

Report No. : E86.12.328.003

This Test Report is Prepared for

Shenzhen Excel Digital Technology Co., LTD

1907,Overseas Chinese High-Tech Venture Park,Nanshan,Shenzhen,P.R.China

Product Name: Multi-Function Remote

Model No.: AF101RX,AF101GRX,AF106RX

Brand Name: N/A

Applicable standards: FCC Part 15 Subpart B: 2009

Test result: The FCC testing has been performed on the submitted samples and found in compliance with ANSI C63.4&FCC Part 15.

Prepared by :



Shirley Xu Assistant

Reviewer :



Mary Huang/Supervisor

Approved & Authorized Signer :



Mike Wang/ Manager

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Test Report Conclusion
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1. General Information

1.1 Details of Applicant

Name: Shenzhen Excel Digital Technology Co.,LTD

Address: 1907,Overseas Chinese High-Tech Venture Park,Nanshan,Shenzhen,P.R.China

1.2 Application Details

Date of Receipt of Application: Nov 26, 2012

Date of Receipt of Test Item: Nov 26, 2012

Date of Test: Nov 26, 2012~ Dec 08, 2012

1.3 General Description of EUT

Product Name:	Multi-Function Remote
Model No.:	AF101RX,AF101GRX,AF106RX
Brand Name;	N/A
Operation Frequency:	2402~2480MHz
Modulation Technology:	GFSK
Antenna Type:	PCB Antenna with Gain 0dBi
Power supply:	Input: DC5V, 0.1A
Remark:	Only the basic model No. AF101RX was tested. The other models are identical in the same PCB layout, interior structure and electrical circuits with the basic model. The only difference is the model name for commercial purpose.
FCC ID:	QZVCZ-DG-AF100

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2.0 List of Measurement Equipment

2.1 Conducted Emission Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESH3	860905/006	RS	2012.4.26	1 Year
Spectrum Analyzer	ESA-L1500A	US37451154	HP	2012.4.26	1 Year
PULSE LIMITER	ESH3-Z2	100281	RS	2012.4.26	1 Year
LISN	ESH3-Z5	100294	RS	2012.4.26	1 Year
LISN	ESH3-Z5	100253	RS	2012.4.26	1 Year

2.2 Radiated electromagnetic disturbance test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESVD	100008	RS	2012.4.26	1 Year
Coaxial Switch	MP59B	M70585	ANRITSU	N/A	N/A
Spectrum Analyzer	8595E	3441A00893	HP	2012.4.26	1 Year
Amplifier	8447D	2727A05017	HP	2012.4.26	1 Year
Bilog Antenna	VULB9163	9163/340	Schwarebeck	2012.4.26	1 Year
Horn Antenna	BBHA 9120D	9120D-631	Schwarebeck	2012.4.26	1 Year

2.3 Auxiliary Equipment

Name	Model No.	Serial No.	Manufacturer	Cable	FCC ID/DOC
PC	R400	--	IBM	--	FCC DOC
Mouse	M-F105	--	L.Seletron	Data cable of 1.2m length unshielded	FCC DOC
Earphone	--	--	--	Data cable of 1.2m length unshielded	FCC VOC

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3.0 Technical Details

3.1 Investigations Requested

Perform Electromagnetic Interference [EMI] tests for FCC Requirement.

3.2 Test Standards

FCC Part 15 Subpart B: 2009

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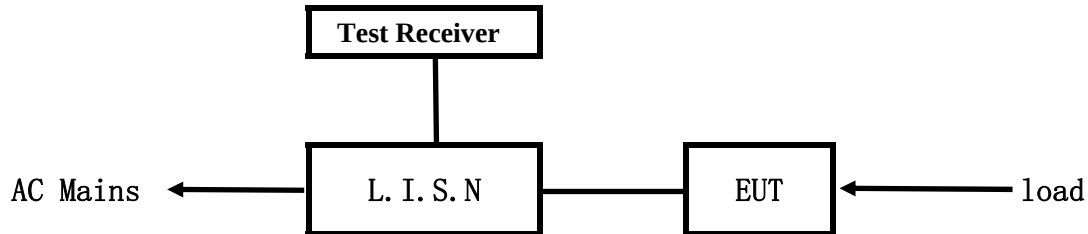
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4.0 Conducted Power line Test

4.1 Schematics of the test



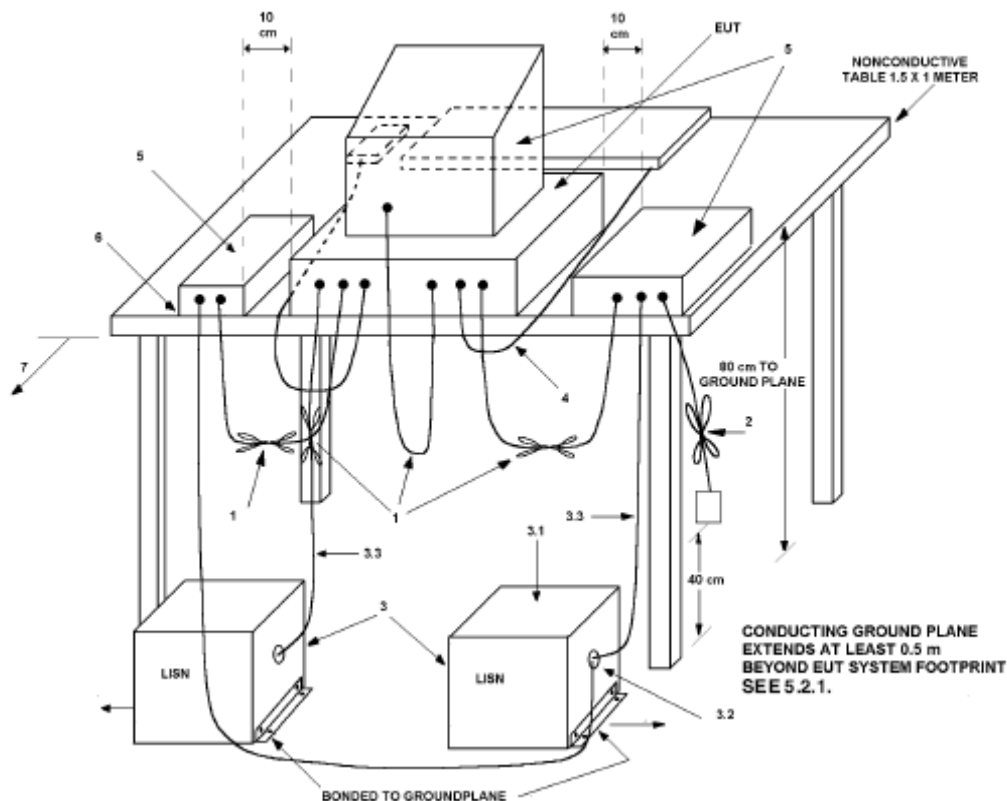
EUT: Equipment Under Test

4.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4-2003. Cables and peripherals were moved to find the maximum emission levels for each frequency.

Actual Working Voltage and Frequency: 120V~, 60Hz

Block diagram of Test setup



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4.3 Power line conducted Emission Limit

Frequency(MHz)	Class A Limits dB(μ V)		Class B Limits dB(μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.00	66.00	66.00~56.00*	56.00~46.00*
0.50 ~ 5.00	73.00	60.00	56.00	46.00
5.00 ~ 30.00	73.00	60.00	60.00	50.00

- Notes:
1. *decreasing linearly with logarithm of frequency.
 2. The tighter limit shall apply at the transition frequencies

4.4 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

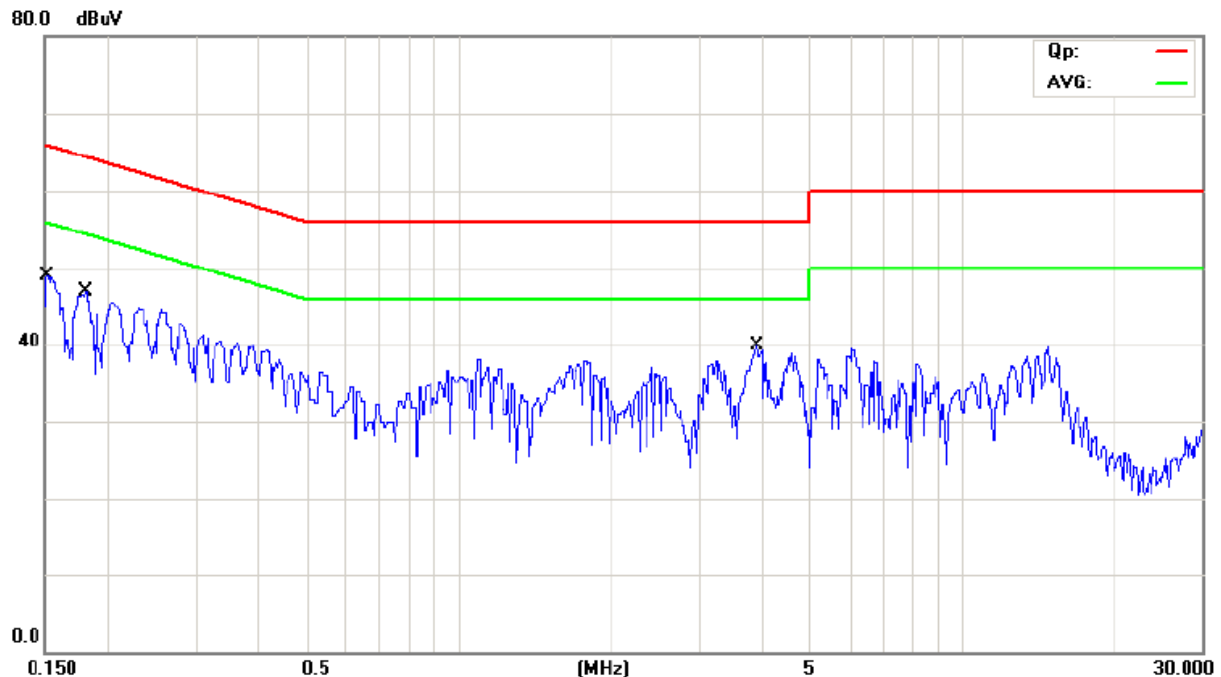
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Data communication mode with PC

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Line	Reading(dBμV)		Limit(dBμV)	
		Quasi-peak	Average	Quasi-peak	Average
0.151	Live	48.87	36.49	65.91	55.91
0.180	Live	46.83	35.36	64.46	54.46
3.897	Live	39.85	26.85	56.00	46.00

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

EUT Operating Environment

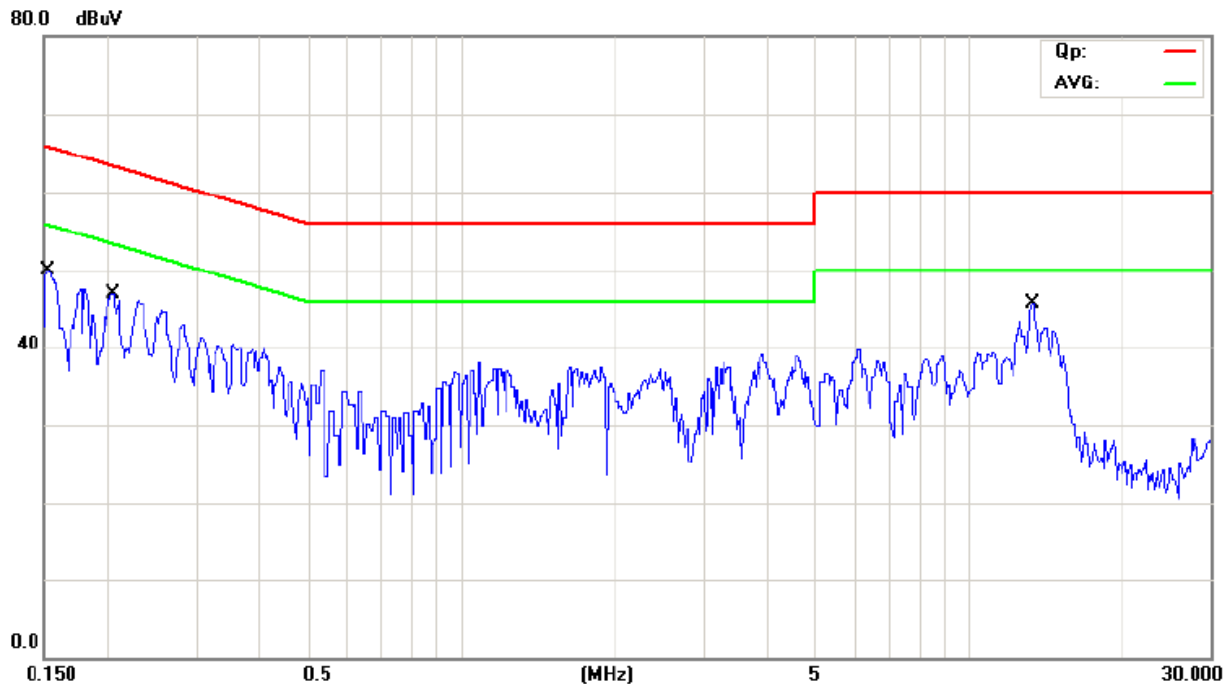
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Data communication mode with PC

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Line	Reading(dBμV)		Limit(dBμV)	
		Quasi-peak	Average	Quasi-peak	Average
0.152	Neutral	49.88	38.52	65.86	55.86
0.205	Neutral	46.99	34.18	63.40	53.40
13.375	Neutral	45.70	31.51	60.00	50.00

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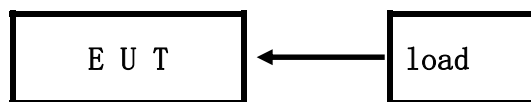
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5.0 Radiated Disturbance Test

5.1 Schematics of the test

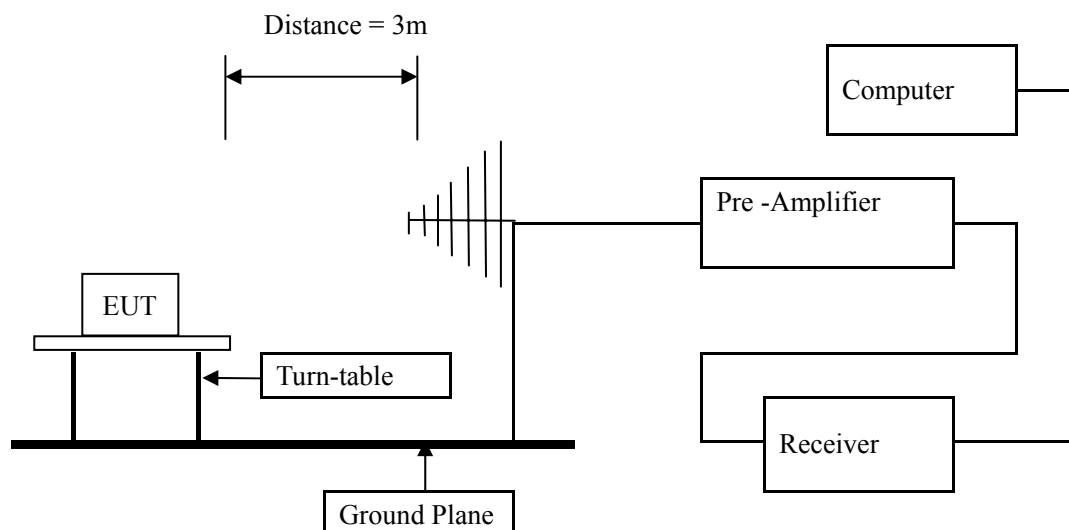


5.2 Test Method and test Procedure:

The EUT was tested according to ANSI C63.4 –2003, The frequency spectrum from 30MHz to 6GHz was investigated. All reading from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK

Actual Working Voltage and Frequency: 120V~, 60Hz

Block diagram of Test setup



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Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.00
88-216	3	43.50
216-960	3	46.00
Above 960	3	54.00

5.4 Test result

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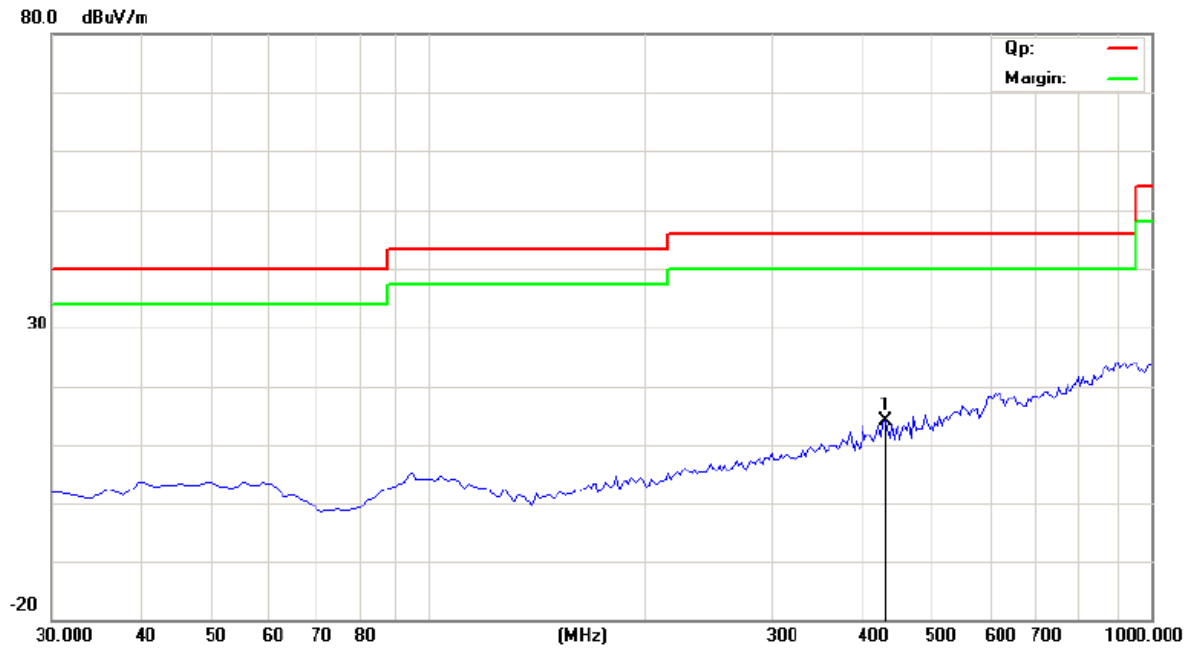


A. General Radiated Emission Data
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: **Data communication mode with PC**

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
428.497	14.07	H	46.00

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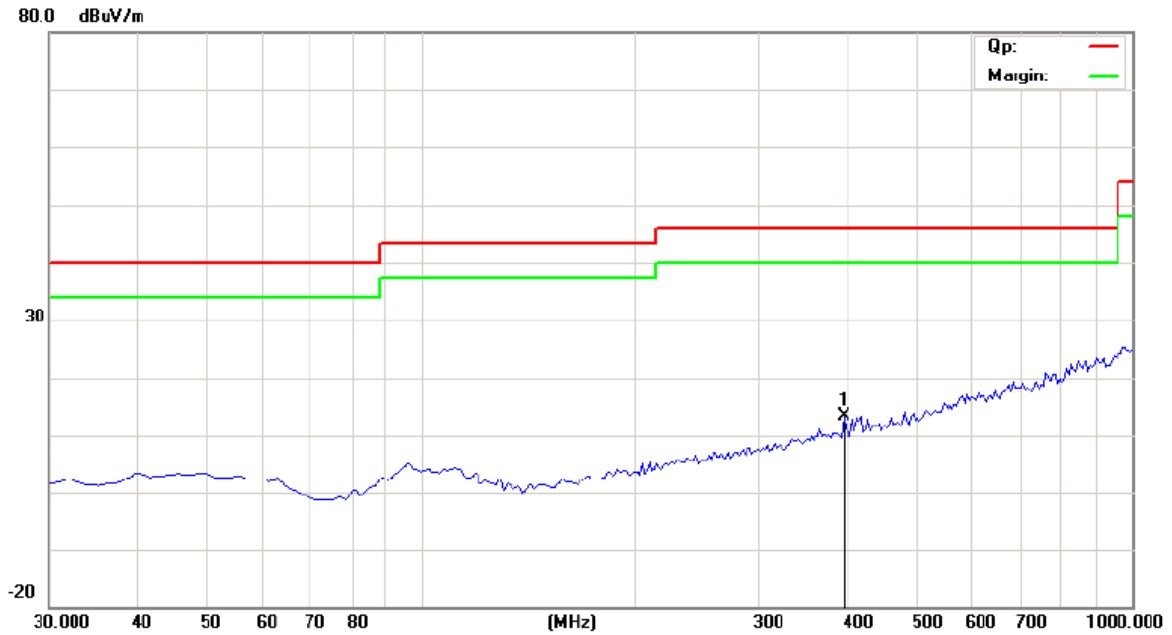


Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: **Data communication mode with PC**

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
393.507	13.41	V	46.00

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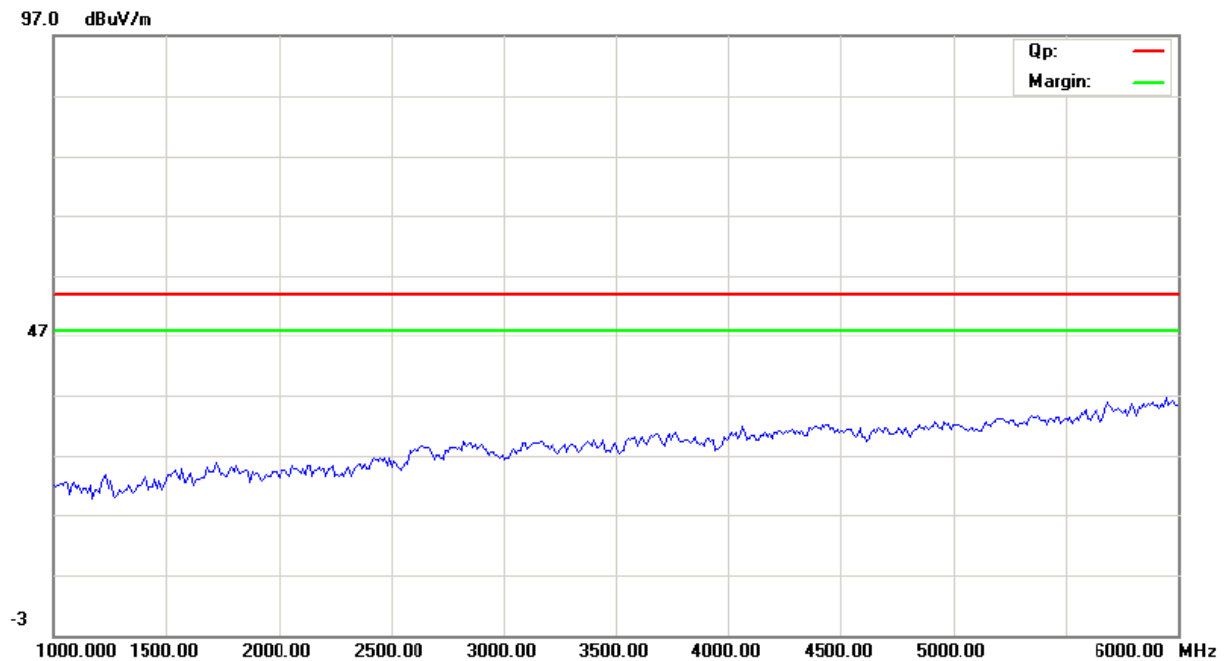


C. General Radiated Emission Data
Radiated Emission In Horizontal (1000MHz----6000MHz)

EUT set Condition: **data communication mode with PC**

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
--	--	H	--
-	-	H	--

Note: The radiated emission level less than the limit for more than 20dB, no necessary to take down the record

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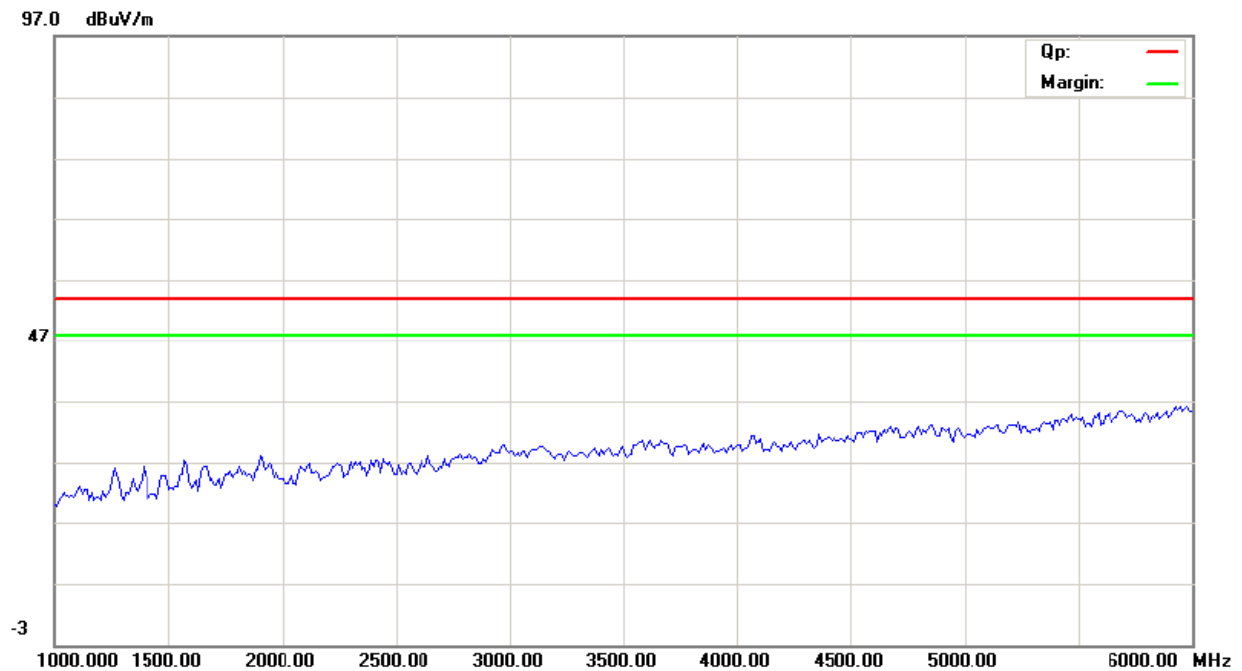


D. General Radiated Emission Data
Radiated Emission In Vertical (1000MHz----6000MHz)

EUT set Condition: **data communication mode with PC**

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
--	--	V	--
--	--	V	--

Note: The radiated emission level less than the limit for more than 20dB, no necessary to take down the record

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6.0 FCC ID Label

FCCID: QZVCZ-DG-AF100

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



FCC ID Label Location

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7.0 Photo of testing

7.1 Conducted test View--



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7.2 Radiated emission test view--



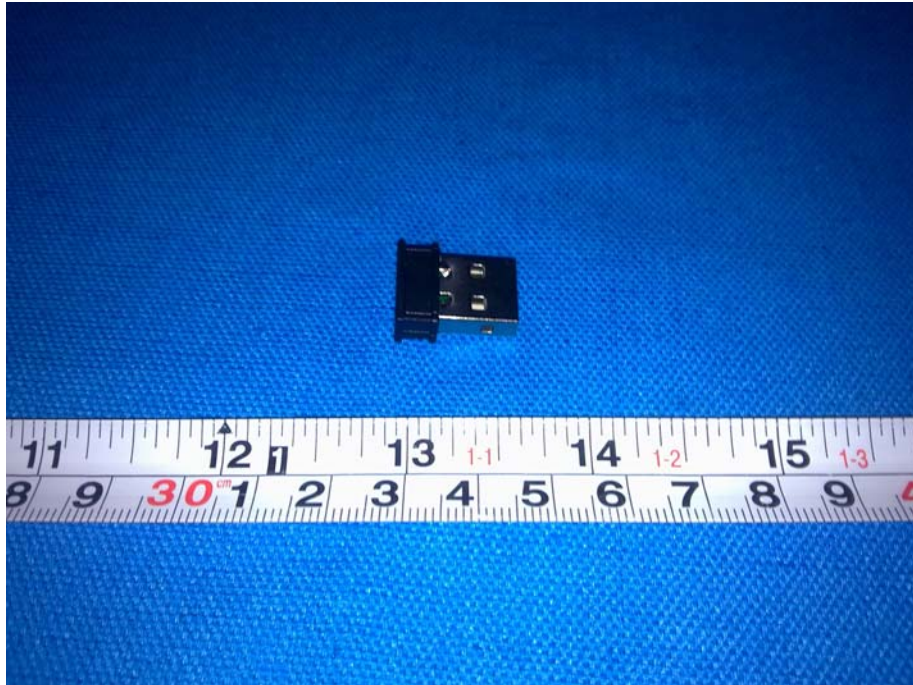
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Outside View—

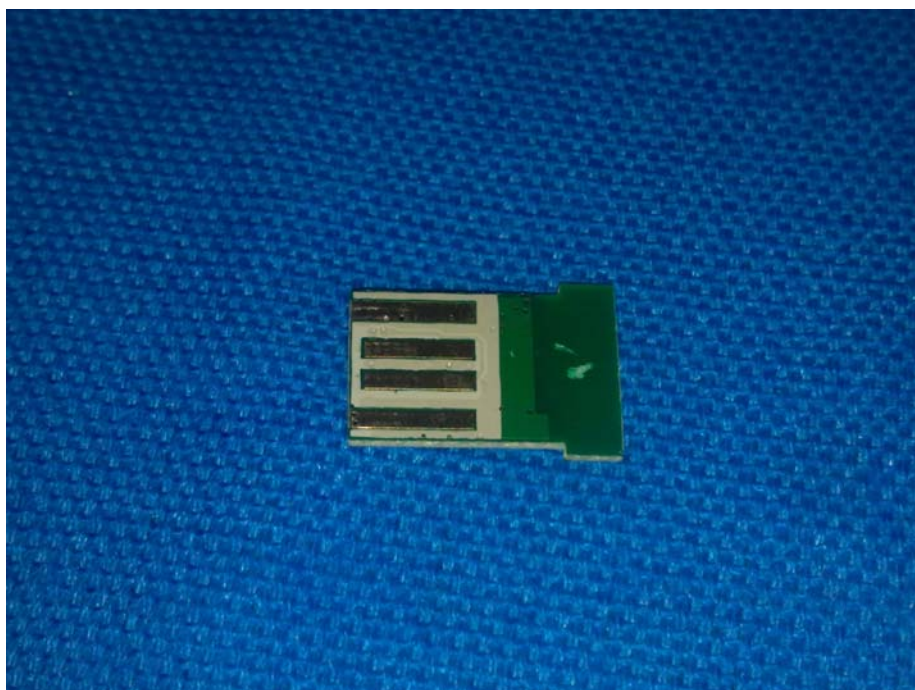


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Interior View—



-End of the report-

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