

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Greenwave Scientific, Inc., d/b/a Mohu

Mohu Channels
Model No.: MHCHBOX01

FCC ID: 2ABUT-MHCHBOX01

Prepared for : Greenwave Scientific, Inc., d/b/a Mohu
Address : 2720 Discovery Dr Raleigh, NC 27616 United States
Prepared by : ACCURATE TECHNOLOGY CO., LTD
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Report No. : ATE20140411
Date of Test : Apr 01, 2014- Apr 25, 2014
Date of Report : Apr 25, 2014

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Test Report Certification

Applicant& address : Greenwave Scientific, Inc., d/b/a Mohu
2720 Discovery Dr Raleigh, NC 27616 United States
Manufacturer& address : VideoStrong Technology CO., Ltd
402A, Building B, Donglian Industrial, 23rd District, Bao'an,
Shenzhen, China
Product : Mohu Channels
Model No. : MHCHBOX01
Trade name : Mohu

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.4: 2009

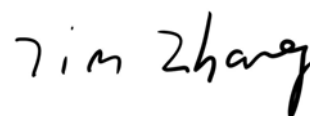
The EUT was tested according to FCC 47CFR 15.249 for compliance to FCC 47CFR 15.249 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.249 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : Apr 01, 2014- Apr 25, 2014

Prepared by :



(Tim.zhang, Engineer)

Approved & Authorized Signer :



(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Mohu Channels
Model Number	:	MHCHBOX01
Antenna gain	:	0 dBi
Work Frequency	:	2402MHz, 2436MHz, 2446MHz, 2479MHz
Type of Antenna	:	PCB Antenna
Power Supply	:	AC 120V/60Hz (Powered by Adapter)
Adapter	:	Model:TYP60-0502500u Input: AC 100-240V Output: 5.0V 2.5amp
Operate Frequency	:	2402-2479MHz
Applicant	:	Greenwave Scientific, Inc., d/b/a Mohu
Address	:	2720 Discovery Dr Raleigh, NC 27616 United States
Manufacturer	:	VideoStrong Technology CO.,Ltd
Address	:	402A, Building B, Donglian Industrial, 23rd District, Bao'an, Shenzhen, China
Date of sample received	:	Apr 01, 2014
Date of Test	:	Apr 01, 2014- Apr 25, 2014

1.2. Accessory and Auxiliary Equipment

HDTV	Manufacturer: DELL M/N: 1704FPTt Serial No.: 709913441
Mouse	Manufacturer: DELL M/N: DMC S/N: HZXLM1

1.3. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC

The Registration Number is 752051

Listed by Industry Canada

The Registration Number is 5077A-2

Accredited by China National Accreditation Committee
for Laboratories

The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

1.4. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2
(Above 1GHz)

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 11, 2014	Jan. 10, 2015
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 11, 2014	Jan. 10, 2015
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 11, 2014	Jan. 10, 2015
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 11, 2014	Jan. 10, 2015
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 15, 2014	Jan. 14, 2015
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan. 15, 2014	Jan. 14, 2015
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 11, 2014	Jan. 10, 2015
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 11, 2014	Jan. 10, 2015
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 11, 2014	Jan. 10, 2015
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 11, 2014	Jan. 10, 2015

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **Transmitting mode**

Low Channel: 2402MHz

Middle Channel: 2436MHz

High Channel: 2479MHz

3.2.Configuration and peripherals

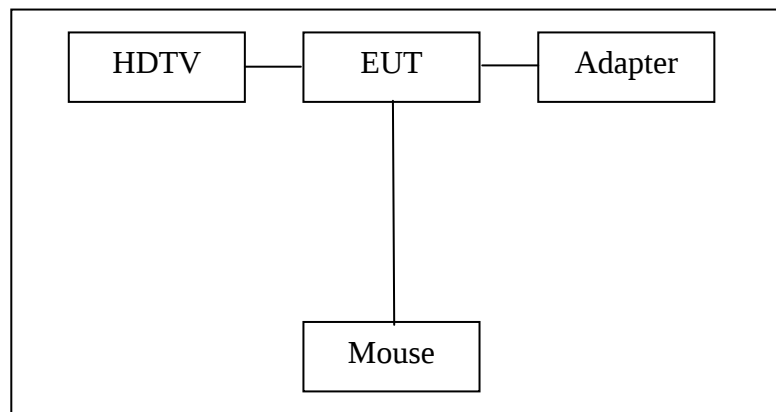


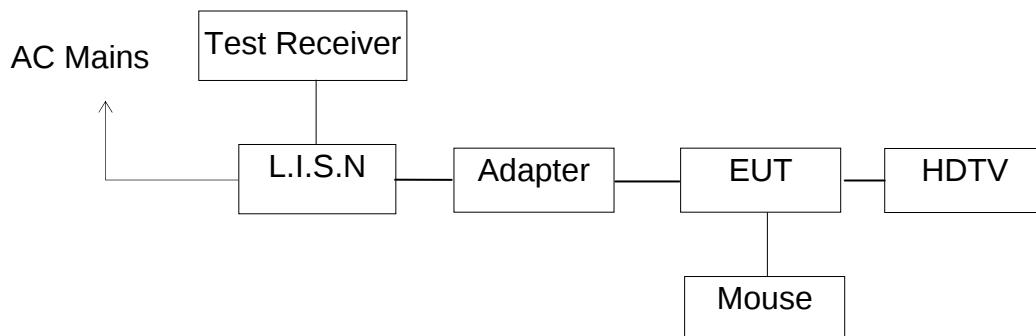
Figure 1 Setup: Transmitting mode

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.215(c)	20dB Bandwidth	Compliant
Section 15.249(d)	Band Edge Compliance Test	Compliant
Section 15.205(a), Section 15.209(a), Section 15.249, Section 15.35	Radiated Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. POWER LINE CONDUCTED MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: Mohu Channels)

5.2. Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.
 NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

5.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in test mode and measure it.

5.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

5.6.Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Test mode : 2.4G TX								
MEASUREMENT RESULT: "M-0421-V02_fin"								
4/21/2014 4:50PM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.171806	55.30	10.5	65	9.6	QP	L1	GND	
1.818284	44.80	11.0	56	11.2	QP	L1	GND	
3.295983	43.40	11.1	56	12.6	QP	L1	GND	
MEASUREMENT RESULT: "M-0421-V02_fin2"								
4/21/2014 4:50PM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.342744	38.60	10.6	49	10.5	AV	L1	GND	
1.877290	37.60	11.0	46	8.4	AV	L1	GND	
3.067455	33.30	11.1	46	12.7	AV	L1	GND	
MEASUREMENT RESULT: "M-0421-V01_fin"								
4/21/2014 4:47PM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.171121	57.90	10.5	65	7.0	QP	N	GND	
3.179666	50.10	11.1	56	5.9	QP	N	GND	
3.349036	49.10	11.1	56	6.9	QP	N	GND	
MEASUREMENT RESULT: "M-0421-V01_fin2"								
4/21/2014 4:47PM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
3.349036	39.60	11.1	46	6.4	AV	N	GND	
3.457718	35.00	11.1	46	11.0	AV	N	GND	
3.513374	31.20	11.1	46	14.8	AV	N	GND	

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

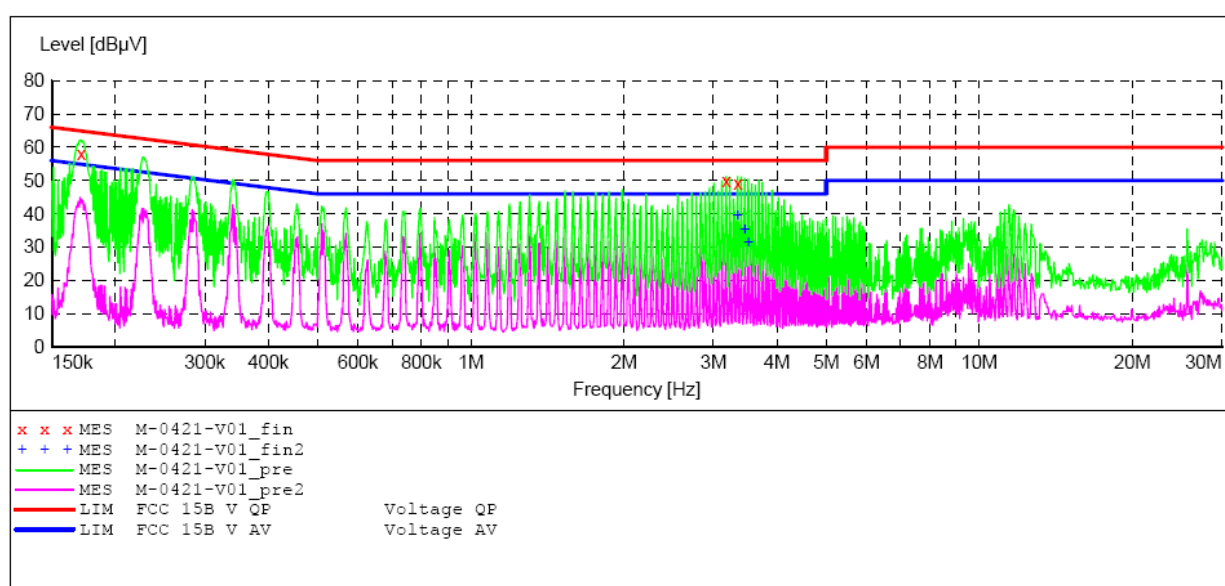
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Mohu Channels M/N:MHCHBOX01
 Manufacturer: VideoStrong
 Operating Condition: 2.4G Running
 Test Site: 1#Shielding Room
 Operator: Alen
 Test Specification: N 120V/60Hz
 Comment: Report No:ATE20140411
 Start of Test: 4/21/2014 / 4:45:08PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "M-0421-V01_fin"

4/21/2014 4:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.171121	57.90	10.5	65	7.0	QP	N	GND
3.179666	50.10	11.1	56	5.9	QP	N	GND
3.349036	49.10	11.1	56	6.9	QP	N	GND

MEASUREMENT RESULT: "M-0421-V01_fin2"

4/21/2014 4:47PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
3.349036	39.60	11.1	46	6.4	AV	N	GND
3.457718	35.00	11.1	46	11.0	AV	N	GND
3.513374	31.20	11.1	46	14.8	AV	N	GND

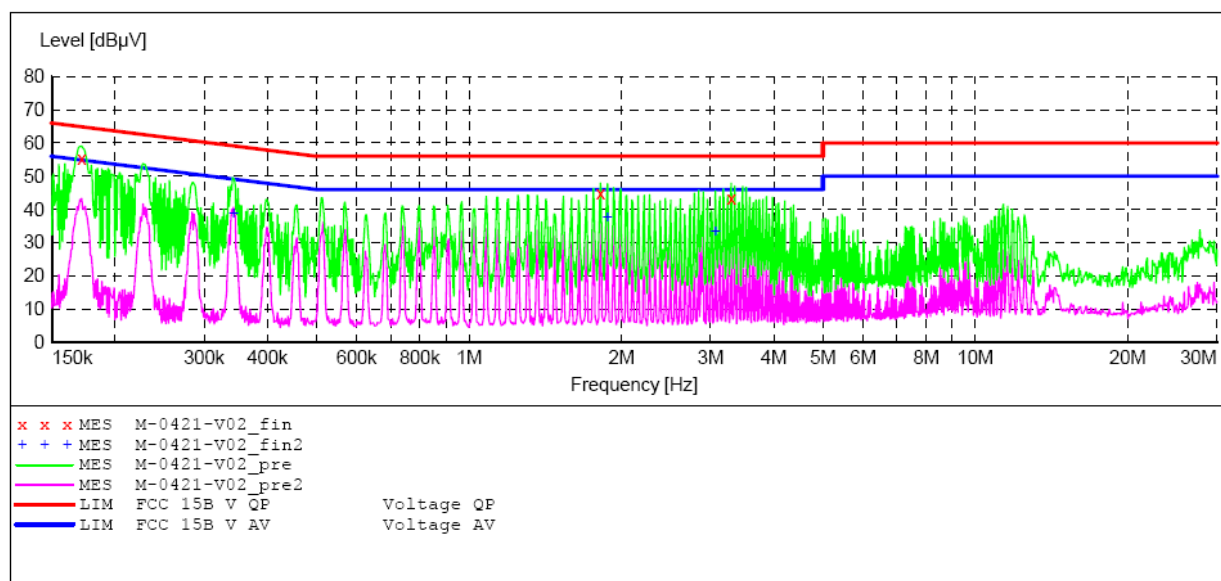
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: Mohu Channels M/N:MHCHBOX01
 Manufacturer: VideoStrong
 Operating Condition: 2.4G Running
 Test Site: 1#Shielding Room
 Operator: Alen
 Test Specification: L 120V/60Hz
 Comment: Report No:ATE20140411
 Start of Test: 4/21/2014 / 4:47:59PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "M-0421-V02_fin"

4/21/2014 4:50PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.171806	55.30	10.5	65	9.6	QP	L1	GND
1.818284	44.80	11.0	56	11.2	QP	L1	GND
3.295983	43.40	11.1	56	12.6	QP	L1	GND

MEASUREMENT RESULT: "M-0421-V02_fin2"

4/21/2014 4:50PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.342744	38.60	10.6	49	10.5	AV	L1	GND
1.877290	37.60	11.0	46	8.4	AV	L1	GND
3.067455	33.30	11.1	46	12.7	AV	L1	GND

6. 20DB BANDWIDTH MEASUREMENT

6.1. Block Diagram of Test Setup



6.2. The Requirement For Section 15.215(c)

The bandwidth of a frequency hopping channel is the 20 dB emission bandwidth, measured with the hopping stopped. The system RF bandwidth is equal to the channel bandwidth multiplied by the number of channels in the hopset. The hopset shall be such that the near-term distribution of frequencies appears random, with sequential hops randomly distributed in both direction and magnitude of change in the hopset while the long-term distribution appears evenly distributed.

6.3. Operating Condition of EUT

6.3.1. Setup the EUT and simulator as shown as Section 5.1.

6.3.2. Turn on the power of all equipment.

6.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2479 MHz. We select 2402MHz, 2436MHz, and 2479MHz TX frequency to transmit.

6.4. Test Procedure

6.4.1. Place the EUT on the table and set it in transmitting mode.

6.4.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

6.4.3. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz, Detector function=peak, Trace=max hold, Sweep=auto.

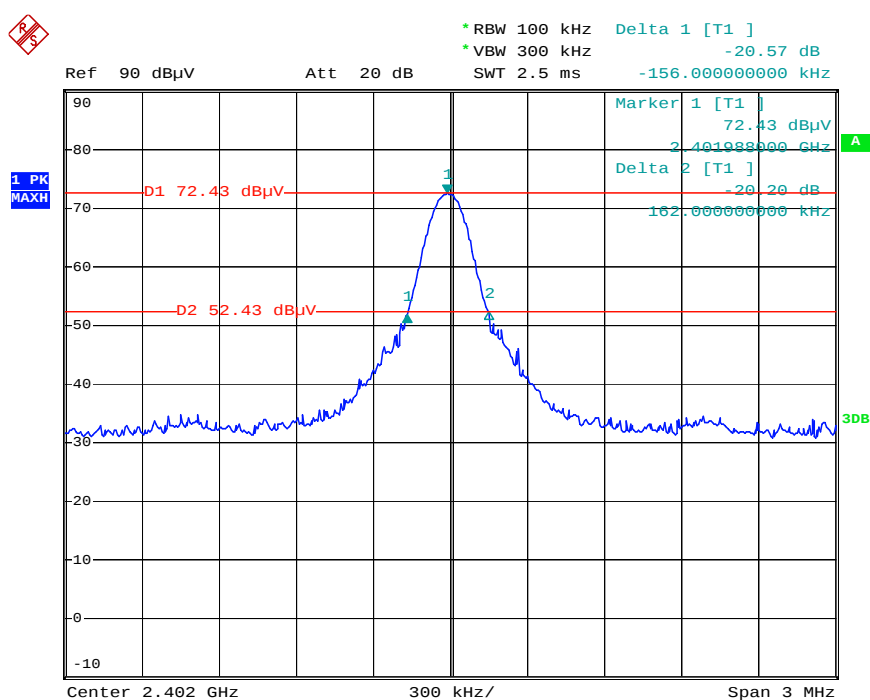
6.4.4. Set the measured low, middle and high frequency and test 20dB bandwidth with spectrum analyzer.

6.5. Test Result

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2402	0.318
Middle	2436	0.288
High	2479	0.300

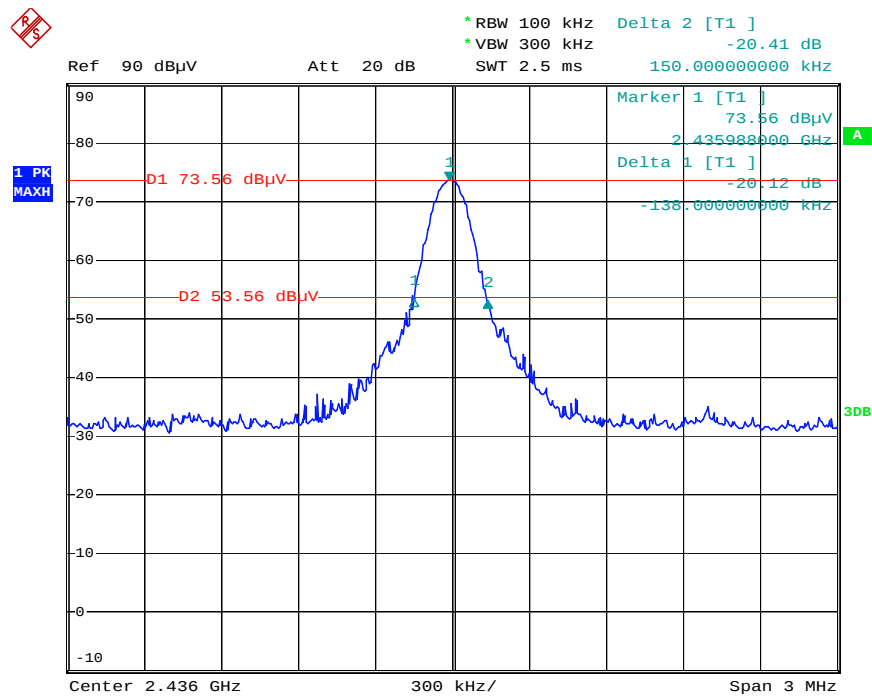
The spectrum analyzer plots are attached as below.

Low channel



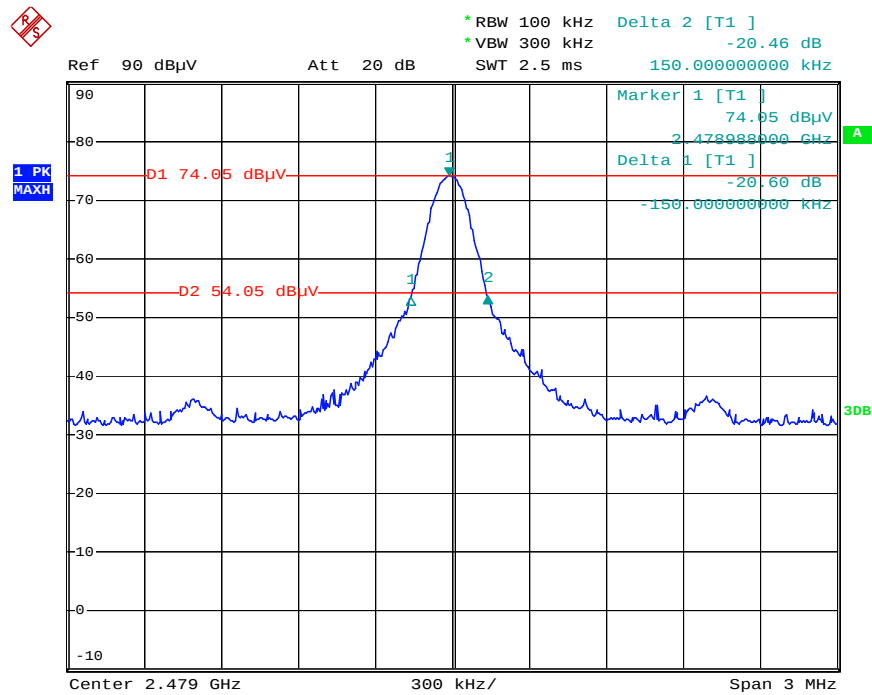
Date: 16.APR.2014 09:38:59

Middle channel



Date: 16.APR.2014 09:36:21

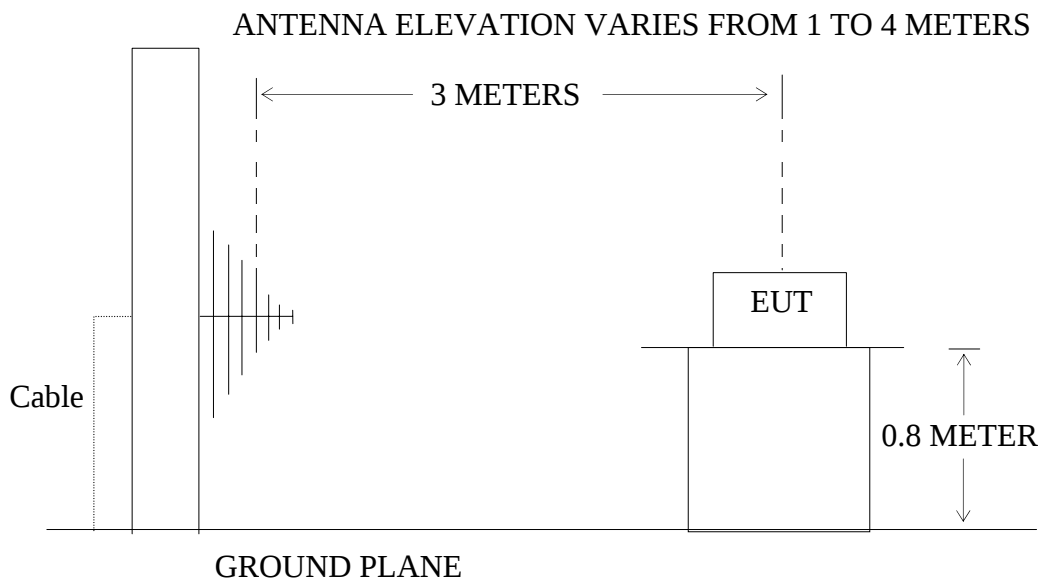
High channel



Date: 16.APR.2014 09:33:56

7. BAND EDGE COMPLIANCE TEST

7.1. Block Diagram of Test Setup



7.2. The Requirement For Section 15.249

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

7.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 6.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2479 MHz. We select 2402MHz, 2479MHz TX frequency to transmit.

7.5. Test Procedure

Radiate Band Edge:

7.5.1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

7.5.2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

7.5.3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

7.5.4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

RBW=1MHz, VBW=1MHz

7.5.5. The band edges was measured and recorded.

7.6. Test Result

Radiated Band Edge Result

Date of Test:	Mar 31, 2014	Temperature:	25°C
EUT:	Mohu Channels	Humidity:	50%
Model No.:	MHCHBOX01	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2402MHz)	Test Engineer:	Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2370.000	47.68	54.29	-6.83	40.85	47.46	54.00	74.00	-13.15	-26.54	Vertical
2400.000	50.03	57.00	-6.76	43.27	50.24	54.00	74.00	-10.73	-23.76	Vertical
2370.000	49.78	56.41	-6.83	42.95	49.58	54.00	74.00	-11.05	-24.42	Horizontal
2400.000	53.87	61.77	-6.76	47.11	55.01	54.00	74.00	-6.89	-18.99	Horizontal

Date of Test:	Mar 31, 2014	Temperature:	25°C
EUT:	Mohu Channels	Humidity:	50%
Model No.:	MHCHBOX01	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2479MHz)	Test Engineer:	Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	37.54	44.55	-6.54	31.00	38.01	54.00	74.00	-23.00	-35.99	Vertical
2494.960	47.58	53.97	-6.50	41.08	47.47	54.00	74.00	-12.92	-26.53	Vertical
2483.500	37.85	44.21	-6.54	31.31	37.67	54.00	74.00	-22.69	-36.33	Horizontal
2494.880	43.54	50.64	-6.50	37.04	44.14	54.00	74.00	-16.96	-29.86	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
Result = Reading + Corrected Factor
3. Display the measurement of peak values.
4. The average measurement was not performed when peak measured data under the limit of average detection.

Job No.: alen #3908

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2402MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

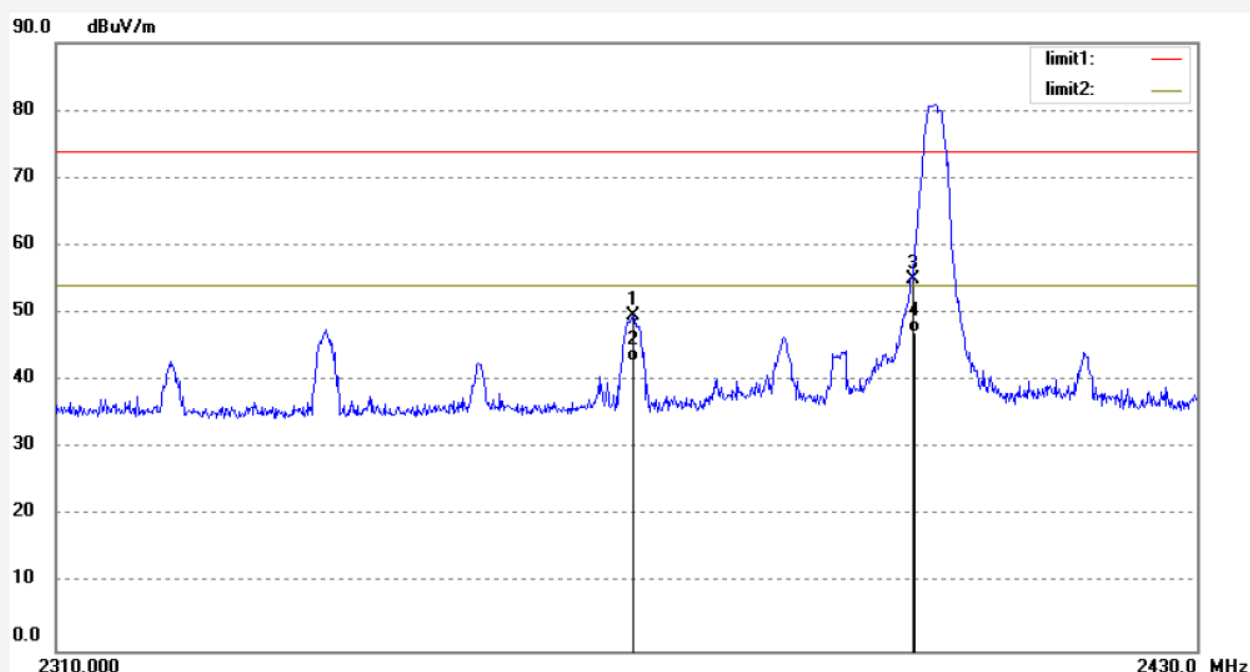
Date: 14/03/31/

Time: 17/14/35

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2370.000	56.41	-6.83	49.58	74.00	-24.42	peak			
2	2370.000	49.78	-6.83	42.95	54.00	-11.05	AVG			
3	2400.000	61.77	-6.76	55.01	74.00	-18.99	peak			
4	2400.000	53.87	-6.76	47.11	54.00	-6.89	AVG			

Job No.: alen #3909

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2402MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

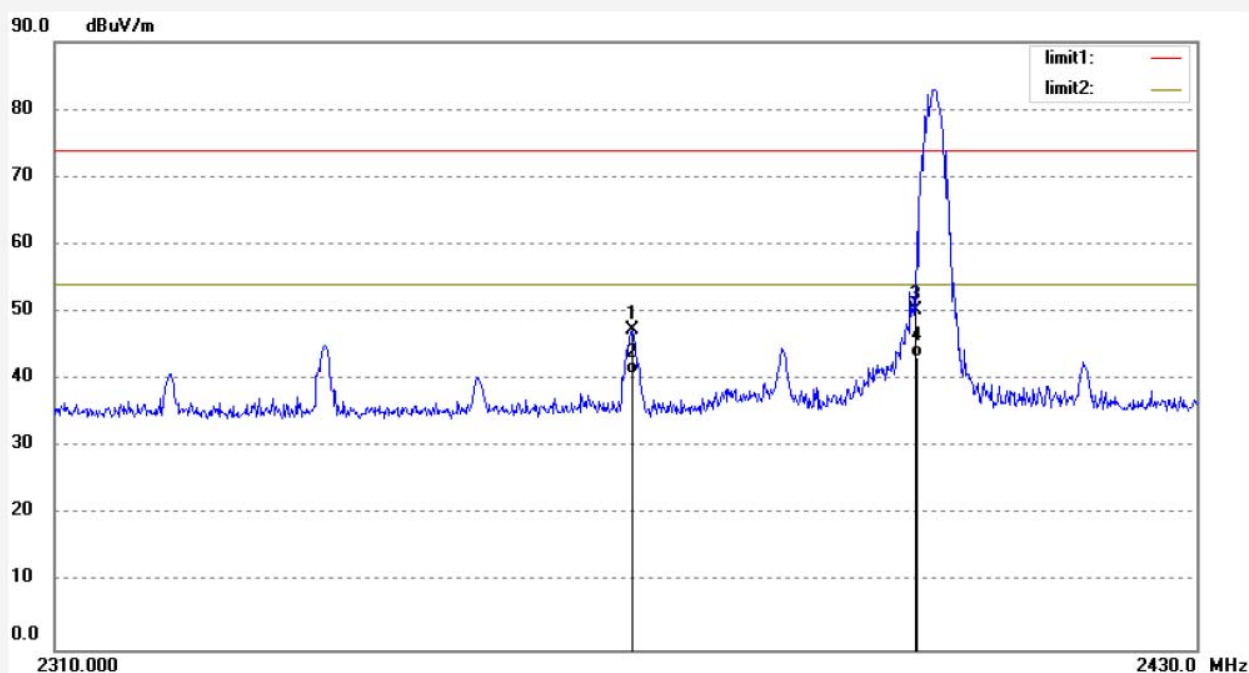
Date: 14/03/31/

Time: 17/15/48

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2370.000	54.29	-6.83	47.46	74.00	-26.54	peak			
2	2370.000	47.68	-6.83	40.85	54.00	-13.15	AVG			
3	2400.000	57.00	-6.76	50.24	74.00	-23.76	peak			
4	2400.000	50.03	-6.76	43.27	54.00	-10.73	AVG			



ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Report No.: ATE20140411

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Site: 1# Chamber

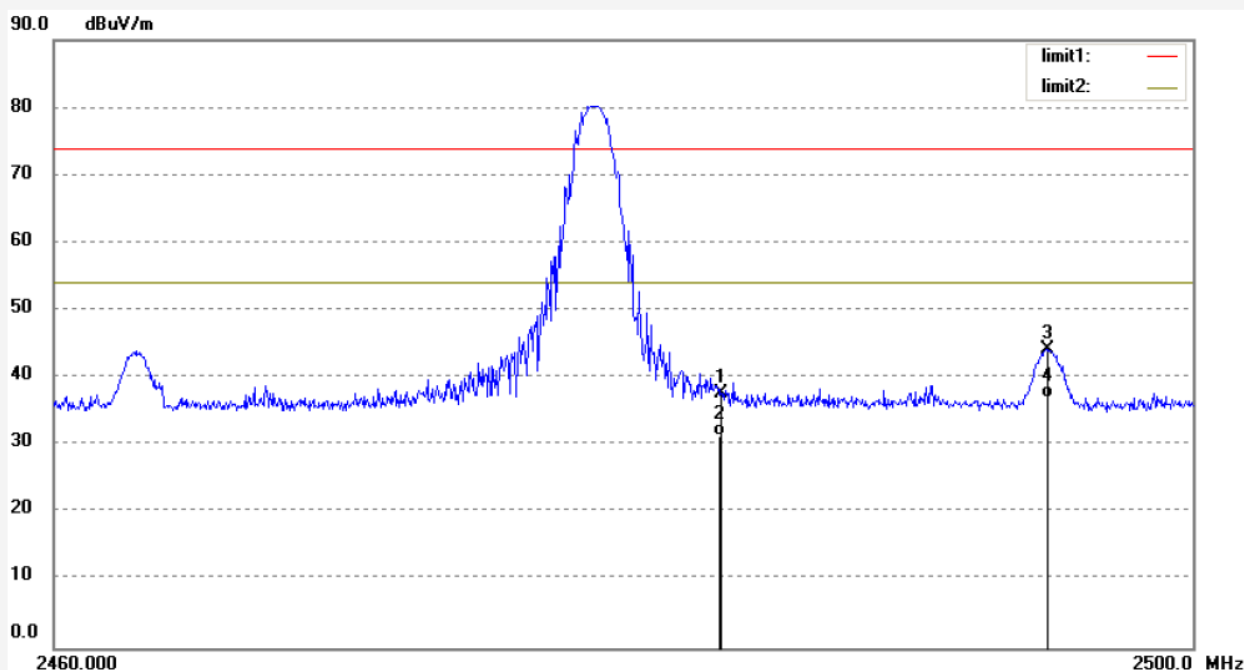
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: alen #3911
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Mohu Channels
Mode: TX 2479MHz
Model: MHCHBOX01
Manufacturer: VideoStrong

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 14/03/31/
Time: 17/22/22
Engineer Signature:
Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	44.21	-6.54	37.67	74.00	-36.33	peak			
2	2483.500	37.85	-6.54	31.31	54.00	-22.69	AVG			
3	2494.880	50.64	-6.50	44.14	74.00	-29.86	peak			
4	2494.880	43.54	-6.50	37.04	54.00	-16.96	AVG			

Job No.: alen #3910

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2479MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

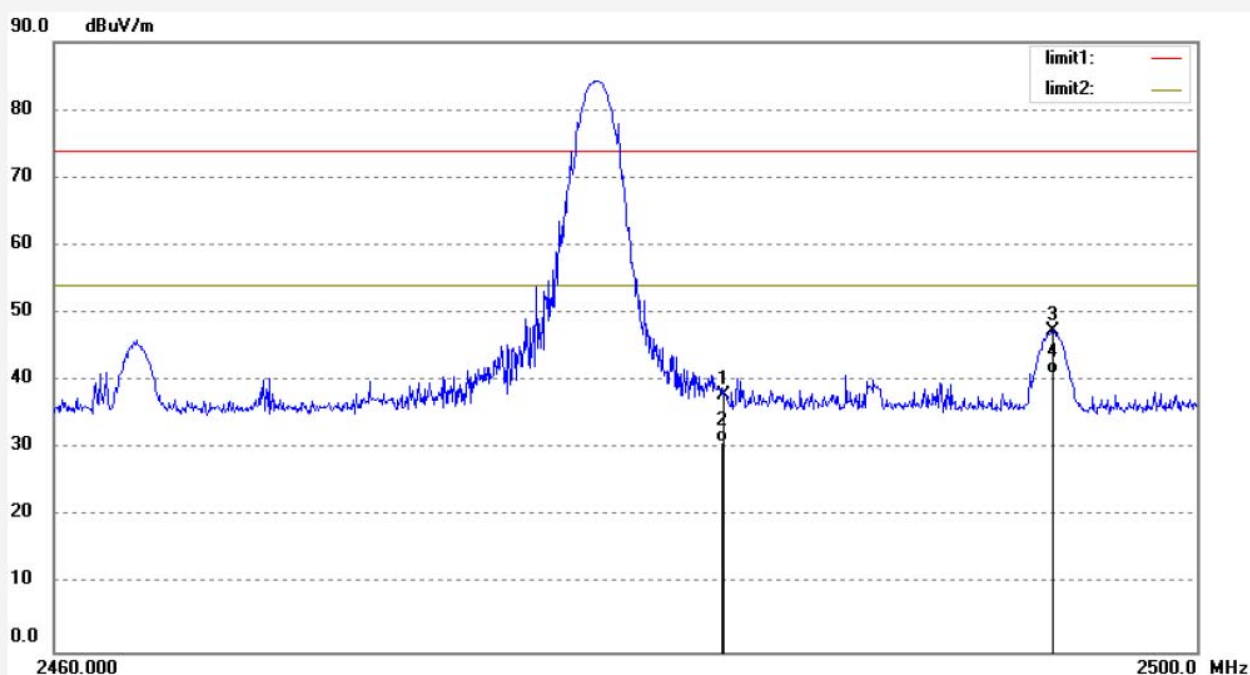
Date: 14/03/31/

Time: 17/18/10

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411

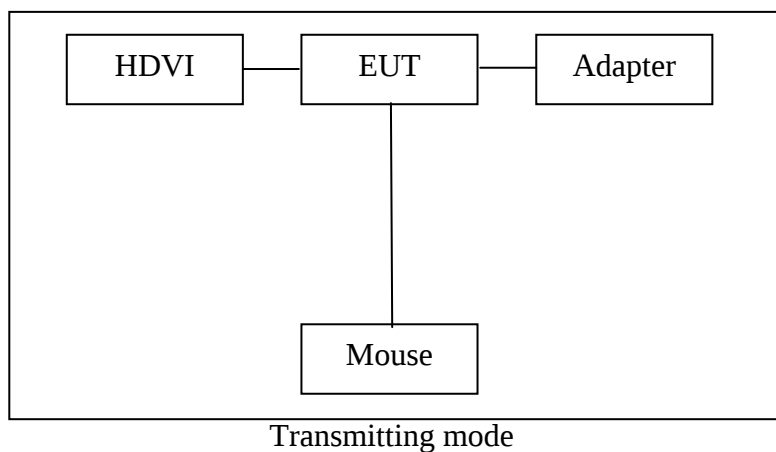


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	44.55	-6.54	38.01	74.00	-35.99	peak			
2	2483.500	37.54	-6.54	31.00	54.00	-23.00	AVG			
3	2494.960	53.97	-6.50	47.47	74.00	-26.53	peak			
4	2494.960	47.58	-6.50	41.08	54.00	-12.92	AVG			

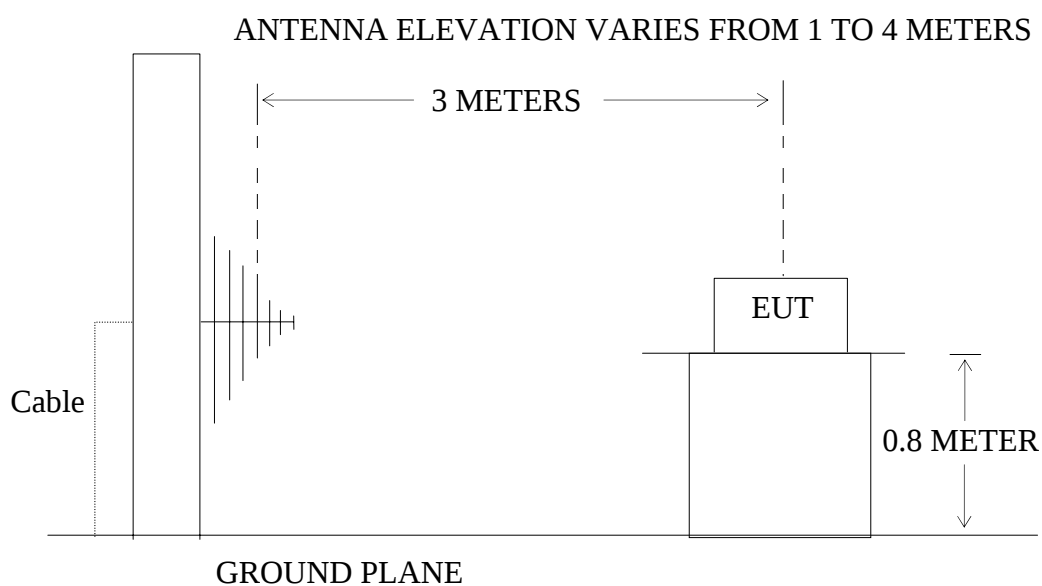
8. RADIATED SPURIOUS EMISSION TEST

8.1. Block Diagram of Test Setup

8.1.1. Block diagram of connection between the EUT and peripherals



8.1.2. Semi-Anechoic Chamber Test Setup Diagram



8.2.The Limit For Section 15.249

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph A8.4(4), the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.3.Restricted bands of operation

8.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

8.4. Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.5. Operating Condition of EUT

8.5.1. Setup the EUT and simulator as shown as Section 7.1.

8.5.2. Turn on the power of all equipment.

8.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2479 MHz. We select 2402MHz, 2436MHz, and 2479MHz TX frequency to transmit.

8.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

8.7.The Field Strength of Radiation Emission Measurement Results

PASS.

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2402	85.25	91.94	-6.76	78.48	84.88	94	114	-15.51	-29.12	Vertical
2402	82.14	87.95	-6.76	75.39	81.19	94	114	-18.61	-32.81	Horizontal
2436	89.35	95.32	-6.67	82.68	88.65	94	114	-11.32	-25.35	Vertical
2436	82.58	88.92	-6.67	75.91	82.25	94	114	-18.09	-31.75	Horizontal
2479	86.39	93.29	-6.56	79.83	86.73	94	114	-14.17	-27.27	Vertical
2479	81.40	87.60	-6.56	74.84	81.04	94	114	-19.16	-32.96	Horizontal

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The EUT is tested radiation emission at Low, Middle, High channel in three axes. The worst emissions are reported in all channels.

4. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.

5. The average measurement was not performed when peak measured data under the limit of average detection.

Below 1G



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Job No.: alen #3858

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2402MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

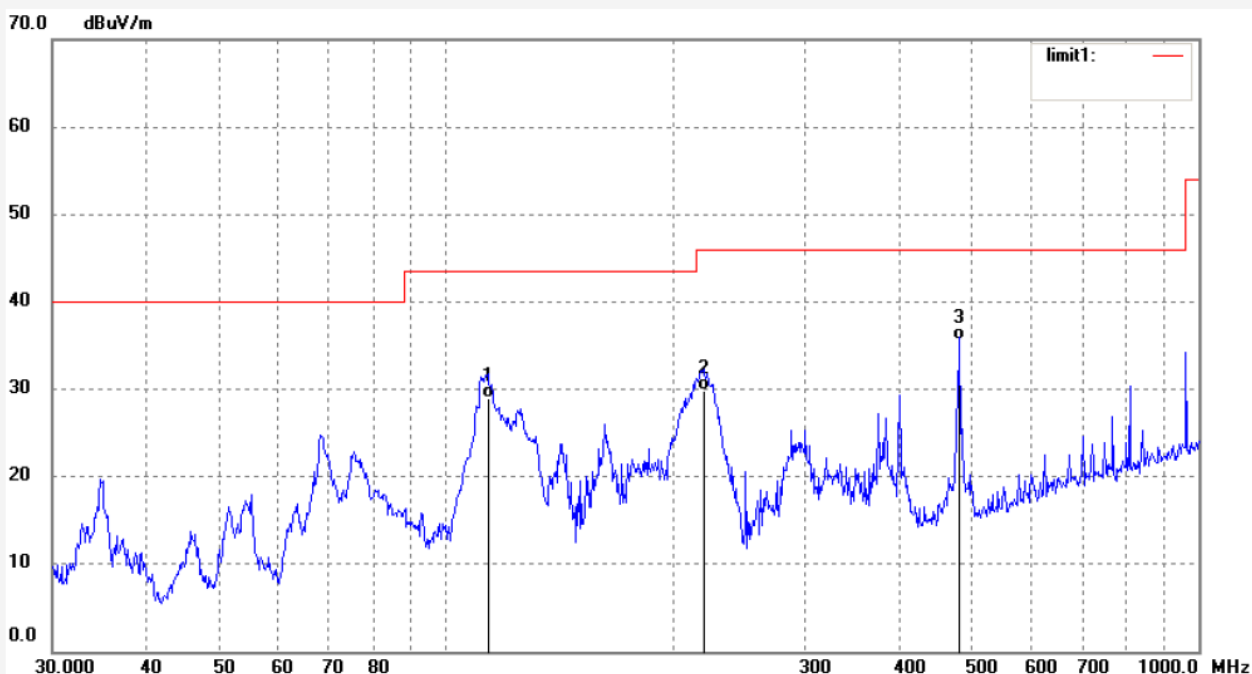
Date: 14/03/31/

Time: 9/14/59

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	113.7142	51.32	-22.29	29.03	43.50	-14.47	QP			
2	219.8448	49.82	-19.94	29.88	46.00	-16.12	QP			
3	480.5276	49.78	-14.16	35.62	46.00	-10.38	QP			

Job No.: alen #3857

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2402MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

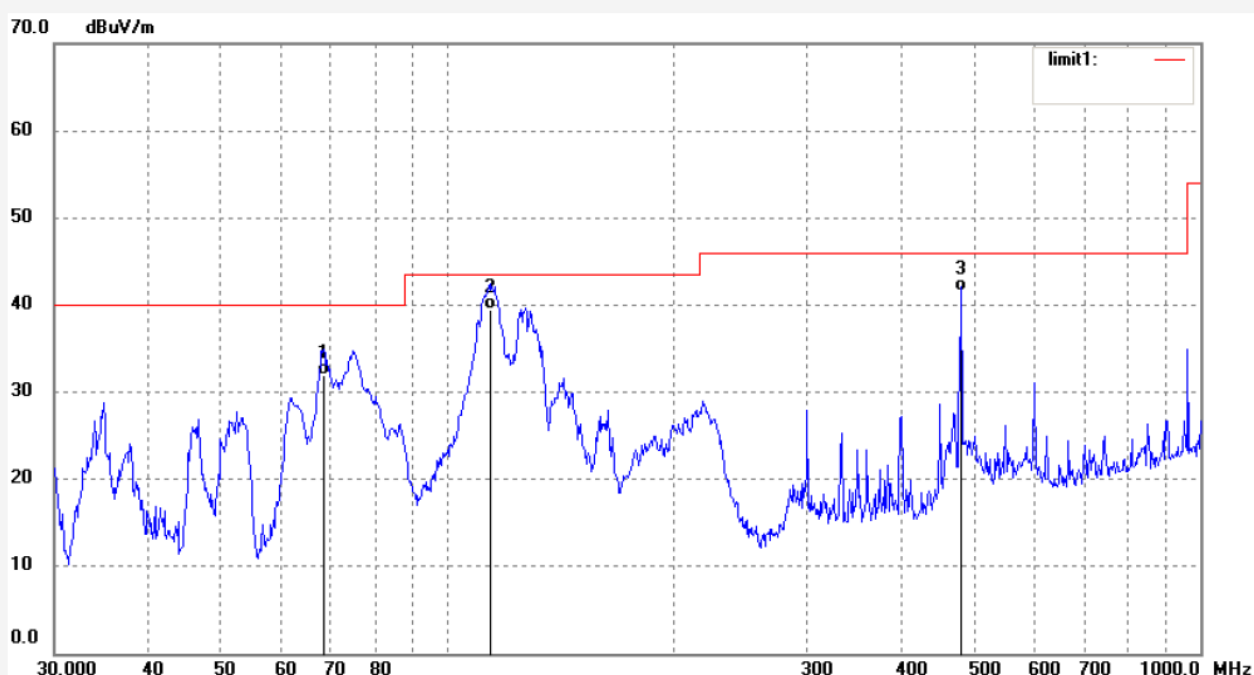
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Time: 9/14/10

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	68.3907	53.32	-21.30	32.02	40.00	-7.98	QP			
2	113.7142	61.78	-22.29	39.49	43.50	-4.01	QP			
3	480.5276	55.71	-14.16	41.55	46.00	-4.45	QP			

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Job No.: alen #3859

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2436MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

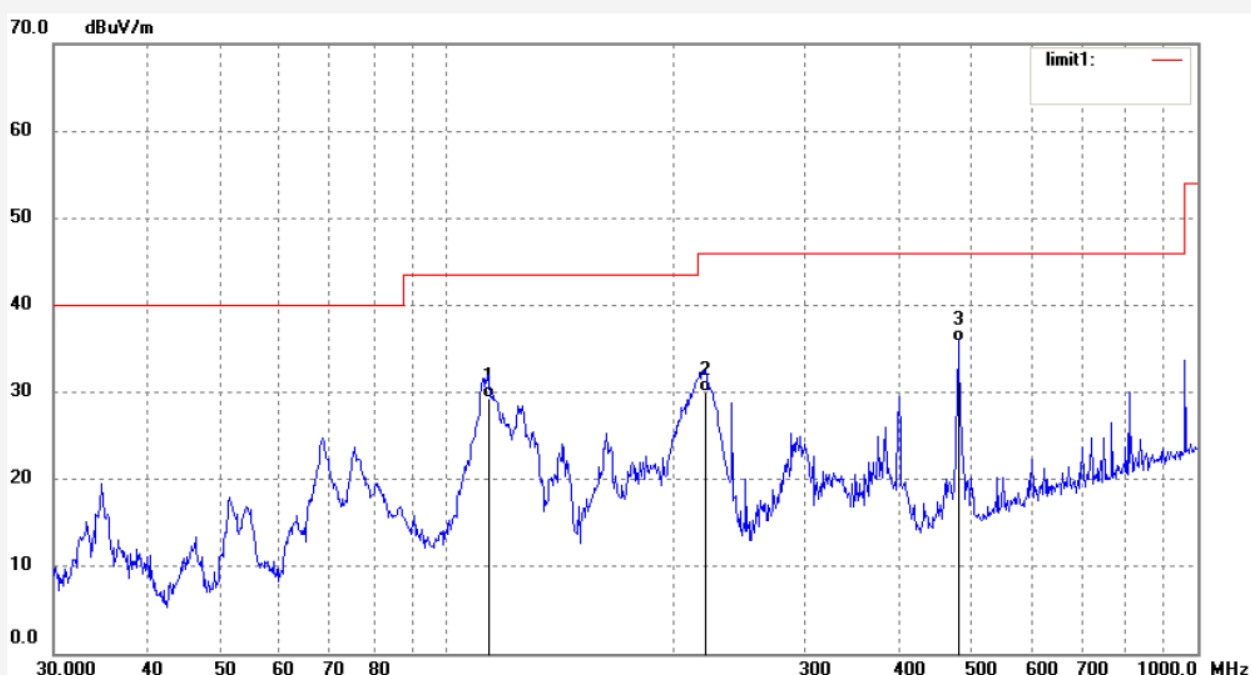
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Time: 9/15/40

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	113.7142	51.56	-22.29	29.27	43.50	-14.23	QP			
2	221.3920	50.02	-19.93	30.09	46.00	-15.91	QP			
3	480.5276	49.89	-14.16	35.73	46.00	-10.27	QP			

Job No.: alen #3860

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2436MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 14/03/31/

Time: 9/16/29

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	75.1822	53.21	-21.61	31.60	40.00	-8.40	QP			
2	113.7142	61.32	-22.29	39.03	43.50	-4.47	QP			
3	480.5276	54.02	-14.16	39.86	46.00	-6.14	QP			

Job No.: alen #3862

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2479MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

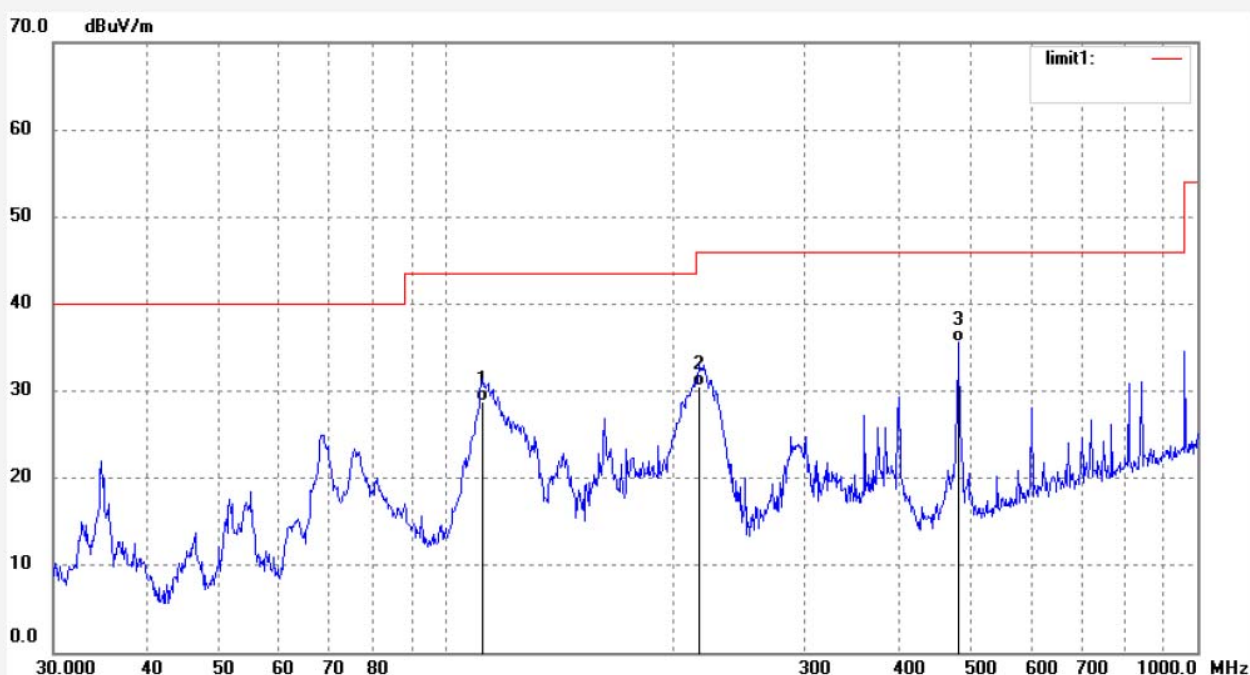
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Time: 9/18/34

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	111.7379	50.99	-22.23	28.76	43.50	-14.74	QP			
2	216.7828	50.45	-19.96	30.49	46.00	-15.51	QP			
3	480.5276	49.78	-14.16	35.62	46.00	-10.38	QP			

Job No.: alen #3861

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2479MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 14/03/31/

Time: 9/17/34

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	68.6310	53.61	-21.31	32.30	40.00	-7.70	QP			
2	112.9196	62.32	-22.26	40.06	43.50	-3.44	QP			
3	480.5276	56.12	-14.16	41.96	46.00	-4.04	QP			

Above 1G



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Job No.: alen #3924

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2402MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

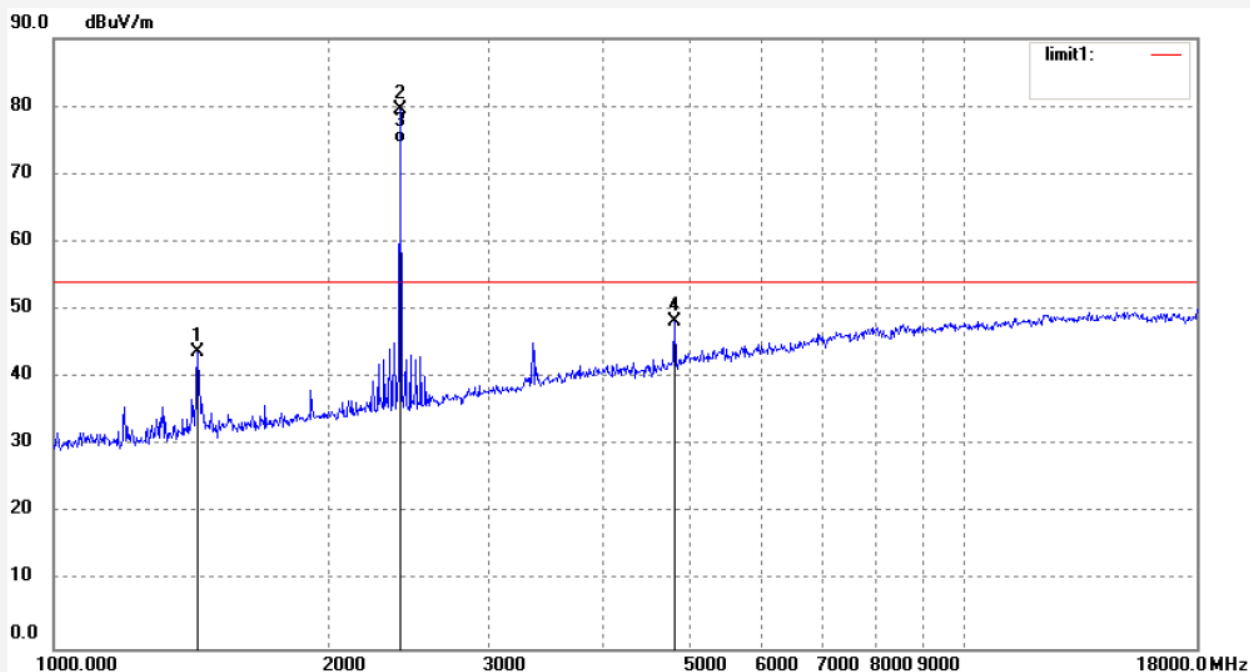
Date: 14/04/10/

Time: 9/07/03

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1439.343	53.58	-9.83	43.75	74.00	-30.25	peak			
2	2400.753	86.31	-6.76	79.55						
3	2400.753	81.32	-6.76	74.56						
4	4804.110	49.83	-1.59	48.24	54.00	-25.76	peak			

Job No.: alen #3923

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2402MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

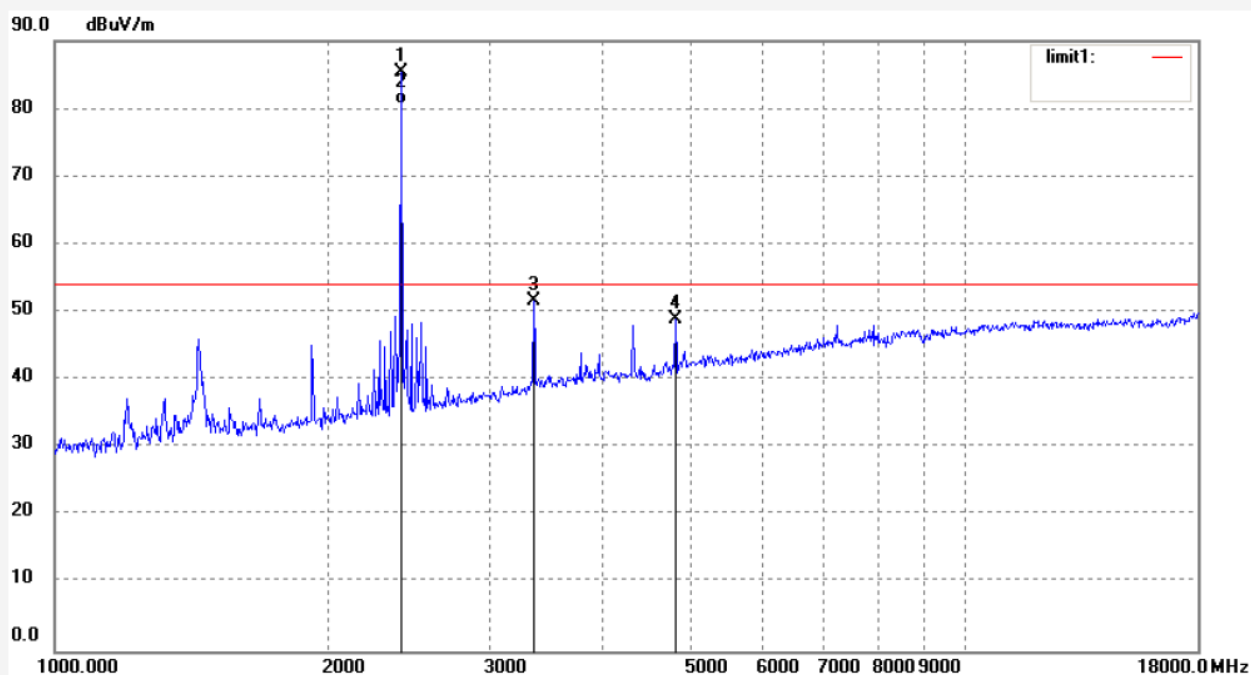
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Time: 9/05/02

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.753	92.22	-6.76	85.46						
2	2400.753	87.35	-6.76	80.59						
3	3357.061	55.37	-3.84	51.53	74.00	-22.47	peak			
4	4804.110	50.47	-1.59	48.88	74.00	-25.12	peak			

Job No.: alen #3925

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2436MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

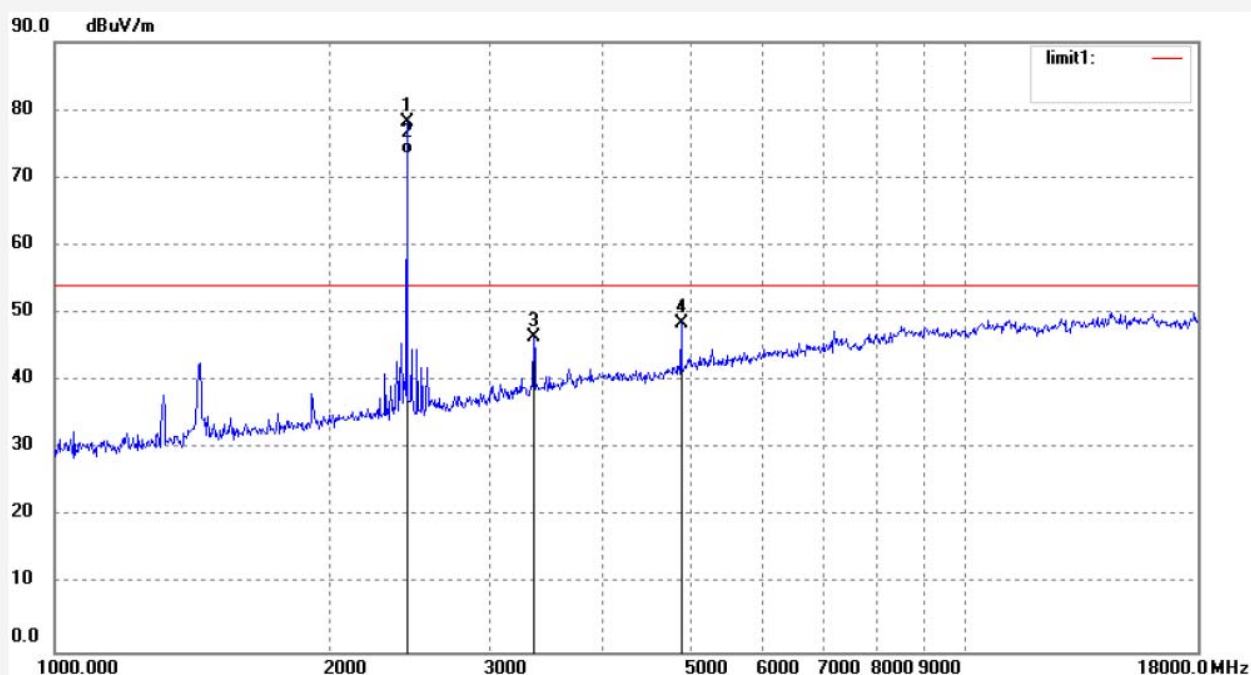
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Time: 9/09/24

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2435.701	84.94	-6.67	78.27						
2	2435.701	80.12	-6.67	73.45						
3	3357.061	50.40	-3.84	46.56	74.00	-27.44	peak			
4	4874.042	49.89	-1.37	48.52	74.00	-25.48	peak			

Job No.: alen #3926

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2436MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

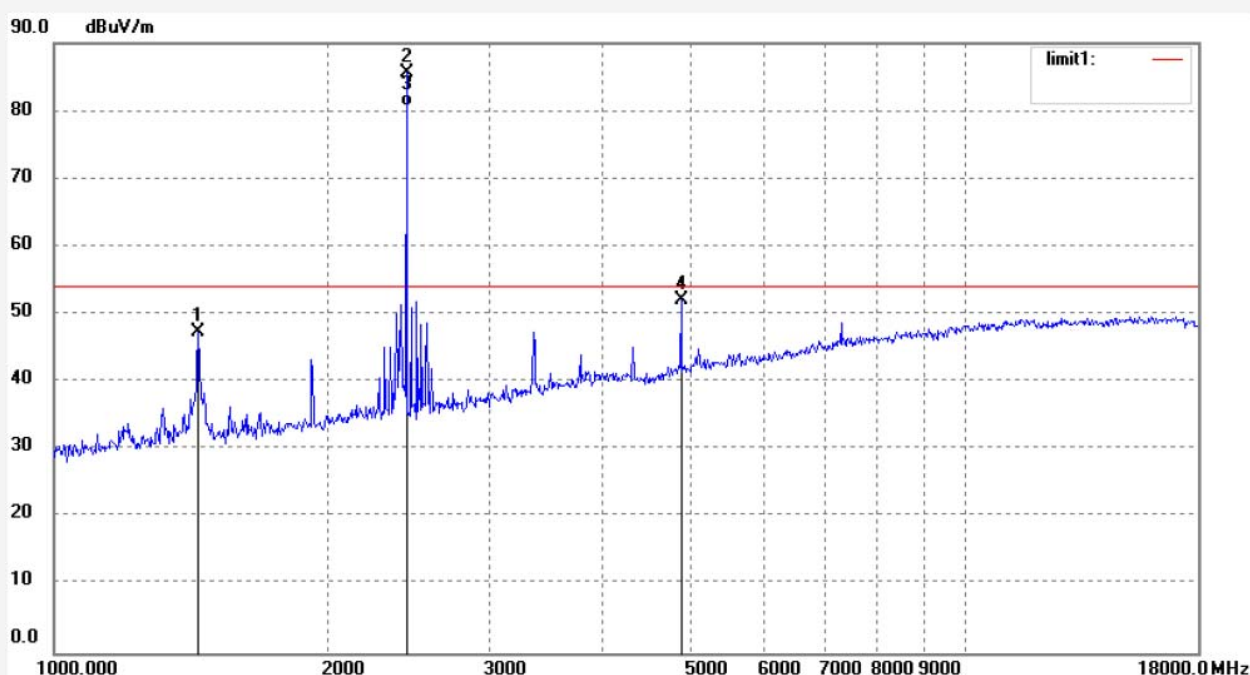
Date: 14/04/10/

Time: 9/10/33

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1439.343	57.15	-9.83	47.32	74.00	-26.68	peak			
2	2435.701	92.20	-6.67	85.53						
3	2435.701	87.32	-6.67	80.65						
4	4874.043	53.44	-1.37	52.07	74.00	-21.93	peak			

Job No.: alen #3928

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2479MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Horizontal

Power Source: AC 120V/60Hz

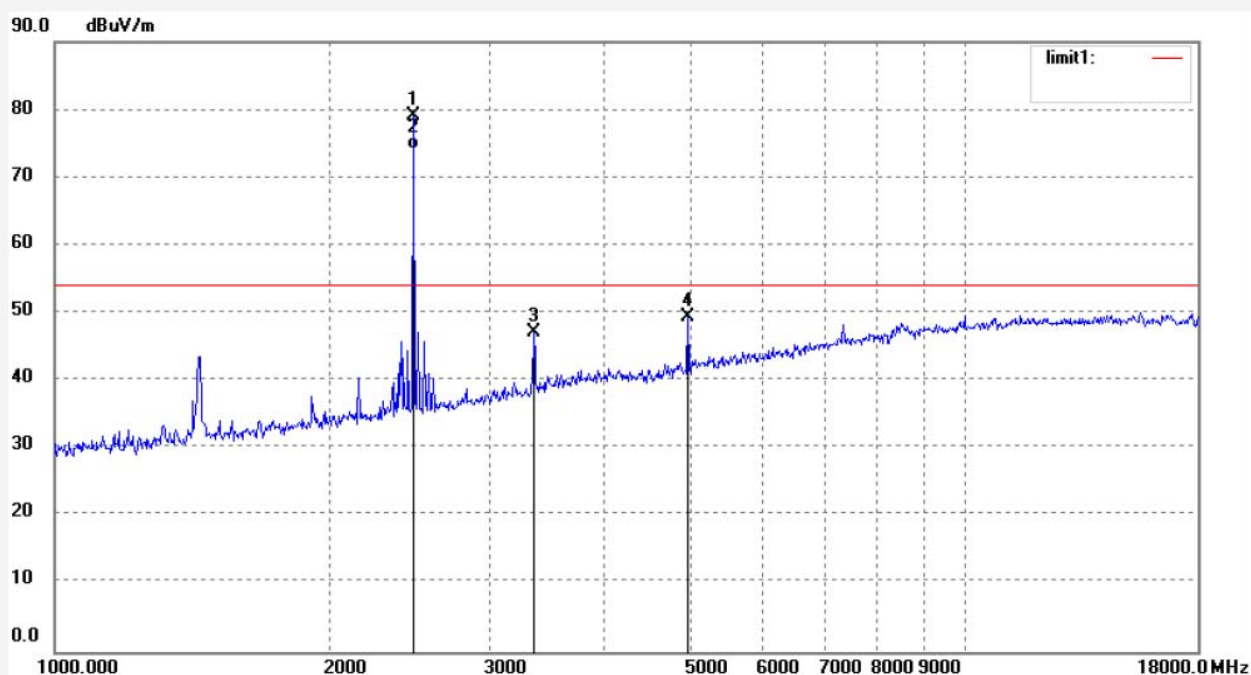
Date: 14/04/10/

Time: 9/15/41

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2478.310	85.64	-6.56	79.08						
2	2478.310	80.65	-6.56	74.09						
3	3357.061	51.07	-3.84	47.23	74.00	-26.77	peak			
4	4959.307	50.56	-1.12	49.44	74.00	-24.56	peak			

Job No.: alen #3927

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Mohu Channels

Mode: TX 2479MHz

Model: MHCHBOX01

Manufacturer: VideoStrong

Polarization: Vertical

Power Source: AC 120V/60Hz

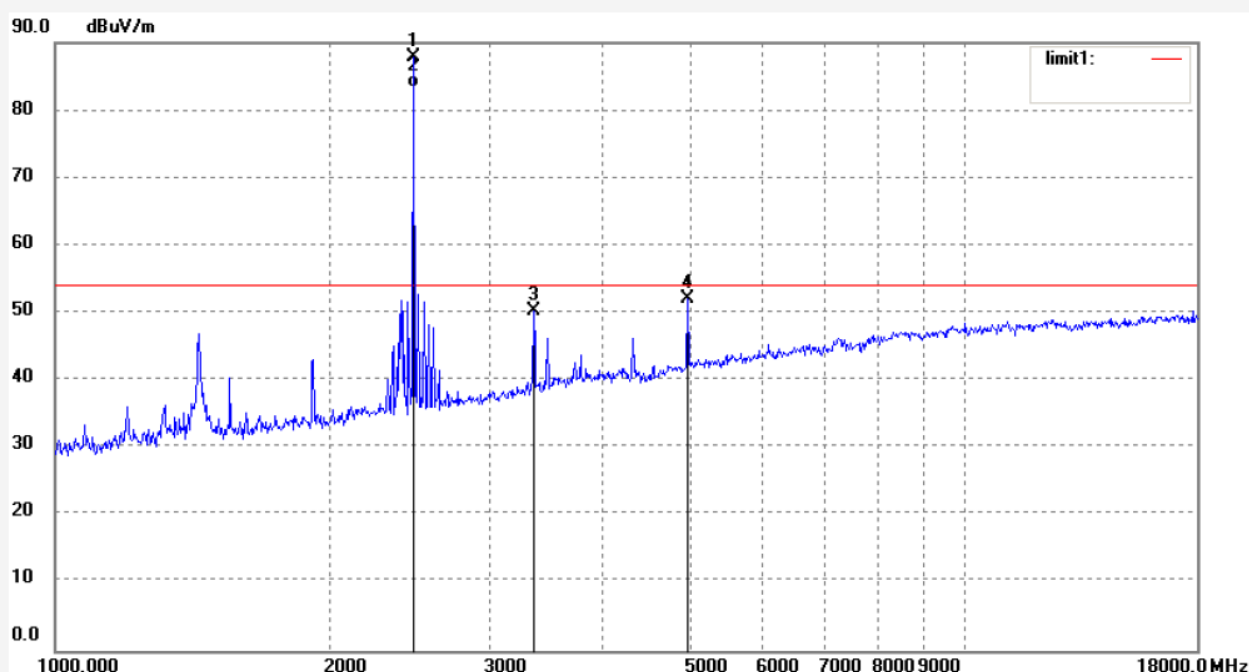
Date: 14/04/10/

Time: 9/14/23

Engineer Signature:

Distance: 3m

Note: Report No:ATE20140411



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2478.310	94.47	-6.56	87.91						
2	2478.310	89.84	-6.56	83.28						
3	3357.061	54.13	-3.84	50.29	74.00	-23.71	peak			
4	4959.307	53.24	-1.12	52.12	74.00	-21.88	peak			

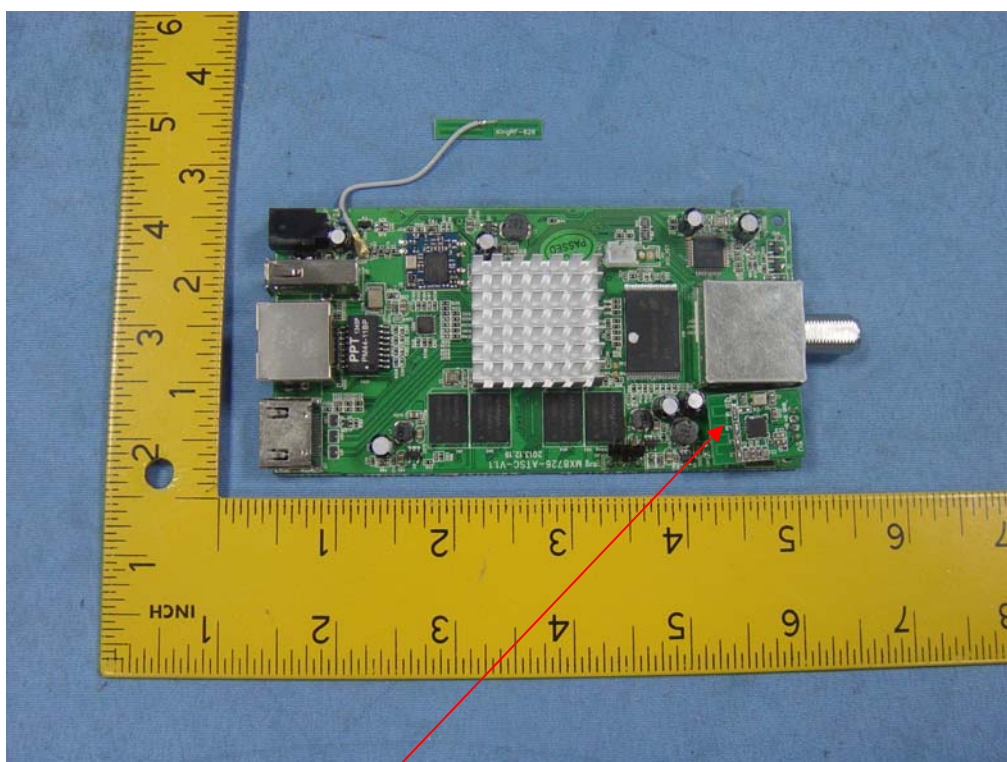
9. ANTENNA REQUIREMENT

9.1.The Requirement

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.

9.2.Antenna Construction

Device is equipped with unique PCB antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna