

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: P910348

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910348
REPORT IS A COMBINATION OF REPORTS P899016 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D020US850-RLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

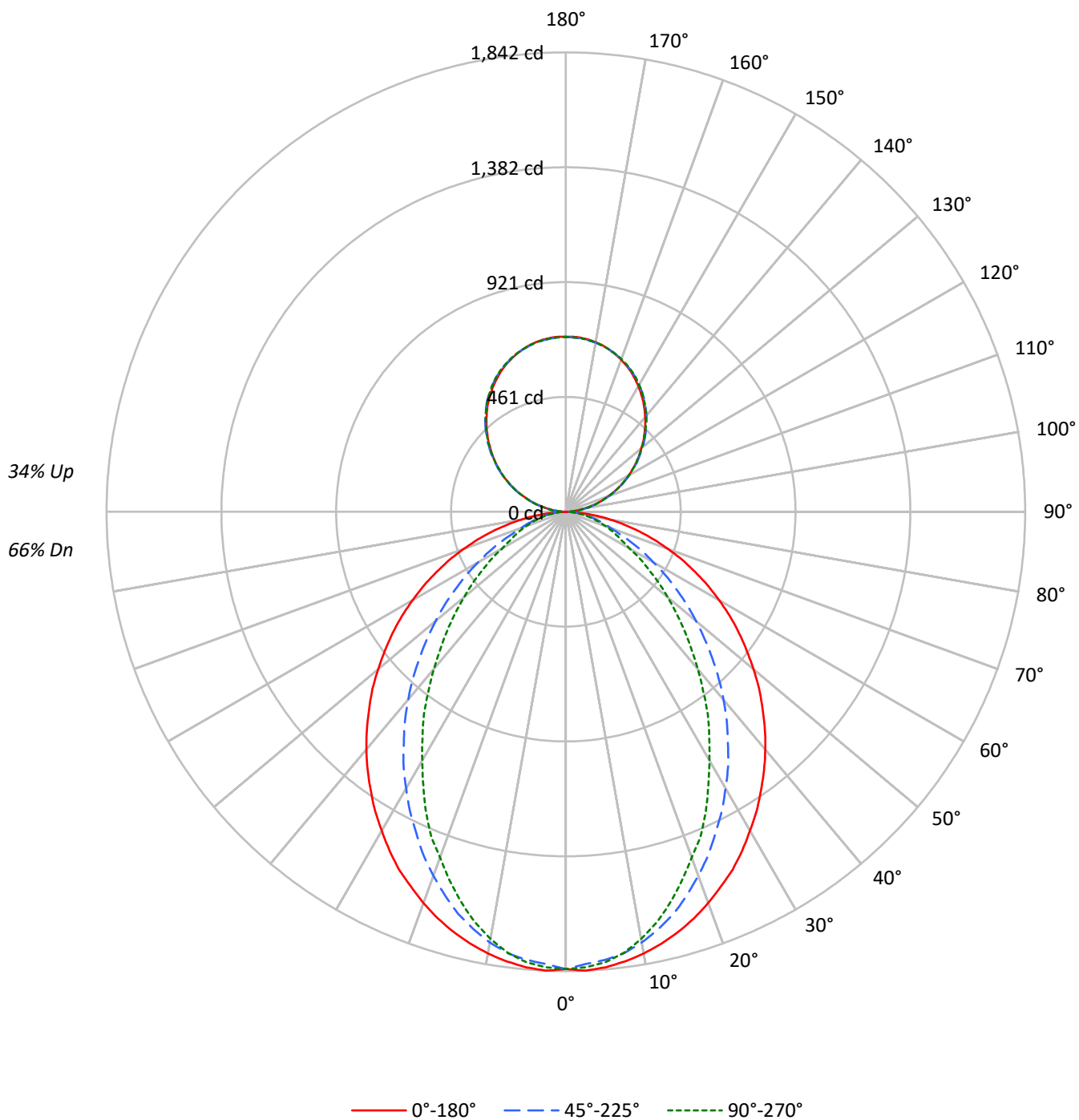
Lumens per Lamp: N/A
Luminaire Lumens: 5733.5 lumens
Efficiency: N/A
Efficacy: 102.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66		
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61	57		
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52	49		
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45	42		
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40	36		
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35	32		
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31	29		
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28	26		
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25	23		
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23	21		
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21	19		

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	3.0
10°-20°	471.7	8.2
20°-30°	662.3	11.6
30°-40°	721.9	12.6
40°-50°	663.5	11.6
50°-60°	521.1	9.1
60°-70°	339.2	5.9
70°-80°	174.6	3.0
80°-90°	46.6	0.8
90°-100°	43.4	0.8
100°-110°	137.9	2.4
110°-120°	236.0	4.1
120°-130°	310.4	5.4
130°-140°	348.4	6.1
140°-150°	341.7	6.0
150°-160°	286.6	5.0
160°-170°	190.1	3.3
170°-180°	66.4	1.2
0°-30°	1305.8	22.8
0°-40°	2027.7	35.4
0°-60°	3212.2	56.0
0°-90°	3772.6	65.8
90°-120°	417.3	7.3
90°-150°	1417.8	24.7
90°-180°	1961.0	34.2
0°-180°	5733.5	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	8	21	19	20	6
95°	31	37	38	38	37	34
105°	127	129	130	131	131	134
115°	237	240	239	238	237	234
125°	344	350	348	346	346	308
135°	446	452	453	453	451	344
145°	541	545	549	549	547	338
155°	619	620	622	625	623	285
165°	673	672	672	676	674	190
175°	700	699	697	701	698	67
180°	701	701	701	701	701	

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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°	0.7	7.7	20.7	19.4	20.1
92.5°	13.1	17.7	18.4	19.1	19.1
95°	30.8	36.8	37.8	37.8	36.8
97.5°	51.3	56.9	59.2	59.2	59.2
100°	75.1	80.0	81.6	81.6	81.0
102.5°	100.0	103.6	105.9	106.6	105.9
105°	127.3	129.0	130.3	131.3	131.3
107.5°	154.4	156.9	156.9	157.4	154.4
110°	180.7	184.0	184.0	184.0	182.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	208.9	212.5	211.9	210.2	208.9
115°	236.9	240.2	239.2	238.5	236.9
117.5°	264.6	269.3	266.3	264.6	262.8
120°	292.4	297.1	292.4	292.4	290.6
122.5°	317.8	323.7	320.8	319.2	317.8
125°	344.5	349.8	348.1	346.2	345.6
127.5°	370.5	377.1	374.7	372.2	370.5
130°	394.8	402.5	401.3	400.1	397.8
132.5°	422.1	428.1	428.4	425.5	423.7
135°	445.6	452.1	453.4	452.8	451.0
137.5°	471.8	477.1	478.2	477.8	475.2
140°	494.8	500.2	503.2	503.2	500.8
142.5°	518.6	523.8	525.6	526.1	523.8
145°	541.0	545.2	548.6	549.2	546.8
147.5°	561.0	566.4	568.9	569.9	567.6
150°	581.8	585.3	587.7	589.5	587.7
152.5°	600.2	603.7	606.7	609.1	606.7
155°	618.6	620.3	622.1	625.1	623.3
157.5°	634.5	635.7	636.8	641.0	638.0
160°	648.7	649.9	650.5	654.1	651.5
162.5°	661.7	661.7	662.3	666.4	663.4
165°	672.9	672.3	672.3	676.5	673.6
167.5°	683.0	681.1	681.1	685.4	682.5
170°	690.7	689.0	688.4	692.6	689.0
172.5°	696.0	694.2	693.7	697.9	694.2
175°	700.2	698.6	697.2	701.4	697.9
177.5°	702.6	700.9	699.6	703.1	699.6
180°	701.4	701.4	701.4	701.4	701.4

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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	13.67	14.65	14.48	15.48	16.51	9.63	10.61	10.44	11.44	12.47
	3H	15.33	16.21	16.16	17.05	18.11	10.81	11.68	11.64	12.53	13.58
	4H	15.93	16.76	16.78	17.61	18.68	11.25	12.08	12.10	12.93	13.99
	6H	16.34	17.10	17.20	17.96	19.04	11.56	12.32	12.42	13.18	14.26
	8H	16.47	17.19	17.33	18.06	19.15	11.64	12.37	12.51	13.24	14.32
	12H	16.52	17.21	17.39	18.08	19.19	11.68	12.37	12.56	13.24	14.35
4H	2H	13.70	14.52	14.55	15.37	16.44	10.23	11.05	11.08	11.90	12.97
	3H	15.51	16.20	16.38	17.08	18.17	11.57	12.25	12.43	13.14	14.22
	4H	16.19	16.82	17.07	17.70	18.81	12.10	12.73	12.98	13.61	14.72
	6H	16.70	17.23	17.59	18.14	19.25	12.51	13.05	13.40	13.95	15.07
	8H	16.86	17.36	17.75	18.26	19.39	12.63	13.13	13.52	14.03	15.16
	12H	16.95	17.40	17.86	18.32	19.45	12.69	13.14	13.60	14.06	15.19
8H	4H	16.17	16.67	17.06	17.57	18.70	12.38	12.88	13.27	13.78	14.91
	6H	16.71	17.13	17.63	18.07	19.20	12.88	13.29	13.80	14.23	15.36
	8H	16.92	17.28	17.85	18.22	19.36	13.05	13.42	13.98	14.35	15.50
	12H	17.05	17.37	17.98	18.29	19.49	13.16	13.48	14.09	14.41	15.61
12H	4H	16.13	16.58	17.04	17.50	18.63	12.39	12.84	13.30	13.76	14.89
	6H	16.69	17.06	17.62	17.99	19.13	12.92	13.29	13.85	14.22	15.37
	8H	16.90	17.22	17.83	18.15	19.34	13.12	13.44	14.05	14.37	15.56