

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: P913691

Luminaire Tested: DFN2DIP-HX4F0-090D050US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913691
REPORT IS A COMBINATION OF REPORTS P899328 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D050US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

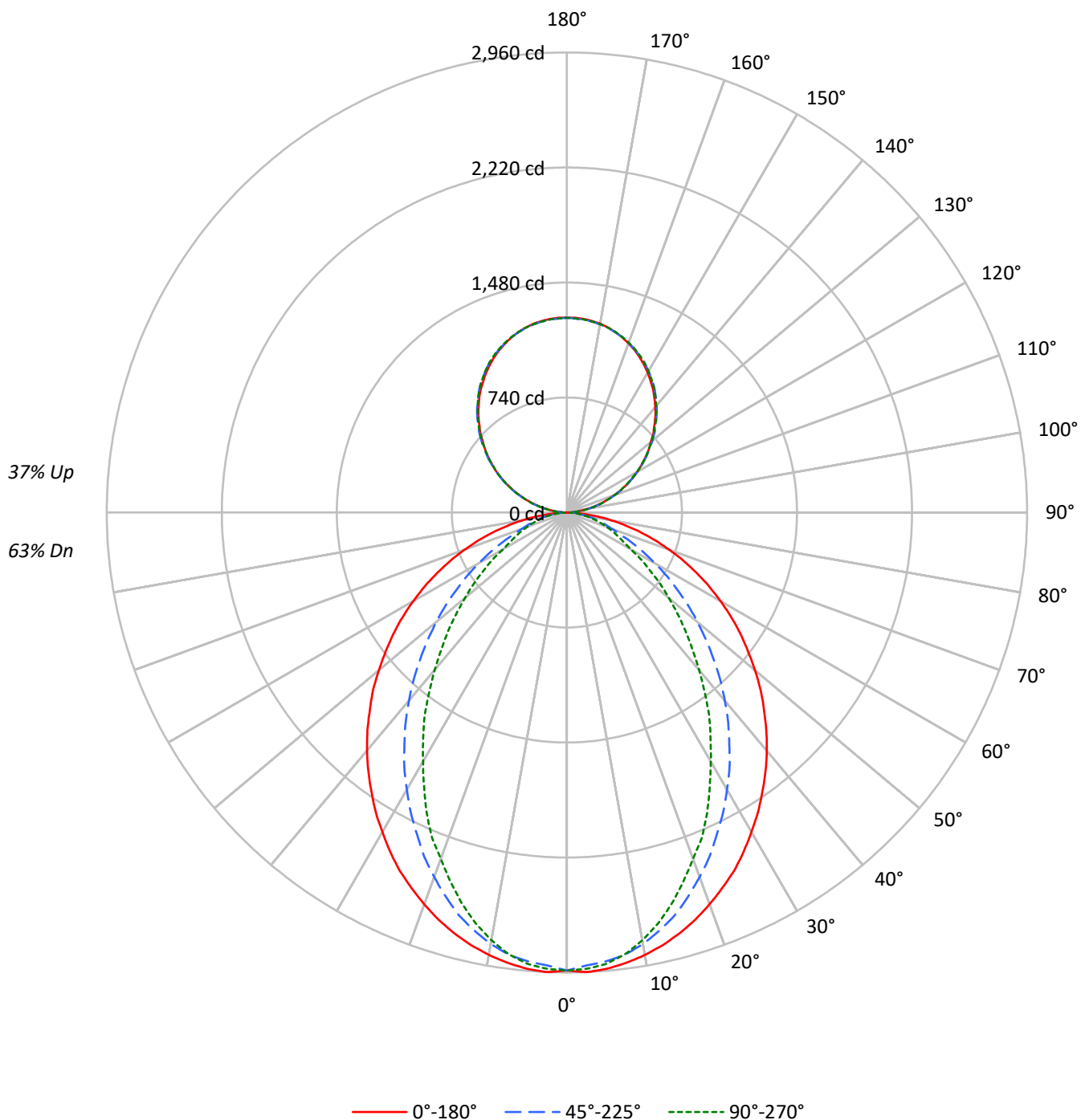
Lumens per Lamp: N/A
Luminaire Lumens: 9565.6 lumens
Efficiency: N/A
Efficacy: 81.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 117.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P913691

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US927-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P913691

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US927-RLFL

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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	81	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	53	51
3	85	76	69	63	80	72	65	60	64	59	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	68	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	47	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	37	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2191	2191	2191
5°	2195	2156	2170
10°	2173	2114	2100
15°	2143	2045	1991
20°	2104	1949	1857
25°	2064	1841	1727
30°	2009	1730	1563
35°	1956	1611	1419
40°	1902	1488	1254
45°	1840	1352	1104
50°	1774	1214	958
55°	1707	1067	818
60°	1628	913	673
65°	1538	756	606
70°	1429	610	549
75°	1292	538	499
80°	1093	452	433
85°	763	303	326

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1840 cd/sqm

TEST NUMBER: P913691

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US927-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.2	2.9
10°-20°	758.1	7.9
20°-30°	1064.4	11.1
30°-40°	1160.3	12.1
40°-50°	1066.4	11.1
50°-60°	837.5	8.8
60°-70°	545.1	5.7
70°-80°	280.6	2.9
80°-90°	75.2	0.8
90°-100°	77.5	0.8
100°-110°	246.3	2.6
110°-120°	421.5	4.4
120°-130°	554.3	5.8
130°-140°	622.2	6.5
140°-150°	610.1	6.4
150°-160°	511.8	5.4
160°-170°	339.4	3.5
170°-180°	118.6	1.2
0°-30°	2098.7	21.9
0°-40°	3258.9	34.1
0°-60°	5162.8	54.0
0°-90°	6063.8	63.4
90°-120°	745.3	7.8
90°-150°	2532.0	26.5
90°-180°	3502.0	36.6
0°-180°	9565.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2947	2947	2947	2947	2947	
5°	2947	2933	2899	2923	2915	279
15°	2803	2773	2683	2632	2606	790
25°	2544	2459	2283	2173	2133	1170
35°	2192	2056	1822	1653	1595	1372
45°	1792	1613	1333	1144	1080	1384
55°	1363	1155	867	707	656	1218
65°	920	704	464	373	365	912
75°	491	304	213	195	192	519
85°	114	58	51	51	51	132
90°	1	14	37	35	36	9
95°	55	66	68	68	66	61
105°	227	230	233	234	234	240
115°	423	429	427	426	423	418
125°	615	625	622	618	617	550
135°	796	807	810	809	806	615
145°	966	974	980	981	977	604
155°	1105	1108	1111	1116	1113	508
165°	1202	1201	1201	1208	1203	339
175°	1250	1247	1245	1253	1246	119
180°	1253	1253	1253	1253	1253	

TEST NUMBER: P913691

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US927-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2946.7	2946.7	2946.7	2946.7	2946.7
2.5°	2960.0	2946.7	2917.2	2944.1	2938.8
5°	2946.7	2933.4	2898.6	2922.6	2914.7
7.5°	2922.6	2906.8	2869.4	2879.9	2866.6
10°	2890.7	2872.0	2818.8	2810.6	2794.7
12.5°	2850.7	2826.7	2754.6	2738.7	2709.3
15°	2802.7	2773.3	2682.7	2632.0	2605.5
17.5°	2746.7	2704.0	2591.9	2533.3	2490.6
20°	2682.7	2629.2	2495.9	2429.5	2370.6
22.5°	2613.4	2552.0	2397.2	2306.7	2266.8
25°	2544.1	2458.6	2282.7	2173.4	2133.3
27.5°	2461.5	2370.6	2176.0	2050.6	1989.2
30°	2373.5	2271.9	2058.6	1922.8	1850.6
32.5°	2288.0	2165.2	1946.8	1786.7	1719.9
35°	2192.1	2056.0	1821.5	1653.4	1594.6
37.5°	2098.7	1951.9	1704.1	1519.9	1453.4
40°	2000.0	1840.2	1581.3	1392.0	1322.7
42.5°	1898.7	1728.1	1458.7	1261.3	1194.8
45°	1792.1	1613.3	1333.4	1143.8	1079.9
47.5°	1690.8	1501.5	1213.5	1023.9	965.4
50°	1578.7	1389.4	1096.1	911.9	856.1
52.5°	1469.3	1269.2	984.0	808.0	757.4
55°	1362.6	1154.6	866.6	706.8	656.1
57.5°	1253.4	1040.1	762.8	613.4	570.7
60°	1141.3	928.0	653.3	517.5	474.8
62.5°	1032.1	818.8	559.9	432.1	410.8
65°	920.0	703.9	464.0	373.4	365.3
67.5°	813.4	597.2	373.4	327.9	320.0
70°	701.4	493.4	309.3	282.7	271.9
72.5°	594.7	397.2	258.6	237.3	232.0
75°	490.6	303.9	213.3	194.6	192.1
77.5°	386.7	215.9	168.0	157.3	151.9
80°	290.6	154.8	127.9	117.4	117.4
82.5°	202.6	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	1.1	13.6	37.0	34.8	35.9
92.5°	23.4	31.7	32.9	34.0	34.0
95°	55.1	65.8	67.6	67.6	65.8
97.5°	91.7	101.6	105.8	105.8	105.8
100°	134.0	142.8	145.8	145.8	144.7
102.5°	178.6	185.1	189.2	190.4	189.2
105°	227.4	230.4	232.7	234.5	234.5
107.5°	275.7	280.2	280.2	281.0	275.7
110°	322.5	328.6	328.6	328.6	325.5



TEST NUMBER: P913691

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US927-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	373.1	379.5	378.4	375.4	373.1
115°	422.9	429.0	427.1	426.0	422.9
117.5°	472.5	480.8	475.5	472.5	469.4
120°	522.3	530.6	522.3	522.3	518.9
122.5°	567.6	578.2	572.9	569.9	567.6
125°	615.2	624.6	621.6	618.2	617.1
127.5°	661.6	673.4	669.2	664.6	661.6
130°	705.1	718.7	716.8	714.5	710.3
132.5°	753.8	764.4	765.2	759.9	756.8
135°	795.7	807.4	809.7	808.6	805.6
137.5°	842.6	852.0	853.9	853.1	848.6
140°	883.7	893.2	898.4	898.4	894.3
142.5°	926.0	935.5	938.5	939.6	935.5
145°	966.1	973.6	979.6	980.8	976.6
147.5°	1002.0	1011.4	1015.9	1017.8	1013.6
150°	1038.9	1045.4	1049.5	1052.9	1049.5
152.5°	1071.8	1078.2	1083.5	1087.7	1083.5
155°	1104.6	1107.6	1111.0	1116.3	1112.9
157.5°	1133.0	1135.2	1137.1	1144.7	1139.4
160°	1158.2	1160.5	1161.7	1168.1	1163.6
162.5°	1181.7	1181.7	1182.8	1190.0	1184.7
165°	1201.7	1200.6	1200.6	1208.2	1202.8
167.5°	1219.8	1216.4	1216.4	1224.0	1218.7
170°	1233.4	1230.4	1229.3	1236.8	1230.4
172.5°	1242.9	1239.8	1238.7	1246.3	1239.8
175°	1250.5	1247.4	1245.2	1252.7	1246.3
177.5°	1254.6	1251.6	1249.3	1255.7	1249.3
180°	1252.7	1252.7	1252.7	1252.7	1252.7

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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	11.04	11.99	11.88	12.85	13.92	7.01	7.97	7.85	8.82	9.89
	3H	12.73	13.58	13.58	14.45	15.54	8.21	9.06	9.06	9.93	11.03
	4H	13.34	14.15	14.21	15.02	16.13	8.67	9.47	9.54	10.35	11.45
	6H	13.77	14.51	14.65	15.39	16.51	9.00	9.74	9.88	10.62	11.74
	8H	13.90	14.60	14.79	15.50	16.62	9.09	9.80	9.98	10.70	11.81
	12H	13.97	14.64	14.86	15.53	16.67	9.14	9.81	10.04	10.70	11.85
4H	2H	11.07	11.88	11.95	12.75	13.86	7.62	8.43	8.50	9.30	10.41
	3H	12.91	13.58	13.80	14.49	15.61	8.99	9.65	9.87	10.56	11.68
	4H	13.61	14.22	14.51	15.12	16.27	9.54	10.15	10.44	11.05	12.20
	6H	14.13	14.66	15.05	15.58	16.73	9.97	10.49	10.88	11.42	12.57
	8H	14.31	14.80	15.23	15.72	16.89	10.10	10.59	11.01	11.51	12.67
	12H	14.41	14.85	15.35	15.79	16.96	10.17	10.61	11.10	11.55	12.72
8H	4H	13.59	14.08	14.50	15.00	16.16	9.83	10.32	10.74	11.24	12.40
	6H	14.16	14.56	15.10	15.53	16.69	10.35	10.76	11.30	11.72	12.88
	8H	14.38	14.74	15.33	15.69	16.87	10.55	10.90	11.50	11.86	13.04
	12H	14.52	14.84	15.48	15.78	17.01	10.67	10.99	11.63	11.93	13.16
12H	4H	13.55	13.99	14.48	14.93	16.09	9.84	10.28	10.77	11.22	12.39
	6H	14.14	14.49	15.09	15.45	16.63	10.40	10.76	11.35	11.72	12.90
	8H	14.36	14.68	15.32	15.62	16.85	10.62	10.94	11.57	11.88	13.11

END OF REPORT