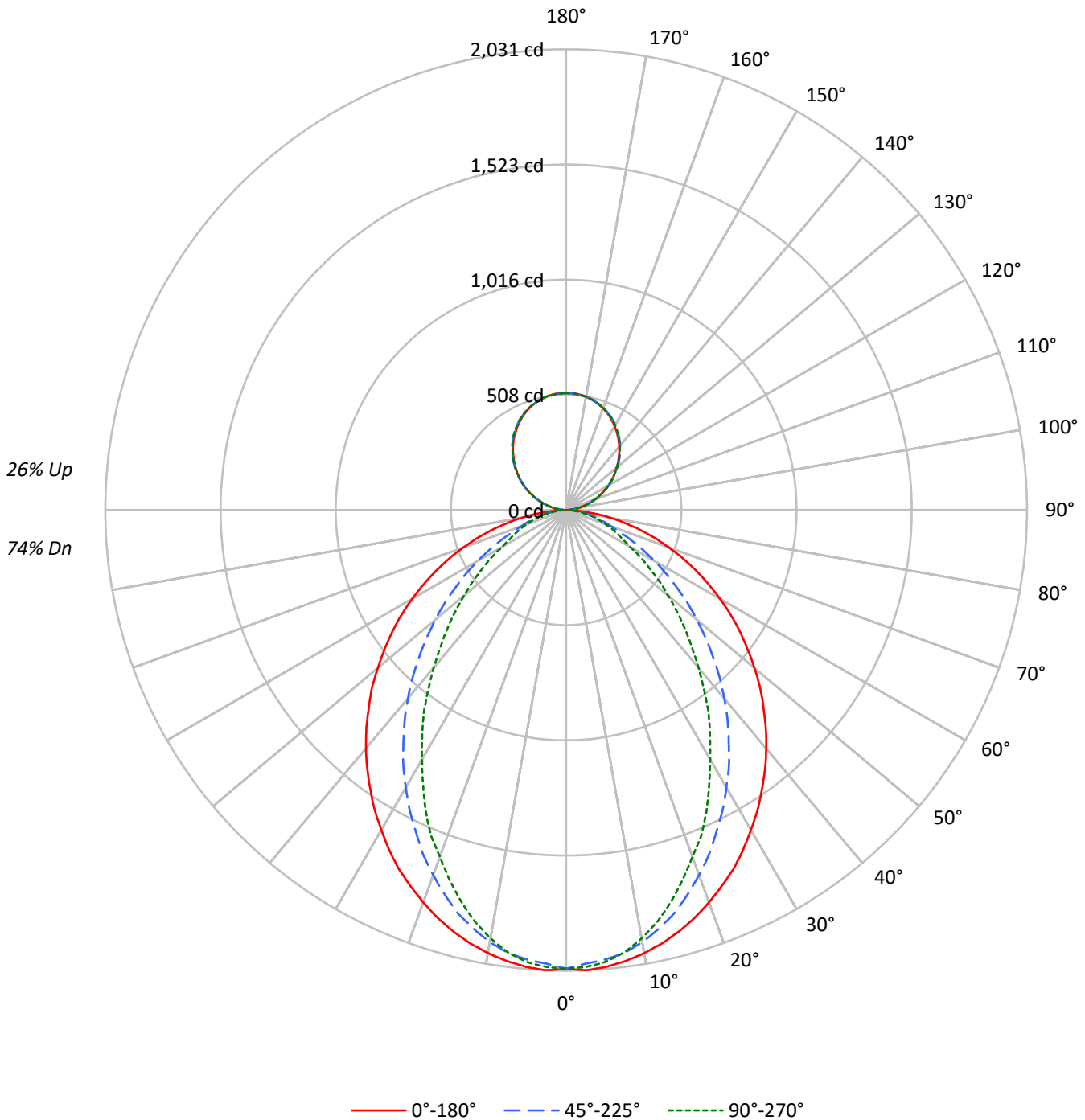
Test Method: LM-79-2019  
Report Number: P916570  
REPORT IS A COMBINATION OF REPORTS P899470 AND P896349  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN2F0-060D020US930-RLLFLL  
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5601.1 lumens  
Efficiency: N/A  
Efficacy: 69.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 80.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74	74	74	74
1	104	100	96	93	99	95	92	89	86	84	81	78	76	74	70	69	68	64	64	64	64
2	95	88	82	77	90	84	79	74	76	72	68	69	66	63	63	60	58	55	55	55	55
3	87	78	71	65	83	75	68	63	68	63	58	62	58	54	56	53	50	47	47	47	47
4	80	70	62	56	76	67	60	54	61	55	51	56	51	47	51	47	44	41	41	41	41
5	74	63	54	48	70	60	53	47	55	49	44	51	45	42	46	42	39	36	36	36	36
6	69	57	48	43	65	54	47	41	50	44	39	46	41	37	42	38	35	32	32	32	32
7	64	51	43	38	61	49	42	37	46	39	35	42	37	33	39	34	31	29	29	29	29
8	59	47	39	34	57	45	38	33	42	36	31	39	34	30	36	31	28	26	26	26	26
9	56	43	36	31	53	42	35	30	39	33	28	36	31	27	33	29	26	24	24	24	24
10	52	40	33	28	50	39	32	27	36	30	26	33	28	25	31	27	23	22	22	22	22

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	4379	4379	4379
5°	4379	4300	4330
10°	4328	4207	4183
15°	4262	4058	3959
20°	4176	3858	3687
25°	4088	3635	3424
30°	3972	3407	3093
35°	3859	3164	2802
40°	3742	2912	2470
45°	3608	2635	2170
50°	3469	2356	1876
55°	3323	2059	1595
60°	3153	1750	1307
65°	2958	1436	1169
70°	2720	1144	1049
75°	2421	990	941
80°	1992	804	797
85°	1302	500	565

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3608 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	189.5	3.4
10°-20°	520.2	9.3
20°-30°	730.3	13.0
30°-40°	796.1	14.2
40°-50°	731.7	13.1
50°-60°	574.6	10.3
60°-70°	374.0	6.7
70°-80°	192.5	3.4
80°-90°	50.6	0.9
90°-100°	31.9	0.6
100°-110°	101.4	1.8
110°-120°	173.5	3.1
120°-130°	228.2	4.1
130°-140°	256.1	4.6
140°-150°	251.2	4.5
150°-160°	210.7	3.8
160°-170°	139.7	2.5
170°-180°	48.8	0.9
0°-30°	1439.9	25.7
0°-40°	2236.0	39.9
0°-60°	3542.3	63.2
0°-90°	4159.5	74.3
90°-120°	306.8	5.5
90°-150°	1042.3	18.6
90°-180°	1442.0	25.7
0°-180°	5601.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2022	2022	2022	2022	2022	
5°	2022	2013	1989	2005	2000	192
15°	1923	1903	1841	1806	1788	542
25°	1746	1687	1566	1491	1464	803
35°	1504	1411	1250	1134	1094	941
45°	1230	1107	915	785	741	950
55°	935	792	595	485	450	835
65°	631	483	318	256	251	626
75°	337	208	146	134	132	356
85°	79	40	35	35	35	90
90°	0	6	15	14	15	5
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°	2021.8	2021.8	2021.8	2021.8	2021.8
2.5°	2030.9	2021.8	2001.6	2020.0	2016.3
5°	2021.8	2012.6	1988.8	2005.3	1999.8
7.5°	2005.3	1994.4	1968.8	1976.0	1966.8
10°	1983.3	1970.5	1934.1	1928.4	1917.5
12.5°	1956.0	1939.4	1889.9	1879.1	1858.9
15°	1923.0	1902.7	1840.6	1805.9	1787.6
17.5°	1884.6	1855.2	1778.3	1738.1	1708.9
20°	1840.6	1803.9	1712.5	1666.9	1626.5
22.5°	1793.1	1750.9	1644.8	1582.7	1555.3
25°	1745.6	1686.9	1566.2	1491.3	1463.7
27.5°	1688.9	1626.5	1493.0	1407.0	1364.9
30°	1628.5	1558.8	1412.4	1319.2	1269.7
32.5°	1569.9	1485.6	1335.8	1225.9	1180.1
35°	1504.1	1410.7	1249.8	1134.4	1094.0
37.5°	1440.0	1339.2	1169.2	1042.8	997.2
40°	1372.2	1262.6	1084.9	955.0	907.5
42.5°	1302.8	1185.7	1000.9	865.4	819.8
45°	1229.6	1106.8	914.9	784.8	740.9
47.5°	1160.1	1030.2	832.6	702.5	662.3
50°	1083.2	953.3	752.0	625.7	587.4
52.5°	1008.0	870.8	675.1	554.4	519.7
55°	934.9	792.2	594.6	484.9	450.1
57.5°	860.0	713.5	523.3	420.9	391.5
60°	783.1	636.7	448.3	355.1	325.7
62.5°	708.2	561.8	384.2	296.4	281.8
65°	631.3	483.0	318.4	256.2	250.6
67.5°	558.1	409.8	256.2	225.0	219.6
70°	481.2	338.5	212.1	194.0	186.5
72.5°	408.1	272.6	177.4	162.9	159.1
75°	336.6	208.5	146.3	133.5	131.8
77.5°	265.4	148.1	115.3	107.9	104.3
80°	199.3	106.2	87.7	80.6	80.6
82.5°	139.0	71.4	60.3	56.7	56.7
85°	78.6	40.2	34.7	34.7	34.7
87.5°	29.4	14.6	14.6	12.8	12.8
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	14.18	15.26	14.90	16.00	16.88	10.15	11.23	10.87	11.97	12.85
	3H	15.86	16.82	16.59	17.57	18.48	11.34	12.30	12.08	13.05	13.97
	4H	16.46	17.37	17.22	18.13	19.05	11.79	12.70	12.55	13.46	14.38
	6H	16.88	17.72	17.65	18.48	19.42	12.11	12.94	12.88	13.71	14.65
	8H	17.00	17.80	17.78	18.59	19.53	12.20	12.99	12.98	13.78	14.72
	12H	17.07	17.82	17.85	18.60	19.57	12.24	13.00	13.03	13.78	14.75
4H	2H	14.22	15.13	14.98	15.89	16.82	10.76	11.67	11.52	12.43	13.35
	3H	16.05	16.81	16.82	17.60	18.54	12.12	12.87	12.89	13.66	14.61
	4H	16.74	17.42	17.52	18.22	19.19	12.66	13.34	13.45	14.14	15.11
	6H	17.25	17.84	18.05	18.66	19.63	13.07	13.66	13.88	14.48	15.46
	8H	17.42	17.97	18.22	18.78	19.77	13.20	13.75	14.01	14.56	15.55
	12H	17.51	18.01	18.34	18.84	19.84	13.26	13.76	14.09	14.60	15.59
8H	4H	16.72	17.27	17.53	18.09	19.07	12.94	13.50	13.75	14.31	15.30
	6H	17.27	17.73	18.11	18.59	19.57	13.45	13.90	14.29	14.76	15.75
	8H	17.48	17.88	18.32	18.74	19.74	13.63	14.03	14.48	14.89	15.89
	12H	17.61	17.97	18.46	18.81	19.88	13.74	14.10	14.59	14.95	16.01
12H	4H	16.68	17.18	17.51	18.01	19.01	12.96	13.45	13.78	14.29	15.28
	6H	17.25	17.65	18.09	18.51	19.51	13.49	13.90	14.34	14.75	15.76
	8H	17.46	17.82	18.31	18.67	19.73	13.70	14.06	14.55	14.90	15.96