

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: P920708

Luminaire Tested: DFN2DIP-TR2F0-060D020US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920708
REPORT IS A COMBINATION OF REPORTS P900229 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-060D020US935-FLLFLL
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

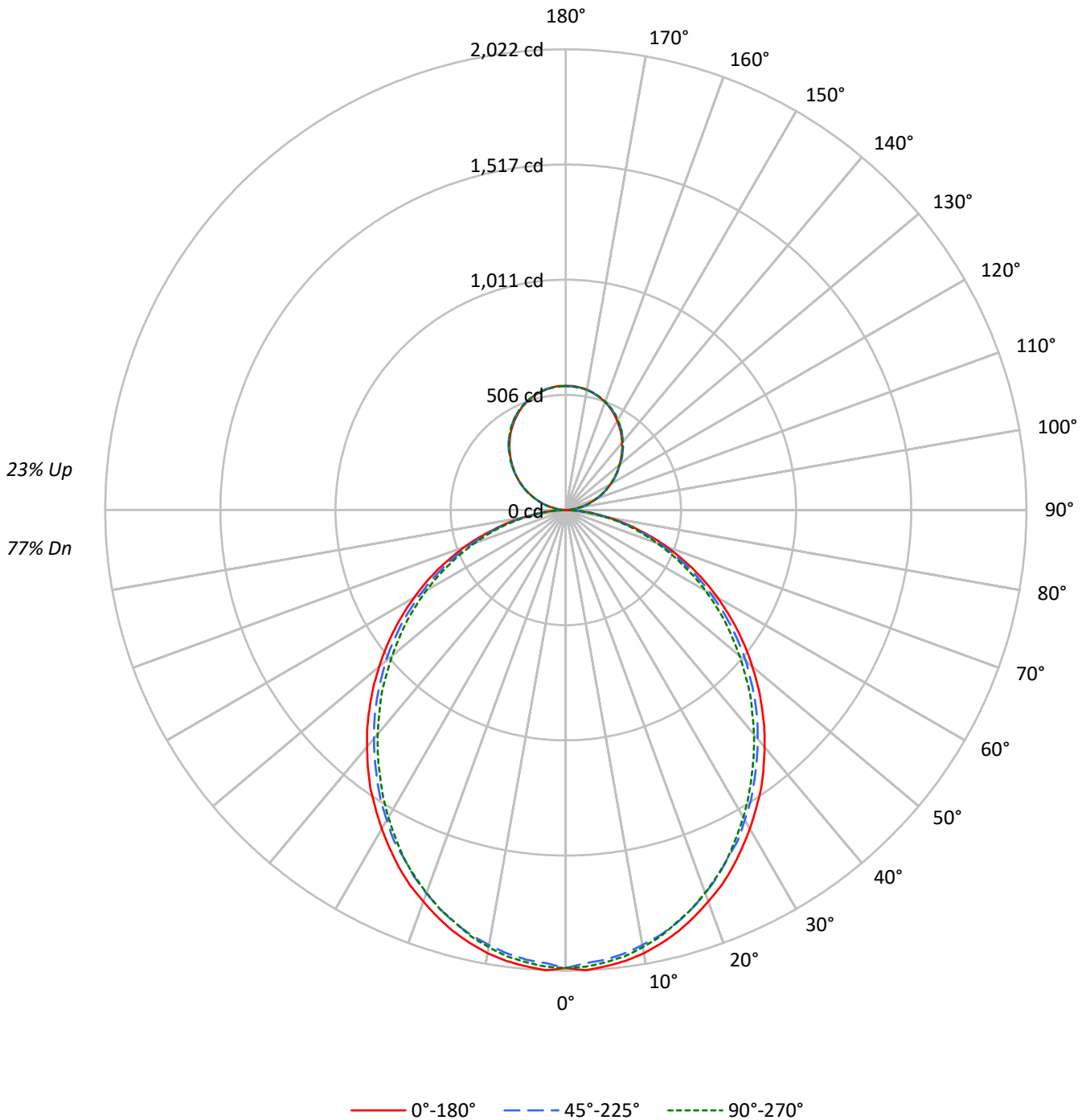
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6638.3 lumens
Efficiency: N/A
Efficacy: 88.9 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: Semi-Direct

Input Watts (W): 74.7
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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				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	114	114	114	114	108	108	108	108	98	98	98	89	89	89	81	81	81	77				77
1	104	99	95	92	99	95	91	88	86	84	81	79	77	75	72	70	68	65				65
2	95	87	80	75	90	83	77	72	76	71	67	69	66	62	63	60	58	54				54
3	86	76	69	63	82	73	66	61	67	61	57	61	57	53	56	52	49	46				46
4	79	68	59	53	75	65	57	52	60	53	48	55	50	45	50	46	42	40				40
5	73	61	52	46	69	58	50	44	53	47	42	49	44	39	45	41	37	34				34
6	67	55	46	40	64	52	45	39	48	42	37	45	39	35	41	36	33	30				30
7	62	49	41	35	59	48	40	34	44	37	33	41	35	31	37	33	29	27				27
8	58	45	37	31	55	43	36	31	40	34	29	37	32	28	34	30	26	24				24
9	54	41	33	28	52	40	32	27	37	31	26	34	29	25	32	27	24	22				22
10	51	38	30	25	48	37	30	25	34	28	24	32	26	23	30	25	22	20				20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4483	4483	4483
5°	4484	4411	4443
10°	4441	4341	4375
15°	4369	4260	4274
20°	4274	4151	4170
25°	4179	4022	4051
30°	4063	3902	3902
35°	3951	3762	3745
40°	3815	3619	3595
45°	3679	3476	3441
50°	3530	3326	3264
55°	3374	3152	3099
60°	3197	2947	2910
65°	3002	2733	2687
70°	2755	2473	2445
75°	2415	2161	2212
80°	2003	1762	1788
85°	1364	1110	1111

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3679 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	2.9
10°-20°	532.3	8.0
20°-30°	782.3	11.8
30°-40°	908.6	13.7
40°-50°	907.5	13.7
50°-60°	791.3	11.9
60°-70°	584.9	8.8
70°-80°	330.9	5.0
80°-90°	88.9	1.3
90°-100°	33.7	0.5
100°-110°	107.1	1.6
110°-120°	183.2	2.8
120°-130°	241.0	3.6
130°-140°	270.5	4.1
140°-150°	265.3	4.0
150°-160°	222.5	3.4
160°-170°	147.6	2.2
170°-180°	51.6	0.8
0°-30°	1503.8	22.7
0°-40°	2412.4	36.3
0°-60°	4111.1	61.9
0°-90°	5115.9	77.1
90°-120°	324.0	4.9
90°-150°	1100.8	16.6
90°-180°	1522.0	22.9
0°-180°	6638.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	0	6	16	15	16	6
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°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
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	14.55	15.73	15.24	16.43	17.25	14.13	15.30	14.82	16.01	16.83
	3H	16.21	17.27	16.91	17.98	18.84	15.75	16.81	16.45	17.52	18.38
	4H	16.80	17.79	17.52	18.52	19.39	16.34	17.33	17.06	18.06	18.93
	6H	17.20	18.11	17.93	18.85	19.73	16.74	17.65	17.47	18.39	19.27
	8H	17.30	18.18	18.04	18.93	19.82	16.84	17.72	17.58	18.47	19.36
	12H	17.35	18.19	18.10	18.93	19.85	16.89	17.72	17.63	18.47	19.38
4H	2H	15.04	16.04	15.76	16.76	17.63	14.70	15.70	15.42	16.42	17.29
	3H	16.91	17.74	17.64	18.50	19.39	16.53	17.36	17.26	18.12	19.00
	4H	17.62	18.37	18.37	19.13	20.05	17.22	17.98	17.97	18.74	19.65
	6H	18.13	18.78	18.89	19.57	20.49	17.73	18.39	18.50	19.17	20.10
	8H	18.27	18.88	19.04	19.67	20.60	17.88	18.49	18.65	19.27	20.21
	12H	18.35	18.90	19.14	19.71	20.65	17.94	18.49	18.74	19.30	20.24
8H	4H	17.83	18.44	18.60	19.22	20.16	17.48	18.09	18.25	18.87	19.81
	6H	18.44	18.95	19.25	19.78	20.71	18.09	18.60	18.89	19.42	20.36
	8H	18.65	19.10	19.47	19.93	20.88	18.30	18.75	19.11	19.57	20.53
	12H	18.78	19.18	19.60	19.99	21.01	18.41	18.81	19.23	19.63	20.64
12H	4H	17.83	18.38	18.62	19.18	20.12	17.48	18.03	18.27	18.84	19.78
	6H	18.47	18.92	19.28	19.75	20.70	18.13	18.58	18.94	19.41	20.36
	8H	18.71	19.11	19.53	19.92	20.94	18.37	18.76	19.18	19.58	20.59