

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: P904812

Luminaire Tested: DFN2DIP-TR4F0-110D080US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904812
REPORT IS A COMBINATION OF REPORTS P900456 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D080US830-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

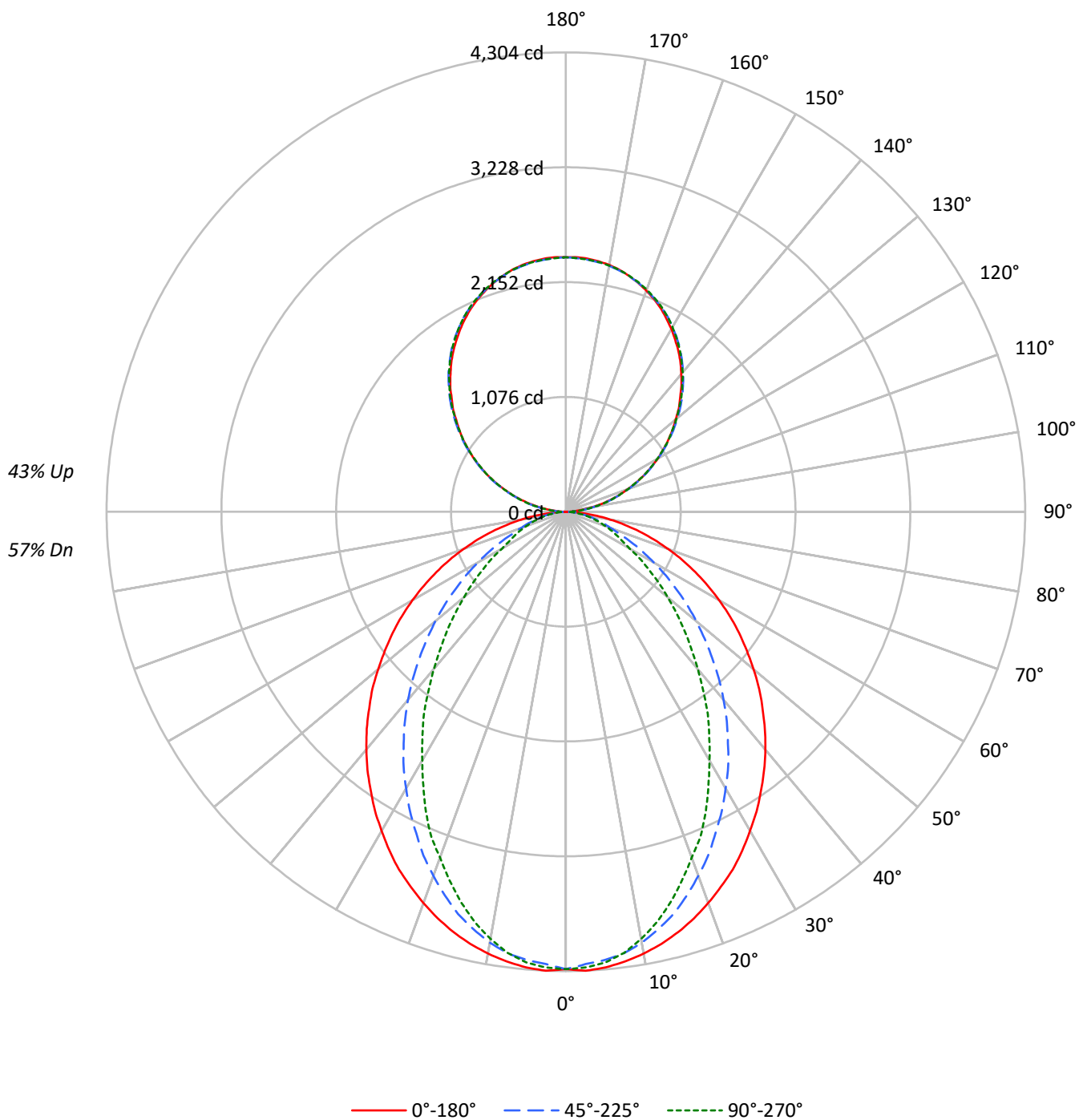
Lumens per Lamp: N/A
Luminaire Lumens: 15486.0 lumens
Efficiency: N/A
Efficacy: 90.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 171.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904812

CATALOG NUMBER: DFN2DIP-TR4F0-110D080US830-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P904812

CATALOG NUMBER: DFN2DIP-TR4F0-110D080US830-RLLFLL

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	109	109	109	109		101	101	101	101		87	87	87		74	74	74		63	63	63
1	100	96	92	89		93	89	86	83		77	75	73		66	65	63		56	55	54
2	91	84	78	73		85	79	74	69		68	65	61		59	56	54		50	48	46
3	84	75	67	62		78	70	64	58		61	56	52		53	49	46		45	42	40
4	77	66	59	53		71	62	55	50		54	49	45		47	43	40		40	37	35
5	71	59	52	46		66	56	49	43		49	43	39		43	38	35		37	33	31
6	65	54	46	40		61	50	43	38		44	39	34		39	34	31		34	30	27
7	61	49	41	35		57	46	39	34		40	35	31		35	31	28		31	27	25
8	56	44	37	31		53	42	35	30		37	31	27		33	28	25		28	25	22
9	53	41	33	28		49	38	32	27		34	29	25		30	26	22		26	23	20
10	49	37	30	26		46	35	29	24		32	26	22		28	24	20		24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3404	3404	3404
5°	3410	3350	3372
10°	3376	3284	3262
15°	3329	3176	3092
20°	3268	3026	2884
25°	3205	2858	2683
30°	3121	2686	2428
35°	3038	2501	2204
40°	2954	2310	1947
45°	2856	2098	1714
50°	2754	1883	1487
55°	2649	1654	1269
60°	2526	1415	1044
65°	2386	1172	940
70°	2215	945	850
75°	2001	832	773
80°	1691	698	670
85°	1178	466	503

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2856 cd/sqm

TEST NUMBER: P904812

CATALOG NUMBER: DFN2DIP-TR4F0-110D080US830-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	2.6
10°-20°	1102.5	7.1
20°-30°	1547.8	10.0
30°-40°	1687.2	10.9
40°-50°	1550.8	10.0
50°-60°	1217.9	7.9
60°-70°	792.7	5.1
70°-80°	408.1	2.6
80°-90°	110.9	0.7
90°-100°	147.6	1.0
100°-110°	468.9	3.0
110°-120°	802.4	5.2
120°-130°	1055.3	6.8
130°-140°	1184.5	7.6
140°-150°	1161.5	7.5
150°-160°	974.4	6.3
160°-170°	646.2	4.2
170°-180°	225.9	1.5
0°-30°	3051.9	19.7
0°-40°	4739.1	30.6
0°-60°	7507.8	48.5
0°-90°	8819.5	57.0
90°-120°	1418.8	9.2
90°-150°	4820.1	31.1
90°-180°	6666.0	43.0
0°-180°	15486.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4239	406
15°	4076	4033	3901	3828	3789	1148
25°	3700	3575	3319	3161	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2013
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	2	26	70	66	68	15
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	

TEST NUMBER: P904812

CATALOG NUMBER: DFN2DIP-TR4F0-110D080US830-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4285.1	4285.1	4285.1	4285.1	4285.1
2.5°	4304.4	4285.1	4242.3	4281.4	4273.6
5°	4285.1	4265.8	4215.1	4250.1	4238.6
7.5°	4250.1	4227.0	4172.7	4188.0	4168.6
10°	4203.6	4176.4	4099.1	4087.1	4064.1
12.5°	4145.6	4110.6	4005.7	3982.6	3939.8
15°	4075.6	4032.9	3901.2	3827.6	3788.8
17.5°	3994.2	3932.1	3769.1	3683.9	3621.8
20°	3901.2	3823.4	3629.6	3532.9	3447.3
22.5°	3800.4	3711.1	3486.1	3354.4	3296.4
25°	3699.6	3575.3	3319.4	3160.6	3102.2
27.5°	3579.5	3447.3	3164.3	2982.0	2892.8
30°	3451.5	3303.8	2993.6	2796.1	2691.1
32.5°	3327.3	3148.7	2831.0	2598.2	2501.1
35°	3187.8	2989.8	2648.8	2404.4	2318.8
37.5°	3052.0	2838.5	2478.0	2210.2	2113.6
40°	2908.4	2676.0	2299.5	2024.2	1923.4
42.5°	2761.1	2513.0	2121.4	1834.2	1737.5
45°	2606.0	2346.0	1939.1	1663.4	1570.5
47.5°	2458.7	2183.5	1764.6	1488.9	1403.8
50°	2295.8	2020.5	1593.9	1326.1	1245.0
52.5°	2136.6	1845.7	1431.0	1175.1	1101.4
55°	1981.4	1679.0	1260.2	1027.7	954.1
57.5°	1822.7	1512.4	1109.2	892.0	829.8
60°	1659.7	1349.5	950.0	752.5	690.4
62.5°	1500.9	1190.7	814.3	628.3	597.4
65°	1337.9	1023.6	674.8	543.1	531.1
67.5°	1182.9	868.6	543.1	476.8	465.3
70°	1019.9	717.6	449.7	411.0	395.4
72.5°	864.8	577.7	376.1	345.2	337.3
75°	713.4	441.9	310.2	283.0	279.4
77.5°	562.4	314.0	244.4	228.8	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7

TEST NUMBER: P904812

CATALOG NUMBER: DFN2DIP-TR4F0-110D080US830-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7

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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	12.02	12.91	12.92	13.83	15.00	8.00	8.89	8.90	9.80	10.97
	3H	13.70	14.50	14.62	15.43	16.62	9.19	9.99	10.10	10.91	12.11
	4H	14.32	15.07	15.25	16.00	17.20	9.64	10.40	10.57	11.33	12.53
	6H	14.74	15.43	15.68	16.37	17.59	9.97	10.66	10.91	11.60	12.82
	8H	14.87	15.53	15.82	16.48	17.70	10.06	10.72	11.01	11.67	12.89
	12H	14.93	15.56	15.88	16.51	17.75	10.11	10.73	11.06	11.68	12.92
4H	2H	12.05	12.80	12.98	13.73	14.94	8.60	9.35	9.53	10.28	11.49
	3H	13.88	14.51	14.83	15.47	16.69	9.96	10.58	10.90	11.54	12.76
	4H	14.58	15.15	15.53	16.10	17.35	10.51	11.08	11.46	12.03	13.28
	6H	15.10	15.59	16.06	16.57	17.81	10.93	11.42	11.90	12.40	13.64
	8H	15.27	15.73	16.24	16.70	17.96	11.06	11.52	12.03	12.49	13.75
	12H	15.37	15.78	16.36	16.77	18.04	11.13	11.54	12.12	12.53	13.80
8H	4H	14.55	15.01	15.52	15.98	17.24	10.79	11.25	11.76	12.22	13.48
	6H	15.12	15.50	16.11	16.51	17.77	11.31	11.69	12.31	12.71	13.96
	8H	15.33	15.67	16.34	16.67	17.95	11.50	11.84	12.51	12.84	14.12
	12H	15.48	15.77	16.48	16.77	18.09	11.63	11.92	12.63	12.92	14.24
12H	4H	14.50	14.92	15.49	15.91	17.17	10.80	11.21	11.79	12.20	13.46
	6H	15.09	15.43	16.10	16.43	17.71	11.36	11.70	12.37	12.70	13.97
	8H	15.32	15.61	16.32	16.61	17.93	11.58	11.87	12.58	12.87	14.19