

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: P917949

Luminaire Tested: DFN2DIP-TR2F0-040D040US930-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P917949  
REPORT IS A COMBINATION OF REPORTS P901765 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-040D040US930-FLLONL  
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

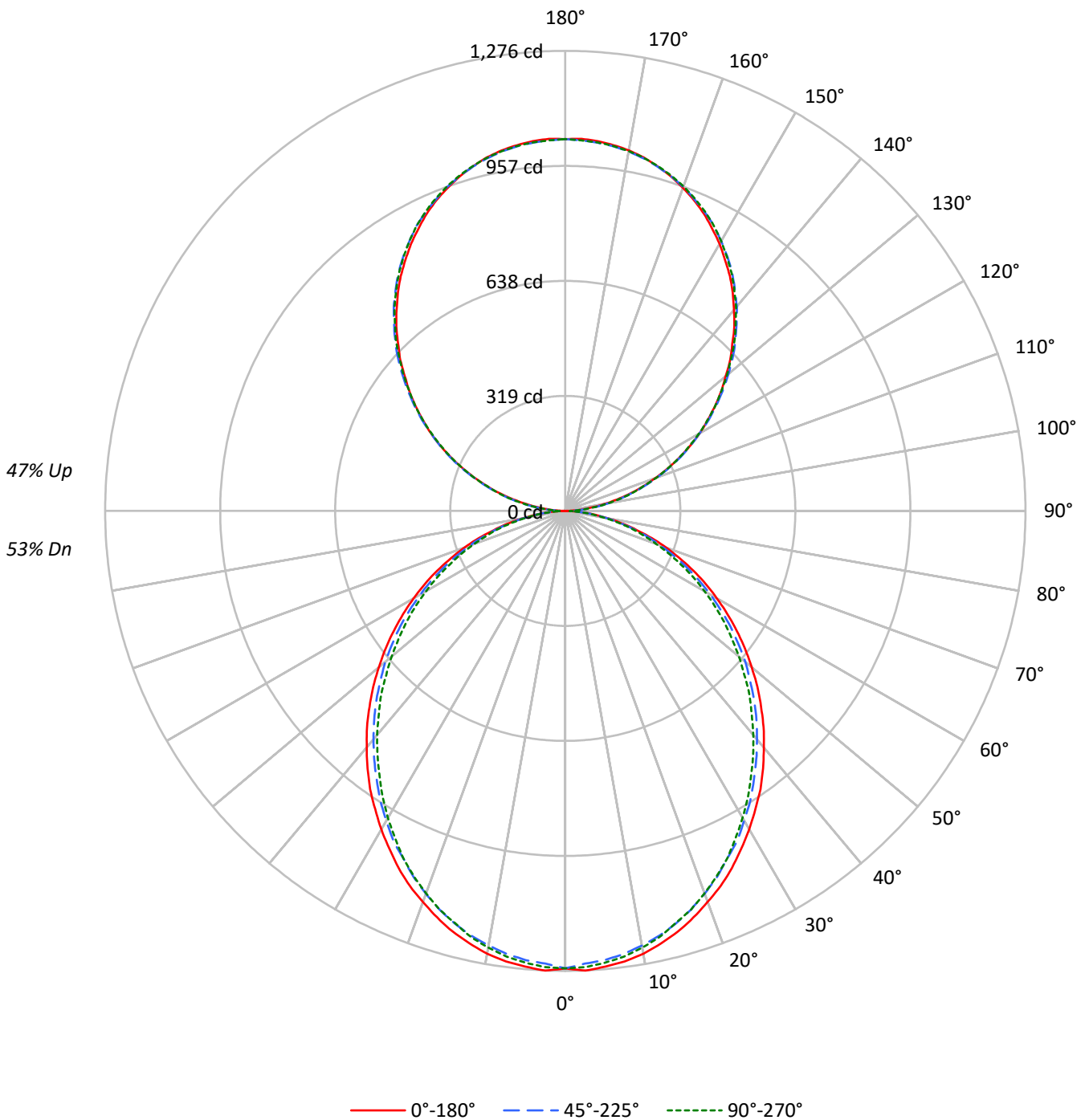
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6114.7 lumens  
Efficiency: N/A  
Efficacy: 93.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 65.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P917949  
CATALOG NUMBER: DFN2DIP-TR2F0-040D040US930-FLLONL

### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	59	59	59	53
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	41	38	36	32
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	23	20	17	15
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	21	18	15	13

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

	0°	45°	90°
0°	2830	2830	2830
5°	2831	2785	2805
10°	2804	2741	2762
15°	2758	2689	2698
20°	2698	2620	2632
25°	2638	2539	2557
30°	2565	2463	2463
35°	2494	2375	2364
40°	2408	2285	2270
45°	2323	2194	2172
50°	2229	2100	2060
55°	2130	1990	1956
60°	2018	1861	1837
65°	1896	1726	1696
70°	1739	1561	1544
75°	1525	1364	1396
80°	1265	1112	1129
85°	862	701	701

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2323 cd/sqm



TEST NUMBER: P917949

CATALOG NUMBER: DFN2DIP-TR2F0-040D040US930-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	119.4	2.0
10°-20°	336.0	5.5
20°-30°	493.8	8.1
30°-40°	573.6	9.4
40°-50°	572.9	9.4
50°-60°	499.5	8.2
60°-70°	369.3	6.0
70°-80°	208.9	3.4
80°-90°	58.1	0.9
90°-100°	63.8	1.0
100°-110°	202.8	3.3
110°-120°	347.0	5.7
120°-130°	456.4	7.5
130°-140°	512.3	8.4
140°-150°	502.4	8.2
150°-160°	421.4	6.9
160°-170°	279.5	4.6
170°-180°	97.7	1.6
0°-30°	949.3	15.5
0°-40°	1522.9	24.9
0°-60°	2595.3	42.4
0°-90°	3231.5	52.8
90°-120°	613.6	10.0
90°-150°	2084.7	34.1
90°-180°	2883.0	47.1
0°-180°	6114.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
90°	1	11	30	29	30	6
95°	45	54	56	56	54	51
105°	187	190	192	193	193	198
115°	348	353	352	351	348	344
125°	506	514	512	509	508	453
135°	655	665	667	666	663	506
145°	795	802	807	808	804	497
155°	910	912	915	919	916	419
165°	989	988	988	995	990	279
175°	1030	1027	1025	1031	1026	98
180°	1031	1031	1031	1031	1031	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
90°	0.9	11.2	30.5	28.6	29.5
92.5°	19.2	26.1	27.1	28.0	28.0
95°	45.4	54.1	55.7	55.7	54.1
97.5°	75.6	83.6	87.1	87.1	87.1
100°	110.4	117.6	120.0	120.0	119.1
102.5°	147.1	152.4	155.8	156.7	155.8
105°	187.2	189.6	191.5	193.1	193.1
107.5°	227.0	230.7	230.7	231.3	227.0
110°	265.5	270.5	270.5	270.5	268.1



TEST NUMBER: P917949

CATALOG NUMBER: DFN2DIP-TR2F0-040D040US930-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	307.2	312.5	311.5	309.1	307.2
115°	348.2	353.3	351.6	350.7	348.2
117.5°	389.0	395.8	391.5	389.0	386.5
120°	430.1	436.8	430.1	430.1	427.2
122.5°	467.3	476.1	471.7	469.2	467.3
125°	506.5	514.3	511.8	509.0	508.1
127.5°	544.8	554.4	551.0	547.2	544.8
130°	580.5	591.7	590.2	588.3	584.9
132.5°	620.6	629.3	630.0	625.6	623.1
135°	655.2	664.8	666.7	665.7	663.2
137.5°	693.7	701.5	703.0	702.4	698.7
140°	727.6	735.4	739.7	739.7	736.3
142.5°	762.5	770.2	772.7	773.6	770.2
145°	795.4	801.6	806.6	807.6	804.1
147.5°	824.9	832.7	836.4	838.0	834.5
150°	855.4	860.7	864.1	866.9	864.1
152.5°	882.5	887.7	892.1	895.5	892.1
155°	909.5	912.0	914.8	919.2	916.3
157.5°	932.9	934.7	936.2	942.5	938.1
160°	953.7	955.5	956.4	961.7	958.0
162.5°	972.9	972.9	973.9	979.7	975.4
165°	989.4	988.5	988.5	994.7	990.3
167.5°	1004.4	1001.5	1001.5	1007.8	1003.4
170°	1015.5	1013.0	1012.1	1018.3	1013.0
172.5°	1023.3	1020.8	1019.9	1026.1	1020.8
175°	1029.6	1027.0	1025.2	1031.4	1026.1
177.5°	1033.0	1030.5	1028.6	1033.9	1028.6
180°	1031.4	1031.4	1031.4	1031.4	1031.4



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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	11.02	11.90	11.95	12.85	14.08	10.59	11.48	11.53	12.43	13.66
	3H	12.66	13.45	13.60	14.41	15.66	12.19	12.99	13.14	13.95	15.20
	4H	13.23	13.98	14.19	14.95	16.21	12.77	13.52	13.73	14.49	15.75
	6H	13.61	14.31	14.58	15.27	16.55	13.15	13.85	14.12	14.81	16.09
	8H	13.71	14.37	14.68	15.35	16.63	13.25	13.91	14.22	14.90	16.17
	12H	13.75	14.38	14.73	15.36	16.65	13.29	13.91	14.27	14.89	16.19
4H	2H	11.47	12.23	12.44	13.19	14.45	11.13	11.89	12.10	12.85	14.11
	3H	13.31	13.94	14.29	14.93	16.21	12.93	13.56	13.90	14.55	15.83
	4H	14.01	14.58	14.99	15.57	16.87	13.61	14.19	14.60	15.18	16.48
	6H	14.50	15.00	15.50	16.01	17.31	14.11	14.60	15.10	15.61	16.91
	8H	14.64	15.11	15.64	16.11	17.42	14.25	14.71	15.24	15.71	17.02
	12H	14.71	15.12	15.72	16.14	17.46	14.30	14.72	15.32	15.74	17.06
8H	4H	14.20	14.66	15.19	15.66	16.98	13.85	14.31	14.84	15.31	16.63
	6H	14.80	15.19	15.82	16.23	17.54	14.45	14.83	15.47	15.88	17.19
	8H	15.01	15.35	16.04	16.38	17.71	14.65	14.99	15.68	16.02	17.35
	12H	15.13	15.42	16.16	16.45	17.82	14.76	15.05	15.79	16.08	17.45
12H	4H	14.18	14.60	15.20	15.62	16.94	13.84	14.26	14.85	15.28	16.59
	6H	14.83	15.17	15.86	16.20	17.53	14.49	14.82	15.52	15.86	17.19
	8H	15.05	15.35	16.09	16.38	17.75	14.71	15.01	15.74	16.03	17.41