FCC PART 15C

MEASUREMENT AND TEST REPORT

FOR

Sebury Technology Co., Ltd.

5/F, Building 8, Xinwu Industrial Park, Xili, Nanshan District, Shenzhen, China

FCC ID: COBW3-H

Report Concerns: Original Report	**Equipment Type:** Access Control

Model:	W3-H
Report No.:	STR12038048I
Test Date:	2012-03-07 to 2012-03-09
Issue Date:	2012-03-15
Tested By:	Susan Su / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Sebury Technology Co., Ltd.
Address of applicant:	5/F, Building 8, Xinwu Industrial Park, Xili, Nanshan District, Shenzhen, China
Manufacturer:	Sebury Technology Co., Ltd.
Address of manufacturer:	5/F, Building 8, Xinwu Industrial Park, Xili, Nanshan District, Shenzhen, China

General Description of E.U.T

Items	Description
EUT Description:	Access Control
Trade Name:	Sebury
Model No.:	W3-H
Rated Voltage:	DC 12-24V, AC 12-18V
Rated Current:	30mA
Frequency Range:	125kHz
Antenna Type:	Integral Antenna
For more information refer to the circuit diagram form and the user's manual.	

The test data is gathered from a production sample, provided by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the Sebury Technology Co., Ltd. in accordance with FCC Part 15, Subpart B, Subpart C, and section 15.203, 15.205 and 15.209 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, and 15.209 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which results in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes

were adapted according to the Operating Instructions and let the EUT keep transmitting.

1.4 Test Facility

- **FCC – Registration No.: 994117**
  SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**
  The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**
  Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components. The test software is started while the whole system is on.

1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
DC Power Supply	QJE	QJ3020E	016293

1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Compliant
§15.207 (a)	Conducted Emission	Compliant
§15.209	Radiated Emission	Compliant

3. §15.203 - ANTENNA REQUIREMENT

3.1 Standard Applicable

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.2 Test Result

This product has an integral antenna, fulfill the requirement of this section.

4. §15.207 (a)- CONDUCTED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

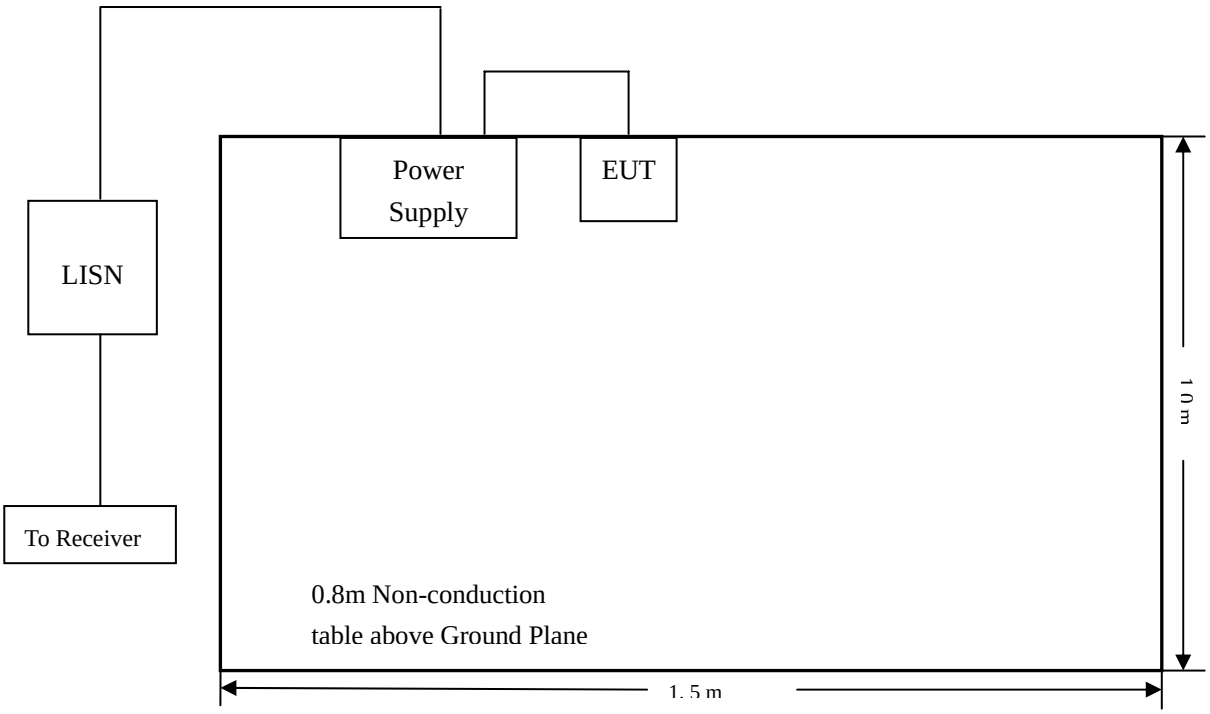
4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2011-12-20	2012-12-19
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2011-12-20	2012-12-19
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2011-12-20	2012-12-19

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

4.4 Basic Test Setup Block Diagram



4.5 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

4.6 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

4.7 Summary of Test Results/Plots

According to the data in section 4.8, the EUT complied with the FCC Part 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-6.09 dBμV at 14.847 MHz in the **Line** mode**, Average** detector, **0.15-30MHz**

4.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

Conducted Disturbance

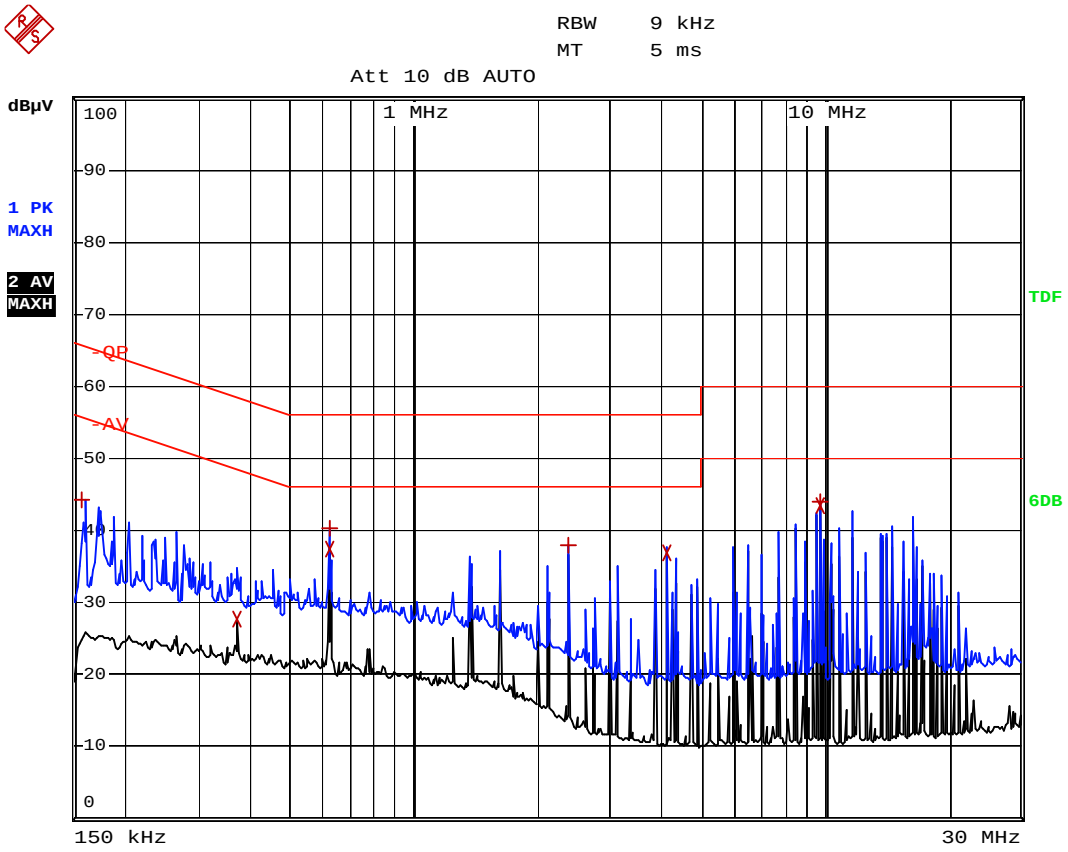
EUT: Access Control

M/N: W3-H

Operating Condition: Running

Test Specification: N

Comment: AC 120V/60Hz, DC 12V



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	158 kHz	44.14	-21.42
2 Average	370 kHz	27.57	-20.92
1 Max Peak	626 kHz	40.38	-15.61
2 Average	626 kHz	37.45	-8.54
1 Max Peak	2.374 MHz	37.89	-18.10
2 Average	4.126 MHz	36.96	-9.03
1 Max Peak	9.75 MHz	43.87	-16.12
2 Average	9.75 MHz	43.44	-6.55

Plot of Conducted Emissions Test Data

Conducted Disturbance

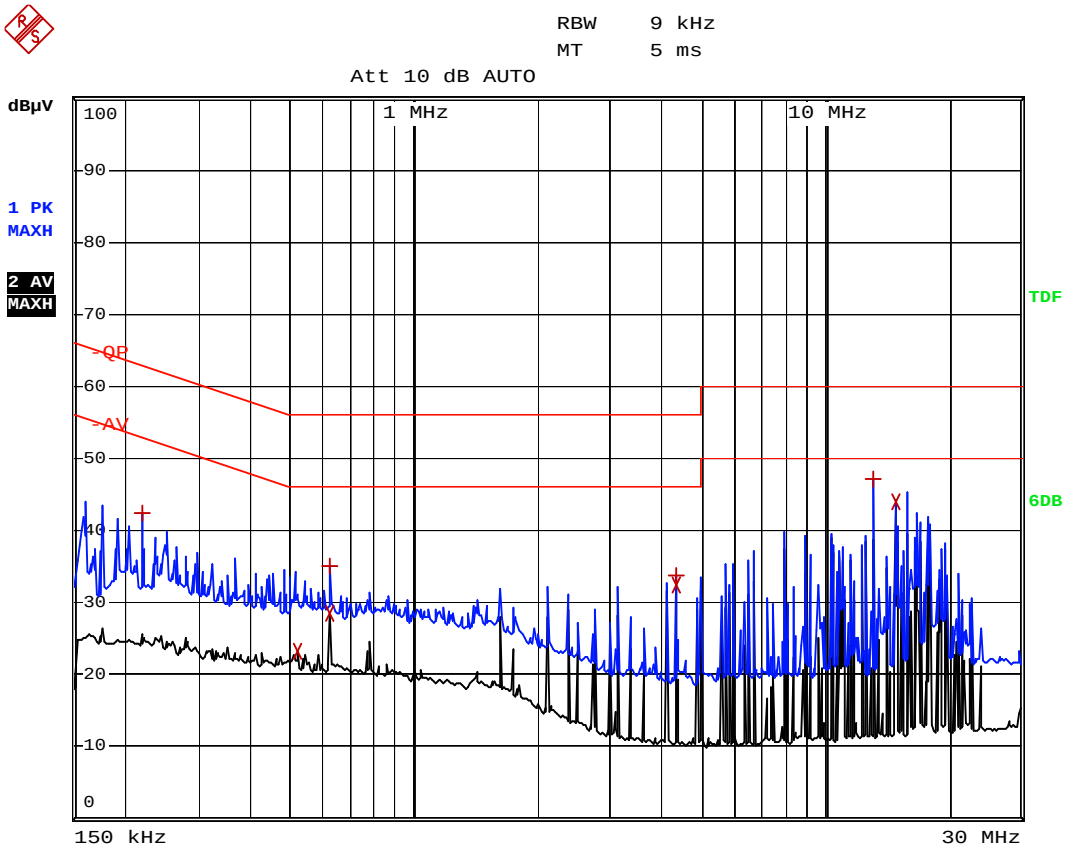
EUT: Access Control

M/N: W3-H

Operating Condition: Running

Test Specification: L

Comment: AC 120V/60Hz, DC 12V



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	218 kHz	42.45	-20.44
2 Average	522 kHz	23.13	-22.86
1 Max Peak	622 kHz	34.94	-21.05
2 Average	622 kHz	28.60	-17.39
1 Max Peak	4.374 MHz	33.72	-22.27
2 Average	4.374 MHz	32.44	-13.55
1 Max Peak	13.126 MHz	47.02	-12.97
2 Average	14.874 MHz	43.90	-6.09

5. §15.205, §15.209- RADIATED EMISSION

5.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±5.10 dB.

5.2 Standard Applicable

According to §15.209(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100**	3
88–216	150**	3
216–960	200**	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permItted under other sections of this part, e.g., §§15.231 and 15.241.

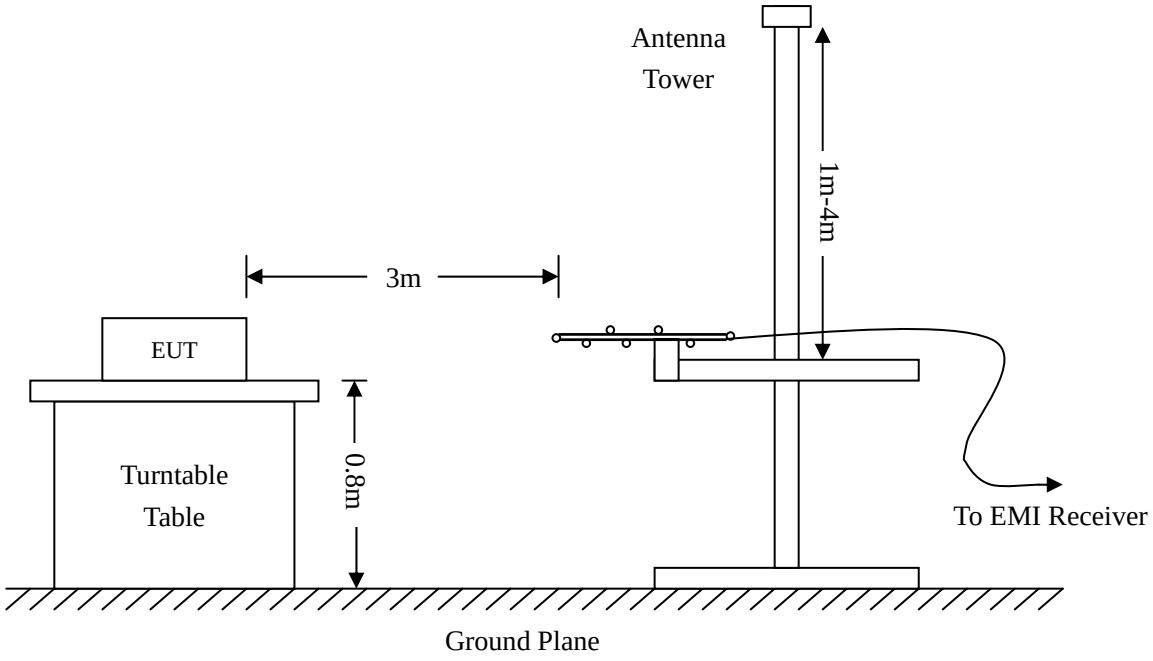
5.3 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2011-12-20	2012-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2011-12-20	2012-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2011-12-20	2012-12-19
RF Switch	EM	EMSW18	SW060023	2011-12-20	2012-12-19
Pre-amplifier	Agilent	8447F	3113A06717	2011-12-20	2012-12-19
Pre-amplifier	Compliance Direction	PAP-0118	24002	2011-12-20	2012-12-19
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2012-02-25	2013-02-24

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

5.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



5.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.209 Limit

5.6 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	40 %
ATM Pressure:	1012 mbar

5.7 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205 and 15.209 standards, and had the worst margin of:

-7.99 dBμV at **39.9942 MHz** in the **Vertical** polarization, **9 kHz to 1 GHz, 3Meters**

Note: *this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

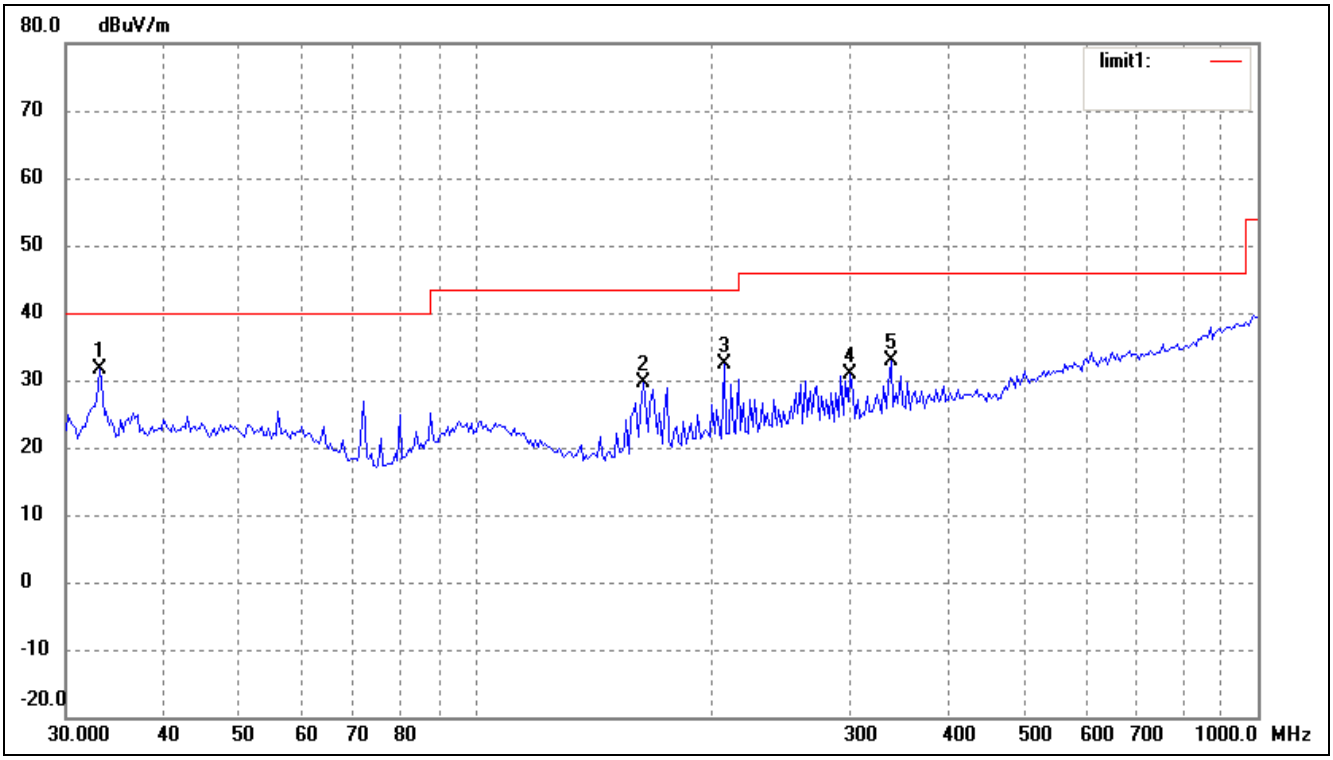
Plot of Radiation Emissions Test

Radiated Disturbance
EUT: Access Control
M/N: W3-H
Operating Condition: Transmitting below 30 MHz

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	0.0350	28.32	20.05	48.37	116.72	-68.35	105	100	peak
2	0.1250	72.48	20.11	92.59	105.67	-13.08	96	100	peak
3	0.1565	29.75	20.13	49.88	103.71	-53.83	125	100	peak
4	10.2875	18.78	23.25	42.03	69.54	-27.51	360	100	peak

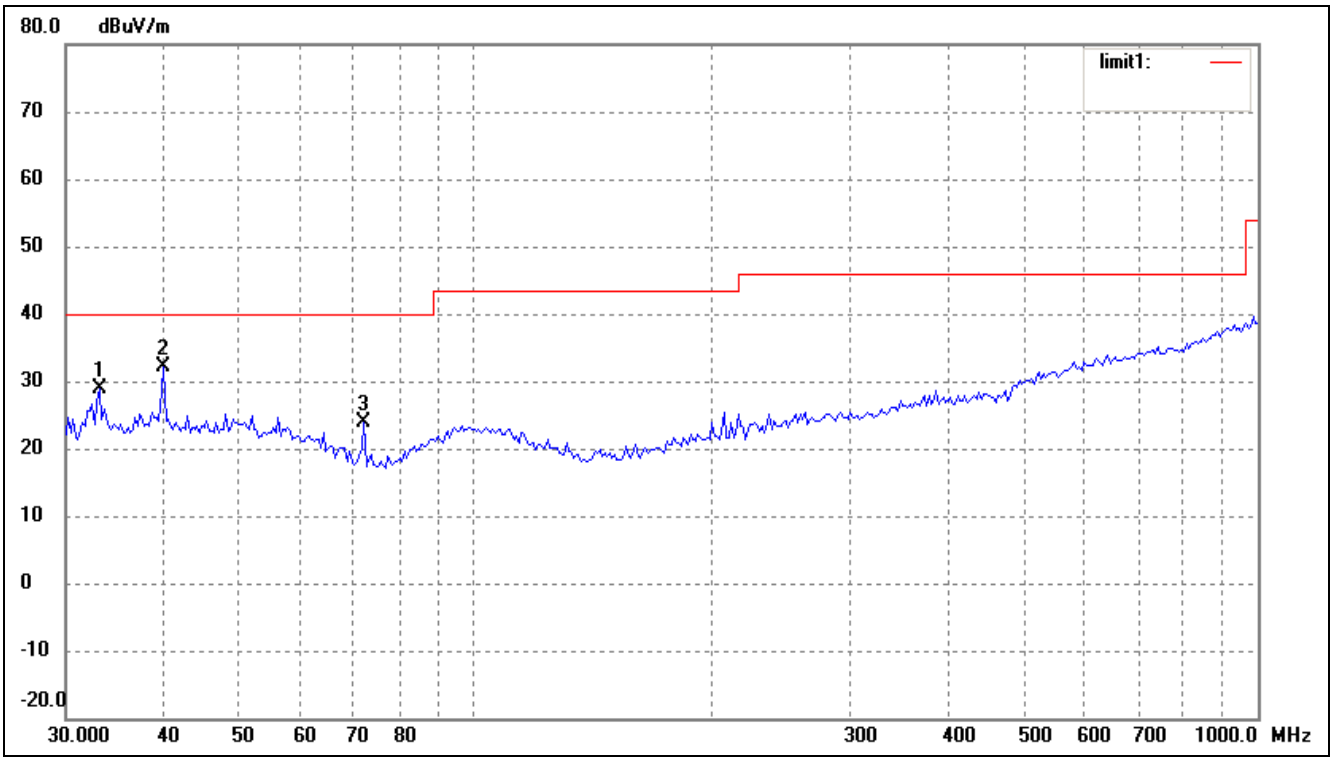
Radiated Disturbance
EUT: Access Control
M/N: W3-H
Operating Condition: Transmitting below 1GHz
Test Specification: Horizontal & Vertical

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	24.79	6.77	31.56	40.00	-8.44	206	100	peak
2	163.7550	24.94	4.67	29.61	43.50	-13.89	34	100	peak
3	207.8501	25.58	6.86	32.44	43.50	-11.06	74	100	peak
4	301.4224	21.02	9.78	30.80	46.00	-15.20	181	100	peak
5	339.5888	22.46	10.42	32.88	46.00	-13.12	360	100	peak

Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	33.0950	22.20	6.77	28.97	40.00	-11.03	354	100	peak
2	39.9942	23.87	8.14	32.01	40.00	-7.99	24	100	peak
3	72.0843	20.47	3.30	23.77	40.00	-16.23	0	100	peak

******* END OF REPORT *******