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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-Medium

Order Number
15890586
Test Number
15890586.02

Test Date

2025-07-24

Prepared By

Bhavik Shah, Operations Leader

Approved By

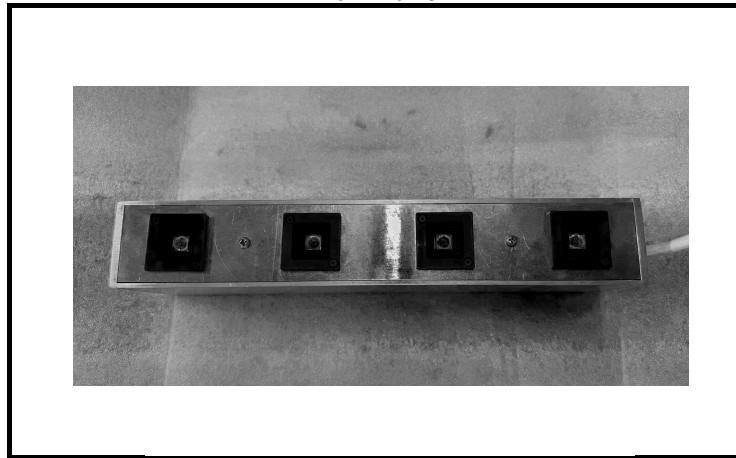
Shivani Vyas, Engineering Project Handler

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: 469.2 Lumens
Luminaire Efficacy: 77.8 lm/w
Maximum Candela: 1225 Candela

Test Conditions

Test Temperature: 24.3 °C
Voltage: 24.00 VDC
Current: 0.2510 A
Power: 6.030 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

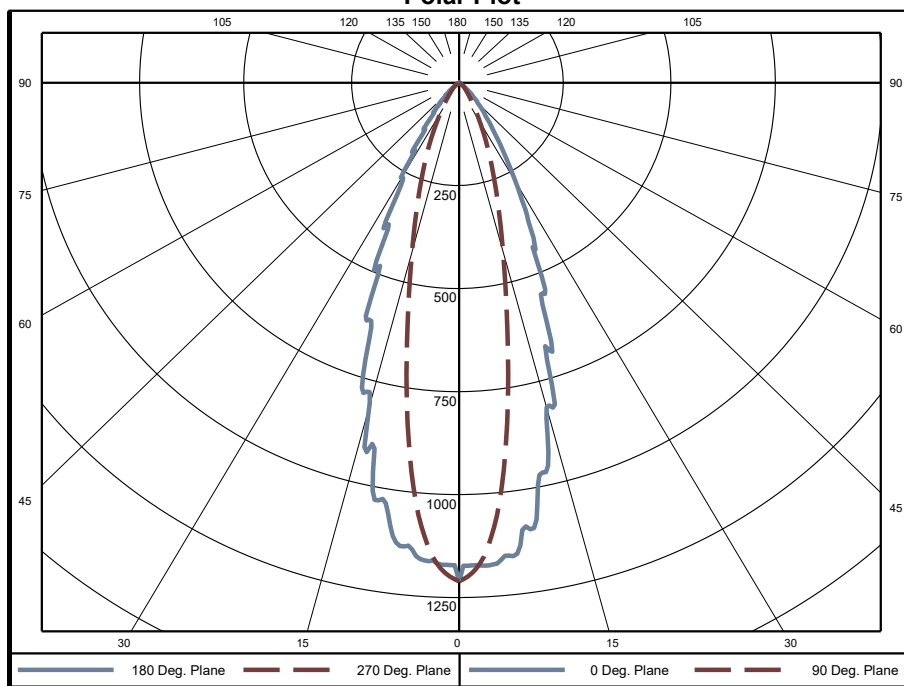
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.3 °C	24.00 VDC	0.2510 A	6.030 W	N/A	N/A	N/A

Summary of Results

Spacing Criteria	Total Lumen Output:	469.2 Lumens
0-180: 0.63	Luminaire Efficacy:	77.8 lm/w
90-270: 0.37	Maximum Candela:	1225 Candela
Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)		
Crosswise: 3.3	Endwise: 2.4	

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	27.96	6.0%	60-65	1.05	0.2%	120-125	0	0.0%
5-10	71.33	15.2%	65-70	0.41	0.1%	125-130	0	0.0%
10-15	85.92	18.3%	70-75	0.04	0.0%	130-135	0	0.0%
15-20	80.17	17.1%	75-80	0.01	0.0%	135-140	0	0.0%
20-25	65.34	13.9%	80-85	0.01	0.0%	140-145	0	0.0%
25-30	48.04	10.2%	85-90	0.00	0.0%	145-150	0	0.0%
30-35	33.26	7.1%	90-95	0	0.0%	150-155	0	0.0%
35-40	22.34	4.8%	95-100	0	0.0%	155-160	0	0.0%
40-45	15.03	3.2%	100-105	0	0.0%	160-165	0	0.0%
45-50	9.89	2.1%	105-110	0	0.0%	165-170	0	0.0%
50-55	5.84	1.2%	110-115	0	0.0%	170-175	0	0.0%
55-60	2.62	0.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	434	92.6%
0-60	468	99.7%
0-90	469	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	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211
	5	1163	1181	1151	1088	1053	1080	1130	1165	1154	1165	1130	1080	1053	1088	1151
	10	1077	1035	885	736	680	728	869	1001	1026	1001	869	728	680	736	885
	15	816	790	579	442	402	436	555	781	804	781	555	436	402	442	579
	20	619	522	344	264	246	259	336	517	612	517	336	259	246	264	344
	25	430	333	214	165	148	164	205	320	392	320	205	164	148	165	214
	30	263	182	126	96	84	94	124	190	268	190	124	94	84	96	126
	35	149	117	80	56	48	55	78	108	138	108	78	55	48	56	80
	40	91	67	49	33	30	32	47	68	94	68	47	32	30	33	49
	45	50	42	29	21	20	20	29	39	44	39	29	20	20	21	29
	50	26	24	18	15	14	14	17	23	25	23	17	14	14	15	18
	55	9	9	11	8	6	8	11	9	7	9	11	8	6	8	11
	60	3	3	5	3	2	3	5	3	3	3	5	3	2	3	5
	65	1	1	1	2	1	2	1	1	1	1	2	1	2	1	1
	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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)

Horizontal Angle (Degrees)

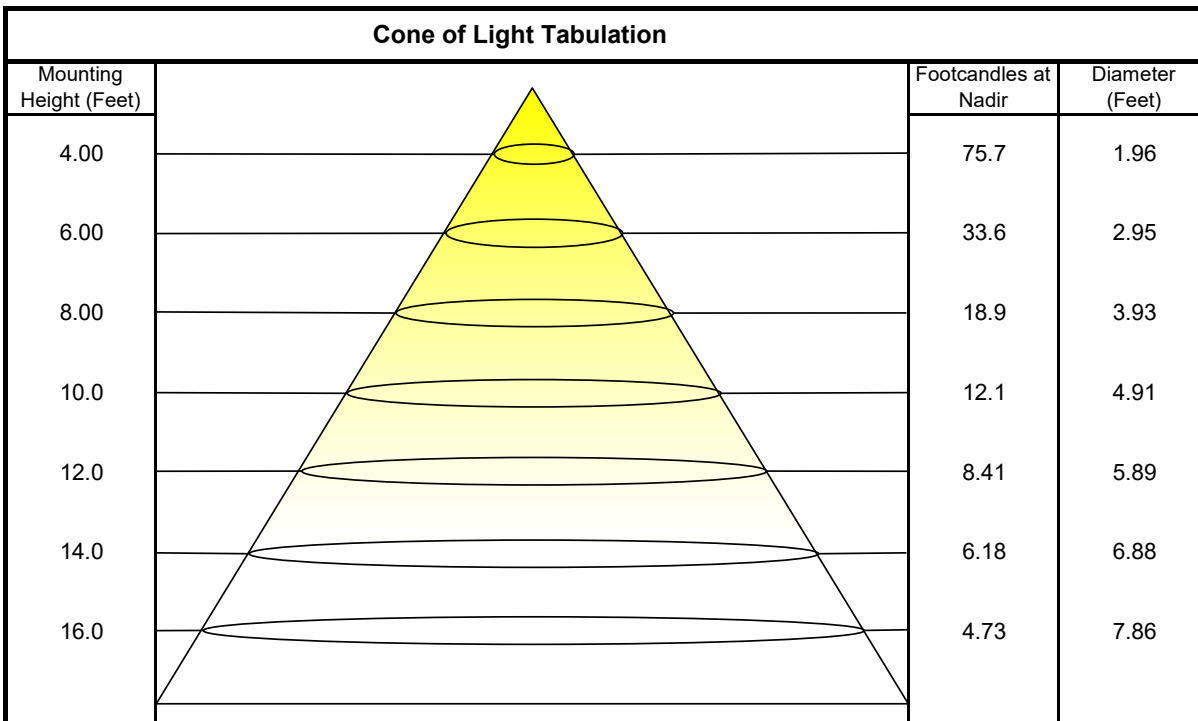
Vertical Angle (Degrees)	0	45	90
	0	156400	156400
	45	9118	5262
	55	2112	2444
	65	327	349
	75	16	12
	85	19	6



Coefficients of Utilization - Zonal Cavity Method

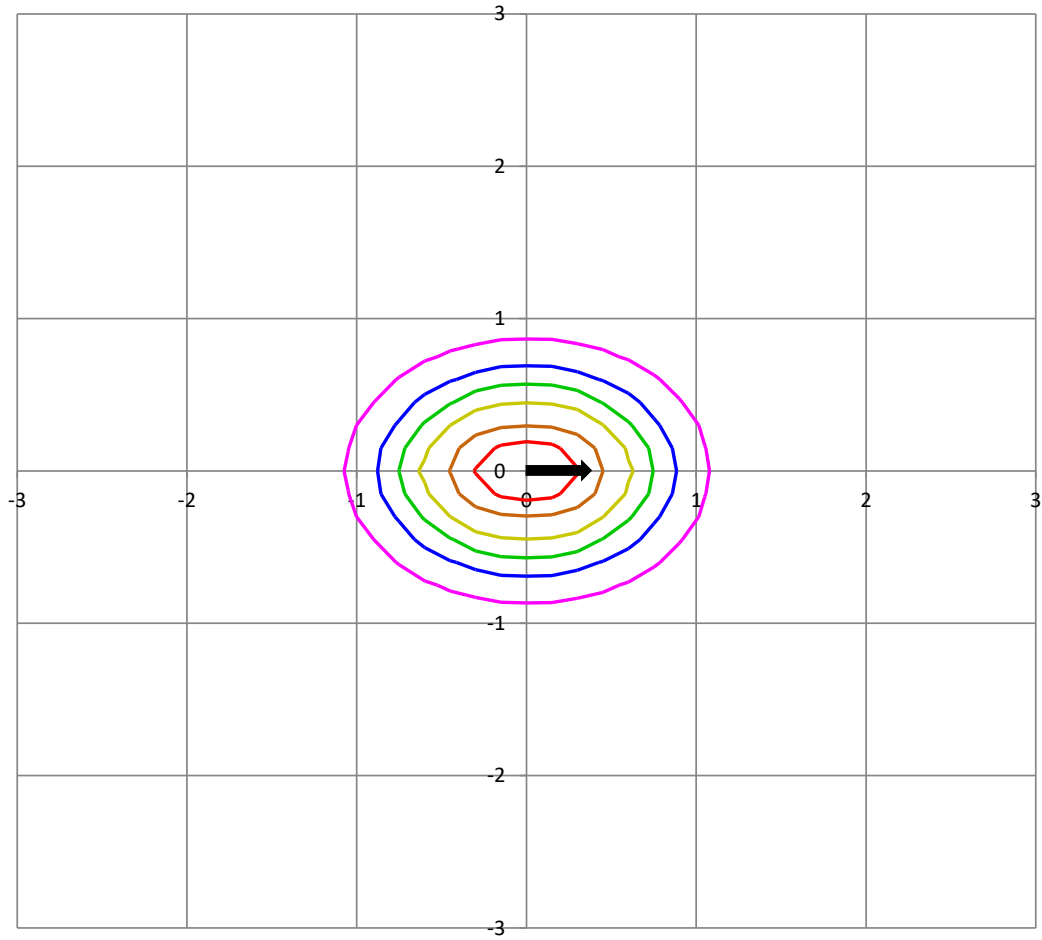
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
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	100	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	92	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	88	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	79	75	71	78	74	71	77	73	70	76	73	70	69
8	85	77	71	68	84	76	71	68	75	70	67	74	70	67	73	69	67	66
9	82	73	68	65	81	73	68	64	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:	1211 Candela
Central Cone Intensity:	1181 Candela
Beam Flux:	202.8 Lumens
Beam Angle (0-180):	41.2 Degrees
Beam Angle (90-270):	22.1 Degrees
Field Angle (0-180):	74.5 Degrees
Field Angle (90-270):	53.5 Degrees



ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

