

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: P907980

Luminaire Tested: DFN2DIP-HX3F0-030D040US840-RLLFLL

Issue Date: 11/21/2024

**Test Information**

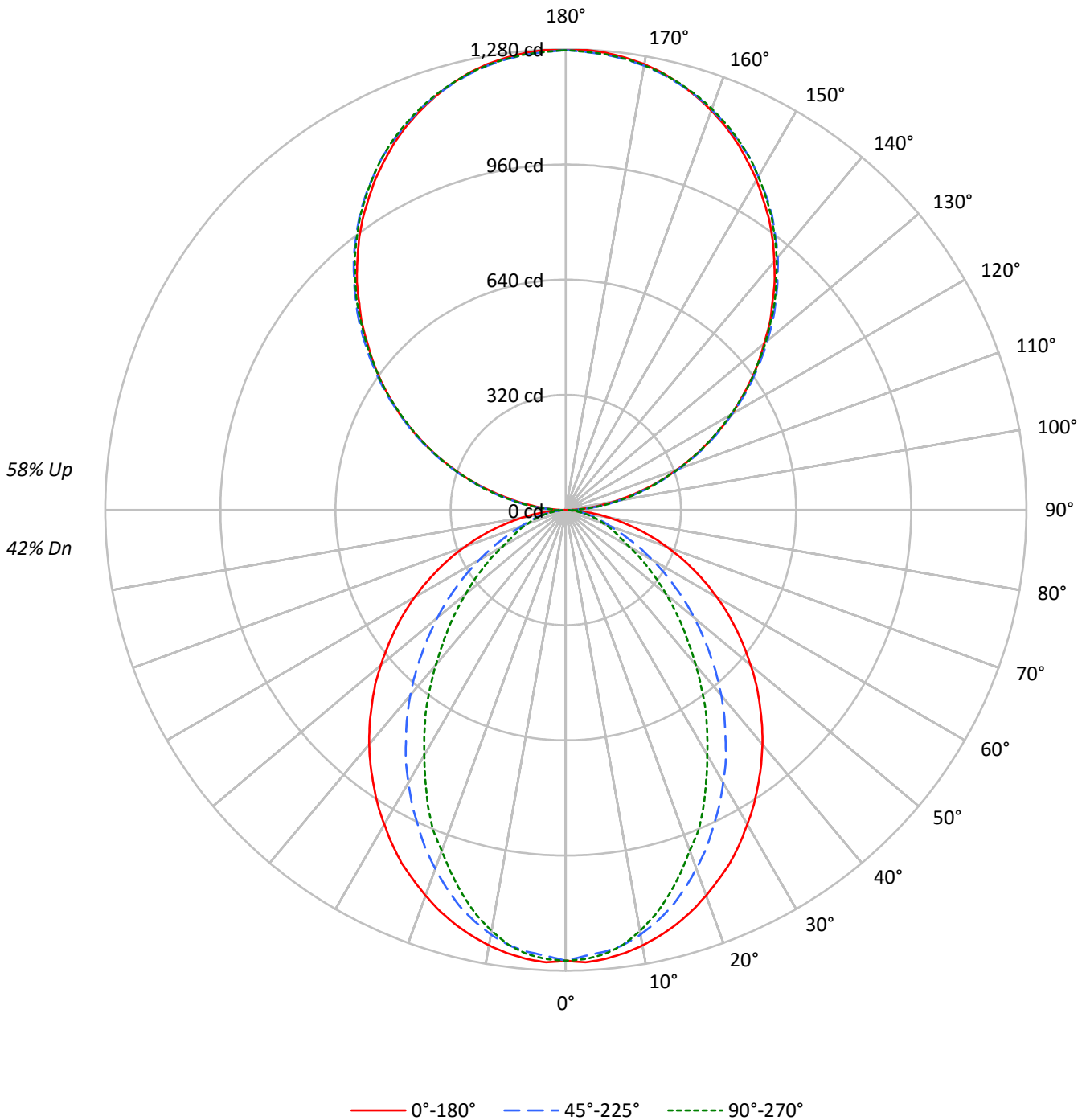
Test Method: LM-79-2019  
Report Number: P907980  
REPORT IS A COMBINATION OF REPORTS P899216 AND P896089  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-030D040US840-RLLFLL  
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6150.0 lumens  
Efficiency: N/A  
Efficacy: 115.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 53.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P907980  
CATALOG NUMBER: DFN2DIP-HX3F0-030D040US840-RLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P907980

CATALOG NUMBER: DFN2DIP-HX3F0-030D040US840-RLLFLL

**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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49	49	49	49	42
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	44	43	42	42	42	42	36
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36	36	36	36	31
3	81	72	65	59	73	66	60	55	55	50	47	44	41	39	35	33	31	31	31	31	27
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27	27	27	27	23
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24	24	24	24	20
6	63	51	43	38	57	47	40	35	40	34	30	33	29	26	26	23	21	21	21	21	18
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19	19	19	19	16
8	54	42	34	29	49	39	32	28	33	28	24	27	23	21	22	19	17	17	17	17	15
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	20	18	16	16	16	16	13
10	47	35	28	24	43	33	26	22	28	23	19	23	19	17	19	16	14	14	14	14	12

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1450	1450	1450
5°	1452	1426	1436
10°	1437	1397	1388
15°	1417	1350	1315
20°	1390	1286	1226
25°	1362	1213	1140
30°	1326	1139	1031
35°	1290	1060	935
40°	1253	978	826
45°	1211	887	726
50°	1167	795	629
55°	1120	697	536
60°	1067	595	441
65°	1006	491	395
70°	931	395	357
75°	837	346	323
80°	702	287	277
85°	480	187	204

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1211 cd/sqm



TEST NUMBER: P907980

CATALOG NUMBER: DFN2DIP-HX3F0-030D040US840-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	117.4	1.9
10°-20°	322.1	5.2
20°-30°	452.3	7.4
30°-40°	493.0	8.0
40°-50°	453.1	7.4
50°-60°	355.9	5.8
60°-70°	231.6	3.8
70°-80°	119.2	1.9
80°-90°	34.1	0.6
90°-100°	79.1	1.3
100°-110°	251.2	4.1
110°-120°	429.8	7.0
120°-130°	565.3	9.2
130°-140°	634.5	10.3
140°-150°	622.2	10.1
150°-160°	522.0	8.5
160°-170°	346.2	5.6
170°-180°	121.0	2.0
0°-30°	891.8	14.5
0°-40°	1384.8	22.5
0°-60°	2193.8	35.7
0°-90°	2578.7	41.9
90°-120°	760.1	12.4
90°-150°	2582.2	42.0
90°-180°	3571.0	58.1
0°-180°	6150.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1252	1252	1252	1252	1252	
5°	1252	1246	1232	1242	1238	119
15°	1191	1178	1140	1118	1107	336
25°	1081	1045	970	924	906	497
35°	932	874	774	703	678	583
45°	762	686	567	486	459	588
55°	579	491	368	300	279	517
65°	391	299	197	159	155	388
75°	208	129	91	83	82	220
85°	49	25	22	22	22	56
90°	1	14	38	35	37	6
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	



TEST NUMBER: P907980

CATALOG NUMBER: DFN2DIP-HX3F0-030D040US840-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1252.1	1252.1	1252.1	1252.1	1252.1
2.5°	1257.8	1252.1	1239.6	1251.0	1248.8
5°	1252.1	1246.5	1231.7	1241.9	1238.5
7.5°	1241.9	1235.2	1219.3	1223.8	1218.1
10°	1228.3	1220.4	1197.8	1194.3	1187.6
12.5°	1211.3	1201.1	1170.5	1163.8	1151.2
15°	1190.9	1178.4	1139.9	1118.4	1107.1
17.5°	1167.1	1149.0	1101.4	1076.5	1058.3
20°	1139.9	1117.2	1060.6	1032.4	1007.3
22.5°	1110.5	1084.4	1018.7	980.2	963.2
25°	1081.1	1044.7	970.0	923.5	906.5
27.5°	1045.9	1007.3	924.6	871.4	845.3
30°	1008.6	965.4	874.7	817.1	786.4
32.5°	972.2	920.1	827.3	759.2	730.8
35°	931.5	873.6	774.0	702.6	677.6
37.5°	891.8	829.4	724.1	645.8	617.6
40°	849.9	781.9	672.0	591.5	562.1
42.5°	806.8	734.4	619.9	535.9	507.7
45°	761.5	685.5	566.6	486.0	458.9
47.5°	718.4	638.0	515.6	435.1	410.2
50°	670.9	590.4	465.7	387.5	363.8
52.5°	624.3	539.4	418.2	343.4	321.8
55°	579.0	490.6	368.2	300.3	278.8
57.5°	532.6	441.9	324.2	260.6	242.5
60°	484.9	394.4	277.6	219.8	201.8
62.5°	438.6	347.9	237.9	183.6	174.6
65°	390.9	299.1	197.1	158.6	155.2
67.5°	345.7	253.8	158.6	139.4	135.9
70°	298.0	209.6	131.4	120.1	115.5
72.5°	252.7	168.7	109.9	100.9	98.6
75°	208.4	129.2	90.7	82.7	81.6
77.5°	164.3	91.7	71.4	66.9	64.5
80°	123.5	65.7	54.3	49.9	49.9
82.5°	86.0	44.2	37.4	35.1	35.1
85°	48.7	24.8	21.5	21.5	21.5
87.5°	18.2	9.0	9.0	8.0	8.0
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0



TEST NUMBER: P907980

CATALOG NUMBER: DFN2DIP-HX3F0-030D040US840-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5



TEST NUMBER: P907980  
 CATALOG NUMBER: DFN2DIP-HX3F0-030D040US840-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	7.59	8.36	8.62	9.39	10.78	3.57	4.33	4.60	5.37	6.75
	3H	9.26	9.94	10.30	10.98	12.39	4.75	5.43	5.79	6.47	7.88
	4H	9.86	10.51	10.91	11.55	12.96	5.19	5.84	6.24	6.88	8.30
	6H	10.27	10.87	11.33	11.91	13.34	5.50	6.10	6.57	7.15	8.57
	8H	10.39	10.96	11.45	12.02	13.44	5.59	6.16	6.66	7.22	8.64
	12H	10.44	10.99	11.52	12.04	13.49	5.63	6.17	6.70	7.23	8.67
4H	2H	7.60	8.25	8.66	9.29	10.71	4.15	4.80	5.21	5.84	7.26
	3H	9.41	9.96	10.48	11.03	12.45	5.49	6.03	6.55	7.10	8.53
	4H	10.10	10.59	11.17	11.66	13.10	6.03	6.53	7.10	7.59	9.03
	6H	10.60	11.03	11.68	12.11	13.55	6.44	6.87	7.52	7.95	9.39
	8H	10.77	11.17	11.85	12.25	13.70	6.57	6.96	7.65	8.04	9.50
	12H	10.86	11.22	11.96	12.31	13.77	6.63	6.98	7.72	8.08	9.54
8H	4H	10.06	10.46	11.14	11.54	12.99	6.30	6.70	7.38	7.78	9.23
	6H	10.62	10.94	11.72	12.06	13.52	6.81	7.14	7.91	8.26	9.71
	8H	10.83	11.11	11.94	12.22	13.69	7.00	7.29	8.11	8.39	9.86
	12H	10.96	11.21	12.07	12.31	13.82	7.11	7.36	8.22	8.46	9.97
12H	4H	10.01	10.37	11.11	11.46	12.92	6.30	6.66	7.40	7.75	9.21
	6H	10.59	10.88	11.70	11.98	13.45	6.86	7.15	7.97	8.25	9.72
	8H	10.80	11.05	11.92	12.15	13.66	7.06	7.31	8.17	8.41	9.92