


# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

**Test Report No.** : W154R-D001  
**AGR No.** : A149A-082  
**Applicant** : Remote Solution Co., Ltd.  
**Address** : 92, Chogokri, Nammyun, Kimchon city, Korea, 740-871  
**Manufacturer** : Remote Solution Co., Ltd.  
**Address** : 92, Chogokri, Nammyun, Kimchon city, Korea, 740-871  
**Type of Equipment** : Smart Home Sensor  
**FCC ID.** : TX4SA01E  
**Model Name** : SA01E  
**Multiple Model Name** : SB01E, SC01E  
**Serial number** : N/A  
**Total page of Report** : 34 pages (including this page)  
**Date of Incoming** : March 09, 2015  
**Date of issue** : April 03, 2015

## SUMMARY

The equipment complies with the regulation; *FCC PART 15 SUBPART C Section 15.247*  
 This test report only contains the result of a single test of the sample supplied for the examination.  
 It is not a generally valid assessment of the features of the respective products of the mass-production.

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 ONETECH Corp.

Approved by:   
 Sung-Ik, Han/ Managing Director  
 ONETECH Corp.

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### Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
W154R-D001	April 03, 2015	Initial Issue	All

## 1. VERIFICATION OF COMPLIANCE

Applicant : Remote Solution Co., Ltd.  
 Address : 92, Chogokri, Nammyun, Kimchon city, Korea, 740-871  
 Contact Person : Kim Hyeon Soo / Assistant Research Engineer  
 Telephone No. : +82-54-420-4500  
 FCC ID : TX4SA01E  
 Model Name : SA01E  
 Serial Number : N/A  
 Date : April 03, 2015

EQUIPMENT CLASS	<b><i>DTS – DIGITAL TRNSMISSION SYSTEM</i></b>
E.U.T. DESCRIPTION	Smart Home Sensor
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2009 and FCC KDB 558074 D01 DTS Meas Guidance v03r02
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	None
FINAL TEST WAS CONDUCTED ON	3 m semi anechoic chamber.

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

## 2. TEST SUMMARY

### 2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247 (a) (2)	Minimum 6 dB Bandwidth	Met the Limit / PASS
15.247 (b) (3)	Maximum Peak Conducted Output Power	Met the Limit / PASS
15.247 (d)	100 kHz Bandwidth Outside the Frequency Band	Met the Limit / PASS
15.247 (d)	Radiated Emission which fall in the Restricted Band	Met the Limit / PASS
15.247 (e)	Peak Power Spectral Density	Met the Limit / PASS
15.209	Radiated Emission Limits	Met the Limit / PASS
15.207	Conducted Limits	N/A (See Note)
15.203	Antenna Requirement	Met requirement / PASS

Note: This test is not performed because the EUT is operated by DC battery.

### 2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

### 2.3 Related Submittal(s) / Grant(s)

Original submittal only

### 2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in section 2.1.

### 2.5 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.10: 2009 at a distance of 3 m from EUT to the antenna.

### 2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 301-14, Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862 Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-4112/ C-4617/ G-666/ T-1842 IC (Industry Canada) – Registration No. Site# 3736-3

-. Site Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation No. 85

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

### 3. GENERAL INFORMATION

#### 3.1 Product Description

The Remote Solution Co., Ltd., Model SA01E (referred to as the EUT in this report) is a Smart Home Sensor. Product specification information described herein was obtained from product data sheet or user’s manual.

DEVICE TYPE	Portable Device
FREQUENCY RANGE	2 405 MHz ~ 2 480 MHz
Channel Number	16
MAX. RF OUTPUT POWER:	18.49 dBm
NUMBER OF LAYER	4 Layers
ANTENNA TYPE	F-Antenna
ANTENNA GAIN	0.27 dBi
MODULATION METHOD	O-QPSK
USED RF CHIP	Marker: radio pulse Model Name: MG2460
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	32 MHz
POWER REQUIREMENT	DC 3.0 V
EXTERNAL CONNECTOR	-

#### 3.2 Alternative type(s)/model(s); also covered by this test report.

-. The following lists consist of the added model and their differences.

Model Name	Differences	Tested
SA01E	Basic Model	<input checked="" type="checkbox"/>
SB01E	This models are Temperature Sensor there is no difference on RF.	<input type="checkbox"/>
SC01E	This models are Humidity Sensor there is no difference on RF.	<input type="checkbox"/>

Note: 1. Applicant consigns only basic model to test. Therefore this test report just guarantees the units, which have been tested.

2. The Applicant/manufacturer is responsible for the compliance of all variants.

### 4. EUT MODIFICATIONS

-. None

## 5. SYSTEM TEST CONFIGURATION

### 5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	Remote Solution Co., Ltd.	SA01E (1BG-0394C)	N/A

### 5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
SA01E	Remote Solution Co., Ltd.	Smart Home Sensor (EUT)	-

### 5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting mode is programmed.

-. The EUT was set at Low Channel (2 405 MHz), Middle Channel (2 440 MHz), and High Channel (2 480 MHz).

To get a maximum radiated emission levels from the EUT

### 5.4 Configuration of Test System

**Line Conducted Test:** It is not need to test this requirement, because the EUT shall be operated by DC battery.

**Radiated Emission Test:** Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2009 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m open area test site.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

### 5.5 Antenna Requirement

For intentional device, according to section 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.

**Antenna Construction:**

The antenna of the EUT is an F-Antenna on the main board in the EUT, so no consideration of replacement by the user.



## 6. PRELIMINARY TEST

### 6.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmitter Mode	-

### 6.2 General Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Transmitter Mode	X

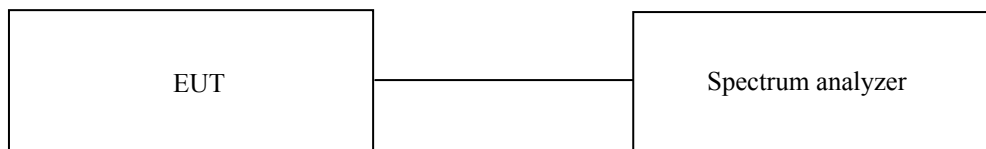
## 7. MINIMUM 6 dB BANDWIDTH

### 7.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 45 % R.H.

### 7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



### 7.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - FSV30	R/S	Spectrum Analyzer	101372	Apr. 28, 2014(1Y)

All test equipment used is calibrated on a regular basis.

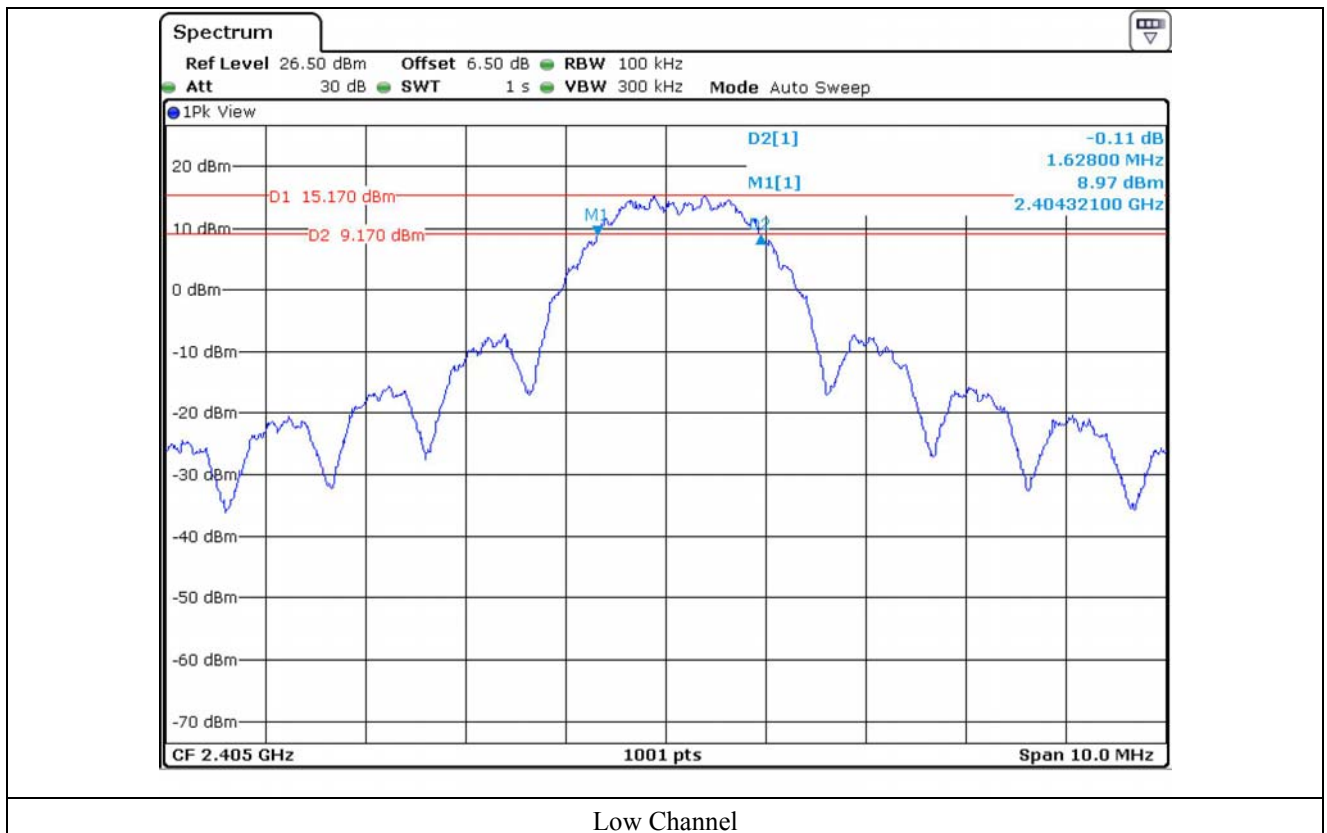
**7.4 Test data**

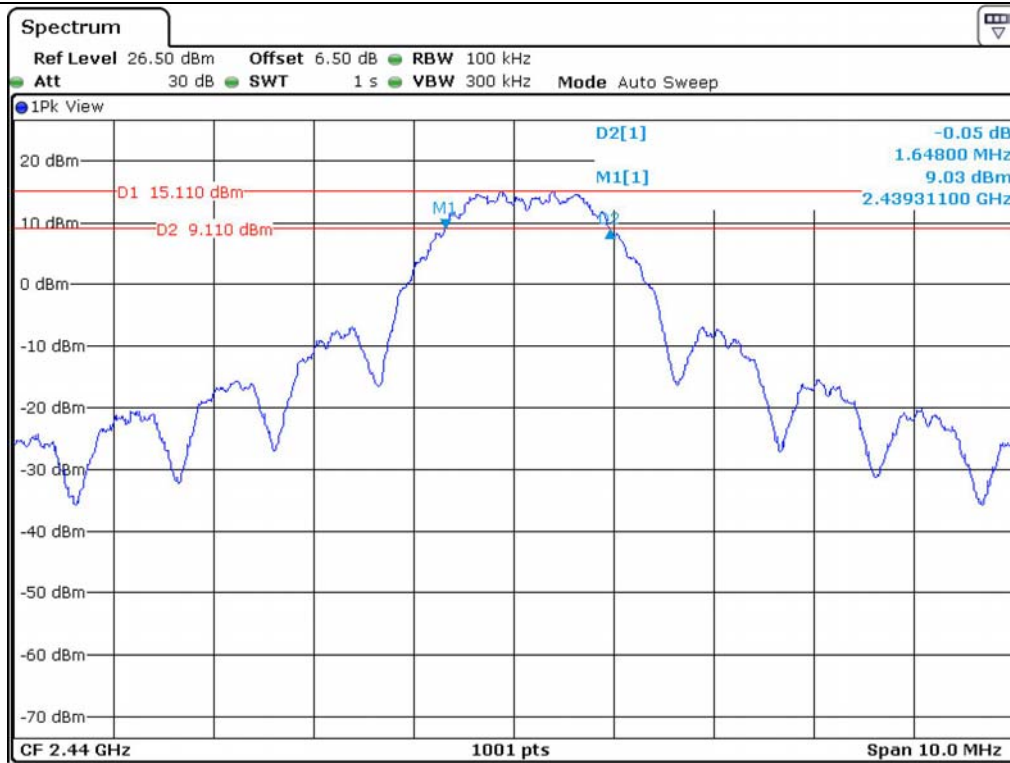
- Test Date : March 20, 2015 - March 23, 2015
- Test Result : Pass

CHANNEL	FREQUENCY(MHz)	MEASURED VALUE (MHz)	LIMIT (MHz)	MARGIN (MHz)
Low	2 405	1.63	0.5	-1.13
Middle	2 440	1.65	0.5	-1.15
High	2 480	1.65	0.5	-1.15

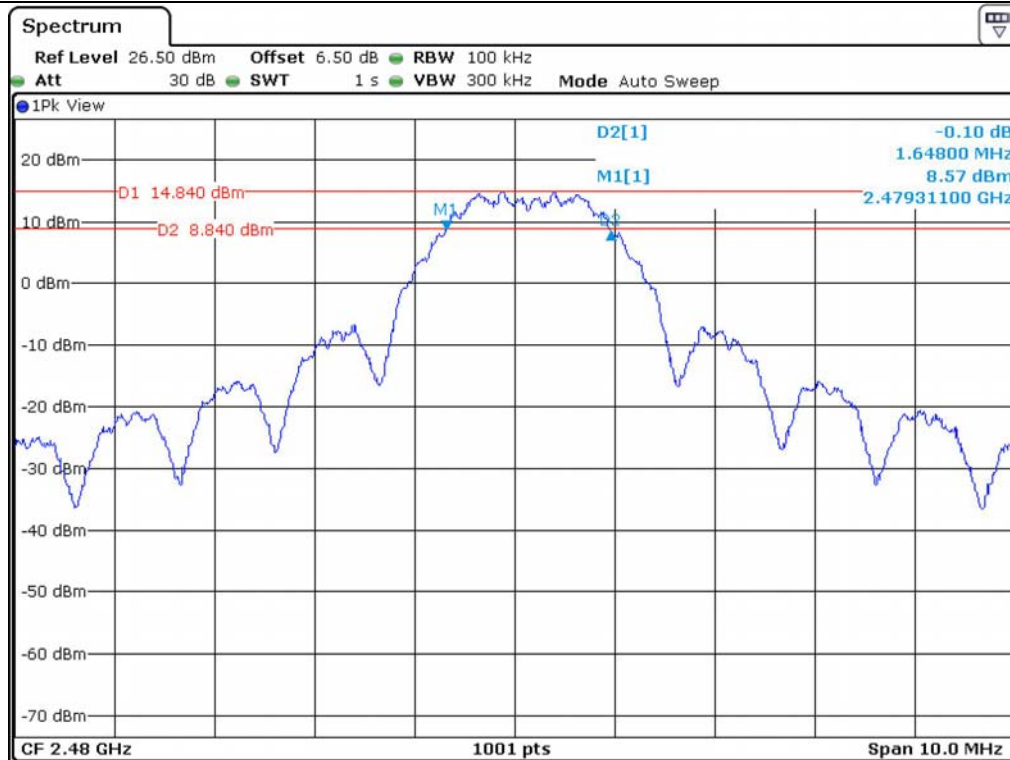
Remark. Margin = Measured Value - Limit

**Tested by: Jun-Hui, Lee / Project Engineer**





Middle Channel



High Channel

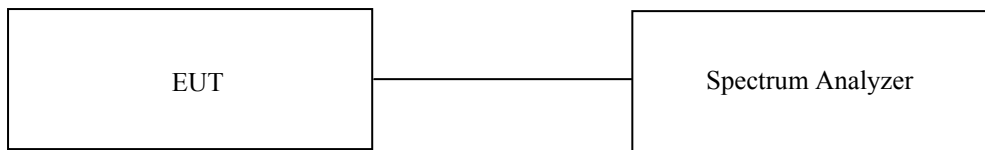
## 8. MAXIMUM PEAK OUTPUT POWER

### 8.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 44 % R.H.

### 8.2 Test set-up

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The EUT was operating in transmit mode at the appropriate center frequency.



### 8.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - FSV30	R/S	Spectrum Analyzer	101372	Apr. 28, 2014(1Y)

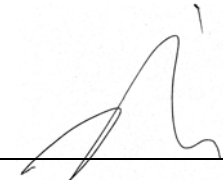
All test equipment used is calibrated on a regular basis.

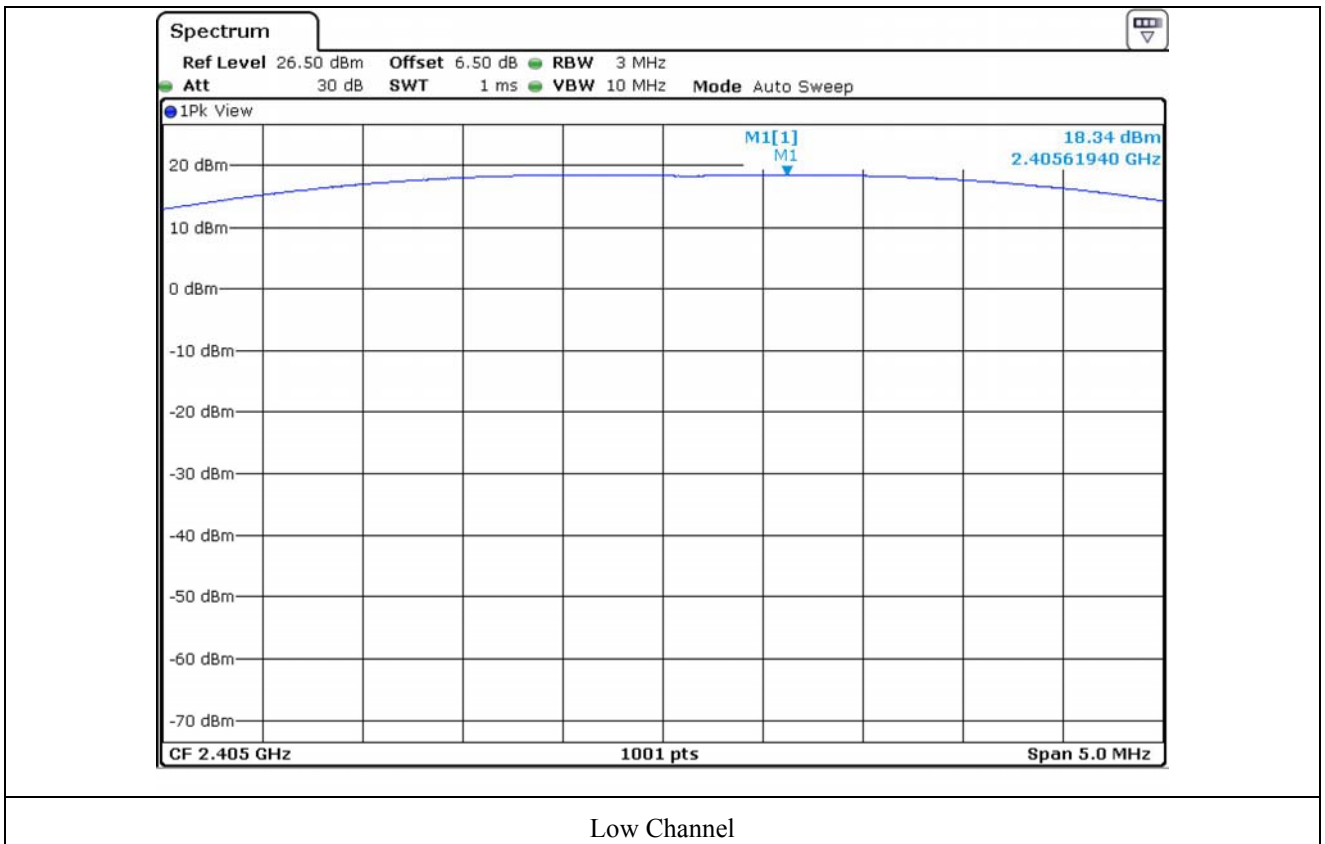
**8.4 Test data**

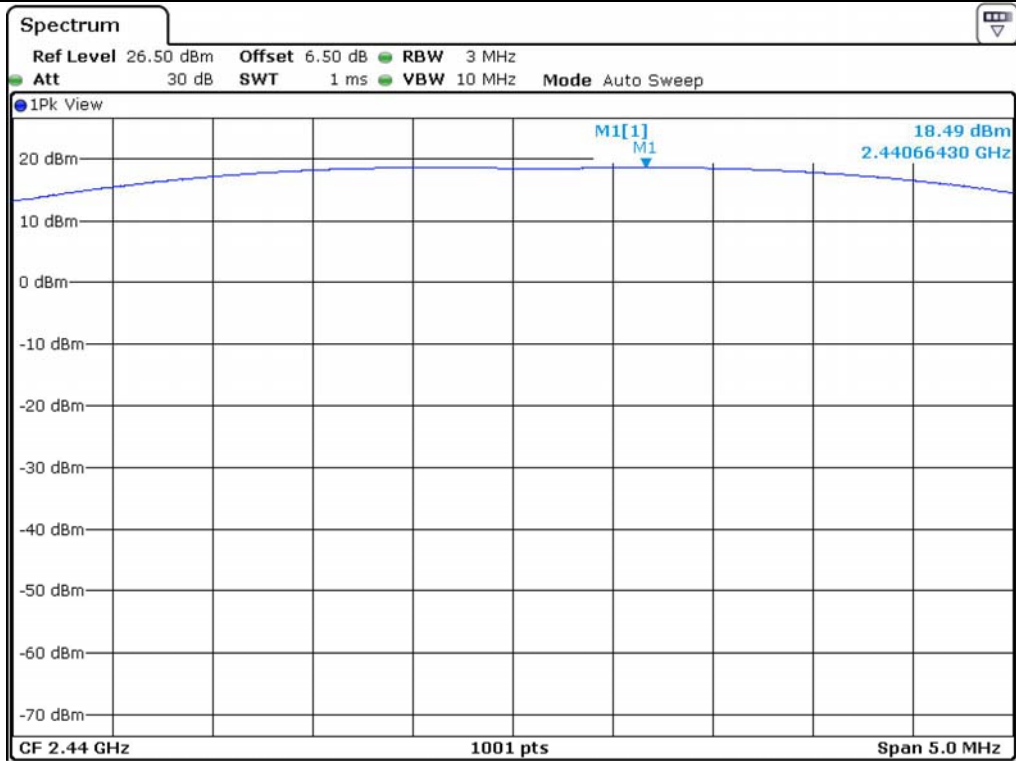
- Test Date : March 20, 2015 - March 23, 2015
- Test Result : Pass

CHANNEL	FREQUENCY (MHz)	DTS (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 405	1.63	18.34	30	11.66
MIDDLE	2 440	1.65	18.49	30	11.51
HIGH	2 480	1.65	18.46	30	11.54

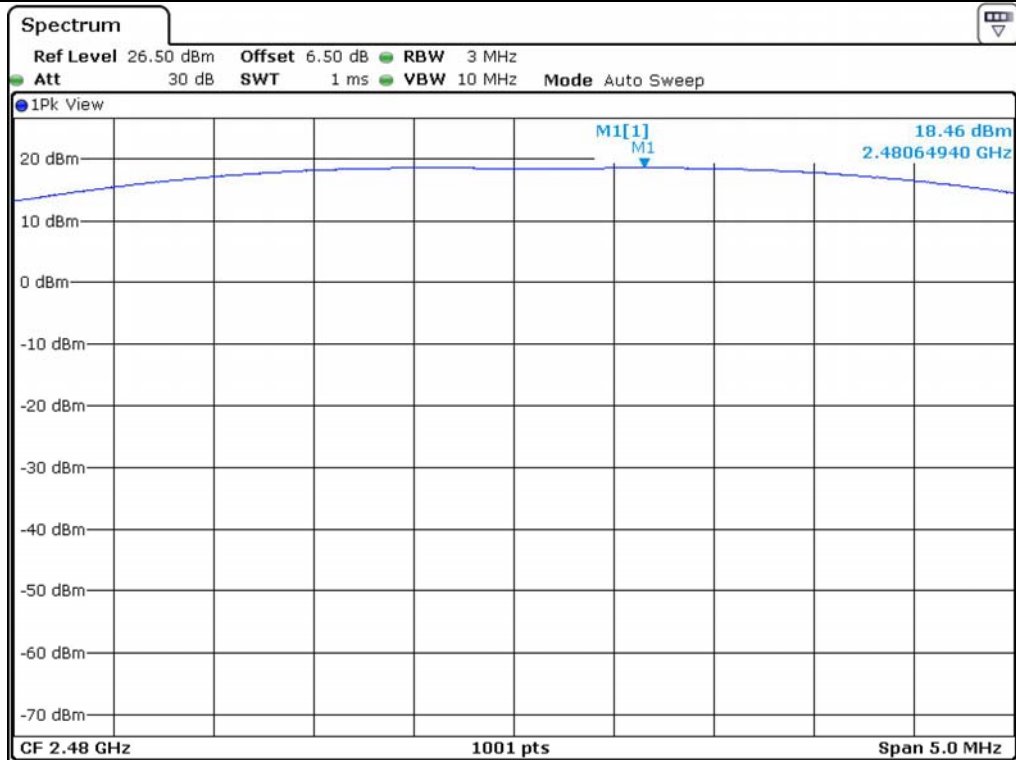
Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

  
 \_\_\_\_\_  
**Tested by: Jun-Hui, Lee / Project Engineer**





Middle Channel



High Channel

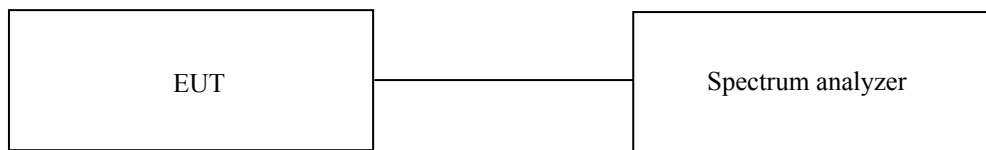
## 9. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

### 9.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 45 % R.H.

### 9.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 kHz, and peak detection was used.



### 9.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m, open-field test site. The EUT was placed on a non-conductive turntable approximately 0.8 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

### 9.4 Test equipment used

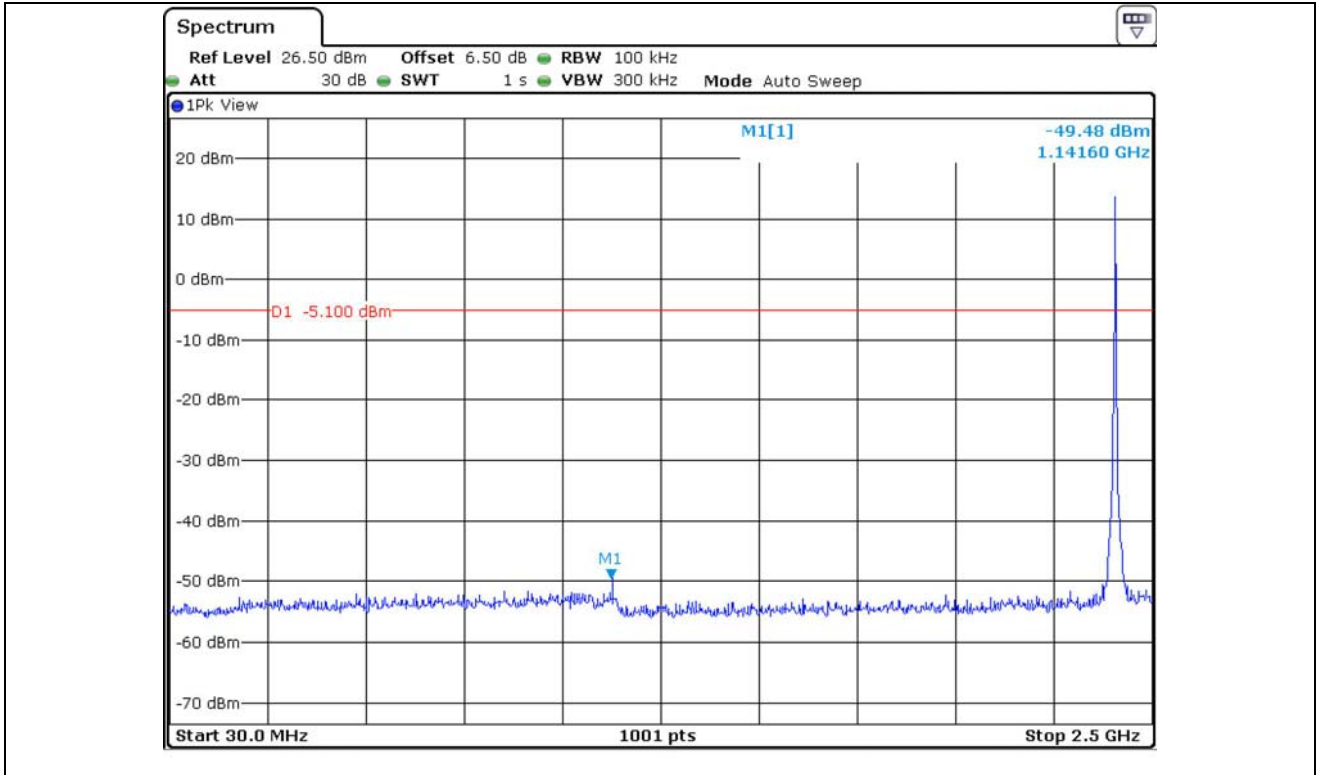
	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	8564E	HP	Spectrum Analyzer	3650A00756	Apr. 28, 2014(1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Apr. 29, 2014(1Y)
■ -	310N	Sonoma Instrument	AMPLIFIER	312544	Apr. 28, 2014(1Y)
■ -	FSV30	Rohde & Schwarz	Signal Analyzer	101372	Apr. 28, 2014(1Y)
■ -	SCU-18	Rohde & Schwarz	PRE-AMPLIFIER	10041	Nov. 25, 2014 (1Y)
■ -	MA220	HD	Turn Table	N/A	N/A
■ -	HD240	HD	Antenna Mast	N/A	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-255	May 05, 2014(2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Sep. 05, 2013 (2Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	N/A

All test equipment used is calibrated on a regular basis.

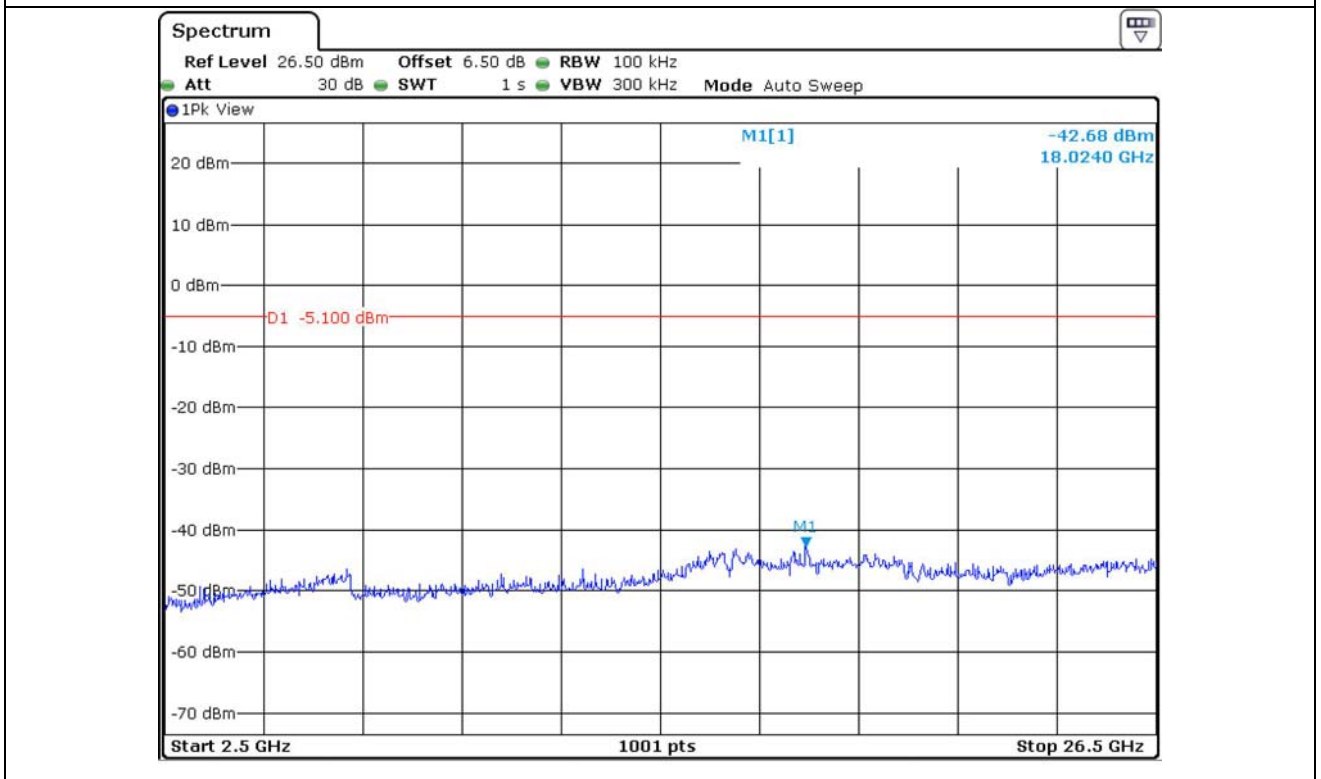


9.5 Test data for conducted emission

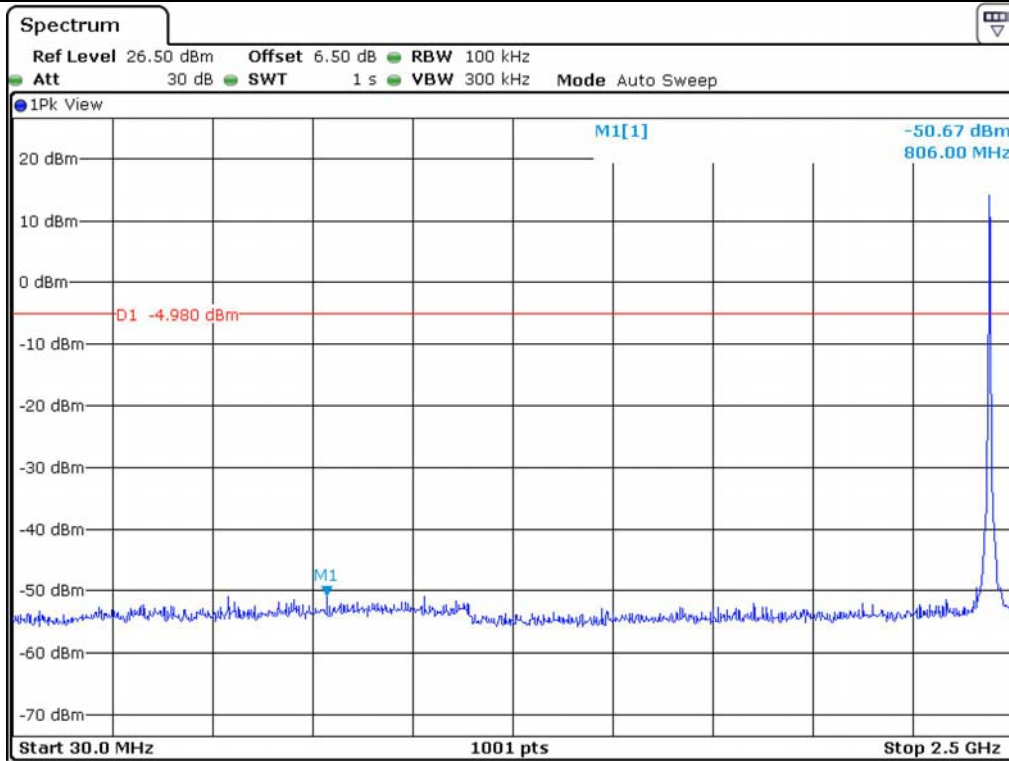
9.5.1 Test data



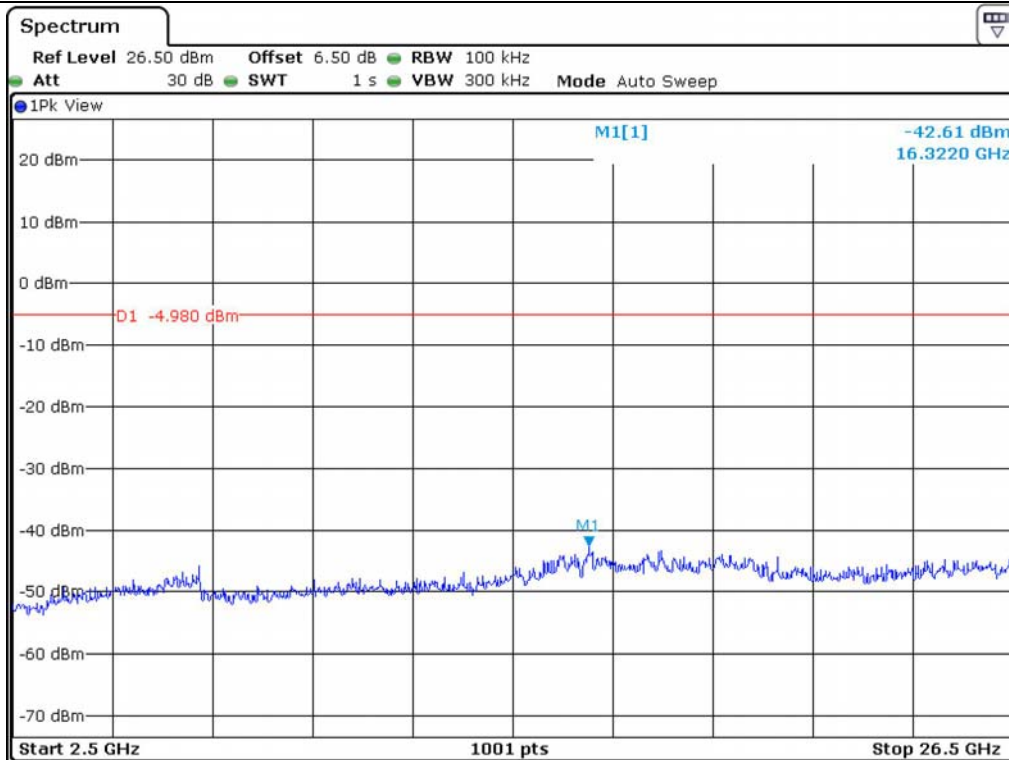
Low Channel



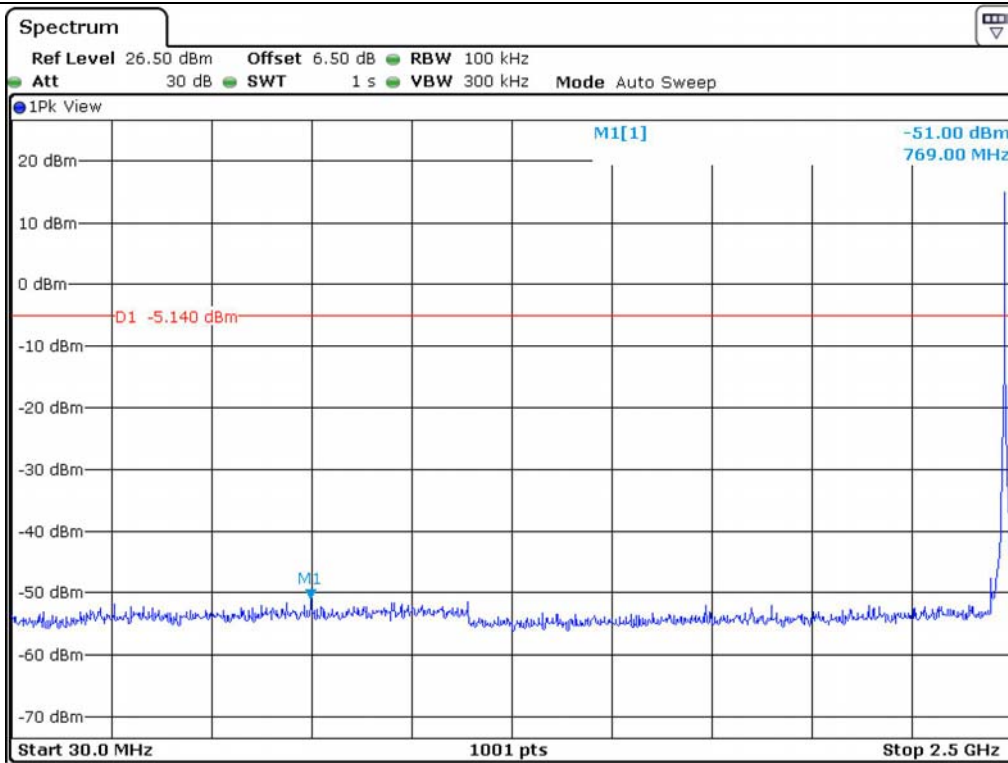
Low Channel



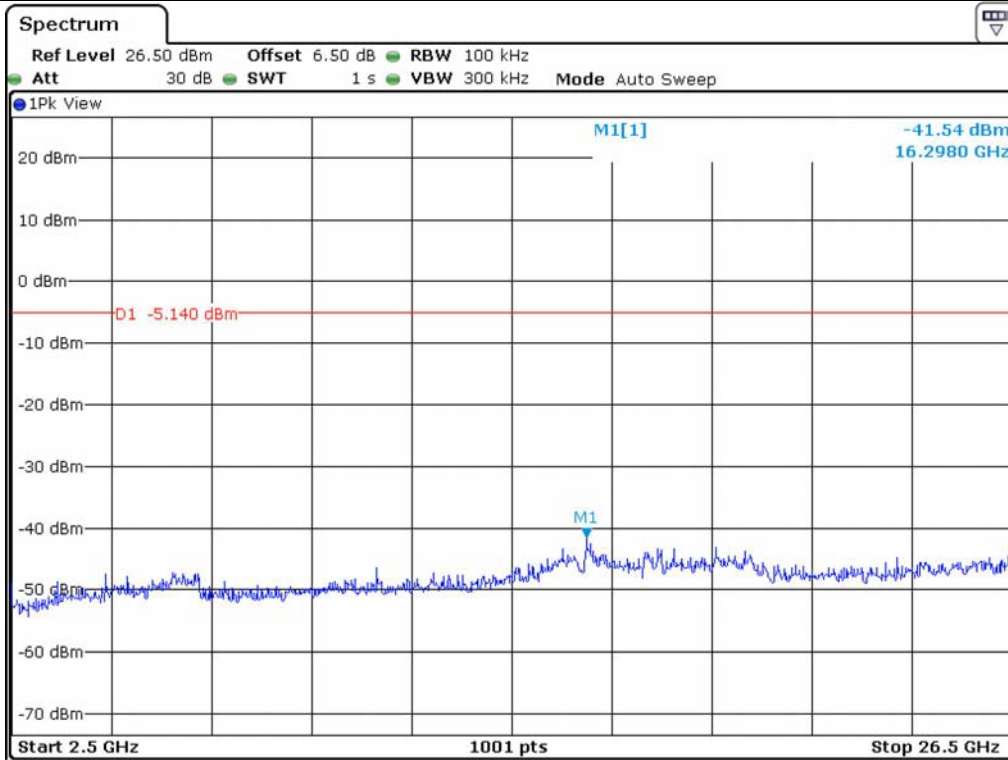
Middle Channel



Middle Channel



High Channel



High Channel

**9.6 Test data for radiated emission**

**9.6.1 Radiated Emission which fall in the Restricted Band**

- Test Date : March 20, 2015 - March 23, 2015
- Resolution bandwidth : 100 kHz for Peak and Average Mode at 30 MHz ~ 1 GHz  
1 MHz for Peak and Average Mode at above 1 GHz
- Video bandwidth : 100 kHz for Peak and Average Mode at 30 MHz ~ 1 GHz  
1 MHz for Peak and 10 Hz for Average Mode at above 1 GHz
- Frequency range : 30 MHz ~ 26.5 GHz
- Measurement distance : 3 m
- Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
<b>Test Data for Low Channel</b>									
2 389.96	51.25	Peak	H	27.20	7.10	43.10	42.45	74.00	-31.55
	41.10	Average	H				32.30	54.00	-21.70
2 389.24	51.25	Peak	V				42.45	74.00	-31.55
	39.27	Average	V				30.47	54.00	-23.53
2 400.00	52.38	Peak	H	27.20	7.10	43.10	43.58	74.00	-30.42
	42.17	Average	H				33.37	54.00	-20.63
2 400.00	52.16	Peak	V				43.36	74.00	-30.64
	40.87	Average	V				32.07	54.00	-21.93
<b>Test Data for High Channel</b>									
2 483.51	72.61	Peak	H	27.40	7.10	43.10	64.01	74.00	-9.99
	49.77	Average	H				41.17	54.00	-12.83
2 483.54	72.41	Peak	V				63.81	74.00	-10.19
	48.19	Average	V				39.59	54.00	-14.41

Tabulated test data for Restricted Band

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Pre-Amplifier Gain}$$

  
Tested by: Jun-Hui, Lee / Project Engineer

### 9.6.2 Spurious & Harmonic Radiated Emission

- Test Date : March 20, 2015 - March 23, 2015
- Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,  
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Result : PASSED

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
<b>Test Data for Low Channel</b>									
2 405.00	106.31	Peak	H	27.20	7.10	43.10	97.51	113.98	-16.47
	81.62	Average	H				72.82	93.98	-21.16
	104.57	Peak	V				95.77	113.98	-18.21
	80.23	Average	V				71.43	93.98	-22.55
4 810.00	51.42	Peak	H	31.10	9.60	42.40	49.72	73.98	-24.26
	38.51	Average	H				36.81	53.98	-17.17
	50.03	Peak	V				48.33	73.98	-25.65
	38.16	Average	V				36.46	53.98	-17.52
<b>Test Data for Middle Channel</b>									
2 440.00	105.05	Peak	H	27.30	7.10	43.10	96.35	113.98	-17.63
	77.28	Average	H				68.58	93.98	-25.40
	103.36	Peak	V				94.66	113.98	-19.32
	75.21	Average	V				66.51	93.98	-27.47
4 880.00	50.96	Peak	H	31.30	9.80	42.40	49.66	73.98	-24.32
	38.31	Average	H				37.01	53.98	-16.97
	50.47	Peak	V				49.17	73.98	-24.81
	38.16	Average	V				36.86	53.98	-17.12

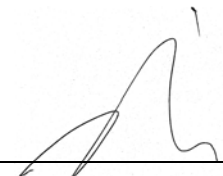
Test Data for High Channel									
2 480.00	104.79	Peak	H	27.30	7.10	43.10	96.09	113.98	-17.89
	79.40	Average	H				70.70	93.98	-23.28
	103.44	Peak	V				94.74	113.98	-19.24
	77.57	Average	V				68.87	93.98	-25.11
4 960.00	51.35	Peak	H	31.30	9.90	42.30	50.25	73.98	-23.73
	38.67	Average	H				37.57	53.98	-16.41
	50.92	Peak	V				49.82	73.98	-24.16
	37.84	Average	V				36.74	53.98	-17.24

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Pre-Amplifier Gain}$$



Tested by: Jun-Hui, Lee / Project Engineer

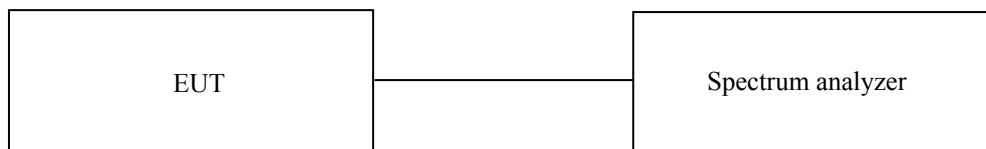
## 10 PEAK POWER SPECTRUL DENSITY

### 10.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 44 % R.H.

### 10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 3 kHz, the video bandwidth is set to 3 times the resolution bandwidth. The maximum level form the EUT in 3 kHz bandwidth was measured with above condition.



### 10.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - FSV30	R/S	Spectrum Analyzer	101372	Apr. 28, 2014(1Y)

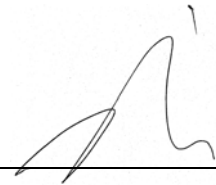
All test equipment used is calibrated on a regular basis.

**10.4 Test data**

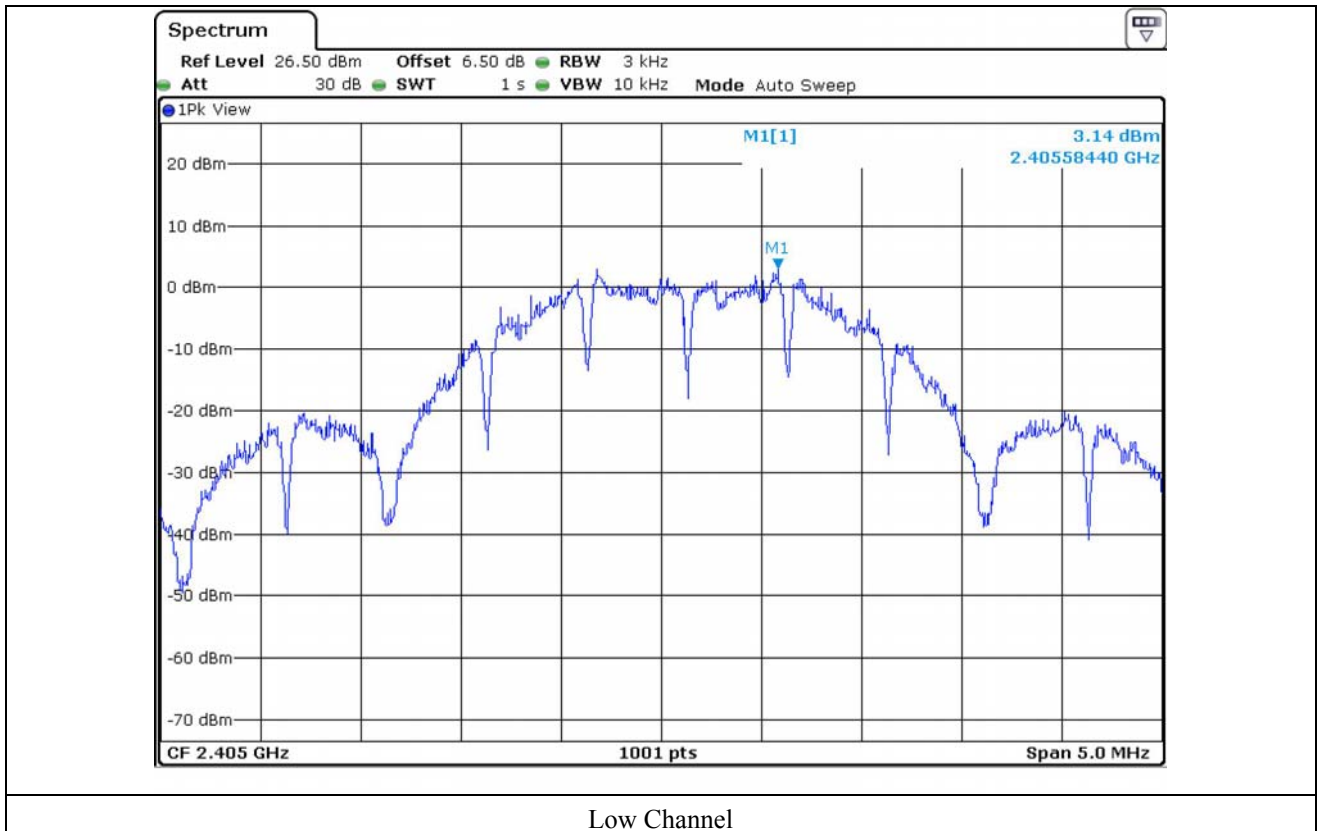
- Test Date : March 20, 2015 - March 23, 2015
- Test Result : Pass
- Operating Condition : Continuous transmitting mode

CHANNEL	FREQUENCY(MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
Low	2 405	3.14	8.00	-4.86
Middle	2 440	4.06	8.00	-3.94
High	2 480	2.59	8.00	-5.41

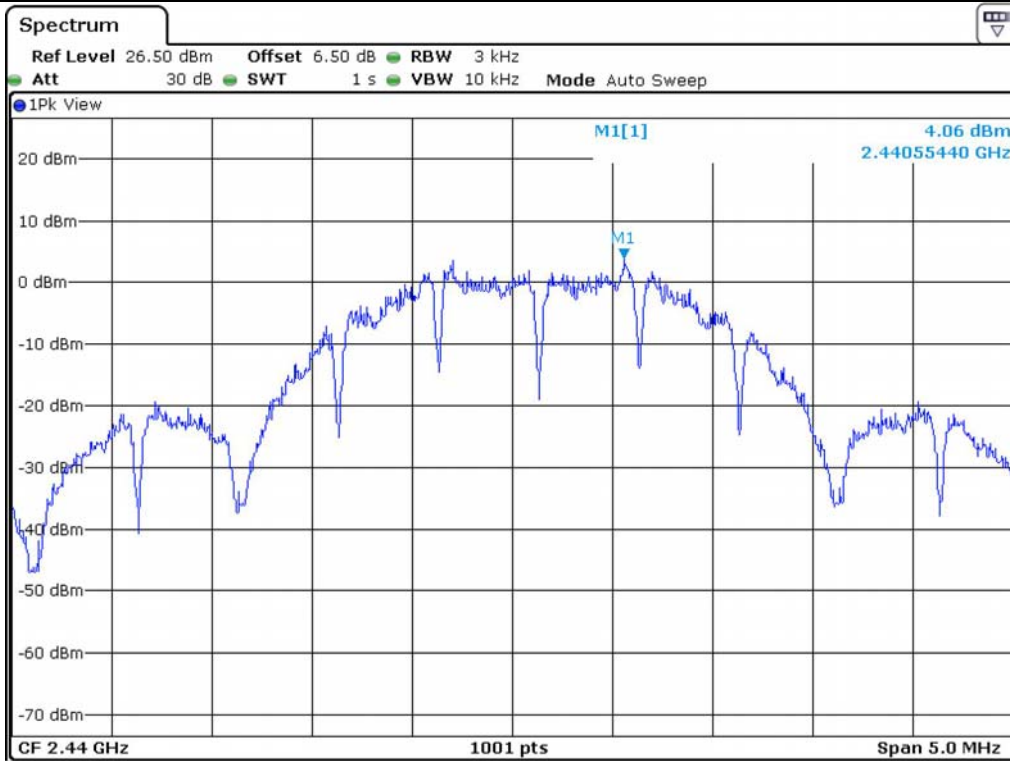
Remark. Margin = Limit – Measured value



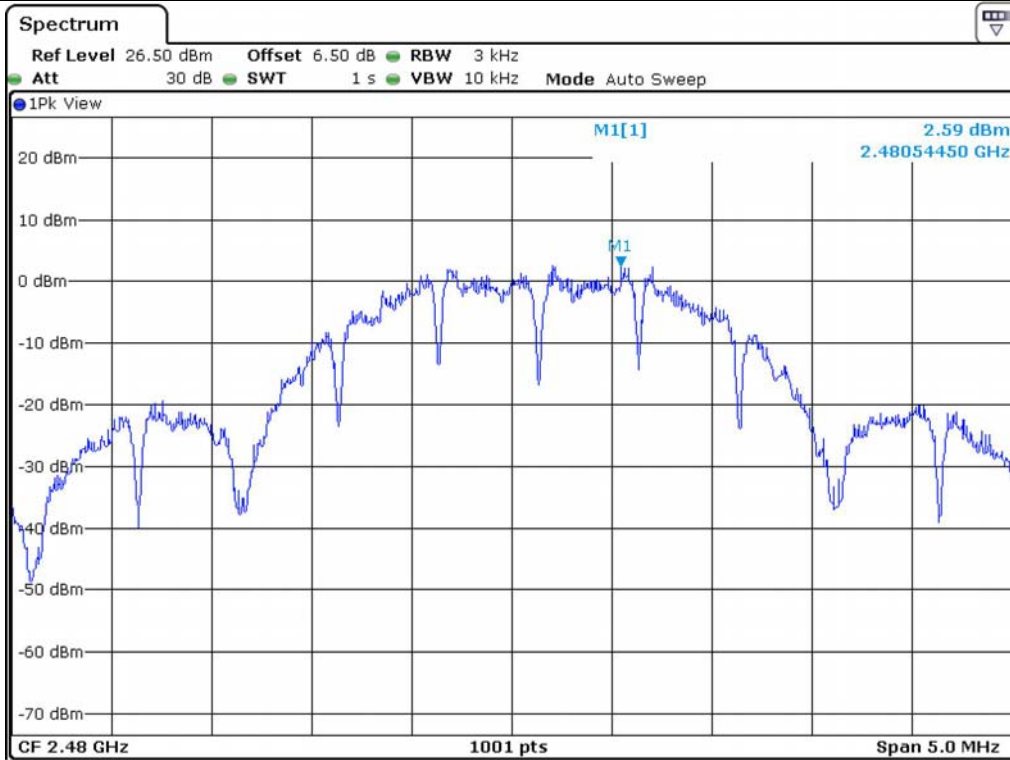
**Tested by: Jun-Hui, Lee / Project Engineer**







Middle Channel



High Channel

## 11. RADIATED EMISSION TEST

### 11.1 Operating environment

Temperature : 23 °C  
 Relative humidity : 45 % R.H.

### 11.2 Test set-up

The radiated emissions measurements were on the 3 meters, open-field test site. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 9 kHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 and 4.0 meters in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

### 11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
□ -	ESCI	Rohde & Schwarz	EMI Test Receiver	101012	Nov. 03, 2014 (1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Apr. 29, 2014(1Y)
■ -	310N	Sonoma Instrument	AMPLIFIER	312544	Apr. 28, 2014(1Y)
■ -	FSV30	Rohde & Schwarz	Signal Analyzer	101372	Apr. 28, 2014(1Y)
■ -	SCU-18	Rohde & Schwarz	PRE-AMPLIFIER	10041	Nov. 25, 2014 (1Y)
■ -	MA220	HD	Turn Table	N/A	N/A
■ -	HD240	HD	Antenna Mast	N/A	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	VULB9163-255	May 05, 2014(2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Sep. 05, 2013 (2Y)
■ -	83051A	Agilent	Microwave System Preamplifer	3950M00201	Apr. 30, 2014(1Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	N/A
■ -	HFH2-Z2	Rohde & Schwarz	Loop Antenna	879285/26	Dec. 09, 2014 (2Y)
■ -	WRCT2200.0/2500.0-5/40-10SSK	WAINWRIGHT	Tunable Band Reject Filter	8	Oct. 10. 2014 (1Y)

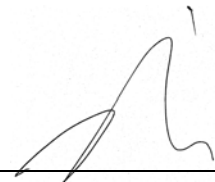
All test equipment used is calibrated on a regular basis.

**11.4 Test data**

**11.4.1 Test data for Below 30 MHz**

- Test Date : March 23, 2015
- Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- Frequency range : 9 kHz ~ 30 MHz
- Measurement distance : 3 m
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
It was not observed any emissions from the EUT.									

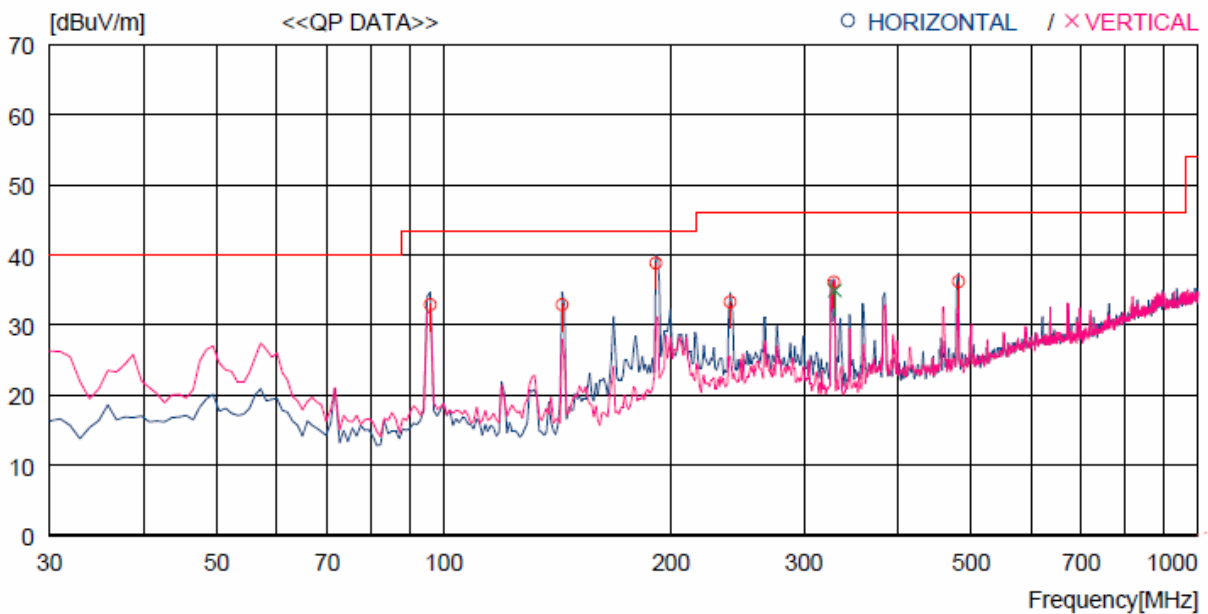


**Tested by: Jun-Hui, Lee / Project Engineer**

11.4.2 Test data for 30 MHz ~ 1 000 MHz

- Test Date : March 23, 2015
- Resolution bandwidth : 120 kHz
- Frequency range : 30 MHz ~ 1 000 MHz
- Measurement distance : 3 m
- Operating mode : Transmitting mode

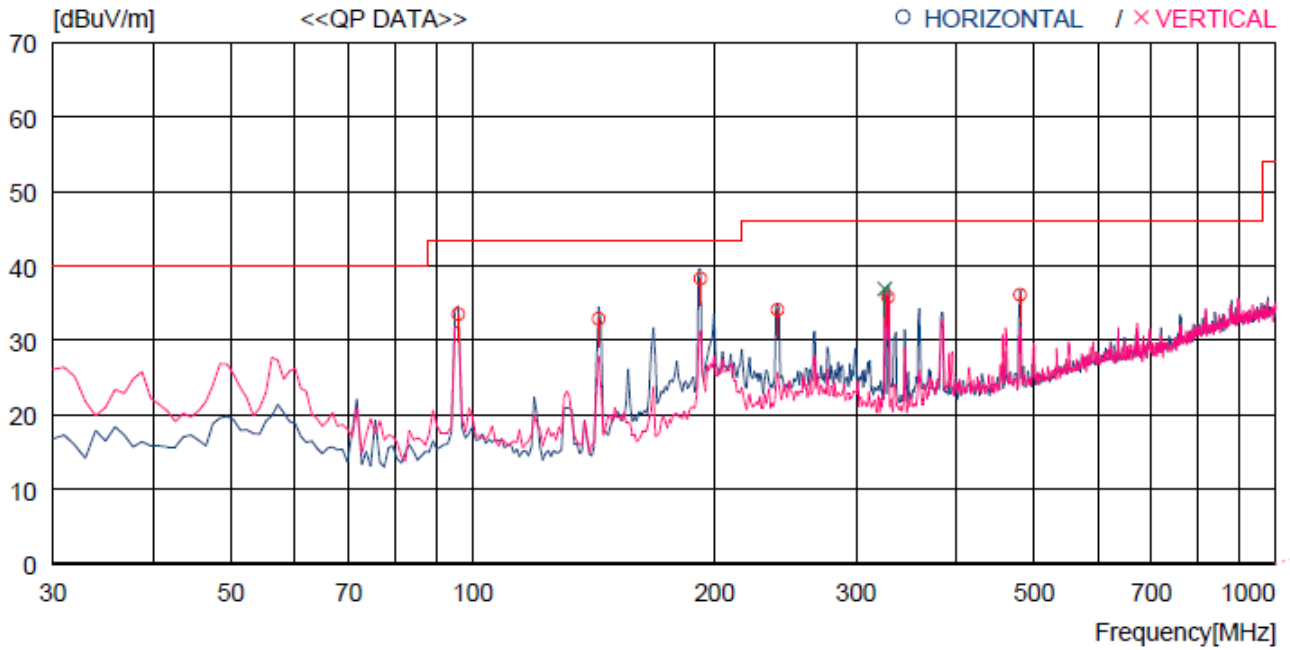
Operating condition : Low Channel



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA TABLE [cm]	TABLE [DEG]
----- Horizontal -----										
1	95.960	46.7	11.2	8.1	33.1	32.9	43.5	10.6	200	188
2	143.490	48.8	8.2	8.9	33.0	32.9	43.5	10.6	200	359
3	191.020	51.9	10.3	9.5	32.9	38.8	43.5	4.7	100	194
4	239.520	44.2	12.1	9.9	32.9	33.3	46.0	12.7	100	200
5	328.760	44.0	14.2	10.8	32.9	36.1	46.0	9.9	100	0
6	481.051	40.7	18.1	10.5	33.1	36.2	46.0	9.8	200	359
----- Vertical -----										
7	329.730	42.9	15.4	9.6	33.0	34.9	46.0	11.1	200	46

Remark: Margin (dB) = Limit – Result and Result = Reading Quasi- Peak + Antenna Factor + Loss – Gain  
 Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

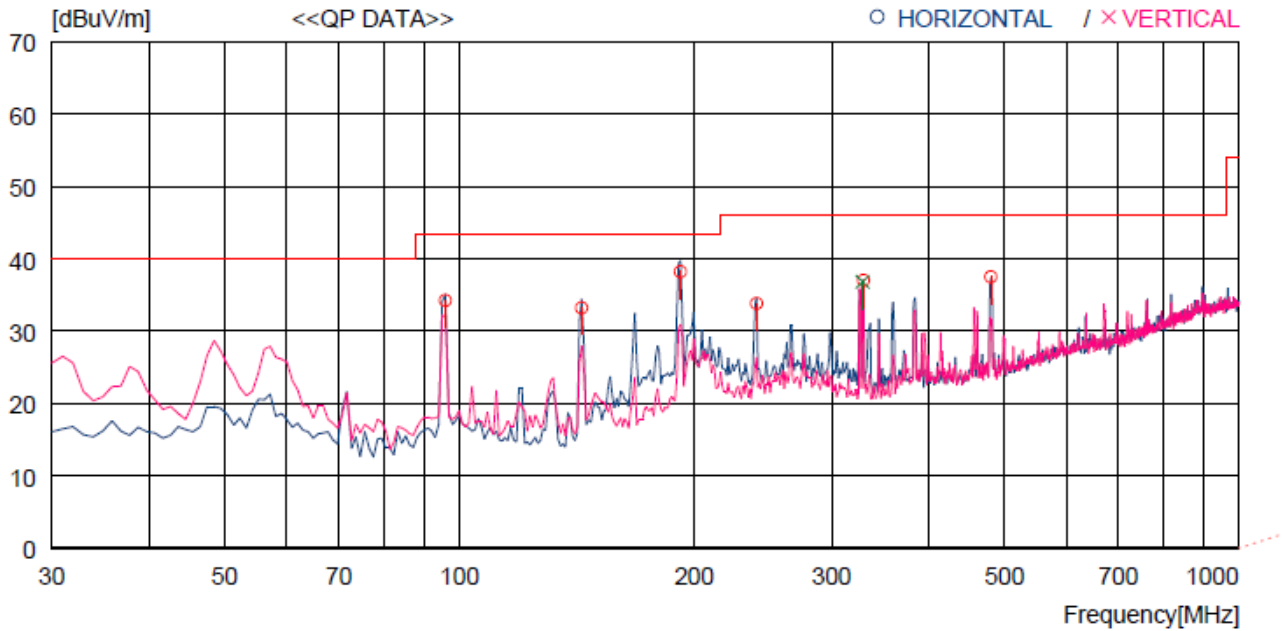
Operating condition : Middle Channel



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	95.960	46.0	12.7	7.9	33.1	33.5	43.5	10.0	200	359
2	143.490	48.5	9.2	8.3	33.1	32.9	43.5	10.6	200	187
3	191.990	51.3	11.3	8.7	33.0	38.3	43.5	5.2	100	186
4	239.520	44.7	13.3	9.1	33.0	34.1	46.0	11.9	100	193
5	328.760	43.8	15.4	9.6	33.0	35.8	46.0	10.2	100	0
6	480.081	40.6	18.1	10.5	33.1	36.1	46.0	9.9	200	166
----- Vertical -----										
7	325.850	45.0	15.3	9.6	33.0	36.9	46.0	9.1	200	0


Remark: Margin (dB) = Limit – Result and Result = Reading Quasi- Peak + Antenna Factor + Loss – Gain  
 Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

Operating condition : High Channel



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
---- Horizontal ----										
1	95.960	48.0	11.2	8.1	33.1	34.2	43.5	9.3	200	359
2	143.490	49.1	8.2	8.9	33.0	33.2	43.5	10.3	200	359
3	191.990	51.3	10.3	9.5	32.9	38.2	43.5	5.3	100	0
4	240.490	44.7	12.1	9.9	32.9	33.8	46.0	12.2	100	0
5	329.730	44.8	14.3	10.8	32.9	37.0	46.0	9.0	100	256
6	480.081	41.6	17.0	12.1	33.2	37.5	46.0	8.5	200	359
---- Vertical ----										
7	328.760	44.7	14.2	10.8	32.9	36.8	46.0	9.2	200	158

Remark: Margin (dB) = Limit – Result and Result = Reading Quasi- Peak + Antenna Factor + Loss – Gain  
 Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

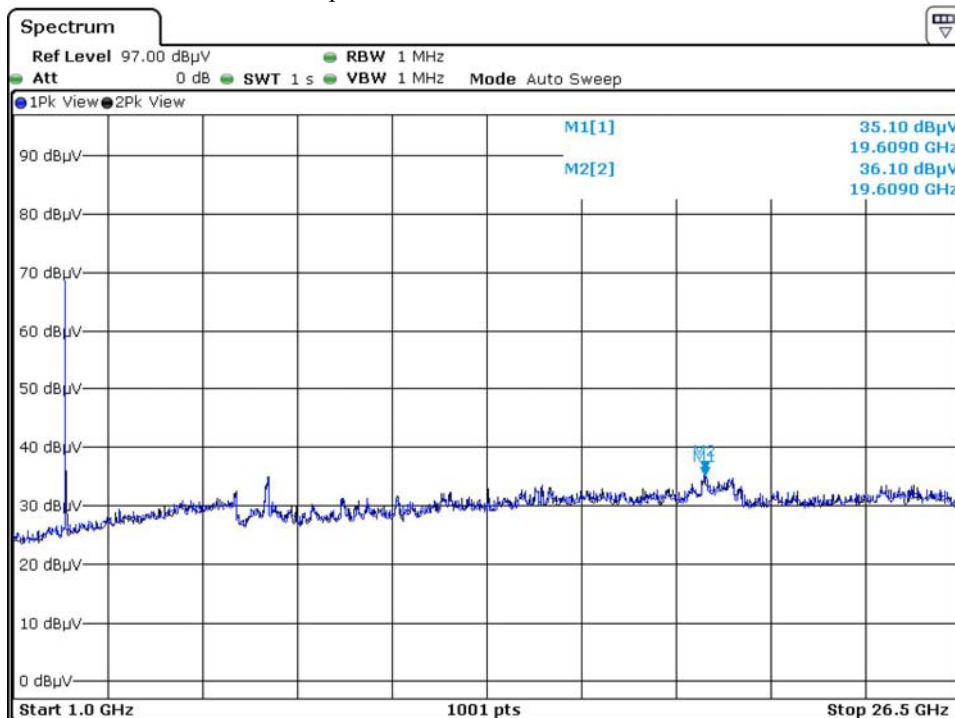
  
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**Tested by: Jun-Hui, Lee / Project Engineer**

**11.4.3 Test data for above 1 GHz**

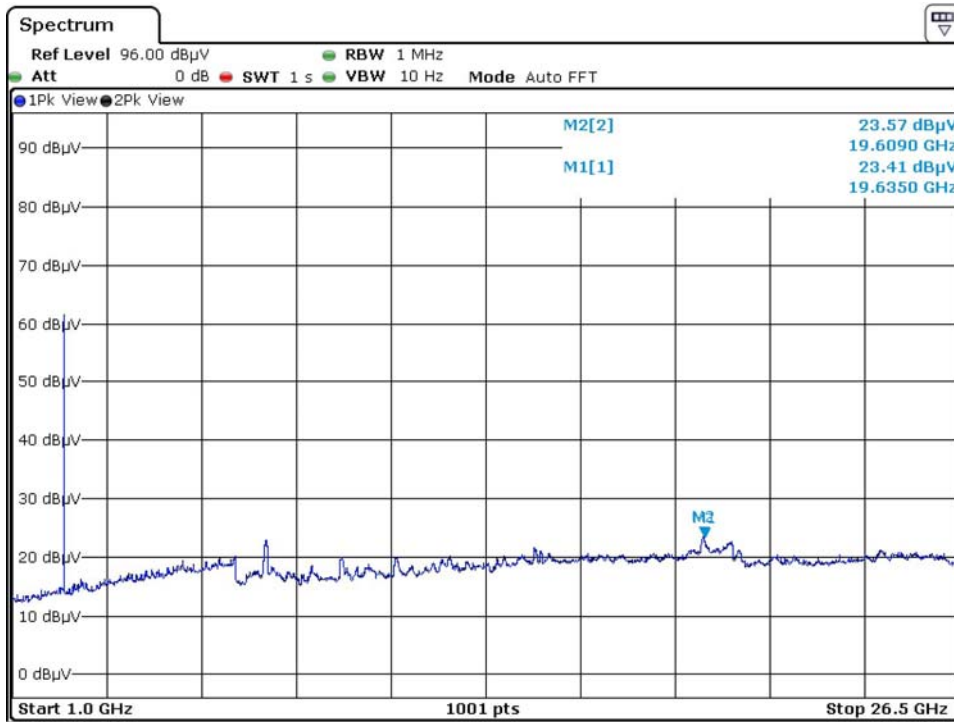
- Test Date : March 23, 2015
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dB $\mu$ V)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)
It was not observed any emissions from the EUT.									

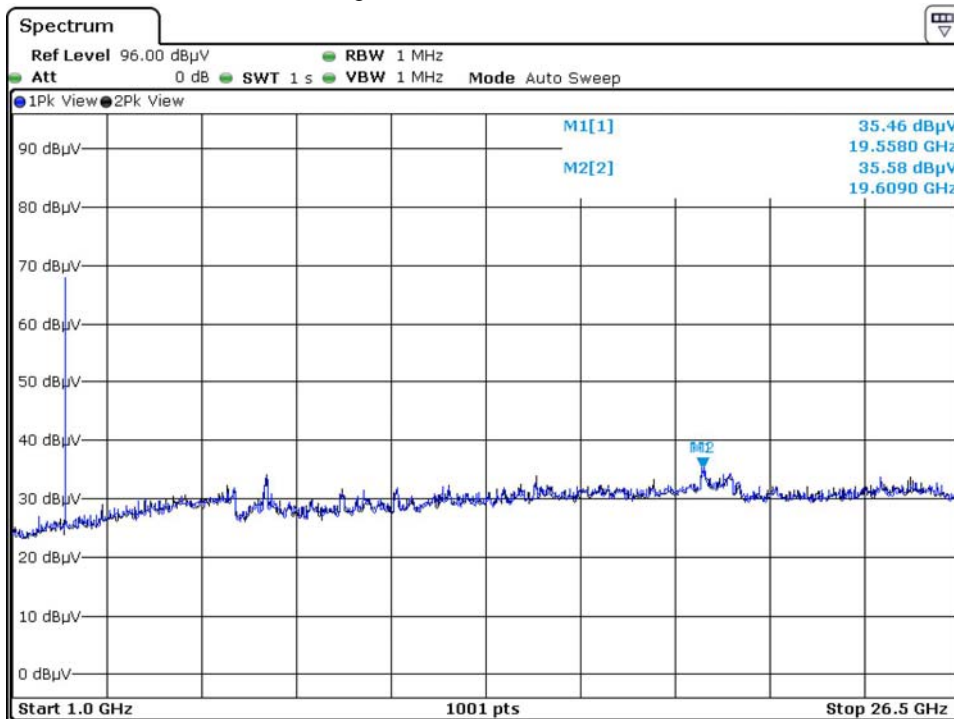
Operating condition : Low Channel for peak



Operating condition : Low Channel for average

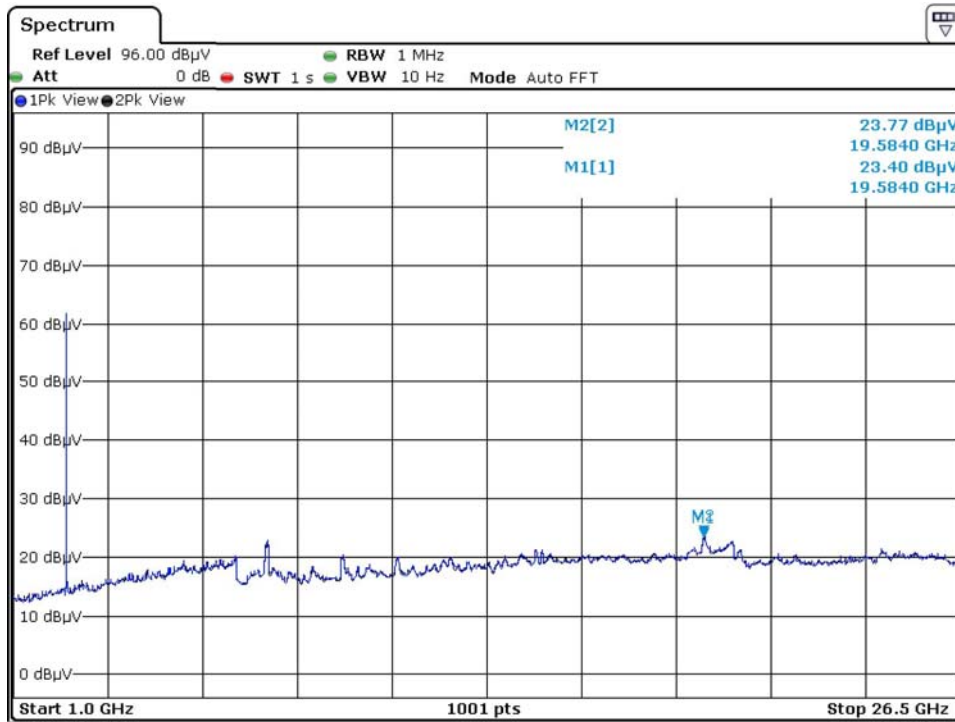


Operating condition : Middle Channel for peak

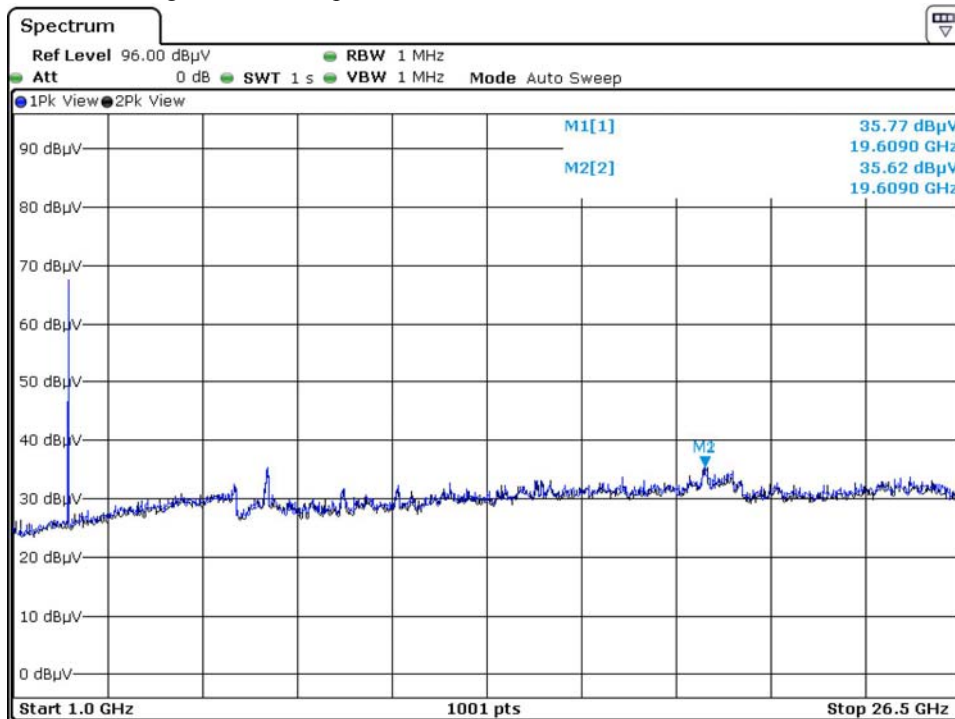




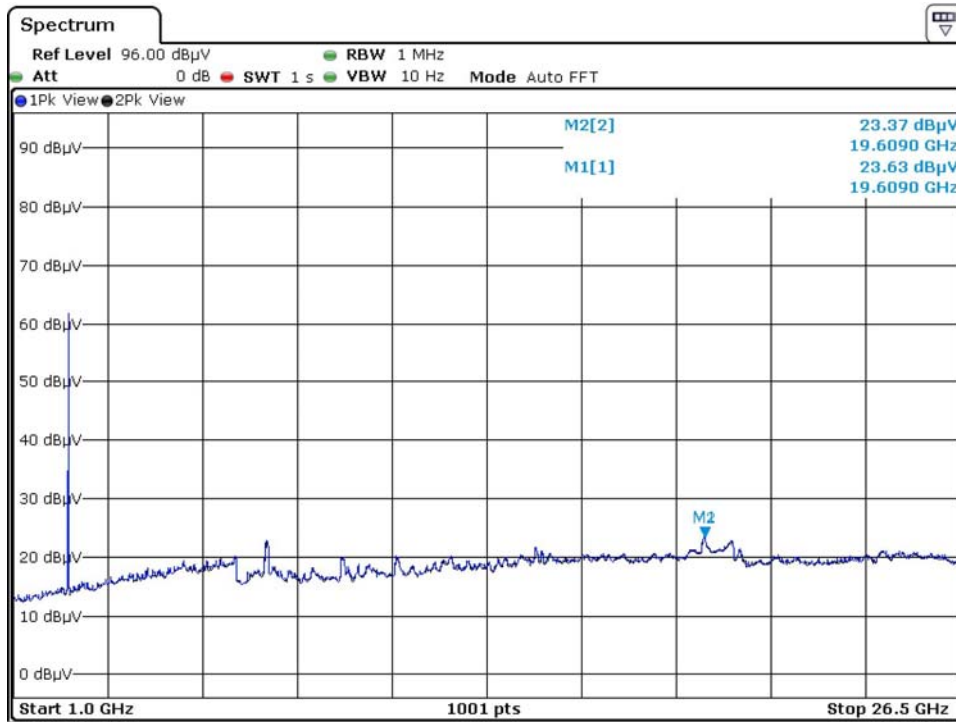
Operating condition : Middle Channel for average

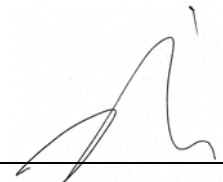


Operating condition : High Channel for peak



Operating condition : High Channel for average



  
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 Tested by: Jun-Hui, Lee / Project Engineer