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Report No: L101601202

Date: 10/18/2016



NVLAP LAB CODE 200927-0

Report No: L101601202

Report Prepared For: BARTCO Lighting
 5761 Research Drive, Huntington Beach, CA 92649

Model Number: BSS215-4-35-11-SM-WH

Test: Electrical and Photometric tests

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is BSS215-4-35-11-SM-WH. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 10/7/16

Date of Tests: 10/12/16 - 10/18/16

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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

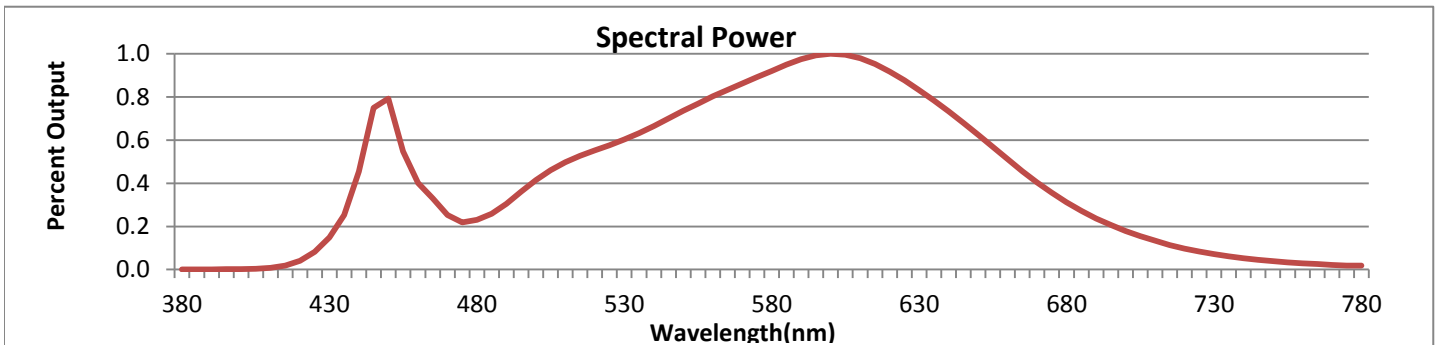
Test Summary

Manufacturer:	BARTCO Lighting
Model Number:	BSS215-4-35-11-SM-WH
Driver Model Number:	PHILIPS ADVANCE XI040C110V054BPT1
Total Lumens:	2176.60
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.16
Input Power (W):	18.60
Input Power Factor:	0.99
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	117
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	3415
Chromaticity Coordinate x:	0.4095
Chromaticity Coordinate y:	0.3914
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:05
Off State Power(W):	0.00



FIG. 1 LUMINAIRE

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



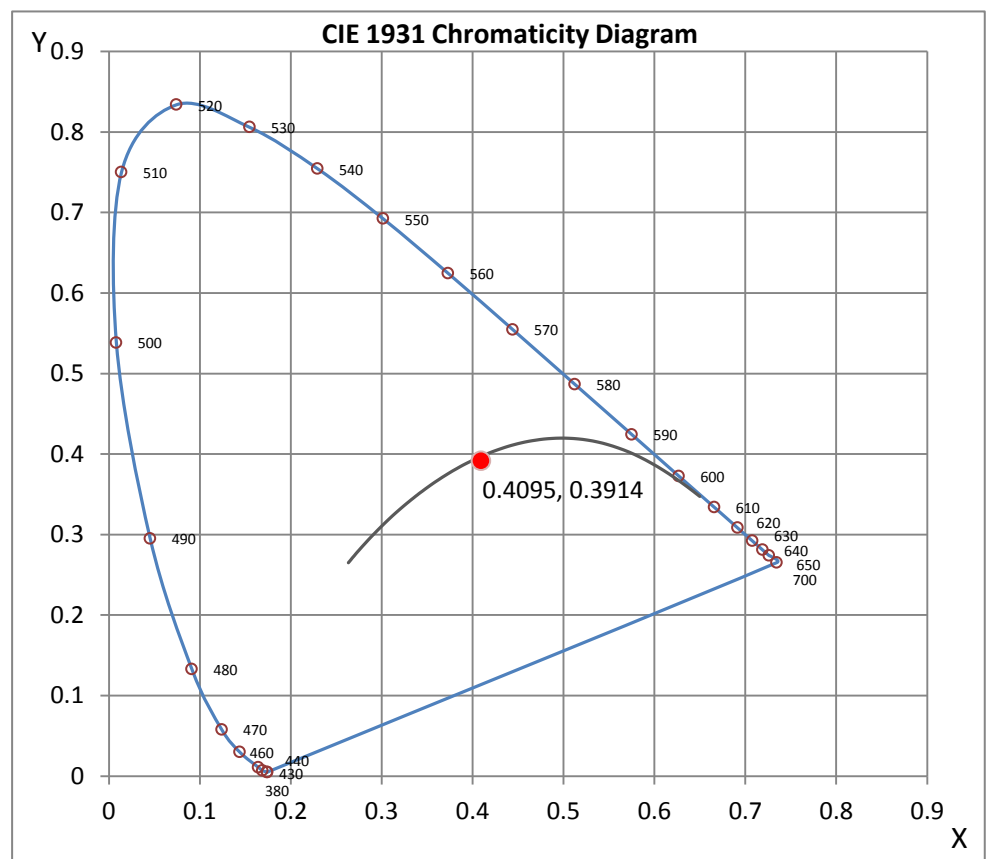
Wavelength	W/m ² nm	440	0.4550	510	0.4976	580	0.9212	650	0.6256	720	0.0972
380	0.0010	450	0.7936	520	0.5519	590	0.9754	660	0.5125	730	0.0715
390	0.0012	460	0.4011	530	0.6031	600	1.0000	670	0.4046	740	0.0528
400	0.0021	470	0.2521	540	0.6654	610	0.9795	680	0.3119	750	0.0391
410	0.0077	480	0.2298	550	0.7359	620	0.9178	690	0.2371	760	0.0291
420	0.0408	490	0.3040	560	0.8029	630	0.8322	700	0.1789	770	0.0217
430	0.1487	500	0.4146	570	0.8628	640	0.7335	710	0.1340	780	0.0187

CRI & CCT

x	0.4095
y	0.3914
u'	0.2382
v'	0.5122
CRI	83.80
CCT	3415
Duv	-0.00060

R Values

R1	82.23
R2	89.71
R3	95.42
R4	82.85
R5	82.17
R6	85.93
R7	86.14
R8	66.00
R9	17.86
R10	75.86
R11	81.67
R12	68.80
R13	83.78
R14	97.28



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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Released by:

Test Report Reviewed by:

Jeff Ahn
 Engineering Manager

Steve Kang
 Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*

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



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101601202.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L101601202
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 10/18/2016
 [MANUFAC] BARTCO LIGHTING
 [LUMCAT] BSS215-4-35-11-SM-WH
 [LUMINAIRE] LED FIXTURE
 [BALLASTCAT] PHILIPS ADVANCE XI040C110V054BPT1
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 18.60W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2177
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	117
Total Luminaire Watts	18.6
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.16
Spacing Criterion (90-270)	1.16
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	3.69 ft
Luminous Width (90-270)	0.27 ft
Luminous Height	0.17 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	5167	4045	4102
55	4200	3531	3835
65	3290	3086	3441
75	2535	2647	2816
85	1470	2210	2165

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101601202.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	688.07	688.07	688.07	688.07	688.07
5	683.64	684.48	685.15	686.45	685.07
10	670.39	672.27	673.57	674.25	672.40
15	646.22	649.75	651.13	649.37	646.14
20	612.58	618.24	616.81	613.46	611.40
25	572.97	578.39	575.49	571.46	570.37
30	524.90	530.65	529.22	527.75	528.25
35	470.86	478.92	481.52	487.14	492.01
40	410.96	425.10	435.04	451.90	462.89
45	354.07	370.35	391.58	421.78	437.89
50	295.26	318.08	348.49	394.30	413.64
55	237.87	268.57	315.64	366.24	387.05
60	188.20	223.43	279.99	332.51	354.57
65	141.55	182.66	244.62	299.03	316.65
70	102.11	146.45	209.51	258.13	272.27
75	71.23	114.19	176.62	217.35	226.20
80	40.69	87.85	143.98	176.16	182.49
85	18.12	63.05	115.28	140.16	143.31
90	3.86	44.85	91.92	110.04	113.69
95	0.76	39.64	80.67	93.89	95.15
100	0.00	36.08	70.48	84.32	83.40
105	0.00	33.06	63.56	74.93	75.76
110	0.00	30.29	57.73	68.76	70.14
115	0.00	27.73	52.69	63.68	65.44
120	0.00	25.17	48.04	58.94	61.08
125	0.00	22.78	43.67	54.37	56.80
130	0.00	19.80	39.27	49.59	52.44
135	0.00	17.03	34.36	44.64	47.49
140	0.00	14.43	29.20	39.69	42.46
145	0.00	12.25	24.33	34.48	37.09
150	0.00	10.28	20.10	29.03	31.55
155	0.00	8.68	16.57	22.86	26.09
160	0.00	7.17	13.17	17.16	20.47
165	0.00	5.66	9.82	12.33	15.19
170	0.00	4.57	6.88	8.35	10.24
175	0.00	3.73	4.53	4.82	5.37
180	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101601202.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	247.60	N.A.	11.40
0-30	511.91	N.A.	23.50
0-40	814.17	N.A.	37.40
0-60	1402.1	N.A.	64.40
0-80	1812.64	N.A.	83.30
0-90	1923.3	N.A.	88.40
10-90	1858.31	N.A.	85.40
20-40	566.56	N.A.	26.00
20-50	871.94	N.A.	40.10
40-70	824.49	N.A.	37.90
60-80	410.55	N.A.	18.90
70-80	173.98	N.A.	8.00
80-90	110.66	N.A.	5.10
90-110	128.26	N.A.	5.90
90-120	172.23	N.A.	7.90
90-130	205.70	N.A.	9.50
90-150	243.11	N.A.	11.20
90-180	253.30	N.A.	11.60
110-180	125.04	N.A.	5.70
0-180	2176.6	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	65.00
10-20	182.61
20-30	264.30
30-40	302.26
40-50	305.38
50-60	282.55
60-70	236.56
70-80	173.98
80-90	110.66
90-100	72.47
100-110	55.79
110-120	43.97
120-130	33.47
130-140	23.25
140-150	14.16
150-160	7.17
160-170	2.61
170-180	0.41

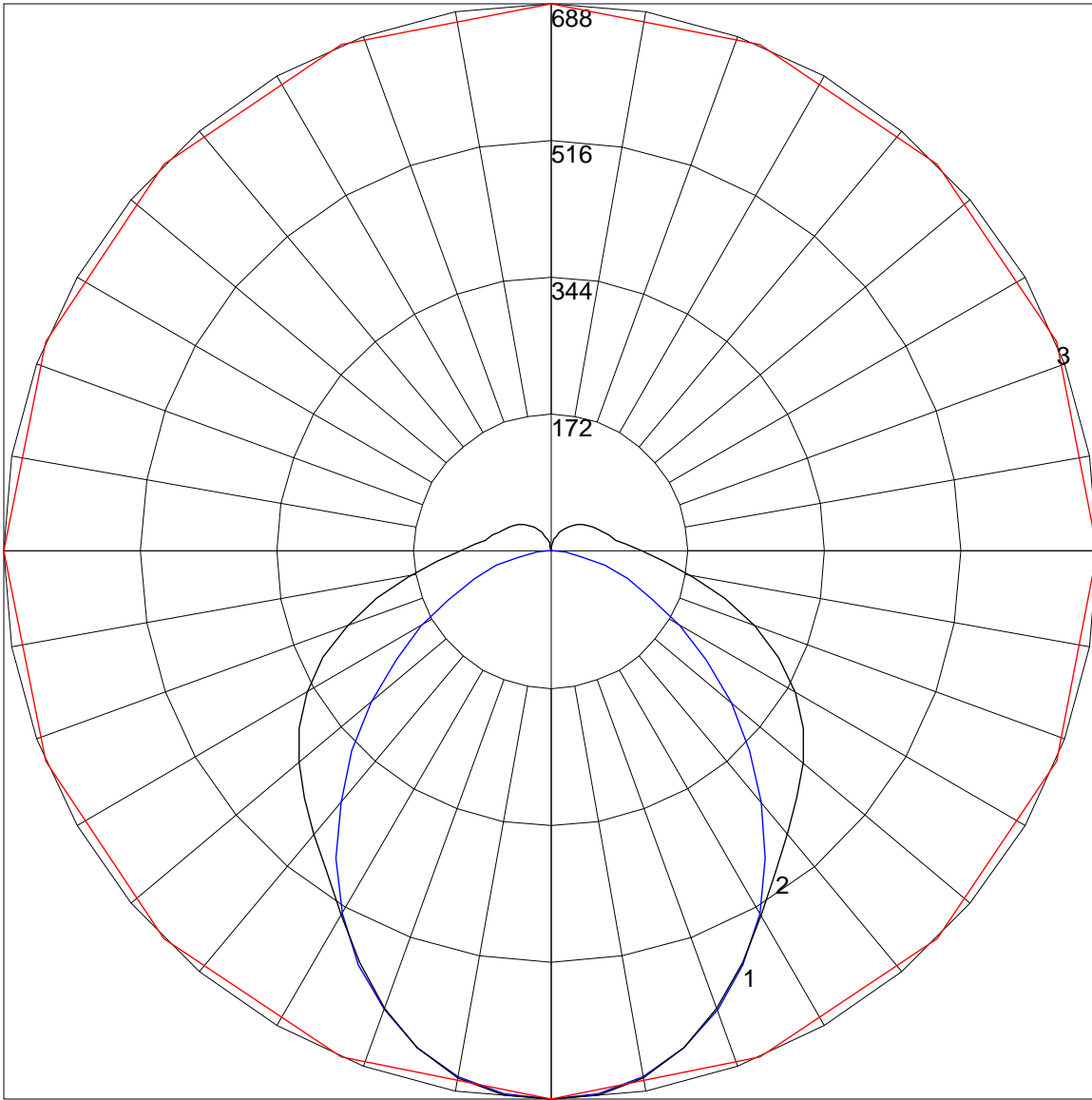
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	91	91	91	88
1	105	99	94	90	101	96	91	87	89	86	83	83	81	78	78	76	74	71
2	95	86	79	72	91	83	76	71	77	72	67	72	68	64	68	64	61	58
3	86	75	67	60	83	73	65	59	68	61	56	64	58	54	60	55	51	49
4	79	67	57	51	76	64	56	50	60	53	48	57	51	46	53	48	44	41
5	72	59	50	44	69	58	49	43	54	47	41	51	45	40	48	43	38	36
6	67	53	44	38	64	52	43	37	49	42	36	46	40	35	44	38	34	31
7	62	48	40	34	60	47	39	33	45	37	32	42	36	31	40	34	30	28
8	58	44	36	30	56	43	35	29	41	34	29	39	32	28	37	31	27	25
9	54	41	32	27	52	40	32	27	38	31	26	36	29	25	34	28	24	22
10	51	37	30	24	49	37	29	24	35	28	23	33	27	23	32	26	22	20

POLAR GRAPH



Maximum Candela = 688.07 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Vertical Plane Through Horizontal Angles (90 - 270)
3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)