

FCC Part 15B Measurement and Test Report

For

Airspan Networks Inc

777 Yamato Road, Suite 310 Boca Raton FL 33431 USA

FCC ID: PIDMRT4900

FCC Rule(s):	<u>FCC Part 15 Subpart B</u>	
Product Description:	<u>WiMAX MRT CPE</u>	
Tested Model:	<u>Airstream 4001 F49-MRT</u>	
Report No.:	<u>STR13108097I-2</u>	
Tested Date:	<u>2013-10-14 to 2013-11-18</u>	
Issued Date:	<u>2013-11-18</u>	
Tested By:	<u>Seven Song / Engineer</u>	<i>Seven Song</i>
Reviewed By:	<u>Lahm Peng / EMC Manager</u>	<i>Lahm peng</i>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: AirSPAN Networks Inc
 Address of applicant: 777 Yamato Road, Suite 310 Boca Raton FL 33431
 USA
 Manufacturer: KZ BroadBand Technologies, Ltd
 Address of manufacturer: 1601 Tower C, Skyworth Building, High-tech
 Industrial Park, Nanshan District, Shenzhen, China.

General Description of EUT	
Product Name:	WiMAX MRT CPE
Trade Name:	MRTe-4900
Model No.:	Airstream 4001 F49-MRT
Adding Model:	/
Rated Voltage:	DC 12V
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	DC 12V
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	100MHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Airspan Networks Inc in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result 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.

1.4 Test Facility

- **FCC – Registration No.: 934118**

Shenzhen SEM.Test Technology 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 934118.

- **Industry Canada (IC) Registration No.: 11464A**

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
DC Power Cable	1.0	Unshielded	Without Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
RJ45	1.5	Unshielded	Without Ferrite

Auxiliary Equipment List and Details:	
Equipment 1	
Description:	Storage Battery
Model:	M12-65
Rated Voltage:	DC12
Capacitance:	65AH
Equipment 2	
Description:	Notebook
Model:	E23
Rated Voltage:	DC20V
Rated Current:	4.5A
Power Rating:	90W

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	N/A
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

4. Radiated Emissions

4.1 Measurement Uncertainty

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

4.2 Test Equipment List and Details

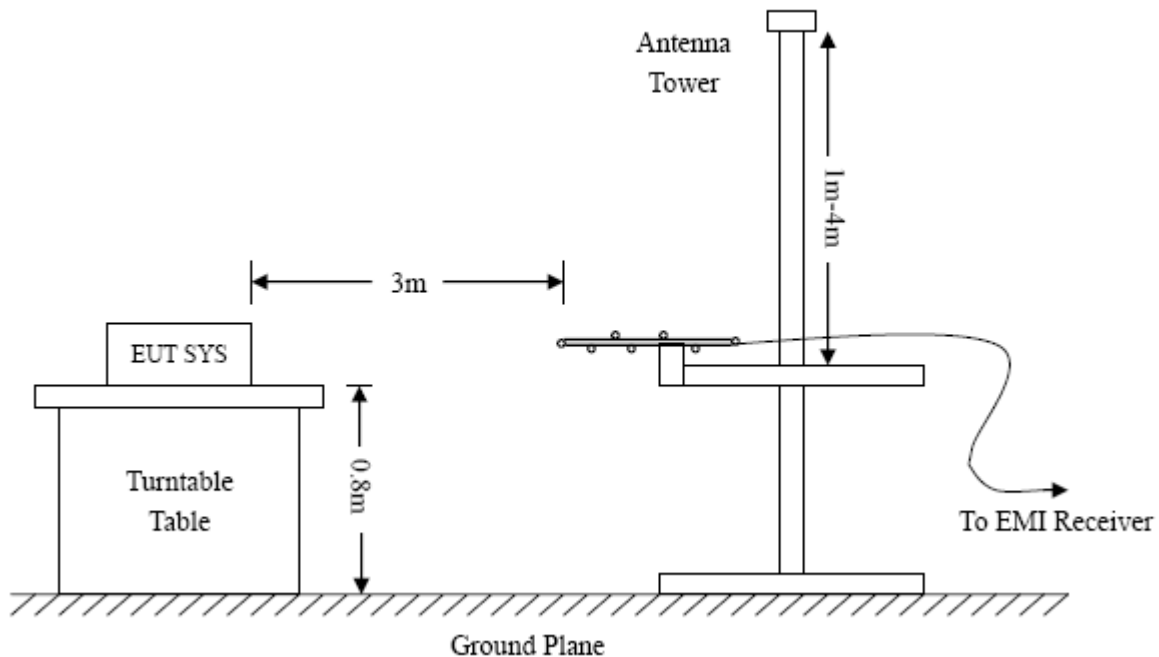
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

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 15.109 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 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.5 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

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 a Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

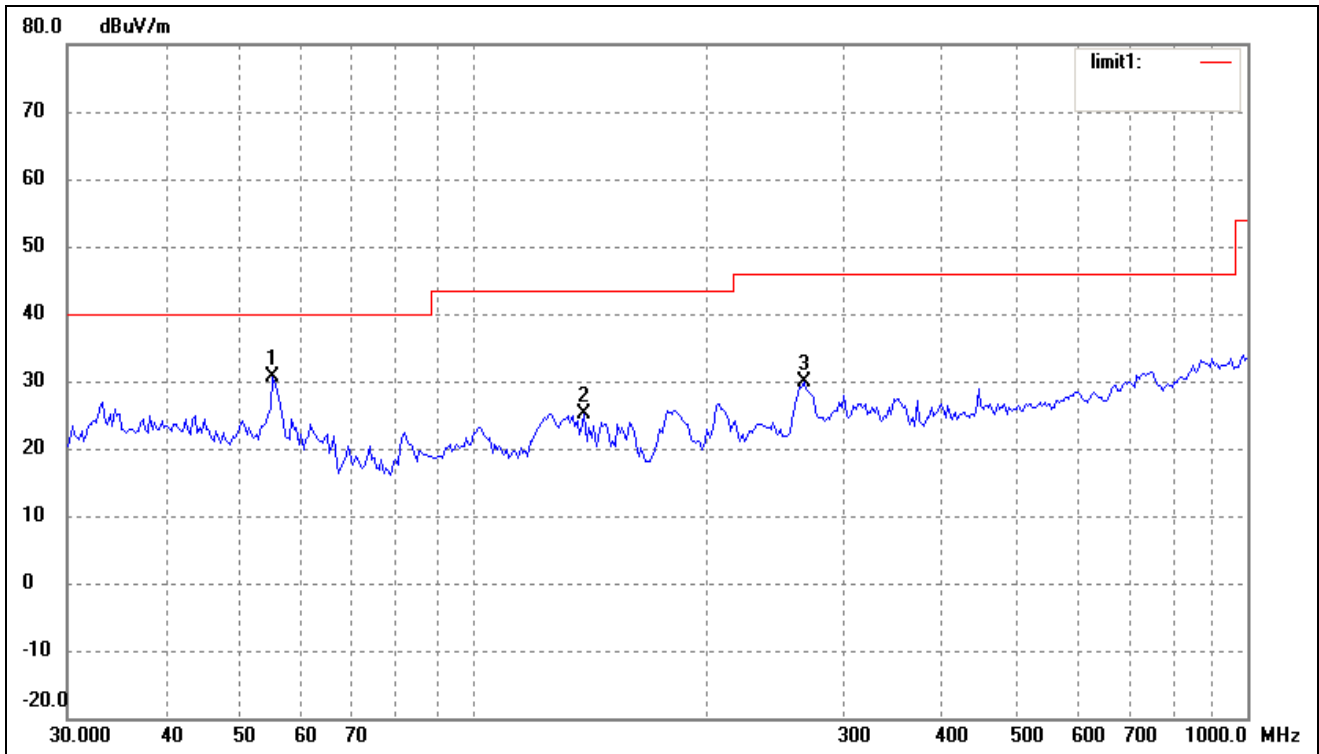
-3.25 dB at 37.2854 MHz in the Vertical polarization, 9 kHz to 2 GHz, 3Meters

Plot of Radiated Emissions Test Data

EUT: *WiMAX MRT CPE*
 Tested Model: *Airstream 4001 F49-MRT*
 Operating Condition: *Operating*
 Comment: *Battery DC 12V*

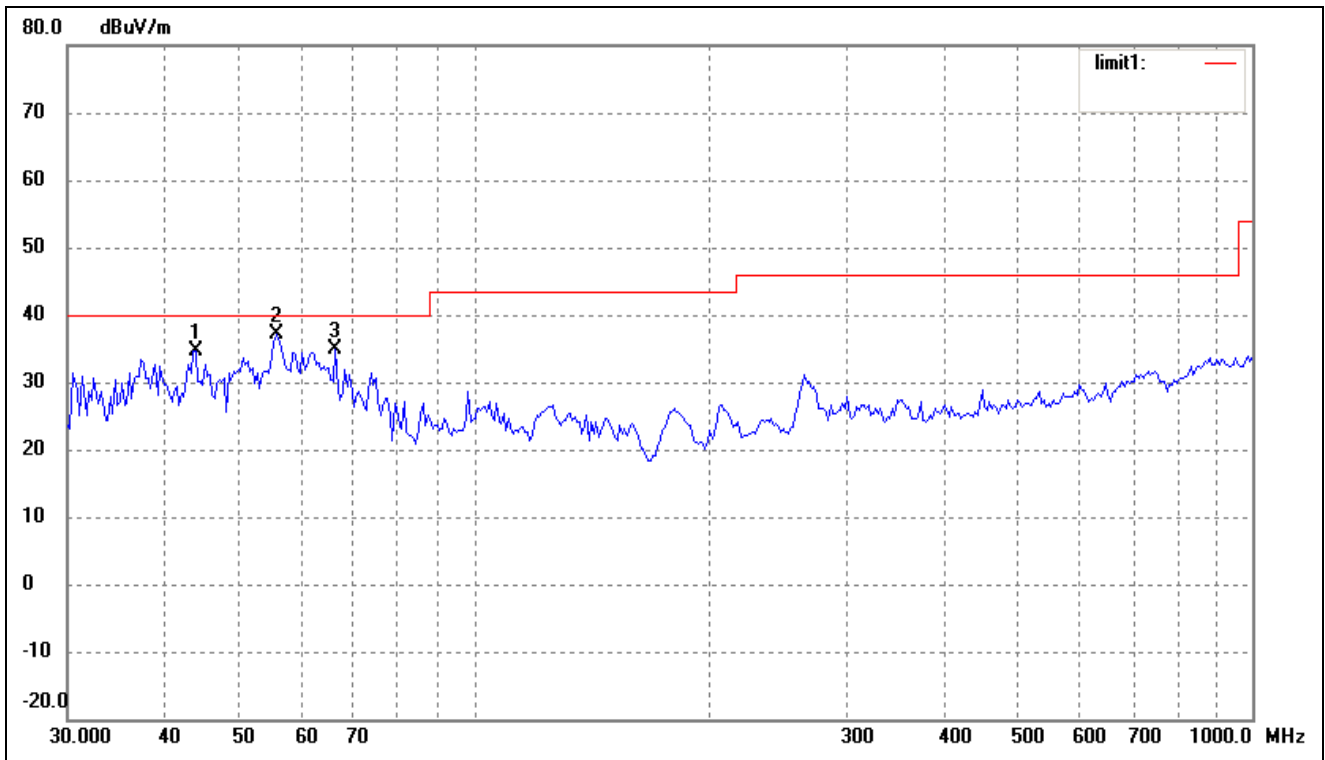
Test Specification: *Horizontal*

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.2207	24.74	5.80	30.54	40.00	-9.46	226	100	peak
2	139.3613	22.66	2.46	25.12	43.50	-18.38	164	100	peak
3	267.5455	22.33	7.55	29.88	46.00	-16.12	360	100	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	43.8119	26.61	8.12	34.73	40.00	-5.27	360	100	peak
2	55.6094	31.46	5.77	37.23	40.00	-2.77	112	100	peak
3	66.2662	31.46	3.38	34.84	40.00	-5.16	272	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 1GHz, The measurements greater than 20dB below the limit from 9kHz to 30MHz and the data is not report.

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