

# FCC Part 15C TEST REPORT

*of*

## PLAYSTATION (R) GAME CONTROLLER HOST

**FCC ID:** WLZ18LA16JS168

**Model No.:** Access Controller Host

**Serial No.:** 080900001

**Report No.:** FCC08-8022

**Date:** November 10, 2008

*Prepared for*

**eDimensional, Inc.**

2885 Jupiter Park Dr. Suite 1200, Jupiter, FL33401, USA

*Prepared by*

**ShenZhen Electronic Product Quality Testing Center**

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## Table of Contents

1	Test Report Certification .....	3
2	General Information .....	4
2.1	Description of EUT .....	4
2.3	Test Standards and Results .....	5
2.4	List of Test Equipments Used .....	5
2.5	Test Facility .....	6
2.6	Environmental conditions .....	6
3	Conducted Emission Test .....	7
3.1	Limits of Conducted Emission .....	7
3.2	Test Instruments .....	7
3.3	Test Procedure .....	7
3.4	Test Setup .....	8
3.5	EUT Setup and Operating Conditions .....	8
3.6	Test Results .....	8
4	Radiated Emission Test .....	12
4.1	Limits of Radiated Emission .....	12
4.2	Test Procedure .....	12
4.3	Test Setup .....	13
4.4	EUT Setup and Operating Conditions .....	14
4.5	Test Results .....	14
5	Bandwidth Test .....	30
5.1	Limit of bandwidth test .....	30
5.2	Test Procedure .....	30
5.3	Test Setup .....	31
5.4	EUT Setup and Operating Conditions .....	31
5.5	Test Results .....	31



# 1 Test Report Certification

**Product:** PLAYSTATION (R) GAME CONTROLLER HOST

**FCC ID:** WLZ18LA16JS168

**Model No.:** PLAYSTATION (R) GAME CONTROLLER HOST

**Applicant:** eDimensional, Inc.

**Applicant Address:** 2885 Jupiter Park Dr. Suite 1200, Jupiter, FL33401, USA

**Manufacturer:** eDimensional, Inc.

**Manufacturer Address:** 2885 Jupiter Park Dr. Suite 1200, Jupiter, FL33401, USA

**Test Standards:** 47 CFR Part 2

47 CFR Part 15, Subpart C

ANSI 63.4 2003

**Test Result:** PASS

We, Shenzhen Electronic Product Quality Testing Center, hereby certify that the submitted samples of the above item, as detailed in chapter 2.1 of this report, has been tested in our facility. The test record, data evaluation and test configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified.

Tested by: Sheng Yongpan, Date: Nov. 18, 2008  
Sheng Yongpan

Checked by: Smart Li, Date: Nov. 19, 2008  
Smart Li

Approved by: Wu Li An, Date: Nov. 19, 2008  
Wu Li An

## 2 General Information

### 2.1 Description of EUT

<b>Description:</b>	PLAYSTATION (R) GAME CONTROLLER HOST
<b>Model No.:</b>	PLAYSTATION (R) GAME CONTROLLER HOST
<b>Serial No.:</b>	N.A.
<b>Modulation</b>	FHSS
<b>Frequency:</b>	2402MHz – 2480 MHz
<b>Number of Channels:</b>	79
<b>Rated Power:</b>	$\leq 0\text{dBm}$
<b>RF Antenna:</b>	Permanent attached
<b>Power Supply:</b>	5VDC
<b>Ports:</b>	/

**NOTE:**

1. The EUT is a PLAYSTATION (R) GAME CONTROLLER HOST. It works like the principle of Bluetooth, operating at 2.4GHz ISM band. It is Frequency Hopping Spread Spectrum (FHSS). The Channels and transmitter center frequencies are:  $F(\text{MHz})=2402+1*n$ ,  $0 \leq n \leq 78$ .
2. Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

### 2.2 Objective

Perform EMC test according to FCC Part 15 Subpart C (Bluetooth, 2.4GHz ISM band radiator).

## 2.3 Test Standards and Results

The EUT has been tested according to 47 CFR

- Part 2 Frequency Allocations and Radio Treaty Matters: General Rules and Regulations (10-1-05 Edition)
- Part 15 Radio Frequency Devices (2006-10-01 Edition)

Test items and the results are as bellow:

Nº	FCC Rules	Test Type	Result	Test Date
1	§15.207	Conducted Emission	PASS	2008.11.11
2	§15.249	Radiated Emission	PASS	2008.10.27
3	§15.215	Bandwidth	PASS	2008.11.19

## 2.4 List of Test Equipments Used

Description	Manufacturer	Model No.	Cal. Due Date	Serial No.
Test Receiver	Rohde & Schwarz	ESIB26	2009.06.05	A0304218
Test Receiver	Schwarzbeck	FCKL1528	2009.06.05	A0304230
Spectrum Analyzer	Rohde & Schwarz	FSP13	2008.12.25	M-030176
LISN	Schwarzbeck	NSLK8127	2009.06.05	A0304233
Loop Antenna	Rohde & Schwarz	HFH2-Z2	2009.06.05	A0304220
Ultra Broadband Ant.	Rohde & Schwarz	HL562	2009.06.05	A0304224
Horn Ant.	Rohde & Schwarz	HF906	2009.06.05	100150
Shield Room	Nanbo Tech	Site 1	2009.01.10	A0304188
Anechoic Chamber	Albatross	EMC12.8×6.8×6.4(m)	2009.04.10	A0304210

## 2.5 Test Facility

Shenzhen Electronic Product Quality Testing Center (SET) is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS), according to ISO/IEC 17025. The accreditation certificate number is L1659.

The EMC chamber site No.1 (EMC12.8×6.8×6.4(m)), and the radiated and conducted Emission test equipments of SET are constructed and calibrated to meet the FCC requirements ANSI C63.4:2001 and CISPR 22/EN 55022. The FCC Registration Number is **261302**.

The EMC chamber site No.1 (EMC12.8×6.8×6.4(m)) also complies with Canada standard RSS 212, and acceptable to Industry Canada for the performance of radiated measurements. The Industry Canada Registration Number is **IC 5915**.

## 2.6 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

### 3 Conducted Emission Test

#### 3.1 Limits of Conducted Emission

According to FCC §15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB $\mu$ V), Class B digital device	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

**NOTE:**

1. The lower limit shall apply at the band edges.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

#### 3.2 Test Instruments

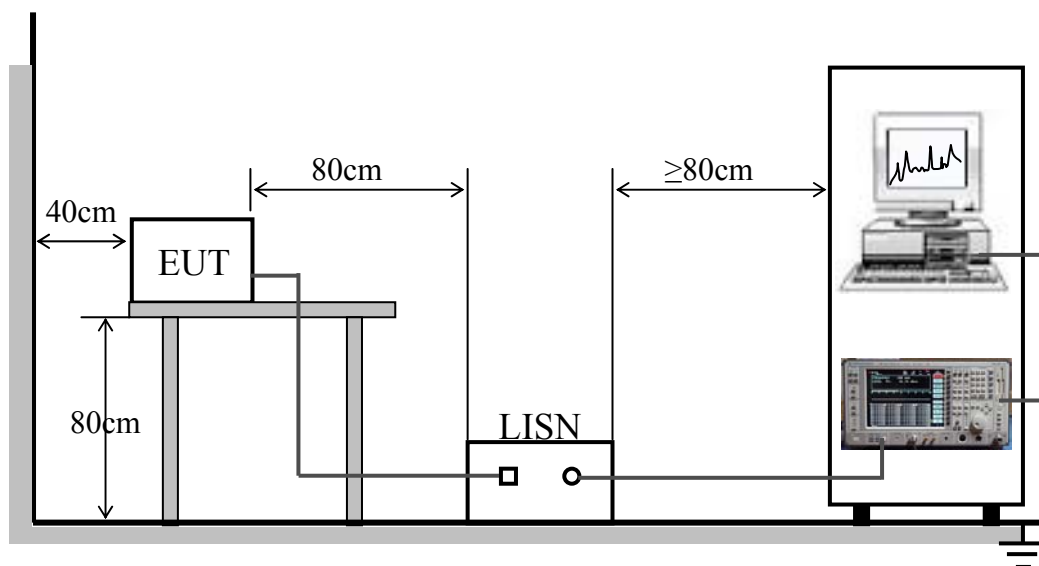
Description	Manufacturer	Model No.	Cal. Due Date	Serial No.
Test Receiver	Schwarzbeck	FCKL1528	2009.06.02	A0304230
LISN	Schwarzbeck	NSLK8127	2009.06.02	A0304233
Shield Room	Nanbo Tech	Site 3	2009.01.04	A9901141

#### 3.3 Test Procedure

- a. The EUT was placed on a 0.8m high insulating table and kept 0.4 meters from the conducting wall of shielded room.
- b. The EUT was connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50 $\Omega$ /50 $\mu$ H of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150 kHz to 30 MHz was searched using CISPR Quasi-Peak and Average detector.



### 3.4 Test Setup



For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

### 3.5 EUT Setup and Operating Conditions

The EUT was connected to a PC. The PC was powered by 120V/60Hz. A test program was provided by the applicant to control the EUT's working channel. The lowest, middle and highest channel were all tested to find the worst emission.

Description	Manufacturer	Model No.	Serial No.
PC	IBM	T43	/
Adaptor of PC	IBM	92P1022	/
Printer	Lexmark	1000 Color Jetprinter	/

### 3.6 Test Results

No.	Freq. (MHz)	Limit Value (dBμV)		Emission Level (dBμV)	
		QP	AV	QP	AV
1	0.1905	64.0	54.0	49.0	--
2	0.1950	63.8	53.8	45.1	--
3	0.35250	58.9	48.9	34.20	--
4	0.5100	56.0	46.0	30.8	--
5	3.99750	56.0	46.0	30.2	--
6	4.12800	56.0	46.0	30.2	--

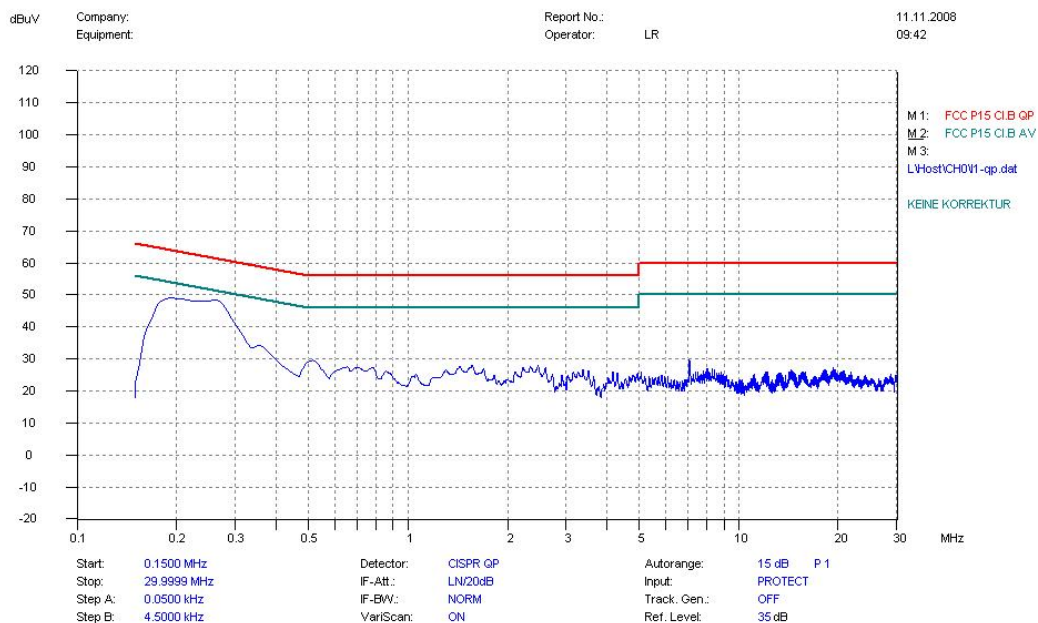
**NOTE:**

1. QP and AV are abbreviations of the quasi-peak and average individually.
2. The emission levels recorded above is the larger ones of both L phase and N phase.

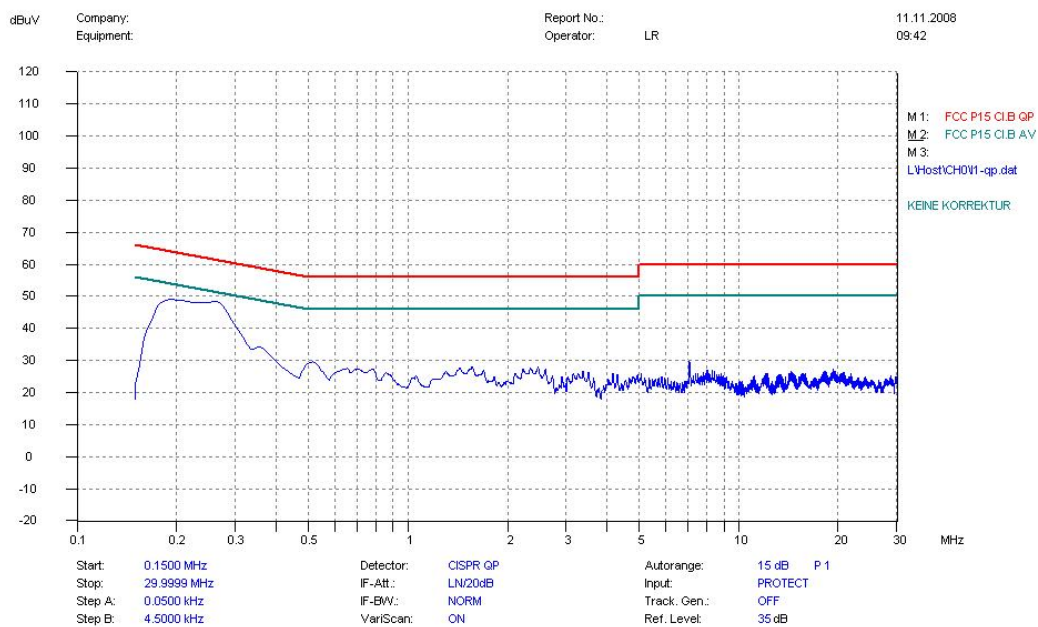


## Test Plot of CH0

### 1. Mains terminal disturbance voltage, L phase, QP detector

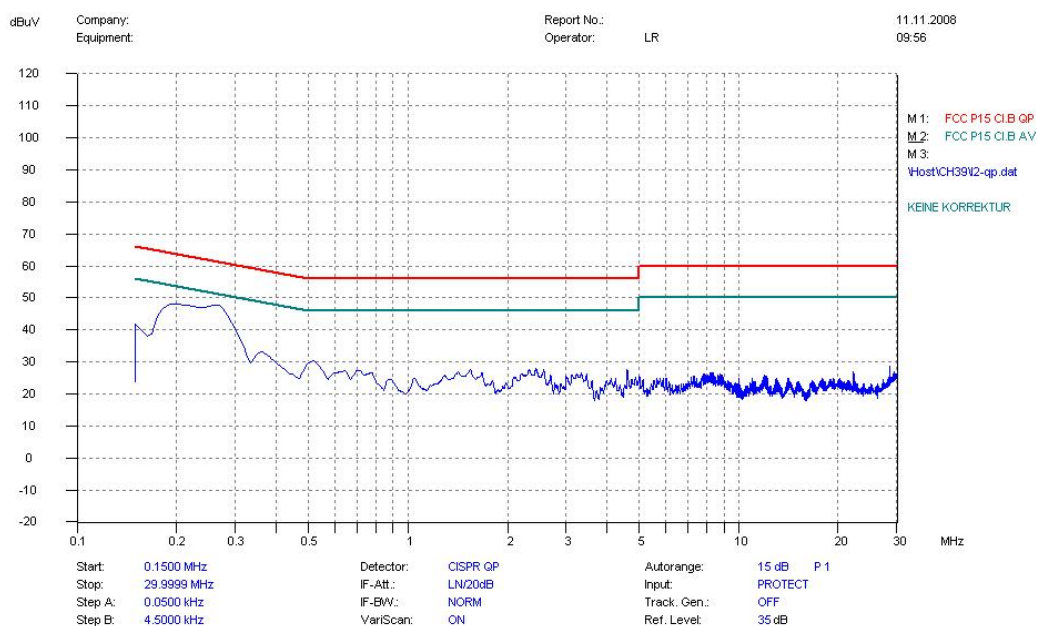


### 2. Mains terminal disturbance voltage, N phase, QP detector

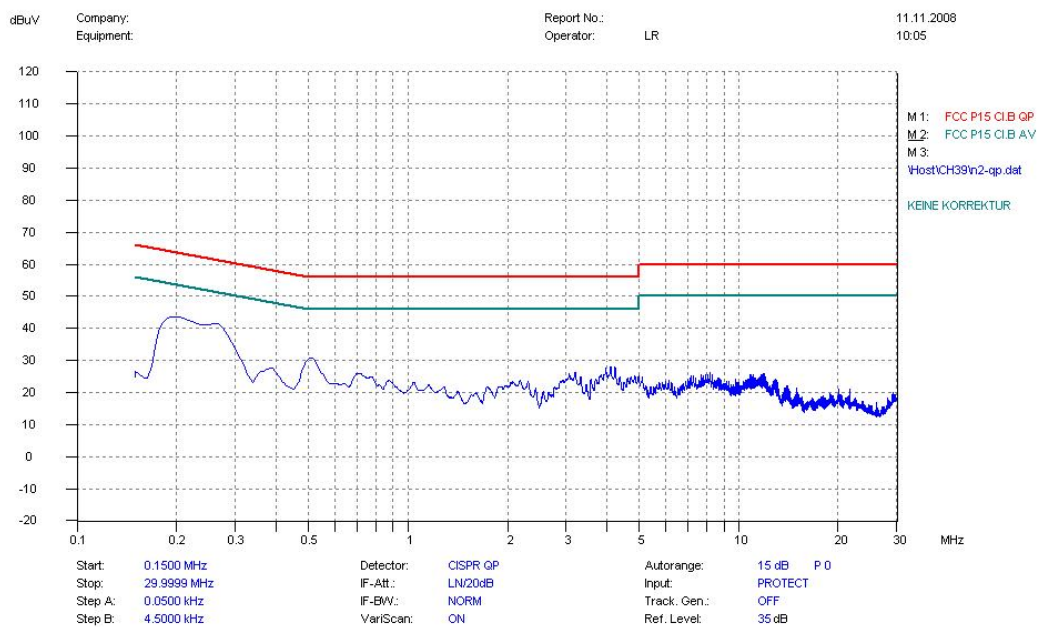


## Test Plot of CH39

### 1. Mains terminal disturbance voltage, L phase, QP detector

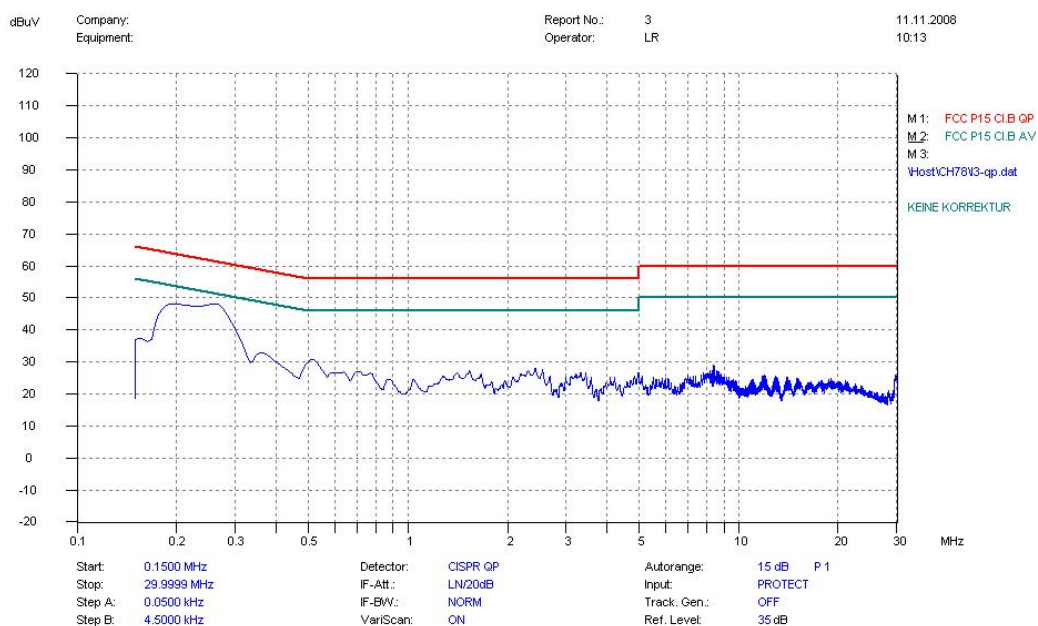


### 2. Mains terminal disturbance voltage, N phase, QP detector

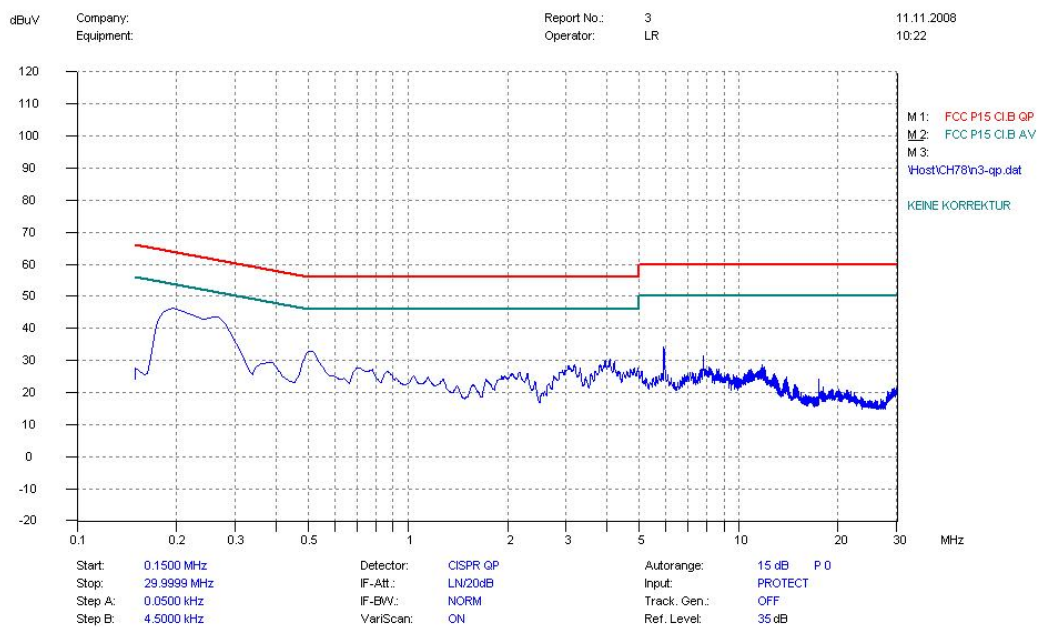


## Test Plot of CH78

### 1. Mains terminal disturbance voltage, L phase, QP detector



### 2. Mains terminal disturbance voltage, N phase, QP detector





## 4 Radiated Emission Test

### 4.1 Limits of Radiated Emission

According to FCC §15.249(a), the field strength of emissions from intentional radiators shall comply with the followings:

Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBuV/m @3m)	(uV/m @3m)	(dBuV/m @3m)
2400-2483.5	50	94 (Average) 114 (Peak)	500	54 (Average) 74 (Peak)

According to FCC §15.209 (a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency(MHz)	Field Strength(μV/m)	Measurement Distance(m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

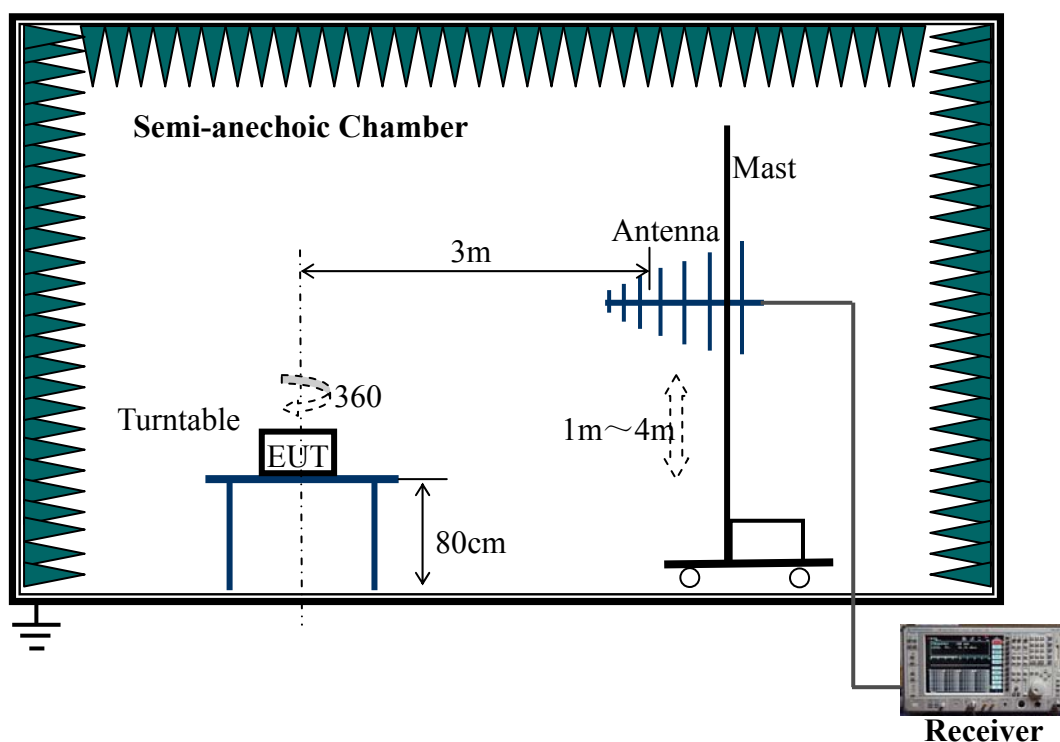
As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules,

### 4.2 Test Procedure

- The EUT was placed on the top of a ratable 0.8 meters above the ground at a semi-anechoic chamber.
- In the frequency range of 9 kHz to 30 MHz, magnetic field was measured with loop antenna. The antenna was positioned with its plane vertical at 1 m distance from the EUT. The center of the loop was 1 m above the ground. During the measurement the loop antenna rotated about its vertical axis for maximum response at each azimuth about the EUT.

- c. In the frequency range above 30MHz, ultra-broadband bi-log antenna (30 MHz to 1 GHz) and horn antenna (above 1GHz) were used. Antenna was 3 meters away from the EUT. Antenna height was varied from one meter to four meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode.
- e. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10 dB margins would be retested one by one using the quasi-peak method.
- f. In the frequency range below 30MHz, the RBW/VBW on the test receiver (R&S ESIB 26) is 9kHz/9kHz; In the frequency range below 1GHz, the RBW/VBW on the test receiver (R&S ESIB 26) is 120kHz/120kHz; In the frequency range above 1GHz, the RBW/VBW on the test receiver (R&S ESIB 26) is 1MHz/1MHz.

### 4.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

## 4.4 EUT Setup and Operating Conditions

Same as 3.4

## 4.5 Test Results

### I. Fundamental Emissions

No.	EUT Operating Channel	Antenna Polarization	Emission Level (dBμV/m)		Emission Limits (dBμV/m)	
			PK	AV	PK	AV
1	CH0	Vertical	89.23	75.18	114	94
		Horizontal	88.34	74.69	114	94
2	CH39	Vertical	87.48	72.28	114	94
		Horizontal	87.39	74.59	114	94
3	CH78	Vertical	90.12	76.81	114	94
		Horizontal	90.85	74.36	114	94

### II. Spurious Emissions

#### Test Result 1: CH0

No.	Harmonic	Antenna Polarization	Emission Level (dBμV/m)		Emission Limits (dBμV/m)	
			PK	AV	PK	AV
1	2 <sup>nd</sup>	Vertical	47.58	--	74	54
		Horizontal	48.23	--	74	54
2	3 <sup>rd</sup>	Vertical	48.74	--	74	54
		Horizontal	46.32	--	74	54
3	4 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54
4	5 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54
5	>6 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54

#### Test Result 1: CH39

No.	Harmonic	Antenna Polarization	Emission Level (dBμV/m)		QP Limits (dBμV/m)	
			PK	AV	PK	AV
1	2 <sup>nd</sup>	Vertical	45.69	--	74	54
		Horizontal	47.17	--	74	54

2	3 <sup>rd</sup>	Vertical	46.28	--	74	54
		Horizontal	45.28	--	74	54
3	4 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54
4	5 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54
5	>6 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54

### Test Result 1: CH78

No.	Harmonic	Antenna Polarization	Emission Level (dB $\mu$ V/m)		QP Limits (dB $\mu$ V/m)	
			PK	AV	PK	AV
1	2 <sup>nd</sup>	Vertical	48.36	--	74	54
		Horizontal	49.57	--	74	54
2	3 <sup>rd</sup>	Vertical	48.27		74	54
		Horizontal	46.23		74	54
3	4 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54
4	5 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54
5	>6 <sup>th</sup>	Vertical	--	--	74	54
		Horizontal	--	--	74	54

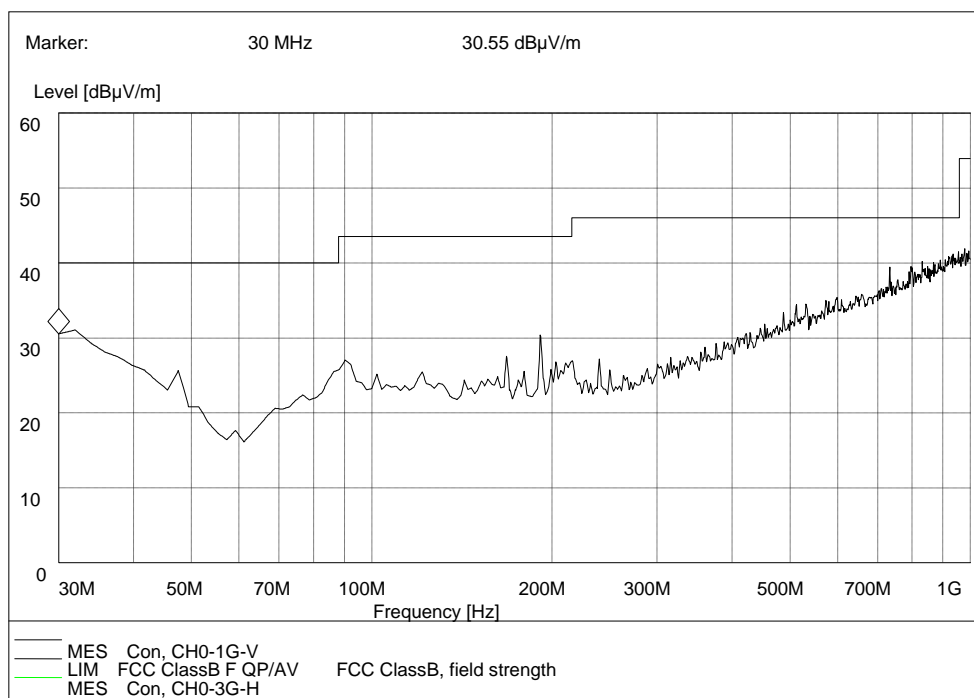
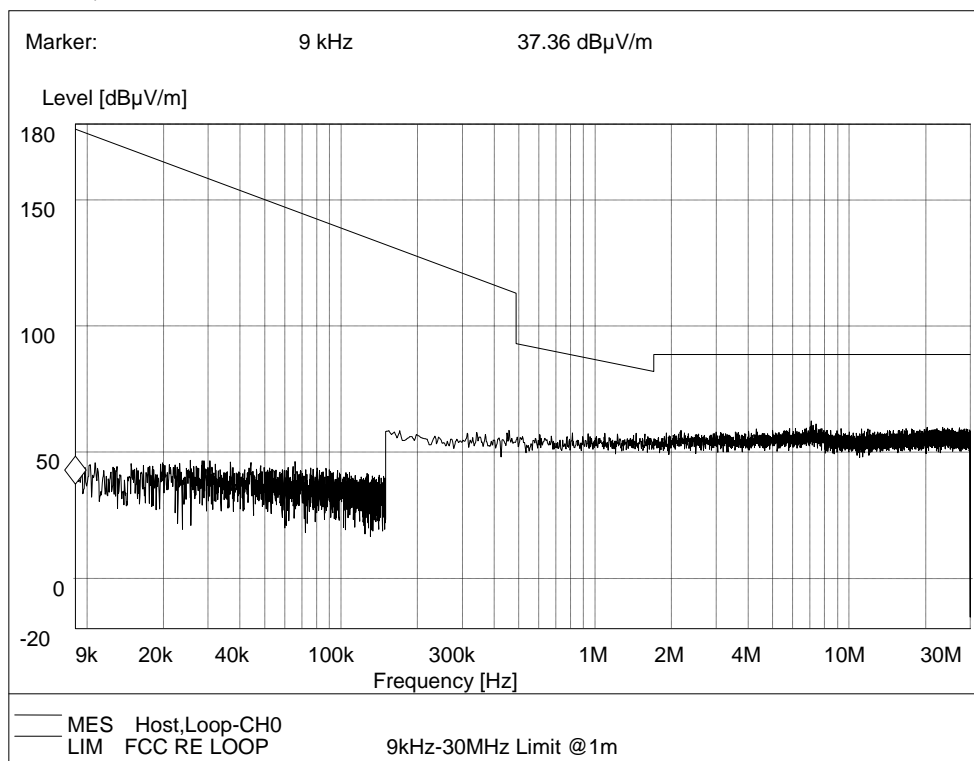
### III. Band Edge

Freq.(MHz)	EUT Operating Chanel	Antenna Polarization	Emission Level (dB $\mu$ V/m)		Emission Limits (dB $\mu$ V/m)	
			PK	AV	PK	AV
2402	CH0	Vertical	38.62	--	74	54
		Horizontal	37.53	--	74	54
2483.5	CH78	Vertical	37.87	--	74	54
		Horizontal	36.47	--	74	54

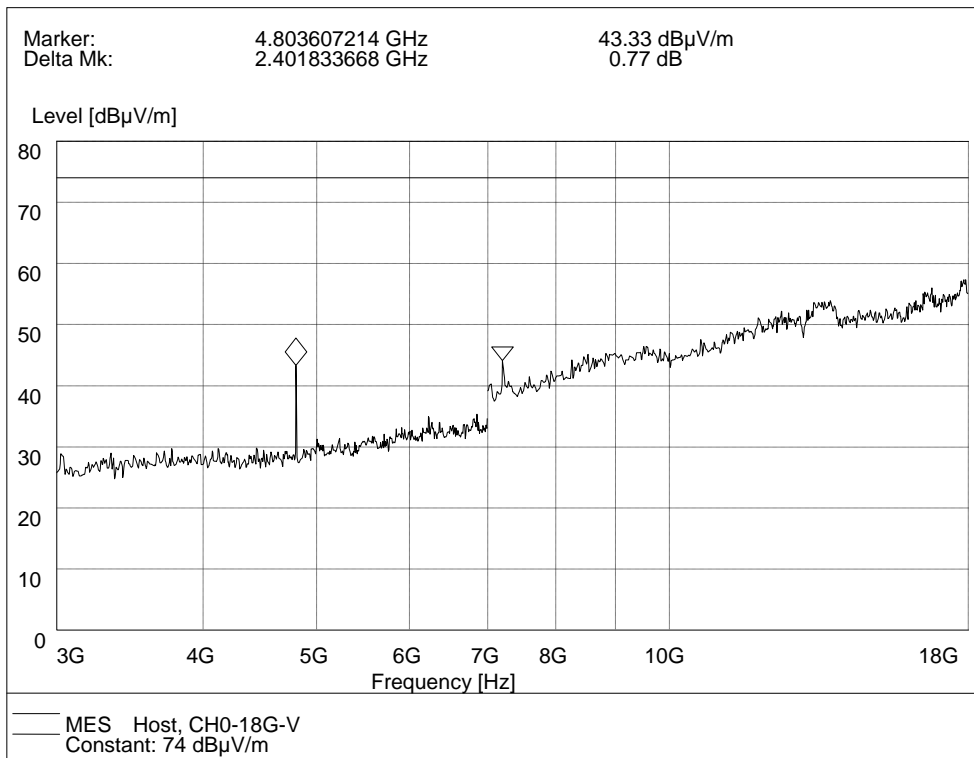
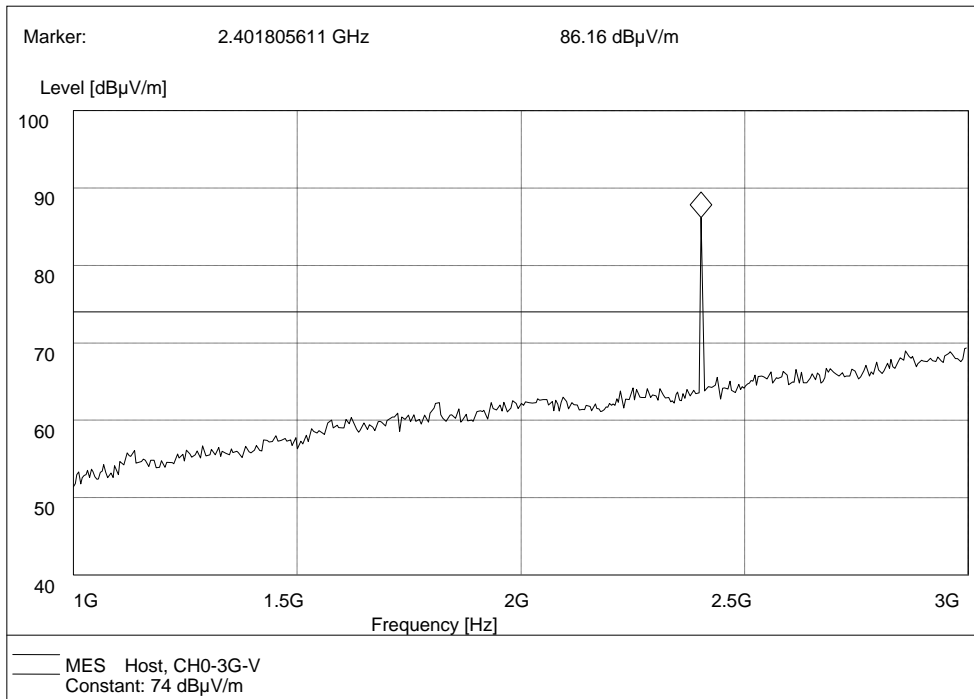
**NOTE:** "--" in the table above means that the emissions are too small to be measured and are at least 10 dB below the limit.

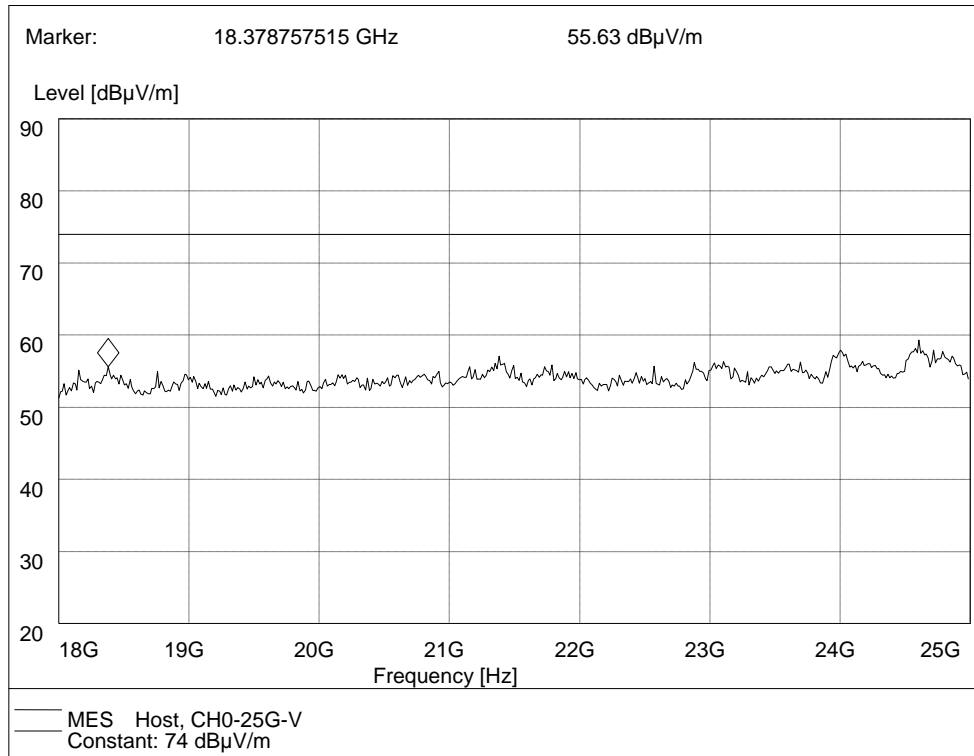
## Test Plots

### 1. Lowest channel, Antenna Vertical

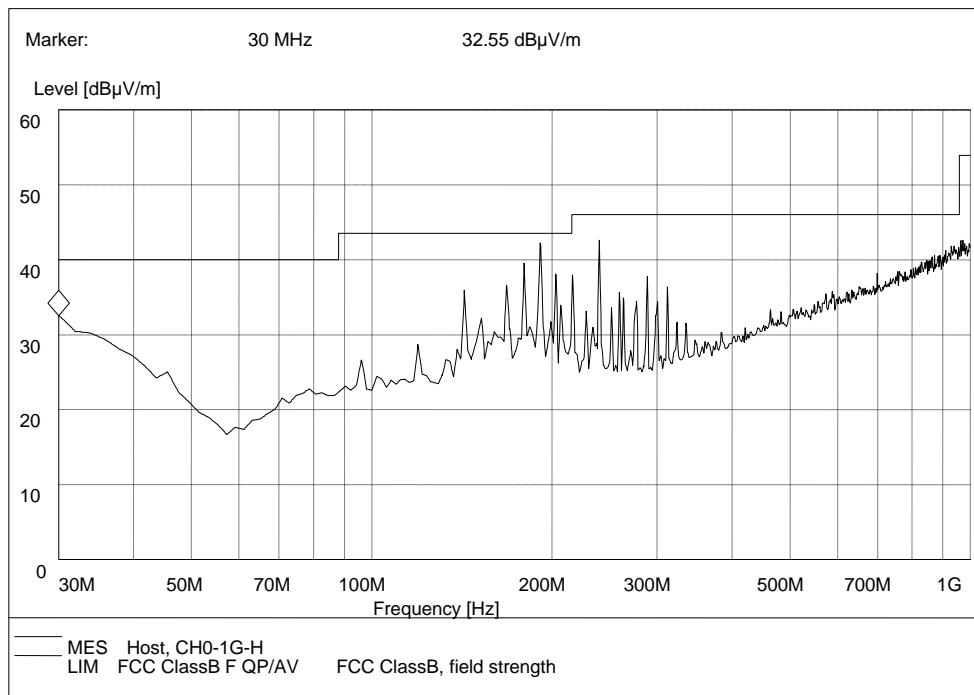


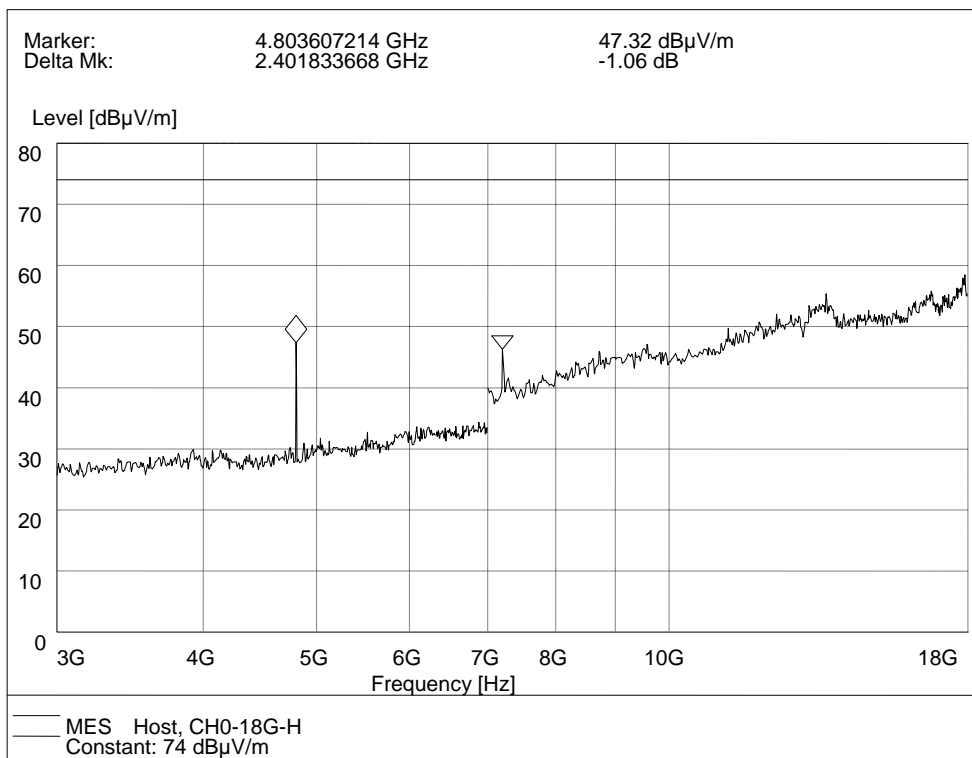
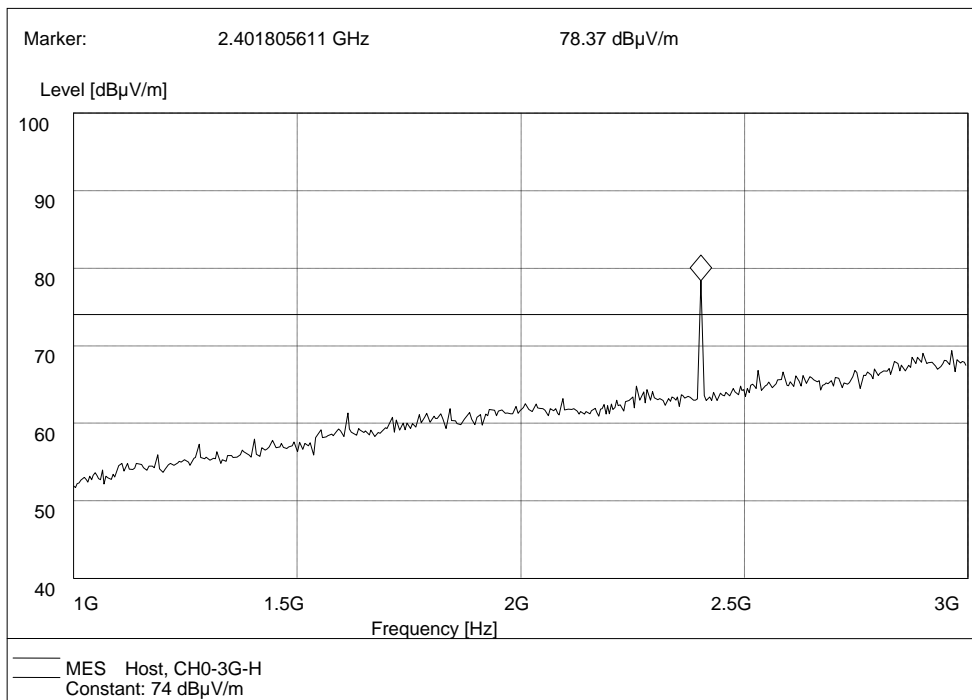


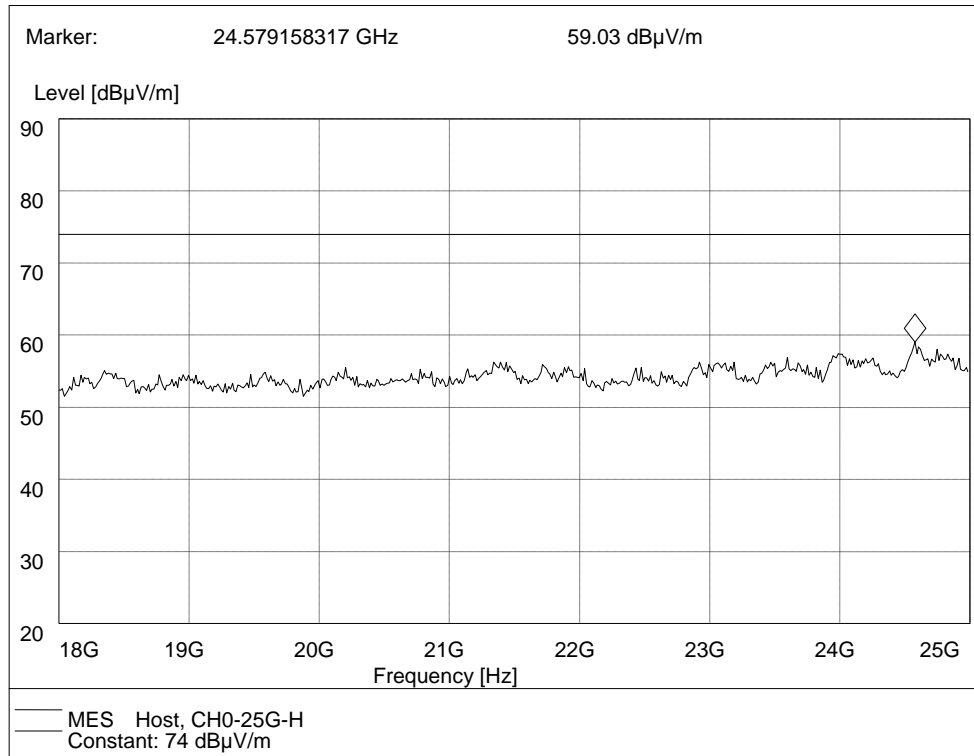




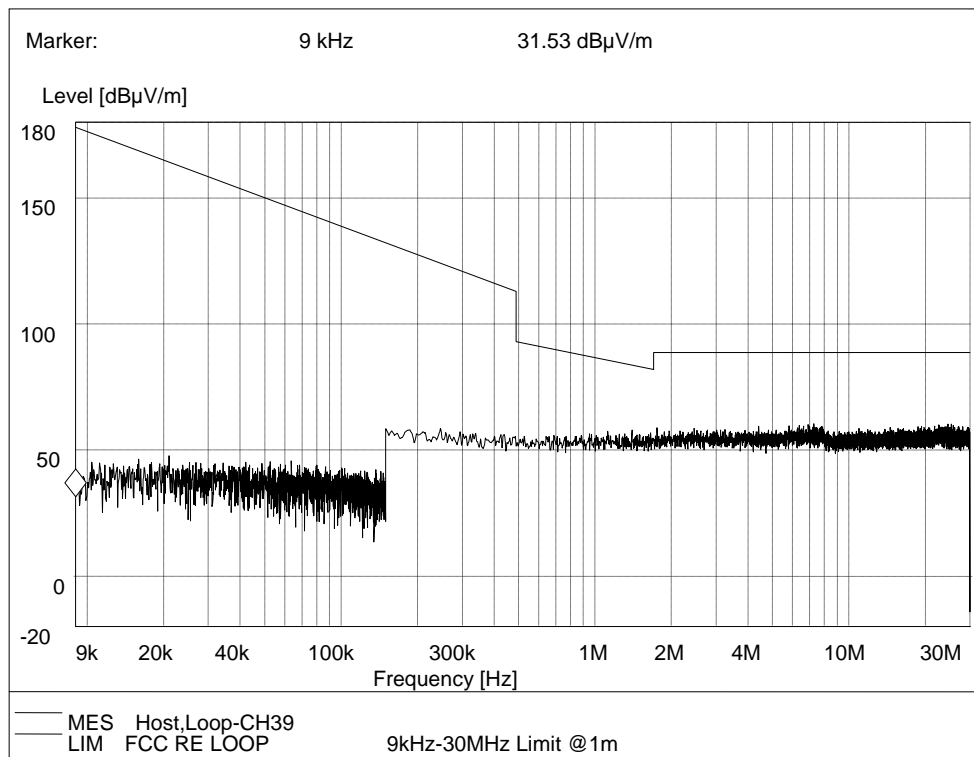
## 2. Lowest channel, Antenna Horizontal

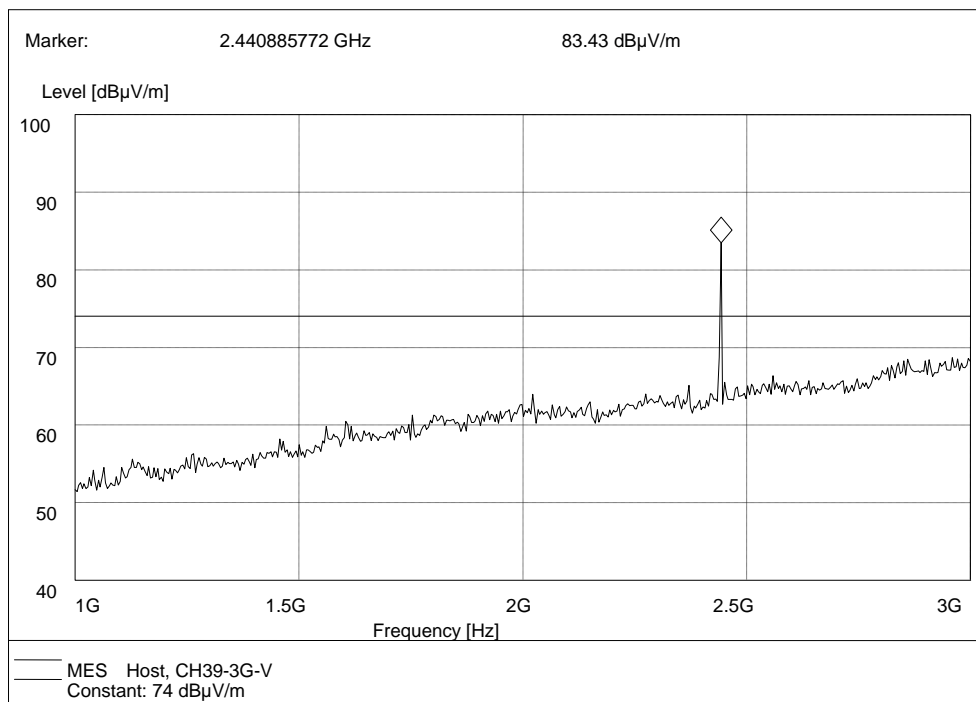
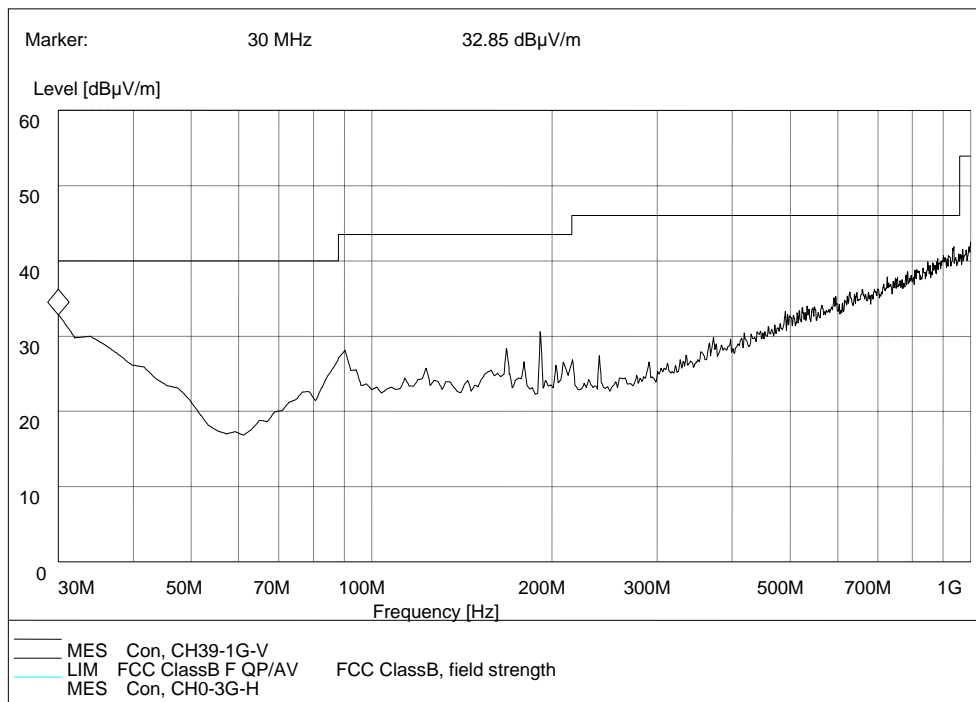


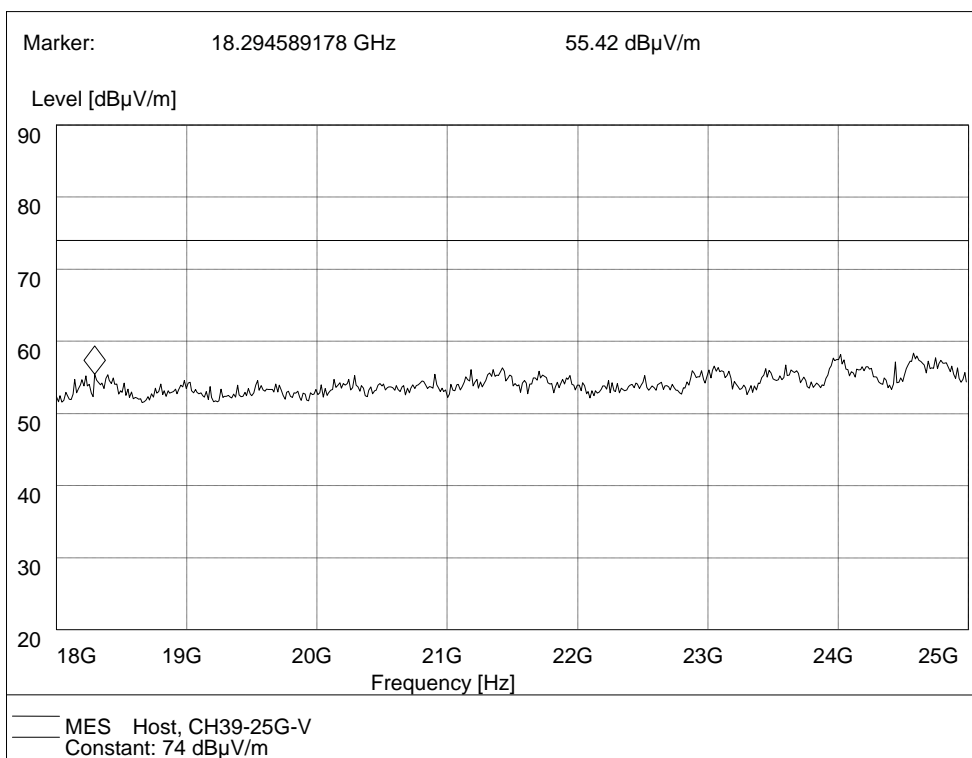
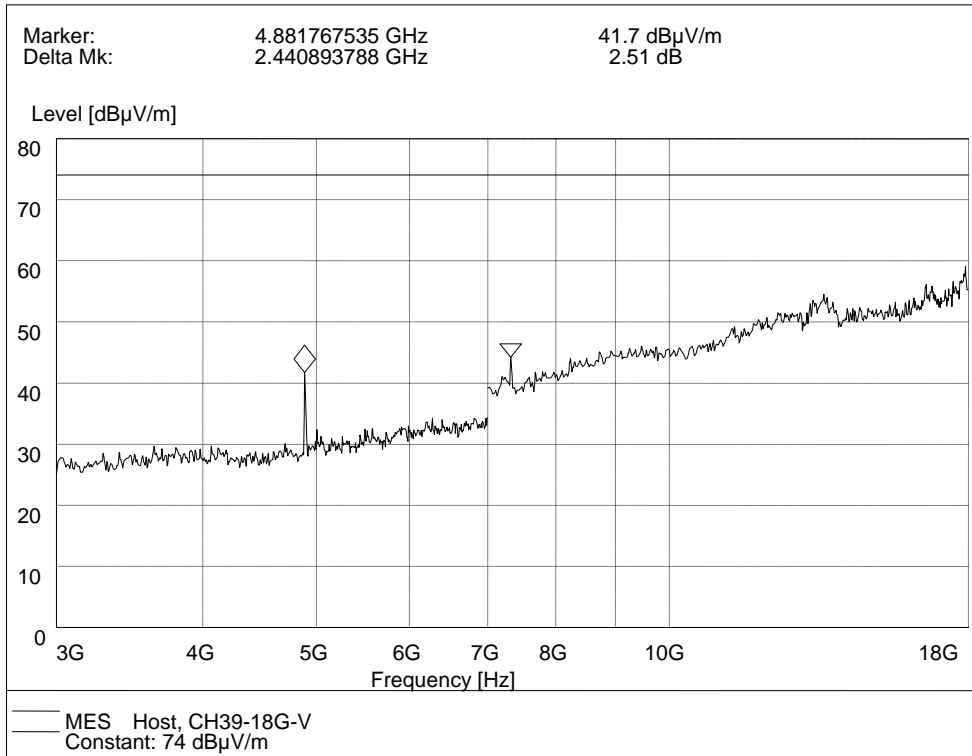




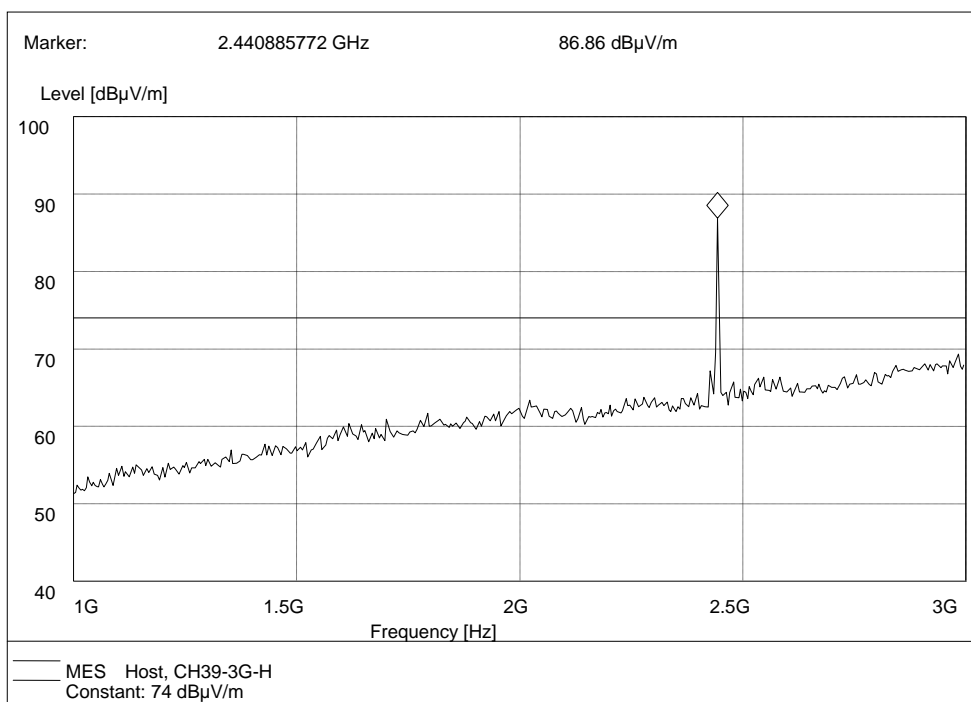
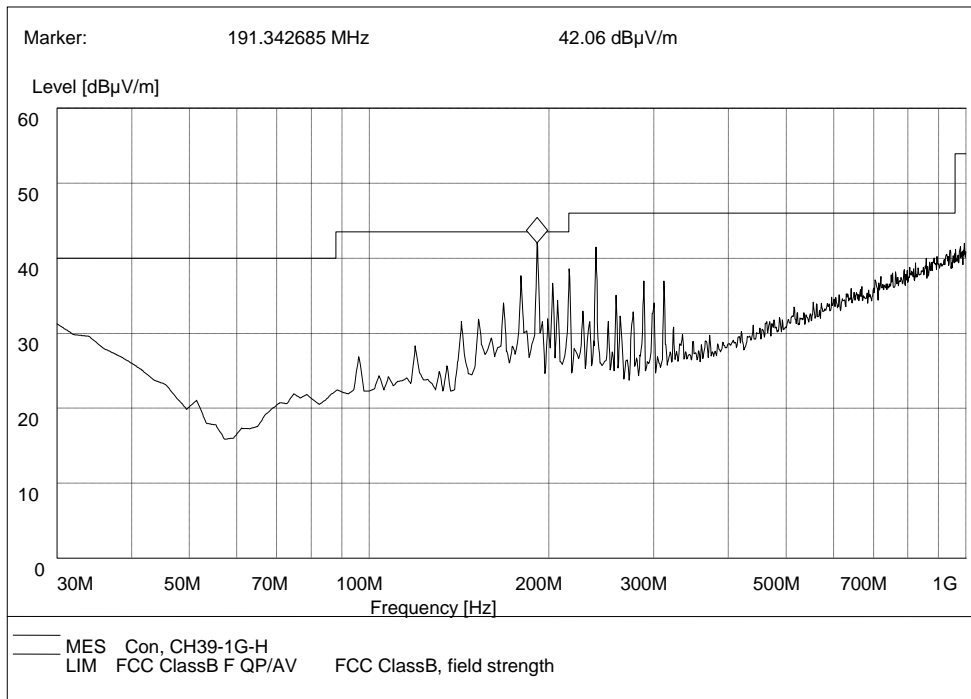
### 3. Middle channel, Antenna Vertical

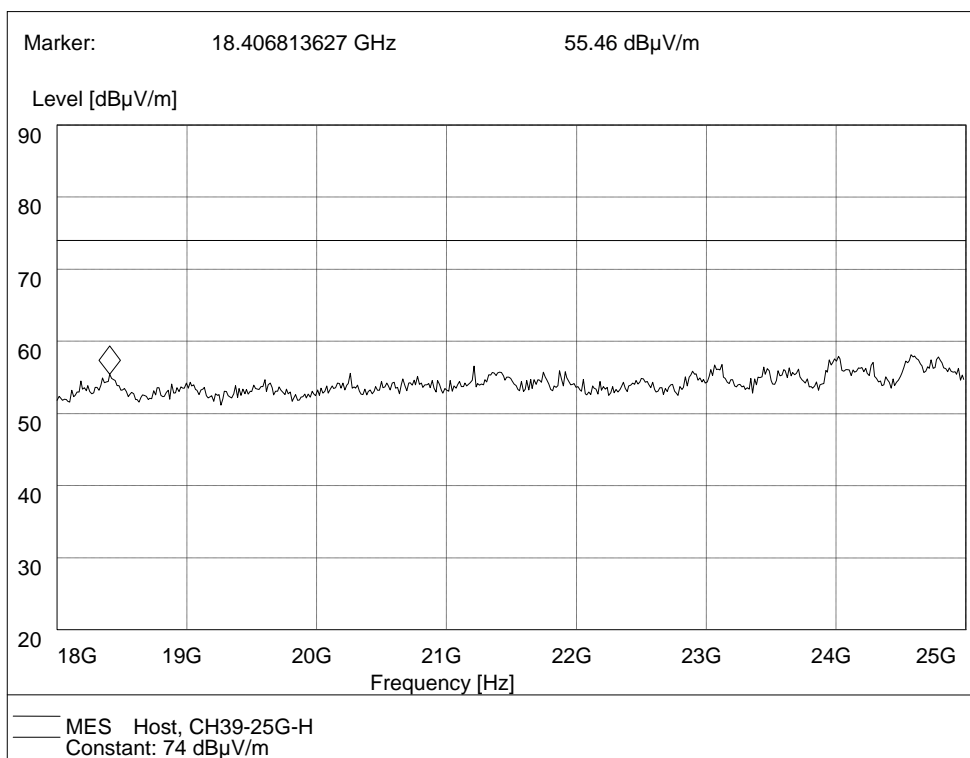
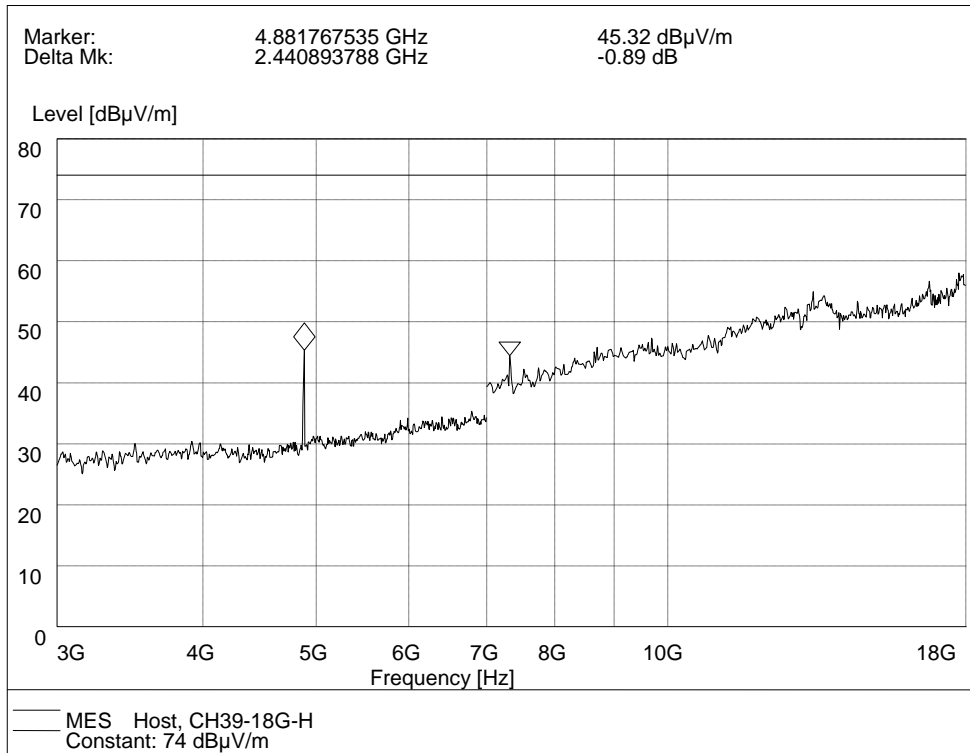






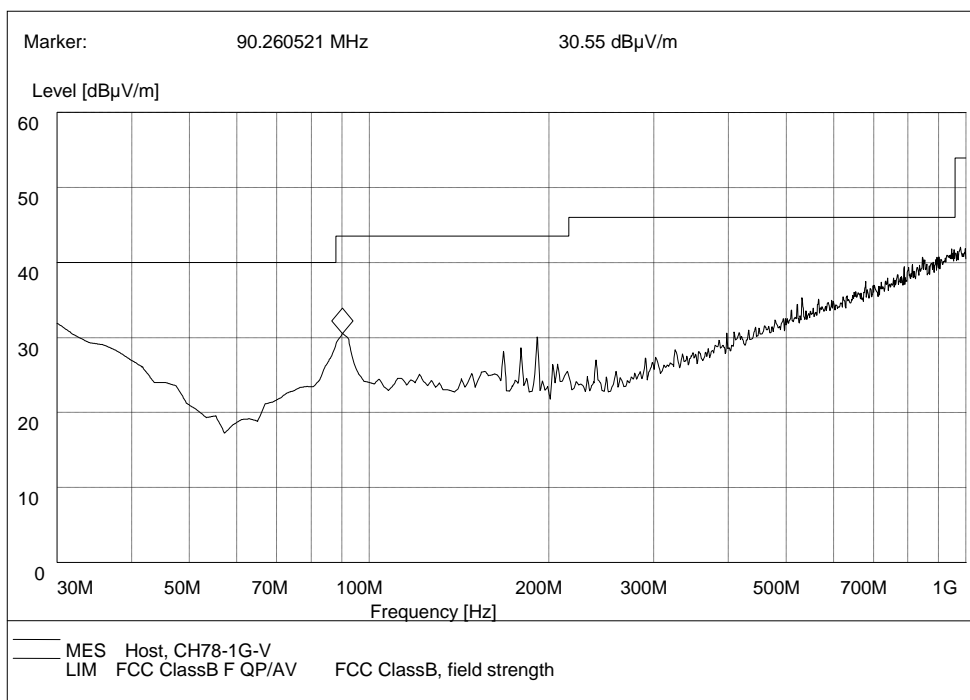
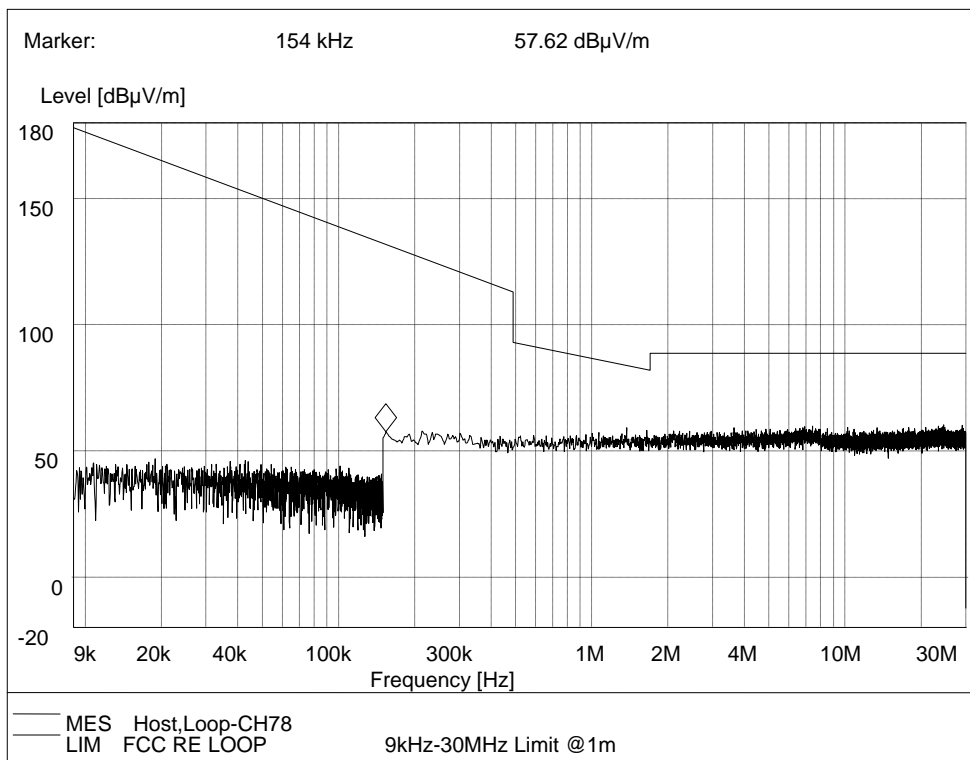
#### 4. Middle channel, Antenna Horizontal





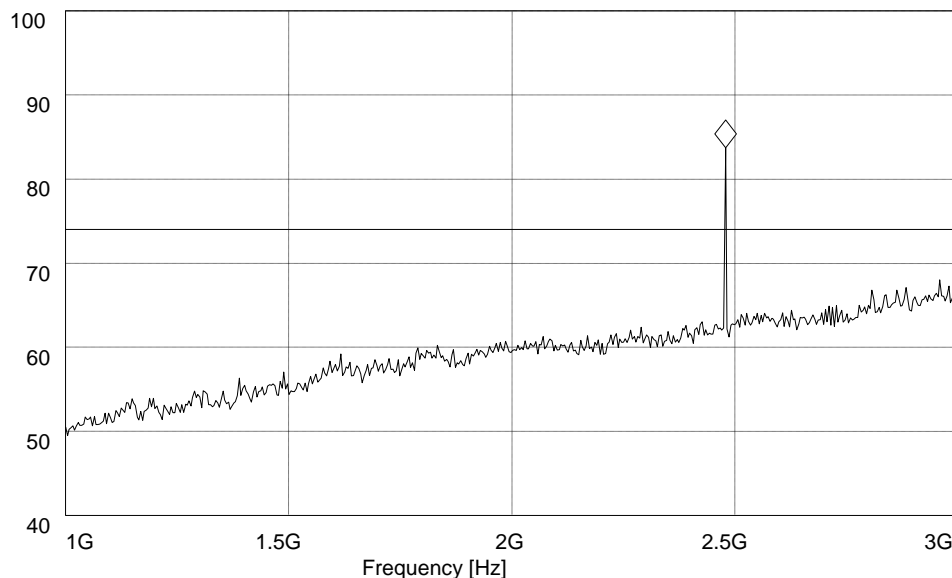
## 5. Highest channel, Antenna Vertical





Marker: 2.479957916 GHz 83.72 dB $\mu$ V/m

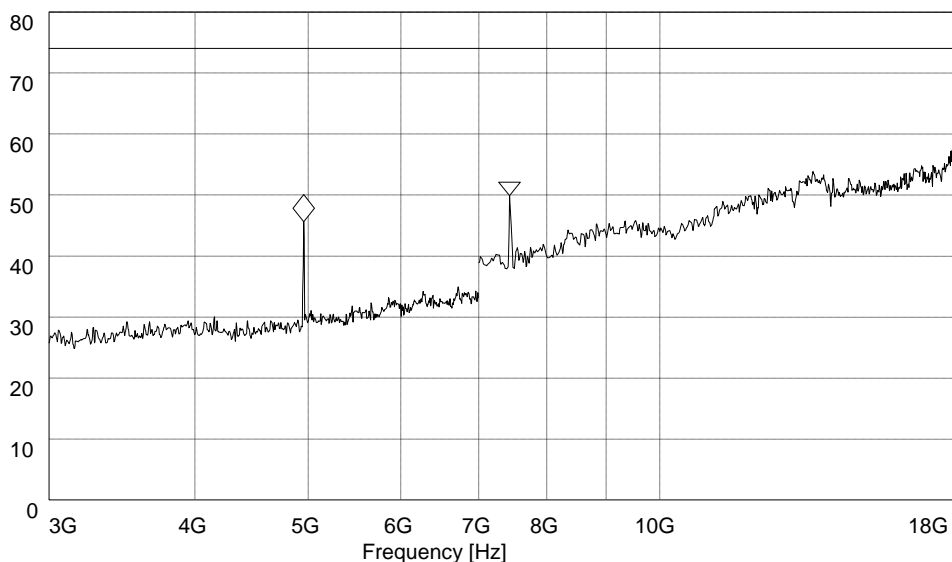
Level [dB $\mu$ V/m]



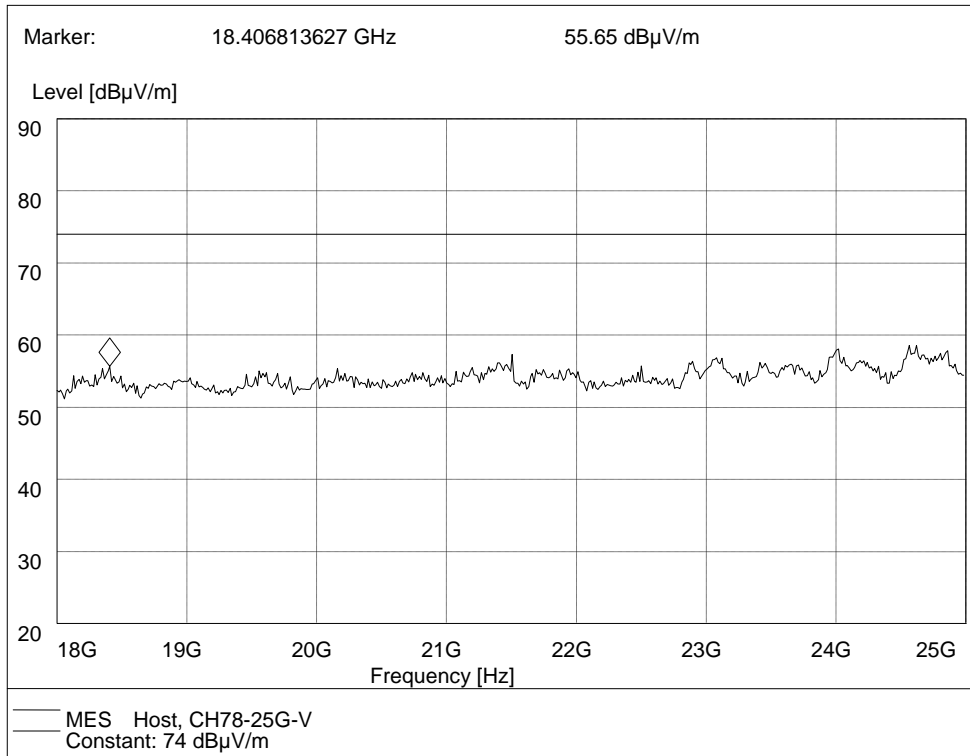
MES Host, CH78-3G-V  
Constant: 74 dB $\mu$ V/m

Marker: 4.959911824 GHz 45.62 dB $\mu$ V/m  
Delta Mk: 2.47996994 GHz 4.26 dB

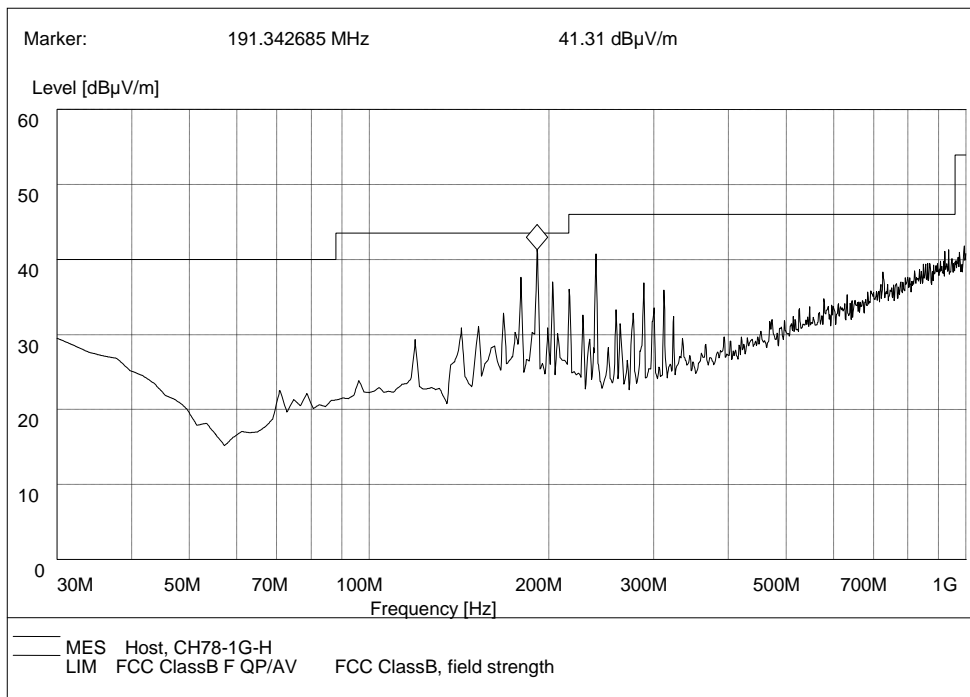
Level [dB $\mu$ V/m]

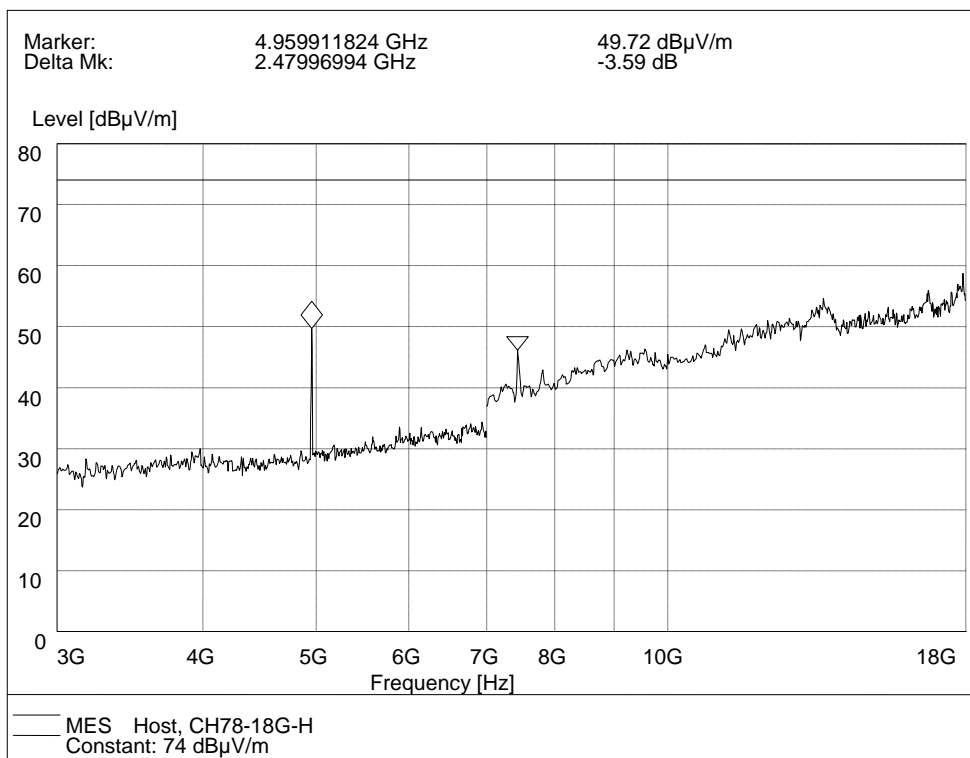
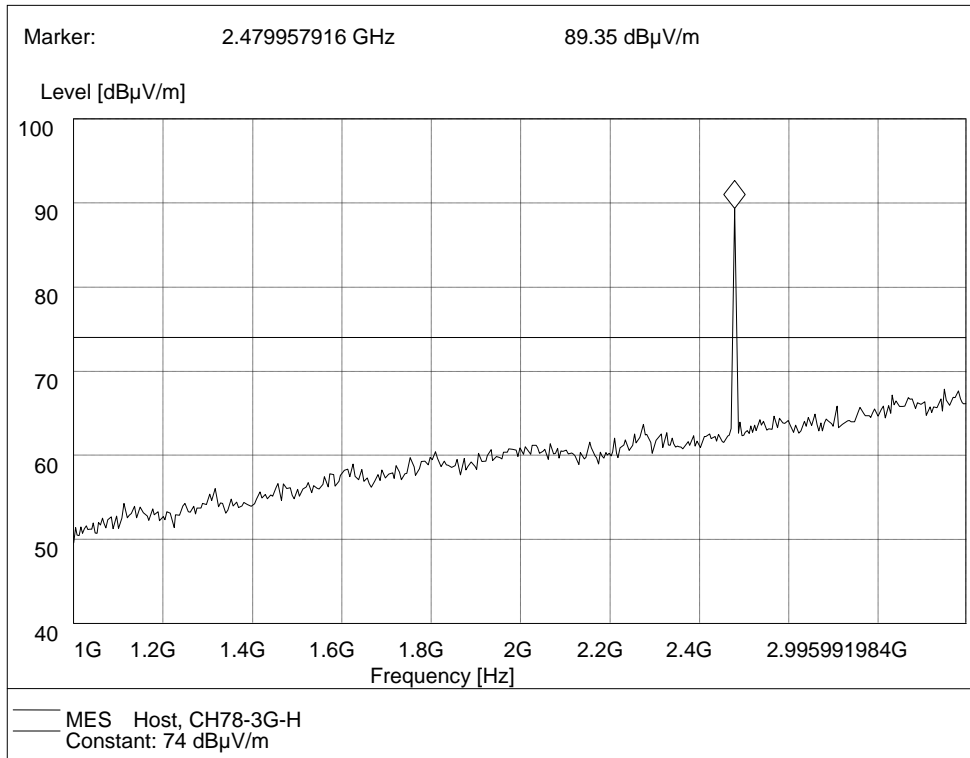


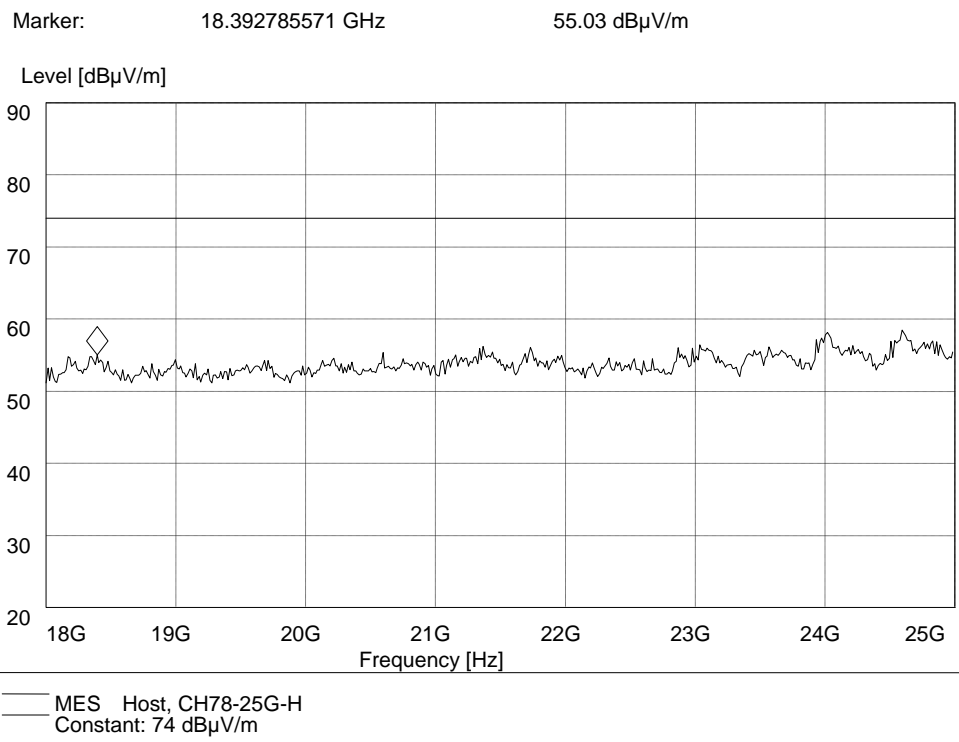
MES Host, CH78-18G-V  
Constant: 74 dB $\mu$ V/m



## 6. Highest channel, Antenna Horizontal







## 5 Bandwidth Test

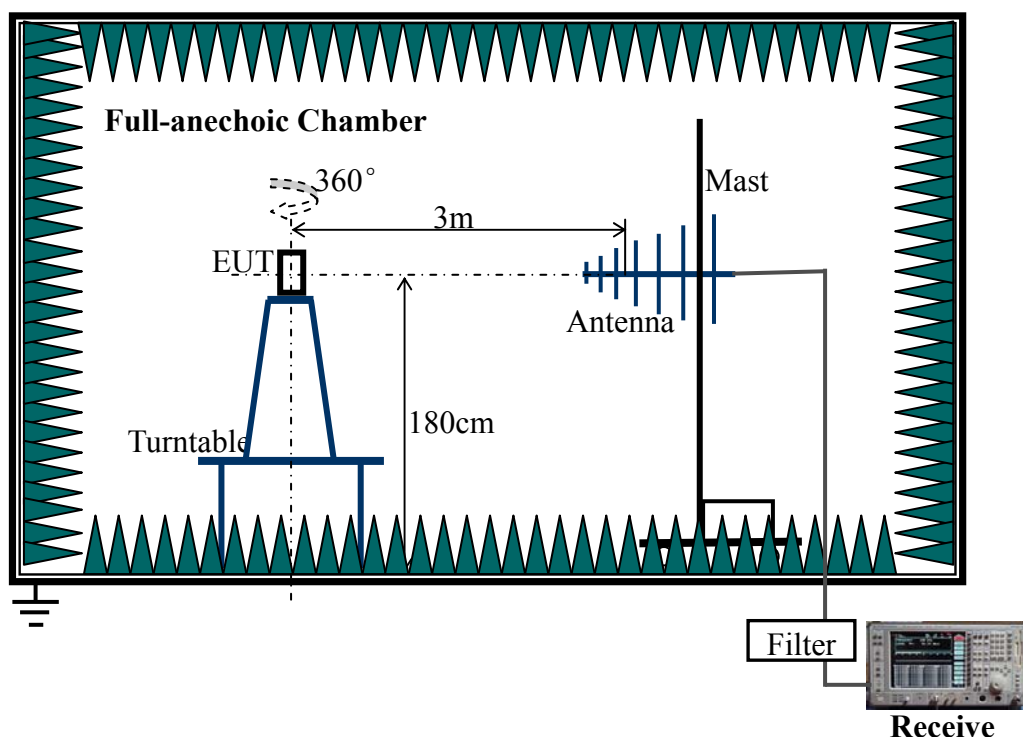
### 5.1 Limit of bandwidth test

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.

### 5.2 Test Procedure

- a. The bandwidth measurement was performed in a full anechoic chamber. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.
- b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground. The table was turned from 0 degrees to 360 degrees to find the maximum reading.
- c. In the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The measurement was performed with the antenna at horizontal and vertical polarization respectively, and the worse plot was recorded..
- d. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode. The resolution bandwidth was set to 100kHz.

## 5.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

## 5.4 EUT Setup and Operating Conditions

The EUT was set to transmit the highest RF power, both at the lowest and highest channel.

## 5.5 Test Results

Test Conditions		Frequency (MHz)	
		Lowest	Highest
RF channel	0	2401.66	/
RF channel	78	/	2481.37

# Test Plot of Bandwidth

