

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: P902214

Luminaire Tested: DFN2DIP-4P3F0-040D020US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902214
REPORT IS A COMBINATION OF REPORTS P899033 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-040D020US830-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

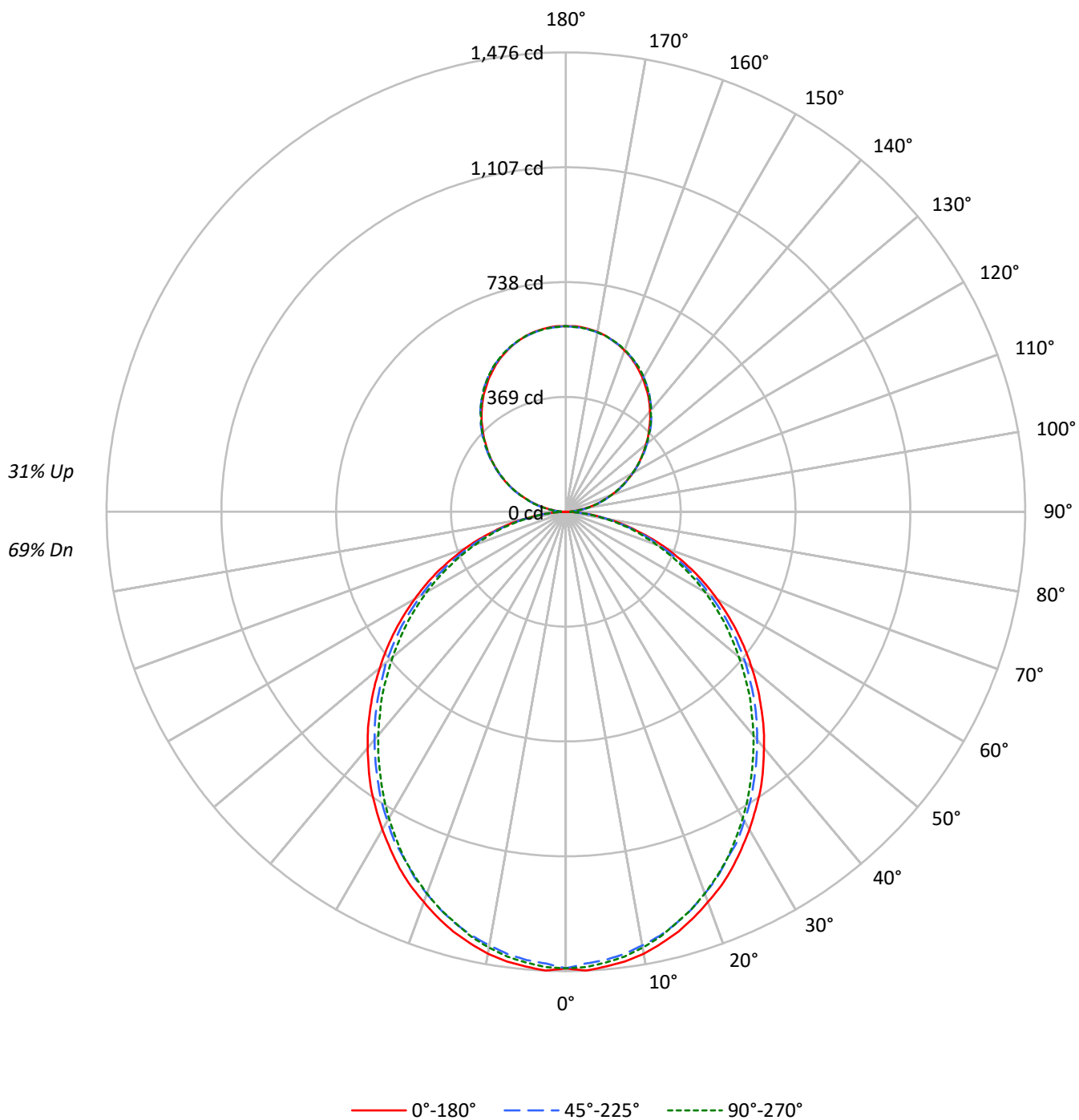
Lumens per Lamp: N/A
Luminaire Lumens: 5400.8 lumens
Efficiency: N/A
Efficacy: 101.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 53
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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
RCR																	
0	112	112	112	112	106	106	106	106	94	94	94		83	83	83		74
1	102	98	94	90	96	92	89	86	83	80	77		74	71	70		65
2	93	85	79	74	88	81	75	70	72	68	64		65	61	58		57
3	85	75	67	61	80	71	64	59	64	58	54		57	53	49		51
4	78	67	58	52	73	63	56	50	57	51	46		51	46	42		46
5	71	59	51	45	67	56	49	43	51	45	40		46	41	37		41
6	66	53	45	39	62	51	43	38	46	40	35		41	36	32		37
7	61	48	40	34	58	46	39	33	42	35	31		38	33	29		34
8	57	44	36	31	54	42	35	30	38	32	28		35	29	26		31
9	53	40	33	27	50	39	31	26	35	29	25		32	27	23		29
10	50	37	30	25	47	36	29	24	32	27	22		30	25	21		27

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1672	1672	1672
5°	1673	1647	1659
10°	1659	1624	1636
15°	1633	1596	1600
20°	1599	1558	1564
25°	1565	1513	1522
30°	1523	1470	1469
35°	1483	1420	1412
40°	1434	1370	1358
45°	1385	1319	1303
50°	1331	1266	1240
55°	1275	1205	1181
60°	1211	1132	1114
65°	1142	1056	1035
70°	1053	964	949
75°	931	853	870
80°	782	712	719
85°	551	471	471

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1385 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	2.6
10°-20°	388.5	7.2
20°-30°	570.9	10.6
30°-40°	663.1	12.3
40°-50°	662.3	12.3
50°-60°	577.5	10.7
60°-70°	426.9	7.9
70°-80°	241.5	4.5
80°-90°	65.4	1.2
90°-100°	36.9	0.7
100°-110°	117.2	2.2
110°-120°	200.6	3.7
120°-130°	263.8	4.9
130°-140°	296.1	5.5
140°-150°	290.4	5.4
150°-160°	243.6	4.5
160°-170°	161.5	3.0
170°-180°	56.5	1.0
0°-30°	1097.5	20.3
0°-40°	1760.6	32.6
0°-60°	3000.3	55.6
0°-90°	3734.2	69.1
90°-120°	354.7	6.6
90°-150°	1205.0	22.3
90°-180°	1667.0	30.9
0°-180°	5400.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	1	6	18	16	17	5
95°	26	31	32	32	31	29
105°	108	110	111	112	112	114
115°	201	204	203	203	201	199
125°	293	297	296	294	294	262
135°	379	384	385	385	383	293
145°	460	463	466	467	465	287
155°	526	527	529	531	530	242
165°	572	571	571	575	572	161
175°	595	594	593	596	593	57
180°	596	596	596	596	596	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	0.6	6.5	17.6	16.5	17.1
92.5°	11.1	15.1	15.6	16.2	16.2
95°	26.2	31.3	32.1	32.1	31.3
97.5°	43.6	48.4	50.3	50.3	50.3
100°	63.8	68.0	69.4	69.4	68.8
102.5°	85.0	88.0	90.0	90.6	90.0
105°	108.2	109.6	110.7	111.6	111.6
107.5°	131.2	133.4	133.4	133.7	131.2
110°	153.5	156.4	156.4	156.4	155.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	177.6	180.6	180.1	178.6	177.6
115°	201.3	204.2	203.3	202.7	201.3
117.5°	224.9	228.8	226.3	224.9	223.4
120°	248.5	252.5	248.5	248.5	246.9
122.5°	270.1	275.1	272.7	271.3	270.1
125°	292.8	297.3	295.9	294.3	293.7
127.5°	314.9	320.5	318.5	316.3	314.9
130°	335.5	342.0	341.1	340.1	338.1
132.5°	358.7	363.8	364.1	361.7	360.1
135°	378.7	384.3	385.3	384.8	383.3
137.5°	401.0	405.5	406.4	406.0	403.9
140°	420.6	425.1	427.6	427.6	425.7
142.5°	440.7	445.2	446.7	447.1	445.2
145°	459.8	463.4	466.3	466.7	464.8
147.5°	476.8	481.4	483.5	484.4	482.4
150°	494.5	497.5	499.5	501.1	499.5
152.5°	510.1	513.1	515.7	517.6	515.7
155°	525.8	527.2	528.8	531.3	529.7
157.5°	539.2	540.3	541.2	544.8	542.2
160°	551.3	552.3	552.9	555.9	553.7
162.5°	562.4	562.4	562.9	566.4	563.8
165°	571.9	571.4	571.4	575.0	572.5
167.5°	580.5	578.9	578.9	582.5	580.0
170°	587.0	585.6	585.0	588.6	585.6
172.5°	591.5	590.0	589.6	593.1	590.0
175°	595.1	593.7	592.6	596.2	593.1
177.5°	597.1	595.7	594.6	597.6	594.6
180°	596.2	596.2	596.2	596.2	596.2

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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	10.63	11.69	11.40	12.49	13.46	10.18	11.25	10.96	12.04	13.01
	3H	12.30	13.25	13.08	14.06	15.06	11.81	12.76	12.59	13.57	14.57
	4H	12.89	13.79	13.70	14.61	15.62	12.40	13.30	13.20	14.11	15.12
	6H	13.30	14.13	14.11	14.95	15.98	12.80	13.63	13.61	14.45	15.48
	8H	13.41	14.20	14.23	15.04	16.07	12.91	13.70	13.73	14.54	15.56
	12H	13.46	14.22	14.29	15.05	16.10	12.95	13.71	13.78	14.54	15.59
4H	2H	11.11	12.01	11.92	12.82	13.83	10.75	11.66	11.56	12.47	13.48
	3H	12.99	13.74	13.81	14.59	15.61	12.58	13.33	13.40	14.18	15.21
	4H	13.71	14.39	14.54	15.24	16.29	13.28	13.97	14.12	14.81	15.87
	6H	14.23	14.82	15.08	15.69	16.75	13.80	14.39	14.65	15.26	16.32
	8H	14.38	14.94	15.23	15.80	16.87	13.94	14.50	14.80	15.36	16.43
	12H	14.46	14.96	15.33	15.85	16.92	14.01	14.51	14.89	15.40	16.47
8H	4H	13.91	14.47	14.77	15.34	16.41	13.54	14.09	14.39	14.96	16.03
	6H	14.55	15.01	15.43	15.92	16.99	14.16	14.62	15.05	15.53	16.60
	8H	14.77	15.18	15.66	16.08	17.17	14.37	14.78	15.27	15.68	16.77
	12H	14.91	15.27	15.80	16.16	17.30	14.49	14.85	15.39	15.75	16.89
12H	4H	13.91	14.41	14.78	15.29	16.37	13.54	14.04	14.41	14.93	16.00
	6H	14.58	14.99	15.47	15.89	16.98	14.21	14.61	15.10	15.52	16.60
	8H	14.83	15.19	15.72	16.08	17.22	14.45	14.80	15.34	15.70	16.84