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Indoor Distribution Test Report

Relevant Standards
IES LM-79-2019, ANSI C82.77-10-2014

Prepared For
CATHODE LIGHTING SYSTEMS INC

8020 Queenair Dr
Gaithersburg, MD 20879-4173
United States

Catalog Number
Curvable Grazer-High

Order Number
15890586
Test Number
15890586.03

Test Date

2025-07-24

Prepared By

Bhavik Shah, Operations Leader

Approved By

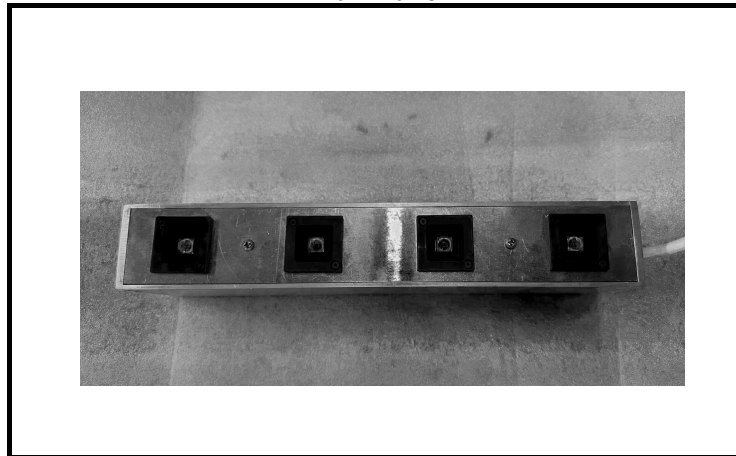
Shivani Vyas, Engineering Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Silver aluminum housing with black reflectors and textured optics
Lamp: 4 LEDs
Mounting: Surface – Ceiling
Ballast/Driver: Unmarked

Luminaire



Luminaire Characteristics

Luminous Length: 12.00 in.
Luminous Width: 1.000 in.

Summary of Results

Total Luminaire Output: 658.6 Lumens
Luminaire Efficacy: 74.8 lm/w
Maximum Candela: 1728 Candela

Test Conditions

Test Temperature: 24.3 °C
Voltage: 24.00 VDC
Current: 0.3670 A
Power: 8.810 W

The device under test emits no detectable uplight, as defined by ANSI/IES LM-75-19.
For the purpose of this report, certain non-zero uplight readings have been assigned a zero value, in accordance with the requirements of
ANSI/IES LM-75-19

Laboratory results may not be representative of field performance
Ballast factors have not been applied

Distribution - Goniophotometer

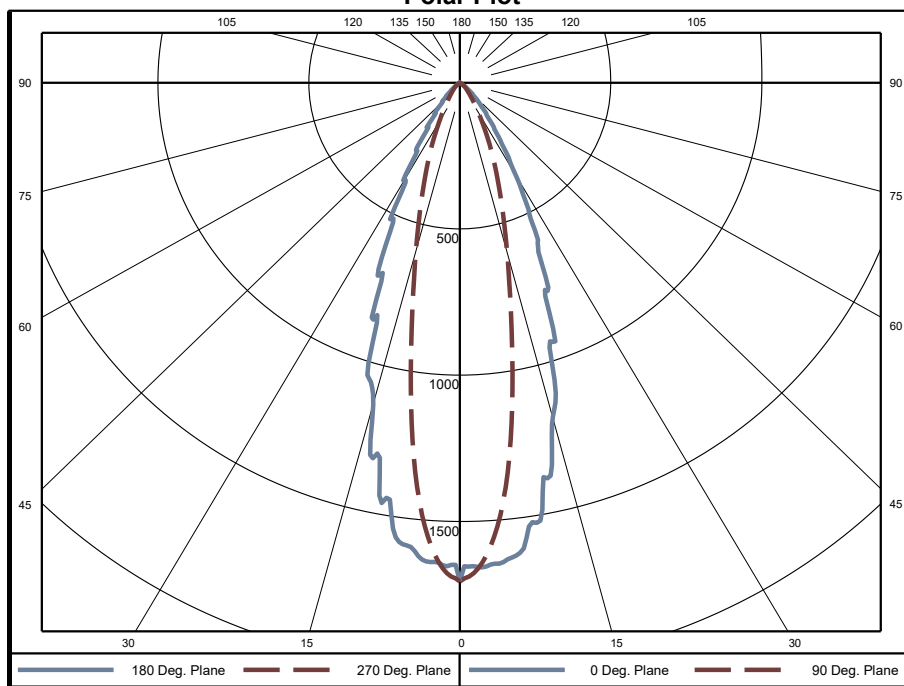
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.3 °C	24.00 VDC	0.3670 A	8.810 W	N/A	N/A	N/A

Summary of Results

Spacing Criteria	Total Lumen Output:	658.6 Lumens
0-180: 0.64	Luminaire Efficacy:	74.8 lm/w
90-270: 0.37	Maximum Candela:	1728 Candela
Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)		
Crosswise: 4.4	Endwise: 3.4	

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	39.4	6.0%	60-65	1.5	0.2%	120-125	0	0.0%
5-10	100.4	15.2%	65-70	0.6	0.1%	125-130	0	0.0%
10-15	120.9	18.4%	70-75	0.1	0.0%	130-135	0	0.0%
15-20	112.4	17.1%	75-80	0.0	0.0%	135-140	0	0.0%
20-25	91.9	14.0%	80-85	0.0	0.0%	140-145	0	0.0%
25-30	67.3	10.2%	85-90	0.0	0.0%	145-150	0	0.0%
30-35	46.5	7.1%	90-95	0	0.0%	150-155	0	0.0%
35-40	31.2	4.7%	95-100	0	0.0%	155-160	0	0.0%
40-45	21.0	3.2%	100-105	0	0.0%	160-165	0	0.0%
45-50	13.8	2.1%	105-110	0	0.0%	165-170	0	0.0%
50-55	8.2	1.2%	110-115	0	0.0%	170-175	0	0.0%
55-60	3.7	0.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	610	92.6%
0-60	657	99.7%
0-90	659	100.0%
90-180	0	0.0%

Candela Tabulation
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
	0	1705	1705	1705	1705	1705	1705	1705	1705	1705	1705	1705	1705	1705	1705	1705
	5	1645	1668	1617	1531	1481	1517	1597	1646	1625	1646	1597	1517	1481	1531	1617
	10	1521	1440	1254	1035	957	1017	1216	1416	1441	1416	1216	1017	957	1035	1254
	15	1180	1132	811	623	568	612	778	1121	1140	1121	778	612	568	623	811
	20	894	727	489	371	348	364	472	732	862	732	472	364	348	371	489
	25	604	477	302	232	209	228	284	458	562	458	284	228	209	232	302
	30	371	263	175	134	118	130	175	260	386	260	175	130	118	134	175
	35	209	158	113	78	68	77	108	153	189	153	108	77	68	78	113
	40	130	96	68	46	42	45	66	94	129	94	66	45	42	46	68
	45	72	57	40	29	28	28	39	55	62	55	39	28	28	29	40
	50	36	35	26	20	19	20	24	33	35	33	24	20	19	20	26
	55	12	13	15	11	8	11	15	14	10	14	15	11	8	11	15
	60	4	4	7	4	3	4	7	4	4	4	7	4	3	4	7
	65	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	70	0	0	1	0	0	0	1	1	0	1	1	0	0	1	0
	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Luminance (cd/m²)

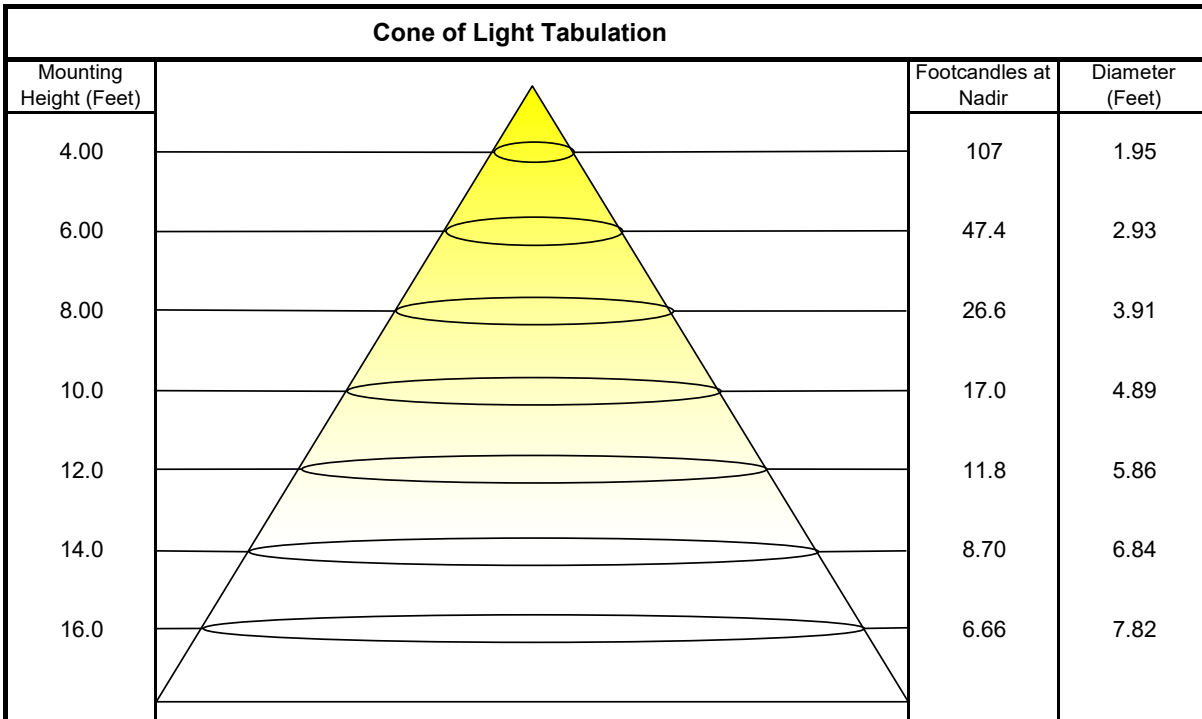
Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
	0	220200	220200
	45	13240	7372
	55	2793	3381
	65	468	475
	75	9	13
	85	0	8



Coefficients of Utilization - Zonal Cavity Method

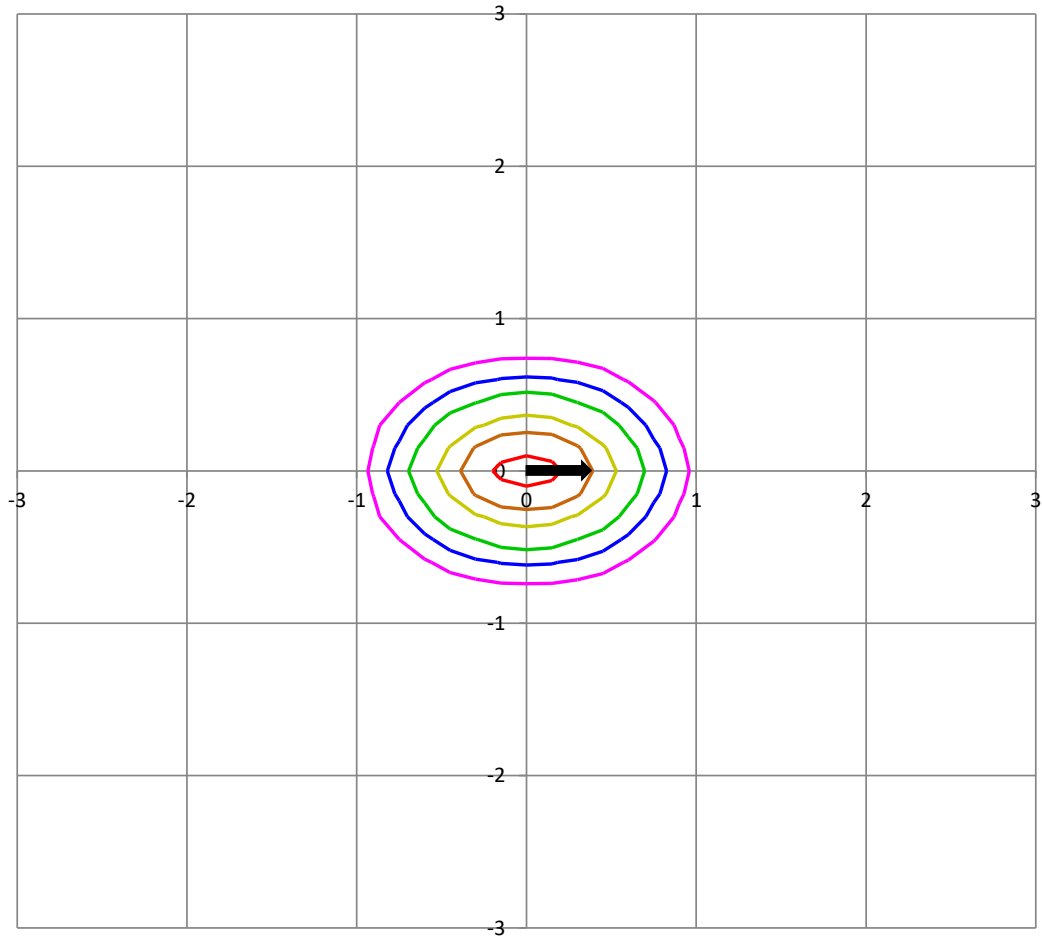
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	109	107	112	109	107	106	105	104	102	102	101	99	98	97	96	95
2	109	105	101	98	107	103	100	97	100	97	95	97	95	93	94	93	91	89
3	105	99	94	91	103	97	93	90	95	91	89	93	90	87	90	88	86	85
4	100	93	88	85	98	92	88	84	90	86	83	88	85	82	86	84	81	80
5	96	89	83	80	94	88	83	79	86	82	79	84	81	78	83	80	77	76
6	92	84	79	75	91	83	78	75	82	78	74	81	77	74	79	76	73	72
7	88	80	75	71	87	80	75	71	78	74	71	77	73	70	76	73	70	69
8	85	77	71	68	84	76	71	68	75	71	67	74	70	67	73	70	67	66
9	82	73	68	65	81	73	68	65	72	67	64	71	67	64	70	67	64	63
10	79	70	65	62	78	70	65	62	69	65	62	68	64	61	68	64	61	60

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1705 Candela
Central Cone Intensity:	1663 Candela
Beam Flux:	282.5 Lumens
Beam Angle (0-180):	40.9 Degrees
Beam Angle (90-270):	22.1 Degrees
Field Angle (0-180):	74.2 Degrees
Field Angle (90-270):	53.5 Degrees



ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

