



LIGHTING SCIENCES CANADA LTD.

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Certified Test Report No. LSC F404

BEGHELLI EMERGENCY LIGHTING LUMINAIRE CAT. NO. BRAVADO
WITH SPECULAR INTERIOR AND CLEAR LENS
ONE BEGHELLI 50W MR16 INCANDESCENT LAMP. LUMEN OUTPUT = 605 LMS.

Processed by *** SPOT-LITE ***

Performance Summary:

Beam Angle	53.5 Degrees
Field Angle	91.3 Degrees
Max. Candlepower	698 CANDELA
Center Candlepower	462 CANDELA
Beam Lumens	388 LMS.
Beam Efficacy	8.0 LMS/WATT
Field Lumens	529 LMS.
Field Efficacy	10.9 LMS/WATT
Total Lumens	605 LMS.
Total Efficacy	12.5 LMS/WATT

Field Angle is defined by 10 percent of Max. Candlepower
Beam Angle is defined by 50 percent of Max. Candlepower

Laboratory results may not be representative of field performance.
ABSOLUTE PHOTOMETRY TAKEN.

Prepared for:

BEGHELLI CANADA INC.
MARKHAM, ONTARIO

Date: Dec 16 2011

Certified by:

LIGHTING SCIENCES CANADA LTD.
 160 FROBISHER DRIVE, UNIT 5
 WATERLOO, ONTARIO

BEGHELLI EMERGENCY LIGHTING LUMINAIRE CAT. NO. BRAVADO
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Beam center illuminance, beam and field diameters

Distance	Illuminance at Center	Beam Diameter	Field Diameter
10	4.6	10.1	20.5
15	2.1	15.1	30.7
20	1.2	20.2	40.9
25	.7	25.2	51.2
30	.5	30.2	61.4
35	.4	35.3	71.6
40	.3	40.3	81.8
45	.2	45.4	92.1
50	.2	50.4	102.3
55	.2	55.4	112.5
60	.1	60.5	122.8
65	.1	65.5	133.0
70	.1	70.5	143.2
75	.1	75.6	153.5
80	.1	80.6	163.7
85	.1	85.7	173.9
90	.1	90.7	184.2
95	.1	95.7	194.4
100	.0	100.8	204.6
105	.0	105.8	214.8
110	.0	110.9	225.1
115	.0	115.9	235.3
120	.0	120.9	245.5
125	.0	126.0	255.8
130	.0	131.0	266.0
135	.0	136.1	276.2
140	.0	141.1	286.5
145	.0	146.1	296.7
150	.0	151.2	306.9

If distance is in Feet, Illuminance is in Footcandles
 If distance is in Meters, Illuminance in Lux

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Tabulation of Candlepower VS. Angle
 for Illuminance Calculations

CANDELA								
Angle	Cosine of Angle	CP	Angle	Cosine of Angle	CP	Angle	Cosine of Angle	CP
0	1.00	462	30	.87	190	60	.50	17
1	1.00	463	31	.86	156	61	.48	16
2	1.00	460	32	.85	130	62	.47	15
3	1.00	459	33	.84	111	63	.45	14
4	1.00	462	34	.83	99	64	.44	13
5	1.00	468	35	.82	91	65	.42	13
6	.99	479	36	.81	86	66	.41	12
7	.99	494	37	.80	82	67	.39	12
8	.99	513	38	.79	80	68	.37	12
9	.99	534	39	.78	79	69	.36	12
10	.98	557	40	.77	77	70	.34	12
11	.98	581	41	.75	76	71	.33	11
12	.98	604	42	.74	76	72	.31	11
13	.97	626	43	.73	76	73	.29	11
14	.97	647	44	.72	75	74	.28	11
15	.97	665	45	.71	73	75	.26	11
16	.96	680	46	.69	68	76	.24	10
17	.96	692	47	.68	62	77	.22	10
18	.95	698	48	.67	56	78	.21	9
19	.95	694	49	.66	50	79	.19	8
20	.94	679	50	.64	44	80	.17	8
21	.93	653	51	.63	38	81	.16	8
22	.93	616	52	.62	33	82	.14	8
23	.92	568	53	.60	28	83	.12	8
24	.91	512	54	.59	24	84	.10	8
25	.91	452	55	.57	22	85	.09	8
26	.90	392	56	.56	20	86	.07	7
27	.89	334	57	.54	19	87	.05	7
28	.88	282	58	.53	19	88	.03	7
29	.87	232	59	.52	18	89	.02	6

Illuminance at any point on a plane perpendicular to the luminaire axis can be calculated by either of two methods:

Method 1: Illuminance = $\frac{\text{Candlepower} \times \text{Cosine of angle}}{\text{Distance squared from spotlight to point}}$

Method 2: Illuminance = $\frac{\text{Candlepower} \times \text{Cosine cubed of angle}}{\text{Distance squared from spotlight to plane}}$

If distance is in Feet, Illuminance is in Footcandles
 If distance is in Meters, Illuminance in Lux

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Cone of Light Tabulation
(Illuminances on a Plane Perpendicular to Lamp Axis)

Distance from Luminaire	Illuminance Directly on Axis	Diameter of Circle	Illuminance at Edge of Circle
1.0	462.1	1.0	231.1
1.5	205.4	1.5	102.7
2.0	115.5	2.0	57.8
2.5	73.9	2.6	37.0
3.0	51.3	3.1	25.7
3.5	37.7	3.6	18.9
4.0	28.9	4.1	14.4
4.5	22.8	4.6	11.4
5.0	18.5	5.1	9.2
5.5	15.3	5.6	7.6
6.0	12.8	6.1	6.4
6.5	10.9	6.7	5.5
7.0	9.4	7.2	4.7
7.5	8.2	7.7	4.1
8.0	7.2	8.2	3.6
8.5	6.4	8.7	3.2
9.0	5.7	9.2	2.9
9.5	5.1	9.7	2.6
10.0	4.6	10.2	2.3
11.0	3.8	11.3	1.9
12.0	3.2	12.3	1.6
13.0	2.7	13.3	1.4
14.0	2.4	14.3	1.2
15.0	2.1	15.4	1.0
16.0	1.8	16.4	.9
17.0	1.6	17.4	.8
18.0	1.4	18.4	.7
19.0	1.3	19.5	.6
20.0	1.2	20.5	.6
21.0	1.0	21.5	.5
22.0	1.0	22.5	.5
23.0	.9	23.6	.4
24.0	.8	24.6	.4
25.0	.7	25.6	.4
26.0	.7	26.6	.3
27.0	.6	27.7	.3
28.0	.6	28.7	.3
29.0	.5	29.7	.3
30.0	.5	30.7	.3

Total Cone Angle = 54.3 Degrees
(Based upon point where illuminance drops to 50% of center value)

Note: Distance in Feet, Illuminance in Footcandles
Distance in Meters, Illuminance in Lux

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Lighting Design Tables

Lamp Aiming Angle = .0 Degrees - See Footnote

Distance	Illuminance	Illuminated Width	Illuminated Length	Spacing
1.0	462.1	1.0	1.0	1.0
2.0	115.5	2.0	2.0	2.0
3.0	51.3	3.1	3.1	3.1
4.0	28.9	4.1	4.1	4.1
5.0	18.5	5.1	5.1	5.1
6.0	12.8	6.1	6.1	6.1
7.0	9.4	7.2	7.2	7.2
8.0	7.2	8.2	8.2	8.2
9.0	5.7	9.2	9.2	9.2
10.0	4.6	10.2	10.2	10.2
11.0	3.8	11.3	11.3	11.3
12.0	3.2	12.3	12.3	12.3
13.0	2.7	13.3	13.3	13.3
14.0	2.4	14.3	14.3	14.3
15.0	2.1	15.4	15.4	15.4
16.0	1.8	16.4	16.4	16.4
17.0	1.6	17.4	17.4	17.4
18.0	1.4	18.4	18.4	18.4
19.0	1.3	19.5	19.5	19.5
20.0	1.2	20.5	20.5	20.5
21.0	1.0	21.5	21.5	21.5
22.0	1.0	22.5	22.5	22.5
23.0	.9	23.6	23.6	23.6
24.0	.8	24.6	24.6	24.6
25.0	.7	25.6	25.6	25.6
26.0	.7	26.6	26.6	26.6
27.0	.6	27.7	27.7	27.7
28.0	.6	28.7	28.7	28.7
29.0	.5	29.7	29.7	29.7
30.0	.5	30.7	30.7	30.7

Illuminated width & length are based upon point at which illuminance falls to 50% of center illuminance.

Recommended spacing is based upon uniform illuminance

Aiming angle is the angle between the lamp axis and the perpendicular to the illuminated plane.

Note: Distance in Feet, Illuminance in Footcandles
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Lighting Design Tables Continued

Lamp Aiming Angle = 30.0 Degrees - See Footnote

Distance	Illuminance	Illuminated Width	Illuminated Length	Spacing
1.0	300.2	1.2	1.5	1.2
2.0	75.0	2.4	3.0	2.4
3.0	33.4	3.6	4.5	3.6
4.0	18.8	4.7	6.0	4.7
5.0	12.0	5.9	7.5	5.9
6.0	8.3	7.1	9.0	7.1
7.0	6.1	8.3	10.5	8.3
8.0	4.7	9.5	12.0	9.5
9.0	3.7	10.7	13.5	10.7
10.0	3.0	11.8	15.0	11.8
11.0	2.5	13.0	16.5	13.0
12.0	2.1	14.2	18.0	14.2
13.0	1.8	15.4	19.5	15.4
14.0	1.5	16.6	21.0	16.6
15.0	1.3	17.8	22.5	17.8
16.0	1.2	18.9	24.0	18.9
17.0	1.0	20.1	25.5	20.1
18.0	.9	21.3	27.0	21.3
19.0	.8	22.5	28.5	22.5
20.0	.8	23.7	30.0	23.7
21.0	.7	24.9	31.5	24.9
22.0	.6	26.0	33.0	26.0
23.0	.6	27.2	34.4	27.2
24.0	.5	28.4	35.9	28.4
25.0	.5	29.6	37.4	29.6
26.0	.4	30.8	38.9	30.8
27.0	.4	32.0	40.4	32.0
28.0	.4	33.1	41.9	33.1
29.0	.4	34.3	43.4	34.3
30.0	.3	35.5	44.9	35.5

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Lighting Design Tables Continued

Lamp Aiming Angle = 45.0 Degrees - See Footnote

Distance	Illuminance	Illuminated Width	Illuminated Length	Spacing
1.0	163.4	1.4	2.8	1.4
2.0	40.8	2.9	5.6	2.9
3.0	18.2	4.3	8.3	4.3
4.0	10.2	5.8	11.1	5.8
5.0	6.5	7.2	13.9	7.2
6.0	4.5	8.7	16.7	8.7
7.0	3.3	10.1	19.5	10.1
8.0	2.6	11.6	22.2	11.6
9.0	2.0	13.0	25.0	13.0
10.0	1.6	14.5	27.8	14.5
11.0	1.4	15.9	30.6	15.9
12.0	1.1	17.4	33.4	17.4
13.0	1.0	18.8	36.1	18.8
14.0	.8	20.3	38.9	20.3
15.0	.7	21.7	41.7	21.7
16.0	.6	23.2	44.5	23.2
17.0	.6	24.6	47.3	24.6
18.0	.5	26.1	50.0	26.1
19.0	.5	27.5	52.8	27.5
20.0	.4	29.0	55.6	29.0
21.0	.4	30.4	58.4	30.4
22.0	.3	31.9	61.2	31.9
23.0	.3	33.3	63.9	33.3
24.0	.3	34.8	66.7	34.8
25.0	.3	36.2	69.5	36.2
26.0	.2	37.7	72.3	37.7
27.0	.2	39.1	75.1	39.1
28.0	.2	40.6	77.8	40.6
29.0	.2	42.0	80.6	42.0
30.0	.2	43.5	83.4	43.5

Illuminated width & length are based upon point at which illuminance falls to 50% of center illuminance.

Recommended spacing is based upon uniform illuminance

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Lighting Design Tables Continued

Lamp Aiming Angle = 60.0 Degrees - See Footnote

Distance	Illuminance	Illuminated Width	Illuminated Length	Spacing
1.0	57.8	2.0	19.3	2.0
2.0	14.4	4.1	38.7	4.1
3.0	6.4	6.1	58.0	6.1
4.0	3.6	8.2	77.3	8.2
5.0	2.3	10.2	96.6	10.2
6.0	1.6	12.3	116.0	12.3
7.0	1.2	14.3	135.3	14.3
8.0	.9	16.4	154.6	16.4
9.0	.7	18.4	174.0	18.4
10.0	.6	20.5	193.3	20.5
11.0	.5	22.5	212.6	22.5
12.0	.4	24.6	231.9	24.6
13.0	.3	26.6	251.3	26.6
14.0	.3	28.7	270.6	28.7
15.0	.3	30.7	289.9	30.7
16.0	.2	32.8	309.3	32.8
17.0	.2	34.8	328.6	34.8
18.0	.2	36.9	347.9	36.9
19.0	.2	38.9	367.3	38.9
20.0	.1	41.0	386.6	41.0
21.0	.1	43.0	405.9	43.0
22.0	.1	45.1	425.2	45.1
23.0	.1	47.1	444.6	47.1
24.0	.1	49.2	463.9	49.2
25.0	.1	51.2	483.2	51.2
26.0	.1	53.3	502.6	53.3
27.0	.1	55.3	521.9	55.3
28.0	.1	57.4	541.2	57.4
29.0	.1	59.4	560.5	59.4
30.0	.1	61.5	579.9	61.5

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SPOTLIGHT DATA

