

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: P921783

Luminaire Tested: DFN2DIP-HX4F0-040D040US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921783
REPORT IS A COMBINATION OF REPORTS P899300 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D040US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

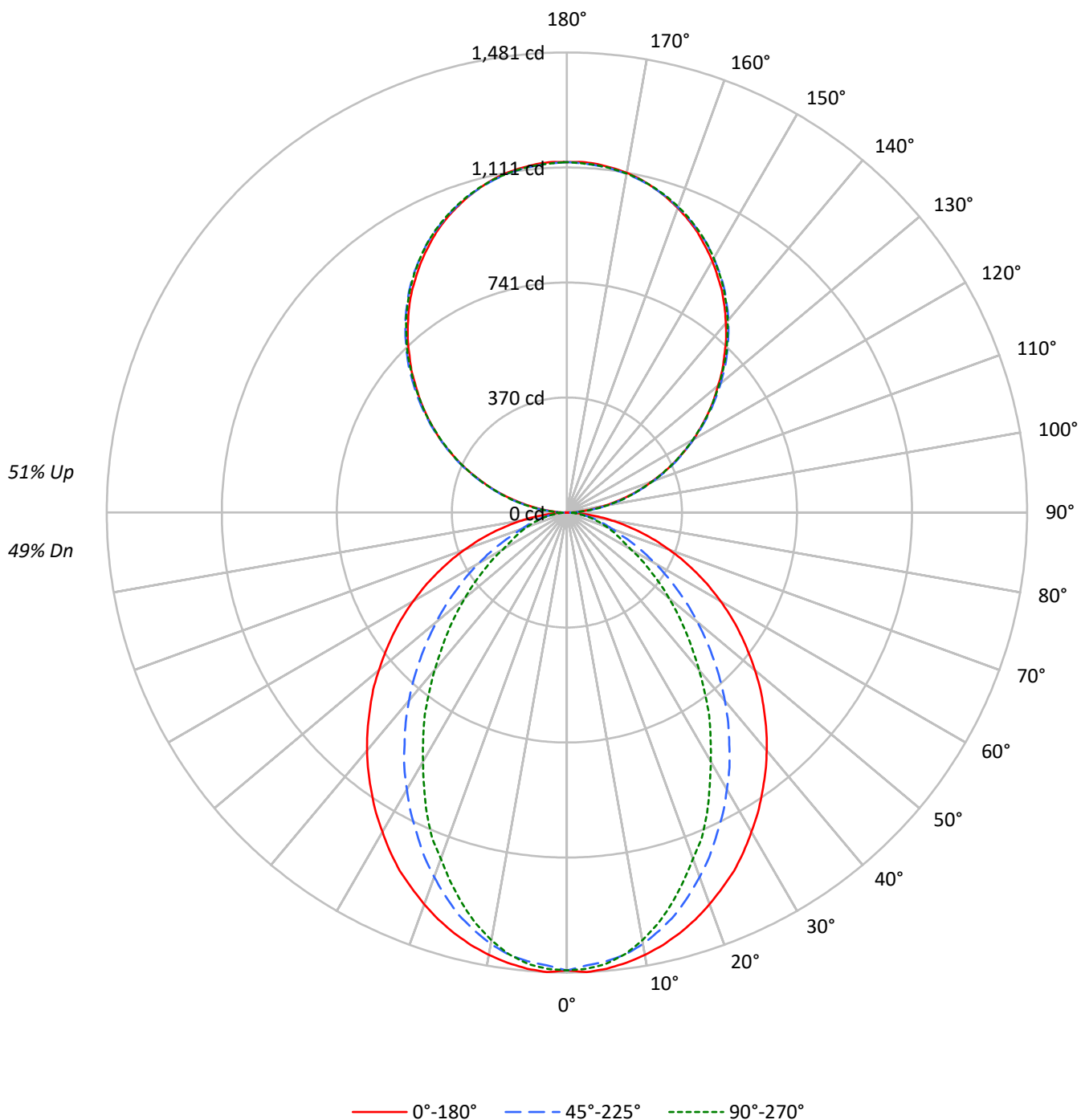
Lumens per Lamp: N/A
Luminaire Lumens: 6188.5 lumens
Efficiency: N/A
Efficacy: 108.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 57
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921783

CATALOG NUMBER: DFN2DIP-HX4F0-040D040US940-RLLFLL

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1096	1096	1096
5°	1098	1079	1086
10°	1087	1058	1050
15°	1072	1023	996
20°	1053	975	929
25°	1032	921	864
30°	1005	866	782
35°	979	806	710
40°	952	745	627
45°	920	676	553
50°	888	607	479
55°	854	534	409
60°	815	457	337
65°	769	378	303
70°	715	305	274
75°	646	269	250
80°	546	226	217
85°	382	151	163

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 920 cd/sqm

TEST NUMBER: P921783

CATALOG NUMBER: DFN2DIP-HX4F0-040D040US940-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	2.2
10°-20°	379.3	6.1
20°-30°	532.5	8.6
30°-40°	580.5	9.4
40°-50°	533.5	8.6
50°-60°	419.0	6.8
60°-70°	272.7	4.4
70°-80°	140.4	2.3
80°-90°	39.0	0.6
90°-100°	69.8	1.1
100°-110°	221.8	3.6
110°-120°	379.5	6.1
120°-130°	499.2	8.1
130°-140°	560.3	9.1
140°-150°	549.4	8.9
150°-160°	460.9	7.4
160°-170°	305.7	4.9
170°-180°	106.8	1.7
0°-30°	1049.9	17.0
0°-40°	1630.4	26.3
0°-60°	2582.9	41.7
0°-90°	3035.0	49.0
90°-120°	671.2	10.8
90°-150°	2280.1	36.8
90°-180°	3153.0	50.9
0°-180°	6188.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	1	12	33	31	32	6
95°	50	59	61	61	59	55
105°	205	207	210	211	211	216
115°	381	386	385	384	381	377
125°	554	562	560	557	556	495
135°	717	727	729	728	725	554
145°	870	877	882	883	880	544
155°	995	998	1000	1005	1002	458
165°	1082	1081	1081	1088	1083	305
175°	1126	1123	1121	1128	1122	107
180°	1128	1128	1128	1128	1128	

TEST NUMBER: P921783

CATALOG NUMBER: DFN2DIP-HX4F0-040D040US940-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	1.0	12.2	33.3	31.3	32.3
92.5°	21.0	28.5	29.6	30.6	30.6
95°	49.7	59.2	60.9	60.9	59.2
97.5°	82.7	91.5	95.2	95.2	95.2
100°	120.7	128.6	131.3	131.3	130.3
102.5°	160.9	166.7	170.4	171.4	170.4
105°	204.7	207.4	209.5	211.2	211.2
107.5°	248.3	252.4	252.4	253.0	248.3
110°	290.4	295.9	295.9	295.9	293.2

TEST NUMBER: P921783

CATALOG NUMBER: DFN2DIP-HX4F0-040D040US940-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	336.0	341.8	340.7	338.0	336.0
115°	380.8	386.4	384.6	383.6	380.8
117.5°	425.4	432.9	428.2	425.4	422.8
120°	470.4	477.8	470.4	470.4	467.3
122.5°	511.1	520.7	515.9	513.2	511.1
125°	554.0	562.5	559.8	556.7	555.7
127.5°	595.8	606.4	602.6	598.5	595.8
130°	634.9	647.2	645.5	643.5	639.7
132.5°	678.8	688.3	689.0	684.2	681.5
135°	716.6	727.1	729.2	728.1	725.4
137.5°	758.8	767.2	768.9	768.2	764.2
140°	795.8	804.3	809.0	809.0	805.3
142.5°	833.9	842.4	845.1	846.1	842.4
145°	870.0	876.7	882.2	883.2	879.5
147.5°	902.2	910.7	914.8	916.5	912.8
150°	935.6	941.4	945.1	948.2	945.1
152.5°	965.2	970.9	975.7	979.5	975.7
155°	994.7	997.5	1000.5	1005.3	1002.2
157.5°	1020.3	1022.3	1024.0	1030.8	1026.0
160°	1043.0	1045.1	1046.1	1051.9	1047.8
162.5°	1064.1	1064.1	1065.1	1071.6	1066.8
165°	1082.2	1081.1	1081.1	1087.9	1083.2
167.5°	1098.5	1095.4	1095.4	1102.2	1097.4
170°	1110.7	1108.0	1107.0	1113.7	1108.0
172.5°	1119.2	1116.5	1115.4	1122.3	1116.5
175°	1126.1	1123.3	1121.2	1128.0	1122.3
177.5°	1129.8	1127.0	1125.0	1130.8	1125.0
180°	1128.0	1128.0	1128.0	1128.0	1128.0

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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	7.37	8.20	8.35	9.18	10.47	3.35	4.17	4.32	5.15	6.44
	3H	9.05	9.79	10.04	10.78	12.09	4.54	5.27	5.52	6.26	7.57
	4H	9.66	10.36	10.66	11.35	12.67	4.99	5.68	5.99	6.68	8.00
	6H	10.08	10.72	11.09	11.72	13.05	5.31	5.95	6.32	6.95	8.28
	8H	10.21	10.82	11.22	11.83	13.16	5.40	6.01	6.42	7.03	8.35
	12H	10.27	10.85	11.29	11.86	13.21	5.45	6.03	6.46	7.03	8.38
4H	2H	7.39	8.09	8.40	9.08	10.40	3.94	4.64	4.94	5.63	6.95
	3H	9.22	9.80	10.23	10.82	12.15	5.29	5.87	6.31	6.90	8.23
	4H	9.91	10.44	10.93	11.46	12.81	5.84	6.37	6.86	7.39	8.74
	6H	10.43	10.88	11.46	11.92	13.27	6.26	6.72	7.29	7.76	9.11
	8H	10.61	11.03	11.64	12.06	13.43	6.39	6.82	7.42	7.85	9.22
	12H	10.70	11.08	11.75	12.13	13.50	6.46	6.84	7.51	7.89	9.26
8H	4H	9.88	10.31	10.91	11.34	12.70	6.12	6.55	7.15	7.58	8.95
	6H	10.45	10.80	11.50	11.87	13.24	6.64	6.99	7.70	8.07	9.43
	8H	10.67	10.97	11.73	12.03	13.42	6.84	7.14	7.90	8.20	9.59
	12H	10.81	11.08	11.87	12.13	13.56	6.96	7.23	8.02	8.28	9.71
12H	4H	9.83	10.22	10.88	11.26	12.63	6.13	6.51	7.18	7.56	8.93
	6H	10.42	10.73	11.49	11.79	13.17	6.69	7.00	7.76	8.06	9.44
	8H	10.65	10.92	11.71	11.97	13.40	6.91	7.18	7.97	8.23	9.65