

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: P913588

Luminaire Tested: DFN2DIP-HX3F0-090D060US927-RLLFLL

Issue Date: 11/21/2024

**Test Information**

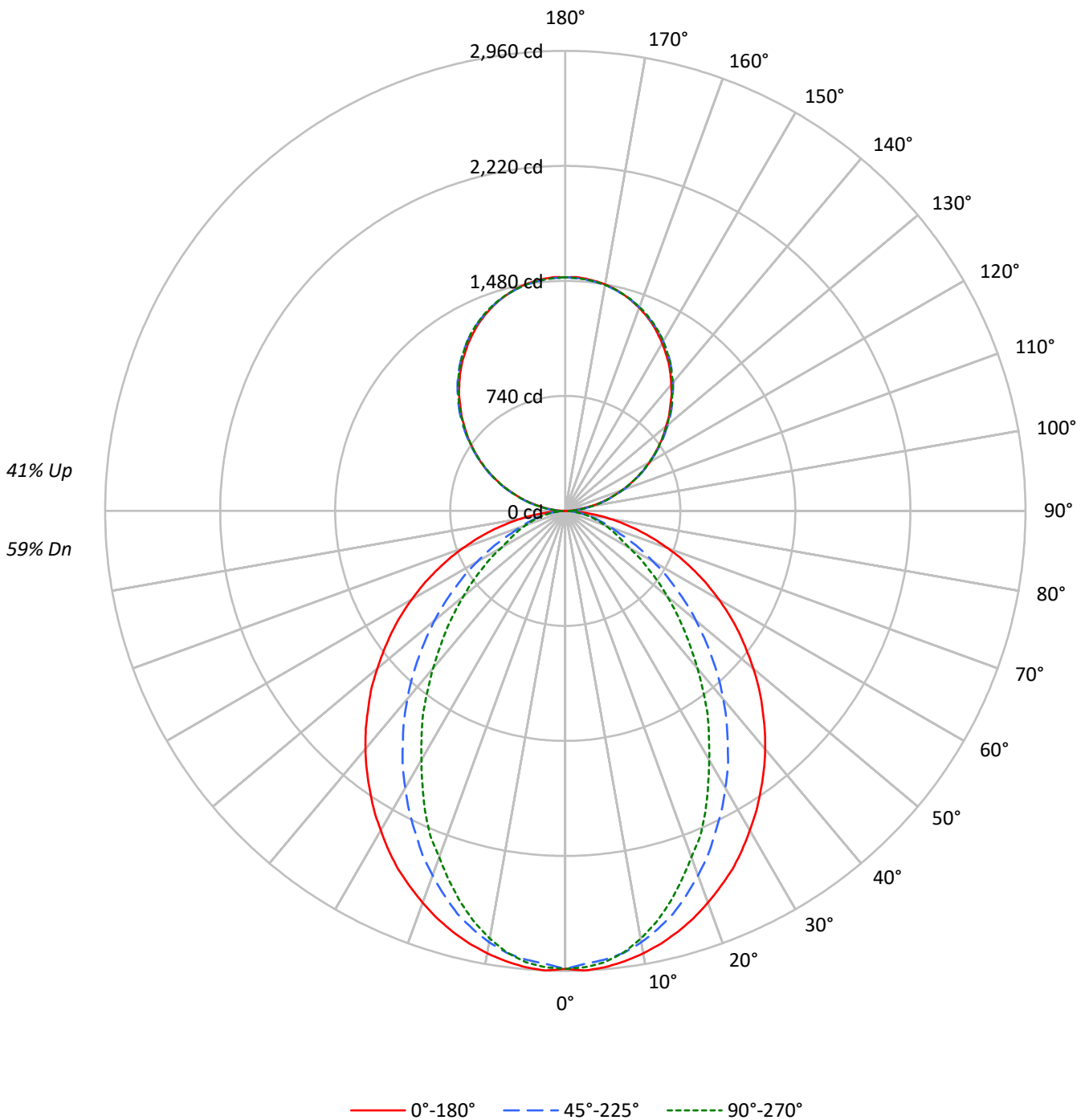
Test Method: LM-79-2019  
Report Number: P913588  
REPORT IS A COMBINATION OF REPORTS P899256 AND P896089  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-090D060US927-RLLFLL  
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10266.7 lumens  
Efficiency: N/A  
Efficacy: 74.4 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): 138  
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

TEST NUMBER: P913588  
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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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59			
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56	51			
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48	44			
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41	38			
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36	33			
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32	29			
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28	26			
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25	23			
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23	21			
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21	19			
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19	17			

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

	0°	45°	90°
0°	3413	3413	3413
5°	3417	3357	3379
10°	3382	3289	3267
15°	3334	3178	3095
20°	3271	3025	2885
25°	3206	2856	2682
30°	3120	2681	2426
35°	3035	2495	2201
40°	2949	2301	1943
45°	2849	2087	1709
50°	2745	1872	1481
55°	2637	1641	1261
60°	2511	1401	1037
65°	2367	1156	931
70°	2192	929	840
75°	1971	813	760
80°	1652	675	653
85°	1128	439	479

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2849 cd/sqm



TEST NUMBER: P913588

CATALOG NUMBER: DFN2DIP-HX3F0-090D060US927-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.2	2.7
10°-20°	758.1	7.4
20°-30°	1064.4	10.4
30°-40°	1160.3	11.3
40°-50°	1066.4	10.4
50°-60°	837.5	8.2
60°-70°	545.1	5.3
70°-80°	280.6	2.7
80°-90°	75.9	0.7
90°-100°	93.0	0.9
100°-110°	295.6	2.9
110°-120°	505.8	4.9
120°-130°	665.2	6.5
130°-140°	746.6	7.3
140°-150°	732.2	7.1
150°-160°	614.2	6.0
160°-170°	407.3	4.0
170°-180°	142.4	1.4
0°-30°	2098.7	20.4
0°-40°	3258.9	31.7
0°-60°	5162.8	50.3
0°-90°	6064.5	59.1
90°-120°	894.4	8.7
90°-150°	3038.4	29.6
90°-180°	4202.0	40.9
0°-180°	10266.7	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	16	44	42	43	10
95°	66	79	81	81	79	74
105°	273	276	279	282	282	288
115°	508	515	512	511	508	502
125°	738	750	746	742	740	660
135°	955	969	972	970	967	738
145°	1159	1168	1176	1177	1172	724
155°	1326	1329	1333	1340	1336	610
165°	1442	1441	1441	1450	1443	407
175°	1500	1497	1494	1503	1496	143
180°	1503	1503	1503	1503	1503	



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CATALOG NUMBER: DFN2DIP-HX3F0-090D060US927-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°	1.3	16.3	44.4	41.7	43.0
92.5°	28.1	38.1	39.5	40.8	40.8
95°	66.1	78.8	81.1	81.1	78.8
97.5°	110.1	121.9	126.9	126.9	126.9
100°	160.9	171.3	174.9	174.9	173.6
102.5°	214.4	222.0	227.0	228.4	227.0
105°	272.8	276.5	279.2	281.5	281.5
107.5°	330.8	336.3	336.3	337.2	330.8
110°	387.1	394.3	394.3	394.3	390.6



TEST NUMBER: P913588

CATALOG NUMBER: DFN2DIP-HX3F0-090D060US927-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	447.7	455.4	454.1	450.4	447.7
115°	507.6	514.8	512.5	511.2	507.6
117.5°	567.0	576.9	570.5	567.0	563.3
120°	626.8	636.8	626.8	626.8	622.7
122.5°	681.1	693.8	687.5	683.9	681.1
125°	738.2	749.6	745.9	741.9	740.5
127.5°	794.0	808.0	803.0	797.6	794.0
130°	846.1	862.4	860.2	857.5	852.5
132.5°	904.6	917.3	918.1	911.8	908.2
135°	954.9	968.9	971.6	970.3	966.6
137.5°	1011.1	1022.4	1024.7	1023.7	1018.3
140°	1060.5	1071.8	1078.2	1078.2	1073.2
142.5°	1111.2	1122.5	1126.2	1127.5	1122.5
145°	1159.3	1168.3	1175.6	1176.9	1172.0
147.5°	1202.3	1213.6	1219.1	1221.3	1216.3
150°	1246.7	1254.4	1259.4	1263.4	1259.4
152.5°	1286.1	1293.9	1300.2	1305.2	1300.2
155°	1325.6	1329.2	1333.2	1339.7	1335.5
157.5°	1359.5	1362.3	1364.5	1373.6	1367.3
160°	1390.0	1392.7	1394.0	1401.7	1396.3
162.5°	1418.0	1418.0	1419.4	1428.0	1421.6
165°	1442.0	1440.7	1440.7	1449.8	1443.4
167.5°	1463.8	1459.8	1459.8	1468.8	1462.4
170°	1480.1	1476.5	1475.1	1484.2	1476.5
172.5°	1491.4	1487.8	1486.4	1495.5	1487.8
175°	1500.5	1496.9	1494.1	1503.2	1495.5
177.5°	1505.5	1501.9	1499.1	1506.8	1499.1
180°	1503.2	1503.2	1503.2	1503.2	1503.2



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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	12.18	13.09	13.06	13.98	15.12	8.15	9.06	9.03	9.96	11.10
	3H	13.85	14.67	14.75	15.57	16.74	9.34	10.16	10.24	11.06	12.23
	4H	14.46	15.23	15.37	16.14	17.31	9.79	10.56	10.70	11.47	12.65
	6H	14.88	15.58	15.80	16.50	17.69	10.11	10.82	11.04	11.74	12.93
	8H	15.00	15.68	15.93	16.61	17.80	10.20	10.88	11.13	11.81	13.00
	12H	15.06	15.70	16.00	16.63	17.84	10.25	10.89	11.18	11.82	13.03
4H	2H	12.20	12.97	13.12	13.88	15.06	8.75	9.52	9.67	10.43	11.61
	3H	14.03	14.67	14.96	15.61	16.80	10.10	10.74	11.03	11.69	12.88
	4H	14.72	15.30	15.66	16.24	17.45	10.65	11.23	11.59	12.17	13.39
	6H	15.23	15.73	16.18	16.69	17.91	11.07	11.57	12.02	12.53	13.75
	8H	15.40	15.87	16.36	16.83	18.06	11.20	11.67	12.15	12.62	13.85
	12H	15.50	15.92	16.47	16.89	18.13	11.26	11.68	12.23	12.66	13.89
8H	4H	14.69	15.16	15.64	16.12	17.34	10.93	11.40	11.88	12.36	13.58
	6H	15.25	15.64	16.23	16.64	17.86	11.45	11.83	12.42	12.83	14.06
	8H	15.46	15.80	16.45	16.79	18.04	11.64	11.98	12.62	12.96	14.21
	12H	15.60	15.90	16.59	16.88	18.17	11.75	12.05	12.74	13.03	14.33
12H	4H	14.65	15.07	15.62	16.04	17.27	10.94	11.36	11.91	12.34	13.57
	6H	15.23	15.57	16.21	16.56	17.80	11.49	11.84	12.48	12.82	14.07
	8H	15.45	15.75	16.43	16.73	18.02	11.70	12.00	12.69	12.99	14.28