



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : AT2-22-L20-8TW-D-DALI-UNV 4000K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from BALLABS TEST NO. 18882.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUEDATE] 03-JAN-2020

[MANUFAC] WILLIAMS LINEAR

[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO

[LUMINAIRE] 2-56 LED 22" ARRAYS-SERIES 2x2' RECESSED LUMINAIRE w/WHITE

[MORE] REFL, FROST CONCAVE ACRYLIC LENS w/DEEP ACRYLIC CENTER

[MORE] DIFFUSER

[LUMCAT] AT2-22-L20-8TW-D-DALI-UNV 4000k

[\_SEARCH\_SOURCETYPE] LED

[\_SEARCH\_APPLICATION] Indoor, Architectural, Classroom, Commercial, Office, Direct

[\_SEARCH\_MOUNTING] Ceiling, Recessed

[\_SEARCH\_CERTIFICATION] DLC

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2100
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	100
Total Luminaire Watts	21.05
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.16
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.76 ft
Luminous Width (90-270)	1.77 ft
Luminous Height	0.00 ft

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2211	2371	2536
55	1936	2091	2263
65	1649	1850	2017
75	1312	1572	1777
85	649	974	852

IES INDOOR REPORT  
 PHOTOMETRIC FILENAME : AT2-22-L20-8TW-D-DALI-UNV 4000K\_.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
<b>0</b>	858.812	858.812	858.812	858.812	858.812
<b>5</b>	856.767	852.677	853.700	852.677	852.677
<b>10</b>	836.319	836.319	838.364	839.386	840.409
<b>15</b>	803.602	806.670	812.804	816.894	820.983
<b>20</b>	764.751	768.841	779.065	788.267	795.423
<b>25</b>	712.609	720.788	735.102	746.348	756.572
<b>30</b>	652.288	660.467	683.982	698.296	706.475
<b>35</b>	589.922	595.034	623.661	641.042	652.288
<b>40</b>	521.421	527.556	555.160	574.586	585.832
<b>45</b>	451.899	460.078	484.615	506.086	518.354
<b>50</b>	384.421	393.622	416.115	433.495	447.809
<b>55</b>	321.032	328.189	346.592	360.905	375.219
<b>60</b>	259.688	269.912	285.248	300.584	309.786
<b>65</b>	201.412	214.703	225.949	236.173	246.397
<b>70</b>	147.225	164.606	170.740	179.942	190.165
<b>75</b>	98.150	107.351	117.575	130.867	132.911
<b>80</b>	53.165	62.366	69.523	75.657	73.612
<b>85</b>	16.358	21.470	24.537	26.582	21.470
<b>90</b>	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : AT2-22-L20-8TW-D-DALI-UNV 4000K\_.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	310.01	N.A.	14.80
0-30	647.77	N.A.	30.80
0-40	1035.01	N.A.	49.30
0-60	1719.87	N.A.	81.90
0-80	2069.39	N.A.	98.50
0-90	2100.27	N.A.	100.00
10-90	2019.29	N.A.	96.10
20-40	724.99	N.A.	34.50
20-50	1098.56	N.A.	52.30
40-70	909.24	N.A.	43.30
60-80	349.52	N.A.	16.60
70-80	125.15	N.A.	6.00
80-90	30.88	N.A.	1.50
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	2100.27	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	80.98
10-20	229.03
20-30	337.75
30-40	387.24
40-50	373.57
50-60	311.29
60-70	224.37
70-80	125.15
80-90	30.88
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : AT2-22-L20-8TW-D-DALI-UNV 4000K\_.IES**

**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

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
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	95	98	95	92	94	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	87	82	77	83	79	75	80	77	74	72
3	91	81	73	67	89	80	72	67	77	71	65	74	69	64	71	67	63	61
4	84	72	64	57	82	71	63	57	69	62	56	66	60	55	64	59	55	53
5	77	65	56	50	75	64	56	50	62	55	49	60	53	48	58	52	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	42	40
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	32	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	27

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : AT2-22-L20-8TW-D-DALI-UNV 4000K\_.IES**

**UGR TABLE - CORRECTED**

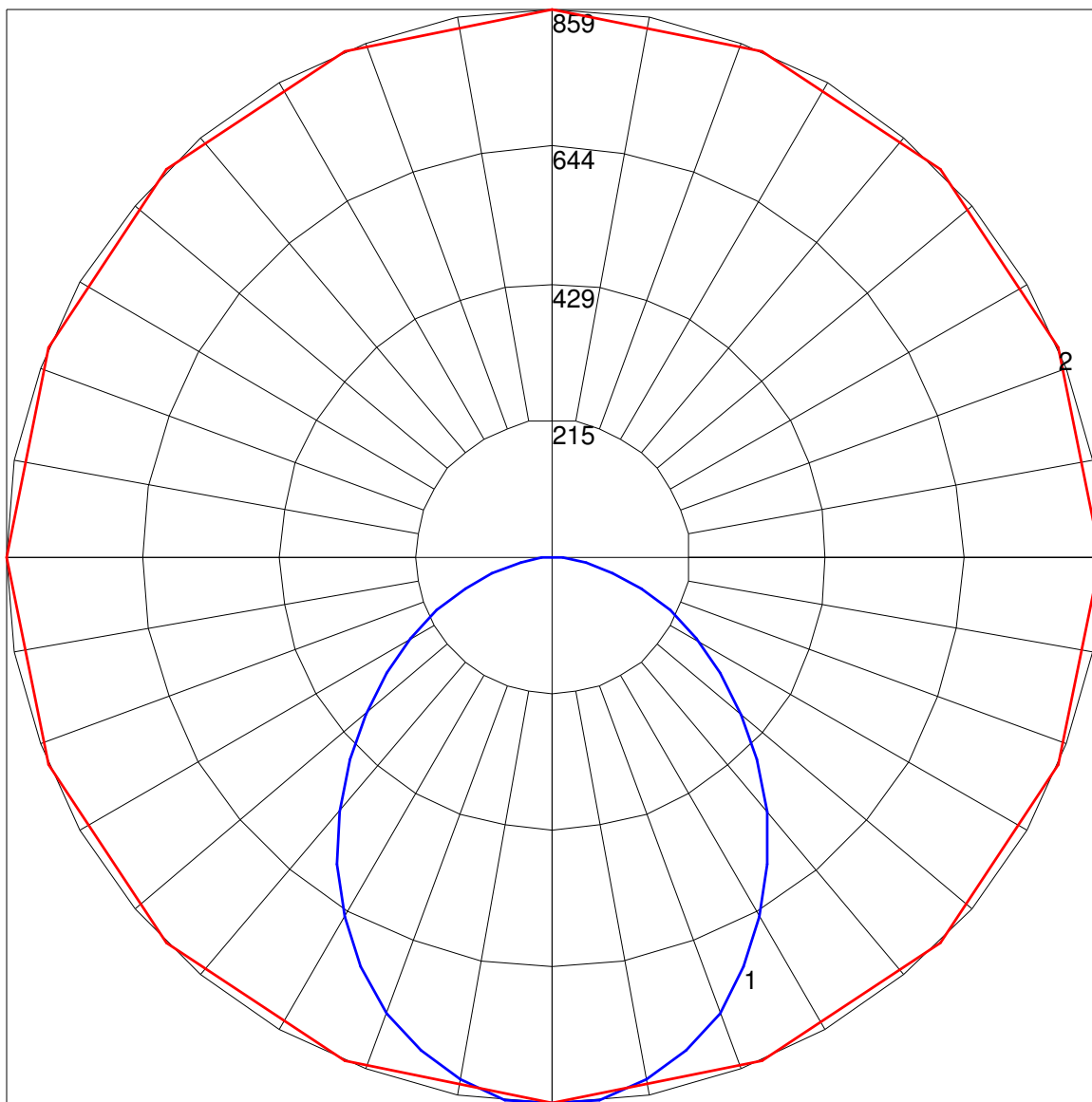
Reflectances

Ceiling Cavity	70	70	50	50	30	70	70	50	50	30
Walls	50	30	50	30	30	50	30	50	30	30
Floor Cavity	20	20	20	20	20	20	20	20	20	20

Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.0	15.6	14.3	15.9	16.2	14.8	16.4	15.1	16.7	17.0
	3H	15.6	17.0	16.0	17.3	17.7	16.5	17.9	16.9	18.3	18.6
	4H	16.1	17.5	16.5	17.8	18.2	17.2	18.5	17.6	18.9	19.2
	6H	16.5	17.7	16.9	18.1	18.5	17.6	18.9	18.1	19.2	19.6
	8H	16.5	17.7	17.0	18.1	18.5	17.8	18.9	18.2	19.3	19.7
	12H	16.6	17.7	17.0	18.1	18.5	17.8	18.9	18.2	19.3	19.8
4H	2H	14.7	16.0	15.1	16.3	16.7	15.3	16.6	15.7	17.0	17.3
	3H	16.5	17.6	16.9	18.0	18.4	17.2	18.4	17.7	18.8	19.2
	4H	17.1	18.1	17.6	18.6	19.0	18.1	19.1	18.5	19.5	19.9
	6H	17.6	18.5	18.0	18.9	19.4	18.7	19.5	19.1	20.0	20.4
	8H	17.7	18.5	18.2	19.0	19.5	18.8	19.6	19.3	20.1	20.6
	12H	17.8	18.5	18.3	19.0	19.5	18.9	19.6	19.4	20.1	20.6
8H	4H	17.5	18.3	17.9	18.7	19.2	18.3	19.1	18.8	19.6	20.0
	6H	18.1	18.7	18.6	19.2	19.7	19.0	19.7	19.5	20.2	20.7
	8H	18.2	18.9	18.7	19.4	19.8	19.2	19.9	19.8	20.4	20.9
	12H	18.4	18.9	18.9	19.4	19.9	19.4	19.9	19.9	20.4	21.0
12H	4H	17.5	18.3	18.0	18.7	19.2	18.3	19.1	18.8	19.5	20.0
	6H	18.1	18.7	18.6	19.2	19.7	19.1	19.7	19.6	20.1	20.7
	8H	18.4	18.9	18.9	19.4	20.0	19.3	19.9	19.8	20.4	20.9

Maximum UGR = 21.0

POLAR GRAPH



Maximum Candela = 858.812 Located At Horizontal Angle = 0, Vertical Angle = 0

# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)