

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: P918625

Luminaire Tested: DFN2DIP-4P3F0-060D020US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918625
REPORT IS A COMBINATION OF REPORTS P900558 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D020US935-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

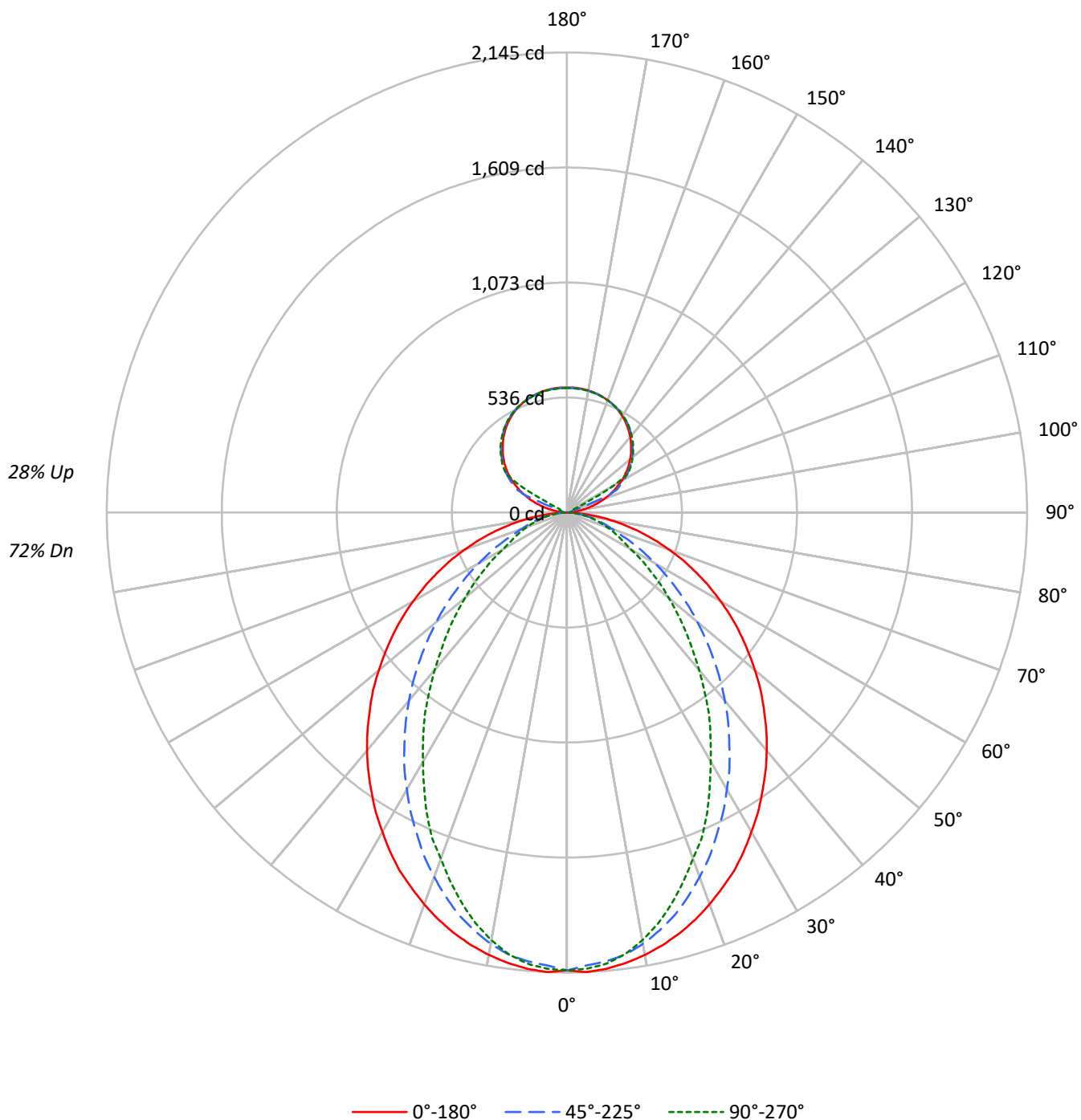
Lumens per Lamp: N/A
Luminaire Lumens: 6095.8 lumens
Efficiency: N/A
Efficacy: 78.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	112	112	112	112		107	107	107	107		96	96	96		86	86	86		76	76	76
1	103	99	95	92		98	94	91	88		85	82	80		76	75	73		69	67	66
2	95	87	81	76		90	83	78	73		75	71	68		68	65	62		61	59	57
3	87	78	70	65		82	74	67	62		67	62	58		61	57	53		55	52	49
4	80	69	61	55		76	66	59	54		60	54	50		55	50	46		50	46	43
5	74	62	54	48		70	59	52	47		54	48	44		50	45	41		45	41	38
6	68	56	48	42		65	54	46	41		49	43	39		45	40	36		41	37	34
7	63	51	43	38		60	49	42	36		45	39	34		41	36	32		38	34	30
8	59	47	39	34		56	45	38	33		41	35	31		38	33	29		35	31	27
9	55	43	35	30		52	41	34	30		38	32	28		35	30	26		32	28	25
10	52	40	32	28		49	38	31	27		35	29	25		33	28	24		30	26	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2433	2433	2433
5°	2436	2393	2409
10°	2410	2345	2330
15°	2375	2265	2208
20°	2330	2157	2059
25°	2283	2036	1915
30°	2221	1912	1732
35°	2161	1779	1572
40°	2098	1641	1388
45°	2027	1489	1221
50°	1952	1335	1059
55°	1874	1171	903
60°	1784	999	742
65°	1681	825	667
70°	1554	663	603
75°	1396	581	547
80°	1166	482	471
85°	791	314	350

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2027 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	200.1	3.3
10°-20°	549.3	9.0
20°-30°	771.2	12.7
30°-40°	840.7	13.8
40°-50°	772.7	12.7
50°-60°	606.8	10.0
60°-70°	395.0	6.5
70°-80°	203.3	3.3
80°-90°	52.9	0.9
90°-100°	19.2	0.3
100°-110°	71.4	1.2
110°-120°	189.5	3.1
120°-130°	314.2	5.2
130°-140°	333.8	5.5
140°-150°	310.2	5.1
150°-160°	249.4	4.1
160°-170°	160.7	2.6
170°-180°	55.3	0.9
0°-30°	1520.7	24.9
0°-40°	2361.4	38.7
0°-60°	3740.9	61.4
0°-90°	4392.1	72.1
90°-120°	280.0	4.6
90°-150°	1238.3	20.3
90°-180°	1704.0	28.0
0°-180°	6095.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	0	5	8	10	11	6
95°	27	13	16	18	18	32
105°	128	140	26	30	32	137
115°	242	249	260	65	34	238
125°	342	347	355	358	360	305
135°	423	430	434	438	437	327
145°	491	490	498	500	498	307
155°	540	537	542	544	541	249
165°	569	567	568	571	568	161
175°	582	580	580	583	579	55
180°	581	581	581	581	581	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	0.4	5.1	8.4	10.5	11.4
92.5°	10.5	8.9	10.1	10.9	11.4
95°	27.3	13.4	16.4	18.5	18.1
97.5°	49.2	14.7	21.4	22.7	23.2
100°	74.5	16.8	23.9	27.3	28.2
102.5°	102.2	101.3	24.8	29.4	30.7
105°	127.9	140.4	25.7	30.2	31.9
107.5°	157.7	168.2	26.5	31.1	32.8
110°	186.3	195.1	73.6	31.6	33.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	213.2	220.8	213.6	32.4	33.7
115°	241.8	248.9	259.5	64.7	34.5
117.5°	266.6	275.0	282.1	222.1	111.8
120°	294.4	300.7	308.2	313.3	256.5
122.5°	317.9	324.6	333.0	335.5	336.0
125°	341.9	347.3	355.3	358.3	359.6
127.5°	363.8	369.6	376.0	380.1	380.6
130°	384.3	391.1	395.7	400.4	399.9
132.5°	405.4	410.9	415.4	419.2	418.9
135°	423.1	429.8	433.5	437.8	437.0
137.5°	441.5	446.6	450.8	455.0	453.7
140°	459.6	463.0	467.6	471.4	469.3
142.5°	474.8	477.8	483.2	486.5	484.4
145°	490.8	490.3	497.5	500.4	498.3
147.5°	504.6	503.3	510.5	512.6	510.9
150°	518.1	515.1	521.9	524.3	522.3
152.5°	529.4	526.1	532.4	534.9	531.9
155°	540.4	536.6	541.7	544.2	540.8
157.5°	549.2	545.9	549.7	552.6	549.2
160°	556.8	554.2	556.8	559.3	556.4
162.5°	563.4	560.9	563.1	566.0	562.2
165°	569.4	566.9	568.1	571.1	568.1
167.5°	574.0	571.4	572.7	575.7	571.9
170°	577.8	575.2	576.1	579.0	575.2
172.5°	580.3	577.8	578.7	581.6	577.8
175°	582.4	579.5	580.3	583.2	579.0
177.5°	583.2	580.3	580.7	583.7	579.9
180°	581.2	581.2	581.2	581.2	581.2

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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	12.05	13.10	12.80	13.87	14.79	8.01	9.06	8.76	9.83	10.75
	3H	13.74	14.68	14.51	15.46	16.41	9.21	10.15	9.98	10.93	11.88
	4H	14.36	15.24	15.14	16.03	16.99	9.67	10.55	10.45	11.34	12.30
	6H	14.79	15.60	15.58	16.40	17.37	10.00	10.81	10.79	11.60	12.58
	8H	14.92	15.69	15.72	16.51	17.48	10.09	10.87	10.89	11.68	12.65
	12H	14.99	15.73	15.79	16.53	17.53	10.14	10.88	10.95	11.68	12.68
4H	2H	12.10	12.98	12.88	13.77	14.73	8.63	9.52	9.42	10.30	11.27
	3H	13.94	14.68	14.74	15.49	16.47	10.00	10.73	10.79	11.55	12.53
	4H	14.64	15.30	15.45	16.12	17.13	10.55	11.21	11.36	12.03	13.04
	6H	15.16	15.74	15.99	16.58	17.59	10.97	11.55	11.80	12.39	13.40
	8H	15.34	15.87	16.17	16.71	17.74	11.10	11.64	11.93	12.48	13.50
	12H	15.44	15.92	16.29	16.78	17.81	11.17	11.66	12.02	12.51	13.55
8H	4H	14.62	15.16	15.45	16.00	17.02	10.84	11.38	11.67	12.22	13.24
	6H	15.19	15.63	16.05	16.51	17.54	11.36	11.80	12.22	12.68	13.71
	8H	15.40	15.80	16.27	16.67	17.72	11.55	11.94	12.42	12.82	13.86
	12H	15.55	15.89	16.42	16.76	17.86	11.67	12.02	12.54	12.88	13.98
12H	4H	14.58	15.06	15.43	15.92	16.95	10.86	11.34	11.71	12.20	13.23
	6H	15.16	15.56	16.03	16.44	17.48	11.41	11.80	12.28	12.68	13.72
	8H	15.39	15.74	16.26	16.61	17.70	11.62	11.97	12.49	12.84	13.94