

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: P924130

Luminaire Tested: DFN2DIP-4P4F0-040D050US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924130
REPORT IS A COMBINATION OF REPORTS P899105 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D050US950-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

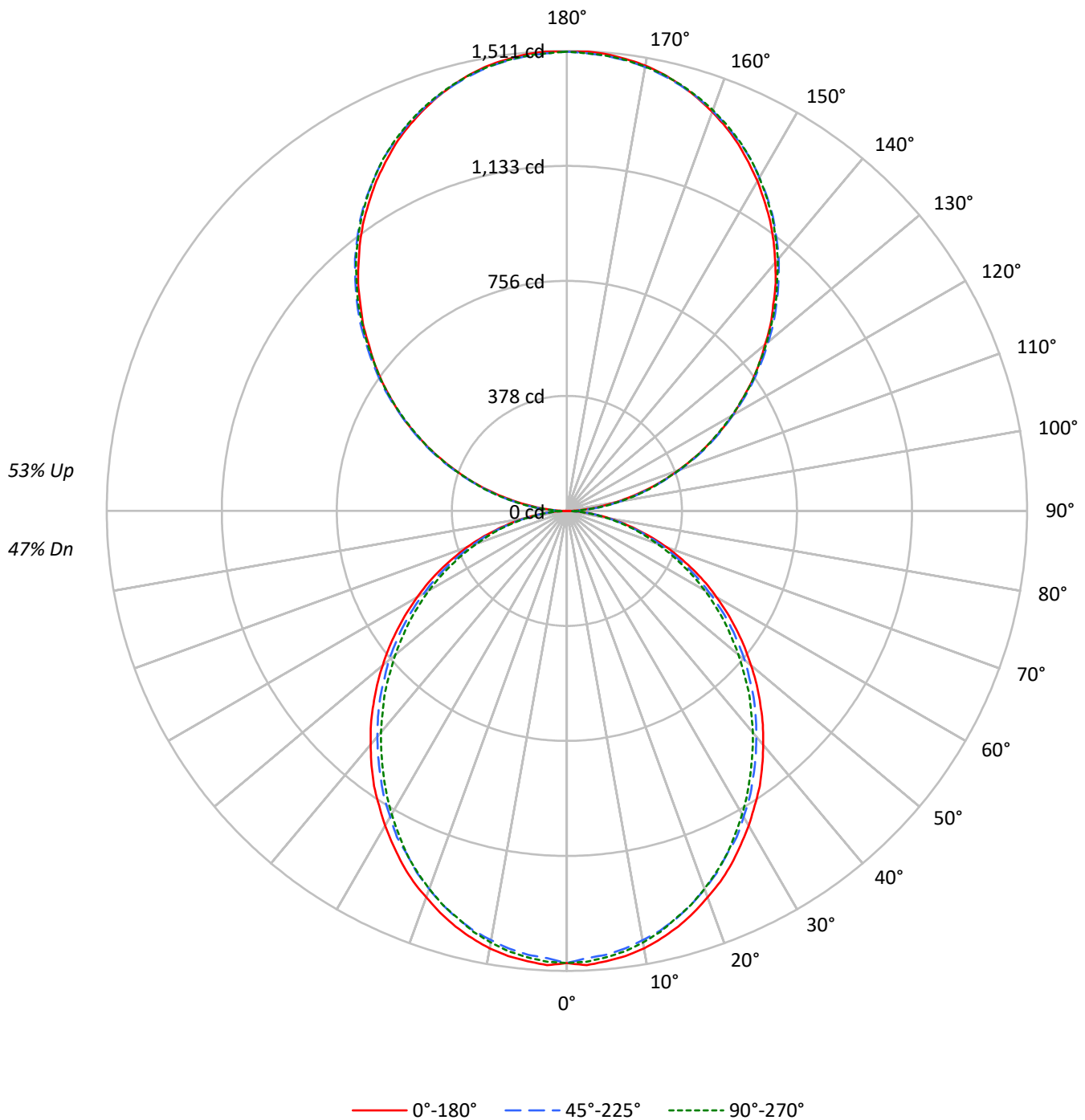
Lumens per Lamp: N/A
Luminaire Lumens: 7999.3 lumens
Efficiency: N/A
Efficacy: 101.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 79
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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	54	54	54
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45
2	88	81	75	70	81	75	69	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	35	32
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28
5	68	56	48	42	62	52	45	39	44	39	34	37	33	29	30	27	24
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	21
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	21	19
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	19	17
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15
10	47	35	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	963	963	963
5°	965	950	957
10°	957	938	944
15°	943	923	924
20°	924	901	904
25°	905	876	880
30°	882	852	850
35°	859	825	818
40°	832	796	788
45°	804	768	757
50°	774	739	721
55°	743	705	688
60°	707	664	650
65°	668	622	606
70°	619	571	558
75°	551	510	515
80°	468	432	431
85°	340	297	291

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1142 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	1.7
10°-20°	393.2	4.9
20°-30°	577.9	7.2
30°-40°	671.2	8.4
40°-50°	670.3	8.4
50°-60°	584.5	7.3
60°-70°	432.1	5.4
70°-80°	244.5	3.1
80°-90°	68.8	0.9
90°-100°	93.4	1.2
100°-110°	296.6	3.7
110°-120°	507.6	6.3
120°-130°	667.5	8.3
130°-140°	749.3	9.4
140°-150°	734.8	9.2
150°-160°	616.4	7.7
160°-170°	408.8	5.1
170°-180°	142.9	1.8
0°-30°	1110.8	13.9
0°-40°	1782.0	22.3
0°-60°	3036.8	38.0
0°-90°	3782.1	47.3
90°-120°	897.5	11.2
90°-150°	3049.2	38.1
90°-180°	4217.0	52.7
0°-180°	7999.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	1	16	45	42	43	8
95°	66	79	81	81	79	74
105°	274	277	280	282	282	289
115°	509	517	514	513	509	504
125°	741	752	749	744	743	662
135°	958	972	975	974	970	741
145°	1163	1172	1180	1181	1176	727
155°	1330	1334	1338	1344	1340	612
165°	1447	1446	1446	1455	1449	408
175°	1506	1502	1500	1509	1501	143
180°	1509	1509	1509	1509	1509	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
90°	1.3	16.4	44.6	41.9	43.2
92.5°	28.2	38.2	39.6	40.9	40.9
95°	66.4	79.2	81.4	81.4	79.2
97.5°	110.5	122.3	127.4	127.4	127.4
100°	161.4	171.9	175.5	175.5	174.2
102.5°	215.1	222.9	227.8	229.2	227.8
105°	273.8	277.4	280.2	282.4	282.4
107.5°	332.0	337.4	337.4	338.4	332.0
110°	388.4	395.7	395.7	395.7	392.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	449.3	457.1	455.7	452.1	449.3
115°	509.3	516.7	514.4	513.1	509.3
117.5°	569.0	579.0	572.6	569.0	565.3
120°	629.0	639.0	629.0	629.0	624.9
122.5°	683.5	696.3	689.9	686.3	683.5
125°	740.9	752.2	748.6	744.5	743.2
127.5°	796.8	810.9	805.9	800.4	796.8
130°	849.2	865.5	863.2	860.5	855.5
132.5°	907.8	920.5	921.5	915.1	911.5
135°	958.3	972.3	975.1	973.7	970.1
137.5°	1014.7	1026.0	1028.3	1027.4	1021.9
140°	1064.2	1075.6	1081.9	1081.9	1077.0
142.5°	1115.1	1126.6	1130.2	1131.5	1126.6
145°	1163.4	1172.5	1179.7	1181.1	1176.1
147.5°	1206.6	1218.0	1223.4	1225.7	1220.6
150°	1251.2	1258.9	1263.9	1268.0	1263.9
152.5°	1290.8	1298.5	1304.8	1309.8	1304.8
155°	1330.3	1333.9	1338.0	1344.4	1340.3
157.5°	1364.4	1367.1	1369.4	1378.5	1372.1
160°	1394.8	1397.6	1398.9	1406.7	1401.2
162.5°	1423.1	1423.1	1424.4	1433.1	1426.7
165°	1447.2	1445.8	1445.8	1454.9	1448.6
167.5°	1469.0	1464.9	1464.9	1474.0	1467.6
170°	1485.4	1481.8	1480.4	1489.5	1481.8
172.5°	1496.7	1493.1	1491.8	1500.8	1493.1
175°	1505.9	1502.2	1499.5	1508.6	1500.8
177.5°	1510.8	1507.2	1504.5	1512.2	1504.5
180°	1508.6	1508.6	1508.6	1508.6	1508.6

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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	6.90	7.74	7.88	8.73	10.04	6.46	7.30	7.44	8.29	9.60
	3H	8.57	9.32	9.56	10.32	11.65	8.08	8.83	9.07	9.83	11.16
	4H	9.16	9.87	10.16	10.87	12.21	8.66	9.37	9.67	10.38	11.72
	6H	9.56	10.22	10.57	11.23	12.58	9.06	9.71	10.07	10.73	12.08
	8H	9.67	10.29	10.69	11.32	12.66	9.16	9.79	10.19	10.82	12.16
	12H	9.72	10.31	10.74	11.33	12.70	9.21	9.80	10.23	10.82	12.19
4H	2H	7.36	8.07	8.37	9.08	10.42	7.01	7.72	8.02	8.72	10.06
	3H	9.23	9.83	10.25	10.86	12.21	8.82	9.42	9.84	10.45	11.80
	4H	9.95	10.49	10.98	11.52	12.89	9.53	10.07	10.55	11.10	12.47
	6H	10.47	10.94	11.51	11.99	13.36	10.04	10.50	11.07	11.55	12.93
	8H	10.62	11.06	11.66	12.10	13.49	10.18	10.62	11.22	11.66	13.05
	12H	10.70	11.09	11.75	12.15	13.54	10.25	10.64	11.30	11.70	13.09
8H	4H	10.15	10.58	11.18	11.62	13.01	9.77	10.21	10.81	11.25	12.63
	6H	10.78	11.14	11.84	12.23	13.61	10.40	10.76	11.46	11.84	13.23
	8H	11.01	11.32	12.08	12.39	13.80	10.61	10.93	11.68	12.00	13.40
	12H	11.14	11.42	12.21	12.48	13.93	10.73	11.01	11.80	12.07	13.52
12H	4H	10.13	10.52	11.19	11.58	12.97	9.76	10.16	10.82	11.21	12.61
	6H	10.81	11.13	11.88	12.20	13.60	10.44	10.76	11.51	11.83	13.23
	8H	11.06	11.34	12.13	12.40	13.85	10.68	10.96	11.75	12.02	13.47