Excellence in Compliance Testing

Certification Test Report

FCC ID: U4A-SCYPROX3
IC: 6982A-SCYPROX3

FCC Rule Part: 15.209
IC Radio Standards Specification: RSS-210

ACS Report Number: 10-0443.W06.11.A

Manufacturer: Assa Abloy
Model: S1-PA/PK, S2-PA/PK,
TCIP1-M802/M803, TCWI1-M802/M803

Test Begin Date: December 21, 2010
Test End Date: December 29, 2010
Report Issue Date: February 24. 2011

FOR THE SCOPE OF ACCREDITATION UNDER LAB Code 200612-0

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

Reviewed by:
Kirby Munroe
Director, Wireless Certifications
ACS, Inc.

This report contains 17 pages

TABLE OF CONTENTS

1 GENERAL 3

1.1 PURPOSE 3
1.2 PRODUCT DESCRIPTION 3
1.3 TEST METHODOLOGY AND CONSIDERATIONS 4

2 TEST FACILITIES 4

2.1 LOCATION 4
2.2 LABORATORY ACCREDITATIONS/RECOGNITIONS/CERTIFICATIONS 4
2.3 RADIATED EMISSIONS TEST SITE DESCRIPTION 5
2.3.1 Semi-Anechoic Chamber Test Site 5
2.3.2 Open Area Tests Site (OATS) 6
2.4 CONDUCTED EMISSIONS TEST SITE DESCRIPTION 7

3 APPLICABLE STANDARD REFERENCES 7

4 LIST OF TEST EQUIPMENT 8

5 SUPPORT EQUIPMENT 9

6 SUMMARY OF TESTS 11

6.1 ANTENNA REQUIREMENT – FCC: SECTION 15.203 11
6.2 POWER LINE CONDUCTED EMISSIONS – FCC: SECTION 15.207 IC: RSS-GEN 7.2.2 11
6.2.1 Measurement Procedure 11
6.2.2 Measurement Results 11
6.3 RADIATED EMISSIONS – FCC CFR 47 PART 15.209 / RSS-210 SECTION 2.6 13
6.3.1 Measurement Procedure 13
6.3.2 Distance Correction for Measurements Below 30 MHz – Part 15.31 13
6.3.3 Measurement Results 14
6.3.4 Sample Calculation 15
6.4 20DB / 99% BANDWIDTH – FCC: SECTION 15.215(C) / IC: RSS-210 SECTION 4.6.1 16
6.4.1 Measurement Procedure 16
6.4.2 Measurement Results 16

7 CONCLUSION 17

1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations and Industry Canada's Radio Standards Specification RSS-210.

1.2 Product description

The Sargent Profile v.S Series and Corbin-Russwin Access 800 Series are microprocessor controlled networked door locks. There are models for either Wi-Fi 802.11 b/g or POE 802.3af (Power Over Ethernet) networks. The devices may be powered by six AA batteries, external low power 9VDC, or a POE switch. The locks are link to a network controlled authorization system that grants or limits access to any type of door. Access may be granted by using either keypad and/or 125kHz proximity card reader.

The controller electronics are identical on all models, with the exception of an additional PD interface board on the POE models. The product variants are listed below.

Sargent Profile v.S Series Variants:
Wi-Fi Model:
- S2-PA/PK; Proximity reader only or Proximity reader with keypad
  Configuration option for external 9VDC power

POE Model:
- S1-PA/PK; Proximity reader only or Proximity reader with keypad

Corbin-Russwin Access 800 Series Variants:
Wi-Fi Model:
- TCWI1-M802/M803; Proximity reader only or Proximity reader with keypad
  Configuration option for external 9VDC power

POE Model:
- TCIP1-M802/M803; Proximity reader only or Proximity reader with keypad

Operating Voltage:
S2-PA/PK and TCWI1-M802/M803: 9VDC nominal (6 – AA batteries) OR Aux power supply
S1-PA/PK and TCIP1-M802/M803: Power supplied through Ethernet (per standard 802.3af); Power Souring Equipment (PSE) = 44 – 57VDC

Applicant Information:
Assa Abloy Inc.
110 Sargent Dr.
New Haven, CT 06511

1.3 Test Methodology and Considerations

The model variants are electrically identical with respect to the 125kHz proximity reader and differ only in options described above. There are minor differences in the escutcheon between the Sargent Profile v.S Series and Corbin-Russwin Access 800 Series. All models variants were pre-scanned and final data presented in this report where applicable.

S2 and TCWI1 variants include a collocated Quatech 802.11 radio module FCC ID: F4AWLNG1. Collocation was evaluated and found to be incompliance.

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

Advanced Compliance Solutions
5015 B.U. Bowman Drive
Buford, GA 30518
Phone: (770) 831-8048
Fax: (770) 831-8598

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by the National Institute of Standards and Technology under their National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 200612-0. Unless otherwise specified, all tests methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

The Semi-Anechoic Chamber Test Site, Open Area Test Site (OATS) and Conducted Emissions Site have been fully described, submitted to, and accepted by the FCC, Industry Canada and the Japanese Voluntary Control Council for Interference by information technology equipment.

FCC Registration Number: 894540
Industry Canada Lab Code: IC 4175A-1
VCCI Member Number: 1831

- VCCI OATS Registration Number R-1526
- VCCI Conducted Emissions Site Registration Number: C-1608

2.3 Radiated Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The Semi-Anechoic Chamber Test Site consists of a 20' x 30' x 18' shielded enclosure. The chamber is lined with Toyo Ferrite Grid Absorber, model number FFG-1000. The ferrite tile grid is 101 x 101 x 19mm thick and weighs approximately 550 grams. These tiles are mounted on steel panels and installed directly on the inner walls of the chamber.

The turntable is 150cm in diameter and is located 160cm from the back wall of the chamber. The chamber is grounded via 1 - 8' copper ground rod, installed at the center of the back wall, it is bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is all steel, flush mounted table installed in an all steel frame. The table is remotely operated from inside the control room located 25' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Behind the turntable is a 3' x 6' x 4' deep shielded pit used for support equipment if necessary. The pit is equipped with 1 - 4" PVC chases from the turntable to the pit that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit.

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3-1 below:

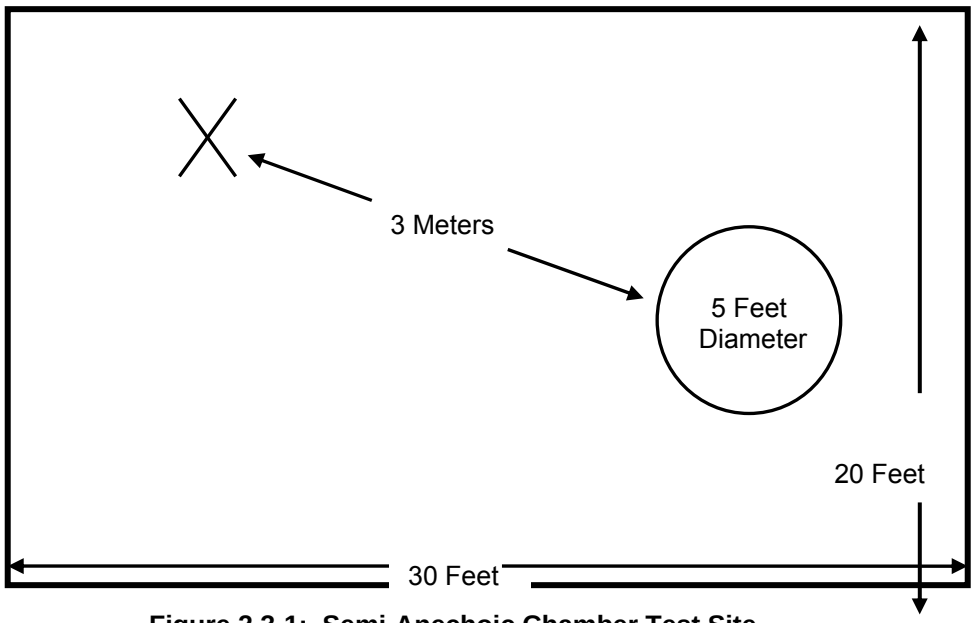

Figure 2.3-1: Semi-Anechoic Chamber Test Site

2.3.2 Open Area Tests Site (OATS)

The open area test site consists of a 40' x 66' concrete pad covered with a perforated electro-plated galvanized sheet metal. The perforations in the sheet metal are 1/8" holes that are staggered every 3/16". The individual sheets are placed to overlap each other by 1/4" and are riveted together to provide a continuous seam. Rivets are spaced every 3" in a 3 x 20 meter perimeter around the antenna mast and EUT area. Rivets in the remaining area are spaced as necessary to properly secure the ground plane and maintain the electrical continuity.

The entire ground plane extends 12' beyond the turntable edge and 16' beyond the antenna mast when set to a 10 meter measurement distance. The ground plane is grounded via 4 - 8' copper ground rods, each installed at a corner of the ground plane and bound to the ground plane using 3/4" stainless steel braided cable.

The turntable is an all aluminum 10' flush mounted table installed in an all aluminum frame. The table is remotely operated from inside the control room located 40' from the range. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

Adjacent to the turntable is a 7' x 7' square and 4' deep concrete pit used for support equipment if necessary. The pit is equipped with 5 - 4" PVC chases from the pit to the control room that allow for cabling to the EUT if necessary. The underside of the turntable can be accessed from the pit so cables can be supplied to the EUT from the pit. The pit is covered with 2 sheets of 1/4" diamond style re-enforced steel sheets. The sheets are painted to match the perforated steel ground plane; however the underside edges have been masked off to maintain the electrical continuity of the ground plane. All reflecting objects are located outside of the ellipse defined in ANSI C63.4.

A diagram of the Open Area Test Site is shown in Figure 2.3-2 below:

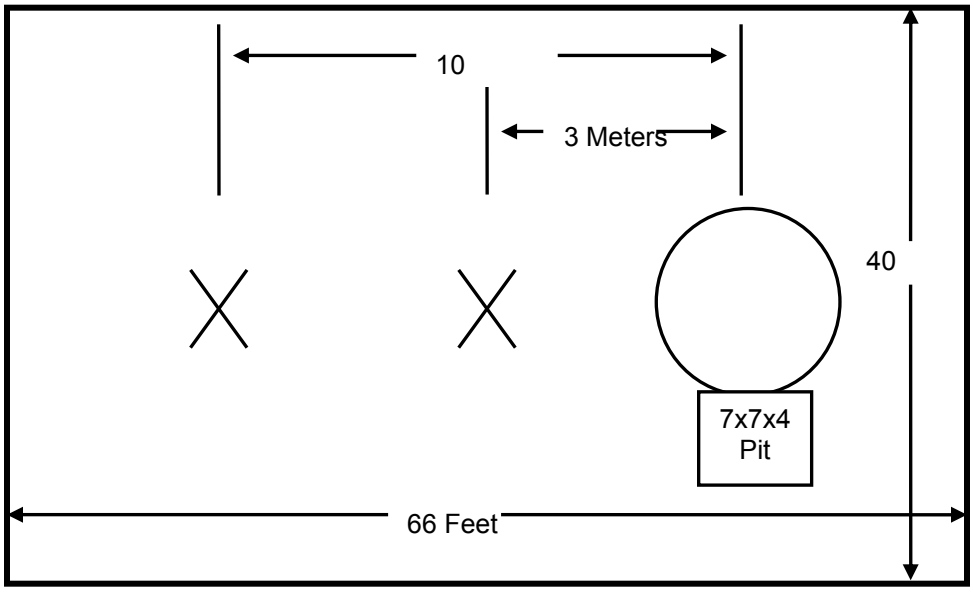

Figure 2.3-2: Open Area Test Site

2.4 Conducted Emissions Test Site Description

The AC mains conducted EMI site is located in the main EMC lab. It consists of an 8' x 8' solid aluminum horizontal group reference plane (GRP) bonded every 3" to an 8' X 8' vertical ground plane.

The site is of sufficient size to test table top and floor standing equipment in accordance with section 6.1.4 of ANSI C63.4.

A diagram of the room is shown below in figure 4.1.3-1:

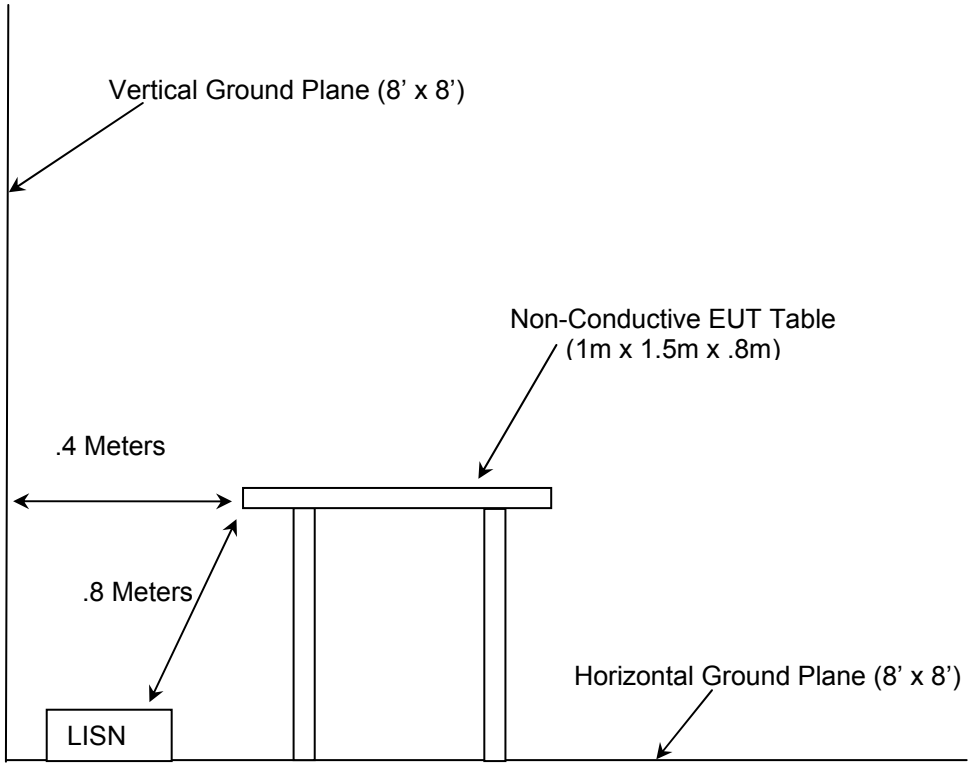

Figure 2.4-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2003: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2010
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2010
- Industry Canada Radio Standards Specification: RSS-210 - Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, Issue 8 Dec 2010
- Industry Canada Radio Standards Specification: RSS-GEN – General Requirements and Information for the Certification of Radiocommunication Equipment, Issue 3, Dec 2010.

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
1	Rohde & Schwarz	ESMI - Display	Spectrum Analyzers	833771/007	9/23/2010	9/23/2012
2	Rohde & Schwarz	ESMI-Receiver	Spectrum Analyzers	839587/003	9/23/2010	9/23/2012
3	Rohde & Schwarz	ESMI - Display	Spectrum Analyzers	839587/003	2/2/2009	2/2/2011
4	Rohde & Schwarz	ESMI-Receiver	Spectrum Analyzers	839379/011	2/2/2009	2/2/2011
25	Chase	CBL6111	Antennas	1043	9/13/2010	9/13/2012
78	EMCO	6502	Antennas	9104-2608	1/31/2011	1/31/2013
153	EMCO	3825/2	LISN	9411-2268	1/13/2011	1/13/2012
167	ACS	Chamber EMI Cable Set	Cable Set	167	1/26/2011	1/26/2012
283	Rohde & Schwarz	FSP40	Spectrum Analyzers	1000033	8/31/2010	8/31/2011
324	ACS	Belden	Cables	8214	7/9/2010	7/9/2011

5 SUPPORT EQUIPMENT

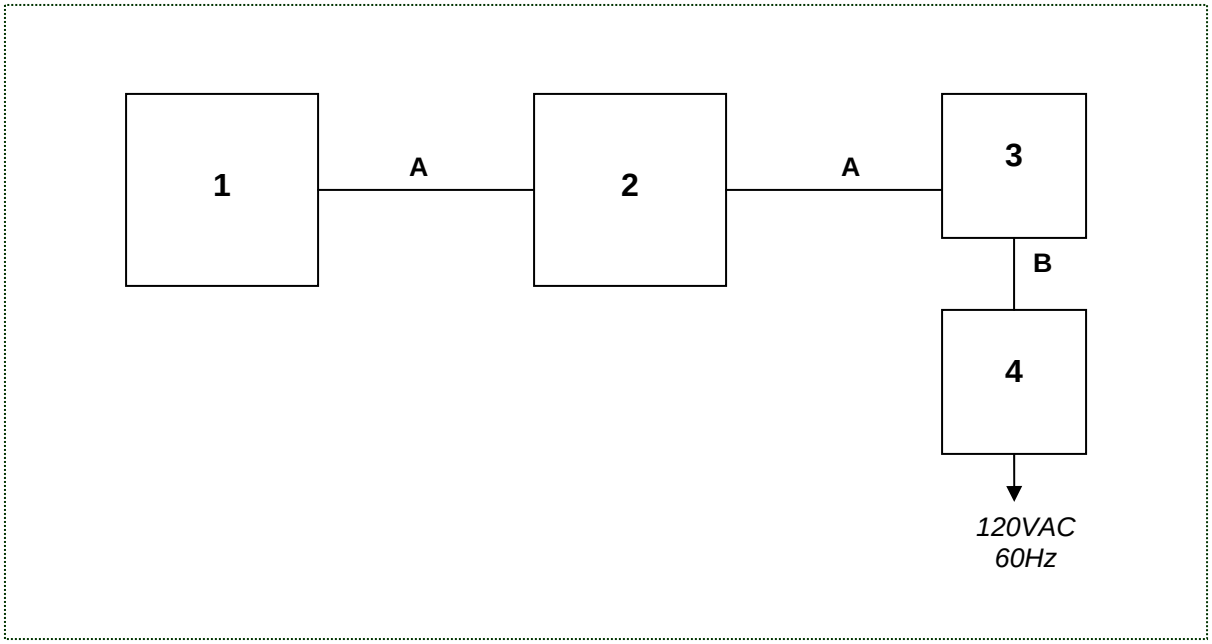

Figure 5-1: EUT and Support Equipment Block Diagram (POE)

Table 5-1: EUT and Support Equipment Description

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	Assa Abloy	S1-PA/PK , TCIP1-M802/M803	N/A
2	Hinge	Assa Abloy	N/A	N/A
3	Switch	Netgear	FS108P	1DL16C2T001C3
4	Switch Power Supply	D-Link	VAN90C-480B	10053805331-2A

Table 5-2: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A	PoE Cable	14'	No	1 & 2 2 & 3
B	Power Cable	6'	No	3 & 4

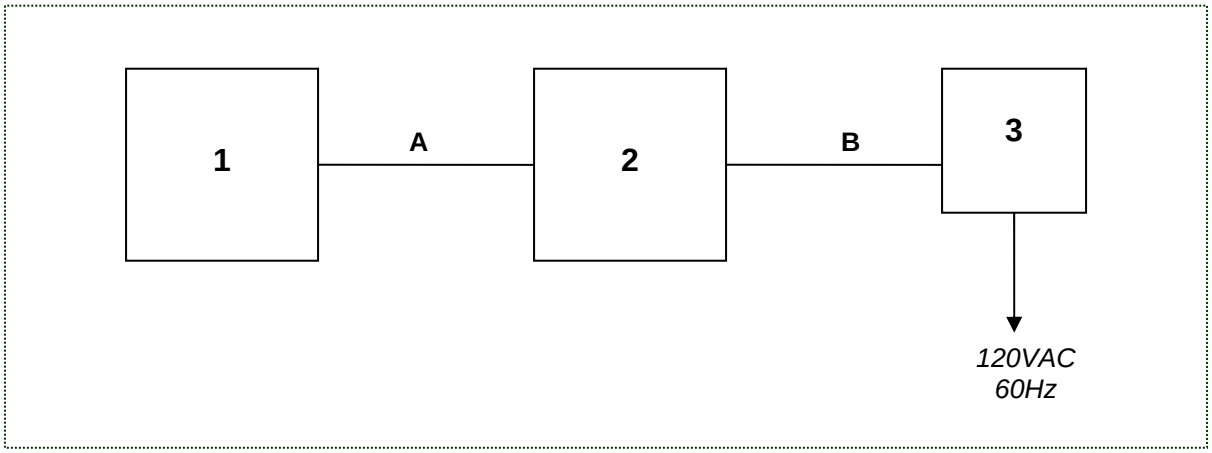

Figure 5-2: EUT and Support Equipment Block Diagram (AUX Power)

Table 5-3: EUT and Support Equipment Description

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	Assa Abloy	S2-PA/PK, TCWI1-M802/M803	N/A
2	Aux Power Box	Assa Abloy	N/A	N/A
3	Wall Charger	N/A	E193069	RT-G1640SL/M

Table 5-4: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A	Aux Power Cable	3'	No	1 & 2
B	Aux Power Cable	15'	No	2 & 3

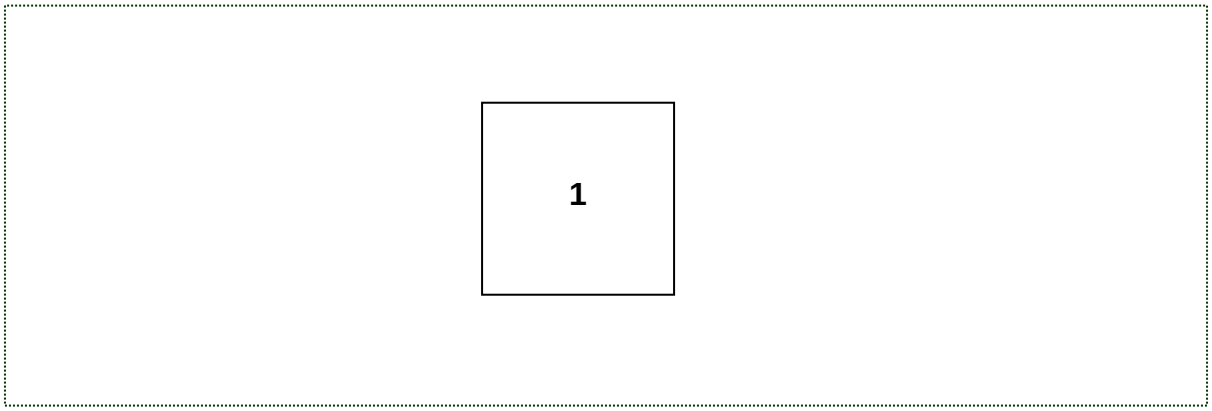

Figure 5-3: EUT and Support Equipment Block Diagram (Battery Power)

Table 5-5: EUT and Support Equipment Description

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	Assa Abloy	S2-PA/PK, TCWI1-M802/M803	N/A

6 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

6.1 Antenna Requirement – FCC: Section 15.203

The antenna is a wound coil type which is non-detachable and integral in design.

6.2 Power Line Conducted Emissions – FCC: Section 15.207 IC: RSS-Gen 7.2.2

6.2.1 Measurement Procedure

ANSI C63.4 sections 6 and 7 were the guiding documents for this evaluation. Conducted emissions were performed from 150kHz to 30MHz with the spectrum analyzer's resolution bandwidth set to 9kHz and the video bandwidth set to 30kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Applicable Limit - Corrected Reading

6.2.2 Measurement Results

Results of the test are shown below in and Table 6.2.2-1 to 6.2.2.2.

Table 6.2.2-1: Line 1 Conducted EMI Results

Frequency (MHz)	Level (dBuV)	Transducer (dB)	Limit (dBuV)	Margin (dB)	Line	PE	Detector
0.15	51.3	9.9	66	14.7	L1	GND	QP
0.324	26.3	10	60	33.3	L1	GND	QP
10.5	27.6	9.9	60	32.4	L1	GND	QP
10.752	28.5	9.9	60	31.5	L1	GND	QP
10.932	9.6	9.9	60	50.4	L1	GND	QP
11.004	23.6	9.9	60	36.4	L1	GND	QP
11.376	27.9	9.8	60	32.1	L1	GND	QP
11.472	9.8	9.8	60	50.2	L1	GND	QP
11.628	25.1	9.8	60	34.9	L1	GND	QP
11.946	9.5	9.8	60	50.5	L1	GND	QP
0.192	21.3	9.9	54	32.7	L1	GND	AVG
0.318	8.9	10	50	40.9	L1	GND	AVG
10.5	27.4	9.9	50	22.6	L1	GND	AVG
10.752	28.3	9.9	50	21.7	L1	GND	AVG
10.95	7.1	9.9	50	42.9	L1	GND	AVG
11.058	6.7	9.9	50	43.3	L1	GND	AVG
11.31	6.6	9.8	50	43.4	L1	GND	AVG
11.508	6.8	9.8	50	43.2	L1	GND	AVG
11.544	6.6	9.8	50	43.4	L1	GND	AVG
11.778	6.6	9.8	50	43.4	L1	GND	AVG

Table 6.2.2-2: Line 2 Conducted EMI Results

Frequency (MHz)	Level (dBuV)	Transducer (dB)	Limit (dBuV)	Margin (dB)	Line	PE	Detector
0.156	51.9	9.9	66	13.8	L2	GND	QP
0.33	28.9	10	60	30.6	L2	GND	QP
0.492	17.1	10	56	39	L2	GND	QP
10.284	9.2	9.9	60	50.8	L2	GND	QP
10.5	27.3	9.9	60	32.7	L2	GND	QP
10.596	9.5	9.9	60	50.5	L2	GND	QP
10.752	28.3	9.9	60	31.7	L2	GND	QP
10.932	9.9	9.9	60	50.1	L2	GND	QP
11.376	27.6	9.8	60	32.4	L2	GND	QP
0.198	17.9	9.9	54	35.8	L2	GND	AVG
0.324	9.4	10	50	40.2	L2	GND	AVG
0.492	7.6	10	46	38.6	L2	GND	AVG
10.386	7	9.9	50	43	L2	GND	AVG
10.5	27.1	9.9	50	22.9	L2	GND	AVG
10.566	6.7	9.9	50	43.3	L2	GND	AVG
10.752	28.1	9.9	50	21.9	L2	GND	AVG
10.914	6.8	9.9	50	43.2	L2	GND	AVG
10.986	7.2	9.9	50	42.8	L2	GND	AVG
11.46	6.6	9.8	50	43.4	L2	GND	AVG

6.3 Radiated Emissions – FCC CFR 47 Part 15.209 / RSS-210 Section 2.6

6.3.1 Measurement Procedure

Section 15.33(a)(4) specifies, if the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to frequency specified in 15.33(b)(1) for unintentional radiators. The upper frequency range for the digital device is 1000MHz which greater than the 10th harmonic of the fundamental frequency. The upper frequency range measured was 1000MHz.

Measurements below 30MHz were performed in a semi-anechoic chamber with a 3 meter separation distance between the EUT and measurement antenna. The EUT was rotated 360º and the loop antenna rotated about the vertical axis to maximize each emission. The magnetic loop receiving antenna was positioned with its center 1 meter above the ground.

The spectrum analyzer's resolution and video bandwidth was set to 100 Hz and 300 Hz respectively for frequencies below 150 kHz and 9 kHz and 30 kHz respectively for frequencies above 150 kHz and below 30 MHz. For measurements in the frequency bands 9-90 kHz and 110-490 kHz, an average detector was used. When average measurements are specified, the peak emissions were also compared to a limit corresponding to 20 dB above the maximum permitted average limit according to Part 15.35. All other emissions were measured using a Quasi-peak detector. The final measurements were then corrected by antenna correction factors and cable loss for comparison to the limits.

Measurements above 30 MHz were performed in a semi-anechoic chamber with a 3 meter separation distance between the EUT and measurement antenna. The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 1000 MHz, quasi-peak measurements were made using a resolution bandwidth (RBW) of 120 kHz and a video bandwidth (VBW) of 300 kHz.

6.3.2 Distance Correction for Measurements Below 30 MHz – Part 15.31

Radiated measurements were performed at a distance closer than 300 meters and 30m as required, according to Part 15.209. Therefore a correction factor was applied to account for propagation loss at the specified distance. The propagation loss was determined by using the square of an inverse linear distance extrapolation factor (40dB/decade) according to 15.31. A sample calculation of the distance correction factor is shown below for limits expressed at a 300m measurement distance and a 30m measurement distance.

Distance correction factor (300m Specified Test Distance) = 40*Log (Test Distance/300)
= 40*Log (3/300)
= - 80 dB

Distance correction factor (30m Specified Test Distance) = 40*Log (Test Distance/30)
= 40*Log (3/30)
= - 40 dB

6.3.3 Measurement Results

Results of the test are given in Table 6.3.3-1 to 6.3.3-6:

Table 6.3.3-1: Radiated Emissions Tabulated Data – S1-PA/PK

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
0.125	59.55	59.37	H	11.73	71.28	71.10	125.7	105.7	54.40	34.60
0.25	48.94	45.98	H	11.35	60.29	57.33	119.6	99.6	59.30	42.30
0.5	---------	45.79	H	11.50	---------	57.29	--------	73.6	---------	16.30
0.75	---------	42.03	H	11.30	---------	53.33	--------	70.1	---------	16.80
1	---------	38.67	H	11.50	---------	50.17	--------	67.6	---------	17.40
1.25	---------	32.82	H	11.53	---------	44.35	--------	65.7	---------	21.30

Table 6.3.3-2: Radiated Emissions Tabulated Data – TCIP1-M802/M803

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Fundamental Frequency										
0.125	60.12	59.94	H	11.73	71.85	71.67	125.7	105.7	53.9	34.0

Table 6.3.3-3: Radiated Emissions Tabulated Data –TCWI1-M802/M803 Battery PWR

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Fundamental Frequency										
0.125	60.57	60.42	H	11.73	72.30	72.15	125.7	105.7	53.4	33.5

Table 6.3.3-4: Radiated Emissions Tabulated Data–S2-PA/PK Battery PWR

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Fundamental Frequency										
0.125	59.60	59.47	H	11.73	71.33	71.20	125.7	105.7	54.4	34.5

Table 6.3.3-5: Radiated Emissions Tabulated Data – TCWI1-M802/M803 AuX PWR

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Fundamental Frequency										
0.125	60.46	60.26	H	11.73	72.19	71.99	125.7	105.7	53.5	33.7

Table 6.3.3-6: Radiated Emissions Tabulated Data – S2-PA/PK AuX PWR

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Fundamental Frequency										
0.125	60.42	60.27	H	11.73	72.15	72.00	125.7	105.7	53.6	33.7

* Note: All emissions from the intentional radiator not reported were attenuated below the permissible limit.

6.3.4 Sample Calculation

Example Calculation – Average/Quasi-Peak Limit < 30MHz

Measurement Distance 300m @ 125kHz

Limit (dBuV/m) = 20*Log(2400/F(kHz)) - Distance Correction Factor (Section 7.3.2)
Limit (dBuV/m) = 20*Log(2400/125) + 80
Limit (dBuV/m) = 105.6

Example Calculation - 125kHz Fundamental (See Table 7.3.2-1)
$R_C = R_U + CF_T$
Where:

CF_T	=	Total Correction Factor (AF+CA+AG)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain

Peak:
Corrected Level: 59.55 + 11.73 = 71.28dBuV
Margin: 125.6dBuV – 71.28dBuV = 54.4 dB

Average:
Corrected Level: 59.37 + 11.73 = 71.10dBuV
Margin: 105.6dBuV – 71.10dBuV = 34.6 dB

6.4 20dB / 99% Bandwidth – FCC: Section 15.215(c) / IC: RSS-210 Section 4.6.1

6.4.1 Measurement Procedure

The spectrum analyzer span was set to 2 to 3 times the estimated bandwidth of the emission. The RBW was to ≥ 1% of the estimated emission bandwidth. The trace was set to max hold with a peak detector active. The Delta function of the analyzer was utilized to determine the 20 dB bandwidth of the emission.

The 99% occupied bandwidth was measured with the spectrum analyzer span set to fully display the emission and approximately 20dB below the peak level. The trace was set to max hold with a peak detector active. The occupied bandwidth measurement function of the analyzer was used for the 99% bandwidth.

6.4.2 Measurement Results

Results are shown below in table 6.4.2-1 and figure 6.4.2-1 to 6.4.2-2:

Table 6.4.2-1: 20dB / 99% Bandwidth

Frequency [kHz]	20dB Bandwidth [Hz]	99% Bandwidth [Hz]
125	840.0	712.0

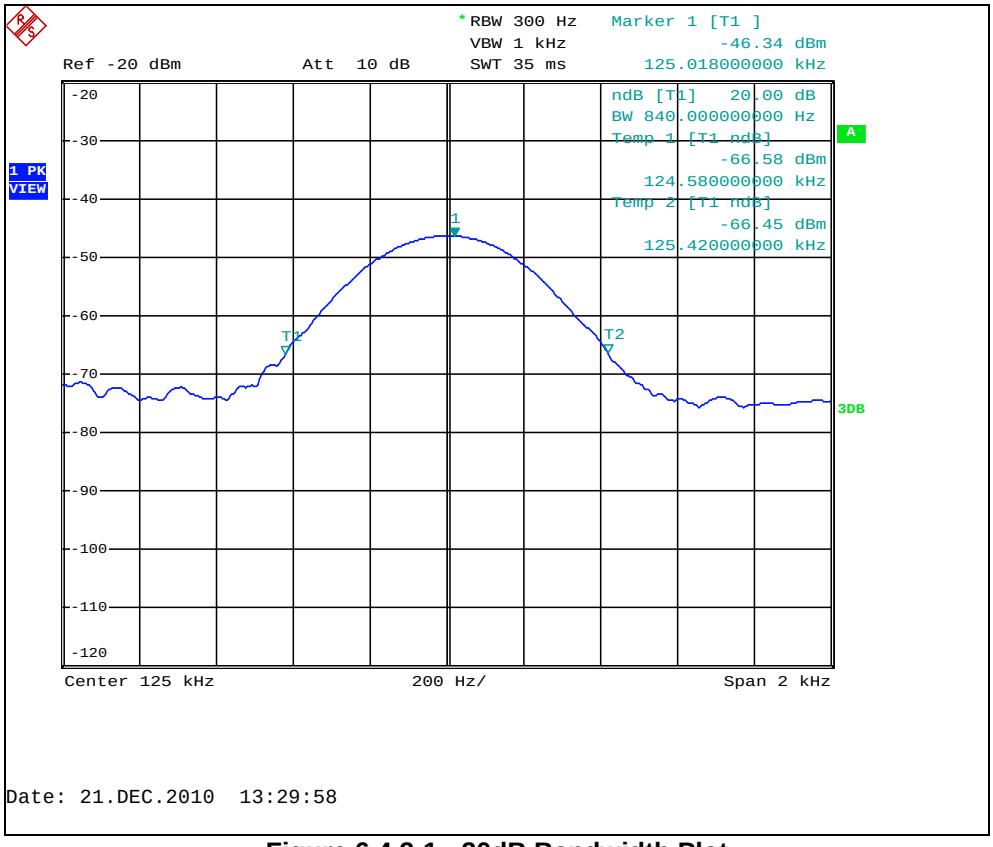

Figure 6.4.2-1: 20dB Bandwidth Plot

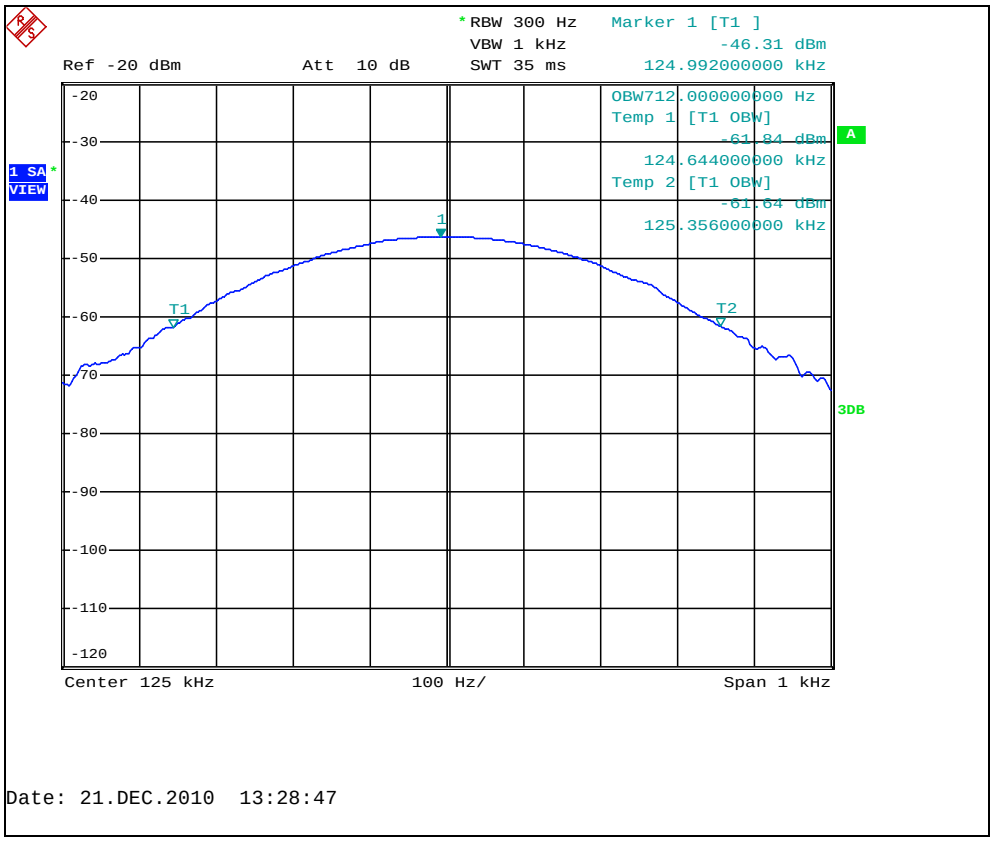

Figure 6.4.2-2: 99% Bandwidth Plot

7 CONCLUSION

In the opinion of ACS, Inc., the S1-PA/PK, S2-PA/PK, TCWI1-M802/M803, and TCIP1-M802/M803, manufactured by Assa Abloy meet the requirements of FCC Part 15 subpart C and Industry Canada's Radio Standards Specification RSS-210.

END REPORT