

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: P913020

Luminaire Tested: DFN2DIP-TR4F0-120D050US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913020
REPORT IS A COMBINATION OF REPORTS P900404 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D050US850-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

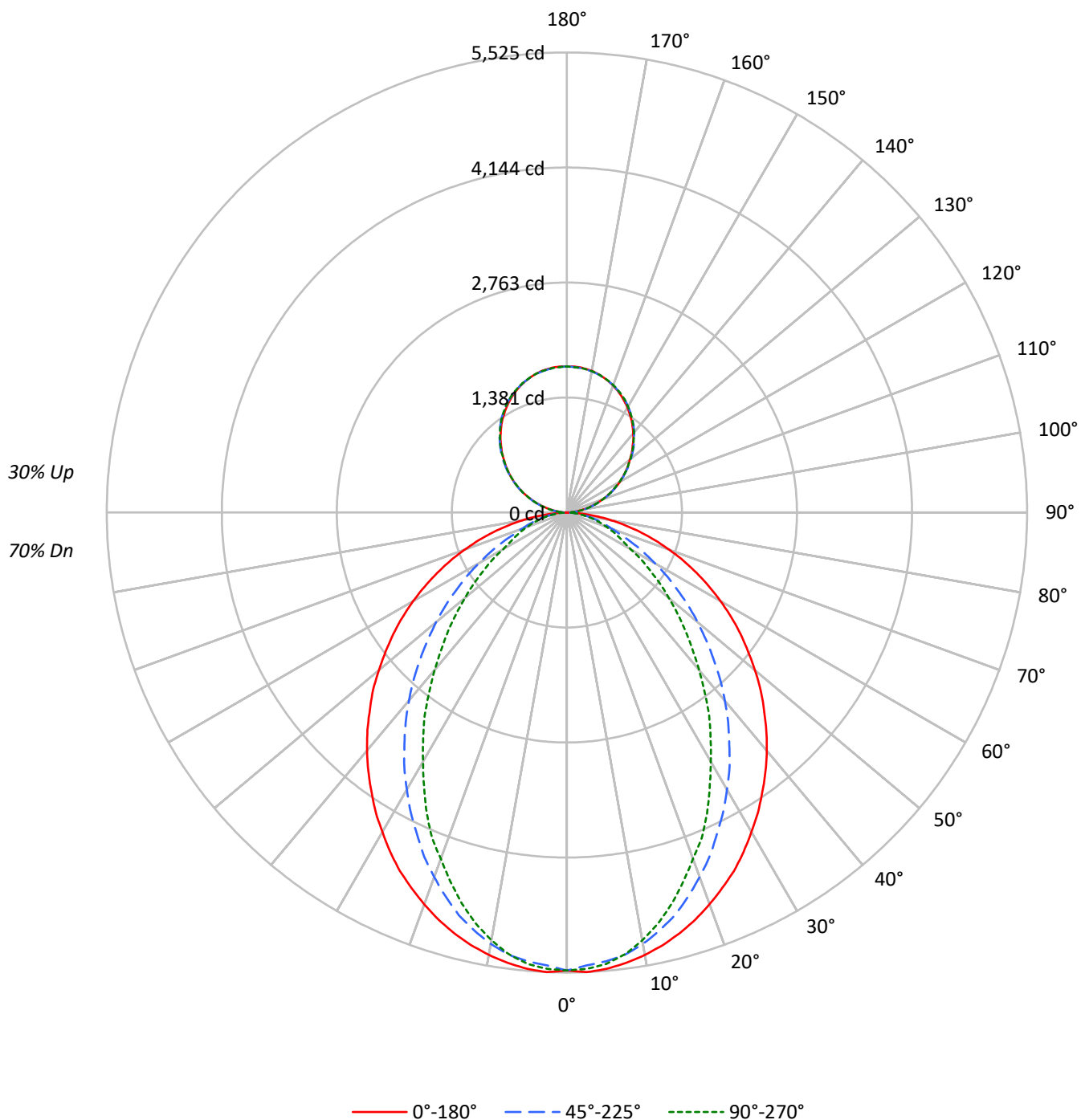
Lumens per Lamp: N/A
Luminaire Lumens: 16219.1 lumens
Efficiency: N/A
Efficacy: 99.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.5
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

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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
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	112	112	112	112		106	106	106	106		94	94	94		84	84	84		74	74	74
1	103	99	95	92		97	94	90	87		84	81	79		75	73	71		67	65	64
2	94	87	81	76		89	83	77	73		74	70	67		67	63	61		60	57	55
3	86	77	70	64		82	73	67	62		66	61	57		60	56	52		53	50	48
4	80	69	61	55		75	66	58	53		59	54	49		54	49	45		48	45	42
5	73	62	54	48		69	59	52	46		54	48	43		48	44	40		44	40	37
6	68	56	48	42		64	53	46	41		49	42	38		44	39	35		40	36	33
7	63	51	43	37		60	49	41	36		44	38	34		40	35	32		37	33	29
8	59	46	39	33		56	44	37	32		41	35	30		37	32	28		34	30	27
9	55	43	35	30		52	41	34	29		38	32	27		34	29	26		31	27	24
10	51	39	32	27		49	38	31	26		35	29	25		32	27	24		29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4370	4370	4370
5°	4377	4300	4328
10°	4333	4216	4187
15°	4274	4076	3969
20°	4195	3884	3702
25°	4114	3669	3444
30°	4005	3448	3116
35°	3899	3211	2829
40°	3791	2965	2499
45°	3665	2693	2200
50°	3535	2418	1909
55°	3400	2124	1628
60°	3243	1816	1340
65°	3062	1504	1206
70°	2843	1212	1091
75°	2568	1069	992
80°	2170	896	860
85°	1513	598	646

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3665 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	515.5	3.2
10°-20°	1415.1	8.7
20°-30°	1986.8	12.2
30°-40°	2165.7	13.4
40°-50°	1990.5	12.3
50°-60°	1563.2	9.6
60°-70°	1017.5	6.3
70°-80°	523.8	3.2
80°-90°	138.7	0.9
90°-100°	108.5	0.7
100°-110°	344.8	2.1
110°-120°	590.1	3.6
120°-130°	776.0	4.8
130°-140°	871.0	5.4
140°-150°	854.2	5.3
150°-160°	716.5	4.4
160°-170°	475.2	2.9
170°-180°	166.1	1.0
0°-30°	3917.3	24.2
0°-40°	6083.0	37.5
0°-60°	9636.8	59.4
0°-90°	11316.8	69.8
90°-120°	1043.4	6.4
90°-150°	3544.6	21.9
90°-180°	4902.0	30.2
0°-180°	16219.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5500	5500	5500	5500	5500	
5°	5500	5475	5410	5455	5440	522
15°	5231	5176	5008	4913	4863	1474
25°	4749	4589	4261	4057	3982	2184
35°	4092	3838	3400	3086	2976	2561
45°	3345	3011	2489	2135	2016	2583
55°	2543	2155	1618	1319	1225	2273
65°	1717	1314	866	697	682	1703
75°	916	567	398	363	358	969
85°	214	109	94	94	94	246
90°	2	19	52	49	50	16
95°	77	92	95	95	92	86
105°	318	322	326	328	328	336
115°	592	601	598	596	592	586
125°	861	874	870	866	864	770
135°	1114	1130	1134	1132	1128	861
145°	1352	1363	1371	1373	1367	845
155°	1546	1551	1555	1563	1558	712
165°	1682	1681	1681	1691	1684	475
175°	1751	1746	1743	1754	1745	166
180°	1754	1754	1754	1754	1754	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5500.2	5500.2	5500.2	5500.2	5500.2
2.5°	5525.0	5500.2	5445.3	5495.4	5485.3
5°	5500.2	5475.4	5410.4	5455.3	5440.5
7.5°	5455.3	5425.7	5356.0	5375.5	5350.7
10°	5395.6	5360.8	5261.4	5246.1	5216.6
12.5°	5321.1	5276.3	5141.5	5112.0	5057.2
15°	5231.4	5176.5	5007.5	4912.9	4863.3
17.5°	5126.8	5047.1	4837.9	4728.7	4648.9
20°	5007.5	4907.7	4658.9	4534.8	4424.9
22.5°	4878.0	4763.5	4474.6	4305.6	4231.2
25°	4748.7	4589.2	4260.7	4056.8	3981.9
27.5°	4594.5	4424.9	4061.6	3827.7	3713.0
30°	4430.2	4240.7	3842.5	3588.9	3454.3
32.5°	4270.8	4041.5	3633.9	3335.0	3210.3
35°	4091.8	3837.7	3399.9	3086.2	2976.3
37.5°	3917.4	3643.4	3180.7	2836.9	2712.8
40°	3733.1	3434.8	2951.6	2598.3	2468.9
42.5°	3544.0	3225.6	2722.9	2354.3	2230.2
45°	3345.0	3011.3	2488.9	2135.2	2015.7
47.5°	3155.9	2802.7	2265.0	1911.3	1801.9
50°	2946.8	2593.5	2045.9	1702.1	1598.1
52.5°	2742.4	2369.0	1836.7	1508.2	1413.8
55°	2543.4	2155.2	1617.6	1319.2	1224.7
57.5°	2339.4	1941.3	1423.7	1144.9	1065.2
60°	2130.4	1732.1	1219.3	965.9	886.2
62.5°	1926.6	1528.3	1045.1	806.5	766.8
65°	1717.4	1313.9	866.1	697.1	681.8
67.5°	1518.3	1114.8	697.1	612.1	597.3
70°	1309.2	921.0	577.2	527.6	507.5
72.5°	1110.1	741.5	482.6	443.0	433.1
75°	915.7	567.1	398.2	363.3	358.5
77.5°	722.0	402.9	313.7	293.7	283.6
80°	542.4	288.9	238.7	219.1	219.1
82.5°	378.2	194.3	164.2	154.2	154.2
85°	213.9	109.3	94.5	94.5	94.5
87.5°	79.7	39.6	39.6	34.8	34.8
90°	1.6	19.1	51.8	48.7	50.2
92.5°	32.8	44.4	46.0	47.6	47.6
95°	77.2	92.0	94.6	94.6	92.0
97.5°	128.4	142.2	148.1	148.1	148.1
100°	187.6	199.8	204.1	204.1	202.5
102.5°	250.1	259.1	264.8	266.5	264.8
105°	318.3	322.5	325.7	328.3	328.3
107.5°	385.9	392.3	392.3	393.4	385.9
110°	451.5	460.0	460.0	460.0	455.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	522.3	531.3	529.8	525.6	522.3
115°	592.1	600.6	598.0	596.4	592.1
117.5°	661.4	673.1	665.6	661.4	657.2
120°	731.2	742.8	731.2	731.2	726.4
122.5°	794.6	809.5	802.0	797.8	794.6
125°	861.2	874.4	870.2	865.5	863.9
127.5°	926.2	942.6	936.9	930.5	926.2
130°	987.1	1006.1	1003.4	1000.3	994.4
132.5°	1055.3	1070.1	1071.2	1063.8	1059.5
135°	1114.0	1130.3	1133.5	1132.0	1127.7
137.5°	1179.5	1192.7	1195.4	1194.3	1188.0
140°	1237.1	1250.4	1257.7	1257.7	1252.0
142.5°	1296.3	1309.6	1313.8	1315.4	1309.6
145°	1352.4	1363.0	1371.4	1373.1	1367.2
147.5°	1402.7	1415.9	1422.2	1424.8	1419.0
150°	1454.5	1463.4	1469.2	1474.0	1469.2
152.5°	1500.5	1509.5	1516.8	1522.7	1516.8
155°	1546.4	1550.6	1555.4	1562.8	1558.0
157.5°	1586.1	1589.2	1591.9	1602.5	1595.1
160°	1621.5	1624.7	1626.2	1635.2	1628.9
162.5°	1654.3	1654.3	1655.8	1665.9	1658.5
165°	1682.4	1680.7	1680.7	1691.3	1683.9
167.5°	1707.6	1702.9	1702.9	1713.5	1706.1
170°	1726.7	1722.5	1720.9	1731.5	1722.5
172.5°	1739.9	1735.7	1734.1	1744.7	1735.7
175°	1750.6	1746.2	1743.1	1753.7	1744.7
177.5°	1756.3	1752.1	1748.9	1757.9	1748.9
180°	1753.7	1753.7	1753.7	1753.7	1753.7

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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	13.94	14.96	14.71	15.75	16.71	9.91	10.94	10.69	11.73	12.69
	3H	15.63	16.55	16.42	17.35	18.34	11.12	12.03	11.90	12.83	13.82
	4H	16.25	17.11	17.05	17.92	18.92	11.58	12.44	12.38	13.25	14.25
	6H	16.68	17.47	17.50	18.29	19.31	11.91	12.70	12.73	13.52	14.54
	8H	16.81	17.57	17.64	18.40	19.42	12.01	12.76	12.83	13.60	14.61
	12H	16.88	17.60	17.71	18.43	19.47	12.06	12.78	12.89	13.60	14.65
4H	2H	13.98	14.84	14.79	15.65	16.66	10.53	11.39	11.34	12.20	13.21
	3H	15.83	16.54	16.65	17.39	18.41	11.90	12.62	12.72	13.46	14.48
	4H	16.53	17.18	17.36	18.02	19.07	12.46	13.11	13.29	13.95	14.99
	6H	17.05	17.61	17.90	18.48	19.53	12.89	13.45	13.74	14.31	15.37
	8H	17.23	17.76	18.09	18.62	19.68	13.02	13.54	13.87	14.40	15.47
	12H	17.34	17.81	18.21	18.69	19.76	13.09	13.57	13.97	14.45	15.52
8H	4H	16.51	17.03	17.36	17.89	18.96	12.75	13.27	13.60	14.14	15.20
	6H	17.08	17.51	17.96	18.42	19.48	13.28	13.71	14.16	14.61	15.68
	8H	17.30	17.68	18.19	18.58	19.66	13.47	13.85	14.36	14.75	15.83
	12H	17.45	17.78	18.34	18.67	19.81	13.60	13.94	14.49	14.82	15.96
12H	4H	16.47	16.94	17.34	17.82	18.89	12.76	13.23	13.64	14.12	15.18
	6H	17.06	17.44	17.95	18.34	19.42	13.33	13.71	14.22	14.61	15.69
	8H	17.29	17.63	18.18	18.51	19.65	13.55	13.88	14.44	14.77	15.91