

IES INDOOR REPORT
PHOTOMETRIC FILENAME : FRM-CLRLGU.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST]ITL66665
[TESTLAB]INDEPENDENT TESTING LABORATORIES, INC.
[ISSUE DATE]12/07/10
[MANUFACTURER]BEGHELLI
[LUMINAIRE]FORMA COMBO-FRM-CLRLGU
[LUMINAIRE]ONE 12.625" X 10.9375" FABRICATED DIFFUSE METAL SINGLE FACE
[MORE]EXIT SIGN WITH TWO EMERGENCY LIGHT HEADS AND 12 LEDS ACROSS
[MORE]LOWER HOUSING FOR INTERIOR ILLUMINATION, EACH EMERGENCY LIGHT
[MORE]HEAD CONSISTING OF: FABRICATED FINNED METAL HOUSING, MACHINED
[MORE]SEMI-DIFFUSE METAL REFLECTOR, ONE CIRCUIT BOARD WITH ONE LED,
[MORE]CLEAR GLASS LENS IN MACHINED SEMI-DIFFUSE METAL TRIM RING.
[MORE]CLEAR PLASTIC DROP LENS. BOTH EMERGENCY LIGHT HEADS AND ALL
[MORE]12 INTERIOR LEDS WERE ILLUMINATED FOR TEST. ONLY ONE
[MORE]EMERGENCY LIGHT HEAD WAS MEASURED. LED MODULE VERTICAL
[MORE]BASE-UP POSITION FOR THIS TEST.
[LAMP]ONE 3-WATT WHITE LIGHT EMITTING DIODE (LED) WITH CLEAR
[MORE]HEMISPHERICAL INTEGRAL LENS, VERTICAL BASE-UP POSITION.
[OTHER]TOTAL INPUT WATTS = 6.02 AT 9.1 VOLTS DC
[NOTE]DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT CLIENT
[MORE]REQUESTED INPUT VOLTAGE (9.1VDC) TO THE LED ASSEMBLY. LAMP
[MORE]INFORMATION PROVIDED BY CLIENT.
[OTHER]TEST PROCEDURE: IESNA LM-79-08
[OTHER]TEST DISTANCE = 25.25 FEET
[ABSOLUTE LUMENS]85.8

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	86
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	29
Total Luminaire Watts	3
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.30
Spacing Criterion (90-270)	1.30
Spacing Criterion (Diagonal)	1.04
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.36 ft
Luminous Width (90-270)	0.21 ft
Luminous Height	0.23 ft

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LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	664	441	448
55	663	387	509
65	785	500	598
75	589	393	482
85	60	43	156

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CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>
0.0	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7	61.7
2.5	60.1	60.7	61.2	61.5	61.5	61.5	61.0	60.7	60.1
5.0	57.7	58.4	59.1	59.6	59.6	58.8	58.0	57.5	57.0
7.5	55.1	56.0	56.6	57.1	57.4	56.5	56.2	55.4	54.6
10.0	53.9	54.6	55.1	55.8	56.4	57.4	55.6	54.4	52.7
12.5	53.5	53.7	55.6	55.0	55.2	55.8	54.7	53.7	52.1
15.0	51.5	52.0	54.6	51.3	54.0	53.2	54.0	52.8	52.1
17.5	50.1	50.6	53.0	49.3	51.2	52.0	52.5	51.1	50.5
20.0	50.0	49.9	51.6	50.9	49.6	51.4	51.3	50.9	49.7
22.5	49.7	50.4	49.8	50.7	50.6	49.9	50.0	52.4	49.1
25.0	49.2	50.5	50.6	52.3	53.5	50.5	49.8	54.9	49.6
27.5	49.8	51.0	52.5	55.2	56.6	54.7	50.0	56.6	49.0
30.0	54.1	54.7	55.2	57.3	56.7	58.7	52.6	57.4	52.2
32.5	53.3	54.6	58.3	55.0	53.7	56.6	54.3	53.5	51.2
35.0	32.2	34.7	42.5	40.6	40.8	40.9	39.8	29.9	26.6
37.5	11.7	12.4	15.9	18.8	20.4	17.6	14.6	10.1	9.3
40.0	6.8	6.4	6.9	7.1	7.0	6.9	6.4	6.1	6.2
42.5	6.5	5.9	6.3	6.2	6.3	6.4	5.3	4.9	5.2
45.0	5.4	4.8	4.9	4.9	4.7	4.9	4.7	4.7	5.0
47.5	5.3	4.7	4.7	4.8	4.8	5.0	4.8	4.8	4.9
50.0	5.3	4.5	4.5	4.8	4.9	5.3	5.1	5.1	5.6
52.5	5.4	4.6	4.6	5.2	5.5	6.1	6.0	5.9	4.6
55.0	5.1	4.3	4.3	4.9	5.3	5.9	5.6	5.5	4.2
57.5	4.7	4.0	3.9	4.2	4.6	5.2	5.0	4.9	3.3
60.0	4.7	4.1	4.1	4.2	4.5	4.8	4.7	4.5	2.8
62.5	5.1	4.6	4.5	4.7	5.0	5.2	5.2	4.9	1.6
65.0	5.5	5.3	5.4	5.6	6.0	6.3	6.4	6.5	0.7
67.5	6.4	6.2	6.3	6.9	8.0	8.0	7.9	7.5	0.2
70.0	5.5	5.8	6.2	7.0	7.3	7.6	7.4	5.8	0.0
72.5	4.5	4.8	4.9	5.4	5.8	6.0	6.1	3.5	0.0
75.0	3.6	3.8	4.0	4.2	4.5	4.6	4.4	1.4	0.0
77.5	1.6	2.0	2.3	2.5	2.9	3.1	2.9	0.4	0.0
80.0	0.5	0.5	0.7	0.6	0.9	0.9	0.8	0.2	0.0
82.5	0.4	0.4	0.4	0.2	0.6	0.3	0.1	0.1	0.0
85.0	0.3	0.4	0.4	0.2	1.3	0.4	0.1	0.0	0.0
87.5	0.3	0.4	0.4	0.2	2.1	0.8	0.0	0.0	0.0
90.0	0.3	0.3	0.4	0.2	2.7	1.5	0.0	0.0	0.0
92.5	0.3	0.3	0.4	0.2	3.0	2.2	0.0	0.0	0.0
95.0	0.2	0.3	0.3	0.2	3.4	2.5	0.0	0.0	0.0
97.5	0.2	0.3	0.3	0.2	3.6	2.5	0.0	0.0	0.0
100.0	0.2	0.2	0.3	0.2	3.4	2.2	0.0	0.0	0.0
102.5	0.2	0.2	0.3	0.2	2.7	1.9	0.0	0.0	0.0
105.0	0.1	0.2	0.3	0.2	1.6	1.7	0.0	0.0	0.0
107.5	0.1	0.2	0.3	0.2	1.0	1.6	0.0	0.0	0.0
110.0	0.1	0.1	0.2	0.2	0.7	1.5	0.0	0.0	0.0
112.5	0.1	0.1	0.2	0.3	0.4	1.4	0.0	0.0	0.0
115.0	0.0	0.1	0.2	0.4	0.3	1.4	0.0	0.0	0.0
117.5	0.0	0.1	0.2	0.4	0.2	1.4	0.0	0.0	0.0
120.0	0.0	0.1	0.1	0.4	0.2	1.4	0.0	0.0	0.0
122.5	0.0	0.0	0.1	0.3	0.1	1.4	0.0	0.0	0.0
125.0	0.0	0.0	0.1	0.2	0.1	1.3	0.0	0.0	0.0
127.5	0.0	0.0	0.1	0.1	0.2	1.3	0.0	0.0	0.0
130.0	0.0	0.0	0.1	0.1	0.3	1.0	0.0	0.0	0.0
132.5	0.0	0.0	0.1	0.0	0.3	0.6	0.0	0.0	0.0

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CANDELA TABULATION - (Cont.)

135.0	0.0	0.0	0.1	0.0	0.4	0.4	0.0	0.0	0.0
137.5	0.0	0.0	0.1	0.0	0.3	0.2	0.0	0.0	0.0
140.0	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.0
142.5	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0
145.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5	0.0	0.0	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	0.0	0.0
152.5	0.0	0.0	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	0.0	0.0
157.5	0.0	0.0	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	0.0	0.0
162.5	0.0	0.0	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	0.0	0.0
167.5	0.0	0.0	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	0.0	0.0
172.5	0.0	0.0	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	0.0	0.0
177.5	0.0	0.0	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	0.0	0.0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	20.41	N.A.	23.80
0-30	44.58	N.A.	51.90
0-40	65.56	N.A.	76.40
0-60	74.05	N.A.	86.30
0-80	83.28	N.A.	97.00
0-90	83.77	N.A.	97.60
10-90	78.29	N.A.	91.20
20-40	45.15	N.A.	52.60
20-50	49.27	N.A.	57.40
40-70	14.05	N.A.	16.40
60-80	9.22	N.A.	10.70
70-80	3.67	N.A.	4.30
80-90	0.49	N.A.	0.60
90-110	1.46	N.A.	1.70
90-120	1.76	N.A.	2.10
90-130	1.96	N.A.	2.30
90-150	2.05	N.A.	2.40
90-180	2.05	N.A.	2.40
110-180	0.60	N.A.	0.70
0-180	85.82	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	5.48
10-20	14.93
20-30	24.17
30-40	20.98
40-50	4.12
50-60	4.37
60-70	5.55
70-80	3.67
80-90	0.49
90-100	0.88
100-110	0.58
110-120	0.30
120-130	0.20
130-140	0.08
140-150	0.01
150-160	0.00
160-170	0.00
170-180	0.00

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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	118	118	118	118	115	115	115	115	110	110	110	104	104	104	100	100	100	97
1	111	107	104	101	108	104	101	99	100	97	95	96	94	92	92	90	89	87
2	103	97	91	87	100	95	90	86	91	87	83	87	84	81	84	81	79	77
3	96	88	82	76	94	86	80	76	83	78	74	80	76	73	78	74	71	69
4	90	81	74	68	88	79	73	68	77	71	67	74	69	65	72	68	64	63
5	84	74	67	62	82	73	66	61	71	65	60	69	64	60	67	62	59	57
6	79	69	61	56	78	68	61	56	66	60	55	64	59	55	62	58	54	52
7	75	64	56	51	73	63	56	51	61	55	51	60	54	50	58	53	50	48
8	70	59	52	47	69	59	52	47	57	51	47	56	50	46	55	50	46	44
9	67	55	48	44	65	55	48	44	53	48	43	52	47	43	51	46	43	41
10	63	52	45	41	62	51	45	41	50	44	40	49	44	40	48	43	40	38

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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

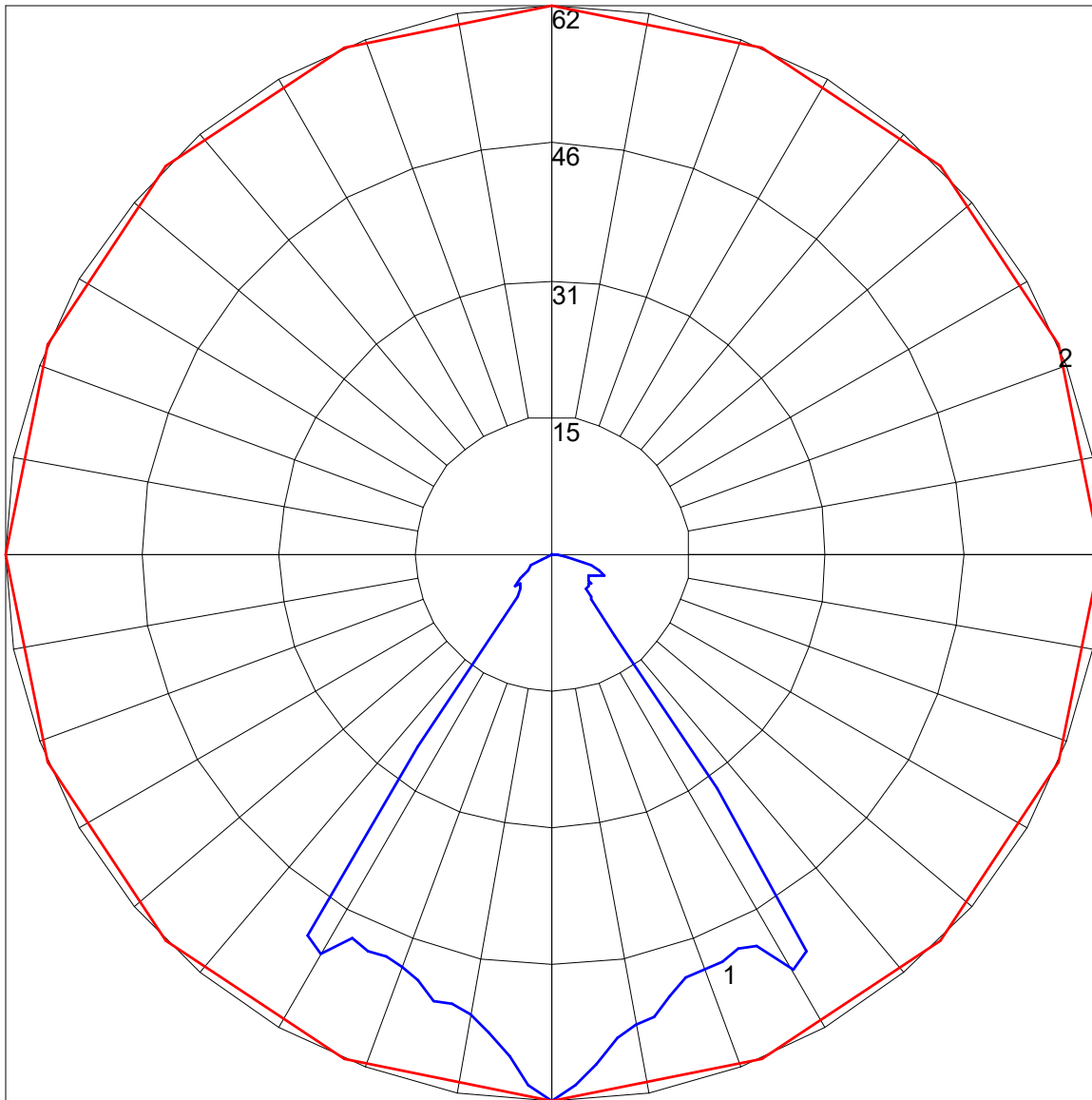
X=2H	Y=2H	4.9	6.0	5.3	6.4	6.8	6.4	7.5	6.8	7.9	8.3
	3H	9.5	10.5	9.9	10.9	11.4	11.7	12.8	12.2	13.2	13.6
	4H	10.3	11.3	10.8	11.7	12.2	12.6	13.6	13.1	14.0	14.5
	6H	10.4	11.2	10.8	11.7	12.2	12.8	13.7	13.3	14.1	14.6
	8H	10.3	11.2	10.8	11.6	12.1	12.8	13.6	13.3	14.1	14.6
	12H	10.3	11.1	10.8	11.5	12.0	12.8	13.6	13.3	14.0	14.5

UGR Viewed Endwise

4H	2H	6.3	7.3	6.8	7.7	8.2	7.5	8.5	8.0	8.9	9.3
	3H	10.6	11.4	11.0	11.9	12.3	12.5	13.4	13.0	13.8	14.3
	4H	11.4	12.2	11.9	12.6	13.2	13.5	14.2	14.0	14.7	15.2
	6H	11.5	12.1	12.0	12.6	13.2	13.7	14.3	14.2	14.8	15.3
	8H	11.4	12.0	12.0	12.5	13.1	13.6	14.2	14.2	14.7	15.3
	12H	11.4	11.9	11.9	12.5	13.0	13.6	14.1	14.2	14.7	15.2
8H	4H	11.7	12.3	12.2	12.8	13.3	13.6	14.2	14.1	14.7	15.2
	6H	11.8	12.2	12.3	12.8	13.3	13.8	14.2	14.3	14.8	15.3
	8H	11.7	12.1	12.3	12.7	13.3	13.7	14.1	14.3	14.7	15.3
	12H	11.7	12.0	12.2	12.6	13.2	13.7	14.1	14.3	14.6	15.3
12H	4H	11.7	12.2	12.2	12.7	13.3	13.5	14.0	14.1	14.6	15.1
	6H	11.7	12.1	12.3	12.7	13.3	13.7	14.1	14.3	14.6	15.3
	8H	11.7	12.0	12.2	12.6	13.2	13.7	14.0	14.2	14.6	15.2

Maximum UGR = 15.3

POLAR GRAPH



Maximum Candela = 61.7 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.)