

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: P902189

Luminaire Tested: DFN2DIP-4P3F0-020D050US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902189
REPORT IS A COMBINATION OF REPORTS P900580 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D050US830-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

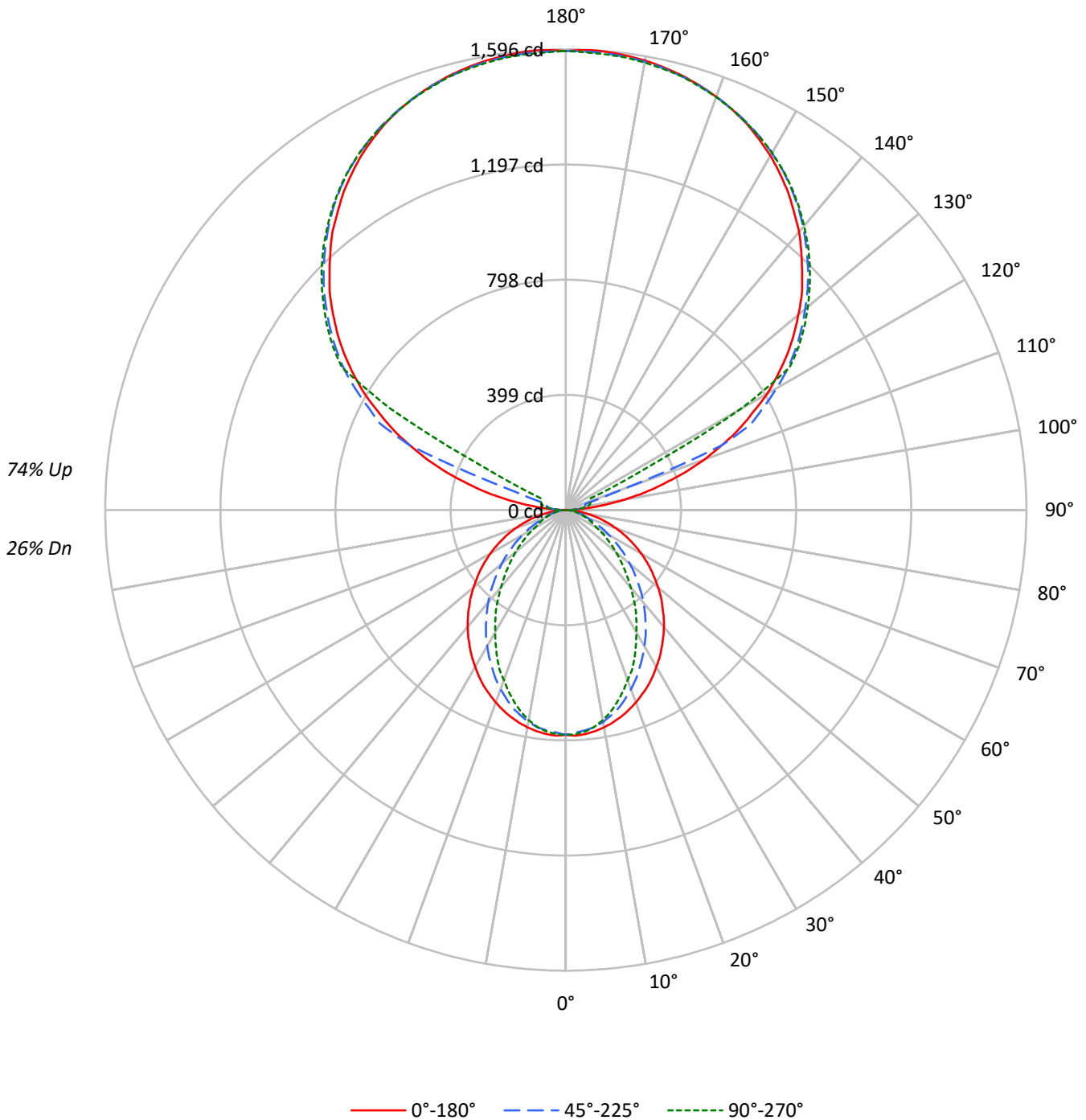
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6267.9 lumens
Efficiency: N/A
Efficacy: 116.5 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-Indirect

Input Watts (W): 53.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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				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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26				26
1	93	88	85	82	82	79	76	73	61	59	58	45	44	43	30	29	29	22				22
2	84	77	72	67	75	69	65	60	54	51	48	40	38	36	27	26	25	19				19
3	77	68	61	56	69	61	55	51	48	44	41	35	33	31	24	23	21	16				16
4	71	60	53	47	63	54	48	43	43	38	35	32	29	26	22	20	19	14				14
5	65	54	46	41	58	48	42	37	38	33	30	28	25	23	19	18	16	12				12
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	14	11				11
7	55	43	36	31	49	39	33	28	31	26	23	23	20	18	16	14	13	10				10
8	51	39	32	27	45	36	29	25	28	24	20	21	18	16	15	13	12	9				9
9	47	36	29	24	42	32	26	22	26	21	18	20	16	14	14	12	10	8				8
10	44	33	26	21	39	30	24	20	24	19	16	18	15	13	13	11	10	7				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	888	888	888
5°	889	873	879
10°	879	856	850
15°	867	827	806
20°	850	787	751
25°	833	743	699
30°	810	698	632
35°	788	649	573
40°	766	599	506
45°	740	543	446
50°	713	487	386
55°	684	427	329
60°	651	365	271
65°	613	301	243
70°	567	242	220
75°	509	212	199
80°	425	176	172
85°	289	115	128

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1086 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.0	1.2
10°-20°	200.4	3.2
20°-30°	281.4	4.5
30°-40°	306.8	4.9
40°-50°	282.0	4.5
50°-60°	221.4	3.5
60°-70°	144.1	2.3
70°-80°	74.2	1.2
80°-90°	21.8	0.3
90°-100°	52.5	0.8
100°-110°	195.5	3.1
110°-120°	518.5	8.3
120°-130°	860.0	13.7
130°-140°	913.5	14.6
140°-150°	849.0	13.5
150°-160°	682.6	10.9
160°-170°	439.8	7.0
170°-180°	151.4	2.4
0°-30°	554.9	8.9
0°-40°	861.7	13.7
0°-60°	1365.1	21.8
0°-90°	1605.1	25.6
90°-120°	766.5	12.2
90°-150°	3389.0	54.1
90°-180°	4663.0	74.4
0°-180°	6267.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	779	779	779	779	779	
5°	779	776	766	773	771	74
15°	741	733	709	696	689	209
25°	673	650	604	575	564	309
35°	580	544	482	437	422	363
45°	474	426	353	302	286	366
55°	360	305	229	187	173	322
65°	243	186	123	99	97	241
75°	130	80	56	52	51	137
85°	30	16	13	13	13	35
90°	1	14	23	29	31	6
95°	75	37	45	51	50	89
105°	350	384	70	83	88	374
115°	662	681	710	177	94	651
125°	936	951	972	980	984	834
135°	1158	1176	1186	1198	1196	894
145°	1343	1342	1361	1370	1364	840
155°	1479	1469	1482	1489	1480	681
165°	1558	1551	1555	1563	1555	440
175°	1594	1586	1588	1596	1585	152
180°	1590	1590	1590	1590	1590	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	779.1	779.1	779.1	779.1	779.1
2.5°	782.6	779.1	771.3	778.4	777.0
5°	779.1	775.6	766.4	772.8	770.6
7.5°	772.8	768.5	758.7	761.5	757.9
10°	764.3	759.3	745.3	743.1	739.0
12.5°	753.8	747.3	728.3	724.2	716.3
15°	741.0	733.2	709.3	695.9	688.9
17.5°	726.2	714.9	685.3	669.8	658.6
20°	709.3	695.1	660.0	642.3	626.8
22.5°	691.0	674.8	633.9	609.9	599.4
25°	672.7	650.1	603.5	574.7	564.0
27.5°	650.8	626.8	575.3	542.2	525.9
30°	627.5	600.7	544.3	508.4	489.3
32.5°	604.9	572.5	514.7	472.4	454.8
35°	579.6	543.7	481.6	437.2	421.6
37.5°	554.9	516.0	450.5	401.9	384.3
40°	528.8	486.5	418.1	368.1	349.7
42.5°	502.0	456.9	385.7	333.5	315.9
45°	473.8	426.5	352.6	302.5	285.5
47.5°	447.0	397.0	320.8	270.7	255.2
50°	417.5	367.4	289.8	241.1	226.4
52.5°	388.4	335.5	260.1	213.7	200.3
55°	360.2	305.3	229.1	186.9	173.4
57.5°	331.4	274.9	201.7	162.2	150.9
60°	301.8	245.3	172.8	136.9	125.5
62.5°	272.9	216.5	148.1	114.2	108.6
65°	243.3	186.2	122.7	98.8	96.6
67.5°	215.1	157.9	98.8	86.7	84.6
70°	185.4	130.4	81.7	74.7	71.9
72.5°	157.2	105.0	68.3	62.8	61.4
75°	129.7	80.3	56.4	51.5	50.8
77.5°	102.3	57.1	44.4	41.6	40.2
80°	76.8	40.9	33.8	31.0	31.0
82.5°	53.5	27.5	23.3	21.9	21.9
85°	30.3	15.5	13.4	13.4	13.4
87.5°	11.3	5.7	5.7	4.9	4.9
90°	1.1	13.8	23.0	28.8	31.0
92.5°	28.8	24.2	27.6	30.0	31.0
95°	74.7	36.8	44.9	50.7	49.5
97.5°	134.6	40.3	58.6	62.2	63.2
100°	203.8	46.1	65.6	74.7	77.1
102.5°	279.7	277.4	68.0	80.5	84.1
105°	349.9	384.5	70.2	82.8	87.5
107.5°	431.6	460.2	72.6	85.1	89.8
110°	509.9	534.0	201.4	86.3	90.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	583.5	604.2	584.7	88.6	92.1
115°	661.8	681.3	710.1	177.3	94.4
117.5°	729.6	752.6	772.3	607.6	306.1
120°	805.6	822.8	843.6	857.4	702.0
122.5°	870.0	888.4	911.5	918.4	919.6
125°	935.6	950.6	972.5	980.5	984.0
127.5°	995.4	1011.5	1029.0	1040.4	1041.5
130°	1051.9	1070.4	1082.9	1095.6	1094.6
132.5°	1109.5	1124.5	1137.0	1147.5	1146.3
135°	1157.8	1176.3	1186.5	1198.2	1195.8
137.5°	1208.3	1222.2	1233.8	1245.3	1241.9
140°	1257.8	1267.2	1279.7	1290.1	1284.4
142.5°	1299.4	1307.5	1322.4	1331.5	1325.8
145°	1343.1	1341.9	1361.4	1369.5	1363.8
147.5°	1381.0	1377.5	1397.1	1402.9	1398.4
150°	1417.9	1409.9	1428.2	1435.1	1429.4
152.5°	1448.9	1439.7	1457.0	1464.0	1455.9
155°	1478.8	1468.6	1482.3	1489.2	1480.1
157.5°	1503.0	1493.8	1504.2	1512.3	1503.0
160°	1523.8	1516.8	1523.8	1530.6	1522.6
162.5°	1542.1	1535.3	1541.0	1549.1	1538.7
165°	1558.2	1551.4	1554.8	1562.8	1554.8
167.5°	1570.9	1564.0	1567.5	1575.6	1565.2
170°	1581.3	1574.3	1576.7	1584.7	1574.3
172.5°	1588.2	1581.3	1583.7	1591.7	1581.3
175°	1593.9	1585.8	1588.2	1596.2	1584.7
177.5°	1596.2	1588.2	1589.4	1597.4	1587.1
180°	1590.4	1590.4	1590.4	1590.4	1590.4



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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	3.82	4.49	4.97	5.62	7.20	0.00	0.45	0.93	1.58	3.17
	3H	5.48	6.08	6.64	7.22	8.82	0.96	1.55	2.11	2.69	4.29
	4H	6.08	6.65	7.24	7.79	9.39	1.39	1.96	2.56	3.10	4.70
	6H	6.49	7.01	7.66	8.15	9.77	1.70	2.22	2.87	3.36	4.98
	8H	6.61	7.10	7.78	8.26	9.87	1.78	2.28	2.96	3.43	5.04
	12H	6.67	7.13	7.84	8.28	9.91	1.82	2.29	3.00	3.44	5.07
4H	2H	3.82	4.38	4.99	5.52	7.13	0.36	0.92	1.53	2.06	3.67
	3H	5.63	6.10	6.80	7.26	8.88	1.69	2.16	2.86	3.32	4.94
	4H	6.31	6.74	7.49	7.90	9.53	2.22	2.65	3.40	3.81	5.44
	6H	6.81	7.18	7.99	8.36	9.98	2.63	2.99	3.81	4.17	5.80
	8H	6.98	7.33	8.16	8.49	10.13	2.75	3.09	3.93	4.26	5.90
	12H	7.07	7.38	8.26	8.56	10.20	2.80	3.11	4.00	4.29	5.94
8H	4H	6.26	6.61	7.44	7.78	9.42	2.49	2.83	3.67	4.00	5.64
	6H	6.82	7.10	8.02	8.31	9.95	2.99	3.27	4.19	4.49	6.12
	8H	7.03	7.28	8.24	8.47	10.12	3.18	3.42	4.38	4.61	6.27
	12H	7.16	7.38	8.37	8.56	10.25	3.28	3.50	4.49	4.69	6.38
12H	4H	6.21	6.52	7.40	7.70	9.35	2.48	2.80	3.68	3.98	5.62
	6H	6.79	7.04	8.00	8.23	9.89	3.04	3.29	4.24	4.47	6.13
	8H	7.00	7.22	8.21	8.41	10.10	3.24	3.45	4.44	4.64	6.33