

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: P921403

Luminaire Tested: DFN2DIP-4P4F0-040D050US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921403
REPORT IS A COMBINATION OF REPORTS P900625 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D050US940-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

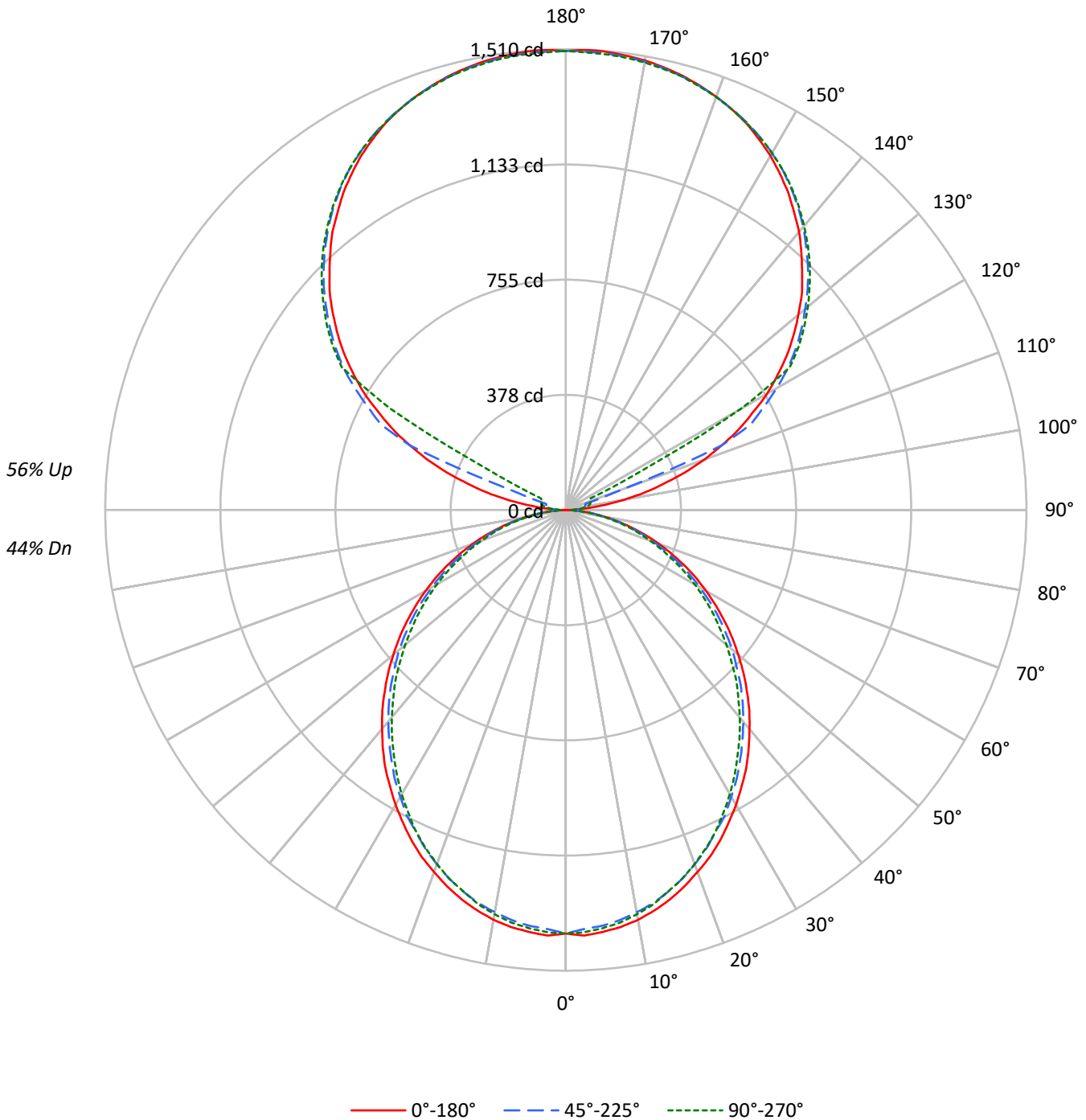
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7945.2 lumens
Efficiency: N/A
Efficacy: 100.6 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			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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44			44
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43	37			37
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36	31			31
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31	27			27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	31	29	27	23			23
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23	20			20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20	17			17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15			15
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14			14
9	49	37	30	25	45	35	28	23	29	24	20	25	20	18	20	17	15	12			12
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13	11			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	900	900	900
5°	902	888	894
10°	895	876	882
15°	882	862	864
20°	864	843	845
25°	846	819	823
30°	824	797	795
35°	803	771	765
40°	777	744	736
45°	752	718	708
50°	724	691	674
55°	694	659	643
60°	661	621	608
65°	625	582	566
70°	579	534	522
75°	515	477	481
80°	438	404	403
85°	318	278	271

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 774 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	1.6
10°-20°	367.5	4.6
20°-30°	540.1	6.8
30°-40°	627.3	7.9
40°-50°	626.6	7.9
50°-60°	546.3	6.9
60°-70°	403.9	5.1
70°-80°	228.5	2.9
80°-90°	63.0	0.8
90°-100°	49.6	0.6
100°-110°	185.0	2.3
110°-120°	490.6	6.2
120°-130°	813.6	10.2
130°-140°	864.3	10.9
140°-150°	803.2	10.1
150°-160°	645.8	8.1
160°-170°	416.1	5.2
170°-180°	143.2	1.8
0°-30°	1038.3	13.1
0°-40°	1665.6	21.0
0°-60°	2838.5	35.7
0°-90°	3533.9	44.5
90°-120°	725.2	9.1
90°-150°	3206.2	40.4
90°-180°	4411.0	55.5
0°-180°	7945.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	1	13	22	27	29	7
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	644	672	168	89	616
125°	885	899	920	928	931	789
135°	1095	1113	1122	1134	1131	846
145°	1271	1270	1288	1296	1290	795
155°	1399	1389	1402	1409	1400	645
165°	1474	1468	1471	1478	1471	416
175°	1508	1500	1502	1510	1499	144
180°	1505	1505	1505	1505	1505	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.4	48.0	46.8
97.5°	127.3	38.2	55.5	58.9	59.8
100°	192.8	43.6	62.1	70.7	72.9
102.5°	264.6	262.4	64.3	76.2	79.5
105°	331.0	363.7	66.4	78.4	82.8
107.5°	408.3	435.4	68.7	80.5	85.0
110°	482.4	505.2	190.6	81.7	86.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.1	571.6	553.1	83.8	87.1
115°	626.1	644.5	671.8	167.7	89.3
117.5°	690.3	712.0	730.7	574.8	289.6
120°	762.1	778.5	798.1	811.2	664.1
122.5°	823.0	840.5	862.4	868.9	870.0
125°	885.1	899.4	920.1	927.6	930.9
127.5°	941.7	957.0	973.5	984.3	985.3
130°	995.1	1012.6	1024.5	1036.5	1035.5
132.5°	1049.6	1063.8	1075.7	1085.6	1084.5
135°	1095.4	1112.9	1122.5	1133.5	1131.3
137.5°	1143.2	1156.3	1167.2	1178.1	1174.9
140°	1190.0	1198.8	1210.7	1220.5	1215.1
142.5°	1229.3	1237.0	1251.1	1259.7	1254.3
145°	1270.7	1269.5	1288.0	1295.7	1290.2
147.5°	1306.5	1303.2	1321.8	1327.2	1322.9
150°	1341.4	1333.8	1351.2	1357.7	1352.3
152.5°	1370.7	1362.1	1378.4	1385.0	1377.3
155°	1399.1	1389.4	1402.4	1408.9	1400.3
157.5°	1421.9	1413.3	1423.1	1430.7	1421.9
160°	1441.6	1435.0	1441.6	1448.0	1440.5
162.5°	1458.9	1452.5	1457.9	1465.5	1455.7
165°	1474.2	1467.8	1471.0	1478.5	1471.0
167.5°	1486.2	1479.6	1483.0	1490.6	1480.8
170°	1496.0	1489.4	1491.7	1499.2	1489.4
172.5°	1502.5	1496.0	1498.3	1505.8	1496.0
175°	1508.0	1500.3	1502.5	1510.1	1499.2
177.5°	1510.1	1502.5	1503.7	1511.3	1501.5
180°	1504.7	1504.7	1504.7	1504.7	1504.7



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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	6.39	7.21	7.40	8.22	9.57	5.95	6.76	6.95	7.78	9.12
	3H	8.06	8.79	9.07	9.81	11.18	7.57	8.29	8.58	9.32	10.69
	4H	8.65	9.34	9.67	10.36	11.74	8.15	8.84	9.18	9.87	11.24
	6H	9.05	9.68	10.08	10.71	12.10	8.55	9.18	9.58	10.21	11.60
	8H	9.15	9.76	10.19	10.81	12.19	8.65	9.26	9.69	10.30	11.69
	12H	9.20	9.78	10.25	10.82	12.23	8.69	9.27	9.74	10.31	11.72
4H	2H	6.85	7.54	7.88	8.57	9.94	6.49	7.19	7.53	8.21	9.59
	3H	8.72	9.29	9.76	10.35	11.74	8.31	8.89	9.35	9.94	11.33
	4H	9.43	9.96	10.48	11.01	12.42	9.01	9.54	10.06	10.58	12.00
	6H	9.95	10.41	11.01	11.48	12.88	9.52	9.97	10.58	11.04	12.45
	8H	10.10	10.53	11.16	11.59	13.01	9.67	10.09	10.72	11.15	12.57
	12H	10.18	10.56	11.25	11.64	13.06	9.73	10.11	10.80	11.19	12.61
8H	4H	9.63	10.05	10.69	11.11	12.54	9.25	9.68	10.31	10.74	12.16
	6H	10.26	10.61	11.35	11.72	13.14	9.88	10.23	10.96	11.33	12.75
	8H	10.49	10.80	11.58	11.88	13.32	10.10	10.40	11.18	11.49	12.93
	12H	10.62	10.89	11.71	11.97	13.45	10.21	10.48	11.30	11.56	13.04
12H	4H	9.61	10.00	10.69	11.07	12.50	9.24	9.63	10.32	10.70	12.13
	6H	10.29	10.60	11.38	11.69	13.13	9.92	10.23	11.01	11.32	12.76
	8H	10.54	10.81	11.63	11.89	13.37	10.16	10.43	11.25	11.51	12.99