

# LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 6

Test #: L04110201

Date: 03/30/2011

## Luminaire Photometric Performance LM-79-2008

Manufacturer:	J&J ELECTRONICS
Model Number:	CB2 SW27

Total Lumens:	154.91
Input Power (W):	4.56
Input Current (Amp):	0.20
Input Power Factor:	0.96
Efficacy:	33.97
Color Rendering Index ( CRI ):	86.50
Correlated Color Temperature ( K ):	2677
Chromaticity Ordinate x:	0.456
Chromaticity Ordinate y:	0.402

\*Test data documentation on file and available upon request.

\*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	03/30/11

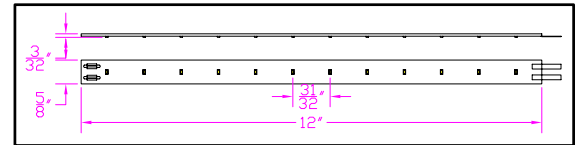
**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110201.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] L04110201  
[TESTLAB] LIGHT LABORATORY INC  
[ISSUEDATE] 3/30/2011  
[MANUFAC] J&J ELECTRONICS  
[LUMCAT] CB2 SW27  
[LUMINAIRE] 12"L. X 5/8"W. X 3/32"H. LED STRIP LIGHT  
[MORE] 31/32" SPACING WITH 12 2700K WARM WHITE LEDS  
[LAMPPOSITION] 0,0  
[LAMPCAT] 2700K WARM WHITE LED  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_INPUT] 24VAC, 4.56W  
[\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	155
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	34
Total Luminaire Watts	4.56
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.28
Spacing Criteria (90-270)	1.26
Spacing Criteria (Diagonal)	1.36
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.90 ft
Luminous Width (90-270)	0.01 ft
Luminous Height	0.00 ft



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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	60422	61124	61826
55	58898	58032	57165
65	54075	52899	54075
75	42228	44149	38392
85	34205	34205	11406

**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110201.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>	56.129	56.129	56.129	56.129	56.129
<b>5</b>	55.714	55.714	56.129	56.129	55.714
<b>10</b>	54.882	54.882	54.466	54.051	55.714
<b>15</b>	53.219	53.635	53.219	53.219	54.051
<b>20</b>	50.725	51.556	51.972	51.140	50.725
<b>25</b>	50.725	49.893	49.893	50.309	49.062
<b>30</b>	48.230	47.399	47.814	47.814	47.399
<b>35</b>	44.072	44.903	44.488	44.072	43.240
<b>40</b>	40.746	39.498	40.746	39.914	39.914
<b>45</b>	35.757	36.588	36.172	36.588	36.588
<b>50</b>	31.599	32.431	32.431	32.431	32.431
<b>55</b>	28.273	27.857	27.857	27.441	27.441
<b>60</b>	24.115	23.699	23.283	22.867	24.115
<b>65</b>	19.126	19.541	18.710	19.126	19.126
<b>70</b>	13.305	13.721	13.721	13.721	13.305
<b>75</b>	9.147	9.563	9.563	9.147	8.316
<b>80</b>	4.989	5.405	4.989	4.989	4.158
<b>85</b>	2.495	2.910	2.495	1.663	0.832
<b>90</b>	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110201.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-30	43.34	N.A.	28.00
0-40	70.97	N.A.	45.80
0-60	123.92	N.A.	80.00
0-90	154.91	N.A.	100.00
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
0-180	154.91	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	5.30
10-20	15.05
20-30	22.99
30-40	27.63
40-50	28.05
50-60	24.91
60-70	18.65
70-80	9.79
80-90	2.55
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

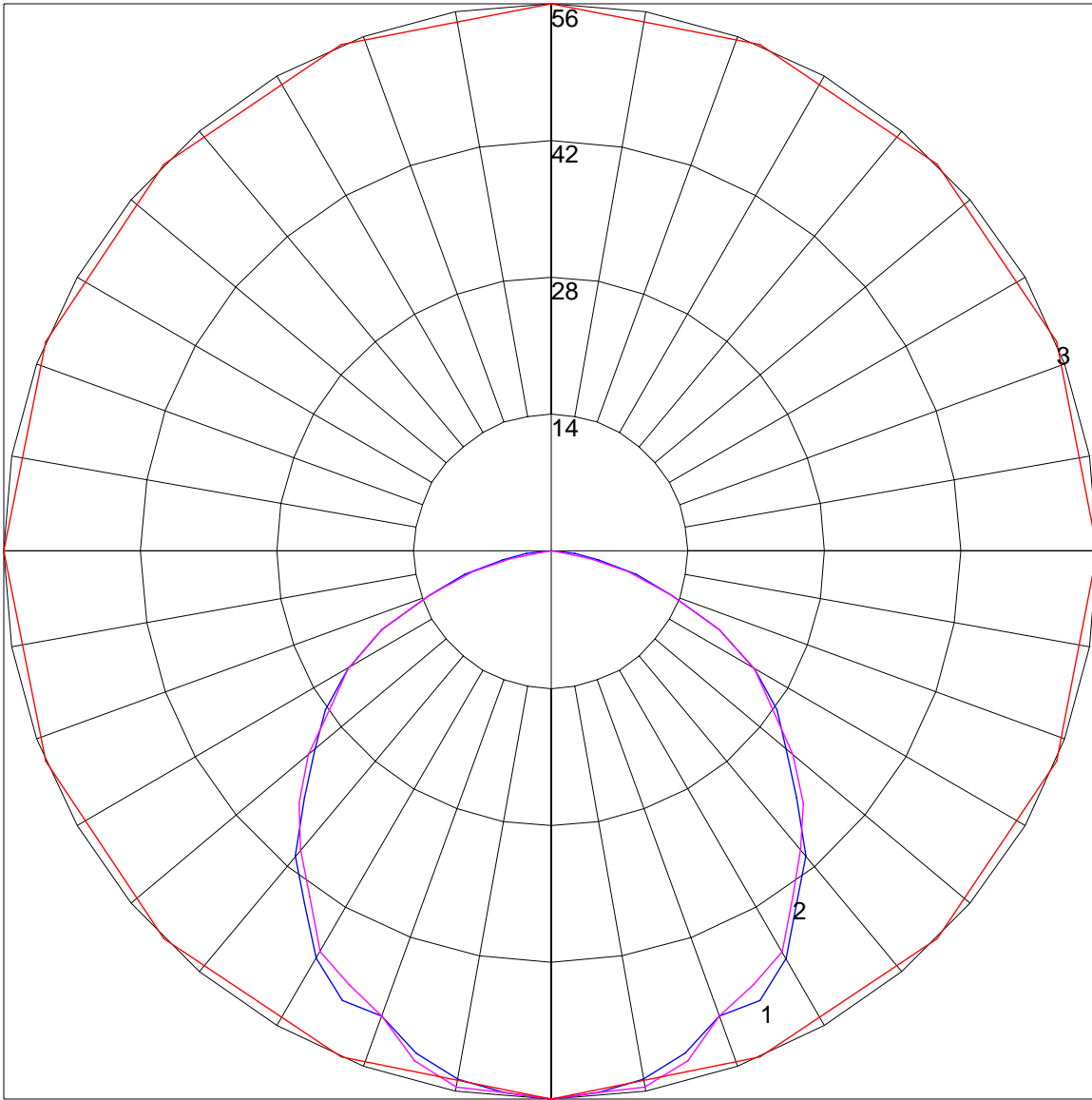
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110201.IES**

**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	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	79	96	89	83	78	86	80	76	82	78	74	79	76	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	63	70	65	61	59
4	83	71	62	55	80	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	46	56	51	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	40	38
7	65	52	43	37	63	51	43	37	49	42	36	48	41	36	47	41	36	34
8	61	47	39	33	59	46	38	33	45	38	33	44	37	32	43	37	32	30
9	57	43	35	30	55	43	35	30	42	34	29	40	34	29	39	33	29	27
10	53	40	32	27	52	39	32	27	38	31	27	38	31	27	37	31	26	25

POLAR GRAPH



Maximum Candela = 56.129 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA  
# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.) : RED

# LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 6

Test #: L04110202

Date: 03/30/2011

## Luminaire Photometric Performance LM-79-2008

Manufacturer:	J&J ELECTRONICS
Model Number:	CB2 SW27

Total Lumens:	253.01
Input Power (W):	6.19
Input Current (Amp):	0.26
Input Power Factor:	1.00
Efficacy:	40.87
Color Rendering Index ( CRI ):	86.00
Correlated Color Temperature ( K ):	2658
Chromaticity Ordinate x:	0.459
Chromaticity Ordinate y:	0.404

\*Test data documentation on file and available upon request.

\*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	03/30/11

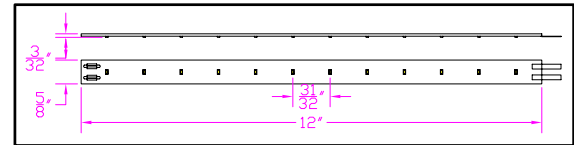
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PHOTOMETRIC FILENAME : L04110202.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] L04110202  
[TESTLAB] LIGHT LABORATORY INC  
[ISSUEDATE] 3/30/2011  
[MANUFAC] J&J ELECTRONICS  
[LUMCAT] CB2 SW27  
[LUMINAIRE] 12"L. X 5/8"W. X 3/32"H. LED STRIP LIGHT  
[MORE] 31/32" SPACING WITH 12 2700K WARM WHITE LEDS  
[LAMPPOSITION] 0,0  
[LAMPCAT] 2700K WARM WHITE LED  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_POWER SUPPLY] 24VDC CONSTANT VOLTAGE SOURCE  
[\_INPUT] 24VDC, 6.19W  
[\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	253
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	41
Total Luminaire Watts	6.19
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.26
Spacing Criteria (90-270)	1.26
Spacing Criteria (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.90 ft
Luminous Width (90-270)	0.01 ft
Luminous Height	0.00 ft



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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	102576	101170	99766
55	97008	97873	95275
65	86991	88164	86991
75	72943	80620	72943
85	68397	57005	22799

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110202.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>	89.183	89.183	89.183	89.183	89.183
<b>5</b>	88.144	88.560	88.560	88.560	88.975
<b>10</b>	87.313	88.144	87.313	88.144	87.313
<b>15</b>	86.481	86.481	86.065	86.065	86.481
<b>20</b>	83.155	83.155	83.571	83.571	82.323
<b>25</b>	79.828	79.828	79.828	78.997	78.997
<b>30</b>	74.839	76.502	75.255	75.671	74.839
<b>35</b>	70.682	70.682	70.682	71.097	69.850
<b>40</b>	65.693	65.277	64.861	64.861	64.861
<b>45</b>	60.703	60.703	59.871	60.287	59.040
<b>50</b>	52.388	52.388	52.388	52.803	51.556
<b>55</b>	46.567	47.398	46.982	46.982	45.735
<b>60</b>	39.914	37.835	38.251	38.251	38.251
<b>65</b>	30.768	30.768	31.183	31.183	30.768
<b>70</b>	22.452	23.283	24.115	23.283	22.452
<b>75</b>	15.800	16.215	17.463	15.800	15.800
<b>80</b>	8.315	8.731	9.147	8.731	8.316
<b>85</b>	4.989	4.158	4.158	3.326	1.663
<b>90</b>	0.000	0.416	1.247	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110202.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-30	69.42	N.A.	27.40
0-40	113.61	N.A.	44.90
0-60	200.83	N.A.	79.40
0-90	253.01	N.A.	100.00
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
0-180	253.01	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	8.43
10-20	24.29
20-30	36.70
30-40	44.19
40-50	45.94
50-60	41.29
60-70	30.59
70-80	17.05
80-90	4.53
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

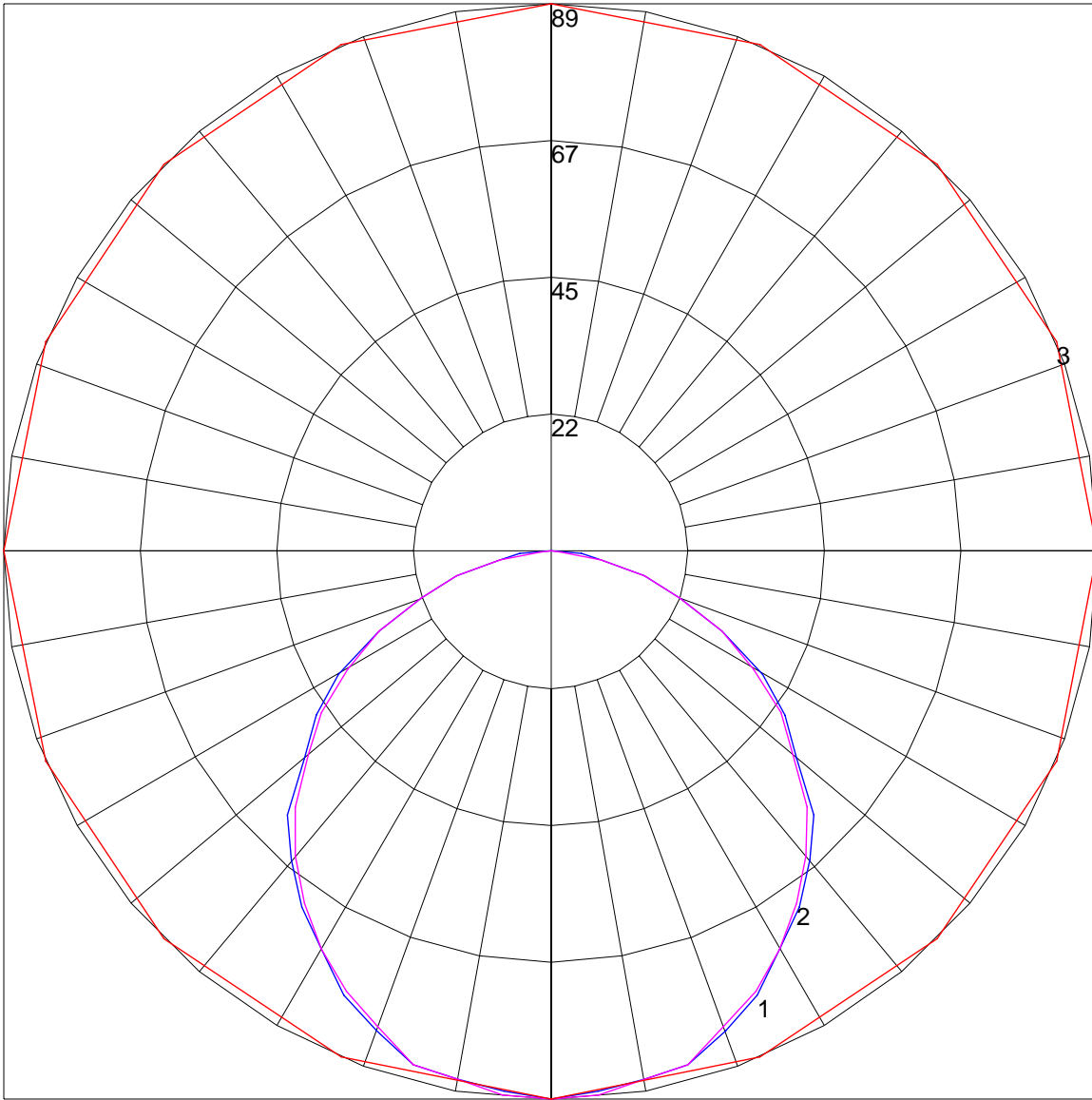
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110202.IES**

**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	104	100	96	106	102	98	94	97	94	91	94	91	89	90	88	86	84
2	99	91	84	78	96	89	82	77	85	80	75	82	78	74	79	75	72	70
3	90	80	71	65	88	78	70	64	75	69	63	72	67	62	70	65	61	59
4	83	70	62	55	80	69	61	55	67	59	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	46	58	51	46	56	50	45	43
6	70	57	48	41	68	56	47	41	54	46	41	52	45	40	51	45	40	38
7	65	51	43	36	63	51	42	36	49	41	36	48	41	36	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	44	37	32	42	36	32	30
9	56	43	35	29	55	42	34	29	41	34	29	40	34	29	39	33	29	27
10	53	40	32	26	52	39	32	26	38	31	26	37	31	26	36	30	26	24

POLAR GRAPH



Maximum Candela = 89.183 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA  
# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.) : RED

# LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 6

Test #: L04110203

Date: 04/01/2011

## Luminaire Photometric Performance LM-79-2008

Manufacturer:	J&J ELECTRONICS
Model Number:	CB2 SW35

Total Lumens:	183.76
Input Power (W):	4.59
Input Current (Amp):	0.20
Input Power Factor:	0.96
Efficacy:	40.03
Color Rendering Index ( CRI ):	87.80
Correlated Color Temperature ( K ):	3425
Chromaticity Ordinate x:	0.405
Chromaticity Ordinate y:	0.383

\*Test data documentation on file and available upon request.

\*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	04/01/11

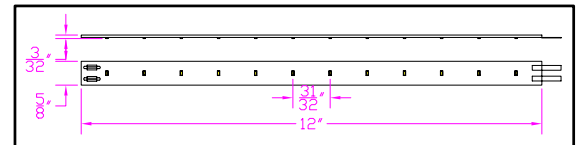
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PHOTOMETRIC FILENAME : L04110203.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] L04110203  
[TESTLAB] LIGHT LABORATORY INC  
[ISSUEDATE] 4/1/2011  
[MANUFAC] J&J ELECTRONICS  
[LUMCAT] CB2 SW35  
[LUMINAIRE] 12"L. X 5/8"W. X 3/32"H. LED STRIP LIGHT  
[MORE] 31/32" SPACING WITH 12 3500K NEUTRAL WHITE LEDS  
[LAMPPOSITION] 0,0  
[LAMPCAT] 3500K NEUTRAL WHITE LED  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_INPUT] 24VAC, 4.59W  
[\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	184
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	40
Total Luminaire Watts	4.59
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.26
Spacing Criteria (90-270)	1.26
Spacing Criteria (Diagonal)	1.40
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.90 ft
Luminous Width (90-270)	0.01 ft
Luminous Height	0.00 ft



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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	73067	73770	73067
55	67560	69291	67560
65	63479	62302	61126
75	53747	57588	49910
85	57005	45598	22799

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110203.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>	64.861	64.861	64.861	64.861	64.861
<b>5</b>	64.861	64.445	63.613	64.445	64.029
<b>10</b>	64.029	64.029	63.613	64.029	64.029
<b>15</b>	63.197	62.781	62.366	62.366	63.197
<b>20</b>	60.703	60.703	60.287	60.703	60.703
<b>25</b>	58.208	58.624	59.040	58.624	58.208
<b>30</b>	54.051	55.714	55.714	55.298	55.714
<b>35</b>	51.556	51.972	51.972	51.972	50.725
<b>40</b>	48.230	47.814	49.062	48.230	48.230
<b>45</b>	43.240	43.656	43.656	43.656	43.240
<b>50</b>	38.251	38.251	37.420	37.420	37.420
<b>55</b>	32.431	33.678	33.262	32.846	32.431
<b>60</b>	27.441	27.857	27.857	27.857	27.441
<b>65</b>	22.452	21.620	22.036	22.452	21.620
<b>70</b>	15.800	16.631	17.047	16.631	15.800
<b>75</b>	11.642	11.642	12.474	11.642	10.811
<b>80</b>	4.989	7.484	6.652	7.068	4.989
<b>85</b>	4.158	3.326	3.326	3.326	1.663
<b>90</b>	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110203.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-30	50.73	N.A.	27.60
0-40	83.21	N.A.	45.30
0-60	146.10	N.A.	79.50
0-90	183.79	N.A.	100.00
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
0-180	183.79	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	6.13
10-20	17.67
20-30	26.93
30-40	32.48
40-50	33.44
50-60	29.45
60-70	21.87
70-80	12.29
80-90	3.54
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

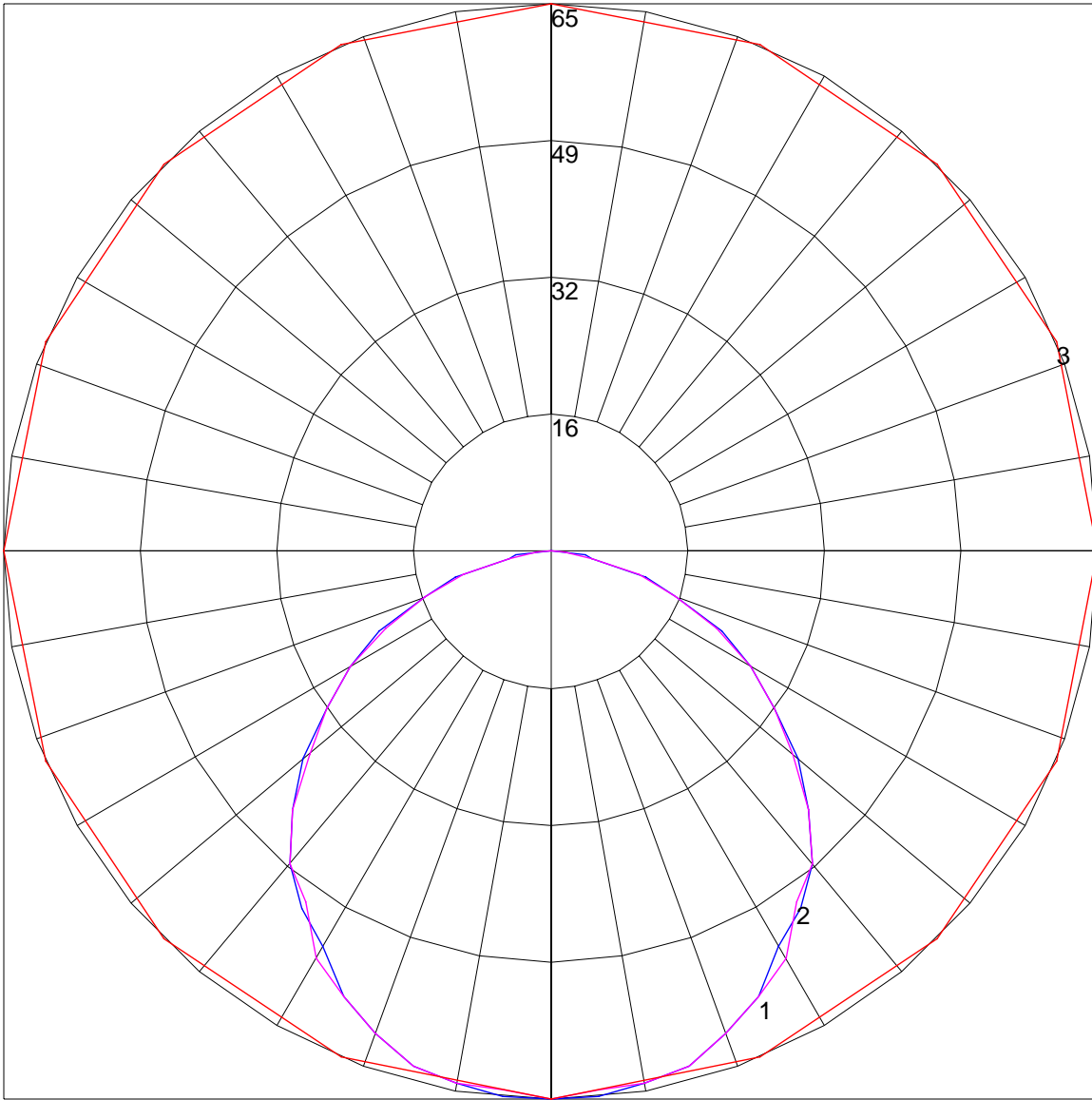
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110203.IES**

**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	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	91	84	78	96	89	82	77	85	80	75	82	77	74	79	75	72	70
3	90	80	71	65	88	78	70	64	75	69	63	72	67	62	70	65	61	59
4	83	71	62	55	80	69	61	55	67	60	54	64	58	53	62	57	52	50
5	76	63	54	47	74	62	53	47	60	52	47	58	51	46	56	50	46	43
6	70	57	48	41	68	56	47	41	54	46	41	52	46	40	51	45	40	38
7	65	51	43	37	63	51	42	36	49	42	36	48	41	36	46	40	36	34
8	60	47	38	33	59	46	38	32	45	38	32	44	37	32	42	36	32	30
9	56	43	35	29	55	42	35	29	41	34	29	40	34	29	39	33	29	27
10	53	40	32	27	52	39	32	26	38	31	26	37	31	26	36	30	26	24

POLAR GRAPH



Maximum Candela = 64.861 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA  
# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.) : RED

# LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 6

Test #: L04110204

Date: 04/04/2011

## Luminaire Photometric Performance LM-79-2008

Manufacturer:	J&J ELECTRONICS
Model Number:	CB2 SW35

Total Lumens:	293.91
Input Power (W):	6.16
Input Current (Amp):	0.26
Input Power Factor:	1.00
Efficacy:	47.71
Color Rendering Index ( CRI ):	88.20
Correlated Color Temperature ( K ):	3464
Chromaticity Ordinate x:	0.402
Chromaticity Ordinate y:	0.380

\*Test data documentation on file and available upon request.

\*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	04/04/11

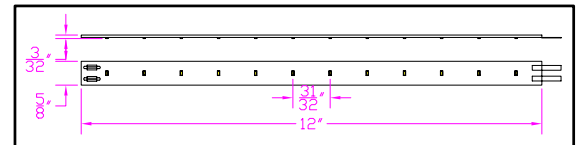
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PHOTOMETRIC FILENAME : L04110204.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] L04110204  
[TESTLAB] LIGHT LABORATORY INC  
[ISSUEDATE] 4/4/2011  
[MANUFAC] J&J ELECTRONICS  
[LUMCAT] CB2 SW35  
[LUMINAIRE] 12"L. X 5/8"W. X 3/32"H. LED STRIP LIGHT  
[MORE] 31/32" SPACING WITH 12 3500K NEUTRAL WHITE LEDS  
[LAMPPOSITION] 0,0  
[LAMPCAT] 3500K NEUTRAL WHITE LED  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_POWER SUPPLY] 24VDC CONSTANT VOLTAGE SOURCE  
[\_INPUT] 24VDC, 6.16W  
[\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	294
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	48
Total Luminaire Watts	6.16
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.26
Spacing Criteria (90-270)	1.28
Spacing Criteria (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.90 ft
Luminous Width (90-270)	0.01 ft
Luminous Height	0.00 ft



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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	115223	116628	115223
55	110865	110865	105670
65	101096	101096	98744
75	92134	92134	88298
85	91196	91196	57005

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110204.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>	102.696	102.696	102.696	102.696	102.696
<b>5</b>	103.112	102.281	102.281	102.696	100.617
<b>10</b>	99.785	100.201	101.033	99.785	99.785
<b>15</b>	99.785	99.785	99.369	98.954	98.954
<b>20</b>	96.459	96.043	96.043	95.628	95.628
<b>25</b>	93.133	91.886	91.886	92.302	92.302
<b>30</b>	86.481	86.897	86.481	86.481	87.313
<b>35</b>	80.660	81.491	81.492	81.075	82.323
<b>40</b>	75.671	75.671	75.255	76.086	75.671
<b>45</b>	68.187	68.603	69.019	68.603	68.187
<b>50</b>	59.871	60.703	61.534	60.703	60.703
<b>55</b>	53.219	52.388	53.219	52.388	50.725
<b>60</b>	44.903	45.319	45.735	44.903	45.735
<b>65</b>	35.757	35.757	35.757	35.757	34.925
<b>70</b>	26.609	27.025	27.857	27.441	26.610
<b>75</b>	19.957	20.373	19.957	20.373	19.126
<b>80</b>	10.811	11.226	11.642	10.395	9.147
<b>85</b>	6.652	6.652	6.652	4.989	4.158
<b>90</b>	0.000	2.079	2.910	1.663	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110204.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-30	80.00	N.A.	27.20
0-40	130.95	N.A.	44.60
0-60	231.06	N.A.	78.60
0-90	293.91	N.A.	100.00
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
0-180	293.91	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	9.69
10-20	27.93
20-30	42.37
30-40	50.95
40-50	52.86
50-60	47.24
60-70	35.61
70-80	20.62
80-90	6.62
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

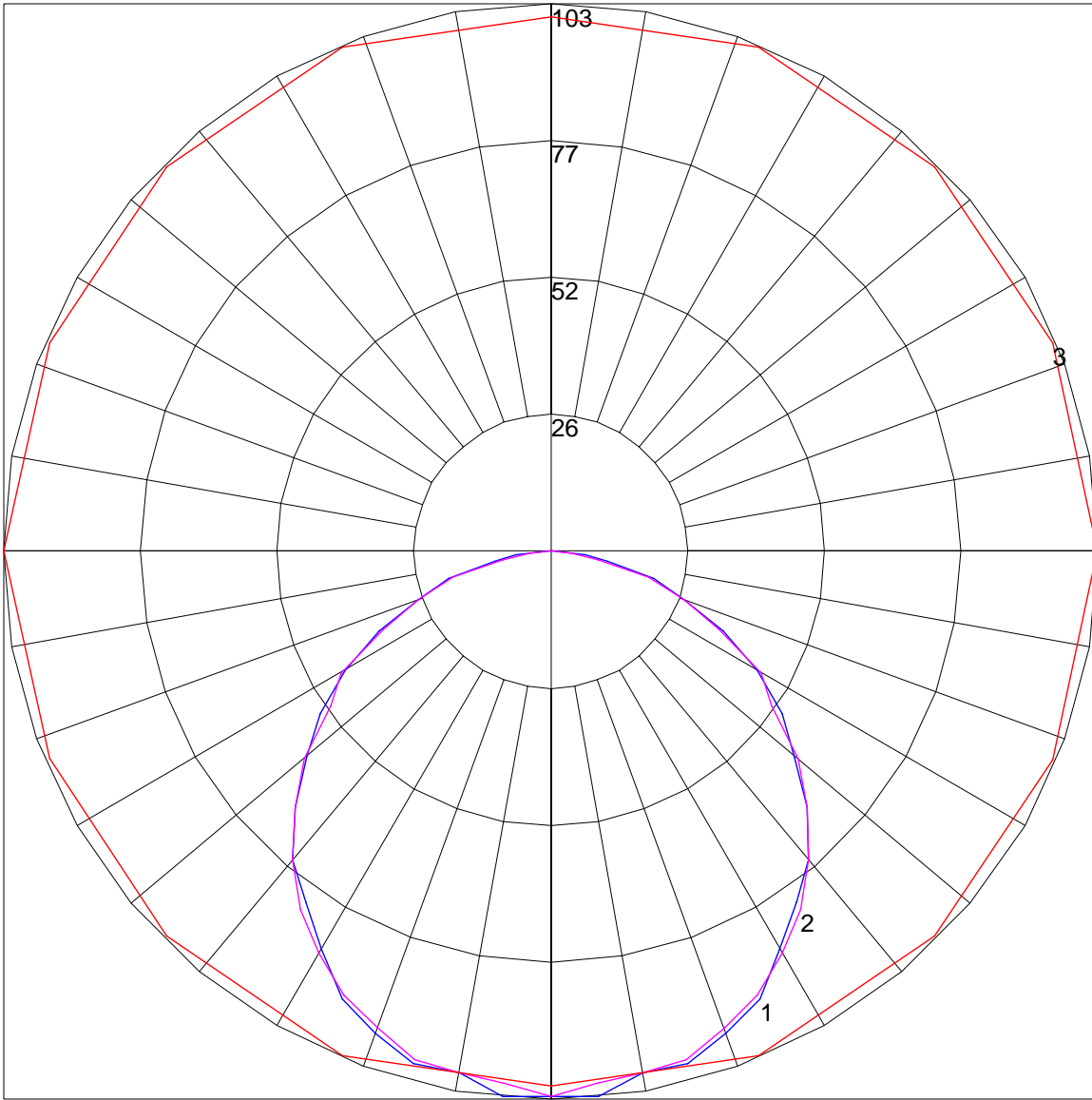
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110204.IES**

**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	104	99	95	106	101	97	94	97	94	91	93	91	88	90	87	85	83
2	99	90	83	78	96	88	82	77	85	79	75	82	77	73	78	75	71	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	62	69	65	60	58
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50
5	76	63	54	47	73	62	53	47	59	52	46	57	51	46	56	50	45	43
6	70	56	47	41	68	55	47	41	54	46	40	52	45	40	50	44	40	38
7	65	51	42	36	63	50	42	36	49	41	36	47	40	35	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	31	30
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	28	27
10	53	39	32	26	51	39	31	26	38	31	26	37	31	26	36	30	26	24

POLAR GRAPH



Maximum Candela = 103.112 Located At Horizontal Angle = 0, Vertical Angle = 5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA  
# 3 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.) : RED

# LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 6

Test #: L04110205

Date: 03/30/2011

## Luminaire Photometric Performance LM-79-2008

Manufacturer:	J&J ELECTRONICS
Model Number:	CB2 SW50

Total Lumens:	199.96
Input Power (W):	4.54
Input Current (Amp):	0.20
Input Power Factor:	0.96
Efficacy:	44.04
Color Rendering Index ( CRI ):	82.70
Correlated Color Temperature ( K ):	4812
Chromaticity Ordinate x:	0.350
Chromaticity Ordinate y:	0.352

\*Test data documentation on file and available upon request.

\*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	03/30/11

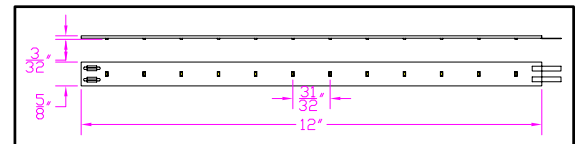
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PHOTOMETRIC FILENAME : L04110205.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] L04110205  
[TESTLAB] LIGHT LABORATORY INC  
[ISSUEDATE] 3/30/2011  
[MANUFAC] J&J ELECTRONICS  
[LUMCAT] CB2 SW50  
[LUMINAIRE] 12"L. X 5/8"W. X 3/32"H. LED STRIP LIGHT  
[MORE] 31/32" SPACING WITH 12 5000K COOL WHITE LEDS  
[LAMPPOSITION] 0,0  
[LAMPCAT] 5000K COOL WHITE LED  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_INPUT] 24VAC, 4.54W  
[\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	200
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	44
Total Luminaire Watts	4.54
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.28
Spacing Criteria (90-270)	1.28
Spacing Criteria (Diagonal)	1.40
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.90 ft
Luminous Width (90-270)	0.01 ft
Luminous Height	0.00 ft



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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	80095	80796	78689
55	74489	76220	76220
65	68180	70530	65828
75	61424	59504	53747
85	57005	51301	34205

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110205.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>	69.226	69.226	69.226	69.226	69.226
<b>5</b>	68.187	69.434	69.434	68.187	68.187
<b>10</b>	69.018	68.187	68.603	68.603	68.187
<b>15</b>	66.524	67.356	66.524	66.940	66.524
<b>20</b>	65.693	64.861	64.861	64.445	65.693
<b>25</b>	63.197	61.534	62.782	61.950	62.366
<b>30</b>	59.871	59.455	59.455	59.871	59.871
<b>35</b>	55.714	55.714	56.129	55.714	55.714
<b>40</b>	51.556	51.972	51.556	51.140	52.388
<b>45</b>	47.399	46.983	47.814	47.398	46.567
<b>50</b>	40.746	41.577	41.577	41.577	41.577
<b>55</b>	35.757	36.172	36.588	36.588	36.588
<b>60</b>	29.936	29.936	31.183	30.768	29.936
<b>65</b>	24.115	24.530	24.946	24.530	23.283
<b>70</b>	18.294	18.710	19.126	18.710	18.294
<b>75</b>	13.305	12.889	12.889	12.474	11.642
<b>80</b>	7.484	7.484	7.899	7.900	7.484
<b>85</b>	4.158	4.573	3.742	3.326	2.495
<b>90</b>	0.000	0.832	0.832	0.000	0.000

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110205.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-30	54.23	N.A.	27.10
0-40	89.16	N.A.	44.60
0-60	157.80	N.A.	78.90
0-90	199.96	N.A.	100.00
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
0-180	199.96	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	6.56
10-20	18.89
20-30	28.77
30-40	34.94
40-50	36.26
50-60	32.38
60-70	24.26
70-80	13.66
80-90	4.25
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

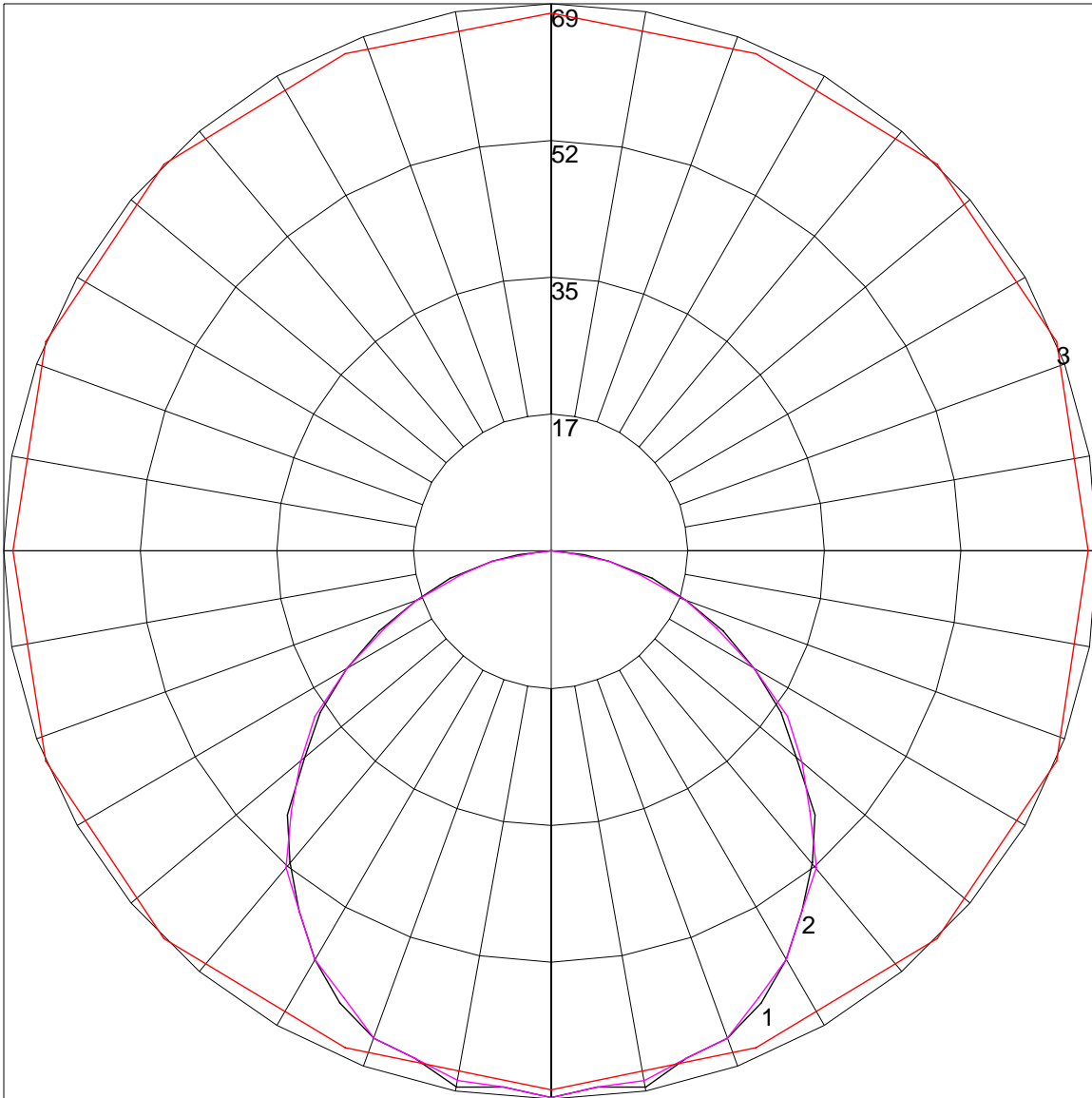
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110205.IES**

**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	104	99	96	106	102	98	94	97	94	91	93	91	88	90	88	86	83
2	99	90	84	78	96	88	82	77	85	80	75	82	77	73	79	75	72	69
3	90	79	71	65	87	78	70	64	75	68	63	72	66	62	69	65	61	58
4	82	70	61	55	80	69	61	54	66	59	53	64	58	53	62	56	52	50
5	76	63	54	47	74	62	53	47	59	52	46	57	51	46	56	50	45	43
6	70	56	47	41	68	55	47	41	54	46	40	52	45	40	50	44	40	38
7	65	51	42	36	63	50	42	36	49	41	36	47	41	35	46	40	35	33
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	31	30
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	28	27
10	53	39	32	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

POLAR GRAPH



Maximum Candela = 69.434 Located At Horizontal Angle = 22.5, Vertical Angle = 5

# 1 - Vertical Plane Through Horizontal Angles (0 - 180) : BLACK

# 2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA

# 3 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.) : RED

# LIGHT LABORATORY, INC.

8165 E Kaiser Blvd. Anaheim, CA 92808

SHT 1 OF 6

Test #: L04110206

Date: 03/30/2011

## Luminaire Photometric Performance LM-79-2008

Manufacturer:	J&J ELECTRONICS
Model Number:	CB2 SW50

Total Lumens:	324.53
Input Power (W):	6.16
Input Current (Amp):	0.26
Input Power Factor:	1.00
Efficacy:	52.68
Color Rendering Index ( CRI ):	83.00
Correlated Color Temperature ( K ):	4764
Chromaticity Ordinate x:	0.351
Chromaticity Ordinate y:	0.353

\*Test data documentation on file and available upon request.

\*All results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

REV.	LOG NUMBER	REVISION DESCRIPTION	REVISION BY	CHECKED BY	APPROVED BY	DATE
A					JS	03/30/11

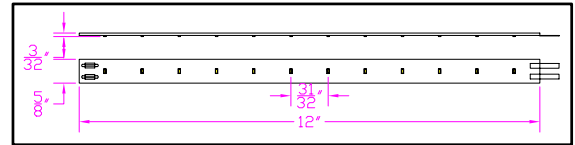
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PHOTOMETRIC FILENAME : L04110206.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] L04110206  
[TESTLAB] LIGHT LABORATORY INC  
[ISSUEDATE] 3/30/2011  
[MANUFAC] J&J ELECTRONICS  
[LUMCAT] CB2 SW50  
[LUMINAIRE] 12"L. X 5/8"W. X 3/32"H. LED STRIP LIGHT  
[MORE] 31/32" SPACING WITH 12 5000K COOL WHITE LEDS  
[LAMPPOSITION] 0,0  
[LAMPCAT] 5000K COOL WHITE LED  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_POWER SUPPLY] 24VDC CONSTANT VOLTAGE SOURCE  
[\_INPUT] 24VDC, 6.16W  
[\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	325
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	53
Total Luminaire Watts	6.16
Ballast Factor	1.00
CIE Type	Direct
Spacing Criteria (0-180)	1.28
Spacing Criteria (90-270)	1.28
Spacing Criteria (Diagonal)	1.40
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.90 ft
Luminous Width (90-270)	0.01 ft
Luminous Height	0.00 ft



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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	125059	129273	127869
55	122992	124723	124723
65	110500	112849	108147
75	95975	101732	99811
85	102603	102603	68397

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L04110206.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>	111.427	111.427	111.427	111.427	111.427
<b>5</b>	111.427	111.427	111.011	111.427	111.427
<b>10</b>	109.764	110.180	109.348	110.180	109.764
<b>15</b>	107.270	107.685	107.685	107.270	107.270
<b>20</b>	103.944	104.775	103.528	104.775	103.112
<b>25</b>	100.617	100.201	100.201	99.785	99.785
<b>30</b>	94.796	95.628	95.628	95.212	94.796
<b>35</b>	88.975	89.391	89.391	88.976	88.975
<b>40</b>	82.323	82.739	82.739	83.155	82.323
<b>45</b>	74.008	75.255	76.502	74.839	75.671
<b>50</b>	66.524	66.940	66.940	67.771	66.524
<b>55</b>	59.040	59.455	59.871	59.455	59.871
<b>60</b>	49.062	49.893	49.477	50.309	49.893
<b>65</b>	39.083	39.914	39.914	40.330	38.251
<b>70</b>	29.936	29.936	32.015	30.352	29.936
<b>75</b>	20.789	22.867	22.036	22.452	21.620
<b>80</b>	12.474	13.305	14.552	12.889	11.642
<b>85</b>	7.484	7.900	7.484	6.236	4.989
<b>90</b>	0.000	2.495	3.326	2.495	0.832

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110206.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-30	87.06	N.A.	26.80
0-40	142.91	N.A.	44.00
0-60	253.76	N.A.	78.20
0-90	324.53	N.A.	100.00
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
0-180	324.53	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	10.58
10-20	30.33
20-30	46.15
30-40	55.85
40-50	58.05
50-60	52.80
60-70	39.55
70-80	23.23
80-90	7.98
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

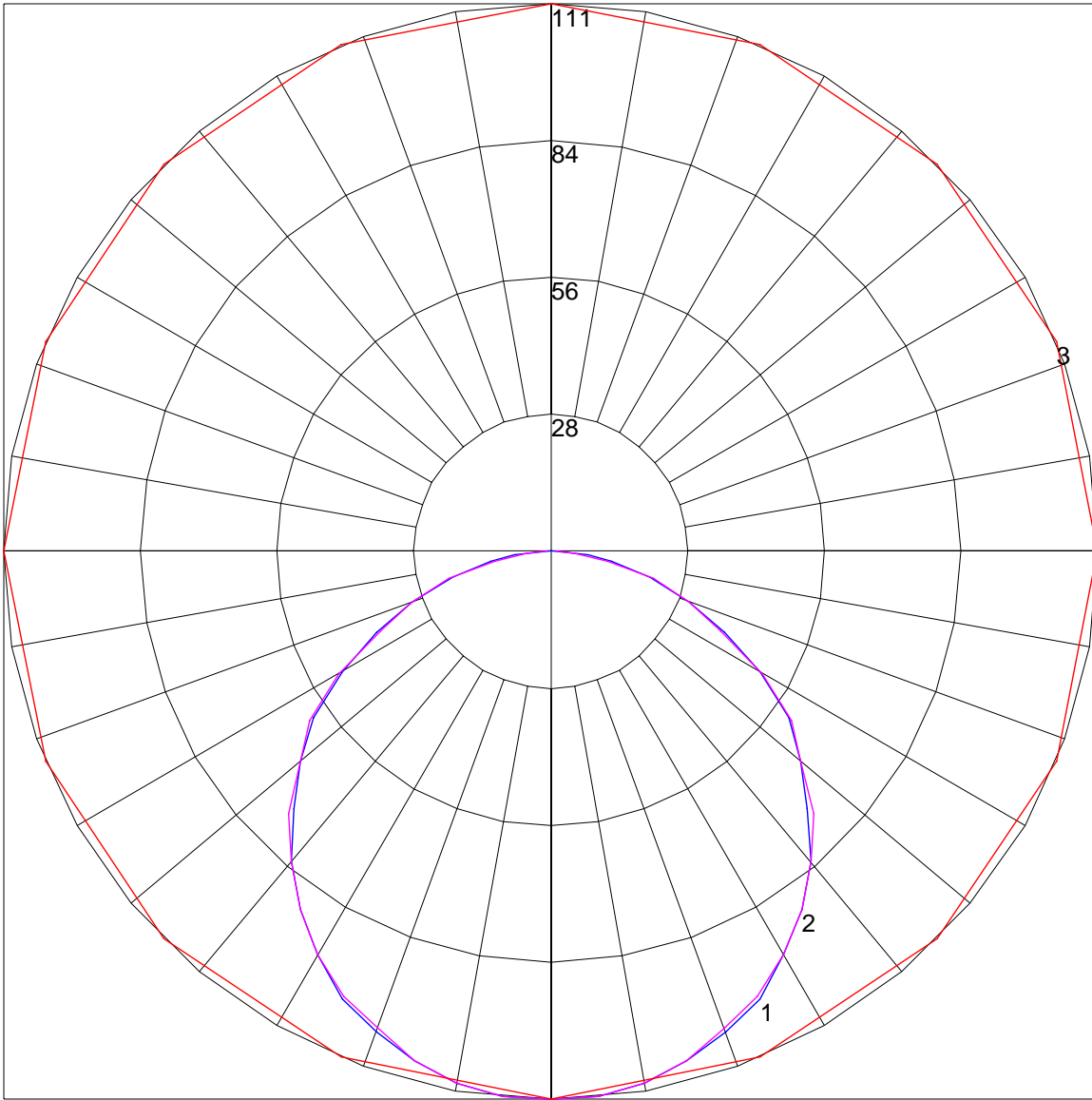
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L04110206.IES**

**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	108	103	99	95	106	101	97	93	97	94	90	93	90	88	89	87	85	83
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4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	41	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	32	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	29	41	33	28	40	33	28	39	33	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

POLAR GRAPH



Maximum Candela = 111.427 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270) : MAGENTA  
# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.) : RED