

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: P910349

Luminaire Tested: DFN2DIP-4P2F0-040D020US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910349
REPORT IS A COMBINATION OF REPORTS P900536 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D020US850-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

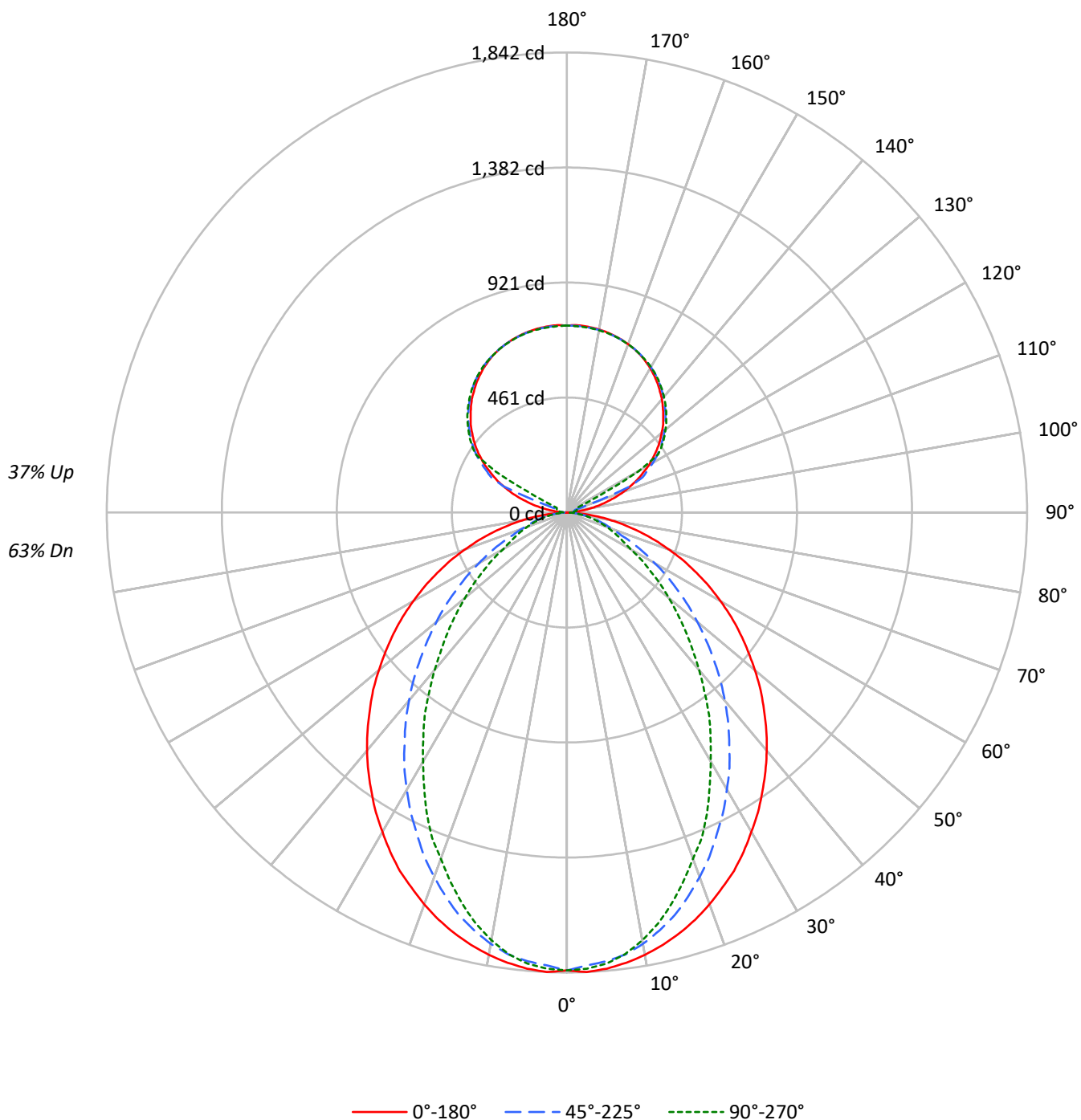
Lumens per Lamp: N/A
Luminaire Lumens: 5966.4 lumens
Efficiency: N/A
Efficacy: 106.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 56.1
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4591	4591	4591
5°	4589	4506	4539
10°	4535	4406	4384
15°	4463	4249	4149
20°	4371	4038	3863
25°	4277	3803	3586
30°	4154	3563	3239
35°	4033	3306	2934
40°	3909	3042	2586
45°	3767	2750	2270
50°	3618	2457	1962
55°	3463	2145	1667
60°	3282	1820	1365
65°	3074	1492	1220
70°	2821	1186	1093
75°	2502	1023	981
80°	2047	827	828
85°	1320	509	583

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3767 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	2.9
10°-20°	471.7	7.9
20°-30°	662.3	11.1
30°-40°	721.9	12.1
40°-50°	663.5	11.1
50°-60°	521.1	8.7
60°-70°	339.2	5.7
70°-80°	174.6	2.9
80°-90°	45.9	0.8
90°-100°	24.7	0.4
100°-110°	92.0	1.5
110°-120°	244.0	4.1
120°-130°	404.8	6.8
130°-140°	429.9	7.2
140°-150°	399.6	6.7
150°-160°	321.3	5.4
160°-170°	207.0	3.5
170°-180°	71.2	1.2
0°-30°	1305.8	21.9
0°-40°	2027.7	34.0
0°-60°	3212.2	53.8
0°-90°	3771.9	63.2
90°-120°	360.7	6.0
90°-150°	1595.0	26.7
90°-180°	2194.0	36.8
0°-180°	5966.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1833	1833	1833	1833	1833	
5°	1833	1825	1804	1818	1814	174
15°	1744	1726	1669	1638	1621	491
25°	1583	1530	1420	1352	1327	728
35°	1364	1279	1133	1029	992	854
45°	1115	1004	830	712	672	861
55°	848	718	539	440	408	758
65°	572	438	289	232	227	568
75°	305	189	133	121	120	323
85°	71	36	32	32	32	82
90°	1	6	11	14	15	6
95°	35	17	21	24	23	42
105°	165	181	33	39	41	176
115°	311	321	334	83	44	307
125°	440	447	458	462	463	393
135°	545	554	558	564	563	421
145°	632	632	641	645	642	395
155°	696	691	698	701	697	321
165°	733	730	732	736	732	207
175°	750	746	748	751	746	71
180°	749	749	749	749	749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.4	1833.4	1833.4	1833.4	1833.4
2.5°	1841.7	1833.4	1815.1	1831.8	1828.4
5°	1833.4	1825.1	1803.5	1818.4	1813.5
7.5°	1818.4	1808.6	1785.4	1791.8	1783.6
10°	1798.6	1786.9	1753.8	1748.7	1738.9
12.5°	1773.7	1758.8	1713.8	1704.0	1685.7
15°	1743.8	1725.5	1669.2	1637.7	1621.1
17.5°	1709.0	1682.4	1612.6	1576.2	1549.6
20°	1669.2	1635.9	1552.9	1511.6	1475.0
22.5°	1626.0	1587.9	1491.5	1435.2	1410.4
25°	1582.9	1529.8	1420.2	1352.3	1327.3
27.5°	1531.5	1475.0	1353.9	1275.9	1237.6
30°	1476.7	1413.5	1280.8	1196.3	1151.5
32.5°	1423.6	1347.2	1211.2	1111.7	1070.1
35°	1364.0	1279.2	1133.3	1028.7	992.1
37.5°	1305.8	1214.5	1060.2	945.6	904.3
40°	1244.4	1144.9	983.9	866.1	823.0
42.5°	1181.3	1075.2	907.6	784.7	743.4
45°	1115.0	1003.8	829.6	711.8	671.9
47.5°	1052.0	934.2	755.0	637.1	600.6
50°	982.2	864.5	681.9	567.4	532.7
52.5°	914.1	789.7	612.3	502.7	471.2
55°	847.8	718.4	539.2	439.7	408.2
57.5°	779.8	647.1	474.5	381.6	355.1
60°	710.1	577.3	406.4	321.9	295.4
62.5°	642.2	509.5	348.3	268.8	255.6
65°	572.5	437.9	288.7	232.3	227.2
67.5°	506.1	371.6	232.3	204.1	199.1
70°	436.4	307.0	192.4	175.9	169.1
72.5°	370.1	247.2	160.9	147.7	144.4
75°	305.2	189.1	132.7	121.1	119.6
77.5°	240.7	134.3	104.6	97.9	94.5
80°	180.8	96.3	79.5	73.1	73.1
82.5°	126.1	64.8	54.8	51.3	51.3
85°	71.3	36.5	31.5	31.5	31.5
87.5°	26.6	13.2	13.2	11.6	11.6
90°	0.6	6.5	10.8	13.5	14.6
92.5°	13.5	11.4	13.0	14.1	14.6
95°	35.2	17.3	21.1	23.8	23.3
97.5°	63.3	19.0	27.6	29.3	29.8
100°	95.9	21.6	30.8	35.2	36.3
102.5°	131.6	130.5	31.9	37.9	39.6
105°	164.7	180.9	33.0	38.9	41.1
107.5°	203.2	216.6	34.2	40.0	42.3
110°	240.0	251.3	94.8	40.7	42.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	274.6	284.3	275.1	41.7	43.4
115°	311.4	320.6	334.3	83.4	44.5
117.5°	343.3	354.2	363.4	286.0	144.1
120°	379.2	387.3	397.0	403.6	330.4
122.5°	409.4	418.1	429.0	432.2	432.8
125°	440.4	447.4	457.7	461.5	463.1
127.5°	468.6	476.1	484.3	489.6	490.2
130°	495.1	503.7	509.7	515.7	515.1
132.5°	522.1	529.2	535.1	540.0	539.5
135°	545.0	553.6	558.4	563.9	562.8
137.5°	568.7	575.2	580.7	586.1	584.4
140°	592.0	596.4	602.3	607.2	604.5
142.5°	611.5	615.4	622.4	626.7	623.9
145°	632.1	631.6	640.8	644.6	641.9
147.5°	650.0	648.3	657.5	660.2	658.1
150°	667.3	663.5	672.2	675.4	672.7
152.5°	681.9	677.6	685.7	689.0	685.1
155°	696.0	691.1	697.7	700.9	696.6
157.5°	707.4	703.1	708.0	711.8	707.4
160°	717.2	713.9	717.2	720.4	716.6
162.5°	725.7	722.5	725.3	729.1	724.2
165°	733.4	730.2	731.7	735.6	731.7
167.5°	739.4	736.0	737.7	741.6	736.6
170°	744.2	740.9	742.0	745.8	740.9
172.5°	747.5	744.2	745.4	749.1	744.2
175°	750.1	746.4	747.5	751.2	745.8
177.5°	751.2	747.5	748.0	751.8	746.9
180°	748.6	748.6	748.6	748.6	748.6

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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	13.46	14.41	14.30	15.27	16.34	9.42	10.37	10.26	11.23	12.30
	3H	15.12	15.97	15.98	16.84	17.94	10.60	11.45	11.45	12.32	13.42
	4H	15.72	16.53	16.59	17.40	18.51	11.04	11.84	11.91	12.72	13.83
	6H	16.13	16.87	17.02	17.75	18.88	11.35	12.09	12.23	12.97	14.09
	8H	16.25	16.95	17.14	17.85	18.98	11.43	12.13	12.32	13.03	14.16
	12H	16.31	16.98	17.21	17.87	19.02	11.47	12.14	12.37	13.03	14.18
4H	2H	13.49	14.29	14.36	15.17	16.28	10.02	10.82	10.89	11.70	12.81
	3H	15.30	15.97	16.19	16.88	18.00	11.36	12.02	12.24	12.93	14.05
	4H	15.98	16.59	16.88	17.49	18.64	11.89	12.50	12.79	13.40	14.55
	6H	16.48	17.00	17.39	17.93	19.08	12.29	12.82	13.21	13.74	14.90
	8H	16.65	17.13	17.56	18.05	19.22	12.41	12.90	13.33	13.82	14.99
	12H	16.73	17.17	17.67	18.11	19.28	12.47	12.91	13.41	13.85	15.02
8H	4H	15.95	16.44	16.87	17.36	18.53	12.17	12.65	13.08	13.58	14.74
	6H	16.50	16.90	17.44	17.86	19.03	12.66	13.06	13.60	14.03	15.19
	8H	16.70	17.06	17.65	18.01	19.19	12.84	13.19	13.79	14.15	15.33
	12H	16.83	17.14	17.78	18.09	19.32	12.94	13.26	13.90	14.20	15.44
12H	4H	15.91	16.35	16.84	17.29	18.46	12.17	12.61	13.11	13.55	14.72
	6H	16.47	16.83	17.42	17.78	18.97	12.70	13.06	13.66	14.02	15.20
	8H	16.68	16.99	17.63	17.94	19.18	12.90	13.21	13.85	14.16	15.40