LIGHTING SCIENCES CANADA LTD.
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Certified Test Report No. LSC F402

BEGHELLI EMERGENCY LIGHTING LUMINAIRE CAT. NO. BRAVADO
WITH SPECULAR INTERIOR AND CLEAR LENS
ONE PHILIPS 20W MRC16/IRC INCANDESCENT LAMP. LUMEN OUTPUT = 296 LMS.

Processed by *** SPOT-LITE ***

Performance Summary:

Beam Angle	31.4 Degrees
Field Angle	45.3 Degrees
Max. Candlepower	844 CANDELA
Center Candlepower	843 CANDELA
Beam Lumens	150 LMS.
Beam Efficacy	7.4 LMS/WATT
Field Lumens	203 LMS.
Field Efficacy	10.0 LMS/WATT
Total Lumens	296 LMS.
Total Efficacy	14.6 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

Certified by:

Charles Lisson

Date: Dec 16 2011

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

BEGHELLI EMERGENCY LIGHTING LUMINAIRE CAT. NO. BRAVADO
WITH SPECULAR INTERIOR AND CLEAR LENS
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Beam center illuminance, beam and field diameters

Distance	Illuminance at Center	Beam Diameter	Field Diameter
10	8.4	5.6	8.3
15	3.7	8.4	12.5
20	2.1	11.3	16.7
25	1.3	14.1	20.8
30	.9	16.9	25.0
35	.7	19.7	29.2
40	.5	22.5	33.3
45	.4	25.3	37.5
50	.3	28.2	41.7
55	.3	31.0	45.9
60	.2	33.8	50.0
65	.2	36.6	54.2
70	.2	39.4	58.4
75	.1	42.2	62.5
80	.1	45.0	66.7
85	.1	47.9	70.9
90	.1	50.7	75.0
95	.1	53.5	79.2
100	.1	56.3	83.4
105	.1	59.1	87.5
110	.1	61.9	91.7
115	.1	64.7	95.9
120	.1	67.6	100.0
125	.1	70.4	104.2
130	.0	73.2	108.4
135	.0	76.0	112.6
140	.0	78.8	116.7
145	.0	81.6	120.9
150	.0	84.5	125.1

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

Angle	Cosine of Angle	CANDELA CP	Angle	Cosine of Angle	CP	Angle	Cosine of Angle	CP
0	1.00	843	30	.87	51	60	.50	5
1	1.00	844	31	.86	51	61	.48	5
2	1.00	838	32	.85	51	62	.47	4
3	1.00	832	33	.84	50	63	.45	4
4	1.00	822	34	.83	50	64	.44	4
5	1.00	806	35	.82	49	65	.42	3
6	.99	784	36	.81	49	66	.41	3
7	.99	760	37	.80	48	67	.39	3
8	.99	733	38	.79	48	68	.37	3
9	.99	705	39	.78	47	69	.36	3
10	.98	676	40	.77	46	70	.34	3
11	.98	644	41	.75	46	71	.33	2
12	.98	610	42	.74	46	72	.31	2
13	.97	572	43	.73	46	73	.29	2
14	.97	526	44	.72	43	74	.28	2
15	.97	469	45	.71	40	75	.26	2
16	.96	404	46	.69	34	76	.24	2
17	.96	337	47	.68	28	77	.22	2
18	.95	274	48	.67	23	78	.21	2
19	.95	218	49	.66	19	79	.19	2
20	.94	169	50	.64	14	80	.17	2
21	.93	129	51	.63	11	81	.16	2
22	.93	98	52	.62	9	82	.14	2
23	.92	76	53	.60	8	83	.12	2
24	.91	63	54	.59	7	84	.10	2
25	.91	56	55	.57	6	85	.09	2
26	.90	53	56	.56	6	86	.07	2
27	.89	52	57	.54	6	87	.05	2
28	.88	52	58	.53	6	88	.03	2
29	.87	51	59	.52	6	89	.02	1

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

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

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

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	843.8	.5	421.9
1.5	375.0	.8	187.5
2.0	210.9	1.1	105.5
2.5	135.0	1.3	67.5
3.0	93.8	1.6	46.9
3.5	68.9	1.9	34.4
4.0	52.7	2.1	26.4
4.5	41.7	2.4	20.8
5.0	33.8	2.7	16.9
5.5	27.9	3.0	13.9
6.0	23.4	3.2	11.7
6.5	20.0	3.5	10.0
7.0	17.2	3.8	8.6
7.5	15.0	4.0	7.5
8.0	13.2	4.3	6.6
8.5	11.7	4.6	5.8
9.0	10.4	4.8	5.2
9.5	9.3	5.1	4.7
10.0	8.4	5.4	4.2
11.0	7.0	5.9	3.5
12.0	5.9	6.4	2.9
13.0	5.0	7.0	2.5
14.0	4.3	7.5	2.2
15.0	3.8	8.1	1.9
16.0	3.3	8.6	1.6
17.0	2.9	9.1	1.5
18.0	2.6	9.7	1.3
19.0	2.3	10.2	1.2
20.0	2.1	10.7	1.1
21.0	1.9	11.3	1.0
22.0	1.7	11.8	.9
23.0	1.6	12.3	.8
24.0	1.5	12.9	.7
25.0	1.4	13.4	.7
26.0	1.2	14.0	.6
27.0	1.2	14.5	.6
28.0	1.1	15.0	.5
29.0	1.0	15.6	.5
30.0	.9	16.1	.5

Total Cone Angle = 30.0 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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BEGHELLI EMERGENCY LIGHTING LUMINAIRE CAT. NO. BRAVADO
WITH SPECULAR INTERIOR AND CLEAR LENS
ONE PHILIPS 20W MRC16/IRC INCANDESCENT LAMP. LUMEN OUTPUT = 296 LMS.

Lighting Design Tables

Lamp Aiming Angle = .0 Degrees - See Footnote

Distance	Illuminance	Illuminated Width	Illuminated Length	Spacing
1.0	843.8	.5	.5	.5
2.0	210.9	1.1	1.1	1.1
3.0	93.8	1.6	1.6	1.6
4.0	52.7	2.1	2.1	2.1
5.0	33.8	2.7	2.7	2.7
6.0	23.4	3.2	3.2	3.2
7.0	17.2	3.8	3.8	3.8
8.0	13.2	4.3	4.3	4.3
9.0	10.4	4.8	4.8	4.8
10.0	8.4	5.4	5.4	5.4
11.0	7.0	5.9	5.9	5.9
12.0	5.9	6.4	6.4	6.4
13.0	5.0	7.0	7.0	7.0
14.0	4.3	7.5	7.5	7.5
15.0	3.8	8.1	8.1	8.1
16.0	3.3	8.6	8.6	8.6
17.0	2.9	9.1	9.1	9.1
18.0	2.6	9.7	9.7	9.7
19.0	2.3	10.2	10.2	10.2
20.0	2.1	10.7	10.7	10.7
21.0	1.9	11.3	11.3	11.3
22.0	1.7	11.8	11.8	11.8
23.0	1.6	12.3	12.3	12.3
24.0	1.5	12.9	12.9	12.9
25.0	1.4	13.4	13.4	13.4
26.0	1.2	14.0	14.0	14.0
27.0	1.2	14.5	14.5	14.5
28.0	1.1	15.0	15.0	15.0
29.0	1.0	15.6	15.6	15.6
30.0	.9	16.1	16.1	16.1

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
Distance in Meters, Illuminance in Lux

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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	548.1	.6	.7	.6
2.0	137.0	1.2	1.5	1.2
3.0	60.9	1.9	2.2	1.9
4.0	34.3	2.5	2.9	2.5
5.0	21.9	3.1	3.7	3.1
6.0	15.2	3.7	4.4	3.7
7.0	11.2	4.3	5.1	4.3
8.0	8.6	5.0	5.9	5.0
9.0	6.8	5.6	6.6	5.6
10.0	5.5	6.2	7.3	6.2
11.0	4.5	6.8	8.1	6.8
12.0	3.8	7.4	8.8	7.4
13.0	3.2	8.1	9.5	8.1
14.0	2.8	8.7	10.3	8.7
15.0	2.4	9.3	11.0	9.3
16.0	2.1	9.9	11.7	9.9
17.0	1.9	10.5	12.5	10.5
18.0	1.7	11.2	13.2	11.2
19.0	1.5	11.8	13.9	11.8
20.0	1.4	12.4	14.7	12.4
21.0	1.2	13.0	15.4	13.0
22.0	1.1	13.6	16.1	13.6
23.0	1.0	14.3	16.9	14.3
24.0	1.0	14.9	17.6	14.9
25.0	.9	15.5	18.3	15.5
26.0	.8	16.1	19.1	16.1
27.0	.8	16.7	19.8	16.7
28.0	.7	17.4	20.5	17.4
29.0	.7	18.0	21.3	18.0
30.0	.6	18.6	22.0	18.6

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 = 45.0 Degrees - See Footnote

Distance	Illuminance	Illuminated Width	Illuminated Length	Spacing
1.0	298.3	.8	1.2	.8
2.0	74.6	1.5	2.3	1.5
3.0	33.1	2.3	3.5	2.3
4.0	18.6	3.0	4.6	3.0
5.0	11.9	3.8	5.8	3.8
6.0	8.3	4.6	6.9	4.6
7.0	6.1	5.3	8.1	5.3
8.0	4.7	6.1	9.3	6.1
9.0	3.7	6.8	10.4	6.8
10.0	3.0	7.6	11.6	7.6
11.0	2.5	8.4	12.7	8.4
12.0	2.1	9.1	13.9	9.1
13.0	1.8	9.9	15.0	9.9
14.0	1.5	10.6	16.2	10.6
15.0	1.3	11.4	17.4	11.4
16.0	1.2	12.1	18.5	12.1
17.0	1.0	12.9	19.7	12.9
18.0	.9	13.7	20.8	13.7
19.0	.8	14.4	22.0	14.4
20.0	.7	15.2	23.1	15.2
21.0	.7	15.9	24.3	15.9
22.0	.6	16.7	25.5	16.7
23.0	.6	17.5	26.6	17.5
24.0	.5	18.2	27.8	18.2
25.0	.5	19.0	28.9	19.0
26.0	.4	19.7	30.1	19.7
27.0	.4	20.5	31.2	20.5
28.0	.4	21.3	32.4	21.3
29.0	.4	22.0	33.5	22.0
30.0	.3	22.8	34.7	22.8

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

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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	105.5	1.1	2.7	1.1
2.0	26.4	2.1	5.5	2.1
3.0	11.7	3.2	8.2	3.2
4.0	6.6	4.3	11.0	4.3
5.0	4.2	5.4	13.7	5.4
6.0	2.9	6.4	16.4	6.4
7.0	2.2	7.5	19.2	7.5
8.0	1.6	8.6	21.9	8.6
9.0	1.3	9.7	24.6	9.7
10.0	1.1	10.7	27.4	10.7
11.0	.9	11.8	30.1	11.8
12.0	.7	12.9	32.9	12.9
13.0	.6	14.0	35.6	14.0
14.0	.5	15.0	38.3	15.0
15.0	.5	16.1	41.1	16.1
16.0	.4	17.2	43.8	17.2
17.0	.4	18.2	46.6	18.2
18.0	.3	19.3	49.3	19.3
19.0	.3	20.4	52.0	20.4
20.0	.3	21.5	54.8	21.5
21.0	.2	22.5	57.5	22.5
22.0	.2	23.6	60.3	23.6
23.0	.2	24.7	63.0	24.7
24.0	.2	25.8	65.7	25.8
25.0	.2	26.8	68.5	26.8
26.0	.2	27.9	71.2	27.9
27.0	.1	29.0	73.9	29.0
28.0	.1	30.1	76.7	30.1
29.0	.1	31.1	79.4	31.1
30.0	.1	32.2	82.2	32.2

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SPOTLIGHT DATA

CANDLEPOWER TRACE THROUGH ORIGIN