

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: P924637

Luminaire Tested: DFN2DIP-HX4F0-110D040US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924637
REPORT IS A COMBINATION OF REPORTS P899314 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D040US950-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

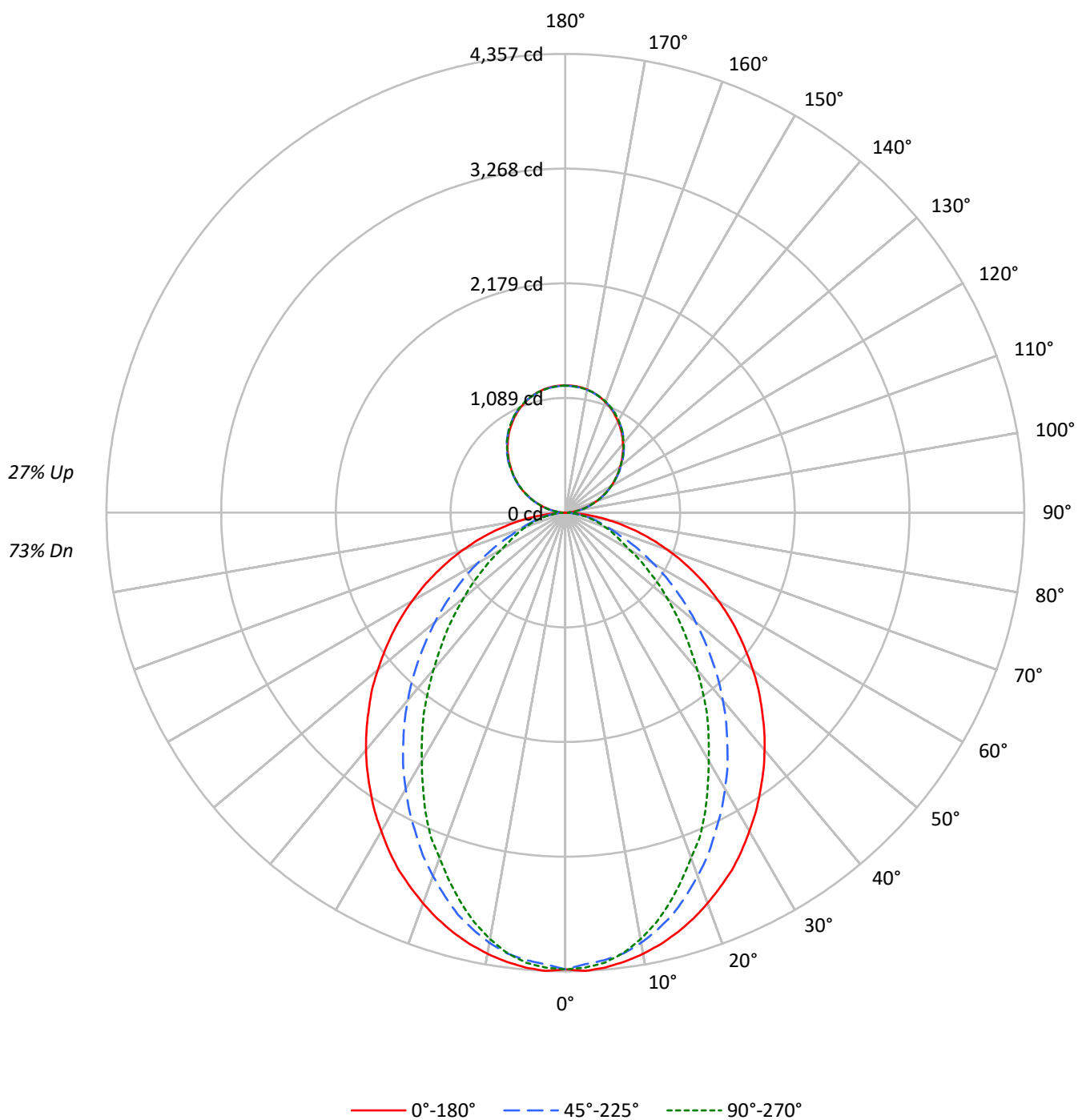
Lumens per Lamp: N/A
Luminaire Lumens: 12297.1 lumens
Efficiency: N/A
Efficacy: 90.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 136
Input Voltage (V):
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

TEST NUMBER: P924637

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US950-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924637

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US950-RLLFLL

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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77
1	104	99	96	92	98	94	91	88	85	83	80	77	75	73	69	68	66
2	95	88	82	77	90	83	78	74	76	71	68	68	65	62	62	59	57
3	87	78	70	65	82	74	68	62	67	62	58	61	57	53	55	52	49
4	80	69	61	55	76	66	59	54	60	55	50	55	50	47	50	46	43
5	74	62	54	48	70	60	52	47	54	48	44	50	45	41	45	41	38
6	68	56	48	42	65	54	47	41	49	43	39	45	40	36	41	37	34
7	64	51	43	38	60	49	42	37	45	39	34	41	36	32	38	34	30
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	28
9	55	43	35	30	53	41	34	30	38	32	28	35	30	27	33	28	25
10	52	40	32	28	49	38	31	27	35	30	26	33	28	24	30	26	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3225	3225	3225
5°	3230	3174	3194
10°	3199	3112	3091
15°	3155	3010	2930
20°	3097	2868	2733
25°	3037	2709	2543
30°	2958	2547	2301
35°	2879	2372	2089
40°	2800	2191	1846
45°	2707	1990	1626
50°	2612	1787	1410
55°	2512	1570	1203
60°	2397	1343	991
65°	2264	1113	892
70°	2103	898	807
75°	1901	792	735
80°	1608	665	638
85°	1125	446	480

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2707 cd/sqm

TEST NUMBER: P924637

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US950-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.5	3.3
10°-20°	1115.9	9.1
20°-30°	1566.7	12.7
30°-40°	1707.7	13.9
40°-50°	1569.6	12.8
50°-60°	1232.7	10.0
60°-70°	802.4	6.5
70°-80°	413.0	3.4
80°-90°	108.9	0.9
90°-100°	74.7	0.6
100°-110°	237.3	1.9
110°-120°	406.1	3.3
120°-130°	534.0	4.3
130°-140°	599.4	4.9
140°-150°	587.8	4.8
150°-160°	493.1	4.0
160°-170°	327.0	2.7
170°-180°	114.3	0.9
0°-30°	3089.0	25.1
0°-40°	4796.8	39.0
0°-60°	7599.1	61.8
0°-90°	8923.3	72.6
90°-120°	718.0	5.8
90°-150°	2439.3	19.8
90°-180°	3374.0	27.4
0°-180°	12297.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4337	4337	4337	4337	4337	
5°	4337	4318	4266	4302	4290	411
15°	4125	4082	3949	3874	3835	1162
25°	3744	3619	3360	3199	3140	1722
35°	3226	3026	2681	2434	2347	2019
45°	2638	2374	1963	1684	1590	2037
55°	2006	1700	1276	1040	966	1792
65°	1354	1036	683	550	538	1343
75°	722	447	314	286	283	764
85°	169	86	74	74	74	194
90°	1	13	36	34	34	12
95°	53	63	65	65	63	59
105°	219	222	224	226	226	231
115°	408	413	412	410	408	403
125°	593	602	599	596	594	530
135°	767	778	780	779	776	593
145°	931	938	944	945	941	582
155°	1064	1067	1070	1076	1072	490
165°	1158	1157	1157	1164	1159	327
175°	1205	1202	1200	1207	1201	114
180°	1207	1207	1207	1207	1207	

TEST NUMBER: P924637

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US950-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4337.2	4337.2	4337.2	4337.2	4337.2
2.5°	4356.7	4337.2	4293.9	4333.4	4325.5
5°	4337.2	4317.6	4266.4	4301.8	4290.1
7.5°	4301.8	4278.4	4223.5	4238.9	4219.3
10°	4254.7	4227.2	4148.9	4136.8	4113.6
12.5°	4196.0	4160.6	4054.4	4031.0	3987.7
15°	4125.2	4081.9	3948.6	3874.1	3834.9
17.5°	4042.8	3979.9	3815.0	3728.7	3665.8
20°	3948.6	3869.9	3673.8	3575.9	3489.3
22.5°	3846.6	3756.2	3528.5	3395.2	3336.4
25°	3744.5	3618.8	3359.8	3199.0	3139.9
27.5°	3623.0	3489.3	3202.8	3018.3	2927.9
30°	3493.5	3344.0	3030.0	2830.0	2723.9
32.5°	3367.7	3186.9	2865.4	2629.8	2531.5
35°	3226.5	3026.2	2681.0	2433.7	2347.0
37.5°	3089.1	2873.0	2508.2	2237.0	2139.2
40°	2943.8	2708.5	2327.5	2048.8	1946.8
42.5°	2794.6	2543.6	2147.2	1856.5	1758.6
45°	2637.7	2374.5	1962.7	1683.6	1589.6
47.5°	2488.6	2210.0	1786.1	1507.0	1420.9
50°	2323.7	2045.1	1613.3	1342.2	1260.1
52.5°	2162.5	1868.1	1448.4	1189.4	1114.7
55°	2005.5	1699.5	1275.5	1040.2	965.7
57.5°	1844.8	1530.8	1122.7	902.9	839.9
60°	1679.9	1365.9	961.5	761.7	698.8
62.5°	1519.1	1205.2	824.2	635.9	604.6
65°	1354.2	1036.0	683.0	549.7	537.6
67.5°	1197.3	879.1	549.7	482.6	471.0
70°	1032.3	726.3	455.2	416.0	400.2
72.5°	875.3	584.7	380.6	349.4	341.4
75°	722.1	447.2	314.0	286.5	282.8
77.5°	569.3	317.8	247.4	231.5	223.6
80°	427.7	227.8	188.2	172.9	172.9
82.5°	298.1	153.2	129.6	121.6	121.6
85°	168.7	86.2	74.5	74.5	74.5
87.5°	62.9	31.2	31.2	27.5	27.5
90°	1.0	13.1	35.7	33.5	34.5
92.5°	22.5	30.5	31.7	32.7	32.7
95°	53.1	63.3	65.2	65.2	63.3
97.5°	88.4	97.9	101.9	101.9	101.9
100°	129.2	137.6	140.4	140.4	139.4
102.5°	172.1	178.3	182.3	183.4	182.3
105°	219.0	221.9	224.1	225.9	225.9
107.5°	265.6	270.0	270.0	270.6	265.6
110°	310.7	316.5	316.5	316.5	313.7

TEST NUMBER: P924637

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US950-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	359.5	365.7	364.5	361.7	359.5
115°	407.5	413.4	411.5	410.4	407.5
117.5°	455.2	463.2	458.1	455.2	452.3
120°	503.2	511.2	503.2	503.2	499.9
122.5°	546.8	557.0	552.0	549.0	546.8
125°	592.7	601.8	598.9	595.6	594.5
127.5°	637.5	648.7	644.7	640.3	637.5
130°	679.2	692.4	690.6	688.4	684.4
132.5°	726.2	736.4	737.2	732.0	729.1
135°	766.6	777.9	780.1	778.9	776.1
137.5°	811.8	820.8	822.6	821.9	817.6
140°	851.3	860.5	865.6	865.6	861.6
142.5°	892.2	901.2	904.1	905.3	901.2
145°	930.7	938.0	943.8	944.9	940.9
147.5°	965.3	974.3	978.7	980.5	976.5
150°	1000.9	1007.1	1011.1	1014.4	1011.1
152.5°	1032.6	1038.7	1043.9	1047.9	1043.9
155°	1064.2	1067.1	1070.4	1075.5	1072.2
157.5°	1091.6	1093.7	1095.5	1102.8	1097.7
160°	1115.9	1118.1	1119.1	1125.3	1121.0
162.5°	1138.4	1138.4	1139.6	1146.4	1141.4
165°	1157.8	1156.6	1156.6	1163.9	1158.8
167.5°	1175.2	1171.9	1171.9	1179.2	1174.1
170°	1188.3	1185.3	1184.3	1191.5	1185.3
172.5°	1197.4	1194.5	1193.4	1200.7	1194.5
175°	1204.7	1201.8	1199.6	1206.8	1200.7
177.5°	1208.7	1205.8	1203.6	1209.8	1203.6
180°	1206.8	1206.8	1206.8	1206.8	1206.8

TEST NUMBER: P924637

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US950-RLLFLL

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	13.11	14.16	13.85	14.92	15.83	9.08	10.14	9.82	10.90	11.81
	3H	14.80	15.75	15.56	16.52	17.46	10.29	11.23	11.04	12.00	12.94
	4H	15.42	16.31	16.20	17.09	18.04	10.75	11.64	11.52	12.42	13.37
	6H	15.86	16.68	16.64	17.46	18.43	11.08	11.90	11.87	12.69	13.66
	8H	15.99	16.77	16.79	17.57	18.54	11.18	11.96	11.98	12.77	13.74
	12H	16.06	16.80	16.86	17.60	18.60	11.23	11.98	12.03	12.78	13.77
4H	2H	13.15	14.04	13.93	14.82	15.77	9.70	10.59	10.48	11.37	12.33
	3H	15.00	15.74	15.79	16.56	17.53	11.08	11.81	11.87	12.63	13.60
	4H	15.70	16.37	16.51	17.19	18.19	11.63	12.30	12.44	13.12	14.12
	6H	16.23	16.81	17.05	17.65	18.65	12.07	12.65	12.89	13.48	14.49
	8H	16.41	16.95	17.24	17.79	18.80	12.20	12.74	13.03	13.57	14.59
	12H	16.52	17.00	17.36	17.86	18.88	12.28	12.76	13.12	13.62	14.64
8H	4H	15.69	16.23	16.51	17.06	18.08	11.93	12.47	12.76	13.30	14.32
	6H	16.26	16.71	17.12	17.59	18.60	12.46	12.91	13.31	13.78	14.80
	8H	16.48	16.88	17.35	17.75	18.79	12.65	13.05	13.52	13.92	14.96
	12H	16.63	16.98	17.50	17.84	18.93	12.78	13.13	13.65	13.99	15.08
12H	4H	15.65	16.14	16.50	16.99	18.01	11.95	12.43	12.79	13.29	14.31
	6H	16.24	16.64	17.11	17.51	18.54	12.51	12.91	13.37	13.78	14.81
	8H	16.47	16.82	17.34	17.68	18.77	12.73	13.08	13.60	13.94	15.03