

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: P921389

Luminaire Tested: DFN2DIP-4P4F0-030D070US940-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921389
REPORT IS A COMBINATION OF REPORTS P900648 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D070US940-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

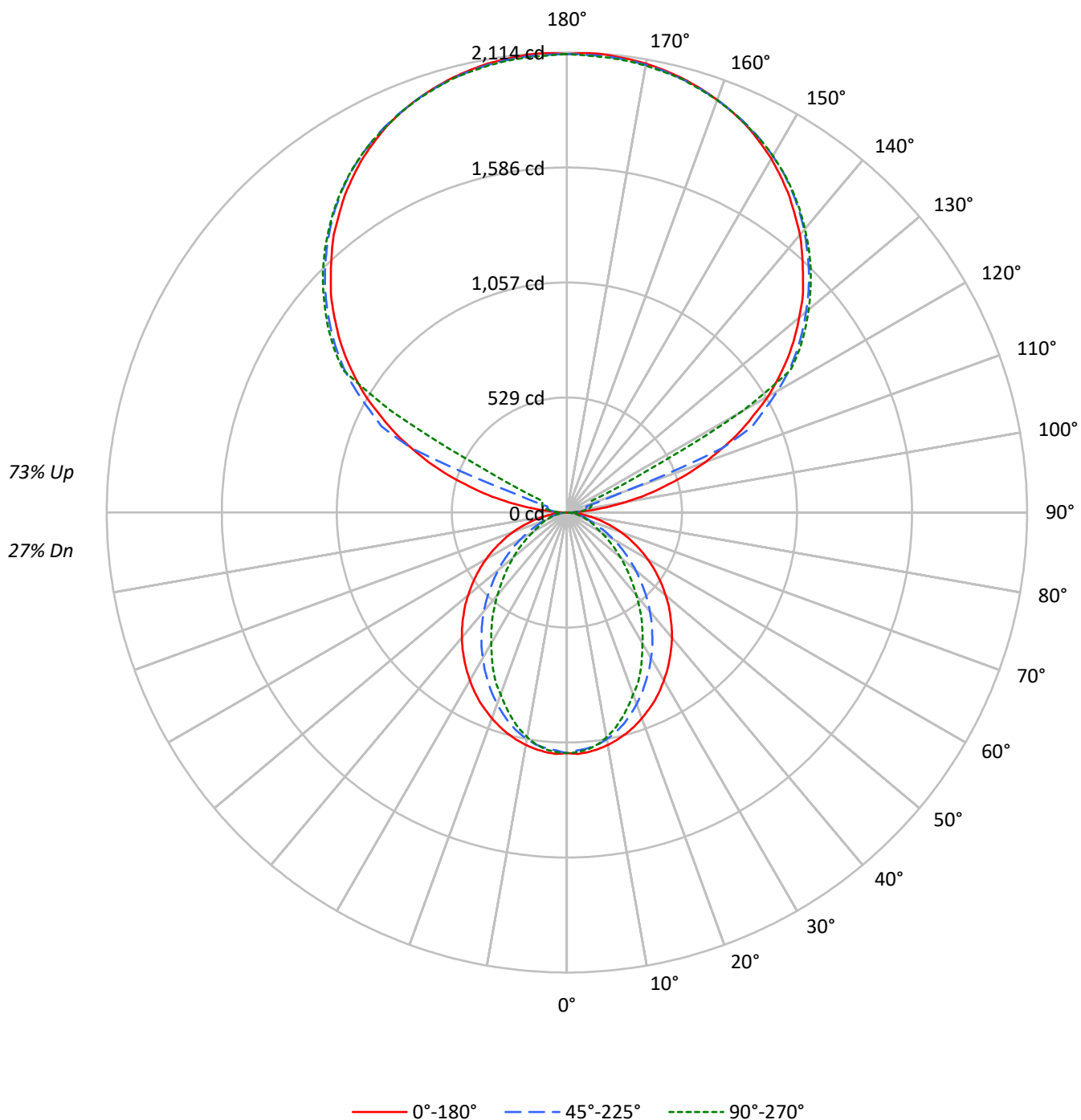
Lumens per Lamp: N/A
Luminaire Lumens: 8453.4 lumens
Efficiency: N/A
Efficacy: 95.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 88.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	82	83	79	76	74	62	60	58	46	45	44	31	31	30
2	85	78	72	67	75	70	65	61	55	51	49	41	39	37	28	27	26
3	77	69	62	56	69	62	56	51	48	44	41	36	34	31	25	23	22
4	71	61	53	48	63	55	48	43	43	39	35	32	29	27	22	21	19
5	65	54	46	41	58	49	42	37	39	34	30	29	26	23	20	18	17
6	60	48	41	35	53	44	37	32	35	30	26	26	23	21	18	16	15
7	55	44	36	31	49	39	33	28	31	27	23	24	21	18	17	15	13
8	51	40	32	27	46	36	29	25	29	24	21	22	19	16	16	13	12
9	48	36	29	24	43	33	26	22	26	22	18	20	17	15	14	12	11
10	44	33	26	22	40	30	24	20	24	20	16	19	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	717	717	717
5°	718	706	711
10°	711	693	688
15°	702	670	652
20°	689	638	609
25°	676	603	566
30°	658	567	513
35°	640	528	466
40°	623	488	412
45°	602	444	363
50°	581	399	315
55°	559	350	269
60°	533	300	222
65°	503	249	200
70°	468	201	181
75°	422	178	166
80°	358	150	145
85°	250	101	110

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1086 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.6	1.2
10°-20°	284.5	3.4
20°-30°	399.4	4.7
30°-40°	435.3	5.1
40°-50°	400.1	4.7
50°-60°	314.2	3.7
60°-70°	204.5	2.4
70°-80°	105.3	1.2
80°-90°	30.6	0.4
90°-100°	69.5	0.8
100°-110°	259.0	3.1
110°-120°	686.8	8.1
120°-130°	1139.1	13.5
130°-140°	1209.9	14.3
140°-150°	1124.5	13.3
150°-160°	904.1	10.7
160°-170°	582.6	6.9
170°-180°	200.5	2.4
0°-30°	787.5	9.3
0°-40°	1222.8	14.5
0°-60°	1937.2	22.9
0°-90°	2277.6	26.9
90°-120°	1015.2	12.0
90°-150°	4488.7	53.1
90°-180°	6176.0	73.1
0°-180°	8453.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1106	1106	1106	1106	1106	
5°	1106	1101	1088	1097	1094	105
15°	1052	1040	1007	988	978	296
25°	955	922	856	816	800	439
35°	822	771	683	620	598	515
45°	672	605	500	429	405	519
55°	511	433	325	265	246	457
65°	345	264	174	140	137	342
75°	184	114	80	73	72	195
85°	43	22	19	19	19	49
90°	1	18	30	38	41	8
95°	99	49	59	67	66	117
105°	463	509	93	110	116	495
115°	876	902	940	235	125	863
125°	1239	1259	1288	1299	1303	1105
135°	1534	1558	1572	1587	1584	1185
145°	1779	1777	1803	1814	1806	1113
155°	1959	1945	1963	1972	1960	903
165°	2064	2055	2059	2070	2059	583
175°	2111	2100	2104	2114	2099	201
180°	2107	2107	2107	2107	2107	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1105.6	1105.6	1105.6	1105.6	1105.6
2.5°	1110.6	1105.6	1094.6	1104.7	1102.7
5°	1105.6	1100.6	1087.6	1096.6	1093.6
7.5°	1096.6	1090.7	1076.7	1080.6	1075.6
10°	1084.6	1077.6	1057.7	1054.5	1048.7
12.5°	1069.6	1060.6	1033.6	1027.6	1016.5
15°	1051.6	1040.5	1006.6	987.6	977.6
17.5°	1030.5	1014.6	972.5	950.6	934.5
20°	1006.6	986.5	936.5	911.6	889.5
22.5°	980.6	957.5	899.5	865.5	850.5
25°	954.6	922.5	856.5	815.5	800.4
27.5°	923.5	889.5	816.5	769.5	746.4
30°	890.6	852.5	772.4	721.5	694.4
32.5°	858.4	812.4	730.5	670.4	645.3
35°	822.5	771.4	683.4	620.4	598.3
37.5°	787.5	732.4	639.4	570.2	545.4
40°	750.5	690.5	593.3	522.3	496.3
42.5°	712.4	648.5	547.3	473.2	448.3
45°	672.4	605.3	500.3	429.2	405.2
47.5°	634.4	563.4	455.3	384.1	362.2
50°	592.4	521.3	411.3	342.1	321.2
52.5°	551.3	476.3	369.3	303.2	284.2
55°	511.2	433.2	325.1	265.2	246.2
57.5°	470.3	390.2	286.2	230.2	214.1
60°	428.2	348.2	245.1	194.1	178.2
62.5°	387.3	307.2	210.1	162.1	154.2
65°	345.2	264.1	174.1	140.1	137.1
67.5°	305.2	224.1	140.1	123.1	120.0
70°	263.1	185.1	116.0	106.0	102.0
72.5°	223.1	149.0	97.0	89.1	87.0
75°	184.0	114.0	80.1	73.0	72.1
77.5°	145.1	81.0	63.0	59.0	57.0
80°	109.1	58.1	48.0	44.1	44.1
82.5°	76.0	39.1	33.0	31.0	31.0
85°	43.0	21.9	19.0	19.0	19.0
87.5°	16.1	7.9	7.9	7.0	7.0
90°	1.4	18.3	30.4	38.2	41.1
92.5°	38.2	32.0	36.6	39.7	41.1
95°	99.0	48.7	59.4	67.1	65.5
97.5°	178.3	53.4	77.7	82.4	83.8
100°	269.9	61.0	86.9	99.0	102.1
102.5°	370.3	367.5	90.0	106.6	111.3
105°	463.4	509.2	93.0	109.7	115.8
107.5°	571.6	609.7	96.1	112.8	119.0
110°	675.4	707.2	266.8	114.4	120.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	772.9	800.2	774.4	117.3	122.0
115°	876.5	902.3	940.5	234.8	125.1
117.5°	966.4	996.8	1022.9	804.8	405.5
120°	1067.0	1089.8	1117.4	1135.7	929.9
122.5°	1152.3	1176.7	1207.4	1216.4	1218.0
125°	1239.2	1259.1	1288.1	1298.8	1303.2
127.5°	1318.5	1339.8	1362.8	1378.0	1379.5
130°	1393.2	1417.6	1434.3	1451.2	1449.7
132.5°	1469.4	1489.3	1506.0	1519.7	1518.3
135°	1533.5	1557.9	1571.6	1586.9	1583.9
137.5°	1600.4	1618.8	1634.1	1649.4	1644.8
140°	1666.0	1678.3	1695.0	1708.7	1701.1
142.5°	1721.0	1731.7	1751.4	1763.5	1756.0
145°	1779.0	1777.4	1803.2	1813.9	1806.3
147.5°	1829.1	1824.6	1850.5	1858.1	1852.1
150°	1877.9	1867.3	1891.8	1900.8	1893.2
152.5°	1919.0	1906.9	1929.8	1938.9	1928.3
155°	1958.7	1945.1	1963.4	1972.5	1960.3
157.5°	1990.7	1978.6	1992.3	2003.0	1990.7
160°	2018.3	2009.0	2018.3	2027.3	2016.6
162.5°	2042.6	2033.5	2041.0	2051.7	2038.0
165°	2063.9	2054.9	2059.3	2070.0	2059.3
167.5°	2080.7	2071.4	2076.2	2086.9	2073.1
170°	2094.4	2085.3	2088.3	2099.0	2085.3
172.5°	2103.5	2094.4	2097.6	2108.2	2094.4
175°	2111.1	2100.4	2103.5	2114.2	2099.0
177.5°	2114.2	2103.5	2105.1	2115.9	2102.0
180°	2106.6	2106.6	2106.6	2106.6	2106.6

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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	3.34	4.01	4.48	5.14	6.71	0.00	0.00	0.44	1.10	2.67
	3H	5.01	5.61	6.16	6.75	8.33	0.48	1.08	1.62	2.21	3.80
	4H	5.62	6.19	6.77	7.32	8.91	0.92	1.49	2.08	2.63	4.22
	6H	6.03	6.56	7.20	7.69	9.29	1.24	1.76	2.40	2.90	4.50
	8H	6.16	6.66	7.32	7.81	9.40	1.33	1.82	2.49	2.97	4.57
	12H	6.22	6.69	7.39	7.84	9.45	1.36	1.84	2.53	2.98	4.60
4H	2H	3.34	3.91	4.50	5.04	6.63	0.00	0.45	1.04	1.58	3.17
	3H	5.16	5.63	6.33	6.79	8.39	1.22	1.69	2.38	2.85	4.45
	4H	5.85	6.29	7.02	7.43	9.05	1.76	2.20	2.93	3.35	4.97
	6H	6.36	6.74	7.54	7.91	9.52	2.17	2.55	3.35	3.72	5.33
	8H	6.54	6.89	7.71	8.05	9.67	2.30	2.65	3.47	3.81	5.44
	12H	6.63	6.94	7.82	8.12	9.75	2.36	2.68	3.55	3.85	5.48
8H	4H	5.81	6.15	6.98	7.32	8.94	2.03	2.38	3.21	3.54	5.17
	6H	6.37	6.66	7.57	7.86	9.49	2.55	2.84	3.74	4.04	5.66
	8H	6.59	6.84	7.79	8.03	9.67	2.74	2.99	3.94	4.17	5.82
	12H	6.73	6.95	7.93	8.13	9.80	2.85	3.07	4.06	4.25	5.93
12H	4H	5.75	6.07	6.94	7.24	8.87	2.03	2.35	3.22	3.52	5.15
	6H	6.35	6.60	7.55	7.78	9.42	2.60	2.85	3.80	4.03	5.67
	8H	6.57	6.79	7.77	7.97	9.64	2.80	3.02	4.01	4.20	5.88

END OF REPORT