

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: P907603

Luminaire Tested: DFN2DIP-4P2F0-020D040US840-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907603
REPORT IS A COMBINATION OF REPORTS P900543 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US840-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

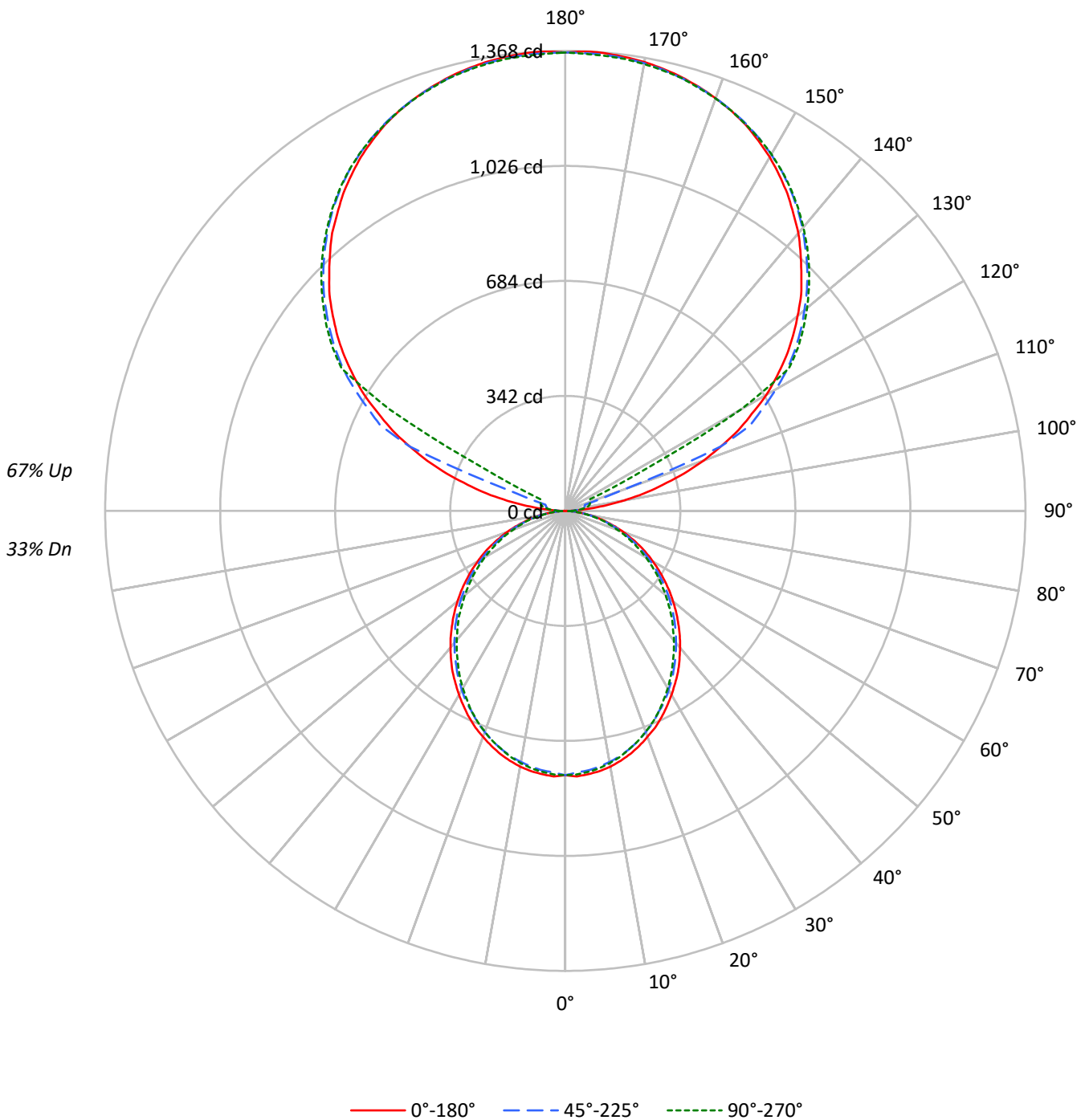
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5998.6 lumens
Efficiency: N/A
Efficacy: 121.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	0
RCR																					
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33			33
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	28			28
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29	24			24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20			20
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21	17			17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18	15			15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16	13			13
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14	12			12
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13	10			10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12	9			9
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11	9			9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1968	1968	1968
5°	1967	1935	1950
10°	1947	1904	1920
15°	1915	1868	1876
20°	1872	1819	1830
25°	1830	1762	1779
30°	1777	1709	1713
35°	1727	1647	1644
40°	1667	1584	1579
45°	1606	1521	1511
50°	1539	1454	1434
55°	1469	1377	1361
60°	1390	1286	1278
65°	1303	1192	1181
70°	1192	1076	1075
75°	1040	938	973
80°	856	762	787
85°	572	476	491

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1606 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.0	1.2
10°-20°	208.1	3.5
20°-30°	305.8	5.1
30°-40°	355.2	5.9
40°-50°	354.8	5.9
50°-60°	309.4	5.2
60°-70°	228.7	3.8
70°-80°	129.4	2.2
80°-90°	36.6	0.6
90°-100°	44.9	0.7
100°-110°	167.6	2.8
110°-120°	444.4	7.4
120°-130°	737.1	12.3
130°-140°	783.0	13.1
140°-150°	727.7	12.1
150°-160°	585.1	9.8
160°-170°	377.0	6.3
170°-180°	129.8	2.2
0°-30°	587.9	9.8
0°-40°	943.2	15.7
0°-60°	1607.3	26.8
0°-90°	2001.9	33.4
90°-120°	656.9	11.0
90°-150°	2904.8	48.4
90°-180°	3997.0	66.6
0°-180°	5998.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	786	786	786	786	786	
5°	786	783	775	781	779	75
15°	748	744	734	737	733	211
25°	677	671	658	660	658	312
35°	584	577	564	560	556	365
45°	475	470	459	450	447	367
55°	360	355	346	337	333	322
65°	243	238	231	224	220	240
75°	127	126	122	117	119	135
85°	31	30	30	27	26	35
90°	1	12	20	25	27	5
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1271	1276	1269	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	785.9	785.9	785.9	785.9	785.9
2.5°	790.4	786.7	778.3	785.9	784.5
5°	785.9	782.9	774.6	780.6	779.1
7.5°	780.6	776.1	767.8	773.9	772.3
10°	772.3	767.1	758.0	764.0	761.7
12.5°	760.9	756.5	747.4	751.1	749.6
15°	748.1	743.7	733.8	736.8	733.1
17.5°	732.3	727.8	717.9	721.6	717.9
20°	714.9	710.3	699.7	702.1	699.0
22.5°	697.5	690.7	680.9	680.9	679.3
25°	677.1	671.1	658.2	659.6	658.2
27.5°	654.4	649.1	639.3	637.1	633.3
30°	631.8	625.7	614.4	612.2	609.0
32.5°	607.5	603.1	591.0	586.4	583.4
35°	584.2	576.6	564.5	560.0	556.1
37.5°	557.7	550.9	538.8	533.5	529.7
40°	530.5	524.4	512.3	505.6	502.5
42.5°	504.0	498.0	485.9	478.4	473.8
45°	475.3	470.1	458.7	450.4	447.4
47.5°	447.4	442.1	430.0	421.6	417.2
50°	417.9	414.1	403.5	392.9	389.2
52.5°	389.2	383.8	374.1	365.8	360.5
55°	359.7	355.2	346.1	337.1	333.3
57.5°	330.2	326.5	316.6	307.6	304.5
60°	300.7	297.8	287.2	278.8	276.6
62.5°	272.1	266.7	259.2	251.7	248.6
65°	242.6	238.0	230.6	223.7	219.9
67.5°	212.4	208.5	201.8	196.5	193.5
70°	184.4	181.4	174.5	169.3	166.3
72.5°	155.7	152.7	148.9	143.6	141.4
75°	126.9	125.5	121.6	117.1	118.7
77.5°	101.3	98.3	96.6	94.4	92.2
80°	75.6	74.8	73.3	71.0	69.5
82.5°	51.4	51.4	50.7	47.7	47.7
85°	30.9	30.2	29.5	27.2	26.5
87.5°	13.6	12.1	10.6	8.4	7.6
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.7	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.6	62.2	73.0	77.0
110°	437.1	457.7	172.7	74.0	77.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.9	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	662.0	520.8	262.4
120°	690.5	705.3	723.1	735.0	601.8
122.5°	745.7	761.5	781.3	787.2	788.2
125°	801.9	814.9	833.5	840.5	843.4
127.5°	853.2	867.1	881.9	891.8	892.7
130°	901.6	917.5	928.2	939.1	938.2
132.5°	950.9	963.8	974.6	983.5	982.6
135°	992.4	1008.2	1017.0	1026.9	1025.0
137.5°	1035.7	1047.5	1057.5	1067.3	1064.4
140°	1078.1	1086.1	1096.9	1105.8	1100.9
142.5°	1113.8	1120.6	1133.5	1141.2	1136.4
145°	1151.2	1150.2	1166.9	1173.9	1168.9
147.5°	1183.7	1180.7	1197.5	1202.4	1198.6
150°	1215.3	1208.4	1224.3	1230.1	1225.2
152.5°	1241.9	1234.1	1248.8	1254.8	1247.9
155°	1267.6	1258.8	1270.6	1276.5	1268.6
157.5°	1288.3	1280.4	1289.4	1296.3	1288.3
160°	1306.1	1300.1	1306.1	1311.9	1305.0
162.5°	1321.8	1316.0	1320.9	1327.8	1318.9
165°	1335.6	1329.8	1332.7	1339.6	1332.7
167.5°	1346.6	1340.5	1343.6	1350.5	1341.6
170°	1355.4	1349.5	1351.4	1358.4	1349.5
172.5°	1361.3	1355.4	1357.5	1364.3	1355.4
175°	1366.1	1359.3	1361.3	1368.2	1358.4
177.5°	1368.2	1361.3	1362.3	1369.3	1360.4
180°	1363.3	1363.3	1363.3	1363.3	1363.3



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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	7.72	8.45	8.80	9.53	11.02	7.27	8.00	8.36	9.09	10.58
	3H	9.34	10.00	10.44	11.09	12.60	8.86	9.51	9.95	10.60	12.11
	4H	9.91	10.53	11.02	11.63	13.14	9.42	10.04	10.52	11.13	12.65
	6H	10.29	10.86	11.40	11.96	13.48	9.79	10.36	10.90	11.46	12.98
	8H	10.38	10.92	11.50	12.04	13.56	9.88	10.42	11.00	11.54	13.05
	12H	10.41	10.93	11.54	12.04	13.58	9.91	10.42	11.03	11.53	13.07
4H	2H	8.15	8.77	9.26	9.87	11.38	7.79	8.41	8.91	9.51	11.02
	3H	9.98	10.49	11.10	11.62	13.14	9.57	10.09	10.69	11.21	12.74
	4H	10.67	11.14	11.79	12.25	13.80	10.24	10.72	11.37	11.83	13.38
	6H	11.15	11.56	12.28	12.70	14.23	10.72	11.13	11.85	12.26	13.80
	8H	11.29	11.67	12.42	12.80	14.35	10.85	11.23	11.98	12.36	13.91
	12H	11.34	11.69	12.49	12.83	14.39	10.90	11.24	12.04	12.38	13.94
8H	4H	10.84	11.22	11.97	12.35	13.90	10.46	10.84	11.59	11.97	13.52
	6H	11.44	11.75	12.59	12.92	14.47	11.05	11.37	12.20	12.54	14.09
	8H	11.64	11.92	12.80	13.07	14.64	11.25	11.52	12.41	12.67	14.24
	12H	11.75	11.99	12.91	13.14	14.75	11.34	11.58	12.50	12.73	14.34
12H	4H	10.82	11.16	11.96	12.30	13.86	10.45	10.79	11.59	11.93	13.49
	6H	11.46	11.74	12.62	12.88	14.46	11.09	11.36	12.24	12.51	14.08
	8H	11.68	11.92	12.84	13.07	14.67	11.30	11.54	12.46	12.68	14.29