

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: P902317

Luminaire Tested: DFN2DIP-4P4F0-040D070US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902317
REPORT IS A COMBINATION OF REPORTS P900650 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D070US830-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

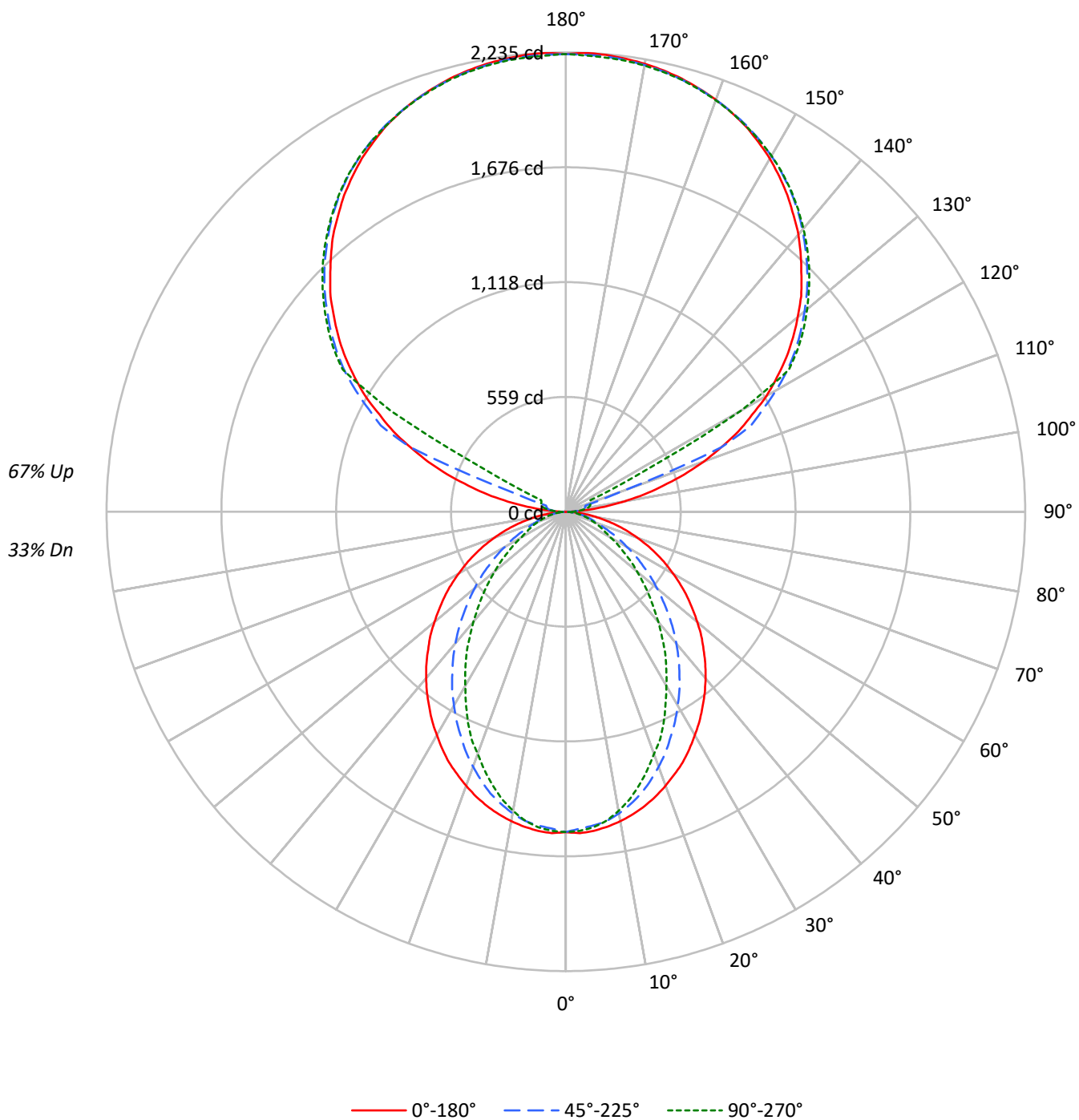
Lumens per Lamp: N/A
Luminaire Lumens: 9736.4 lumens
Efficiency: N/A
Efficacy: 97.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1011	1011	1011
5°	1013	995	1002
10°	1003	976	969
15°	989	944	919
20°	971	900	858
25°	952	850	798
30°	927	799	723
35°	903	745	656
40°	878	688	580
45°	849	625	511
50°	819	562	444
55°	787	494	379
60°	751	423	313
65°	709	350	282
70°	659	283	255
75°	596	250	233
80°	504	211	204
85°	352	143	156

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1150 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	1.5
10°-20°	400.9	4.1
20°-30°	562.8	5.8
30°-40°	613.5	6.3
40°-50°	563.9	5.8
50°-60°	442.9	4.5
60°-70°	288.3	3.0
70°-80°	148.4	1.5
80°-90°	41.8	0.4
90°-100°	73.4	0.8
100°-110°	273.7	2.8
110°-120°	725.9	7.5
120°-130°	1204.0	12.4
130°-140°	1278.9	13.1
140°-150°	1188.6	12.2
150°-160°	955.6	9.8
160°-170°	615.8	6.3
170°-180°	211.9	2.2
0°-30°	1109.8	11.4
0°-40°	1723.3	17.7
0°-60°	2730.1	28.0
0°-90°	3208.5	33.0
90°-120°	1073.0	11.0
90°-150°	4744.6	48.7
90°-180°	6528.0	67.0
0°-180°	9736.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1558	1558	1558	1558	1558	
5°	1558	1551	1533	1546	1541	148
15°	1482	1466	1419	1392	1378	418
25°	1345	1300	1207	1149	1128	619
35°	1159	1087	963	874	843	726
45°	948	853	705	605	571	732
55°	721	611	458	374	347	644
65°	486	372	245	198	193	482
75°	259	161	113	103	102	274
85°	61	31	27	27	27	70
90°	2	19	32	40	44	9
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1362	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2182	2172	2177	2188	2177	616
175°	2232	2220	2224	2235	2219	212
180°	2227	2227	2227	2227	2227	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1558.2	1558.2	1558.2	1558.2	1558.2
2.5°	1565.3	1558.2	1542.7	1556.9	1554.0
5°	1558.2	1551.1	1532.8	1545.5	1541.3
7.5°	1545.5	1537.1	1517.4	1522.9	1515.9
10°	1528.6	1518.7	1490.5	1486.2	1477.9
12.5°	1507.5	1494.8	1456.6	1448.2	1432.7
15°	1482.1	1466.5	1418.6	1391.9	1377.8
17.5°	1452.5	1429.8	1370.6	1339.6	1317.0
20°	1418.6	1390.3	1319.8	1284.7	1253.6
22.5°	1382.0	1349.5	1267.6	1219.7	1198.7
25°	1345.3	1300.1	1207.0	1149.3	1128.0
27.5°	1301.7	1253.6	1150.7	1084.4	1051.9
30°	1255.1	1201.4	1088.5	1016.7	978.6
32.5°	1209.9	1145.0	1029.4	944.8	909.5
35°	1159.2	1087.2	963.2	874.3	843.2
37.5°	1109.8	1032.2	901.1	803.7	768.5
40°	1057.6	973.1	836.2	736.1	699.5
42.5°	1004.0	913.8	771.4	666.9	631.8
45°	947.6	853.1	705.1	604.9	571.1
47.5°	894.1	794.0	641.7	541.5	510.5
50°	834.8	734.7	579.6	482.2	452.7
52.5°	776.9	671.2	520.4	427.3	400.5
55°	720.6	610.6	458.3	373.7	346.9
57.5°	662.8	550.0	403.3	324.3	301.8
60°	603.5	490.7	345.4	273.6	251.1
62.5°	545.8	433.0	296.1	228.5	217.3
65°	486.5	372.2	245.3	197.5	193.1
67.5°	430.2	315.8	197.5	173.4	169.2
70°	370.9	260.9	163.5	149.5	143.7
72.5°	314.5	210.1	136.8	125.5	122.7
75°	259.4	160.7	112.8	102.9	101.6
77.5°	204.5	114.1	88.9	83.2	80.3
80°	153.6	81.8	67.6	62.1	62.1
82.5°	107.2	55.0	46.6	43.6	43.6
85°	60.6	31.0	26.8	26.8	26.8
87.5°	22.6	11.2	11.2	9.9	9.9
90°	1.5	19.3	32.1	40.3	43.5
92.5°	40.3	33.8	38.6	41.9	43.5
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.2	644.4	101.6	119.2	125.7
110°	713.9	747.5	282.0	120.9	127.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.8	994.1	248.2	132.2
117.5°	1021.5	1053.7	1081.2	850.6	428.6
120°	1127.8	1152.0	1181.1	1200.4	982.9
122.5°	1218.0	1243.8	1276.2	1285.7	1287.4
125°	1309.9	1330.9	1361.5	1372.8	1377.5
127.5°	1393.6	1416.2	1440.5	1456.6	1458.1
130°	1472.6	1498.5	1516.1	1533.9	1532.4
132.5°	1553.2	1574.2	1591.9	1606.4	1604.9
135°	1620.9	1646.7	1661.1	1677.3	1674.1
137.5°	1691.7	1711.1	1727.3	1743.4	1738.6
140°	1761.0	1774.0	1791.6	1806.1	1798.1
142.5°	1819.1	1830.4	1851.2	1864.1	1856.1
145°	1880.4	1878.7	1906.0	1917.3	1909.3
147.5°	1933.3	1928.6	1956.0	1964.0	1957.7
150°	1985.0	1973.8	1999.6	2009.1	2001.1
152.5°	2028.4	2015.6	2039.8	2049.5	2038.2
155°	2070.4	2056.0	2075.3	2084.9	2072.1
157.5°	2104.2	2091.4	2105.9	2117.2	2104.2
160°	2133.4	2123.5	2133.4	2142.9	2131.6
162.5°	2159.0	2149.4	2157.4	2168.7	2154.2
165°	2181.5	2172.0	2176.7	2188.0	2176.7
167.5°	2199.3	2189.5	2194.5	2205.8	2191.3
170°	2213.8	2204.1	2207.3	2218.7	2204.1
172.5°	2223.5	2213.8	2217.1	2228.4	2213.8
175°	2231.5	2220.2	2223.5	2234.7	2218.7
177.5°	2234.7	2223.5	2225.2	2236.5	2221.9
180°	2226.7	2226.7	2226.7	2226.7	2226.7

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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	5.36	6.07	6.46	7.16	8.66	1.32	2.03	2.42	3.12	4.62
	3H	7.04	7.67	8.14	8.77	10.28	2.50	3.14	3.61	4.23	5.75
	4H	7.64	8.24	8.76	9.34	10.86	2.95	3.55	4.06	4.65	6.17
	6H	8.06	8.61	9.19	9.72	11.25	3.27	3.82	4.39	4.92	6.45
	8H	8.19	8.71	9.32	9.83	11.36	3.35	3.88	4.48	5.00	6.52
	12H	8.25	8.75	9.38	9.86	11.41	3.39	3.89	4.52	5.00	6.55
4H	2H	5.37	5.97	6.49	7.07	8.59	1.91	2.51	3.03	3.61	5.13
	3H	7.19	7.69	8.32	8.82	10.35	3.25	3.75	4.37	4.87	6.41
	4H	7.88	8.34	9.01	9.46	11.01	3.79	4.25	4.92	5.37	6.92
	6H	8.40	8.79	9.53	9.93	11.47	4.21	4.60	5.34	5.74	7.28
	8H	8.57	8.94	9.71	10.07	11.63	4.33	4.70	5.47	5.83	7.39
	12H	8.66	9.00	9.82	10.14	11.70	4.39	4.73	5.55	5.87	7.43
8H	4H	7.84	8.21	8.98	9.34	10.90	4.07	4.43	5.20	5.56	7.12
	6H	8.41	8.71	9.57	9.88	11.44	4.58	4.88	5.74	6.06	7.62
	8H	8.63	8.89	9.79	10.04	11.62	4.77	5.04	5.94	6.19	7.77
	12H	8.77	9.00	9.93	10.15	11.76	4.89	5.12	6.06	6.27	7.88
12H	4H	7.79	8.12	8.94	9.26	10.83	4.07	4.40	5.22	5.54	7.11
	6H	8.38	8.65	9.55	9.80	11.38	4.63	4.90	5.80	6.05	7.63
	8H	8.60	8.83	9.77	9.98	11.60	4.84	5.07	6.01	6.22	7.83

END OF REPORT