



# FCC PART 15.249 MEASUREMENT AND TEST REPORT

For

**NOVA DVR WIRELESS REMOTE**

**MODEL: 55518RX**

**Test Report Number:**

**BATT201107102R-1**

ISSUED FOR

**Teknatool International Limited**

7D Dallen Place, Albany, Auckland 0632, New Zealand

ISSUED BY:

**SHENZHEN BATT TESTING TECHNOLOGY CO.,LTD.**

11F,Bldg.B,Xinbaoyuan,XinanzhuCommercialcity,Bao'an District,,  
Shenzhen,Guangdong,China

TEL: 86-755-27753991

FAX: 86-755-27754182

Issued Date: July 25, 2011

**Note:** This report shall not be reproduced except in full ,without the written approval of by SHENZHEN BATT TESTING TECHNOLOGY CO.,LTD .This document may be altered or revised by SHENZHEN BATT TESTING TECHNOLOGY CO.,LTD. personnel only, and shall be noted in the revision section of the document.

## **TABLE OF CONTENTS**

<b>TEST CERTIFICATION .....</b>	<b>4</b>
<b>GENERAL INFORMATION.....</b>	<b>5</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	5
OBJECTIVE .....	6
TEST METHODOLOGY .....	6
TEST FACILITY .....	6
<b>SYSTEM TEST CONFIGURATION .....</b>	<b>7</b>
JUSTIFICATION .....	7
EQUIPMENT MODIFICATIONS .....	7
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS .....	7
EXTERNAL I/O CABLE.....	7
CONFIGURATION OF TEST SETUP .....	8
BLOCK DIAGRAM OF TEST SETUP .....	8
<b>SUMMARY OF TEST RESULTS .....</b>	<b>9</b>
<b>FCC§15.203 - ANTENNA REQUIREMENT.....</b>	<b>10</b>
APPLICABLE STANDARD .....	10
ANTENNA CONNECTOR CONSTRUCTION .....	10
<b>FCC §15.207 (A) – AC LINE CONDUCTED EMISSIONS .....</b>	<b>11</b>
APPLICABLE STANDARD .....	11
MEASUREMENT UNCERTAINTY.....	11
EUT SETUP .....	11
EMI TEST RECEIVER SETUP.....	12
TEST EQUIPMENT LIST AND DETAILS.....	12
TEST PROCEDURE .....	12
TEST RESULTS SUMMARY .....	12
TEST DATA .....	12
<b>FCC§15.205, §15.209&amp; §15.249- RADIATED EMISSIONS .....</b>	<b>15</b>
APPLICABLE STANDARD .....	15
MEASUREMENT UNCERTAINTY.....	15
TEST EQUIPMENT SETUP .....	15
EUT SETUP .....	16
TEST EQUIPMENT LIST AND DETAILS.....	16
TEST PROCEDURE .....	17
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	17
TEST RESULTS SUMMARY .....	17
TEST DATA .....	17
<b>§15.249(D) – OUT OF BAND EMISSIONS .....</b>	<b>20</b>
APPLICABLE STANDARD .....	20
MEASUREMENT UNCERTAINTY.....	20
TEST EQUIPMENT SETUP .....	20
TEST PROCEDURE .....	20
TEST EQUIPMENT LIST AND DETAILS.....	20
TEST DATA .....	21

**FCC§15.215(C) – 20DB BANDWIDTH.....22**

    APPLICABLE STANDARD .....22

    TEST EQUIPMENT LIST AND DETAILS.....22

    TEST PROCEDURE .....22

    TEST DATA .....22

**TEST CERTIFICATION****Product:** NOVA DVR WIRELESS REMOTE**Model:** 55518RX**Brand:** NOVA**Tested:** July 23, 2011**Applicant:** Teknatool International Limited

7D Dallan Place, Albany, Auckland 0632, New Zealand

**Manufacturer:** Shenzhen Yefo Electronics Technology Co.,Ltd

809-813, Nuobo Plaza, QianJin 1RD., Baoan District, ShenZhen

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 15 SUBPART C	NO NON-COMPLIANCE NOTED
DEVIATION FROM APPLICABLE STANDARD	
None	

**We hereby certify that:**

The above equipment was tested by SHENZHEN BATT TESTING TECHNOLOGY CO.,LTD.

The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.205 ,15.207, 15.209, 15.249.

The test results of this report relate only to the tested sample EUT identified in this report.

**Tested by:***Simon Mo*

---

Simon Mo  
Test Engineer**Reviewed by:***Mike Yong*

---

Mike Yong  
EMC Engineer

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Product	NOVA DVR WIRELESS REMOTE
Trade Name	NOVA
Model Number	55518RX
Model Discrepancy	N/A
Serial Number	N/A
Power Supply	DC 3~4V
Frequency Range	2440 MHz
Transmit Power	PK: 86.82 dB $\mu$ V/m@3m ; AV: 84.95 dB $\mu$ V/m@3m
Modulation Technique	GFSK
Number of Channels	1 channel
Antenna Specification	Printed PCB antenna with 0dBi gain

**Note:** 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2. This submittal(s) (test report) is intended for FCC ID: ZSG-55518RX filing to comply with Section 15.205 ,15.207, 15.209 and 15.249 of the FCC Part 15, Subpart C Rules.

## Objective

This Type approval report is prepared on behalf of *Teknatool International Limited* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

## Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, 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.

All radiated and conducted emissions measurements were performed at ShenZhen Emtex Co.,Ltd . The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## Test Facility

The Test site used by ShenZhen Emtex Co.,Ltd to collect test data is located in Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China.

Test site at ShenZhen Emtex Co.,Ltd has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on March 18, 2008 and October 28, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 709623 and 406365. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

.

## SYSTEM TEST CONFIGURATION

### Justification

The system was configured for testing in a engineering mode which was provided by the manufacturer.

### Equipment Modifications

No modifications were made to the EUT tested.

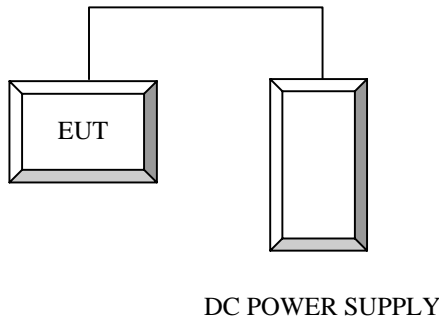
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
FNC	DC POWER SUPPLY	PS-305D	N/A	N/A

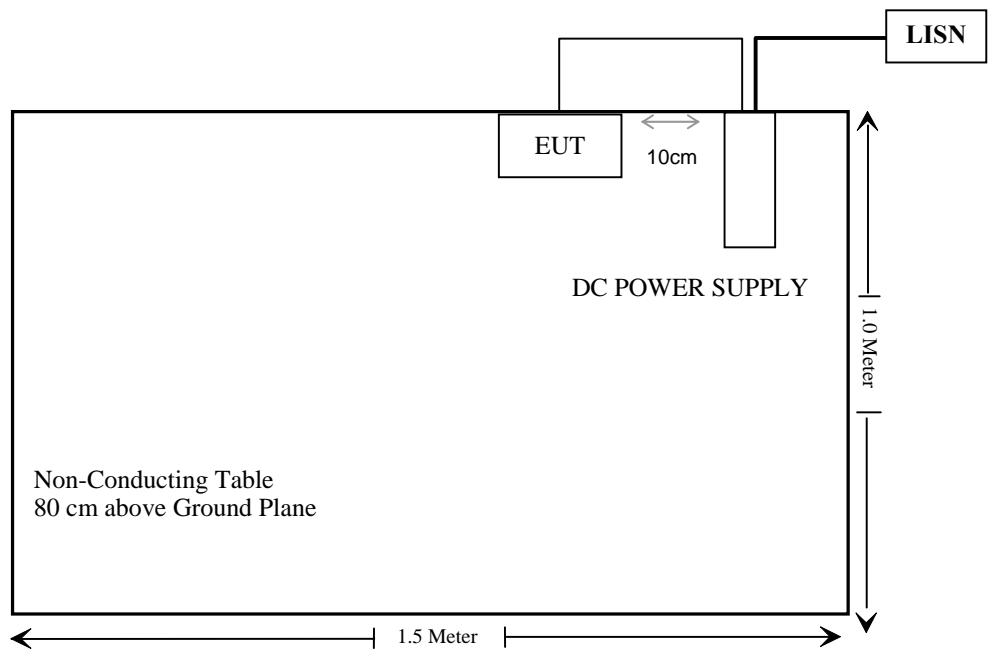
### External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Detachable Power Cable	0.8	EUT	DC POWER SUPPLY

Configuration of Test Setup



Block Diagram of Test Setup





**SUMMARY OF TEST RESULTS**

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conduction Emissions	Compliance
§15.205(a), §15.209(a), 15.249(a), §15.249(c), §15.35	Radiated Emissions	Compliance
§15.249(d)	Out of Band Emissions	Compliance
§15.215(c)	20dB Bandwidth	Compliance

**FCC§15.203 - ANTENNA REQUIREMENT**

---

**Applicable Standard**

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

**Antenna Connector Construction**

The EUT has a printed antenna on PCB, the antenna gain is 0 dBi, which in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.

**Result:** Compliant.

Please refer to the EUT photos.

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

### Applicable Standard

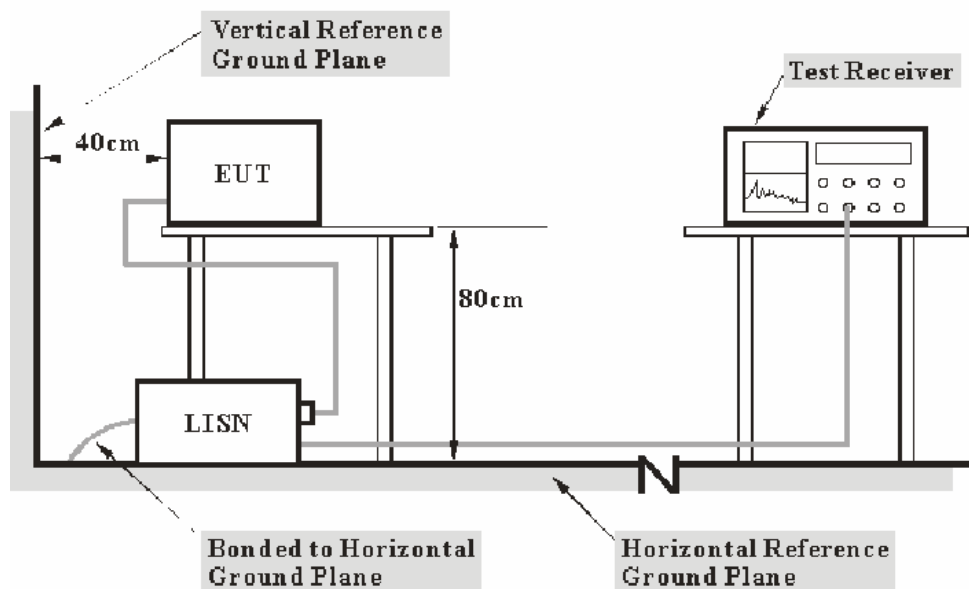
FCC §15.207

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at ShenZhen Emtek Co.,Ltd is  $\pm 2.4$  dB.

### EUT Setup



- Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

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

<i><b>Frequency Range</b></i>	<i><b>IF B/W</b></i>
150 kHz – 30 MHz	9 kHz

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	834549/006	2010-09-07	2011-09-06
Rohde & Schwarz	L.I.S.N.	ENV216	834548/112	2010-09-07	2011-09-06
Rohde & Schwarz	EMI Test Receiver	ESCS30	828985/018	2010-09-07	2011-09-06

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).

## Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

**9.16 dB at 27.120 MHz in the Line conducted mode**

## Test Data

### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

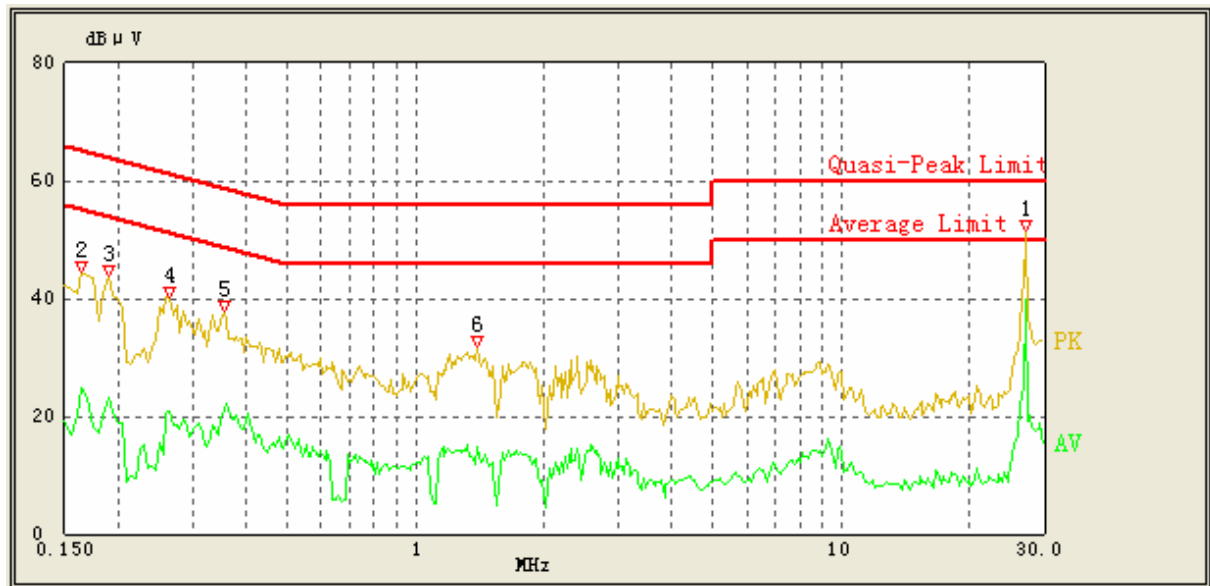
\* The testing was performed by Simon Mo on 2011-07-23.

*Test Mode: Transmitting*

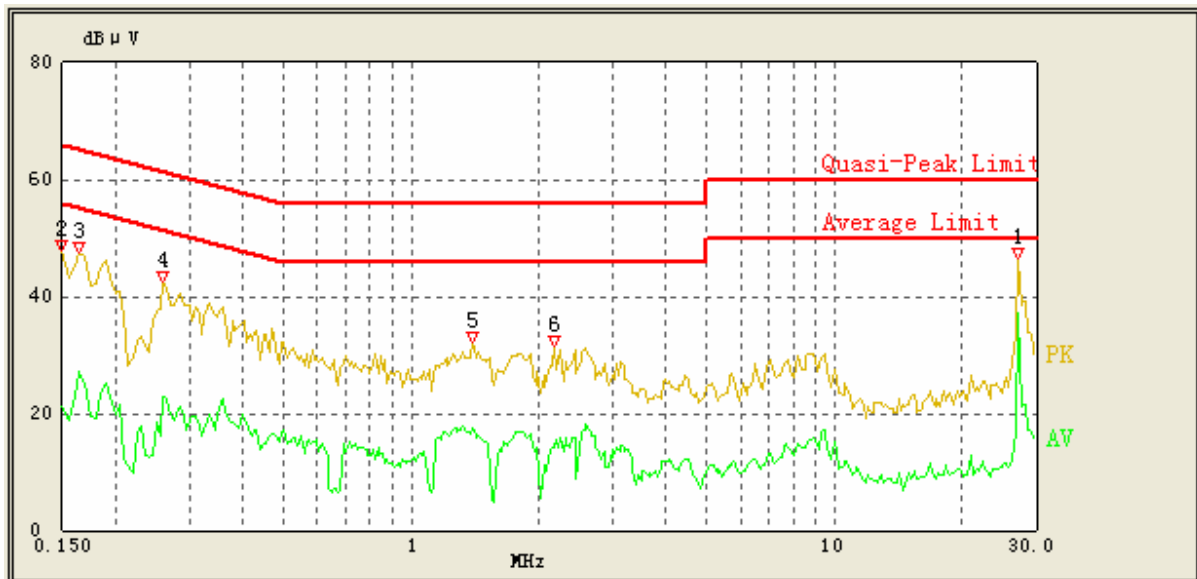
*Test Result: Compliance*

*Please refer to the following table and plots:*

## AC 120V/60 Hz, Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dB $\mu$ V)	Corrected Factor (dB)	Limit (dB $\mu$ V)	Margin (dB)	Remark (PK/ QP/Ave.)
0.165	40.06	10.10	65.57	25.51	QP
0.165	24.98	10.10	55.57	30.59	Ave
0.190	38.89	10.10	64.86	25.97	QP
0.190	23.01	10.10	54.86	31.85	Ave
0.265	34.01	10.10	62.71	28.70	QP
0.265	20.95	10.10	52.71	31.76	Ave
0.355	31.02	10.10	60.14	29.12	QP
0.355	21.11	10.10	50.14	29.03	Ave
1.395	26.61	10.12	56.00	29.39	QP
1.395	14.89	10.12	46.00	31.11	Ave
27.120	50.84	10.20	60.00	9.16	QP
27.120	39.74	10.20	50.00	10.26	Ave

**AC 120V/60 Hz, Neutral**

Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result (dB $\mu$ V)	Corrected Factor (dB)	Limit (dB $\mu$ V)	Margin (dB)	Remark (PK/ QP/Ave.)
0.150	37.07	10.10	66.00	28.93	QP
0.150	21.02	10.10	56.00	34.98	Ave
0.165	41.06	10.10	65.57	24.51	QP
0.165	27.22	10.10	55.57	28.35	Ave
0.260	34.30	10.10	62.86	28.56	QP
0.260	22.97	10.10	52.86	29.89	Ave
1.395	26.53	10.12	56.00	29.47	QP
1.395	17.39	10.12	46.00	28.61	Ave
2.185	22.84	10.14	56.00	33.16	QP
2.190	15.52	10.14	46.00	30.48	Ave
27.120	45.39	10.20	60.00	14.61	QP
27.120	37.25	10.20	50.00	12.75	Ave

## **FCC§15.205, §15.209& §15.249- RADIATED EMISSIONS**

### **Applicable Standard**

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

<b>Fundamental frequency</b>	<b>Field strength of fundamental (millivolts/meter)</b>	<b>Field strength of harmonics (microvolts/meter)</b>
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

### **Measurement Uncertainty**

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at ShenZhen Emtex Co.,Ltd is  $\pm 4.0$  dB.

### **Test Equipment Setup**

The spectrum analyzer or receiver is set as:

30 MHz ~1000 MHz:

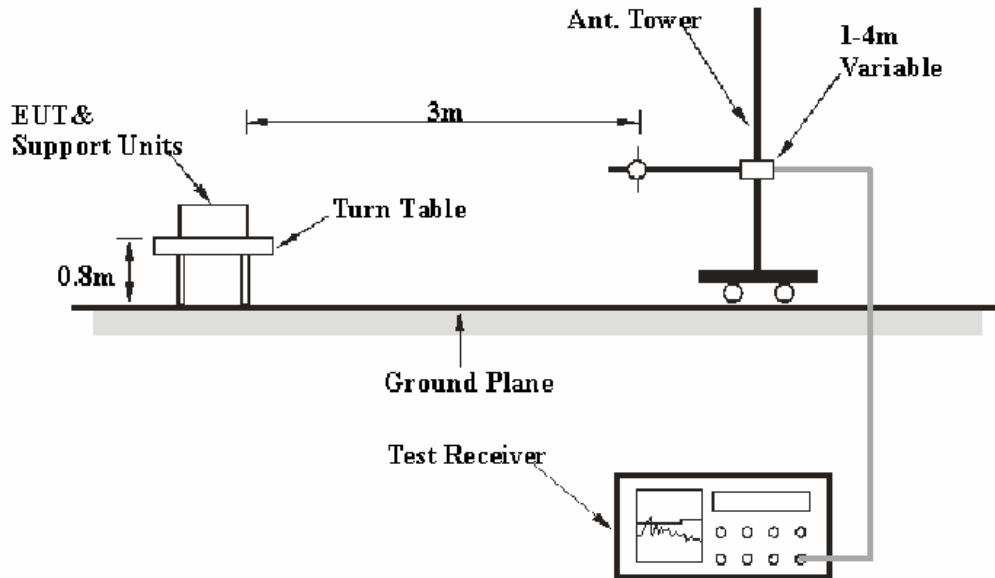
RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto

Average: RBW = 1MHz / VBW = 10 Hz / Sweep = Auto

## EUT Setup



The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209 and FCC 15.249 limits.

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP30	839511/010	2010-09-26	2011-09-25
Rohde & Schwarz	EMI Test Receiver	ESCI	100005	2011-03-08	2012-03-07
HP	Amplifier	8447D	2944A07999	2010-10-02	2011-10-02
HP	Amplifier	8449B	2624A00116	2011-03-03	2012-03-02
Schwarzbeck	Horn Antenna	BBHA 9120	D143	2010-09-04	2011-09-03
Schwarzbeck	Bilog Antenna	VULB9163	142	2011-04-12	2012-04-12
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-10

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).



## Test Procedure

For the radiated emissions test, maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

## Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209 & 15.249, with the worst margin reading of:

**8.31 dB at 4880 MHz in the Vertical polarization**

## Test Data

### Environmental Conditions

<b>Temperature:</b>	26 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	100.2 kPa

*The testing was performed by Simon Mo on 2011-07-23.*

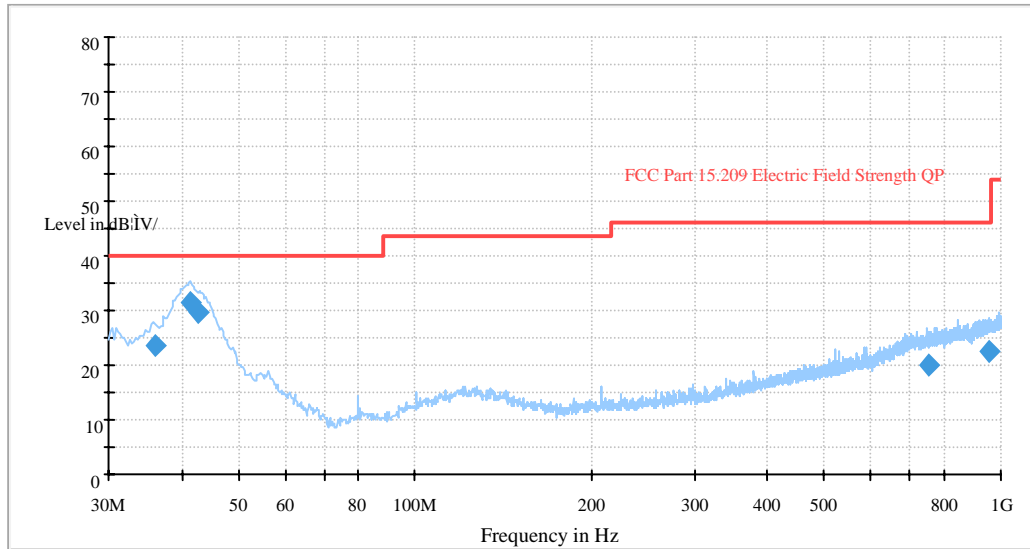
*Test Mode: Transmitting*

*Test Result: Compliance*

Please refer to the following table.

**30-1000 MHz**

Auto Test (FCC 15.209)



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity	Turntable Position (deg)	Correction Factor (dB)	Limit (dBμV/m)	Margin (dB)
36.007500	23.6	100.0	V	0.0	-9.5	40.0	16.4
41.274500	31.4	100.0	V	183.0	-12.9	40.0	8.6
42.644500	29.5	120.0	V	237.0	-13.7	40.0	10.5
750.560000	19.9	283.0	H	315.0	-2.4	46.0	26.1

Note: The data which below 20dB to limit was not recorded.

**Above 1 GHz**

Freq. (MHz)	Reading (dBμV)	Detector QP/PK/Ave.	Direction Degree	Height (m)	Ant. Polar H/V	Ant. Loss (dB)	Cable loss (dB)	Amp. Gain (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.249/15.209		
										Limit (dBμV/m)	Margin (dB)	Comment
Channel (2440 MHz)												
2440	80.18	PK	145	1.50	V	30.4	3.08	26.84	86.82	114	27.18	Fundamental
2440	78.31	Ave	145	1.50	V	30.4	3.08	26.84	84.95	94	9.05	Fundamental
2440	75.94	PK	85	1.50	H	30.3	3.08	26.84	82.48	114	31.52	Fundamental
2440	74.03	Ave	85	1.50	H	30.3	3.08	26.84	80.57	94	13.43	Fundamental
4880	34.67	PK	139	1.50	V	35.1	4.36	26.78	47.35	74	26.65	Harmonic
4880	33.01	Ave	139	1.50	V	35.1	4.36	26.78	45.69	54	8.31	Harmonic
4880	34.26	PK	178	1.50	H	35.3	4.36	26.78	47.14	74	26.86	Harmonic
4880	32.48	Ave	178	1.50	H	35.3	4.36	26.78	45.36	54	8.64	Harmonic

**Restricted Band**

Freq. (MHz)	Reading (dBμV)	Detector QP/PK/Ave.	Direction Degree	Height (m)	Ant. Polar H/V	Ant. Loss (dB)	Cable loss (dB)	Amp. Gain (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.249/ 15.205		
										Limit (dBμV/m)	Margin (dB)	Comment
2337.36	38.25	PK	183	1.50	V	30.2	2.98	26.83	44.6	74	29.4	Spurious
2337.36	30.37	Ave.	183	1.50	V	30.2	2.98	26.83	36.72	54	17.28	Spurious
2337.36	36.47	PK	357	1.50	H	30.1	2.98	26.83	42.72	74	31.28	Spurious
2337.36	29.13	Ave.	357	1.50	H	30.1	2.98	26.83	35.38	54	18.62	Spurious
2494.78	38.53	PK	5	1.50	V	30.6	3.11	26.86	45.38	74	28.62	Spurious
2494.78	28.81	Ave.	5	1.50	V	30.6	3.11	26.86	35.66	54	18.34	Spurious
2494.78	37.24	PK	360	1.50	H	30.6	3.11	26.86	44.09	74	29.91	Spurious
2494.78	28.27	Ave.	360	1.50	H	30.6	3.11	26.86	35.12	54	18.88	Spurious

## **§15.249(d) – OUT OF BAND EMISSIONS**

### **Applicable Standard**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

### **Measurement Uncertainty**

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at ShenZhen Emtex Co.,Ltd is  $\pm 4.0$  dB.

### **Test Equipment Setup**

The spectrum analyzer or receiver is set as:

Above 1000 MHz:

- (1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
- (2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

### **Test Procedure**

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission at the band edge. The receiving antenna should be changed the polarization both of horizontal and vertical.

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100005	2011-03-08	2012-03-07
HP	Amplifier	8449B	2624A00116	2011-03-03	2012-03-02
Schwarzbeck	Horn Antenna	BBHA 9120	D143	2010-09-04	2011-09-03

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).

**Test Data****Environmental Conditions**

<b>Temperature:</b>	26 °C
<b>Relative Humidity:</b>	48 %
<b>ATM Pressure:</b>	100.2 kPa

The testing was performed by Simon Mo on 2011-07-23.

Test Mode: Transmitting

Test Result: Compliance

Please refer to the following table.

Freq. (MHz)	Reading (dBμV)	Detector QP/PK/Ave.	Direction Degree	Height (m)	Ant. Polar H/V	Ant. Loss (dB)	Cable loss (dB)	Amp. Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.249/15.209	
										Limit (dBμV/m)	Margin (dB)
Out of left side band											
2399.64	39.27	PK	184	1.50	V	30.2	3.03	26.84	45.66	74	28.34
2399.64	29.31	AV	184	1.50	V	30.2	3.03	26.84	35.70	54	18.30
2399.64	38.67	PK	360	1.50	H	30.1	3.03	26.84	44.96	74	29.04
2399.64	27.85	AV	360	1.50	H	30.1	3.03	26.84	34.14	54	19.86
Out of right side band											
2494.78	38.56	PK	2	1.50	V	30.6	3.11	26.86	45.41	74	28.59
2494.78	28.77	Ave.	2	1.50	V	30.6	3.11	26.86	35.62	54	18.38
2494.78	37.38	PK	358	1.50	H	30.6	3.11	26.86	44.23	74	29.77
2494.78	28.16	Ave.	358	1.50	H	30.6	3.11	26.86	35.01	54	18.99

## FCC§15.215(c) – 20dB BANDWIDTH

### Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100005	2011-03-08	2012-03-07
HP	Amplifier	8449B	2624A00116	2011-03-03	2012-03-02
Schwarzbeck	Horn Antenna	BBHA 9120	D143	2010-09-04	2011-09-03

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).

### Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that indicated 20dB bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

### Test Data

#### Environmental Conditions

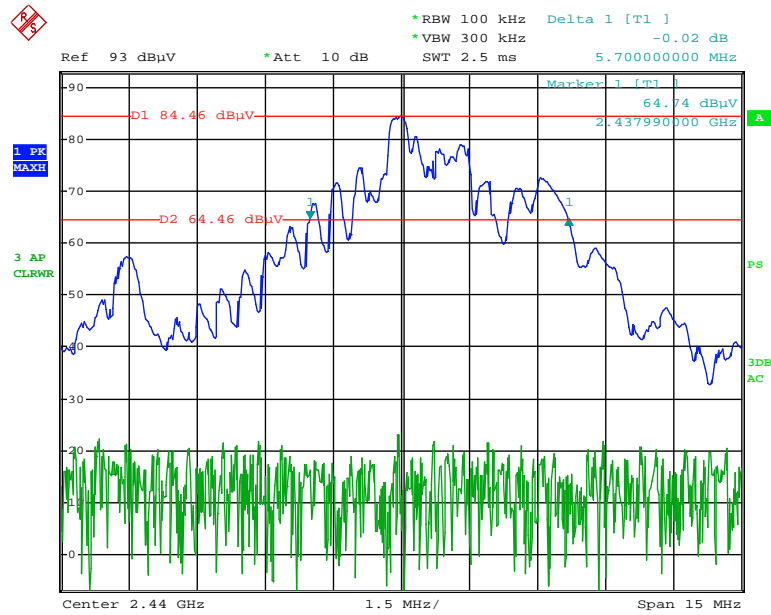
Temperature:	26 °C
Relative Humidity:	48 %
ATM Pressure:	100.2 kPa

*\*The testing was performed by Simon Mo on 2011-07-23.*

*Test Mode: Transmitting*

Pleas refer to the plot and tabular data sheet attached.

Channel	Channel Frequency (MHz)	20dB Bandwidth (MHz)
1	2440	5.700



Date: 23.JUL.2011 10:05:19

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