

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: P924284

Luminaire Tested: DFN2DIP-HX2F0-040D020US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924284
REPORT IS A COMBINATION OF REPORTS P899156 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D020US950-RLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

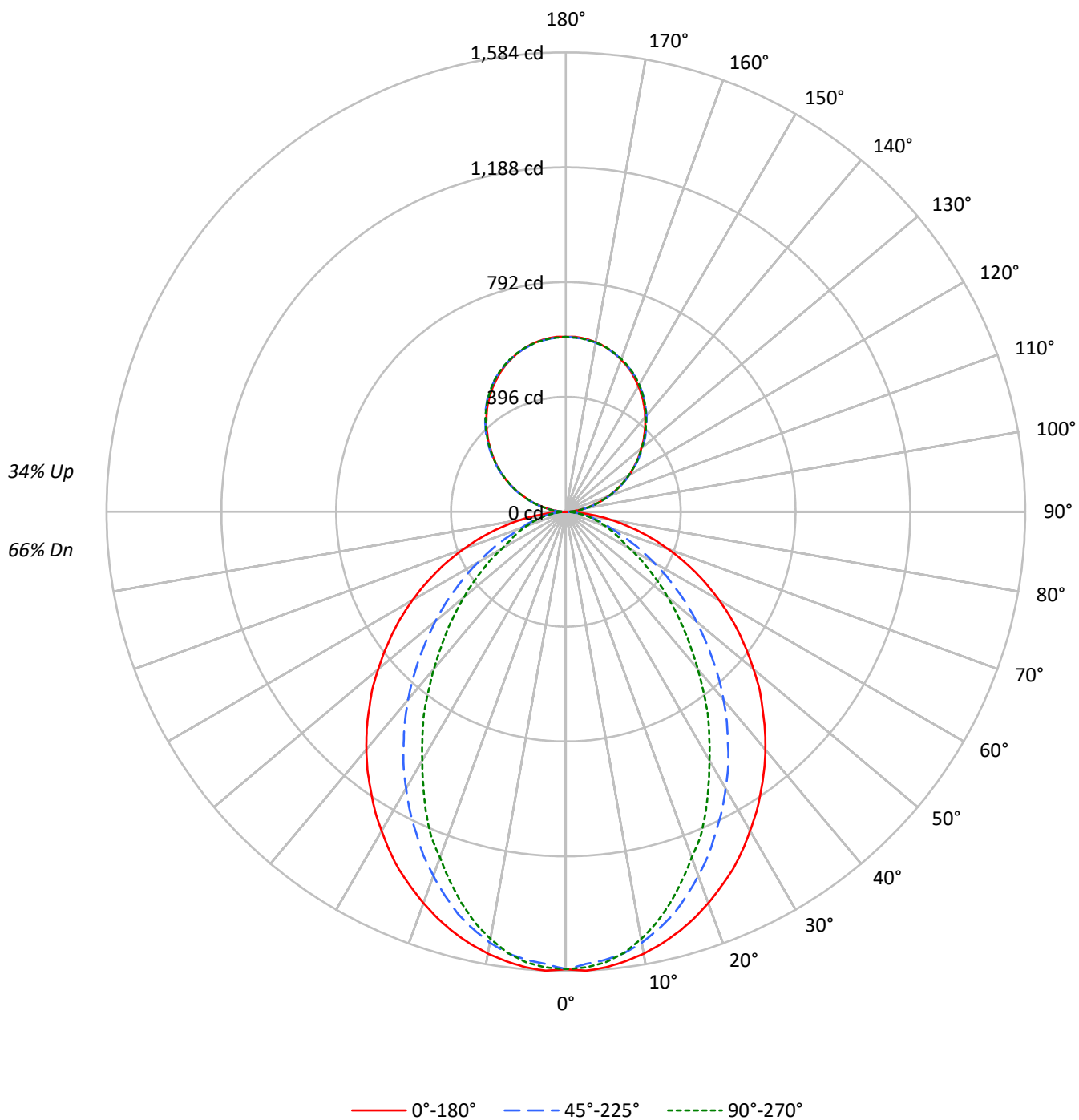
Lumens per Lamp: N/A
Luminaire Lumens: 4932.2 lumens
Efficiency: N/A
Efficacy: 96.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 51.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924284

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924284

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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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3716	3716	3716
5°	3716	3648	3674
10°	3673	3568	3547
15°	3617	3441	3357
20°	3544	3271	3124
25°	3469	3081	2900
30°	3371	2887	2619
35°	3275	2680	2371
40°	3177	2466	2089
45°	3063	2230	1834
50°	2945	1993	1585
55°	2820	1740	1346
60°	2676	1478	1101
65°	2511	1212	984
70°	2310	964	881
75°	2056	833	788
80°	1692	674	664
85°	1106	417	465

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3063 cd/sqm

TEST NUMBER: P924284

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.8	3.0
10°-20°	405.8	8.2
20°-30°	569.7	11.6
30°-40°	621.0	12.6
40°-50°	570.8	11.6
50°-60°	448.2	9.1
60°-70°	291.8	5.9
70°-80°	150.2	3.0
80°-90°	40.1	0.8
90°-100°	37.3	0.8
100°-110°	118.7	2.4
110°-120°	203.0	4.1
120°-130°	267.0	5.4
130°-140°	299.7	6.1
140°-150°	293.9	6.0
150°-160°	246.5	5.0
160°-170°	163.5	3.3
170°-180°	57.1	1.2
0°-30°	1123.3	22.8
0°-40°	1744.3	35.4
0°-60°	2763.3	56.0
0°-90°	3245.3	65.8
90°-120°	359.0	7.3
90°-150°	1219.7	24.7
90°-180°	1687.0	34.2
0°-180°	4932.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1577	1577	1577	1577	1577	
5°	1577	1570	1551	1564	1560	150
15°	1500	1484	1436	1409	1395	423
25°	1362	1316	1222	1163	1142	626
35°	1173	1100	975	885	853	734
45°	959	864	714	612	578	741
55°	729	618	464	378	351	652
65°	492	377	248	200	196	488
75°	262	163	114	104	103	278
85°	61	31	27	27	27	70
90°	1	7	18	17	17	5
95°	26	32	32	32	32	30
105°	110	111	112	113	113	116
115°	204	207	206	205	204	202
125°	296	301	300	298	297	265
135°	383	389	390	390	388	296
145°	465	469	472	472	470	291
155°	532	534	535	538	536	245
165°	579	578	578	582	580	163
175°	602	601	600	603	600	57
180°	603	603	603	603	603	



TEST NUMBER: P924284

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1577.2	1577.2	1577.2	1577.2	1577.2
2.5°	1584.3	1577.2	1561.4	1575.8	1572.9
5°	1577.2	1570.0	1551.4	1564.3	1560.1
7.5°	1564.3	1555.8	1535.8	1541.4	1534.3
10°	1547.2	1537.2	1508.7	1504.3	1495.9
12.5°	1525.8	1512.9	1474.3	1465.8	1450.1
15°	1500.1	1484.3	1435.9	1408.8	1394.6
17.5°	1470.1	1447.2	1387.2	1355.9	1333.0
20°	1435.9	1407.2	1335.9	1300.3	1268.8
22.5°	1398.8	1365.9	1283.0	1234.6	1213.3
25°	1361.6	1315.9	1221.7	1163.3	1141.7
27.5°	1317.5	1268.8	1164.6	1097.6	1064.7
30°	1270.3	1216.0	1101.8	1029.1	990.5
32.5°	1224.6	1158.9	1042.0	956.3	920.5
35°	1173.3	1100.4	974.9	884.9	853.4
37.5°	1123.3	1044.7	912.0	813.5	777.9
40°	1070.5	984.9	846.4	745.1	708.0
42.5°	1016.2	924.9	780.8	675.1	639.5
45°	959.2	863.5	713.7	612.3	578.0
47.5°	905.0	803.6	649.5	548.1	516.7
50°	845.0	743.6	586.6	488.1	458.2
52.5°	786.4	679.3	526.7	432.4	405.4
55°	729.3	618.0	463.8	378.3	351.2
57.5°	670.9	556.7	408.2	328.3	305.5
60°	610.8	496.7	349.6	276.9	254.1
62.5°	552.5	438.3	299.7	231.2	219.9
65°	492.5	376.7	248.3	199.9	195.5
67.5°	435.4	319.7	199.9	175.5	171.2
70°	375.4	264.1	165.5	151.3	145.5
72.5°	318.3	212.6	138.4	127.1	124.2
75°	262.5	162.7	114.2	104.2	102.8
77.5°	207.0	115.5	90.0	84.2	81.3
80°	155.5	82.8	68.4	62.9	62.9
82.5°	108.5	55.7	47.1	44.2	44.2
85°	61.3	31.4	27.1	27.1	27.1
87.5°	22.9	11.4	11.4	10.0	10.0
90°	0.6	6.6	17.8	16.7	17.3
92.5°	11.3	15.3	15.8	16.4	16.4
95°	26.5	31.7	32.5	32.5	31.7
97.5°	44.2	48.9	50.9	50.9	50.9
100°	64.6	68.8	70.2	70.2	69.6
102.5°	86.1	89.1	91.1	91.7	91.1
105°	109.5	111.0	112.1	113.0	113.0
107.5°	132.8	135.0	135.0	135.4	132.8
110°	155.4	158.3	158.3	158.3	156.8

TEST NUMBER: P924284

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US950-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	179.7	182.8	182.3	180.8	179.7
115°	203.8	206.6	205.8	205.2	203.8
117.5°	227.6	231.6	229.1	227.6	226.1
120°	251.6	255.6	251.6	251.6	249.9
122.5°	273.4	278.5	276.0	274.6	273.4
125°	296.3	300.9	299.5	297.8	297.3
127.5°	318.7	324.4	322.4	320.2	318.7
130°	339.6	346.2	345.3	344.2	342.2
132.5°	363.1	368.2	368.5	366.0	364.5
135°	383.3	388.9	390.0	389.5	388.0
137.5°	405.8	410.4	411.4	411.0	408.8
140°	425.7	430.3	432.8	432.8	430.8
142.5°	446.1	450.6	452.1	452.6	450.6
145°	465.4	469.0	471.9	472.4	470.4
147.5°	482.6	487.2	489.4	490.3	488.3
150°	500.5	503.5	505.5	507.1	505.5
152.5°	516.3	519.4	521.9	523.9	521.9
155°	532.1	533.6	535.2	537.8	536.1
157.5°	545.8	546.8	547.8	551.4	548.8
160°	558.0	559.0	559.6	562.7	560.5
162.5°	569.3	569.3	569.7	573.3	570.7
165°	578.9	578.3	578.3	581.9	579.5
167.5°	587.6	585.9	585.9	589.6	587.1
170°	594.2	592.7	592.1	595.8	592.7
172.5°	598.7	597.2	596.7	600.4	597.2
175°	602.4	600.9	599.8	603.4	600.4
177.5°	604.4	602.9	601.8	604.8	601.8
180°	603.4	603.4	603.4	603.4	603.4

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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	12.93	13.91	13.75	14.74	15.77	8.91	9.89	9.73	10.72	11.75
	3H	14.59	15.47	15.42	16.31	17.37	10.10	10.97	10.93	11.81	12.87
	4H	15.19	16.02	16.04	16.87	17.94	10.54	11.37	11.39	12.22	13.29
	6H	15.60	16.36	16.46	17.22	18.30	10.86	11.62	11.71	12.47	13.55
	8H	15.72	16.44	16.59	17.32	18.40	10.94	11.67	11.81	12.54	13.62
	12H	15.78	16.47	16.65	17.34	18.44	10.98	11.67	11.86	12.54	13.65
4H	2H	12.96	13.79	13.81	14.64	15.71	9.51	10.34	10.36	11.19	12.26
	3H	14.78	15.46	15.64	16.35	17.43	10.86	11.54	11.72	12.42	13.51
	4H	15.46	16.08	16.33	16.96	18.07	11.40	12.02	12.27	12.90	14.01
	6H	15.95	16.49	16.84	17.40	18.51	11.80	12.34	12.69	13.25	14.36
	8H	16.12	16.62	17.01	17.52	18.65	11.93	12.43	12.82	13.33	14.45
	12H	16.21	16.66	17.12	17.58	18.71	11.99	12.44	12.90	13.36	14.49
8H	4H	15.43	15.93	16.32	16.83	17.96	11.67	12.17	12.56	13.07	14.20
	6H	15.97	16.39	16.89	17.33	18.46	12.17	12.59	13.09	13.53	14.65
	8H	16.18	16.54	17.10	17.48	18.62	12.35	12.72	13.28	13.65	14.79
	12H	16.30	16.63	17.23	17.55	18.75	12.46	12.79	13.39	13.71	14.91
12H	4H	15.39	15.84	16.30	16.76	17.89	11.68	12.13	12.59	13.05	14.18
	6H	15.95	16.32	16.88	17.25	18.39	12.22	12.58	13.14	13.52	14.66
	8H	16.16	16.48	17.09	17.41	18.60	12.42	12.74	13.35	13.67	14.86