

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: P624670

Luminaire Tested: S930DIP-W230-X4-USTD-W

Issue Date: 11/3/2022

Test Information

Test Method: LM-79-2019
Report Number: P624670
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35539-R2)
Test Lab: INNOVATION CENTER
Issue Date: 11/3/2022
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S930DIP-W230-X4-USTD-W
Description: NEO-RAY COVERA DIRECT/INDIRECT 4-FOOT LED WaveStream LUMINAIRE
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

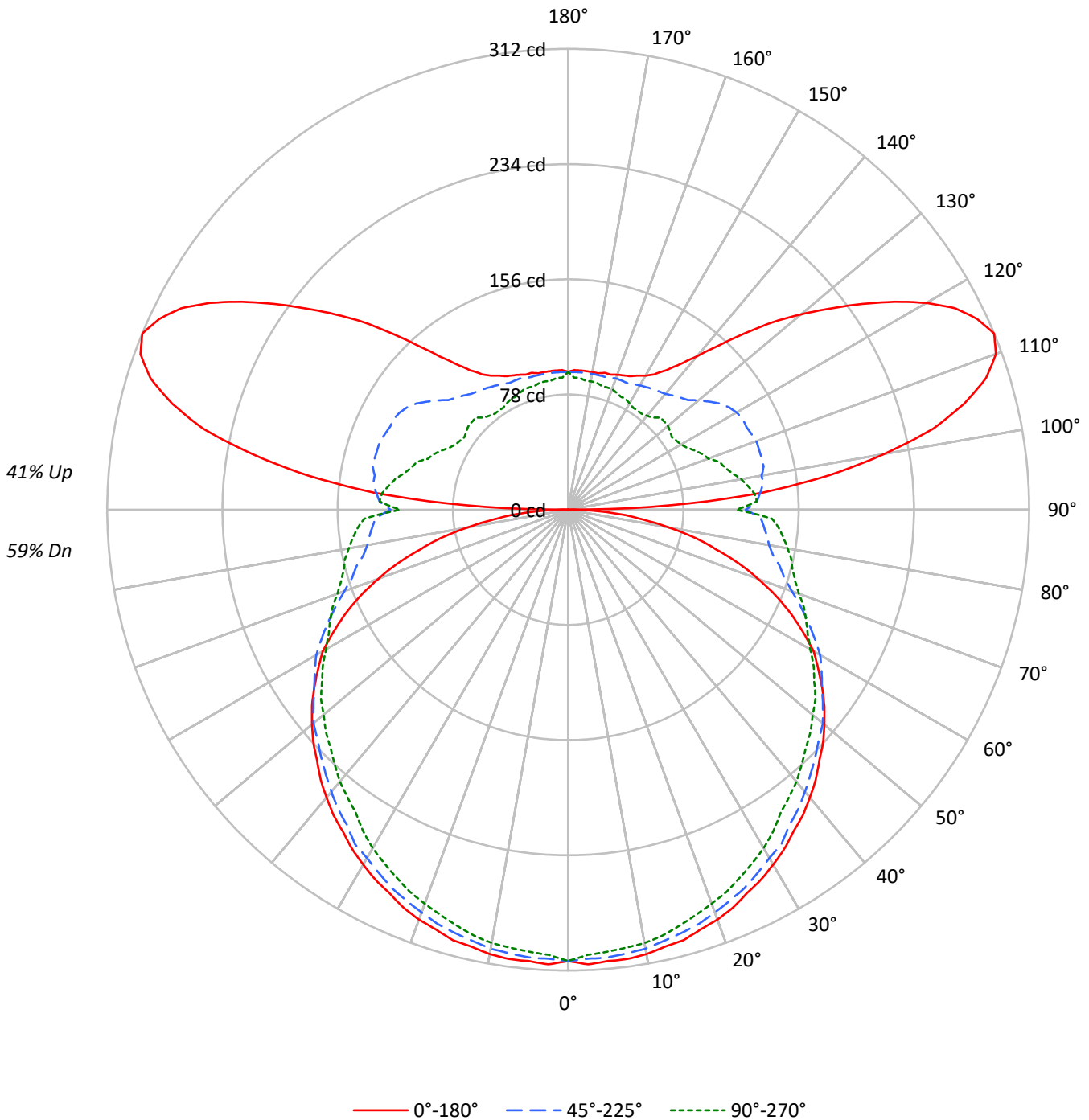
Lumens per Lamp: N/A
Luminaire Lumens: 2069.1 lumens
Efficiency: N/A
Efficacy: 103.5 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.29 / 1.48
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 3.83' x H: 0.17')
CIE Type: General Diffuse

Input Watts (W): 20
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	65	65	65	59
1	97	92	87	82	90	85	81	77	73	70	67	63	60	58	53	51	49	44
2	87	78	71	65	81	73	67	61	63	58	53	54	50	46	45	42	39	35
3	79	68	60	53	73	63	56	50	55	49	44	46	42	38	39	35	32	28
4	72	60	51	44	66	56	48	42	48	42	37	41	36	32	34	30	27	24
5	66	53	44	37	61	49	41	35	43	36	31	36	31	27	31	27	23	20
6	61	47	38	32	56	44	36	30	38	32	27	33	28	23	28	23	20	17
7	56	43	34	28	52	40	32	26	35	28	23	30	24	21	25	21	18	15
8	52	39	30	24	48	36	29	23	31	25	21	27	22	18	23	19	16	13
9	48	35	27	22	45	33	26	21	29	23	18	25	20	16	21	17	14	12
10	45	32	25	19	42	30	23	18	26	21	16	23	18	15	20	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1287	1287	1287
5°	1292	1264	1243
10°	1297	1245	1220
15°	1300	1225	1191
20°	1303	1209	1166
25°	1305	1197	1144
30°	1316	1183	1125
35°	1327	1171	1097
40°	1350	1167	1092
45°	1372	1167	1085
50°	1410	1182	1090
55°	1450	1188	1100
60°	1503	1220	1112
65°	1515	1235	1153
70°	1505	1264	1213
75°	1449	1360	1323
80°	1343	1539	1513
85°	1156	1906	1794

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 90°
 Luminance: 3209 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.0	1.4
10°-20°	84.0	4.1
20°-30°	130.3	6.3
30°-40°	163.4	7.9
40°-50°	182.4	8.8
50°-60°	187.1	9.0
60°-70°	174.2	8.4
70°-80°	148.5	7.2
80°-90°	124.6	6.0
90°-100°	142.2	6.9
100°-110°	174.3	8.4
110°-120°	165.0	8.0
120°-130°	130.2	6.3
130°-140°	91.8	4.4
140°-150°	62.9	3.0
150°-160°	43.7	2.1
160°-170°	26.4	1.3
170°-180°	8.9	0.4
0°-30°	243.4	11.8
0°-40°	406.8	19.7
0°-60°	776.3	37.5
0°-90°	1223.6	59.1
90°-120°	481.6	23.3
90°-150°	766.5	37.0
90°-180°	845.0	40.8
0°-180°	2069.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	306	306	306	306	306	
5°	307	307	304	304	300	29
15°	302	300	297	297	292	85
25°	286	285	282	281	275	132
35°	266	263	261	258	251	167
45°	240	238	236	235	228	186
55°	210	207	210	212	203	188
65°	166	170	179	182	178	164
75°	104	121	148	160	157	110
85°	36	92	133	143	143	36
90°	0	104	120	119	114	12
95°	132	143	130	129	127	123
105°	277	220	136	116	110	288
115°	306	231	133	102	95	300
125°	243	193	125	97	86	219
135°	169	142	107	93	88	132
145°	115	110	100	90	82	74
155°	100	98	95	91	84	47
165°	96	95	93	92	87	27
175°	95	95	93	93	90	9
180°	93	93	93	93	93	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	305.5	305.5	305.5	305.5	305.5
2.5°	308.1	306.8	304.3	305.5	301.7
5°	306.8	306.8	304.3	304.3	300.4
7.5°	306.8	305.5	303.0	303.0	299.1
10°	305.5	304.3	301.7	301.7	297.9
12.5°	303.0	303.0	299.1	299.1	295.3
15°	301.7	300.4	296.6	296.6	291.5
17.5°	297.9	296.6	294.0	292.7	287.6
20°	295.3	294.0	290.2	288.9	283.8
22.5°	291.5	290.2	286.4	285.1	280.0
25°	286.4	285.1	282.5	281.2	274.9
27.5°	282.5	281.2	277.4	276.1	269.7
30°	277.4	276.1	272.3	269.7	264.6
32.5°	272.3	269.7	268.5	264.6	258.2
35°	265.9	263.3	260.8	258.2	250.6
37.5°	260.8	258.2	255.7	253.1	245.4
40°	254.4	250.6	249.3	246.7	240.3
42.5°	248.0	244.2	242.9	241.6	233.9
45°	240.3	237.8	236.5	235.2	227.6
47.5°	233.9	230.1	230.1	228.8	222.4
50°	226.3	222.4	225.0	223.7	216.0
52.5°	218.6	216.0	217.3	218.6	210.9
55°	209.7	207.1	209.7	212.2	203.3
57.5°	200.7	199.4	203.3	204.5	196.9
60°	191.8	190.5	196.9	196.9	189.2
62.5°	179.0	180.3	187.9	189.2	182.8
65°	166.2	170.0	179.0	181.5	177.7
67.5°	152.1	159.8	170.0	176.4	172.6
70°	136.8	148.3	161.1	170.0	166.2
72.5°	121.4	135.5	153.4	164.9	161.1
75°	103.5	121.4	148.3	159.8	157.2
77.5°	88.2	108.7	141.9	156.0	154.7
80°	69.0	98.4	138.1	152.1	150.8
82.5°	51.1	92.0	135.5	148.3	147.0
85°	35.8	92.0	133.0	143.2	143.2
87.5°	19.2	97.2	130.4	139.3	138.1
90°	0.0	103.5	120.2	118.9	113.8
92.5°	70.3	122.7	127.8	129.1	127.8
95°	131.7	143.2	130.4	129.1	126.6
97.5°	177.7	163.6	133.0	125.3	122.7
100°	217.3	185.4	133.0	122.7	118.9
102.5°	253.1	203.3	135.5	118.9	113.8
105°	277.4	219.9	135.5	116.3	109.9
107.5°	296.6	231.4	135.5	113.8	107.4
110°	308.1	236.5	135.5	111.2	101.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	311.9	236.5	134.2	106.1	98.4
115°	305.5	231.4	133.0	102.3	94.6
117.5°	295.3	225.0	133.0	99.7	90.8
120°	280.0	216.0	131.7	98.4	88.2
122.5°	262.1	204.5	129.1	97.2	86.9
125°	242.9	193.0	125.3	97.2	85.7
127.5°	223.7	180.3	120.2	98.4	86.9
130°	205.8	167.5	115.1	98.4	88.2
132.5°	187.9	154.7	109.9	97.2	88.2
135°	168.7	141.9	107.4	93.3	88.2
137.5°	150.8	130.4	104.8	90.8	84.4
140°	135.5	122.7	102.3	89.5	83.1
142.5°	124.0	116.3	101.0	88.2	81.8
145°	115.1	109.9	99.7	89.5	81.8
147.5°	108.7	106.1	98.4	89.5	81.8
150°	104.8	103.5	97.2	89.5	83.1
152.5°	102.3	101.0	95.9	90.8	84.4
155°	99.7	98.4	94.6	90.8	84.4
157.5°	98.4	97.2	94.6	90.8	85.7
160°	97.2	95.9	94.6	90.8	86.9
162.5°	95.9	95.9	93.3	92.0	86.9
165°	95.9	94.6	93.3	92.0	86.9
167.5°	94.6	94.6	93.3	92.0	88.2
170°	94.6	94.6	93.3	92.0	88.2
172.5°	94.6	94.6	93.3	92.0	88.2
175°	94.6	94.6	93.3	93.3	89.5
177.5°	94.6	94.6	93.3	93.3	89.5
180°	93.3	93.3	93.3	93.3	93.3



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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	9.45	10.49	10.30	11.38	12.51	10.10	11.14	10.95	12.03	13.16
	3H	11.54	12.49	12.41	13.39	14.54	12.87	13.82	13.74	14.72	15.87
	4H	12.33	13.23	13.21	14.14	15.30	14.33	15.23	15.21	16.14	17.30
	6H	12.90	13.74	13.80	14.66	15.83	15.95	16.79	16.84	17.70	18.88
	8H	13.09	13.89	13.99	14.83	16.00	16.81	17.62	17.72	18.55	19.73
	12H	13.21	13.98	14.12	14.90	16.11	17.77	18.54	18.68	19.46	20.67
4H	2H	10.28	11.18	11.16	12.09	13.25	10.76	11.67	11.65	12.57	13.73
	3H	12.62	13.40	13.52	14.33	15.51	13.77	14.54	14.66	15.48	16.66
	4H	13.58	14.30	14.49	15.23	16.43	15.39	16.11	16.30	17.04	18.24
	6H	14.33	14.96	15.25	15.92	17.12	17.21	17.84	18.13	18.79	19.99
	8H	14.61	15.21	15.53	16.16	17.37	18.18	18.78	19.10	19.73	20.94
	12H	14.81	15.35	15.75	16.32	17.54	19.25	19.79	20.19	20.76	21.98
8H	4H	14.30	14.90	15.23	15.85	17.06	15.80	16.39	16.72	17.34	18.56
	6H	15.33	15.84	16.28	16.83	18.04	17.84	18.35	18.79	19.34	20.55
	8H	15.79	16.24	16.74	17.22	18.45	18.98	19.44	19.94	20.42	21.65
	12H	16.16	16.57	17.12	17.54	18.82	20.25	20.66	21.21	21.63	22.91
12H	4H	14.51	15.05	15.45	16.02	17.24	15.84	16.38	16.78	17.35	18.57
	6H	15.70	16.16	16.66	17.14	18.37	17.97	18.42	18.92	19.40	20.63
	8H	16.29	16.70	17.25	17.67	18.94	19.19	19.60	20.16	20.57	21.85