

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: P920671

Luminaire Tested: DFN2DIP-TR2F0-040D020US935-RLONL

Issue Date: 11/21/2024

**Test Information**

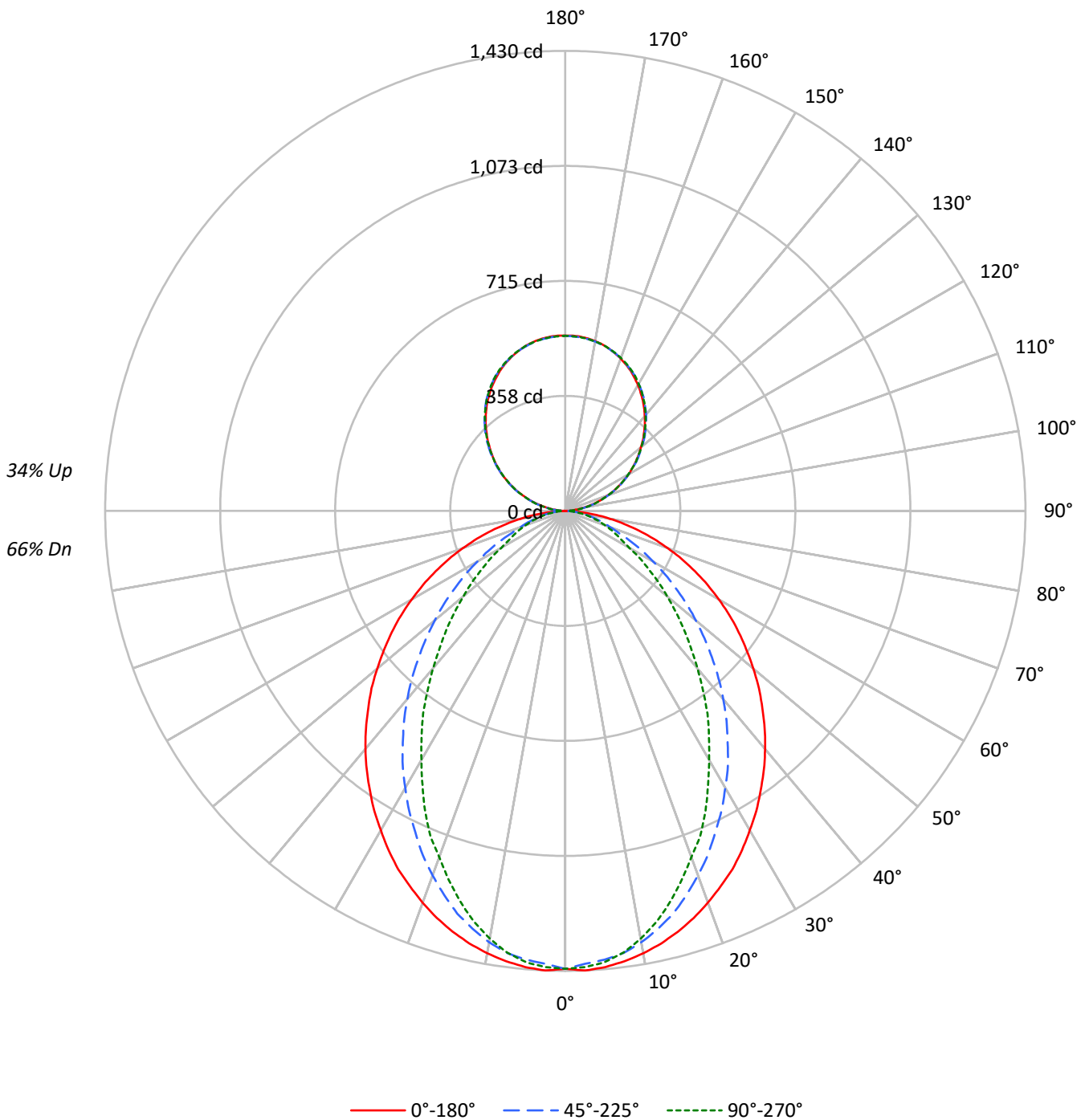
Test Method: LM-79-2019  
Report Number: P920671  
REPORT IS A COMBINATION OF REPORTS P901746 AND P897145  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR2F0-040D020US935-RLLONL  
Description: 2 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4451.3 lumens  
Efficiency: N/A  
Efficacy: 86.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 51.3  
Input Voltage (V):  
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

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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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66			66
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61	57			57
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52	49			49
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45	42			42
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40	36			36
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35	32			32
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31	29			29
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28	26			26
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25	23			23
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23	21			21
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21	19			19

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

	0°	45°	90°
0°	3175	3175	3175
5°	3175	3117	3139
10°	3139	3049	3031
15°	3091	2942	2869
20°	3029	2796	2670
25°	2966	2634	2479
30°	2882	2469	2239
35°	2800	2292	2028
40°	2716	2110	1787
45°	2619	1909	1569
50°	2519	1706	1356
55°	2413	1490	1152
60°	2291	1266	943
65°	2150	1039	843
70°	1979	828	755
75°	1763	716	676
80°	1453	580	570
85°	955	361	402

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2619 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	133.4	3.0
10°-20°	366.2	8.2
20°-30°	514.2	11.6
30°-40°	560.5	12.6
40°-50°	515.1	11.6
50°-60°	404.5	9.1
60°-70°	263.3	5.9
70°-80°	135.6	3.0
80°-90°	36.1	0.8
90°-100°	33.7	0.8
100°-110°	107.1	2.4
110°-120°	183.2	4.1
120°-130°	241.0	5.4
130°-140°	270.5	6.1
140°-150°	265.3	6.0
150°-160°	222.5	5.0
160°-170°	147.6	3.3
170°-180°	51.6	1.2
0°-30°	1013.8	22.8
0°-40°	1574.2	35.4
0°-60°	2493.9	56.0
0°-90°	2928.9	65.8
90°-120°	324.0	7.3
90°-150°	1100.8	24.7
90°-180°	1522.0	34.2
0°-180°	4451.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1423	1423	1423	1423	1423	
5°	1423	1417	1400	1412	1408	135
15°	1354	1340	1296	1271	1259	382
25°	1229	1188	1103	1050	1030	565
35°	1059	993	880	799	770	663
45°	866	779	644	553	522	668
55°	658	558	419	341	317	588
65°	444	340	224	180	176	441
75°	237	147	103	94	93	251
85°	55	28	24	24	24	64
90°	0	6	16	15	16	4
95°	24	29	29	29	29	27
105°	99	100	101	102	102	104
115°	184	186	186	185	184	182
125°	267	272	270	269	268	239
135°	346	351	352	352	350	267
145°	420	423	426	426	425	262
155°	480	482	483	485	484	221
165°	522	522	522	525	523	147
175°	544	542	541	545	542	52
180°	545	545	545	545	545	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1423.4	1423.4	1423.4	1423.4	1423.4
2.5°	1429.9	1423.4	1409.2	1422.2	1419.5
5°	1423.4	1416.9	1400.2	1411.8	1408.0
7.5°	1411.8	1404.1	1386.1	1391.1	1384.7
10°	1396.4	1387.3	1361.6	1357.6	1350.0
12.5°	1377.1	1365.5	1330.6	1322.9	1308.7
15°	1353.8	1339.6	1295.9	1271.4	1258.6
17.5°	1326.8	1306.1	1252.0	1223.7	1203.1
20°	1295.9	1270.1	1205.7	1173.5	1145.1
22.5°	1262.4	1232.8	1158.0	1114.2	1095.0
25°	1228.9	1187.7	1102.6	1049.9	1030.4
27.5°	1189.0	1145.1	1051.1	990.6	960.9
30°	1146.5	1097.4	994.4	928.8	894.0
32.5°	1105.3	1045.9	940.4	863.1	830.8
35°	1058.9	993.2	879.9	798.7	770.2
37.5°	1013.8	942.9	823.1	734.2	702.1
40°	966.1	888.9	763.9	672.4	638.9
42.5°	917.1	834.7	704.6	609.2	577.1
45°	865.6	779.3	644.1	552.6	521.7
47.5°	816.7	725.3	586.2	494.6	466.3
50°	762.6	671.1	529.4	440.5	413.5
52.5°	709.7	613.1	475.4	390.3	365.8
55°	658.2	557.8	418.6	341.4	316.9
57.5°	605.5	502.4	368.4	296.3	275.7
60°	551.3	448.2	315.6	249.9	229.4
62.5°	498.6	395.5	270.4	208.7	198.5
65°	444.4	340.0	224.1	180.4	176.4
67.5°	393.0	288.5	180.4	158.4	154.5
70°	338.8	238.3	149.4	136.6	131.3
72.5°	287.3	191.9	124.9	114.7	112.1
75°	236.9	146.8	103.1	94.0	92.8
77.5°	186.8	104.3	81.2	76.0	73.4
80°	140.3	74.7	61.7	56.7	56.7
82.5°	97.9	50.3	42.5	39.9	39.9
85°	55.4	28.3	24.5	24.5	24.5
87.5°	20.7	10.2	10.2	9.0	9.0
90°	0.5	5.9	16.1	15.1	15.6
92.5°	10.2	13.8	14.3	14.8	14.8
95°	23.9	28.6	29.4	29.4	28.6
97.5°	39.9	44.2	46.0	46.0	46.0
100°	58.3	62.1	63.4	63.4	62.9
102.5°	77.7	80.4	82.2	82.7	82.2
105°	98.8	100.1	101.2	101.9	101.9
107.5°	119.9	121.8	121.8	122.2	119.9
110°	140.3	142.8	142.8	142.8	141.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	162.2	165.0	164.5	163.2	162.2
115°	183.9	186.5	185.7	185.2	183.9
117.5°	205.4	209.1	206.7	205.4	204.1
120°	227.0	230.7	227.0	227.0	225.6
122.5°	246.8	251.3	249.1	247.8	246.8
125°	267.4	271.6	270.3	268.8	268.3
127.5°	287.7	292.7	290.9	289.0	287.7
130°	306.5	312.5	311.6	310.6	308.8
132.5°	327.7	332.3	332.6	330.4	329.0
135°	345.9	351.0	352.0	351.5	350.2
137.5°	366.3	370.4	371.3	370.9	368.9
140°	384.2	388.3	390.6	390.6	388.8
142.5°	402.6	406.6	408.0	408.5	406.6
145°	420.0	423.3	425.9	426.4	424.6
147.5°	435.6	439.7	441.7	442.5	440.7
150°	451.7	454.4	456.2	457.7	456.2
152.5°	466.0	468.7	471.1	472.9	471.1
155°	480.3	481.6	483.0	485.3	483.9
157.5°	492.6	493.5	494.4	497.7	495.3
160°	503.6	504.5	505.1	507.8	505.8
162.5°	513.8	513.8	514.2	517.4	515.0
165°	522.5	521.9	521.9	525.2	523.0
167.5°	530.3	528.8	528.8	532.1	529.9
170°	536.2	534.9	534.4	537.7	534.9
172.5°	540.4	539.0	538.6	541.8	539.0
175°	543.6	542.3	541.3	544.6	541.8
177.5°	545.4	544.2	543.1	545.9	543.1
180°	544.6	544.6	544.6	544.6	544.6



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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	12.39	13.37	13.21	14.20	15.23	8.37	9.35	9.19	10.19	11.21
	3H	14.06	14.93	14.89	15.78	16.83	9.56	10.43	10.39	11.28	12.33
	4H	14.66	15.48	15.50	16.33	17.40	10.00	10.83	10.85	11.68	12.75
	6H	15.07	15.83	15.92	16.68	17.77	10.32	11.08	11.18	11.94	13.02
	8H	15.19	15.91	16.05	16.79	17.87	10.41	11.13	11.27	12.01	13.09
	12H	15.24	15.93	16.12	16.80	17.91	10.45	11.14	11.32	12.01	13.11
4H	2H	12.42	13.25	13.28	14.10	15.17	8.97	9.80	9.82	10.65	11.72
	3H	14.24	14.93	15.10	15.81	16.89	10.32	11.00	11.18	11.89	12.97
	4H	14.92	15.54	15.79	16.42	17.53	10.86	11.48	11.73	12.36	13.47
	6H	15.42	15.96	16.31	16.86	17.98	11.27	11.81	12.16	12.71	13.83
	8H	15.59	16.09	16.48	16.99	18.11	11.39	11.89	12.28	12.79	13.92
	12H	15.67	16.13	16.59	17.04	18.18	11.46	11.91	12.37	12.82	13.96
8H	4H	14.89	15.40	15.79	16.30	17.42	11.14	11.64	12.03	12.54	13.66
	6H	15.44	15.85	16.36	16.80	17.92	11.64	12.05	12.56	12.99	14.12
	8H	15.64	16.01	16.57	16.94	18.09	11.82	12.18	12.75	13.12	14.26
	12H	15.77	16.09	16.70	17.02	18.21	11.93	12.25	12.86	13.18	14.37
12H	4H	14.85	15.30	15.76	16.22	17.35	11.14	11.60	12.06	12.51	13.65
	6H	15.41	15.78	16.34	16.72	17.86	11.68	12.05	12.61	12.98	14.13
	8H	15.63	15.95	16.56	16.87	18.07	11.88	12.21	12.82	13.13	14.33