

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: P921205

Luminaire Tested: DFN2DIP-TR4F0-120D050US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921205
REPORT IS A COMBINATION OF REPORTS P901924 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D050US935-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

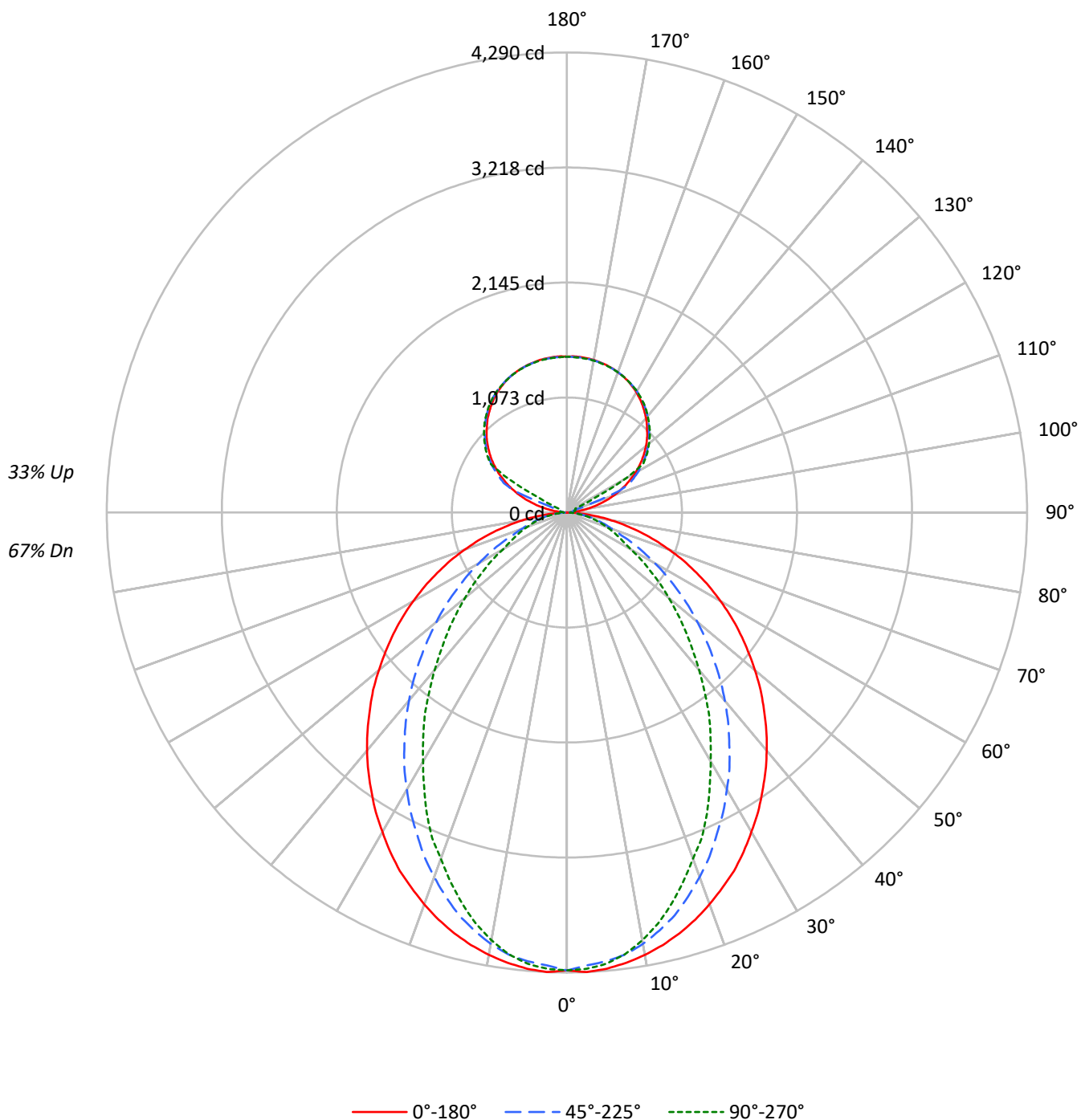
Lumens per Lamp: N/A
Luminaire Lumens: 13044.1 lumens
Efficiency: N/A
Efficacy: 79.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

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

TEST NUMBER: P921205

CATALOG NUMBER: DFN2DIP-TR4F0-120D050US935-RLLONL

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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		72
1	102	98	94	91	96	93	89	86	83	80	78		73	71	70		65
2	94	86	80	75	88	82	77	72	73	69	66		65	62	59		58
3	86	77	69	64	81	73	66	61	65	60	56		58	54	51		52
4	79	68	61	55	74	65	58	52	58	53	48		52	48	44		47
5	73	61	53	47	69	58	51	46	53	47	42		47	43	39		42
6	67	55	47	42	63	53	45	40	48	42	37		43	38	34		39
7	63	50	42	37	59	48	41	36	44	38	33		39	35	31		36
8	58	46	38	33	55	44	37	32	40	34	30		36	31	28		33
9	54	42	35	30	51	40	33	29	37	31	27		34	29	25		30
10	51	39	32	27	48	37	31	26	34	28	25		31	26	23		28

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3392	3392	3392
5°	3398	3339	3360
10°	3364	3273	3250
15°	3318	3165	3081
20°	3257	3016	2874
25°	3194	2848	2673
30°	3110	2677	2419
35°	3027	2493	2196
40°	2943	2302	1940
45°	2846	2090	1708
50°	2745	1877	1482
55°	2640	1649	1264
60°	2518	1410	1041
65°	2377	1168	936
70°	2208	941	847
75°	1994	830	771
80°	1685	696	668
85°	1175	465	502

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2846 cd/sqm

TEST NUMBER: P921205

CATALOG NUMBER: DFN2DIP-TR4F0-120D050US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	400.2	3.1
10°-20°	1098.7	8.4
20°-30°	1542.5	11.8
30°-40°	1681.4	12.9
40°-50°	1545.4	11.8
50°-60°	1213.7	9.3
60°-70°	790.0	6.1
70°-80°	406.7	3.1
80°-90°	106.4	0.8
90°-100°	47.9	0.4
100°-110°	178.6	1.4
110°-120°	473.7	3.6
120°-130°	785.6	6.0
130°-140°	834.5	6.4
140°-150°	775.6	5.9
150°-160°	623.5	4.8
160°-170°	401.8	3.1
170°-180°	138.3	1.1
0°-30°	3041.3	23.3
0°-40°	4722.7	36.2
0°-60°	7481.7	57.4
0°-90°	8784.7	67.3
90°-120°	700.2	5.4
90°-150°	3095.8	23.7
90°-180°	4259.0	32.7
0°-180°	13044.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4270	4270	4270	4270	4270	
5°	4270	4251	4200	4235	4224	405
15°	4062	4019	3888	3814	3776	1144
25°	3687	3563	3308	3150	3091	1696
35°	3177	2980	2640	2396	2311	1988
45°	2597	2338	1932	1658	1565	2006
55°	1975	1673	1256	1024	951	1764
65°	1333	1020	672	541	529	1322
75°	711	440	309	282	278	752
85°	166	85	73	73	73	191
90°	1	13	21	26	28	12
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	622
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	

TEST NUMBER: P921205

CATALOG NUMBER: DFN2DIP-TR4F0-120D050US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4270.2	4270.2	4270.2	4270.2	4270.2
2.5°	4289.5	4270.2	4227.6	4266.5	4258.7
5°	4270.2	4250.9	4200.5	4235.3	4223.9
7.5°	4235.3	4212.3	4158.3	4173.4	4154.1
10°	4189.0	4162.0	4084.8	4073.0	4050.0
12.5°	4131.2	4096.4	3991.8	3968.9	3926.2
15°	4061.5	4018.9	3887.7	3814.2	3775.7
17.5°	3980.3	3918.4	3756.0	3671.2	3609.3
20°	3887.7	3810.2	3617.1	3520.7	3435.4
22.5°	3787.2	3698.2	3474.0	3342.7	3285.0
25°	3686.8	3562.9	3307.9	3149.6	3091.4
27.5°	3567.0	3435.4	3153.3	2971.7	2882.7
30°	3439.5	3292.4	2983.2	2786.4	2681.8
32.5°	3315.7	3137.7	2821.2	2589.2	2492.4
35°	3176.7	2979.5	2639.6	2396.1	2310.7
37.5°	3041.4	2828.6	2469.4	2202.5	2106.2
40°	2898.3	2666.7	2291.5	2017.2	1916.8
42.5°	2751.5	2504.3	2114.0	1827.8	1731.5
45°	2596.9	2337.9	1932.3	1657.7	1564.9
47.5°	2450.1	2175.9	1758.5	1483.8	1398.9
50°	2287.8	2013.5	1588.4	1321.5	1240.7
52.5°	2129.2	1839.3	1426.0	1171.0	1097.6
55°	1974.6	1673.3	1255.9	1024.2	950.8
57.5°	1816.3	1507.2	1105.3	888.9	827.0
60°	1654.0	1344.8	946.7	749.9	688.0
62.5°	1495.7	1186.5	811.4	626.1	595.3
65°	1333.3	1020.1	672.4	541.2	529.3
67.5°	1178.8	865.5	541.2	475.2	463.7
70°	1016.4	715.1	448.1	409.6	394.0
72.5°	861.9	575.7	374.7	344.0	336.2
75°	710.9	440.3	309.2	282.1	278.4
77.5°	560.5	312.8	243.6	228.0	220.2
80°	421.1	224.3	185.3	170.1	170.1
82.5°	293.6	150.8	127.5	119.7	119.7
85°	166.1	84.9	73.4	73.4	73.4
87.5°	61.9	30.7	30.7	27.0	27.0
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0

TEST NUMBER: P921205

CATALOG NUMBER: DFN2DIP-TR4F0-120D050US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.2	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.7	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.6	1074.5	1083.8	1094.5	1092.3
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.4	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.3	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1372.9	1364.6	1374.1	1381.5	1372.9
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.0	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.6	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.7
180°	1452.8	1452.8	1452.8	1452.8	1452.8

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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	12.87	13.87	13.67	14.68	15.69	8.84	9.84	9.64	10.66	11.66
	3H	14.56	15.45	15.37	16.28	17.31	10.05	10.94	10.86	11.76	12.80
	4H	15.18	16.02	16.01	16.85	17.89	10.50	11.34	11.33	12.18	13.22
	6H	15.61	16.38	16.45	17.22	18.28	10.83	11.61	11.68	12.45	13.51
	8H	15.74	16.47	16.59	17.33	18.39	10.93	11.67	11.78	12.53	13.58
	12H	15.80	16.50	16.66	17.36	18.44	10.98	11.68	11.84	12.53	13.62
4H	2H	12.91	13.75	13.74	14.58	15.63	9.46	10.30	10.29	11.13	12.18
	3H	14.75	15.45	15.60	16.32	17.38	10.83	11.52	11.67	12.39	13.45
	4H	15.45	16.08	16.31	16.95	18.04	11.38	12.01	12.24	12.88	13.97
	6H	15.97	16.52	16.85	17.41	18.50	11.81	12.36	12.68	13.24	14.34
	8H	16.15	16.66	17.03	17.55	18.65	11.94	12.45	12.82	13.34	14.44
	12H	16.26	16.71	17.15	17.62	18.73	12.02	12.47	12.91	13.38	14.49
8H	4H	15.43	15.94	16.31	16.83	17.93	11.67	12.18	12.55	13.07	14.17
	6H	16.00	16.42	16.91	17.35	18.45	12.20	12.62	13.10	13.55	14.65
	8H	16.22	16.59	17.14	17.51	18.63	12.39	12.76	13.31	13.68	14.80
	12H	16.37	16.69	17.28	17.61	18.78	12.52	12.85	13.43	13.76	14.93
12H	4H	15.39	15.85	16.29	16.75	17.86	11.68	12.14	12.58	13.05	14.15
	6H	15.98	16.35	16.89	17.27	18.39	12.25	12.62	13.16	13.54	14.66
	8H	16.21	16.54	17.12	17.45	18.62	12.47	12.80	13.38	13.71	14.88