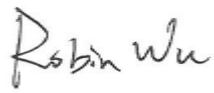
MEASUREMENT REPORT
FCC PART 15B

FCC ID:	RJYW100
APPLICANT:	Chuango Security Technology Corporation
Application Type:	Certification
Product:	WiFi Alarm System
Model No.:	W100, W100X
Brand Name:	smanos
FCC Classification:	Communications Receiver used w/Pt 15 Transmitter
FCC Rule Part(s):	FCC Part 15 Subpart B
Test Procedure(s):	ANSI C63.4: 2009
Test Date:	Sep. 16 ~ 24, 2014

Reviewed By : 
(Robin Wu)

Approved By : 
(Marlin Chen)

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2009. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
1409RSU02601	Rev. 01	Initial report	09-27-2014

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§2.1033 General Information

Applicant:	Chuango Security Technology Corporation
Applicant Address:	Room 6-17, Overseas Students Pioneer Park, No.108, Jiangbin East Road, Economic & Technological Development Zone, Fuzhou, China
Manufacturer:	Chuango Security Technology Corporation
Manufacturer Address:	Room 6-17, Overseas Students Pioneer Park, No.108, Jiangbin East Road, Economic & Technological Development Zone, Fuzhou, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	809388
Model No.:	W100, W100X
FCC ID:	RJYW100
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	Communications Receiver used w/Pt 15 Transmitter
Date(s) of Test:	Sep. 16 ~ 24, 2014
Test Report S/N:	1409RSU02601

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**
- **MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (11384A-1).**
- **MRT facility is an IC registered (11384A-1) test laboratory with the site description on file at Industry Canada.**

1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	WiFi Alarm System
Model No.	W100, W100X
Working Frequency	915MHz(R_X)
Wi-Fi	
Wi-Fi Modular	Single Modular
Frequency	2412 ~ 2462MHz
FCC ID	AZY-HF-LPB100

2.2. Test Configuration

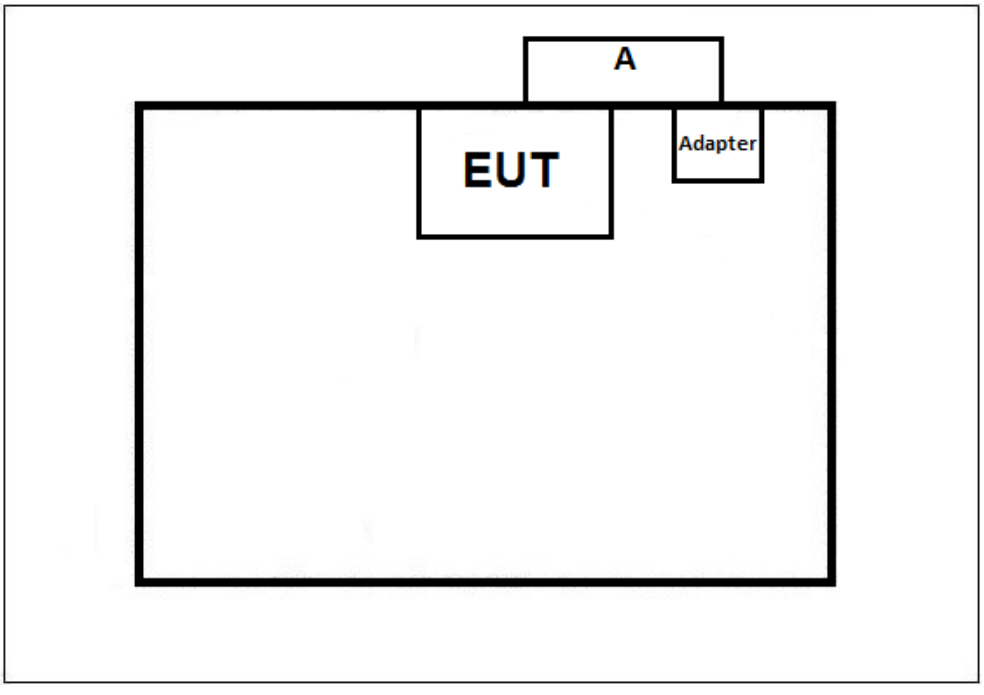
2.2.1. Test Mode

Test Mode	Mode 1: Normal Operation

2.2.2. Configuration of Tested System

The **WiFi Alarm System FCC ID: RJYW100** was tested per the guidance FCC Part 15 Subpart B: 2014 and ANSI C63.4: 2009 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

Connection Diagram (Mode 1)



Signal Cable Type		Signal cable Description
A	USB Cable	Shielding, 0.6m

2.3. Test Software

Not applicable.

2.4. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.5. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2009) was used in the measurement of the **WiFi Alarm System FCC ID: RJYW100.**

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2009 at Clause 4.3.

Line conducted emissions test results are shown in Section 6.2.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 0.8 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beamwidth of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	101209	1 year	2014/11/08
Two-Line V-Network	R&S	ENV216	101683	1 year	2014/11/08
Two-Line V-Network	R&S	ENV216	101684	1 year	2014/11/08
Temperature/ Meter Humidity	Anymetre	TH101B	SR2-01	1 year	2014/11/15

Radiated Emission

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY5144016A	1 year	2015/01/04
Preamplifier	MRT	AP01G18	1310002	1 year	2014/10/07
TRILOG Antenna	Schwarzbeck	VULB9162	9162-047	1 year	2014/11/24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1167	1 year	2014/11/24
Temperature/Humidity Meter	Anymetre	TH101B	AC1-01	1 year	2014/11/15

5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Conducted Emissions Measurement
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: ± 3.46dB
Radiated Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 30MHz ~ 1GHz: ± 4.18dB 1GHz ~ 18GHz: ± 4.76dB

6. TEST RESULT

6.1. Summary

Company Name: **Chuango Security Technology Corporation**

FCC ID: **RJYW100**

FCC Classification: **Communications Receiver used w/Pt 15 Transmitter**

Test Mode: **Normal Operation**

Normative References	Test Description	Test Result
FCC Part 15 Subpart B: 2014 ANSI C63.4: 2009	Conducted Emission	Pass
FCC Part 15 Subpart B: 2014 ANSI C63.4: 2009	Radiated Emission	Pass

6.2. Conducted Emission Measurement

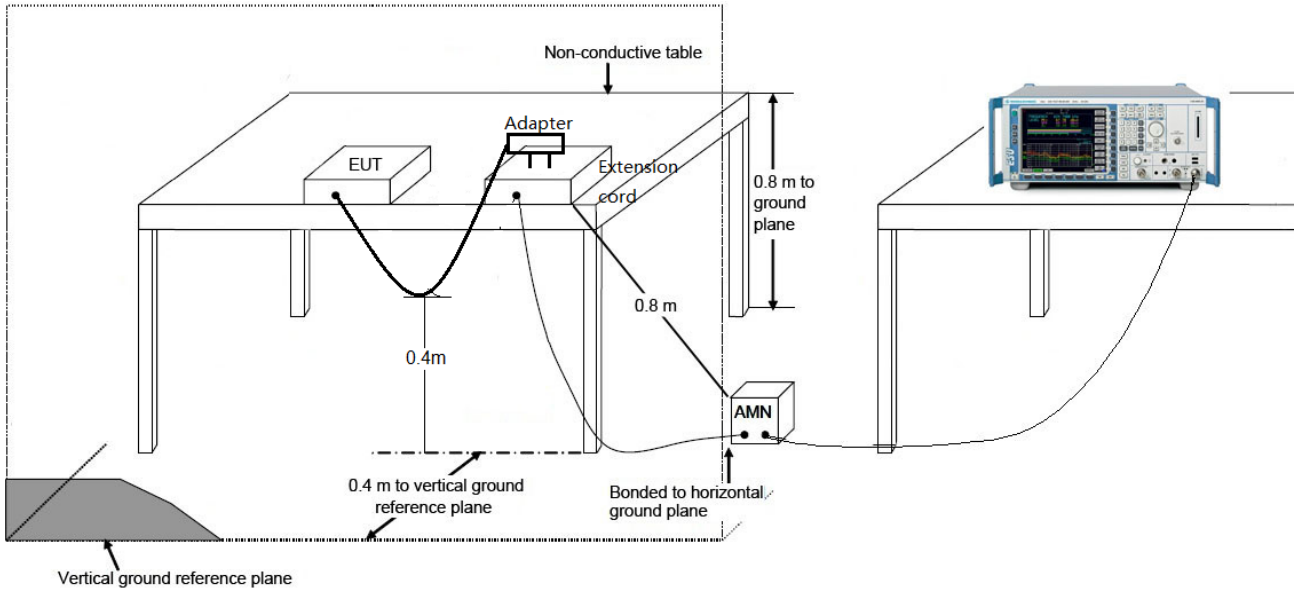
6.2.1. Test Limit

FCC Part 15.107 Limits		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

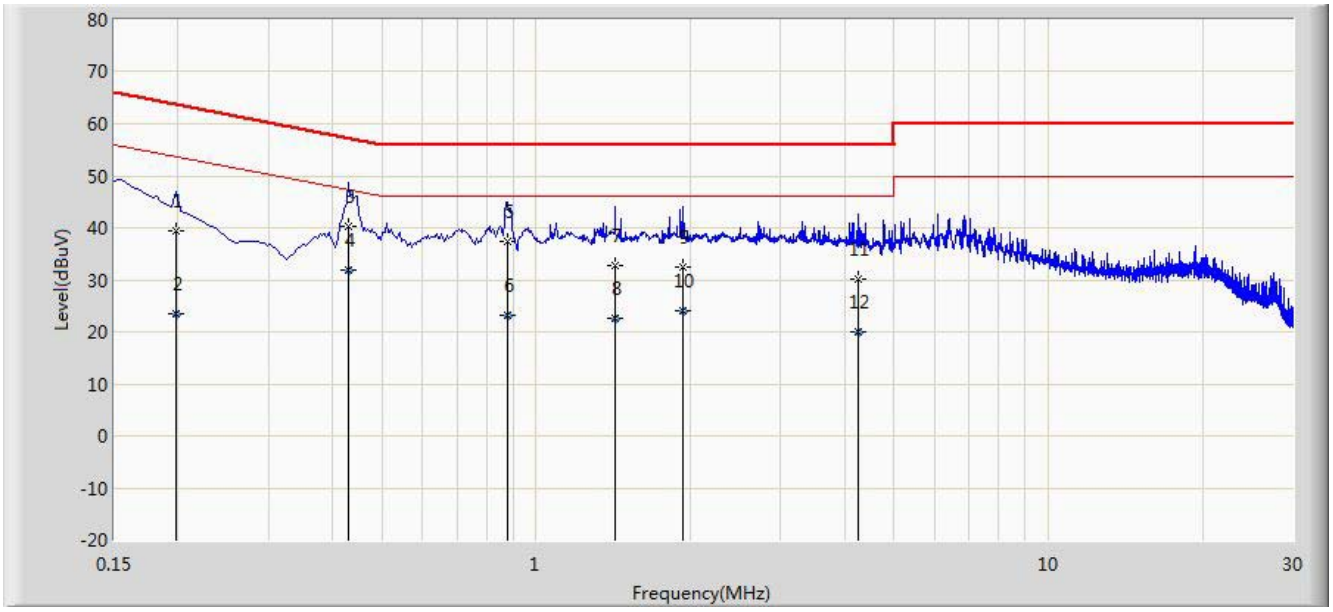
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.2.2. Test Setup



6.2.3. Test Result of Conducted Emissions

Tested By	Roy Cheng	Test Date	2014/09/22 - 20:31
Site	SR2	Power	AC 120V/60Hz
Limit	FCC_Part15.107_CE _Class B	Polarity	Line
AMN	LISN_101683-FILTER ON	Test Mode	Mode 1

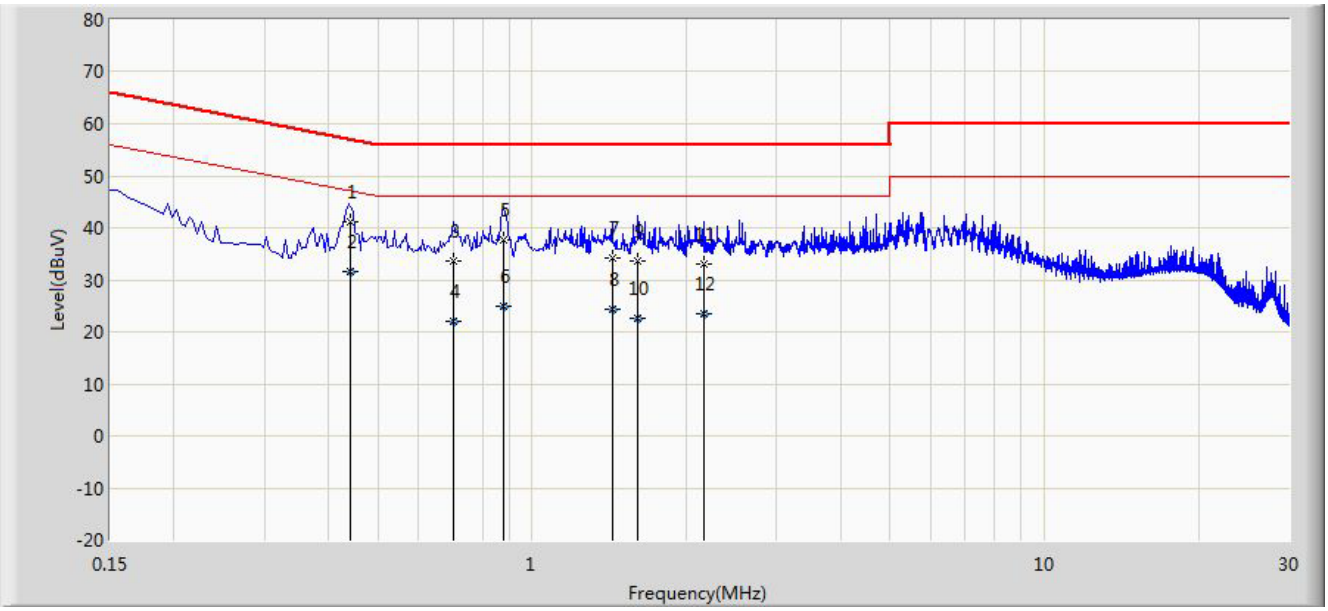


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.198	39.525	29.520	-24.169	63.694	10.005	QP
2			0.198	23.504	13.499	-30.190	53.694	10.005	AV
3			0.430	40.371	30.261	-16.882	57.253	10.110	QP
4		*	0.430	31.909	21.799	-15.344	47.253	10.110	AV
5			0.882	37.250	27.280	-18.750	56.000	9.970	QP
6			0.882	23.115	13.145	-22.885	46.000	9.970	AV
7			1.426	32.731	22.839	-23.269	56.000	9.892	QP
8			1.426	22.464	12.573	-23.536	46.000	9.892	AV
9			1.938	32.394	22.521	-23.606	56.000	9.873	QP
10			1.938	24.019	14.146	-21.981	46.000	9.873	AV
11			4.242	30.289	20.311	-25.711	56.000	9.977	QP
12			4.242	20.110	10.133	-25.890	46.000	9.977	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Tested By	Roy Cheng	Test Date	2014/09/22 - 20:51
Site	SR2	Power	AC 120V/60Hz
Limit	FCC_Part15.107_CE_Class B	Polarity	Neutral
AMN	LISN_101683-FILTER ON	Test Mode	Mode 1



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.442	41.280	31.136	-15.745	57.024	10.144	QP
2		*	0.442	31.658	21.514	-15.366	47.024	10.144	AV
3			0.702	33.517	23.443	-22.483	56.000	10.074	QP
4			0.702	22.082	12.008	-23.918	46.000	10.074	AV
5			0.882	37.623	27.649	-18.377	56.000	9.974	QP
6			0.882	24.992	15.018	-21.008	46.000	9.974	AV
7			1.434	34.276	24.384	-21.724	56.000	9.893	QP
8			1.434	24.486	14.593	-21.514	46.000	9.893	AV
9			1.606	33.619	23.733	-22.381	56.000	9.887	QP
10			1.606	22.502	12.615	-23.498	46.000	9.887	AV
11			2.170	33.107	23.238	-22.893	56.000	9.869	QP
12			2.170	23.599	13.730	-22.401	46.000	9.869	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

6.3. Radiated Emission Measurement

6.3.1. Test Limit

FCC Part 15.109 Limits		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

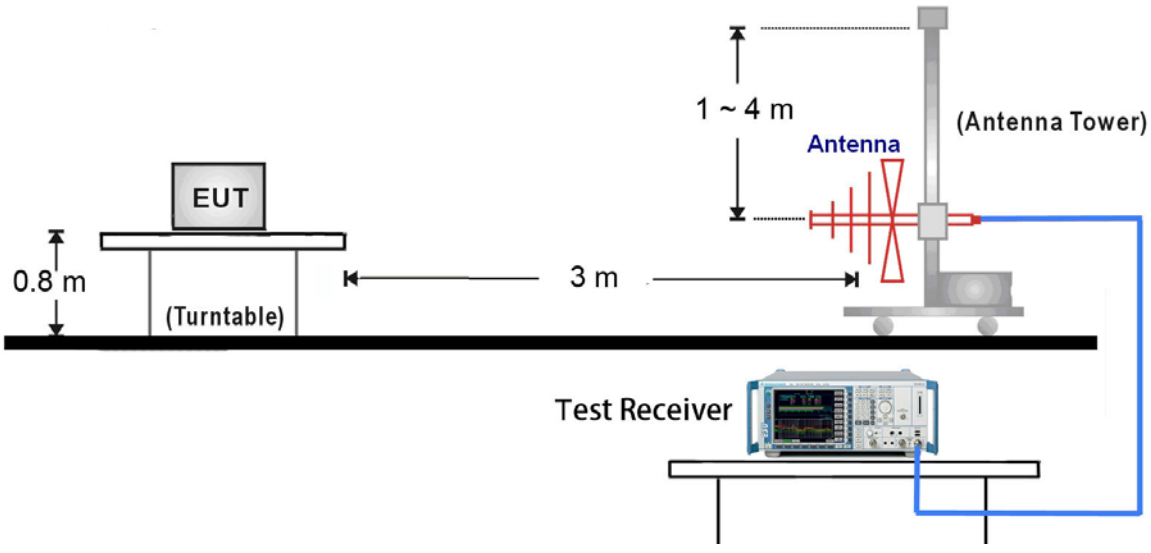
Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

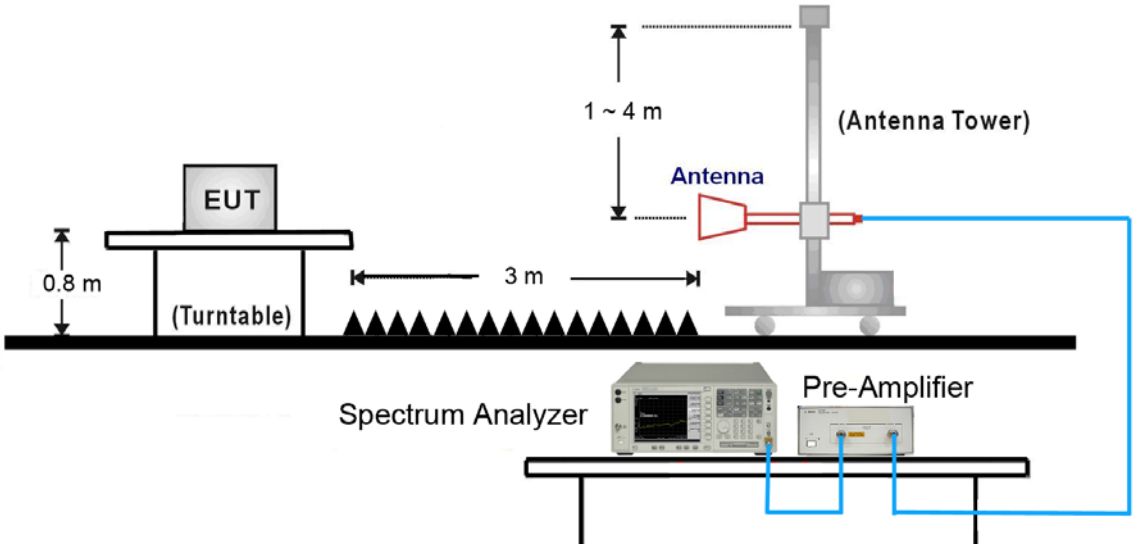
Note 3: E field strength (dBμV/m) = 20 log E field strength (uV/m)

6.3.2. Test Setup

30MHz ~ 1GHz Test Setup:

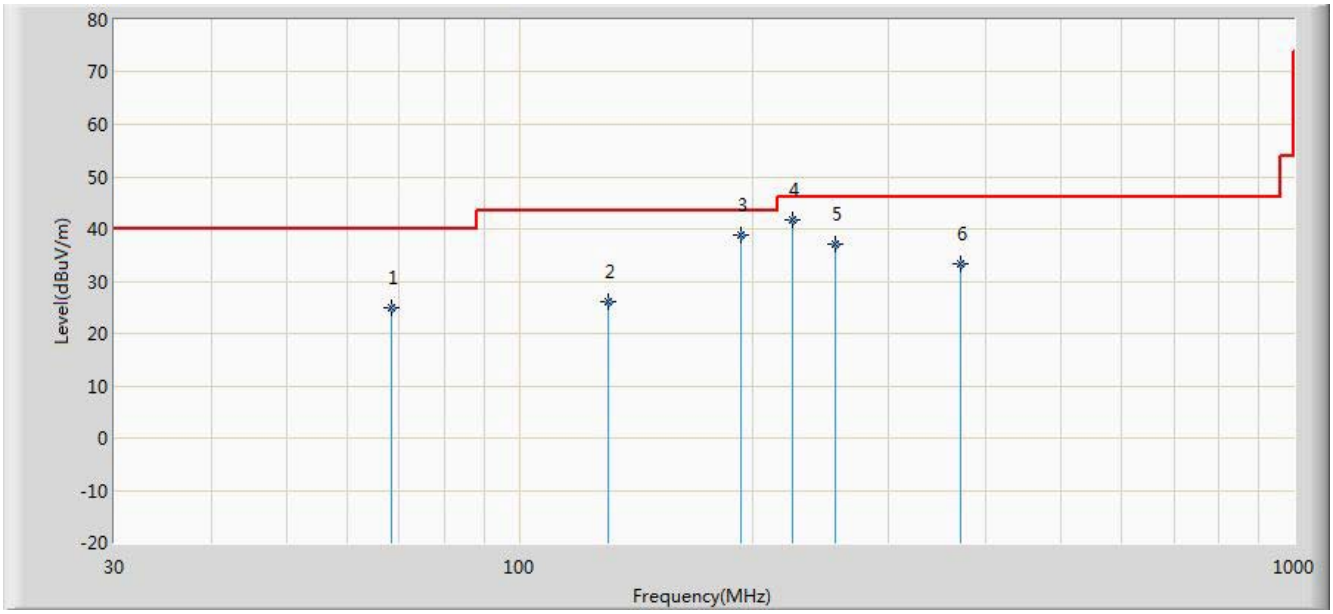


1GHz ~18GHz Test Setup:



6.3.3. Test Result of Radiated Emissions

Tested By	Roy Cheng	Test Date	2014/09/24 - 13:40
Site	AC1	Power	AC 120V/60Hz
Limit	FCC_Part15.109_RE(3m)_Class B	Polarity	Horizontal
Antenna	VULB9162_0.03-8GHz	Test Mode	Mode 1

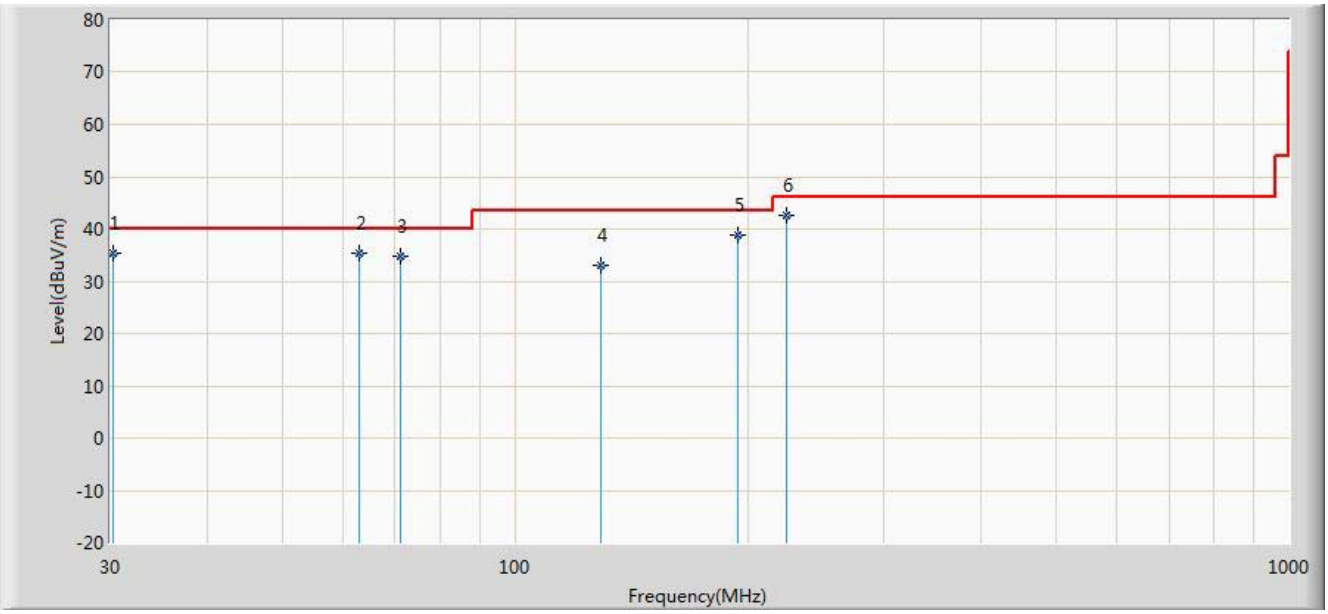


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			68.315	24.892	13.650	-15.108	40.000	11.242	QP
2			130.000	26.144	16.350	-17.356	43.500	9.794	QP
3			192.960	38.943	27.320	-4.557	43.500	11.623	QP
4		*	224.935	41.667	29.200	-4.333	46.000	12.467	QP
5			255.530	37.045	23.650	-8.955	46.000	13.395	QP
6			371.920	33.236	17.552	-12.764	46.000	15.683	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Tested By	Roy Cheng	Test Date	2014/09/24 - 13:43
Site	AC1	Power	AC 120V/60Hz
Limit	FCC_Part15.109_RE(3m)_Class B	Polarity	Vertical
Antenna	VULB9162_0.03-8GHz	Test Mode	Mode 1

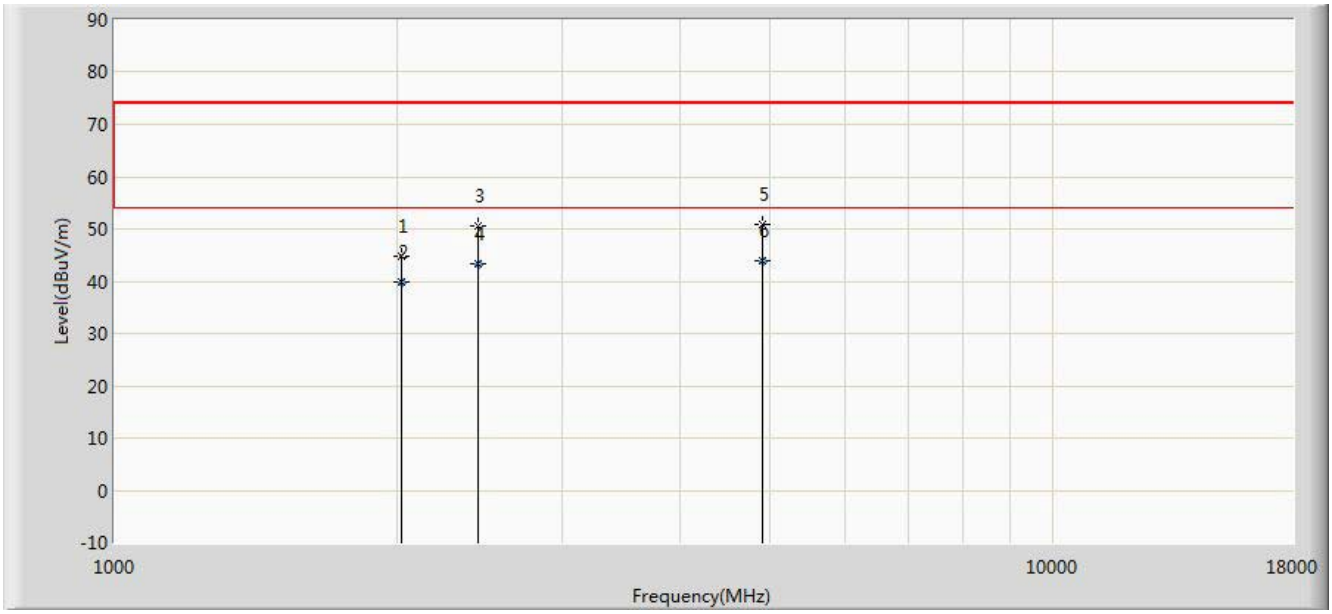


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			30.200	35.437	23.500	-4.563	40.000	11.937	QP
2			62.950	35.379	22.360	-4.621	40.000	13.019	QP
3			71.225	34.704	24.300	-5.296	40.000	10.405	QP
4			129.350	33.099	23.250	-10.401	43.500	9.849	QP
5			194.010	38.942	27.260	-4.558	43.500	11.682	QP
6		*	224.010	42.650	30.220	-3.350	46.000	12.430	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Tested By	Roy Cheng	Test Date	2014/09/24 - 13:40
Site	AC1	Power	AC 120V/60Hz
Limit	FCC_Part15.109_RE(3m)_Class B	Polarity	Horizontal
Antenna	BBHA9120D_1-18GHz	Test Mode	Mode 1

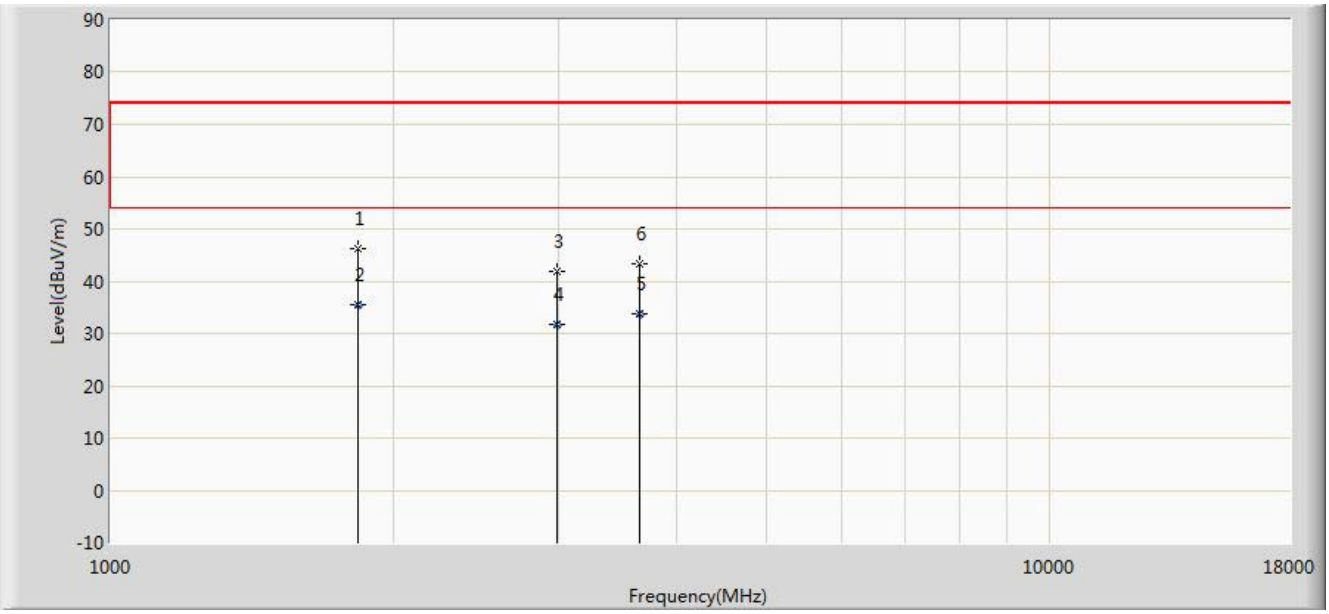


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2020.000	44.849	43.681	-29.151	74.000	1.168	PK
2			2020.320	39.860	38.690	-14.140	54.000	1.170	AV
3			2445.000	50.593	47.953	-23.407	74.000	2.640	PK
4			2445.200	43.299	40.660	-10.701	54.000	2.639	AV
5			4910.000	50.979	44.260	-23.021	74.000	6.719	PK
6		*	4910.022	43.869	37.150	-10.131	54.000	6.719	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier (dB)

Tested By	Roy Cheng	Test Date	2014/09/24 - 13:40
Site	AC1	Power	AC 120V/60Hz
Limit	FCC_Part15.109_RE(3m)_Class B	Polarity	Vertical
Antenna	BBHA9120D_1-18GHz	Test Mode	Mode 1



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			1833.000	46.127	45.943	-27.873	74.000	0.184	PK
2		*	1833.220	35.508	35.322	-18.492	54.000	0.186	AV
3			2989.000	41.827	38.428	-32.173	74.000	3.399	PK
4			2989.330	31.821	28.422	-22.179	54.000	3.399	AV
5			3660.250	33.866	29.886	-20.134	54.000	3.979	AV
6			3660.500	43.460	39.480	-30.540	74.000	3.980	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier (dB)

7. CONCLUSION

The data collected relate only the item(s) tested and show that the **WiFi Alarm System FCC ID: RJYW100** has been tested to comply with the requirements specified in §15.107 and §15.109 of the FCC Rules.

The End