

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: P913166

Luminaire Tested: DFN2DIP-4P3F0-060D020US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913166
REPORT IS A COMBINATION OF REPORTS P899037 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D020US927-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

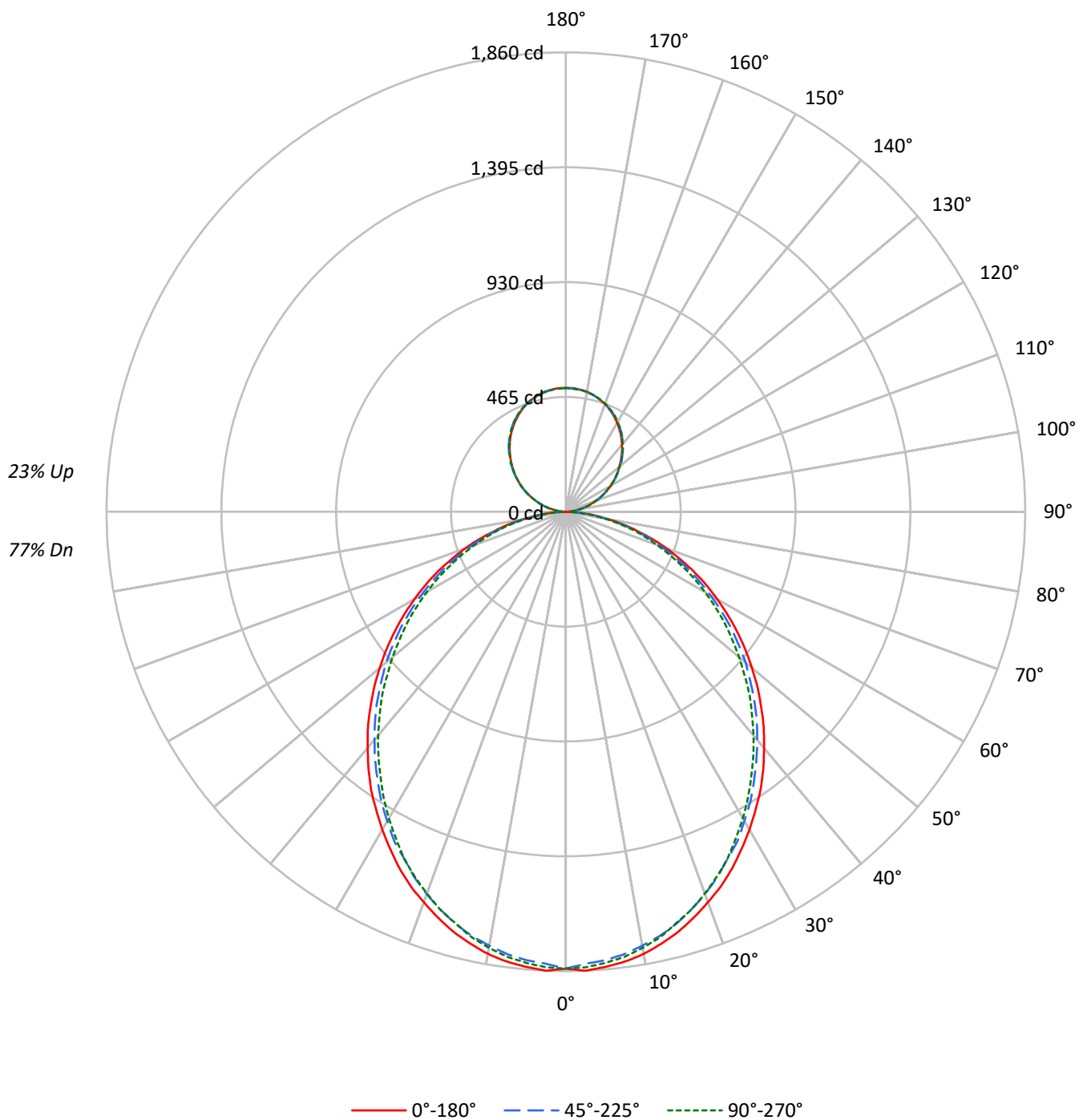
Lumens per Lamp: N/A
Luminaire Lumens: 6107.7 lumens
Efficiency: N/A
Efficacy: 78.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

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

TEST NUMBER: P913166

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US927-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P913166

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US927-FLLFLL

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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2108	2108	2108
5°	2110	2077	2092
10°	2091	2048	2063
15°	2059	2012	2018
20°	2016	1964	1972
25°	1974	1907	1919
30°	1920	1853	1851
35°	1870	1791	1780
40°	1808	1727	1713
45°	1746	1663	1643
50°	1678	1596	1563
55°	1607	1518	1489
60°	1527	1427	1404
65°	1439	1331	1304
70°	1327	1215	1197
75°	1173	1075	1096
80°	986	898	906
85°	694	595	594

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1746 cd/sqm

TEST NUMBER: P913166

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.1	2.9
10°-20°	489.8	8.0
20°-30°	719.8	11.8
30°-40°	836.0	13.7
40°-50°	834.9	13.7
50°-60°	728.0	11.9
60°-70°	538.2	8.8
70°-80°	304.5	5.0
80°-90°	81.8	1.3
90°-100°	31.0	0.5
100°-110°	98.5	1.6
110°-120°	168.6	2.8
120°-130°	221.7	3.6
130°-140°	248.9	4.1
140°-150°	244.1	4.0
150°-160°	204.7	3.4
160°-170°	135.8	2.2
170°-180°	47.5	0.8
0°-30°	1383.6	22.7
0°-40°	2219.6	36.3
0°-60°	3782.5	61.9
0°-90°	4707.0	77.1
90°-120°	298.1	4.9
90°-150°	1012.8	16.6
90°-180°	1401.0	22.9
0°-180°	6107.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1823	1837	1834	176
15°	1760	1750	1727	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1375	1357	1328	1318	1309	858
45°	1119	1106	1079	1060	1053	863
55°	847	836	814	793	784	757
65°	571	560	542	526	518	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	0	6	15	14	14	6
95°	22	26	27	27	26	25
105°	91	92	93	94	94	96
115°	169	172	171	170	169	167
125°	246	250	249	247	247	220
135°	318	323	324	323	322	246
145°	386	389	392	392	391	241
155°	442	443	444	447	445	203
165°	481	480	480	483	481	136
175°	500	499	498	501	498	48
180°	501	501	501	501	501	

TEST NUMBER: P913166

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US927-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.4	1849.4	1849.4	1849.4	1849.4
2.5°	1860.2	1851.3	1831.7	1849.4	1846.0
5°	1849.4	1842.5	1822.8	1837.0	1833.6
7.5°	1837.0	1826.5	1806.8	1821.1	1817.6
10°	1817.6	1805.1	1783.8	1797.9	1792.6
12.5°	1790.8	1780.2	1758.9	1767.8	1764.2
15°	1760.5	1750.0	1726.8	1734.0	1725.1
17.5°	1723.2	1712.7	1689.5	1698.3	1689.5
20°	1682.3	1671.7	1646.8	1652.1	1645.1
22.5°	1641.6	1625.5	1602.3	1602.3	1598.7
25°	1593.4	1579.3	1549.0	1552.4	1549.0
27.5°	1540.0	1527.6	1504.5	1499.3	1490.4
30°	1486.8	1472.4	1445.9	1440.6	1433.4
32.5°	1429.8	1419.3	1390.8	1380.0	1372.8
35°	1374.8	1357.0	1328.5	1317.7	1308.8
37.5°	1312.5	1296.4	1268.0	1255.4	1246.6
40°	1248.5	1234.1	1205.7	1189.9	1182.6
42.5°	1186.2	1171.9	1143.6	1125.7	1115.1
45°	1118.7	1106.2	1079.4	1060.0	1052.8
47.5°	1052.8	1040.4	1011.9	992.3	981.7
50°	983.4	974.5	949.7	924.7	915.8
52.5°	915.8	903.4	880.4	860.8	848.3
55°	846.6	835.8	814.5	793.2	784.3
57.5°	777.2	768.3	745.1	723.8	716.6
60°	707.7	700.8	675.9	656.2	650.9
62.5°	640.2	627.7	610.0	592.2	585.1
65°	570.9	560.2	542.5	526.4	517.5
67.5°	499.8	490.8	474.9	462.5	455.3
70°	434.0	426.8	410.7	398.3	391.3
72.5°	366.4	359.3	350.4	337.9	332.6
75°	298.7	295.3	286.2	275.7	279.2
77.5°	238.3	231.2	227.5	222.3	217.0
80°	177.9	176.0	172.5	167.2	163.6
82.5°	121.0	121.0	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	0.5	5.5	14.8	13.9	14.3
92.5°	9.3	12.7	13.2	13.6	13.6
95°	22.0	26.3	27.0	27.0	26.3
97.5°	36.7	40.6	42.3	42.3	42.3
100°	53.6	57.1	58.3	58.3	57.8
102.5°	71.5	74.0	75.7	76.1	75.7
105°	90.9	92.1	93.1	93.8	93.8
107.5°	110.3	112.1	112.1	112.4	110.3
110°	129.0	131.4	131.4	131.4	130.2



TEST NUMBER: P913166

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US927-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	149.2	151.8	151.4	150.1	149.2
115°	169.2	171.6	170.9	170.4	169.2
117.5°	189.0	192.3	190.2	189.0	187.7
120°	208.9	212.2	208.9	208.9	207.6
122.5°	227.0	231.2	229.2	228.0	227.0
125°	246.1	249.9	248.7	247.3	246.8
127.5°	264.7	269.3	267.7	265.9	264.7
130°	282.0	287.5	286.7	285.8	284.2
132.5°	301.5	305.8	306.0	304.0	302.7
135°	318.3	323.0	323.8	323.4	322.2
137.5°	337.0	340.8	341.6	341.3	339.4
140°	353.5	357.3	359.4	359.4	357.7
142.5°	370.4	374.1	375.4	375.8	374.1
145°	386.4	389.4	391.9	392.3	390.6
147.5°	400.8	404.6	406.4	407.1	405.4
150°	415.6	418.1	419.8	421.1	419.8
152.5°	428.7	431.3	433.4	435.1	433.4
155°	441.9	443.1	444.4	446.6	445.2
157.5°	453.2	454.1	454.9	457.9	455.7
160°	463.3	464.2	464.7	467.2	465.4
162.5°	472.7	472.7	473.1	476.0	473.9
165°	480.7	480.2	480.2	483.2	481.2
167.5°	487.9	486.6	486.6	489.6	487.5
170°	493.4	492.2	491.7	494.7	492.2
172.5°	497.2	495.9	495.5	498.5	495.9
175°	500.2	499.0	498.0	501.1	498.5
177.5°	501.8	500.7	499.7	502.2	499.7
180°	501.1	501.1	501.1	501.1	501.1

TEST NUMBER: P913166

CATALOG NUMBER: DFN2DIP-4P3F0-060D020US927-FLLFLL

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	12.03	13.20	12.71	13.90	14.72	11.58	12.75	12.27	13.46	14.28
	3H	13.71	14.76	14.40	15.47	16.33	13.22	14.27	13.91	14.98	15.84
	4H	14.30	15.30	15.02	16.02	16.89	13.81	14.80	14.53	15.53	16.40
	6H	14.72	15.63	15.45	16.37	17.25	14.22	15.13	14.95	15.87	16.75
	8H	14.83	15.70	15.57	16.46	17.34	14.33	15.20	15.07	15.95	16.84
	12H	14.88	15.72	15.63	16.47	17.38	14.38	15.21	15.12	15.96	16.87
4H	2H	12.52	13.51	13.24	14.24	15.11	12.17	13.16	12.89	13.88	14.75
	3H	14.41	15.24	15.14	16.00	16.89	14.00	14.83	14.73	15.59	16.48
	4H	15.13	15.89	15.88	16.65	17.56	14.71	15.46	15.46	16.22	17.14
	6H	15.66	16.31	16.43	17.10	18.02	15.23	15.88	15.99	16.67	17.59
	8H	15.81	16.43	16.59	17.21	18.15	15.38	15.99	16.15	16.77	17.71
	12H	15.90	16.45	16.69	17.26	18.20	15.45	16.00	16.24	16.81	17.75
8H	4H	15.35	15.96	16.12	16.74	17.68	14.97	15.58	15.74	16.37	17.30
	6H	15.99	16.49	16.79	17.32	18.26	15.60	16.11	16.40	16.93	17.87
	8H	16.21	16.66	17.02	17.48	18.44	15.81	16.27	16.63	17.09	18.04
	12H	16.35	16.75	17.16	17.56	18.57	15.94	16.34	16.75	17.15	18.16
12H	4H	15.35	15.90	16.14	16.70	17.65	14.98	15.53	15.77	16.34	17.28
	6H	16.02	16.47	16.83	17.29	18.25	15.65	16.10	16.46	16.92	17.87
	8H	16.27	16.67	17.09	17.48	18.49	15.89	16.29	16.70	17.10	18.11