

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: P921357

Luminaire Tested: DFN2DIP-4P3F0-060D030US940-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921357
REPORT IS A COMBINATION OF REPORTS P900568 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D030US940-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

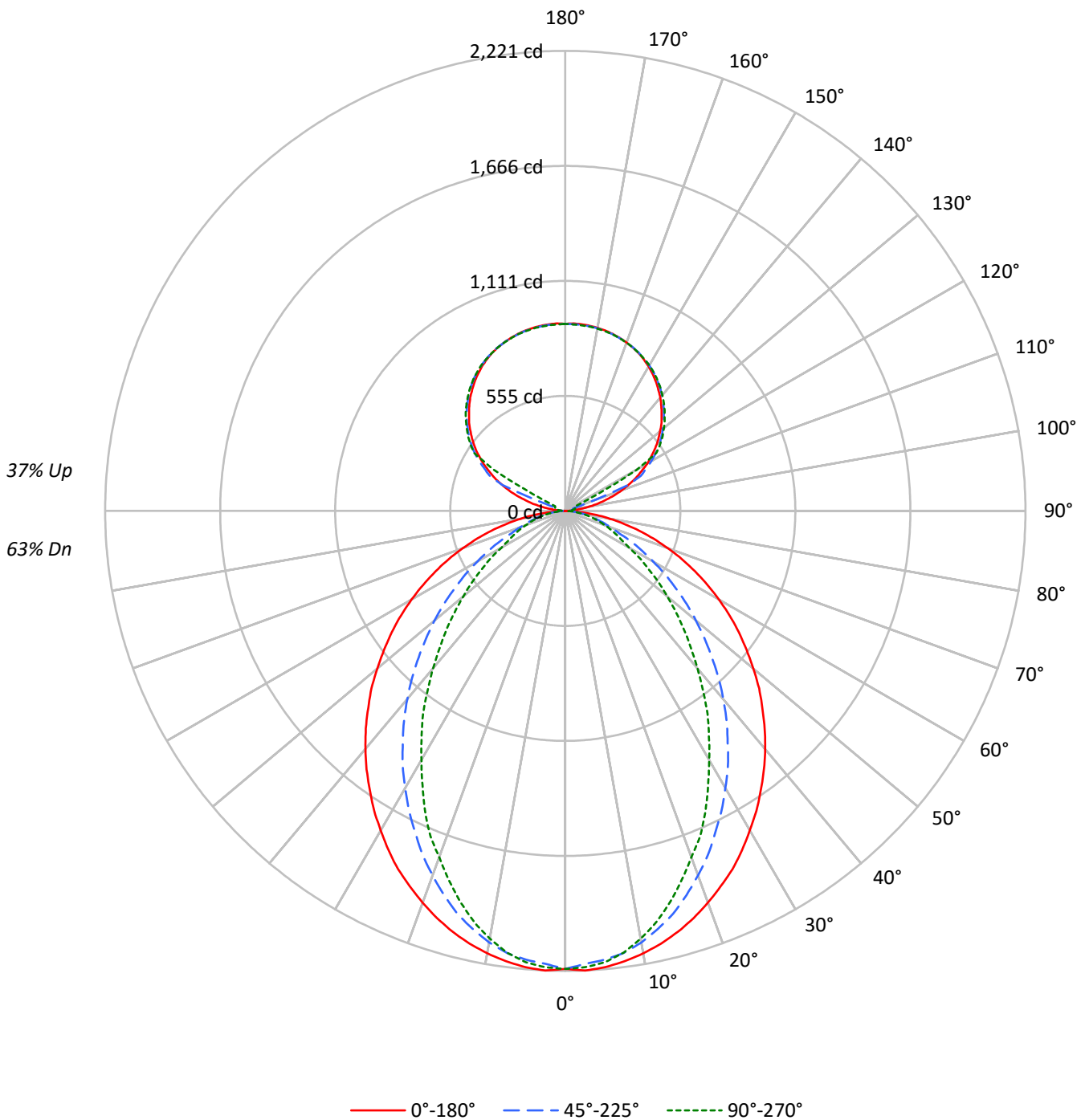
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7196.1 lumens
Efficiency: N/A
Efficacy: 85.4 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): 84.3
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: P921357
CATALOG NUMBER: DFN2DIP-4P3F0-060D030US940-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P921357
 CATALOG NUMBER: DFN2DIP-4P3F0-060D030US940-RLLONL

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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59	59	59	59	54
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51	51	51	51	47
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44	44	44	44	40
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38	38	38	38	35
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34	34	34	34	31
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30	30	30	30	27
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27	27	27	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24	24	24	24	22
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22	22	22	22	20
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20	20	20	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2520	2520	2520
5°	2522	2478	2495
10°	2496	2428	2413
15°	2460	2346	2287
20°	2413	2234	2132
25°	2365	2109	1983
30°	2301	1980	1794
35°	2238	1842	1628
40°	2173	1700	1437
45°	2099	1542	1265
50°	2022	1382	1097
55°	1941	1212	935
60°	1848	1035	769
65°	1740	855	691
70°	1610	686	624
75°	1446	602	566
80°	1208	499	488
85°	820	326	362

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2099 cd/sqm



TEST NUMBER: P921357

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US940-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.2	2.9
10°-20°	568.9	7.9
20°-30°	798.7	11.1
30°-40°	870.7	12.1
40°-50°	800.3	11.1
50°-60°	628.5	8.7
60°-70°	409.1	5.7
70°-80°	210.6	2.9
80°-90°	55.4	0.8
90°-100°	29.8	0.4
100°-110°	111.0	1.5
110°-120°	294.3	4.1
120°-130°	488.2	6.8
130°-140°	518.5	7.2
140°-150°	481.9	6.7
150°-160°	387.5	5.4
160°-170°	249.7	3.5
170°-180°	85.9	1.2
0°-30°	1574.9	21.9
0°-40°	2445.6	34.0
0°-60°	3874.3	53.8
0°-90°	4549.3	63.2
90°-120°	435.1	6.0
90°-150°	1923.7	26.7
90°-180°	2647.0	36.8
0°-180°	7196.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2211	2211	2211	2211	2211	
5°	2211	2201	2175	2193	2187	210
15°	2103	2081	2013	1975	1955	593
25°	1909	1845	1713	1631	1601	878
35°	1645	1543	1367	1241	1197	1030
45°	1345	1211	1001	858	810	1039
55°	1022	866	650	530	492	914
65°	690	528	348	280	274	685
75°	368	228	160	146	144	389
85°	86	44	38	38	38	99
90°	1	8	13	16	18	7
95°	42	21	25	29	28	50
105°	199	218	40	47	50	212
115°	376	387	403	101	54	370
125°	531	540	552	557	559	474
135°	657	668	674	680	679	508
145°	762	762	773	777	774	477
155°	840	834	841	845	840	387
165°	884	881	883	887	883	250
175°	905	900	902	906	900	86
180°	903	903	903	903	903	



TEST NUMBER: P921357

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2211.3	2211.3	2211.3	2211.3	2211.3
2.5°	2221.3	2211.3	2189.1	2209.3	2205.3
5°	2211.3	2201.3	2175.1	2193.3	2187.3
7.5°	2193.3	2181.3	2153.3	2161.1	2151.2
10°	2169.2	2155.2	2115.3	2109.2	2097.2
12.5°	2139.3	2121.2	2067.1	2055.2	2033.1
15°	2103.2	2081.1	2013.1	1975.1	1955.2
17.5°	2061.2	2029.1	1945.0	1901.0	1869.0
20°	2013.1	1973.0	1873.0	1823.1	1779.0
22.5°	1961.1	1915.0	1798.9	1731.0	1701.0
25°	1909.2	1845.0	1713.0	1631.0	1600.9
27.5°	1847.2	1779.0	1632.9	1538.8	1492.8
30°	1781.1	1704.9	1544.8	1442.9	1388.7
32.5°	1717.0	1624.9	1461.0	1340.8	1290.7
35°	1645.0	1542.9	1366.9	1240.7	1196.6
37.5°	1574.9	1464.7	1278.8	1140.6	1090.7
40°	1500.8	1380.9	1186.6	1044.5	992.6
42.5°	1424.9	1296.8	1094.7	946.5	896.6
45°	1344.8	1210.6	1000.7	858.4	810.4
47.5°	1268.8	1126.8	910.6	768.4	724.4
50°	1184.7	1042.7	822.5	684.3	642.5
52.5°	1102.5	952.4	738.4	606.4	568.4
55°	1022.5	866.5	650.3	530.4	492.3
57.5°	940.6	780.4	572.4	460.3	428.2
60°	856.5	696.4	490.3	388.3	356.2
62.5°	774.5	614.5	420.2	324.2	308.3
65°	690.5	528.2	348.2	280.3	274.1
67.5°	610.4	448.2	280.3	246.1	240.1
70°	526.3	370.2	232.0	212.1	204.0
72.5°	446.3	298.1	194.0	178.2	174.1
75°	368.2	228.0	160.1	146.1	144.2
77.5°	290.3	162.0	126.1	118.1	114.0
80°	218.0	116.1	95.9	88.1	88.1
82.5°	152.0	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
90°	0.6	7.8	13.0	16.4	17.6
92.5°	16.4	13.7	15.7	17.0	17.6
95°	42.4	20.9	25.4	28.8	28.1
97.5°	76.4	22.9	33.3	35.3	35.9
100°	115.7	26.1	37.3	42.4	43.8
102.5°	158.7	157.5	38.5	45.7	47.7
105°	198.6	218.2	39.9	47.0	49.7
107.5°	245.0	261.3	41.2	48.3	51.0
110°	289.4	303.1	114.3	49.0	51.6



TEST NUMBER: P921357

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	331.3	343.0	331.9	50.3	52.3
115°	375.6	386.7	403.1	100.6	53.6
117.5°	414.2	427.2	438.4	344.9	173.8
120°	457.3	467.1	478.8	486.7	398.5
122.5°	493.8	504.4	517.5	521.3	522.0
125°	531.1	539.6	552.1	556.6	558.6
127.5°	565.1	574.2	584.1	590.6	591.2
130°	597.1	607.6	614.7	621.9	621.3
132.5°	629.7	638.3	645.4	651.3	650.7
135°	657.2	667.7	673.5	680.1	678.8
137.5°	685.9	693.8	700.3	706.9	704.9
140°	714.0	719.3	726.4	732.3	729.1
142.5°	737.6	742.2	750.6	755.8	752.6
145°	762.4	761.7	772.8	777.4	774.1
147.5°	783.9	781.9	793.1	796.3	793.7
150°	804.9	800.3	810.7	814.6	811.4
152.5°	822.4	817.3	827.1	831.0	826.4
155°	839.5	833.7	841.4	845.3	840.2
157.5°	853.2	848.0	853.9	858.4	853.2
160°	865.0	861.0	865.0	868.9	864.2
162.5°	875.4	871.5	874.8	879.3	873.4
165°	884.5	880.7	882.6	887.2	882.6
167.5°	891.7	887.8	889.7	894.4	888.5
170°	897.6	893.7	895.0	899.6	893.7
172.5°	901.5	897.6	898.9	903.5	897.6
175°	904.7	900.2	901.5	906.1	899.6
177.5°	906.1	901.5	902.2	906.8	900.9
180°	902.9	902.9	902.9	902.9	902.9



TEST NUMBER: P921357
 CATALOG NUMBER: DFN2DIP-4P3F0-060D030US940-RLONL

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	11.48	12.43	12.32	13.29	14.36	7.44	8.39	8.28	9.25	10.32
	3H	13.16	14.01	14.01	14.88	15.98	8.63	9.48	9.48	10.35	11.45
	4H	13.77	14.57	14.64	15.45	16.56	9.08	9.88	9.95	10.76	11.87
	6H	14.19	14.93	15.08	15.82	16.94	9.40	10.14	10.29	11.02	12.15
	8H	14.32	15.03	15.21	15.93	17.05	9.49	10.20	10.38	11.10	12.22
	12H	14.39	15.06	15.28	15.95	17.10	9.54	10.21	10.43	11.10	12.25
4H	2H	11.51	12.31	12.38	13.19	14.30	8.05	8.85	8.92	9.72	10.83
	3H	13.34	14.01	14.23	14.92	16.04	9.40	10.07	10.29	10.97	12.10
	4H	14.04	14.64	14.93	15.55	16.70	9.95	10.55	10.85	11.46	12.61
	6H	14.55	15.08	15.47	16.00	17.16	10.37	10.89	11.28	11.82	12.97
	8H	14.73	15.22	15.64	16.14	17.30	10.49	10.98	11.41	11.90	13.07
	12H	14.83	15.27	15.76	16.21	17.38	10.56	11.00	11.49	11.94	13.11
8H	4H	14.01	14.50	14.93	15.42	16.59	10.23	10.72	11.15	11.64	12.81
	6H	14.58	14.98	15.52	15.94	17.11	10.75	11.15	11.69	12.11	13.28
	8H	14.79	15.15	15.74	16.10	17.29	10.93	11.29	11.89	12.25	13.43
	12H	14.93	15.24	15.88	16.19	17.43	11.05	11.37	12.01	12.31	13.55
12H	4H	13.97	14.41	14.90	15.35	16.52	10.24	10.68	11.18	11.62	12.79
	6H	14.55	14.91	15.50	15.86	17.05	10.80	11.15	11.75	12.11	13.29
	8H	14.77	15.09	15.73	16.04	17.27	11.01	11.32	11.96	12.27	13.50