

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Shenzhen Sungworld Electronics Co., LTD

MID
Model No.: M7XX, VX-E7002

FCC ID: WI3-VX-E7002

Prepared for : Shenzhen Sungworld Electronics Co., LTD
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Report No. : ATE20132325
Date of Test : Oct 30- Nov 13, 2013
Date of Report : Nov 13, 2013

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Test Report Certification

Applicant : Shenzhen Sungworld Electronics Co., LTD
Manufacturer : Shenzhen Sungworld Electronics Co., LTD
EUT Description : MID
(A) MODEL NO.: M7XX, VX-E7002
(B) Trade Name.: /
(C) POWER SUPPLY: DC 3.7V (Powered by battery)or AC 120V/60Hz

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4: 2009

The EUT was tested according to DTS test procedure of April 09, 2013 KDB558074 D01 DTS Meas Guidance v03 for compliance to FCC 47CFR 15.247 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 15.247 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 : _____ Oct 30-Nov 13, 2013

Prepared by : _____
(Tim.zhang, Engineer)

Approved & Authorized Signer : _____
(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	MID
Model Number	:	M7XX, VX-E7002
Frequency Range	:	802.11b/g/n(20MHz): 2412-2462MHz 802.11n(40MHz): 2422-2452MHz
Number of Channels	:	802.11b/g/n (20MHz):11 802.11n (40MHz): 7
Antenna Gain	:	0 dBi
Type of Antenna	:	Integral Antenna
Power Supply	:	DC 3.7V (Powered by battery) or AC 120V/60Hz (Powered by adapter)
Data Rate	:	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: up to 150Mbps
Applicant	:	Shenzhen Sungworld Electronics Co., LTD
Address	:	4#, North District, Shangxue Industrial Park Bantian, Long Gang District, Shenzhen, China
Manufacturer	:	Shenzhen Sungworld Electronics Co., LTD
Address	:	4#, North District, Shangxue Industrial Park Bantian, Long Gang District, Shenzhen, China
Date of sample received	:	Oct 30, 2013
Date of Test	:	Oct 30-Nov 13, 2013

1.2.Carrier Frequency of Channels

802.11b, 802.11g, 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	---	---

802.11n (40MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	07	2442
---	---	08	2447
03	2422	09	2452
04	2427	---	---
05	2432	---	---
06	2437	---	---

1.3.Accessory and Auxiliary Equipment\

N/A

1.4.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
Site Location

: ACCURATE TECHNOLOGY CO. LTD
: F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

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

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

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

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. 12, 2013	Jan. 11, 2014
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 12, 2013	Jan. 11, 2014
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 12, 2013	Jan. 11, 2014
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 12, 2013	Jan. 11, 2014
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Feb. 06, 2013	Feb. 05, 2014
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Feb. 06, 2013	Feb. 05, 2014
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Feb. 06, 2013	Feb. 05, 2014
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Feb. 06, 2013	Feb. 05, 2014
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 12, 2013	Jan. 11, 2014
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 12, 2013	Jan. 11, 2014
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 12, 2013	Jan. 11, 2014
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 12, 2013	Jan. 11, 2014

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **1.802.11b Transmitting mode**

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

2.802.11g Transmitting mode

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

3.802.11n (20MHz) Transmitting mode

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

4.802.11n (40MHz) Transmitting mode

Low Channel: 2422MHz
Middle Channel: 2437MHz
High Channel: 2452MHz

3.2.Configuration and peripherals

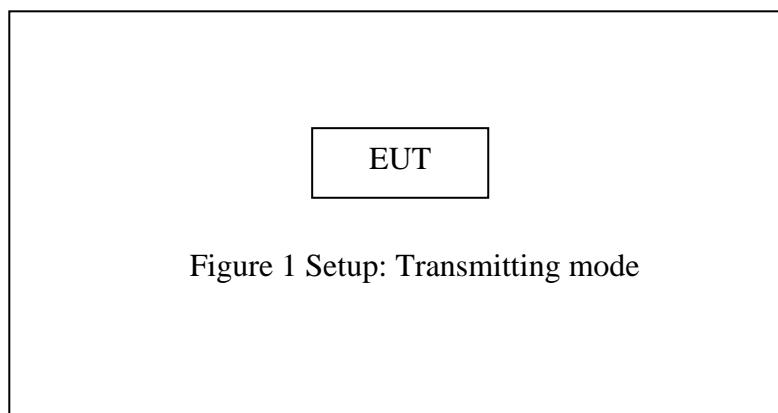


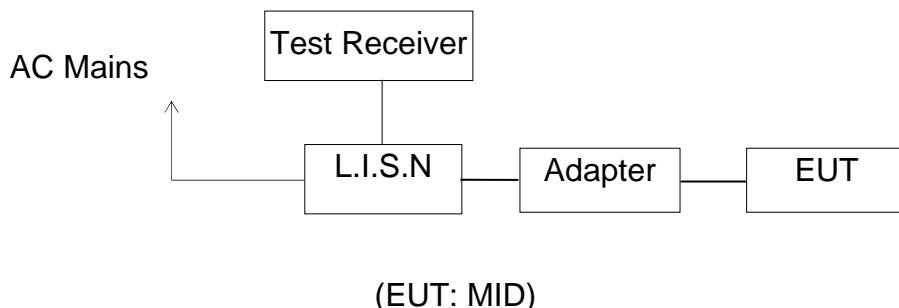
Figure 1 Setup: Transmitting mode

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Power Line Conducted Emission	Compliant
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. POWER LINE CONDUCTED MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: MID)

5.2. Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μ V)	
	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 : Charging&WIFI Communicating								
<u>MEASUREMENT RESULT: "HD01_fin"</u>								
11/03/2013 1:43PM								
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE	
0.161820	46.90	11.1	65	18.5	QP	L1	GND	
0.421816	43.30	11.9	57	14.1	QP	L1	GND	
2.394903	46.90	11.6	56	9.1	QP	L1	GND	
<u>MEASUREMENT RESULT: "HD01_fin2"</u>								
11/03/2013 1:43PM								
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE	
0.218303	33.40	11.3	53	19.5	AV	L1	GND	
0.411832	33.80	11.8	48	13.8	AV	L1	GND	
2.443186	35.40	11.6	46	10.6	AV	L1	GND	
<u>MEASUREMENT RESULT: "HD02_fin"</u>								
11/03/2013 1:45PM								
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE	
0.408557	40.20	11.8	58	17.5	QP	N	GND	
2.414101	41.80	11.6	56	14.2	QP	N	GND	
<u>MEASUREMENT RESULT: "HD02_fin2"</u>								
11/03/2013 1:45PM								
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE	
0.163769	31.80	11.1	55	23.5	AV	N	GND	
0.406930	31.60	11.8	48	16.1	AV	N	GND	
2.414101	34.70	11.6	46	11.3	AV	N	GND	

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

The spectral diagrams are attached as below.

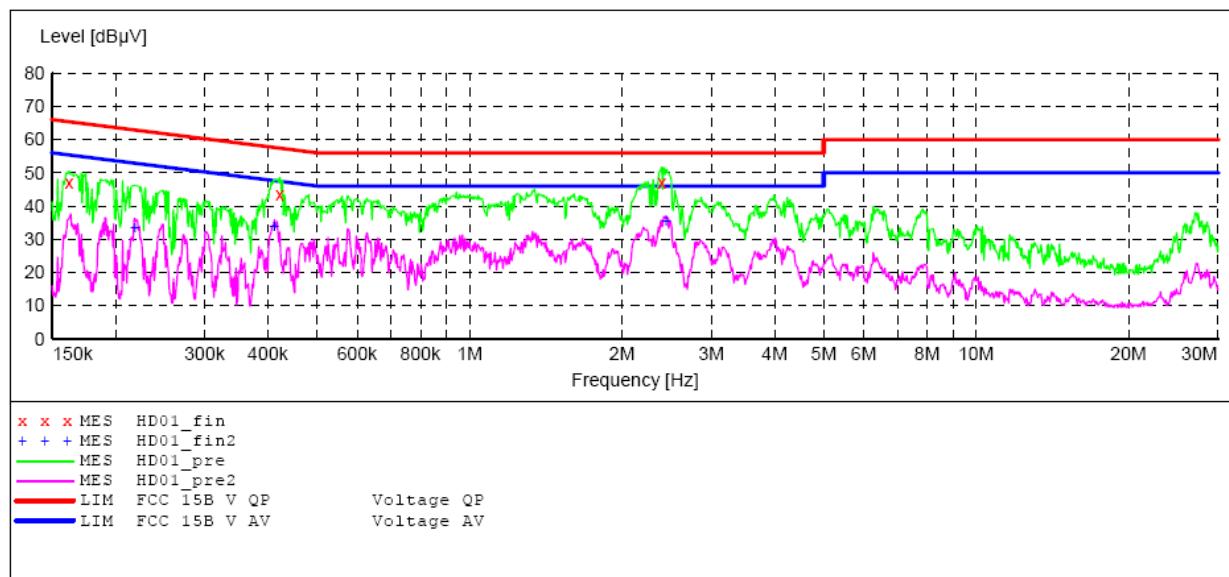
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15

EUT: MID M/N:M7XX
 Manufacturer: Sungworld
 Operating Condition: WIFI COMMUNICATING
 Test Site: 1#Shielding Room
 Operator: Star
 Test Specification: L 120V/60Hz
 Comment: Report No.:ATE20132325
 Start of Test: 11/03/2013 / 1:41:15PM

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 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "HD01_fin"**

11/03/2013 1:43PM								
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE	
MHz	dB μ V	dB	dB μ V	dB				
0.161820	46.90	11.1	65	18.5	QP	L1	GND	
0.421816	43.30	11.9	57	14.1	QP	L1	GND	
2.394903	46.90	11.6	56	9.1	QP	L1	GND	

MEASUREMENT RESULT: "HD01_fin2"

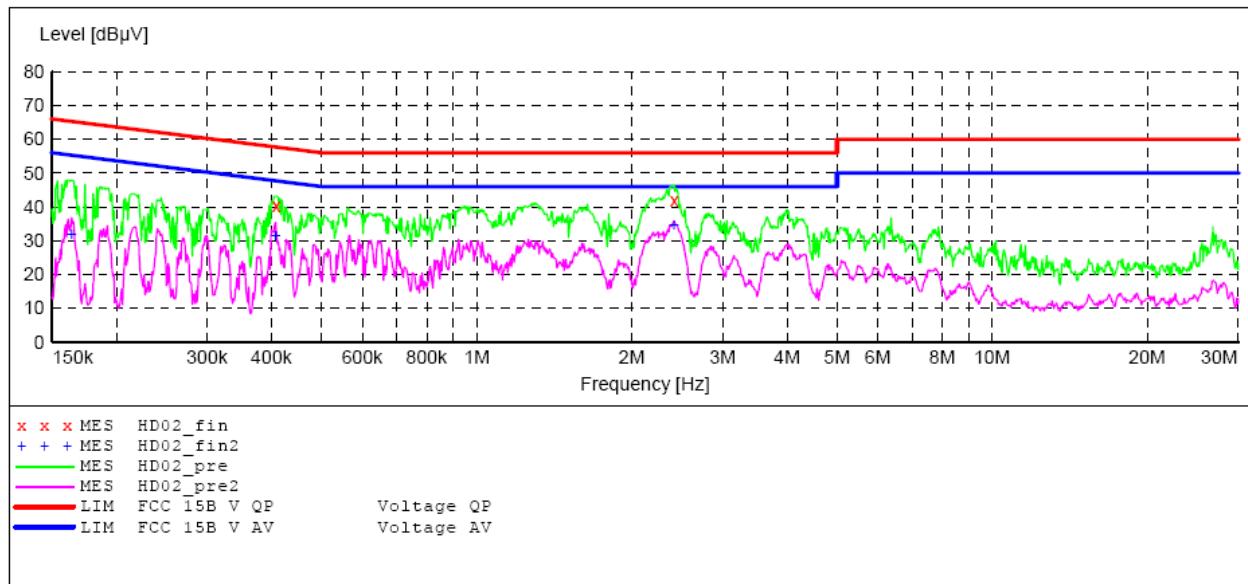
11/03/2013 1:43PM								
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE	
MHz	dB μ V	dB	dB μ V	dB				
0.218303	33.40	11.3	53	19.5	AV	L1	GND	
0.411832	33.80	11.8	48	13.8	AV	L1	GND	
2.443186	35.40	11.6	46	10.6	AV	L1	GND	

ACCURATE TECHNOLOGY CO., LTD**CONDUCTED EMISSION STANDARD FCC PART 15**

EUT: MID M/N:M7XX
Manufacturer: Sungworld
Operating Condition: WIFI COMMUNICATING
Test Site: 1#Shielding Room
Operator: Star
Test Specification: N 120V/60Hz
Comment: Report No.:ATE20132325
Start of Test: 11/03/2013 / 1:43:51PM

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 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
Average

**MEASUREMENT RESULT: "HD02_fin"**

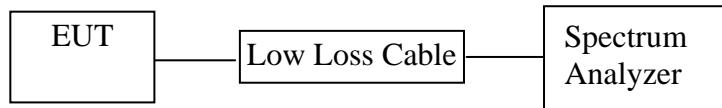
11/03/2013 1:45PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB μ V	dB	dB μ V	dB			
	0.408557	40.20	11.8	58	17.5	QP	N	GND
	2.414101	41.80	11.6	56	14.2	QP	N	GND

MEASUREMENT RESULT: "HD02_fin2"

11/03/2013 1:45PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB μ V	dB	dB μ V	dB			
	0.163769	31.80	11.1	55	23.5	AV	N	GND
	0.406930	31.60	11.8	48	16.1	AV	N	GND
	2.414101	34.70	11.6	46	11.3	AV	N	GND

6. 6DB BANDWIDTH MEASUREMENT

6.1. Block Diagram of Test Setup



6.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.3. 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.

6.4. Operating Condition of EUT

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

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

6.5. Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.6. Test Result

The test was performed with 802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	10.76	> 0.5MHz
Middle	2437	10.76	> 0.5MHz
High	2462	10.76	> 0.5MHz

The test was performed with 802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	16.60	> 0.5MHz
Middle	2437	16.60	> 0.5MHz
High	2462	16.60	> 0.5MHz

The test was performed with 802.11n (Bandwidth: 20 MHz)

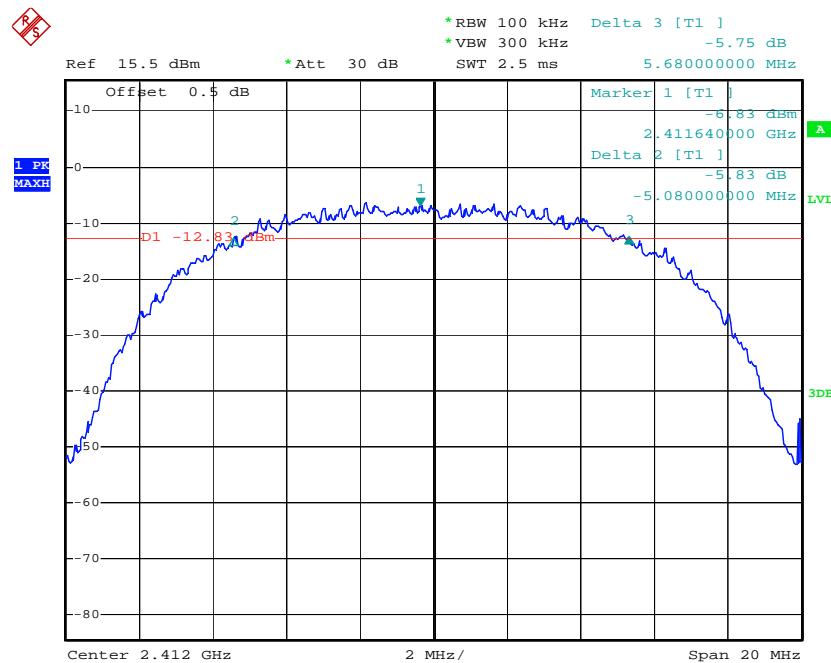
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	17.80	> 0.5MHz
Middle	2437	17.80	> 0.5MHz
High	2462	17.80	> 0.5MHz

The test was performed with 802.11n (Bandwidth: 40 MHz)

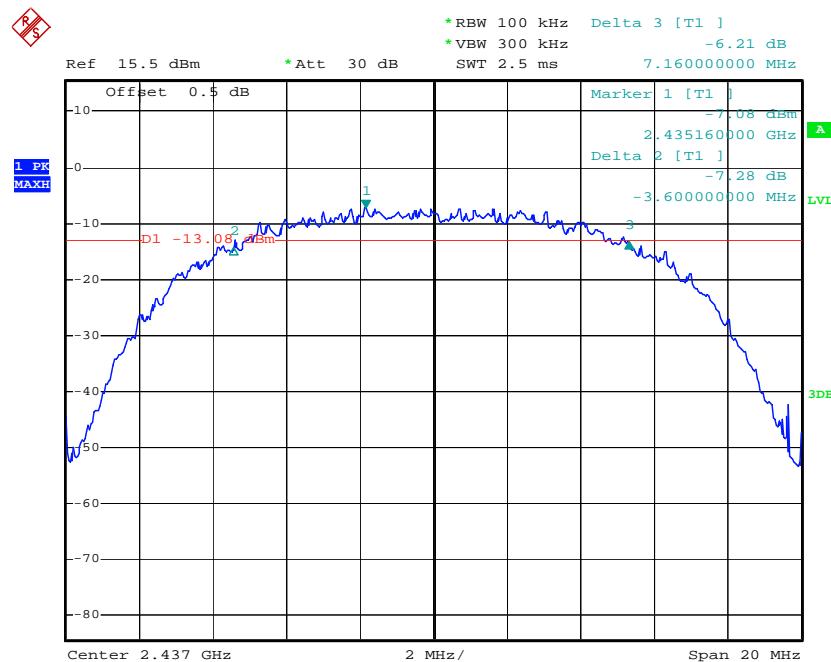
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2422	36.56	> 0.5MHz
Middle	2437	36.64	> 0.5MHz
High	2452	36.56	> 0.5MHz

The spectrum analyzer plots are attached as below.

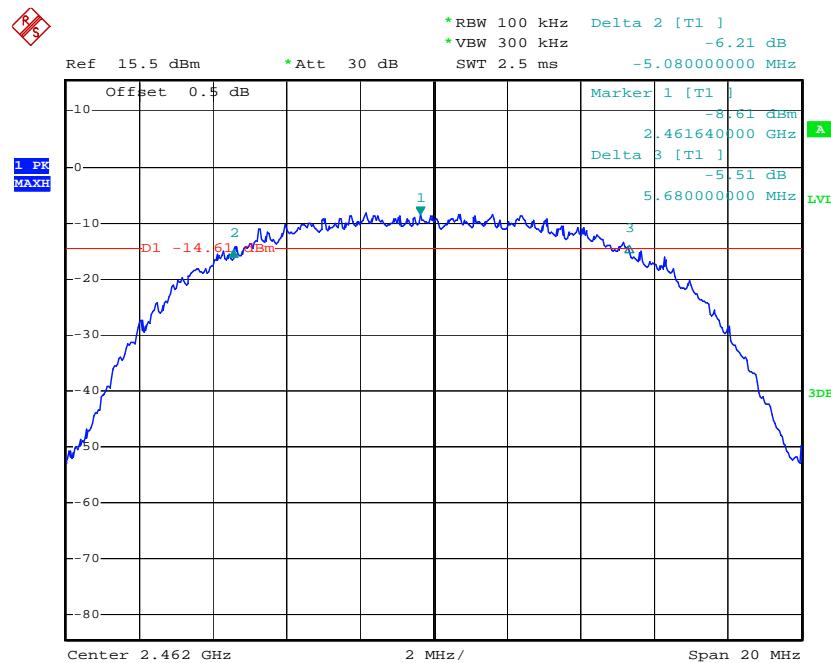
802.11b Channel Low 2412MHz



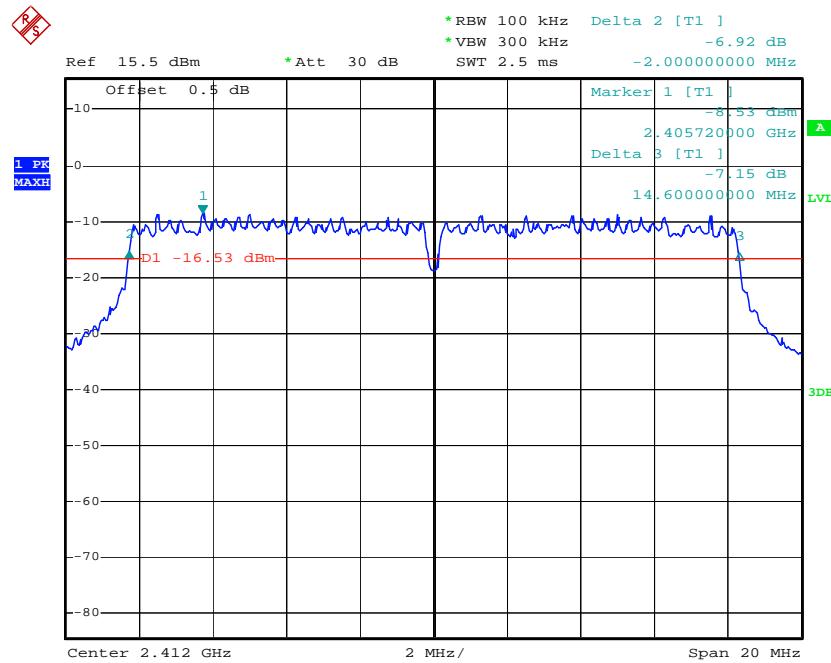
802.11b Channel Middle 2437MHz



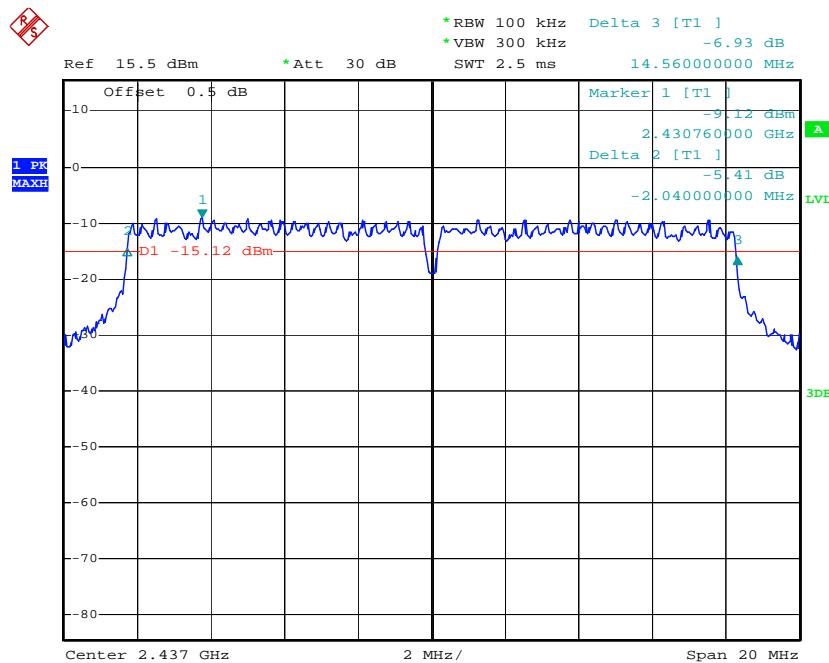
802.11b Channel High 2462MHz



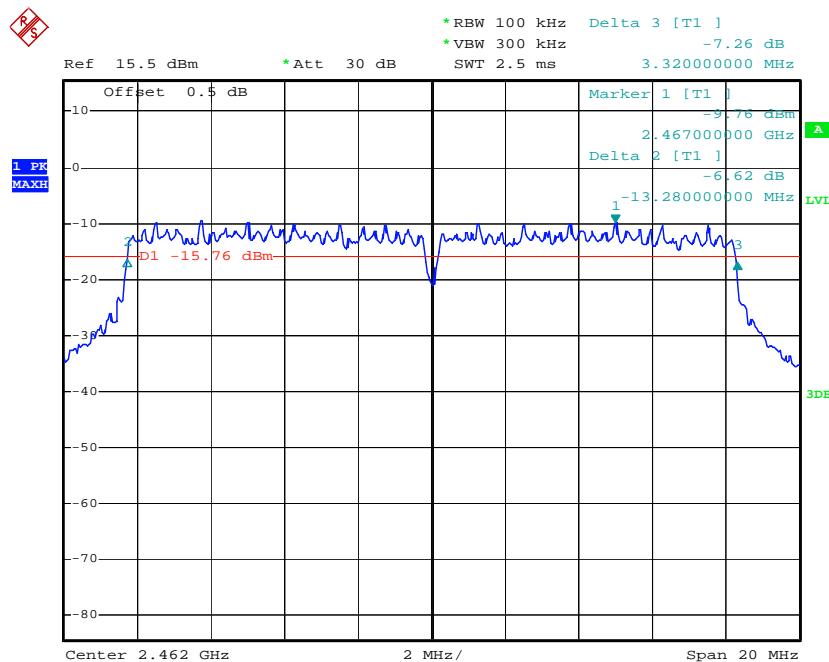
802.11g Channel Low 2412MHz



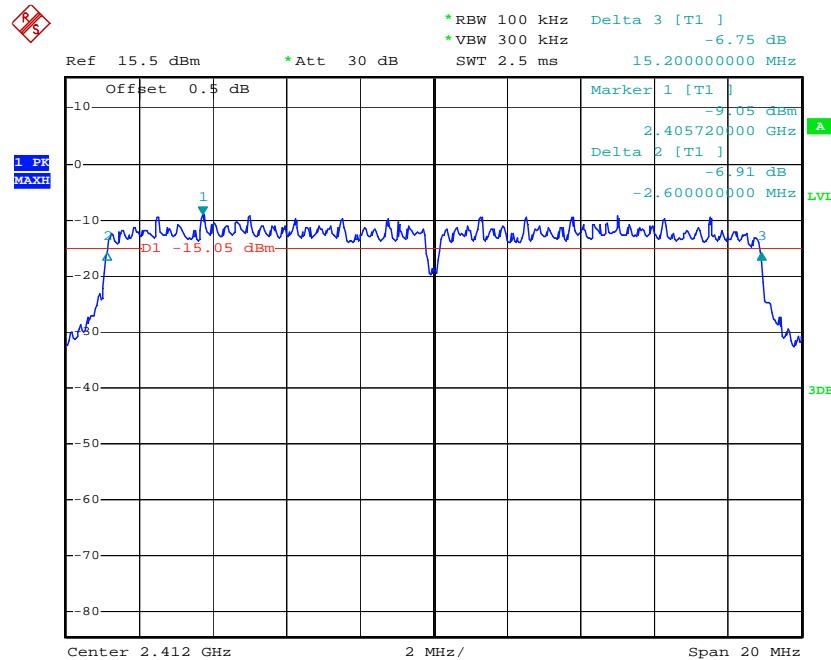
802.11g Channel Middle 2437MHz



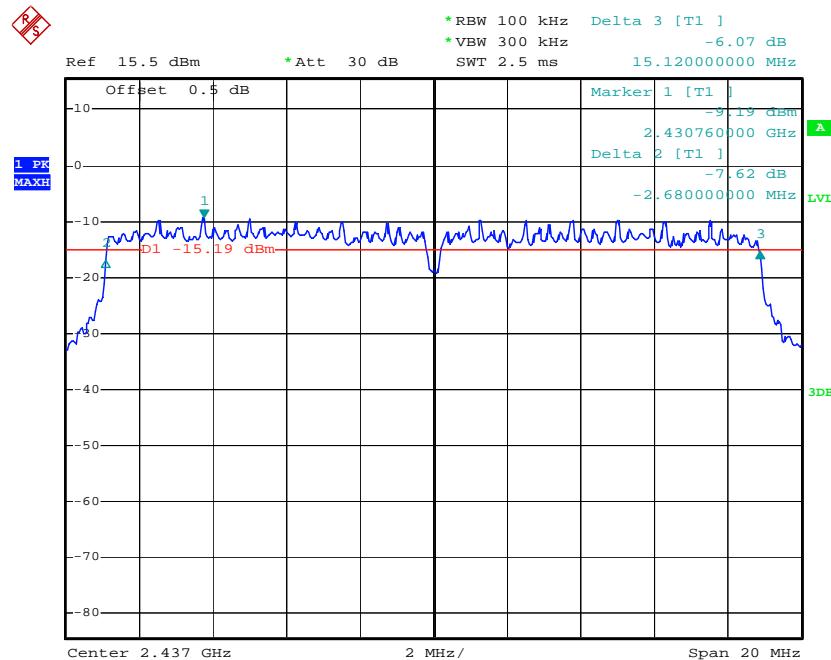
802.11g Channel High 2462MHz



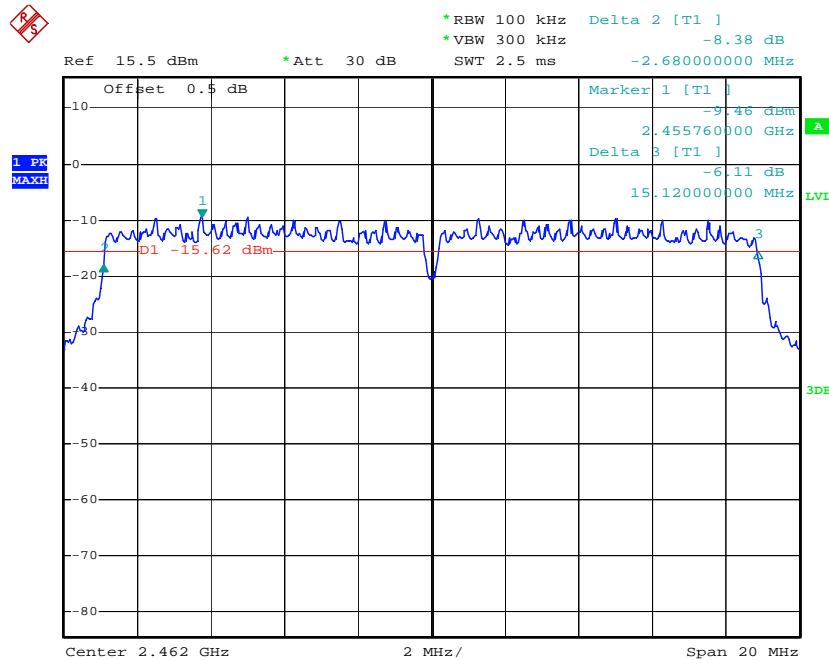
802.11n Channel Low 2412MHz (20MHz)



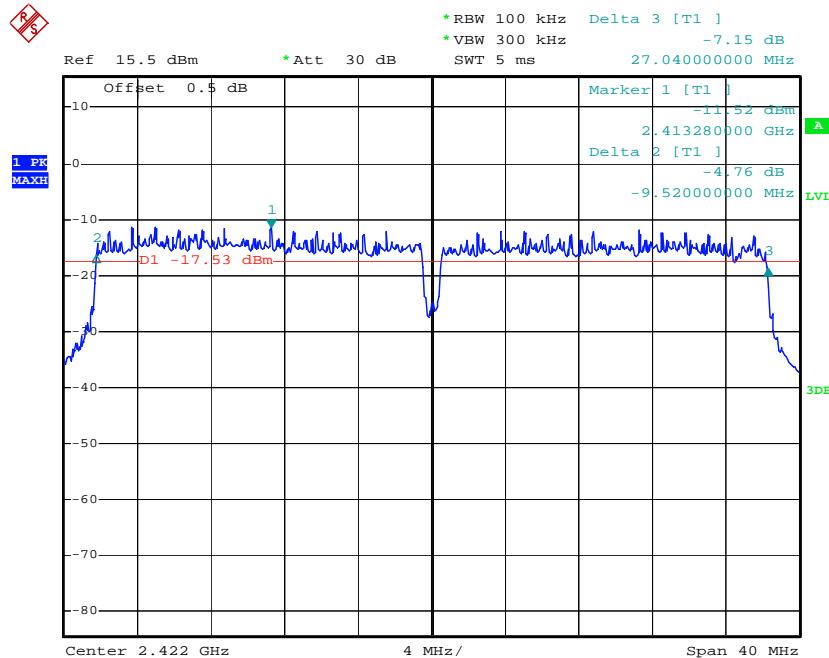
802.11n Channel Middle 2437MHz(20MHz)



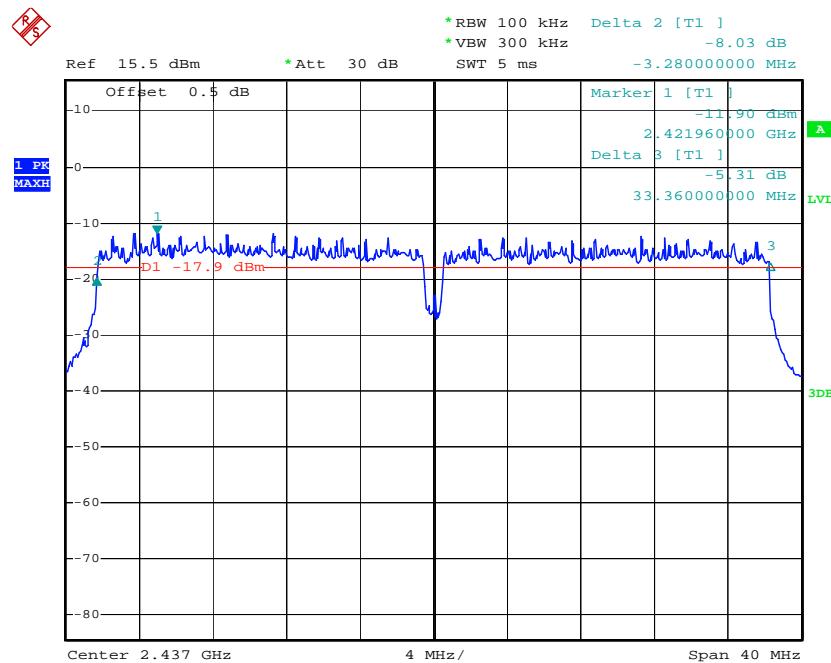
802.11n Channel High 2462MHz(20MHz)



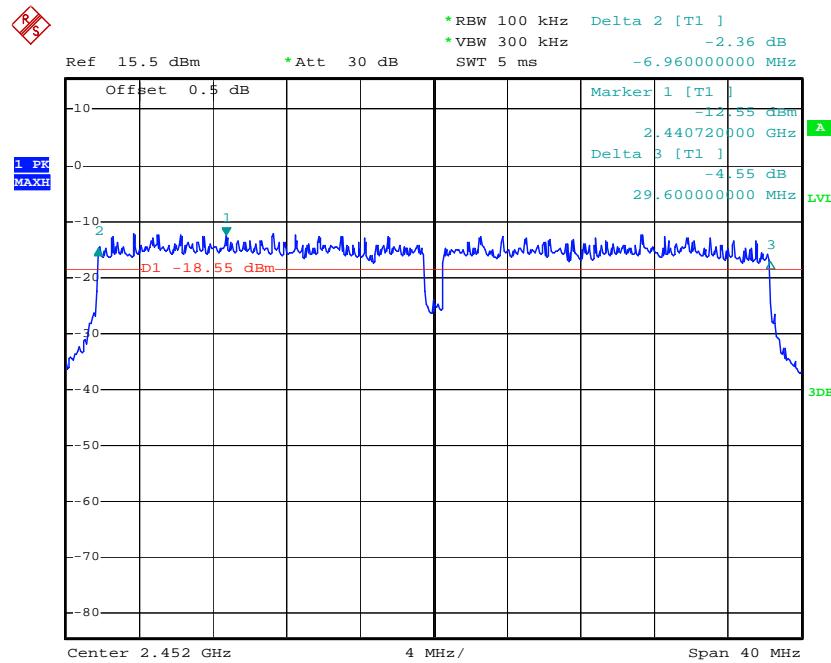
802.11n Channel Low 2422MHz (40MHz)



802.11n Channel Middle 2437MHz(40MHz)



802.11n Channel High 2452MHz(40MHz)



7. MAXIMUM PEAK OUTPUT POWER

7.1. Block Diagram of Test Setup



7.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

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 7.1.

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 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

7.5. Test Procedure

7.5.1. The EUT was tested according to DTS test procedure of April 09, 2013 KDB558074 D01 DTS Meas Guidance v03 for compliance to FCC 47CFR 15.247 requirements.

7.5.2. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.3. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz.

7.5.4. Measurement the maximum peak output power.

7.6. Test Result

The test was performed with 802.11b				
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2412	9.43	8.77	30 dBm / 1 W
Middle	2437	8.22	6.64	30 dBm / 1 W
High	2462	7.42	5.52	30 dBm / 1 W

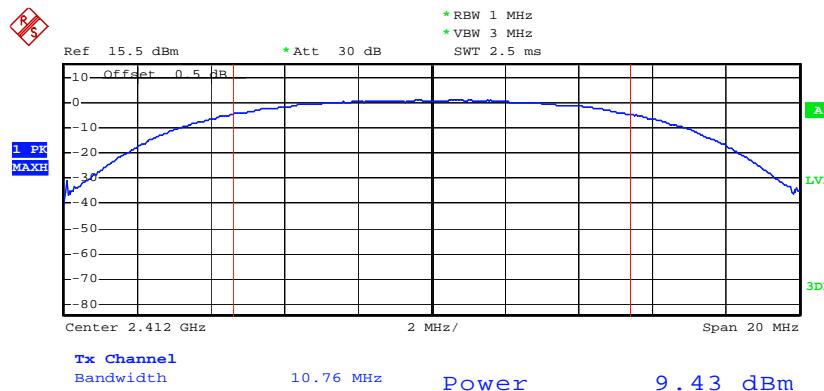
The test was performed with 802.11g				
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2412	7.16	5.20	30 dBm / 1 W
Middle	2437	7.13	5.16	30 dBm / 1 W
High	2462	7.75	5.96	30 dBm / 1 W

The test was performed with 802.11n (20MHz)				
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2412	7.08	5.11	30 dBm / 1 W
Middle	2437	6.48	4.45	30 dBm / 1 W
High	2462	6.45	4.42	30 dBm / 1 W

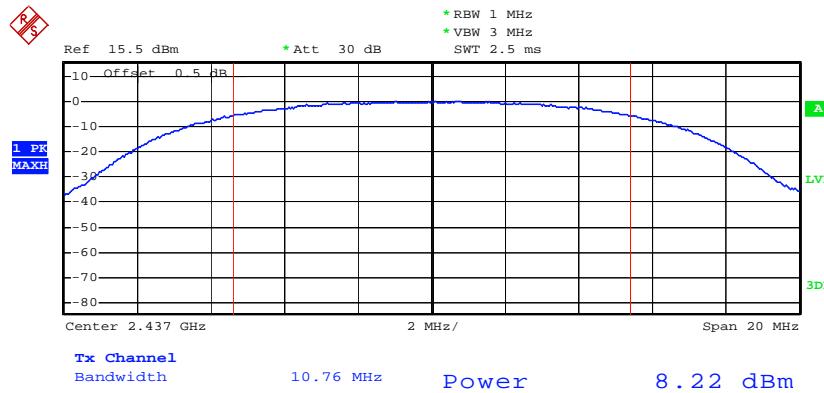
The test was performed with 802.11n (40MHz)				
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2422	7.21	5.26	30 dBm / 1 W
Middle	2437	6.78	4.76	30 dBm / 1 W
High	2452	6.51	4.48	30 dBm / 1 W

The spectrum analyzer plots are attached as below.

802.11b Channel Low 2412MHz



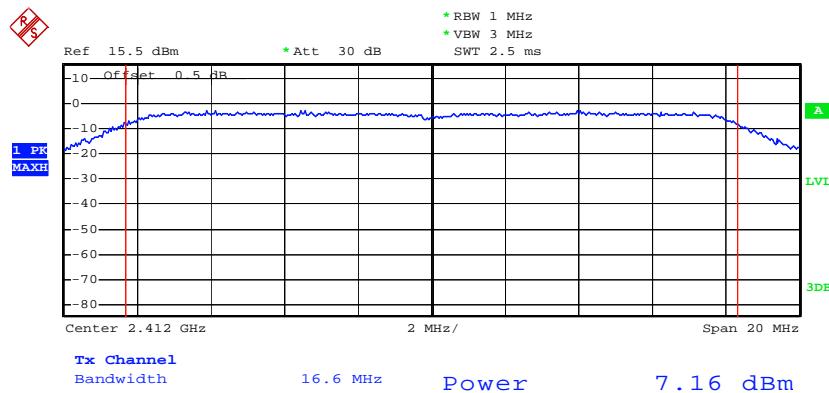
802.11b Channel Middle 2437MHz



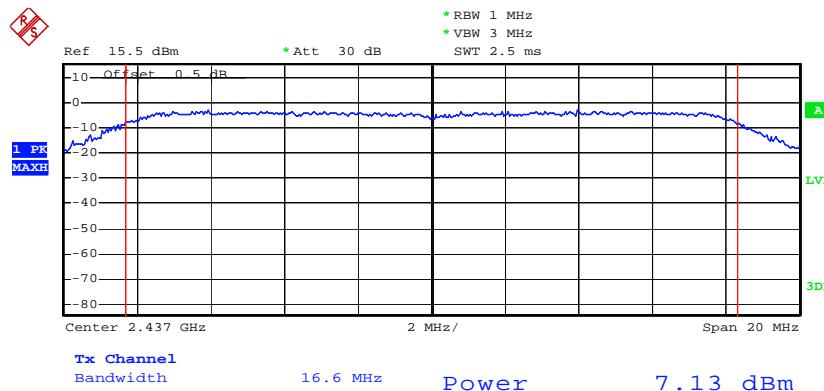
802.11b Channel High 2462MHz



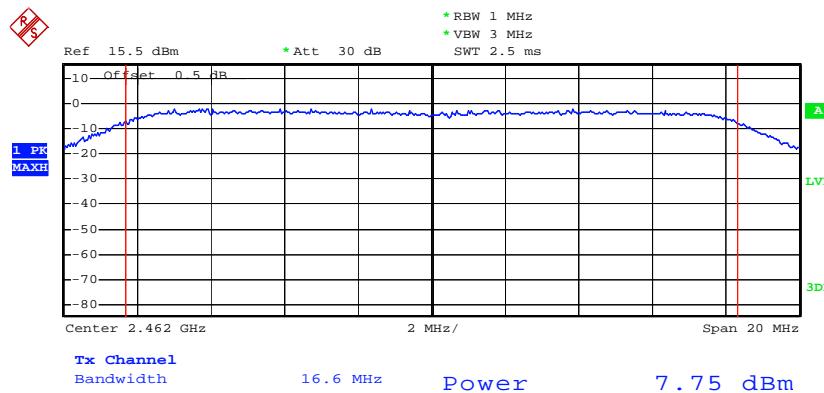
802.11g Channel Low 2412MHz



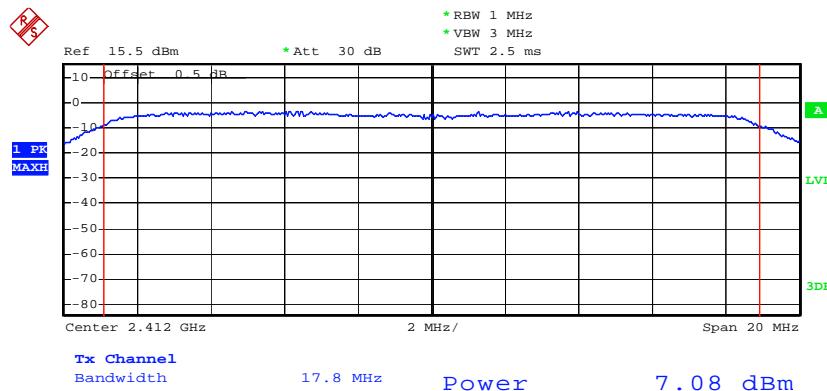
802.11g Channel Middle 2437MHz



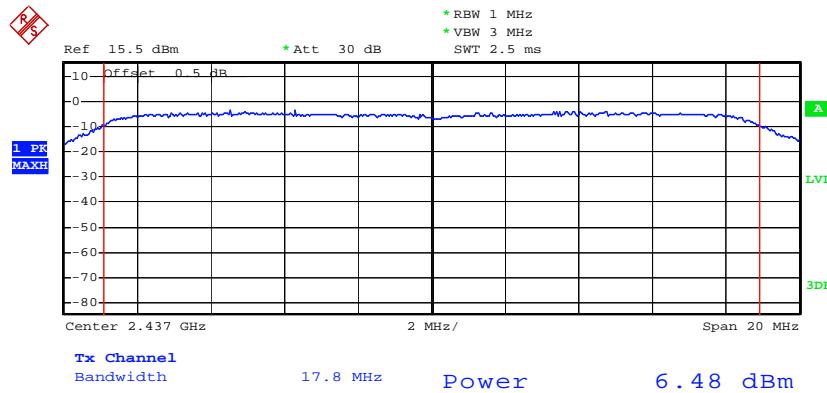
802.11g Channel High 2462MHz



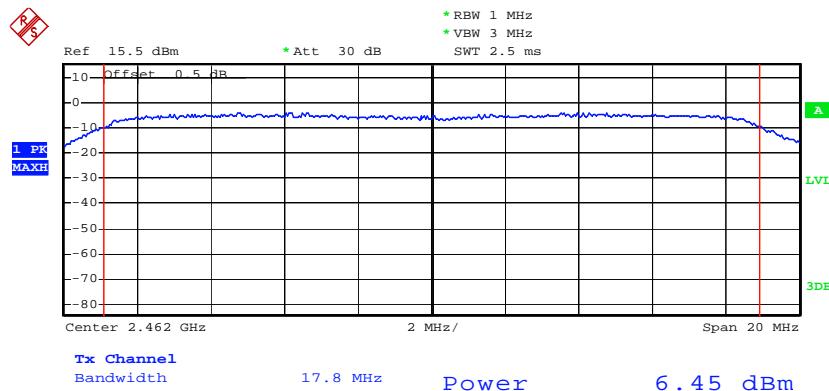
802.11n Channel Low 2412MHz (20MHz)



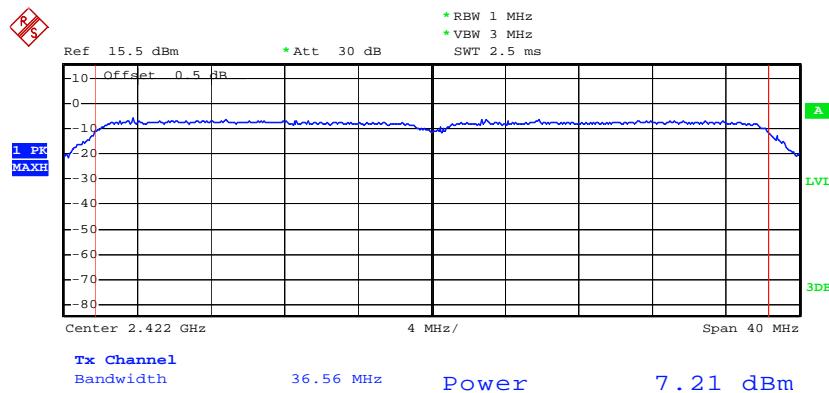
802.11n Channel Middle 2437MHz (20MHz)



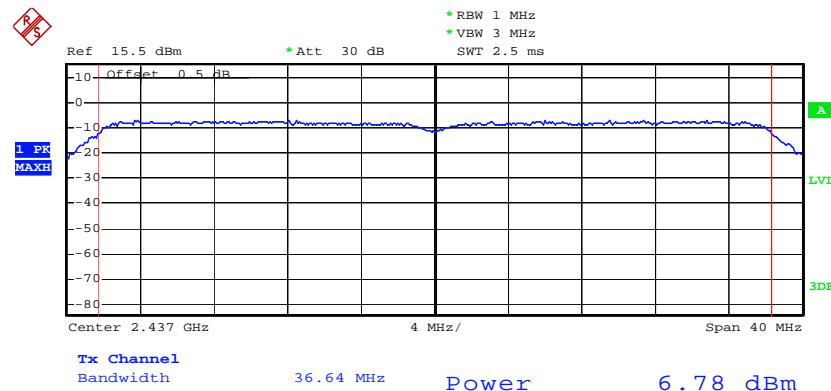
802.11n Channel High 2462MHz (20MHz)



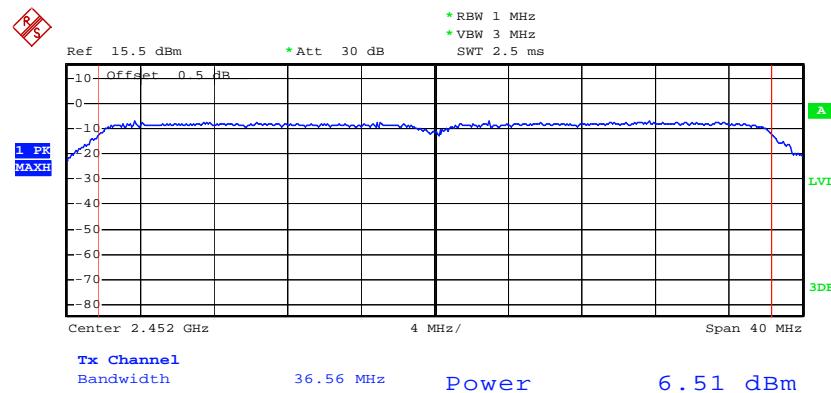
802.11n Channel Low 2422MHz (40MHz)



802.11n Channel Middle 2437MHz (40MHz)



802.11n Channel High 2452MHz (40MHz)



8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. Block Diagram of Test Setup



8.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3. 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.

8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

8.5. Test Procedure

8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2. Measurement Procedure PKPSD:

This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.

3. Set the RBW $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.5.3. Measurement the maximum power spectral density.

8.6. Test Result

The test was performed with 802.11b

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-17.08	8 dBm
Middle	2437	-18.09	8 dBm
High	2462	-19.61	8 dBm

The test was performed with 802.11g

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-19.09	8 dBm
Middle	2437	-18.77	8 dBm
High	2462	-22.02	8 dBm

The test was performed with 802.11n (20MHz)

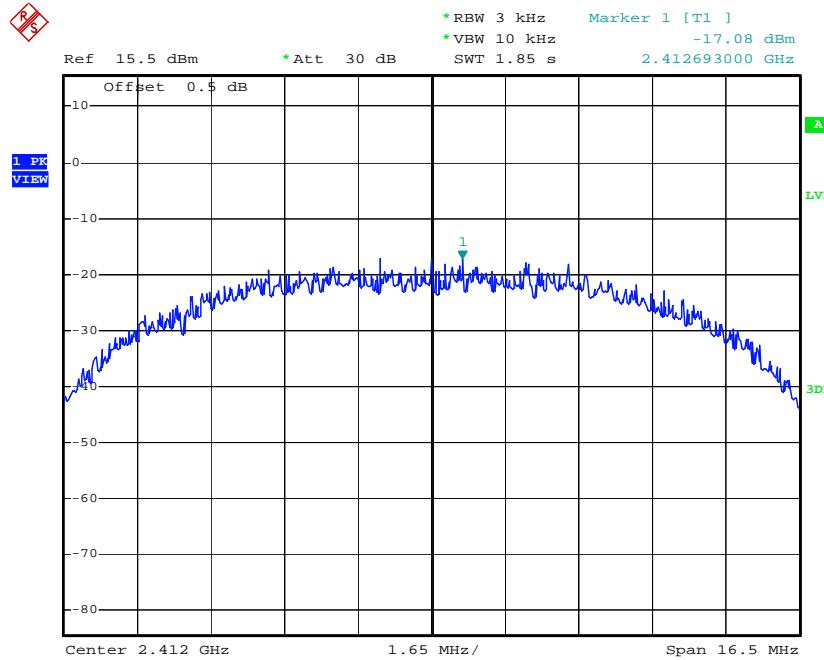
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-19.52	8 dBm
Middle	2437	-20.35	8 dBm
High	2462	-19.82	8 dBm

The test was performed with 802.11n (40MHz)

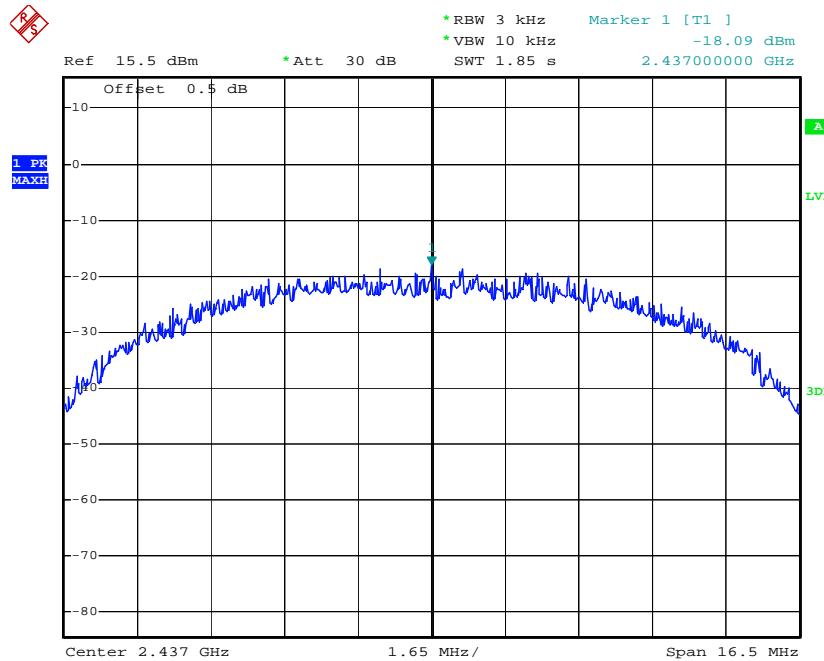
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2422	-21.53	8 dBm
Middle	2437	-21.33	8 dBm
High	2452	-23.02	8 dBm

The spectrum analyzer plots are attached as below.

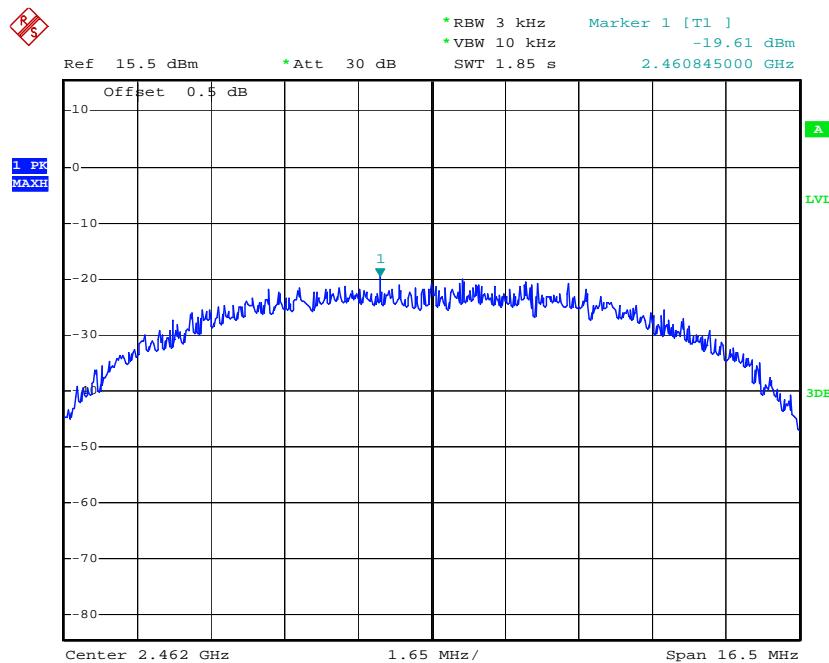
802.11b Channel Low 2412MHz



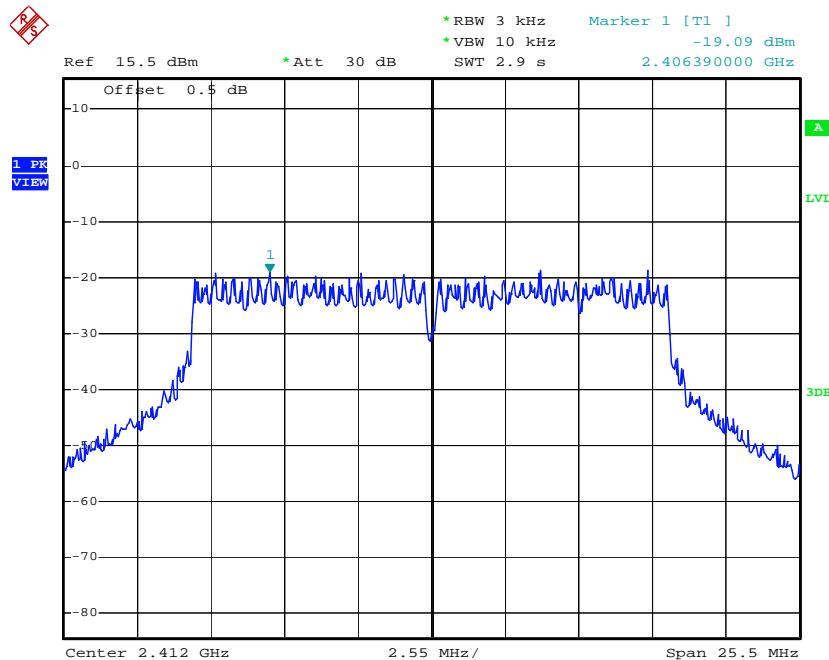
802.11b Channel Middle 2437MHz



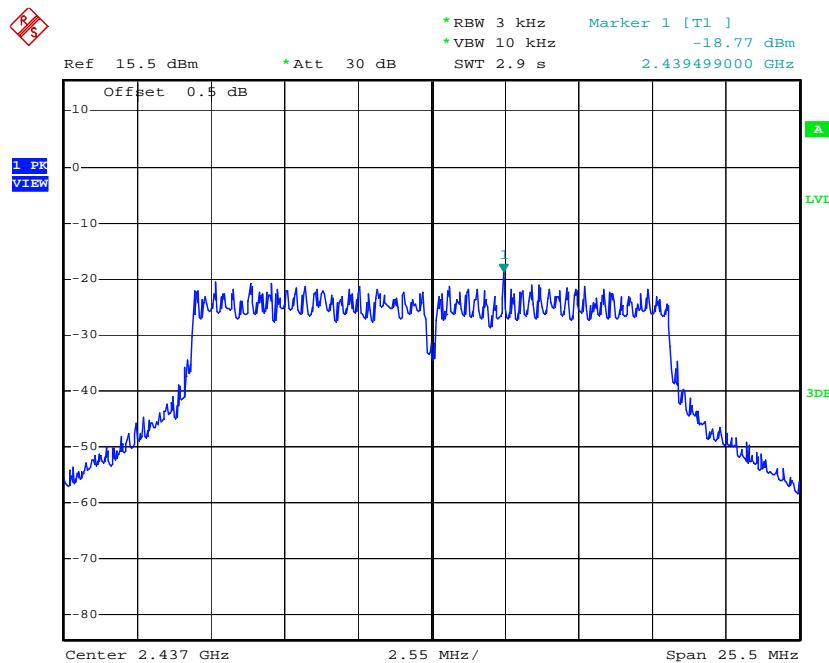
802.11b Channel High 2462MHz



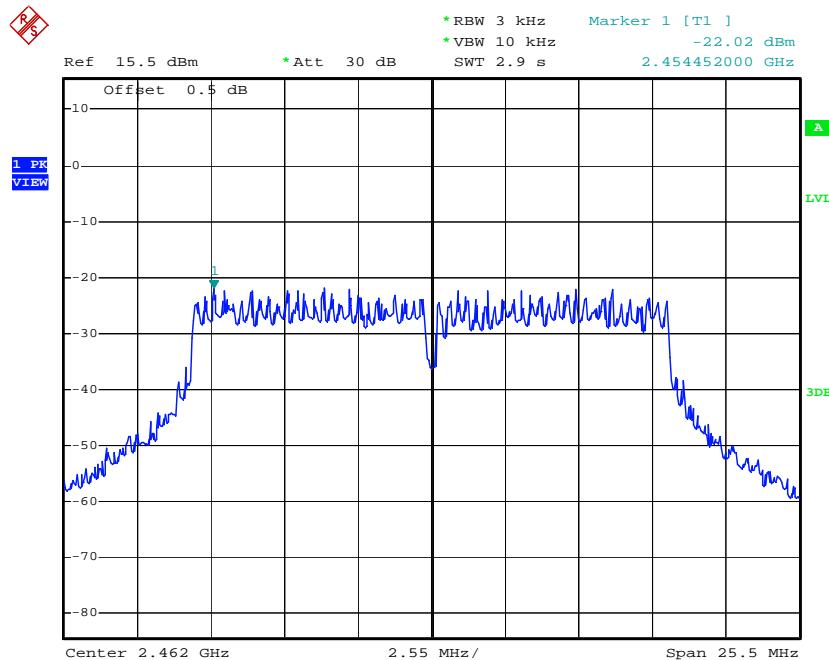
802.11g Channel Low 2412MHz



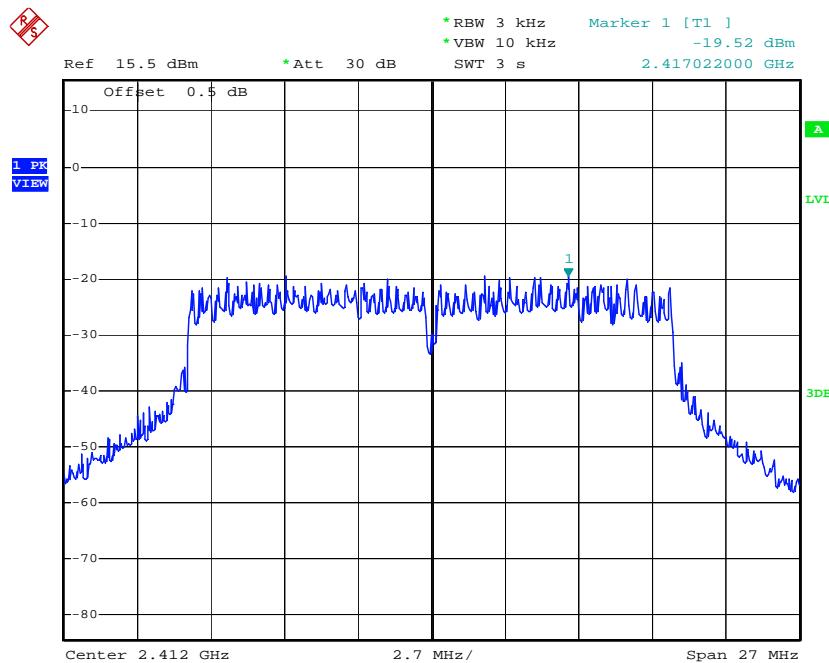
802.11g Channel Middle 2437MHz



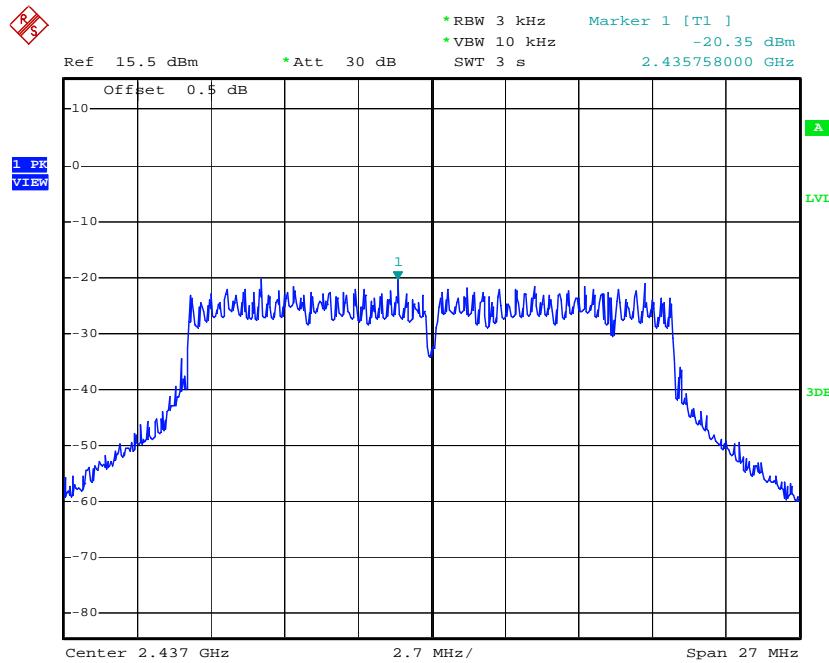
802.11g Channel High 2462MHz



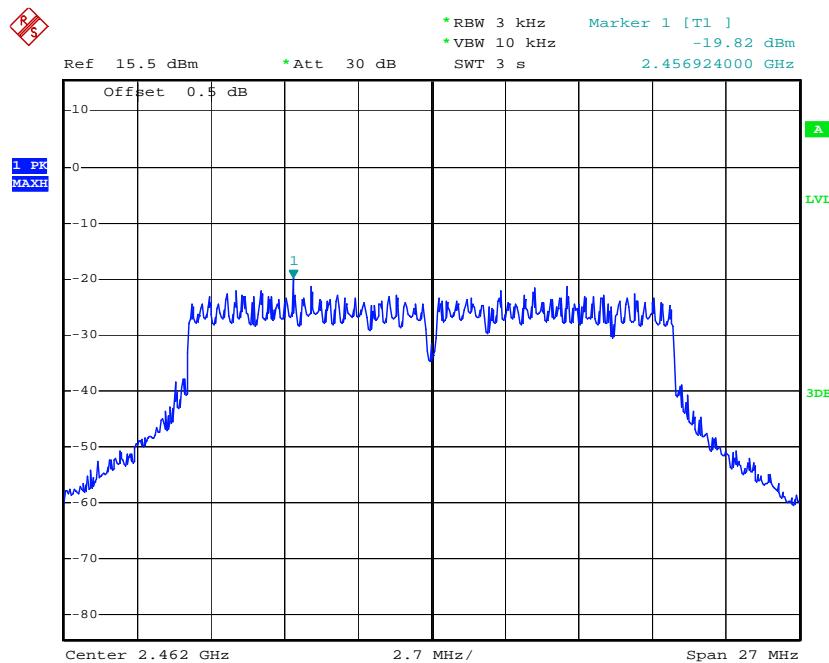
802.11n Channel Low 2412MHz (20MHz)



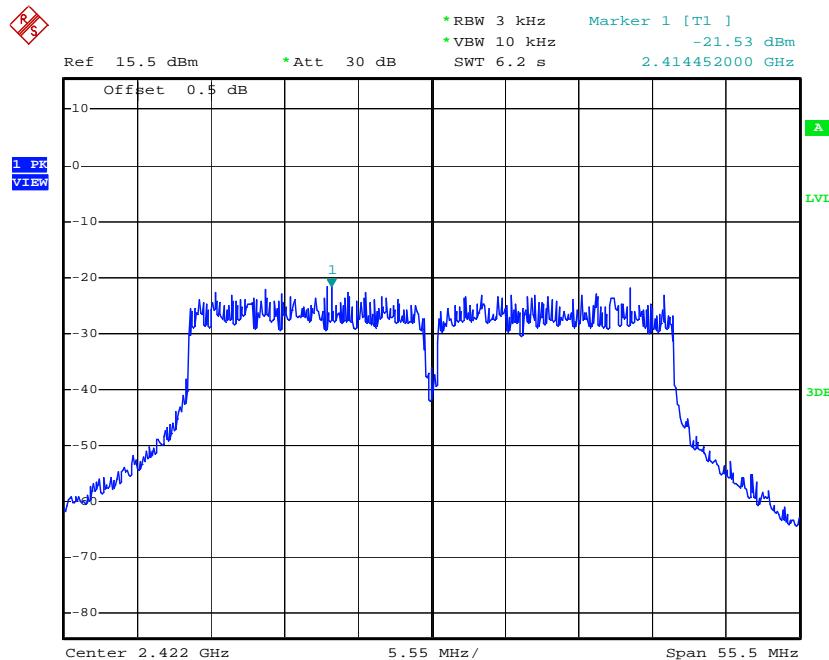
802.11n Channel Middle 2437MHz (20MHz)



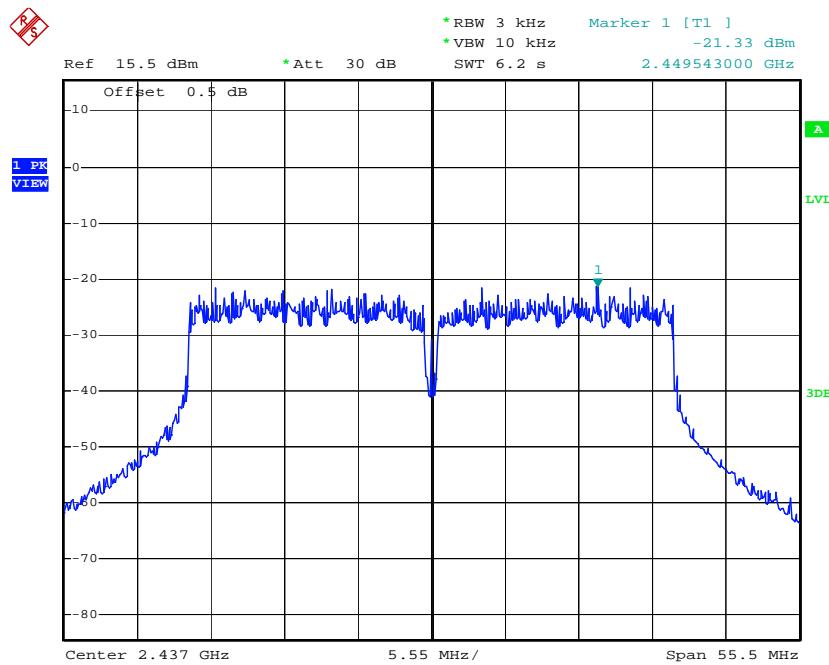
802.11n Channel High 2462MHz(20MHz)



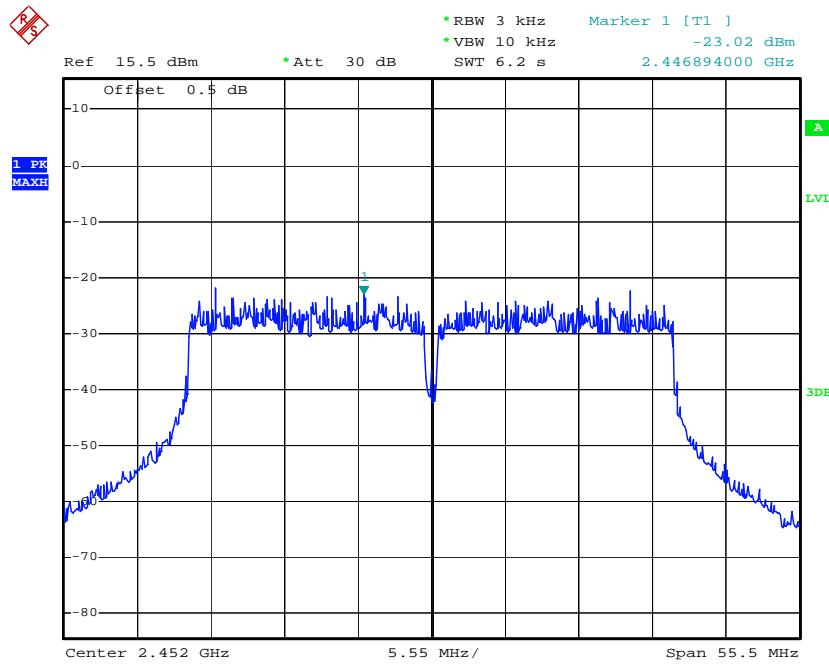
802.11n Channel Low 2422MHz (40MHz)



802.11n Channel Middle 2437MHz(40MHz)



802.11n Channel High 2452MHz(40MHz)



9. BAND EDGE COMPLIANCE TEST

9.1. Block Diagram of Test Setup



9.2. The Requirement For Section 15.247(d)

Section 15.247(d): 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 (b)(3) of this section, 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).

9.3. 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.

9.4. Operating Condition of EUT

9.4.1. Setup the EUT and simulator as shown as Section 9.1.

9.4.2. Turn on the power of all equipment.

9.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz MHz. We select 2412MHz, 2462MHz and 2422MHz, 2452MHz TX frequency to transmit.

9.5. Test Procedure

Conducted Band Edge:

9.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

9.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

Radiate Band Edge:

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

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

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

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

9.5.7. RBW=1MHz, VBW=1MHz

9.5.8. The band edges were measured and recorded.

9.6. Test Result

The test was performed with 802.11b

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	41.86	> 20dBc
2462	42.00	> 20dBc

The test was performed with 802.11g

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	31.32	> 20dBc
2462	40.10	> 20dBc

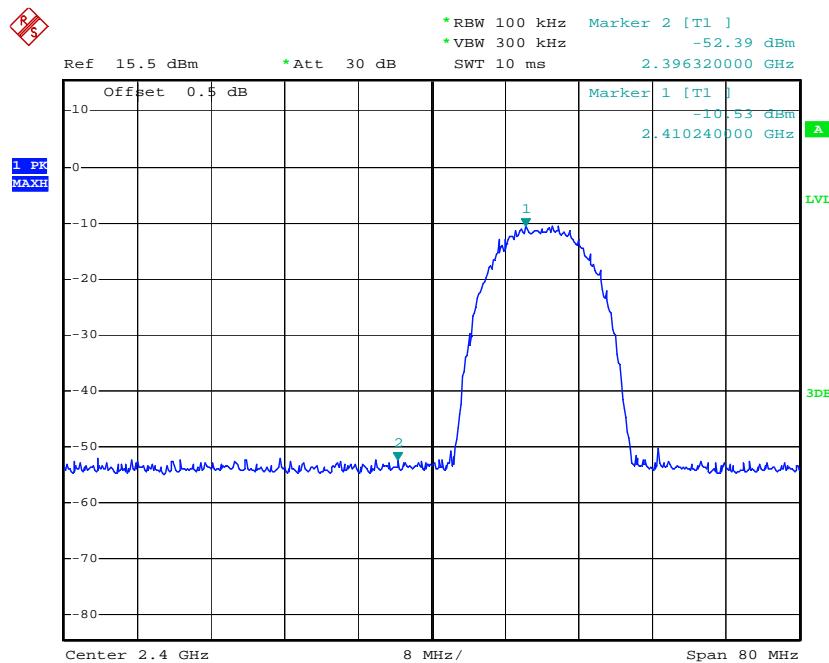
The test was performed with 802.11n (20MHz)

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	25.43	> 20dBc
2462	40.75	> 20dBc

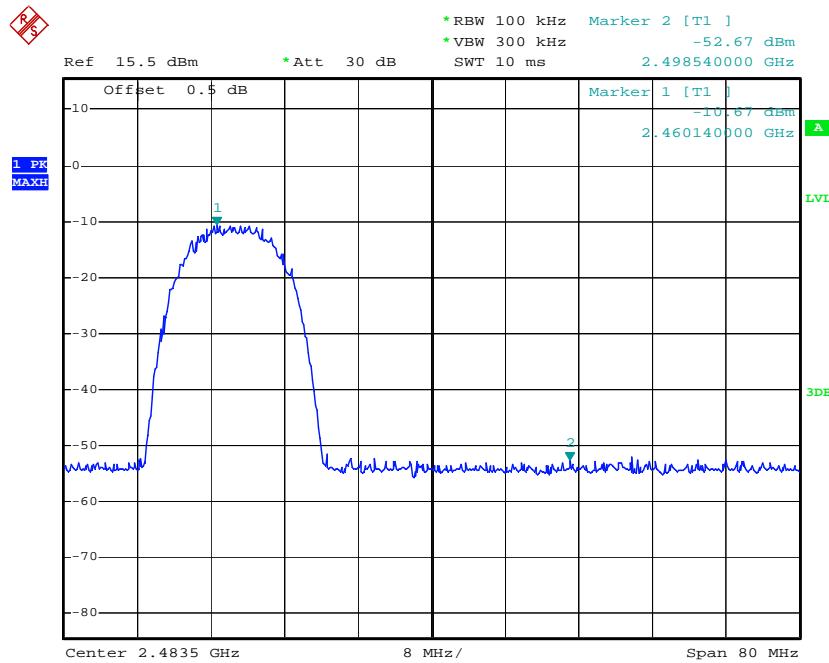
The test was performed with 802.11n (40MHz)

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2422	29.99	> 20dBc
2452	39.12	> 20dBc

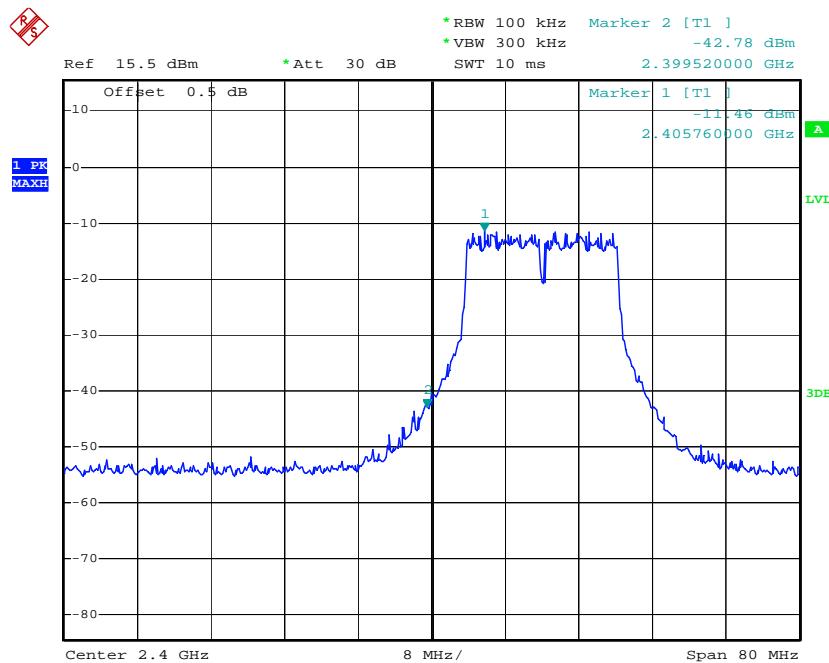
802.11b Channel Low 2412MHz



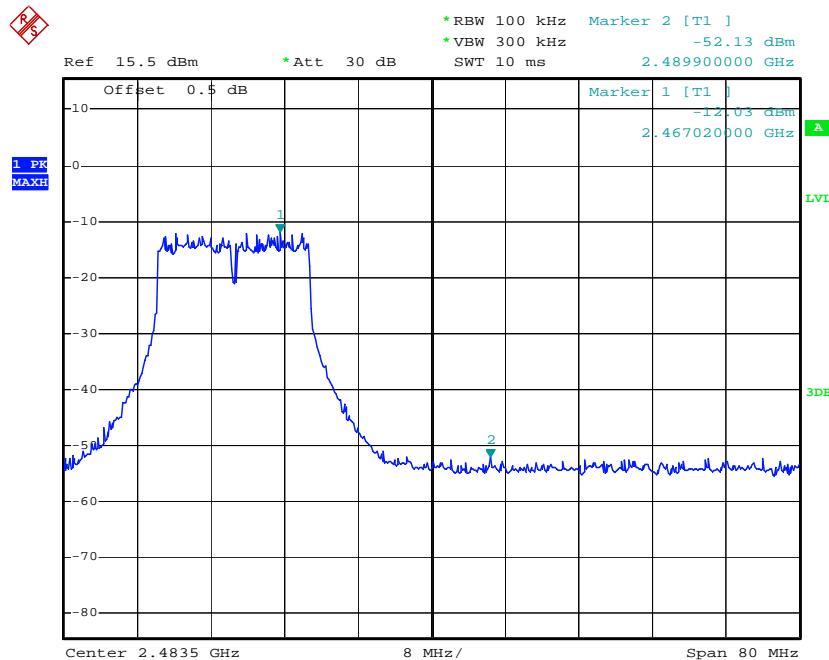
802.11b Channel High 2462MHz



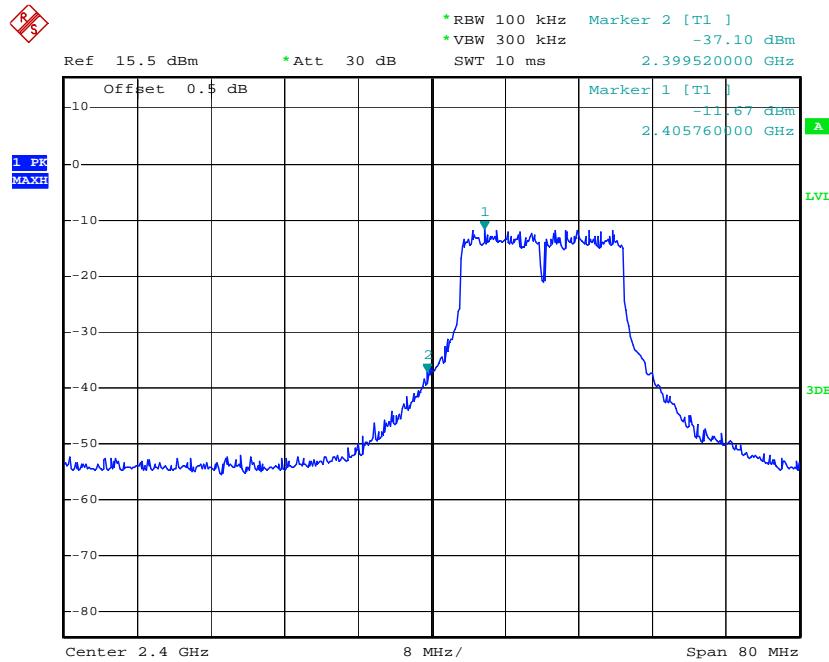
802.11g Channel Low 2412MHz



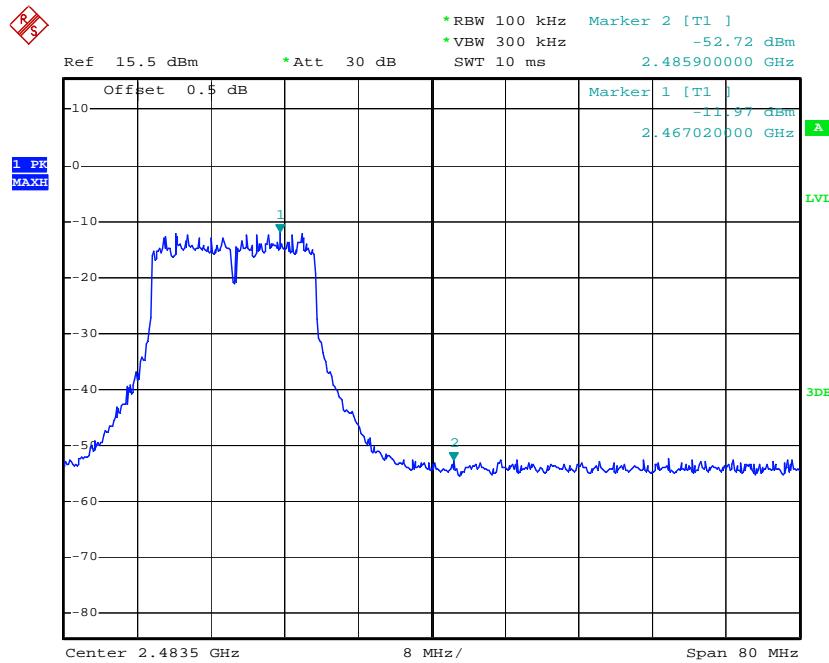
802.11g Channel High 2462MHz



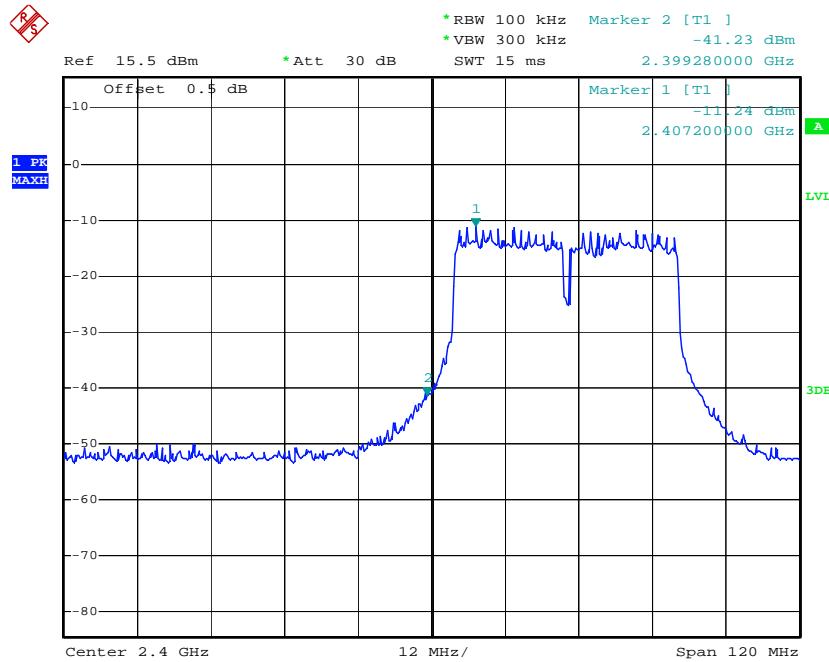
802.11n Channel Low 2412MHz (20MHz)



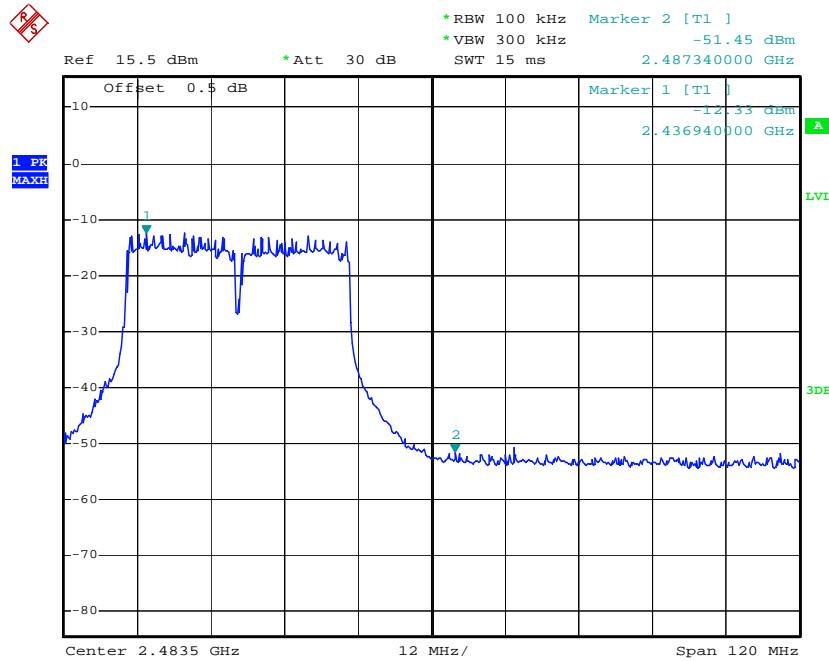
802.11n Channel High 2462MHz (20MHz)



802.11n Channel Low 2422MHz (40MHz)



802.11n Channel High 2452MHz (40MHz)



Radiated Band Edge Result

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.



ACCURATE TECHNOLOGY CO., LTD.

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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #387

Polarization: Horizontal

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/24/26

EUT: MID

Engineer Signature:

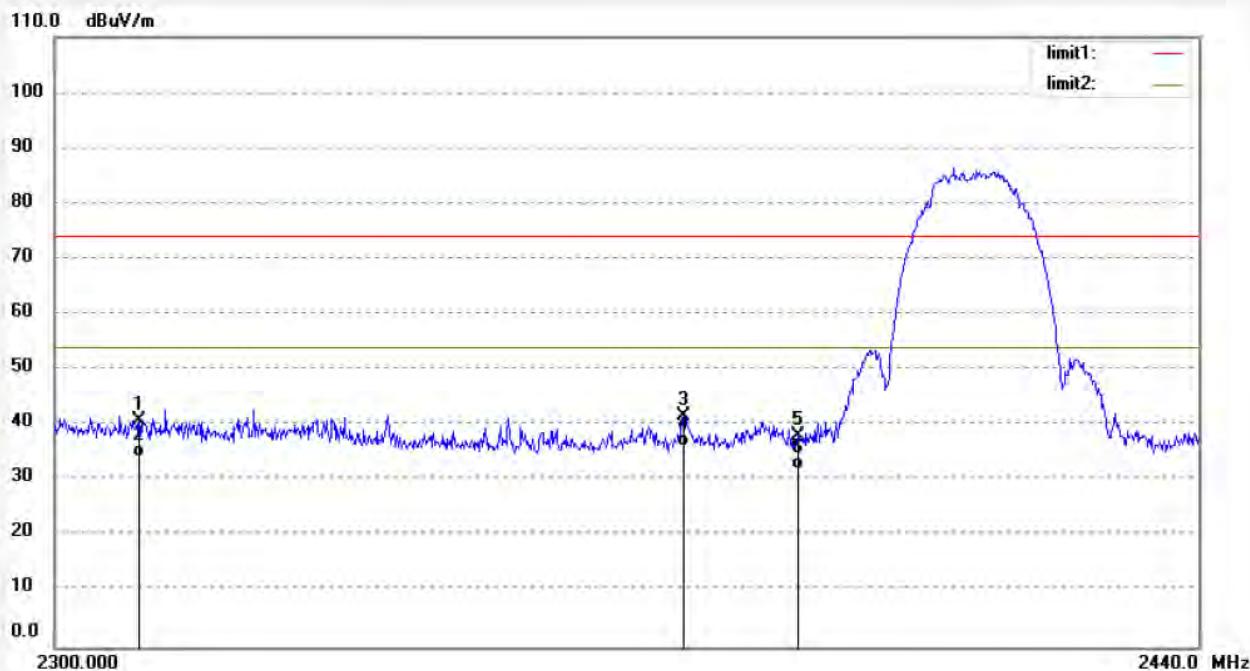
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	48.76	-7.81	40.95	74.00	-33.05	peak			
2	2310.000	42.00	-7.81	34.19	54.00	-19.81	AVG			
3	2375.989	49.29	-7.62	41.67	74.00	-32.33	peak			
4	2375.989	43.85	-7.62	36.23	54.00	-17.77	AVG			
5	2390.000	45.67	-7.53	38.14	74.00	-35.86	peak			
6	2390.000	39.62	-7.53	32.09	54.00	-21.91	AVG			



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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #386

Polarization: Vertical

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/22/47

EUT: MID

Engineer Signature:

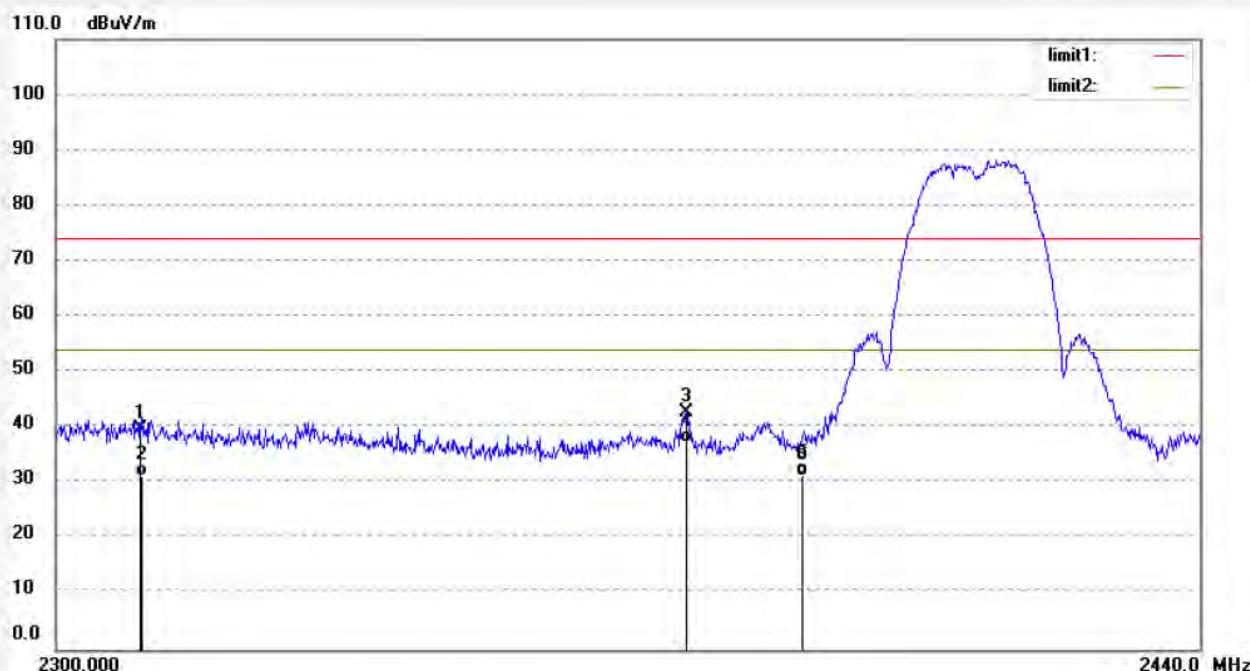
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	47.63	-7.81	39.82	74.00	-34.18	peak			
2	2310.000	39.00	-7.81	31.19	54.00	-22.81	AVG			
3	2376.130	50.43	-7.62	42.81	74.00	-31.19	peak			
4	2376.130	45.02	-7.62	37.40	54.00	-16.60	AVG			
5	2390.000	38.99	-7.53	31.46	54.00	-22.54	AVG			
6	2390.000	38.69	-7.53	31.16	54.00	-22.84	AVG			



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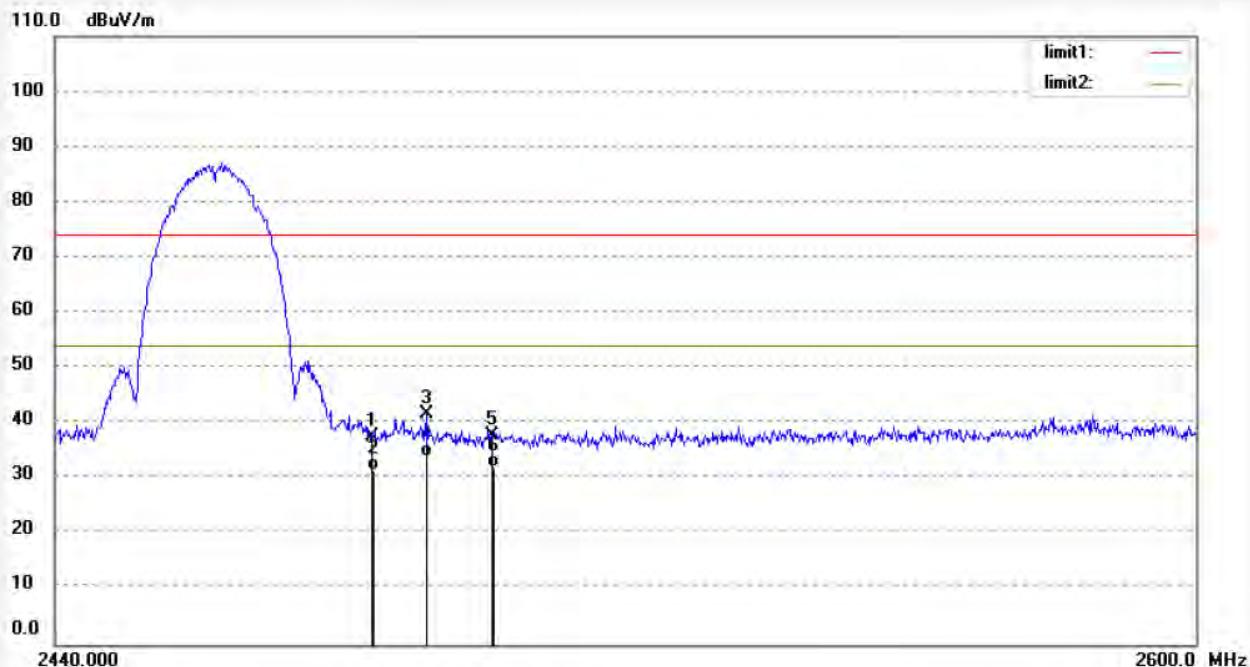
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #384
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: MID
Mode: TX Channel 11(802.11b)
Model: M7XX
Manufacturer: Sungworld

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 13/11/4/
Time: 4/15/56
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20132325



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	44.94	-7.37	37.57	74.00	-36.43	peak			
2	2483.500	38.91	-7.37	31.54	54.00	-22.46	AVG			
3	2490.993	48.91	-7.38	41.53	74.00	-32.47	peak			
4	2490.993	41.46	-7.38	34.08	54.00	-19.92	AVG			
5	2500.000	45.20	-7.40	37.80	74.00	-36.20	peak			
6	2500.000	39.33	-7.40	31.93	54.00	-22.07	AVG			



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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #385

Polarization: Vertical

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/18/12

EUT: MID

Engineer Signature:

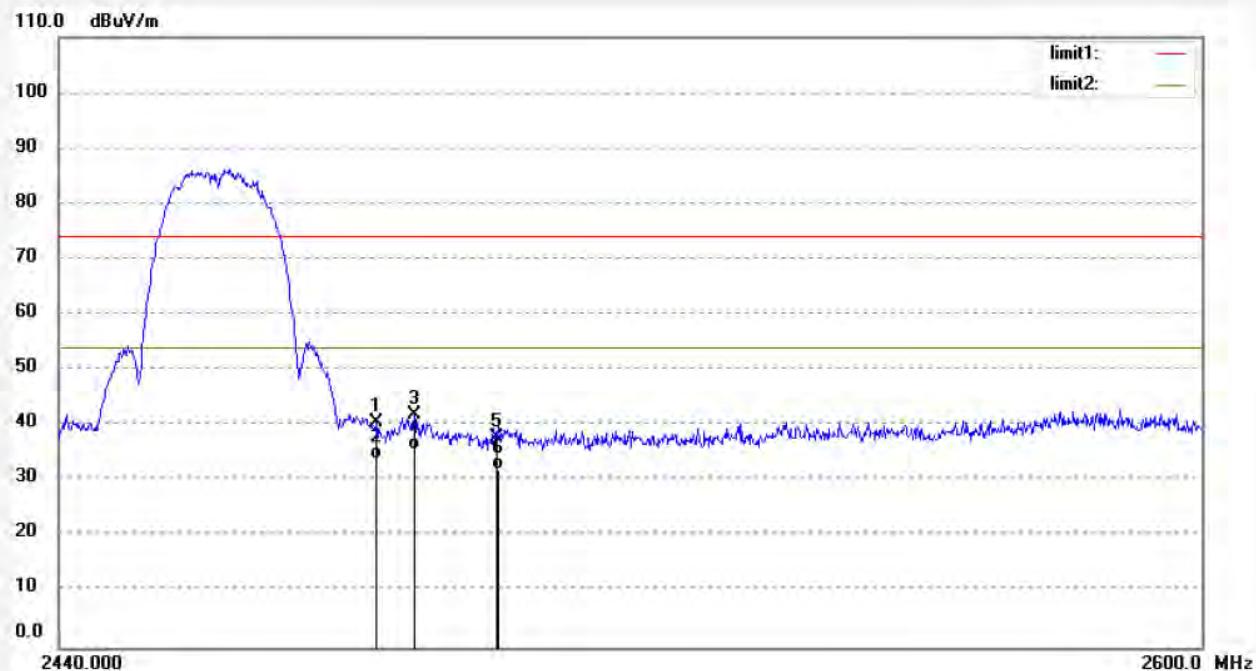
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



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	47.94	-7.37	40.57	74.00	-33.43	peak			
2	2483.500	41.42	-7.37	34.05	54.00	-19.95	AVG			
3	2488.774	49.33	-7.39	41.94	74.00	-32.06	peak			
4	2488.774	42.92	-7.39	35.53	54.00	-18.47	AVG			
5	2500.000	45.17	-7.40	37.77	74.00	-36.23	peak			
6	2500.000	39.32	-7.40	31.92	54.00	-22.08	AVG			



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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Star_tmp #380

Polarization: Horizontal

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/01/53

EUT: MID

Engineer Signature:

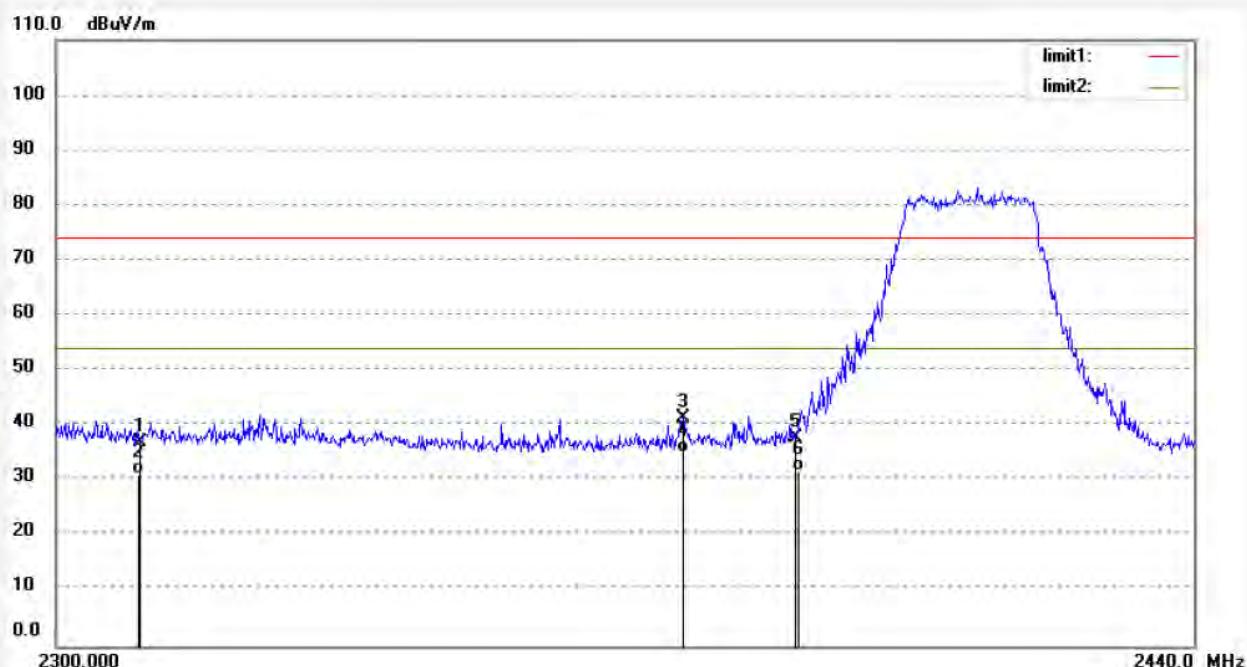
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.75	-7.81	36.94	74.00	-37.06	peak			
2	2310.000	38.97	-7.81	31.16	54.00	-22.84	AVG			
3	2376.130	48.89	-7.62	41.27	74.00	-32.73	peak			
4	2376.130	42.61	-7.62	34.99	54.00	-19.01	AVG			
5	2390.000	45.46	-7.53	37.93	74.00	-36.07	peak			
6	2390.000	39.17	-7.53	31.64	54.00	-22.36	AVG			



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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #381

Polarization: Vertical

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/05/06

EUT: MID

Engineer Signature:

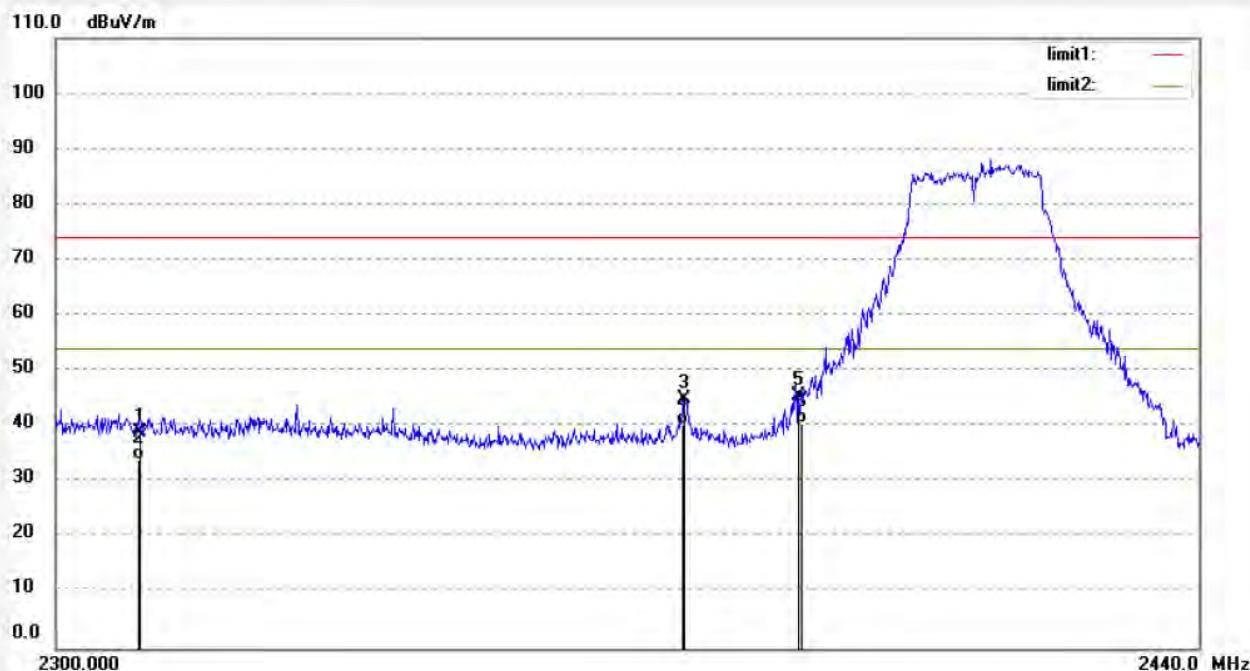
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.75	-7.81	38.94	74.00	-35.06	peak			
2	2310.000	41.69	-7.81	33.88	54.00	-20.12	AVG			
3	2375.849	52.68	-7.62	45.06	74.00	-28.94	peak			
4	2375.849	47.99	-7.62	40.37	54.00	-13.63	AVG			
5	2390.000	53.15	-7.53	45.62	74.00	-28.38	peak			
6	2390.000	47.98	-7.53	40.45	54.00	-13.55	AVG			



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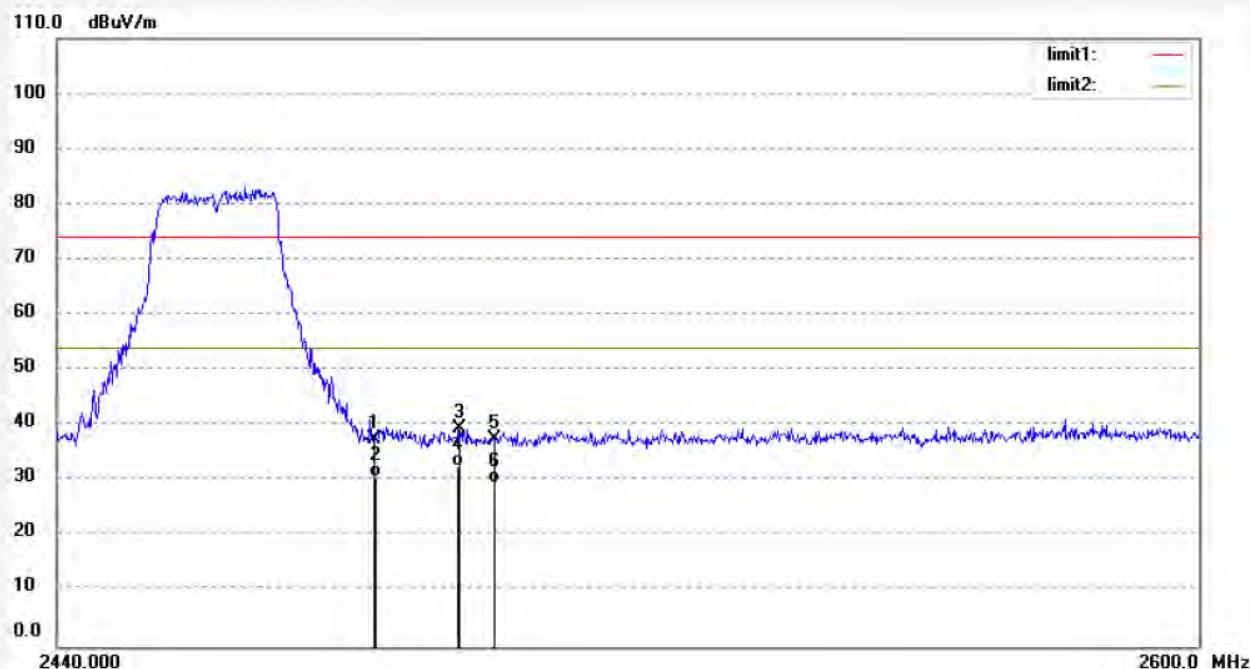
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #383
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: MID
Mode: TX Channel 11(802.11g)
Model: M7XX
Manufacturer: Sungworld

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 13/11/4/
Time: 4/12/59
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20132325



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	44.98	-7.37	37.61	74.00	-36.39	peak			
2	2483.500	37.95	-7.37	30.58	54.00	-23.42	AVG			
3	2495.118	46.74	-7.39	39.35	74.00	-34.65	peak			
4	2495.118	40.02	-7.39	32.63	54.00	-21.37	AVG			
5	2500.000	44.90	-7.40	37.50	74.00	-36.50	peak			
6	2500.000	36.99	-7.40	29.59	54.00	-24.41	AVG			



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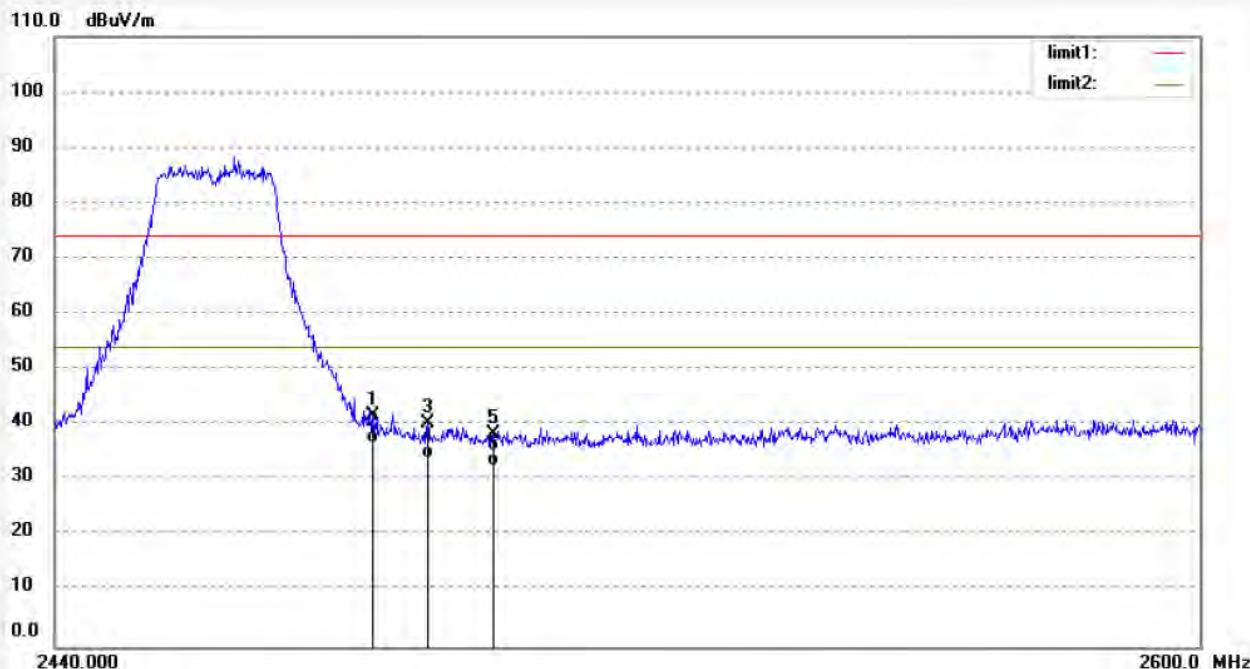
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #382
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: MID
Mode: TX Channel 11(802.11g)
Model: M7XX
Manufacturer: Sungworld

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 13/11/4/
Time: 4/08/08
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20132325



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	49.00	-7.37	41.63	74.00	-32.37	peak			
2	2483.500	43.97	-7.37	36.60	54.00	-17.40	AVG			
3	2490.993	47.76	-7.38	40.38	74.00	-33.62	peak			
4	2490.993	41.36	-7.38	33.98	54.00	-20.02	AVG			
5	2500.000	45.77	-7.40	38.37	74.00	-35.63	peak			
6	2500.000	40.00	-7.40	32.60	54.00	-21.40	AVG			



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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #388

Polarization: Horizontal

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/27/12

EUT: MID

Engineer Signature:

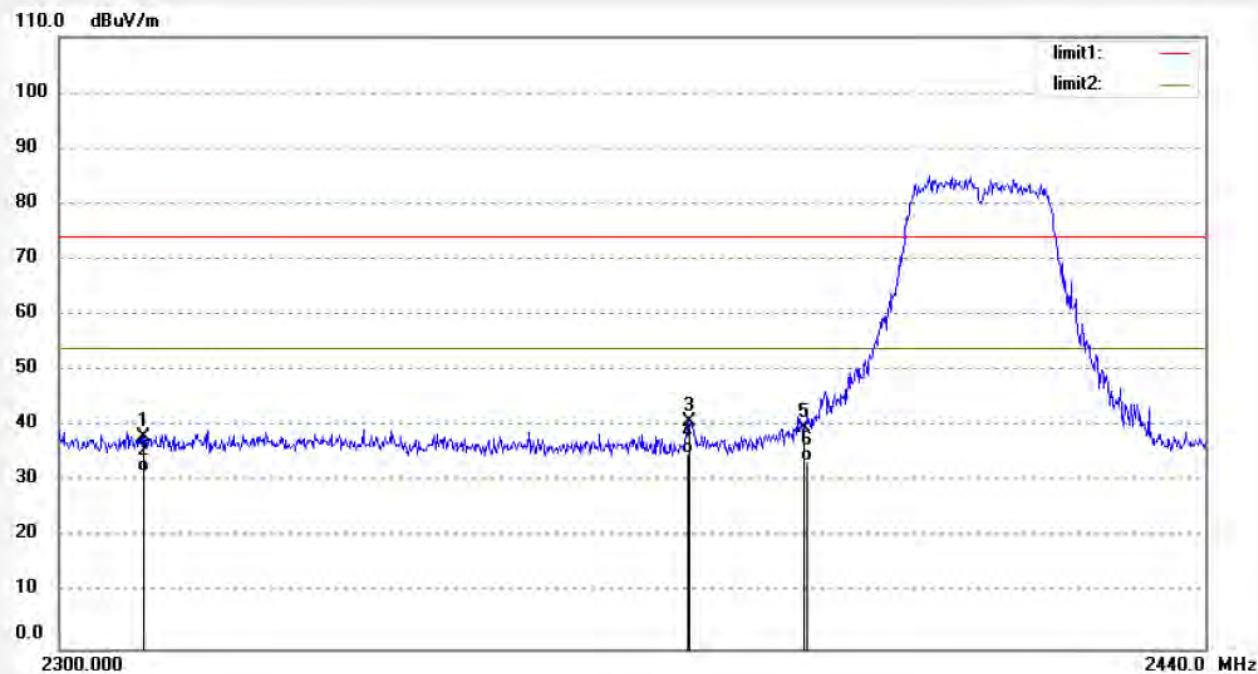
Mode: TX Channel 1(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	45.84	-7.81	38.03	74.00	-35.97	peak			
2	2310.000	39.69	-7.81	31.88	54.00	-22.12	AVG			
3	2375.849	48.48	-7.62	40.86	74.00	-33.14	peak			
4	2375.849	42.71	-7.62	35.09	54.00	-18.91	AVG			
5	2390.000	47.35	-7.53	39.82	74.00	-34.18	peak			
6	2390.000	41.22	-7.53	33.69	54.00	-20.31	AVG			



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Site: 966 chamber
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Fax:+86-0755-26503396

Job No.: Star_tmp #389

Polarization: Vertical

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/31/39

EUT: MID

Engineer Signature:

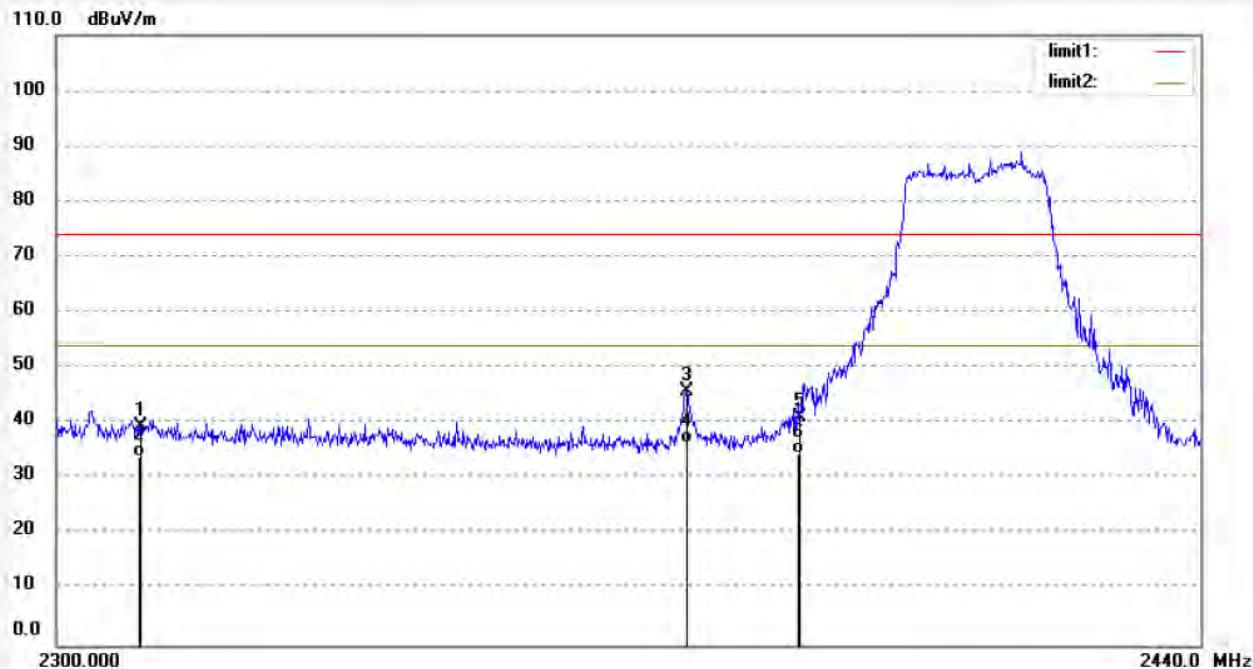
Mode: TX Channel 1(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	47.22	-7.81	39.41	74.00	-34.59	peak			
2	2310.000	41.66	-7.81	33.85	54.00	-20.15	AVG			
3	2376.130	53.41	-7.62	45.79	74.00	-28.21	peak			
4	2376.130	43.93	-7.62	36.31	54.00	-17.69	AVG			
5	2390.000	48.73	-7.53	41.20	74.00	-32.80	peak			
6	2390.000	42.02	-7.53	34.49	54.00	-19.51	AVG			



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Job No.: Star_tmp #391

Polarization: Horizontal

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/36/42

EUT: MID

Engineer Signature:

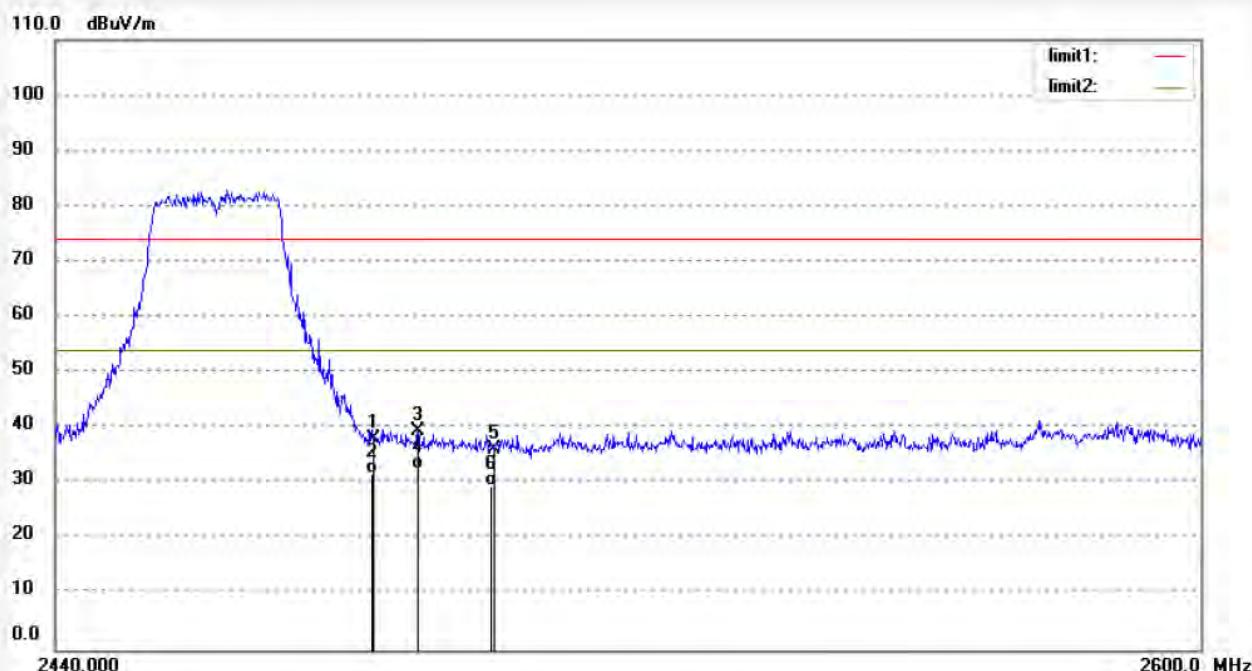
Mode: TX Channel 11(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



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	45.35	-7.37	37.98	74.00	-36.02	peak			
2	2483.500	39.17	-7.37	31.80	54.00	-22.20	AVG			
3	2489.566	46.87	-7.39	39.48	74.00	-34.52	peak			
4	2489.566	40.02	-7.39	32.63	54.00	-21.37	AVG			
5	2500.000	43.69	-7.40	36.29	74.00	-37.71	peak			
6	2500.000	36.91	-7.40	29.51	54.00	-24.49	AVG			

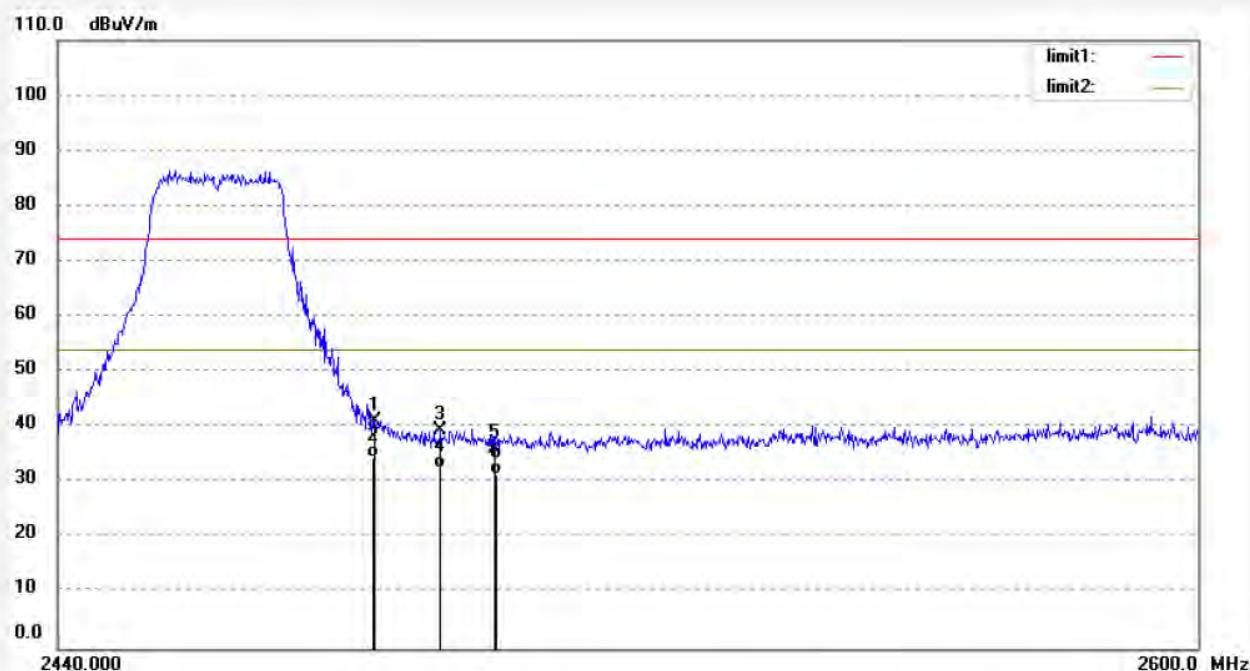


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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.:	Star_tmp #390	Polarization:	Vertical
Standard:	FCC 15C PK	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	13/11/4/
Temp.(C)/Hum.(%)	23 C / 49 %	Time:	4/33/30
EUT:	MID	Engineer Signature:	
Mode:	TX Channel 11(802.11n20)	Distance:	3m
Model:	M7XX		
Manufacturer:	Sungworld		
Note:	Report No.:ATE20132325		



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	48.47	-7.37	41.10	74.00	-32.90	peak			
2	2483.500	42.02	-7.37	34.65	54.00	-19.35	AVG			
3	2492.578	46.75	-7.39	39.36	74.00	-34.64	peak			
4	2492.578	40.00	-7.39	32.61	54.00	-21.39	AVG			
5	2500.000	43.62	-7.40	36.22	74.00	-37.78	peak			
6	2500.000	38.99	-7.40	31.59	54.00	-22.41	AVG			



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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #395

Polarization: Horizontal

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/50/16

EUT: MID

Engineer Signature:

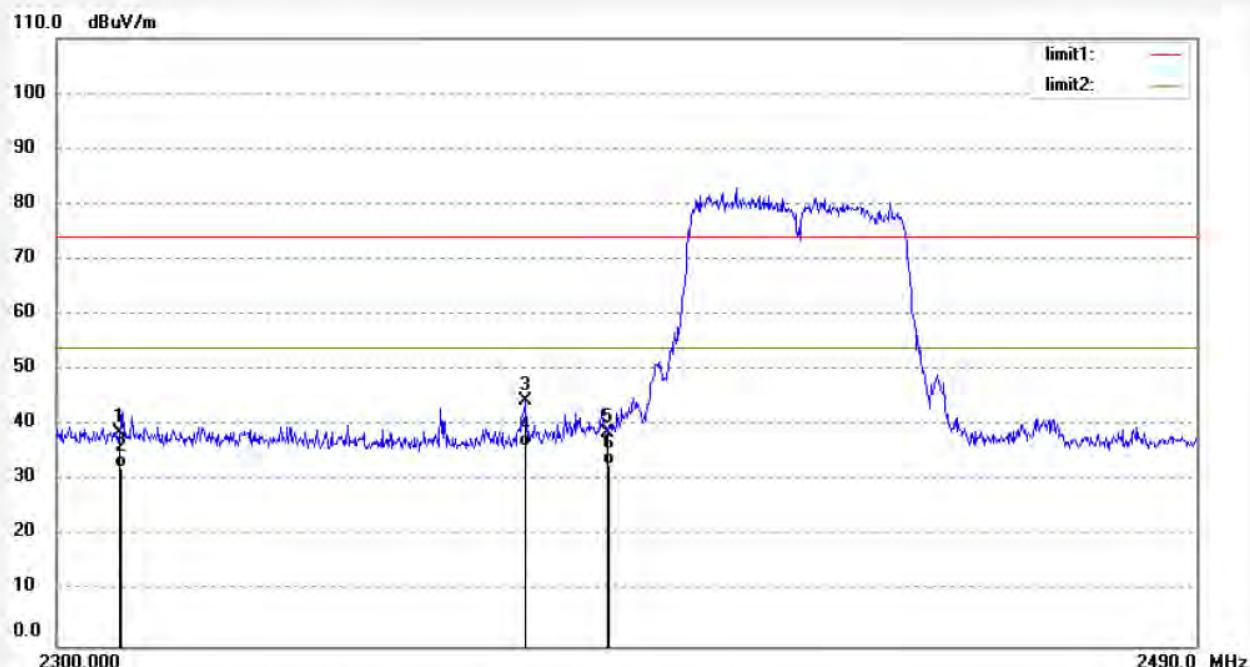
Mode: TX Channel 3(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.58	-7.81	38.77	74.00	-35.23	peak			
2	2310.000	40.03	-7.81	32.22	54.00	-21.78	AVG			
3	2376.235	51.90	-7.62	44.28	74.00	-29.72	peak			
4	2376.235	43.69	-7.62	36.07	54.00	-17.93	AVG			
5	2390.000	46.24	-7.53	38.71	74.00	-35.29	peak			
6	2390.000	40.33	-7.53	32.80	54.00	-21.20	AVG			



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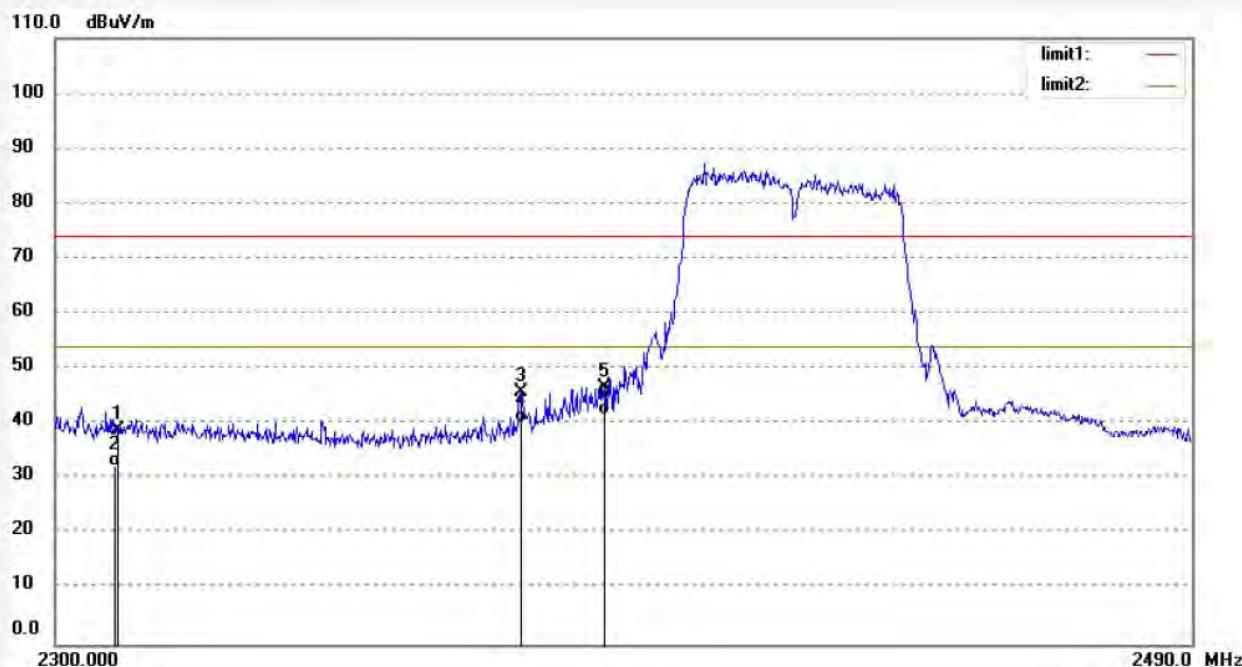
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Star_tmp #394	Polarization: Vertical
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 13/11/4/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 4/46/04
EUT: MID	Engineer Signature:
Mode: TX Channel 3(802.11n)40MHz	Distance: 3m
Model: M7XX	
Manufacturer: Sungworld	
Note: Report No.:ATE20132325	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.60	-7.81	38.79	74.00	-35.21	peak			
2	2310.000	40.02	-7.81	32.21	54.00	-21.79	AVG			
3	2376.046	53.47	-7.62	45.85	74.00	-28.15	peak			
4	2376.046	48.02	-7.62	40.40	54.00	-13.60	AVG			
5	2390.000	54.18	-7.53	46.65	74.00	-27.35	peak			
6	2390.000	49.32	-7.53	41.79	54.00	-12.21	AVG			



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Fax:+86-0755-26503396

Job No.: Star_tmp #392

Polarization: Horizontal

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/40/19

EUT: MID

Engineer Signature:

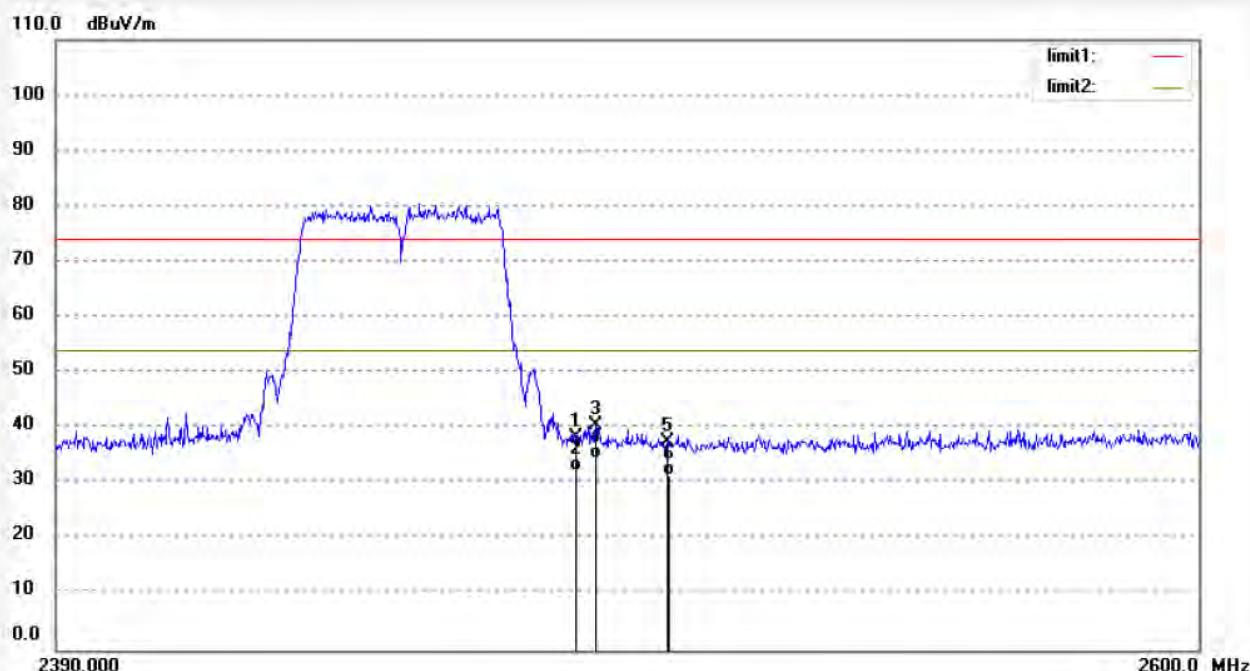
Mode: TX Channel 9(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



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	45.82	-7.37	38.45	74.00	-35.55	peak			
2	2483.500	39.64	-7.37	32.27	54.00	-21.73	AVG			
3	2487.116	47.91	-7.38	40.53	74.00	-33.47	peak			
4	2487.116	41.90	-7.38	34.52	54.00	-19.48	AVG			
5	2500.000	44.83	-7.40	37.43	74.00	-36.57	peak			
6	2500.000	38.97	-7.40	31.57	54.00	-22.43	AVG			



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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Star_tmp #393

Polarization: Vertical

Standard: FCC 15C PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/4/

Temp.(C)/Hum.(%) 23 C / 49 %

Time: 4/43/32

EUT: MID

Engineer Signature:

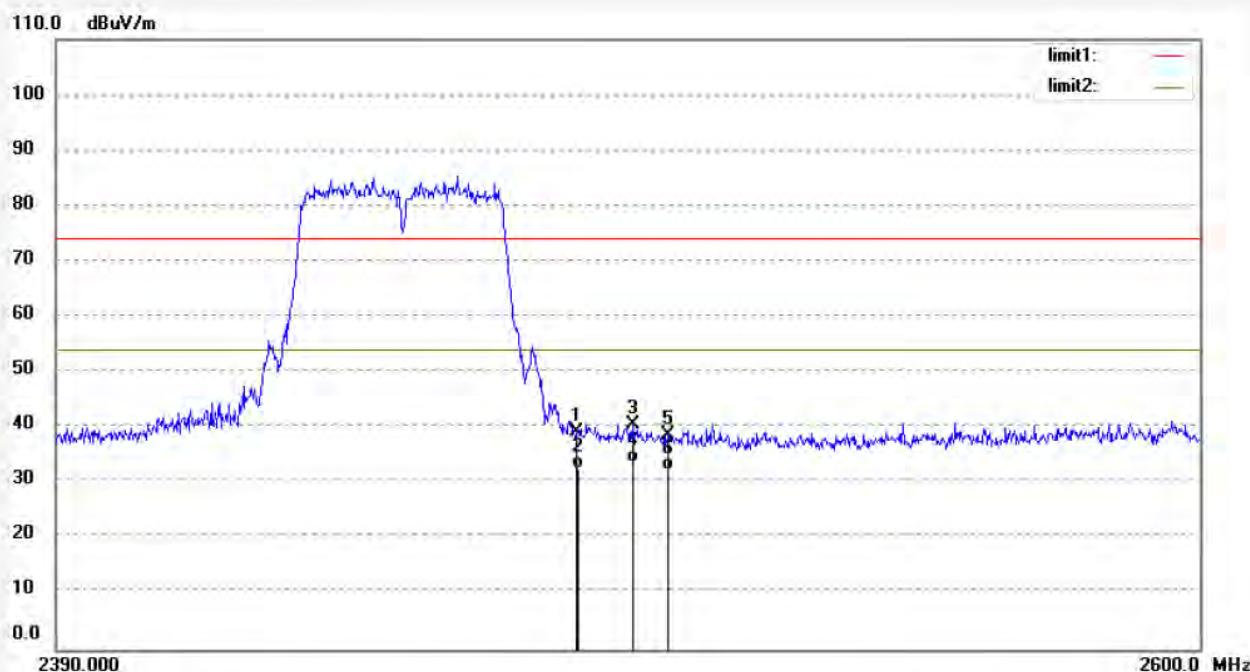
Mode: TX Channel 9(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



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	46.57	-7.37	39.20	74.00	-34.80	peak			
2	2483.500	40.08	-7.37	32.71	54.00	-21.29	AVG			
3	2493.631	47.82	-7.39	40.43	74.00	-33.57	peak			
4	2493.631	41.08	-7.39	33.69	54.00	-20.31	AVG			
5	2500.000	46.05	-7.40	38.65	74.00	-35.35	peak			
6	2500.000	39.62	-7.40	32.22	54.00	-21.78	AVG			

10.RADIATED SPURIOUS EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

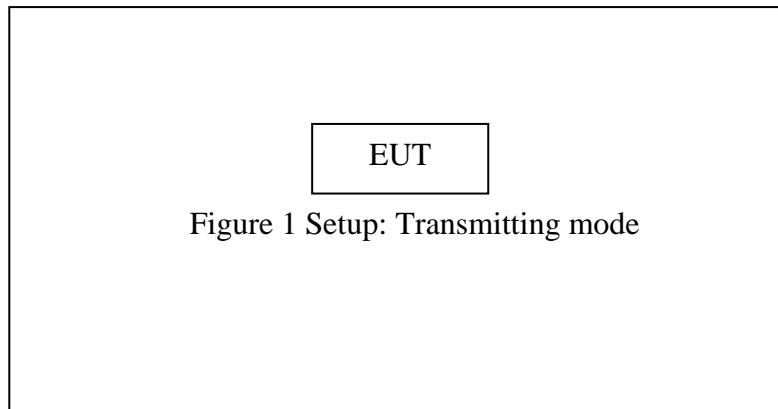
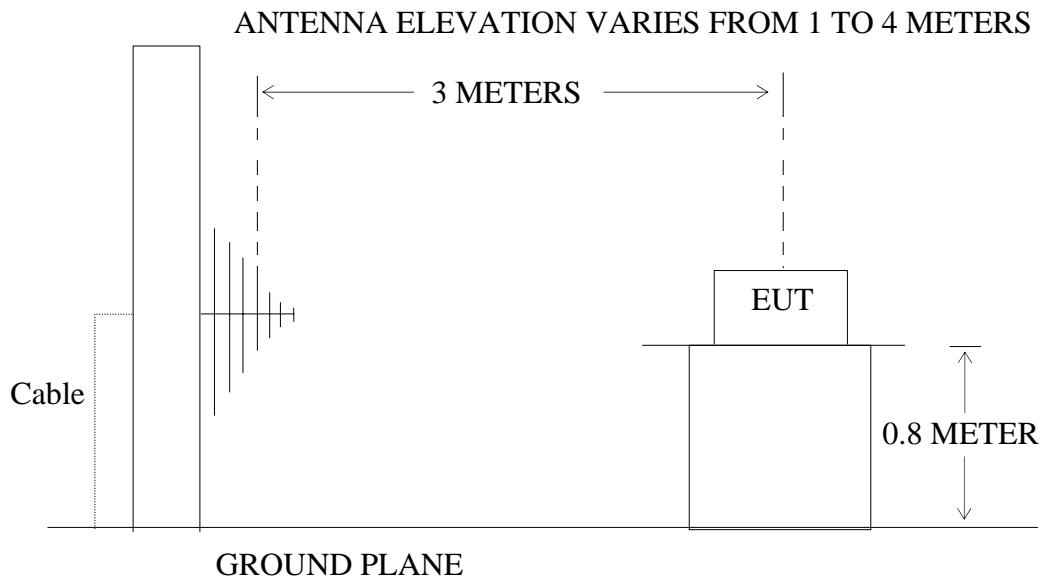


Figure 1 Setup: Transmitting mode

10.1.2.Semi-Anechoic Chamber Test Setup Diagram



10.2.The Limit For Section 15.247(d)

Section 15.247(d): 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 (b)(3) of this section, 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).

10.3. Restricted bands of operation

10.3.1. 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.

10.4. 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.

10.5.Operating Condition of EUT

10.5.1.Setup the EUT and simulator as shown as Section 10.1.

10.5.2.Turn on the power of all equipment.

10.5.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

10.6.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 worst-case data rate for this channel to be 1Mbps for 802.11b mode and 6Mbps for 802.11g mode and 150Mbps for 802.11n mode, based on previous with 802.11 WLAN product design architectures.

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

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

The final measurement in band 9-90kHz, 110-490kHz 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

10.7.The Field Strength of Radiation Emission Measurement Results

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

2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by Band Reject Filter in the attached plots.

4. The EUT is tested radiation emission at each test mode(802.11 b/g/n) in three axes. The worst emissions are reported in all test mode and channels.

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

Below 1G



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Job No.: STAR #3589

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 13/48/00

EUT: MID

Engineer Signature:

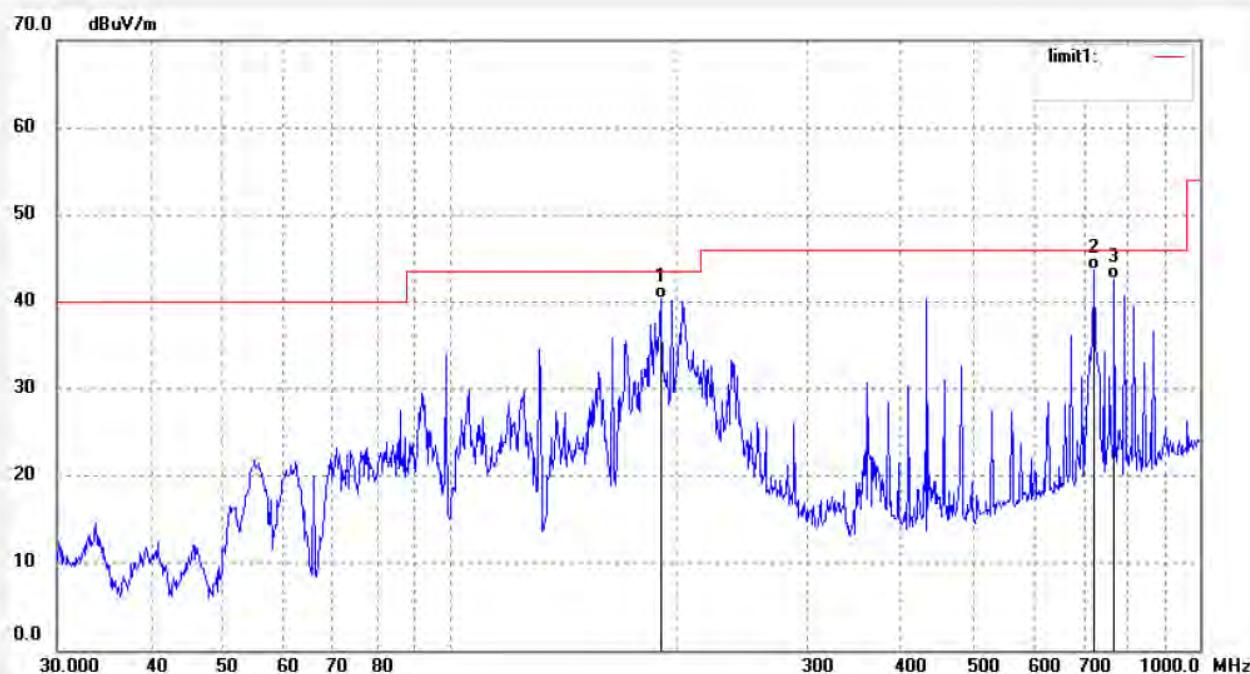
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	191.0738	61.19	-20.87	40.32	43.50	-3.18	QP			
2	721.7259	52.99	-9.28	43.71	46.00	-2.29	QP			
3	768.7481	50.88	-8.30	42.58	46.00	-3.42	QP			



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Job No.: STAR #3588

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 13/44/12

EUT: MID

Engineer Signature:

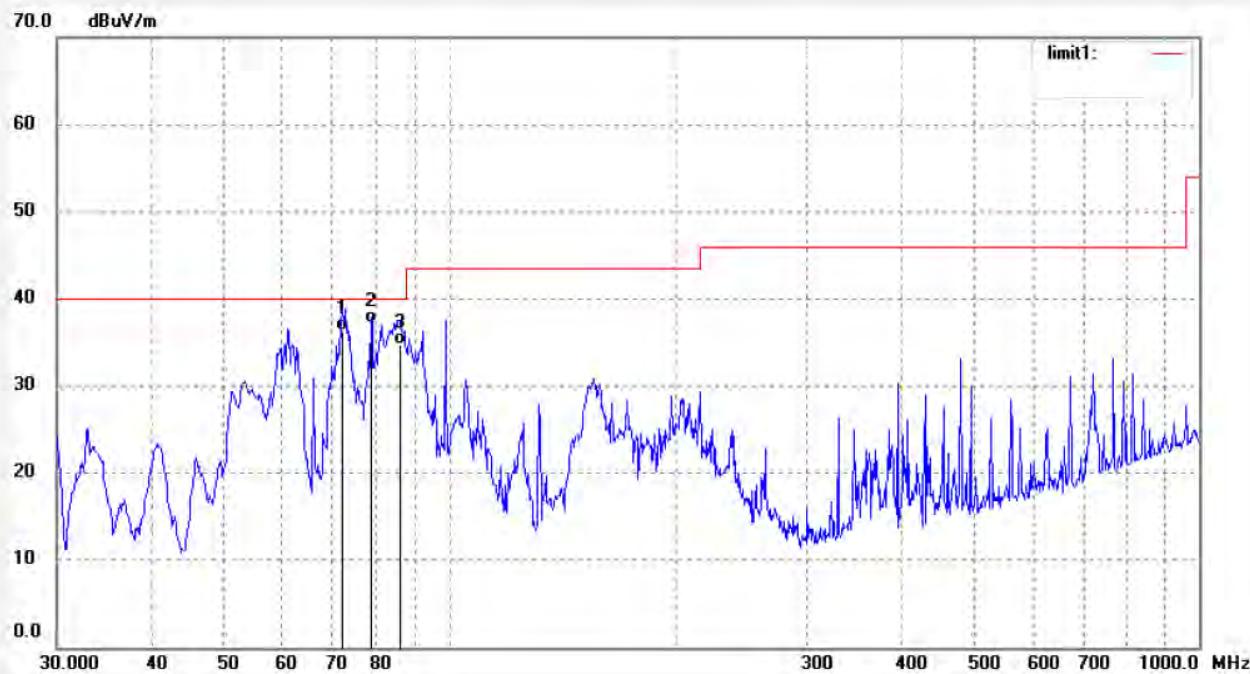
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.0843	57.81	-21.46	36.35	40.00	-3.65	QP			
2	78.6888	58.69	-21.44	37.25	40.00	-2.75	QP			
3	85.8984	56.30	-21.57	34.73	40.00	-5.27	QP			



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Job No.: STAR #3590

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 13/52/22

EUT: MID

Engineer Signature:

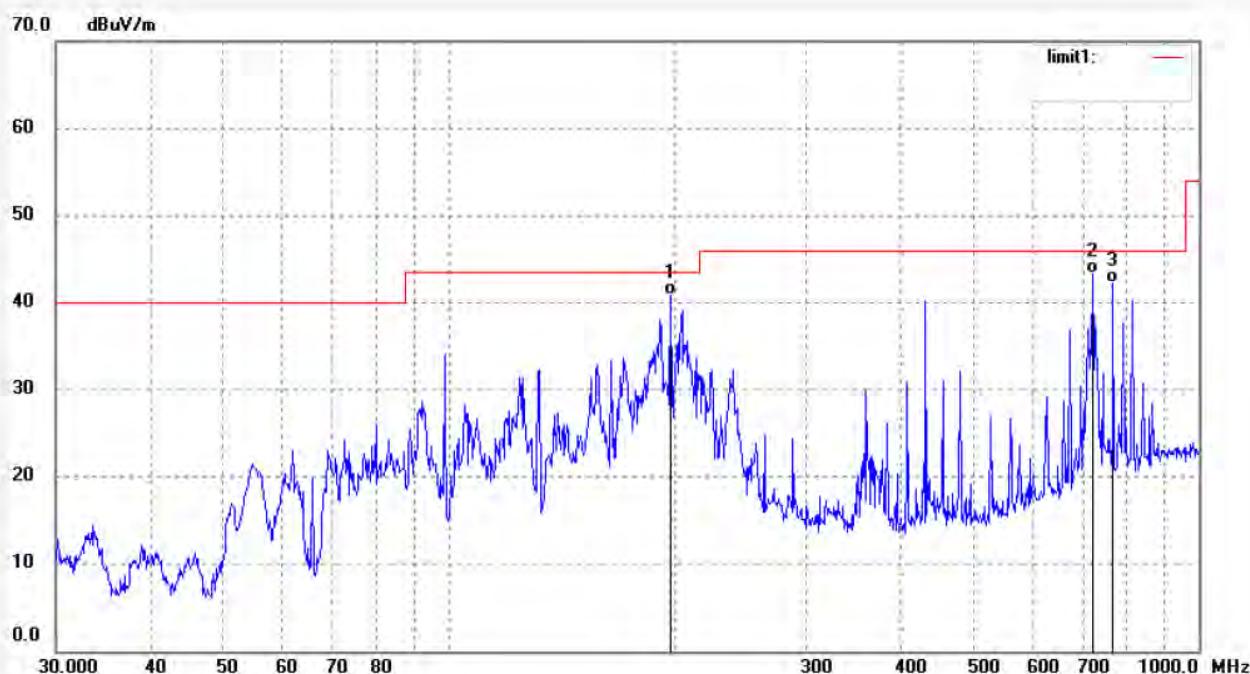
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8926	61.17	-20.35	40.82	43.50	-2.68	QP			
2	721.7259	52.62	-9.28	43.34	46.00	-2.66	QP			
3	768.7481	50.60	-8.30	42.30	46.00	-3.70	QP			



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Job No.: STAR #3591

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 13/56/02

EUT: MID

Engineer Signature:

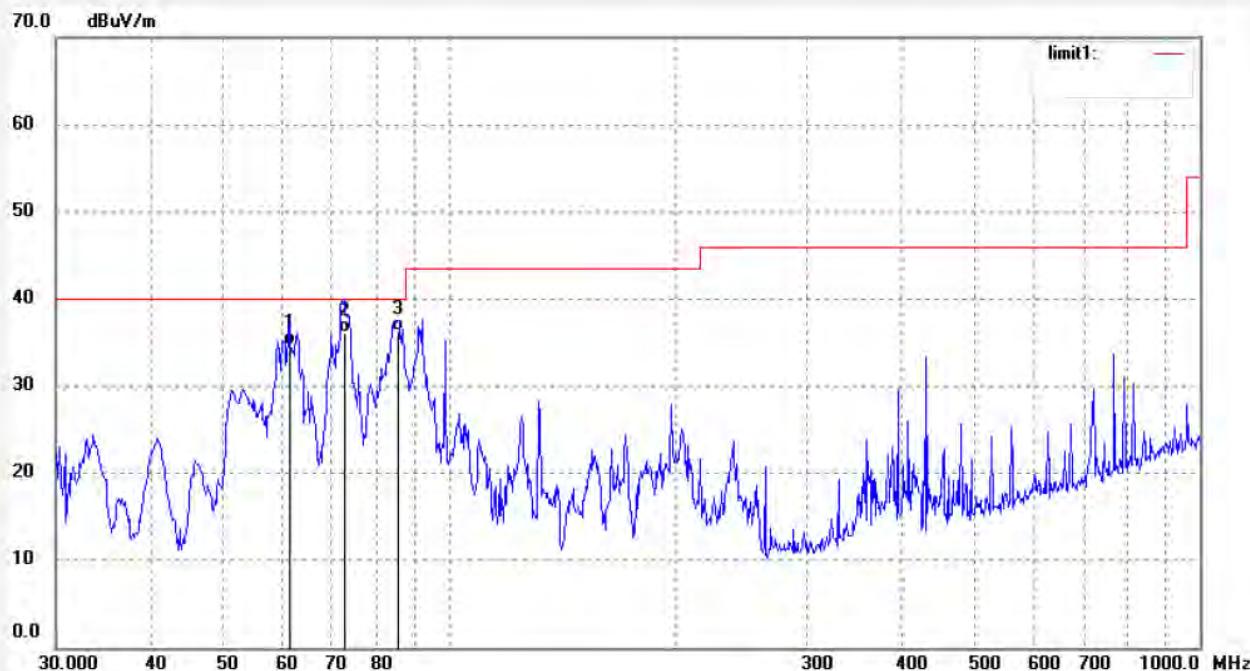
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	61.3462	55.82	-21.12	34.70	40.00	-5.30	QP			
2	72.5916	57.66	-21.50	36.16	40.00	-3.84	QP			
3	85.5977	57.90	-21.56	36.34	40.00	-3.66	QP			



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Job No.: STAR #3593

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/03/01

EUT: MID

Engineer Signature:

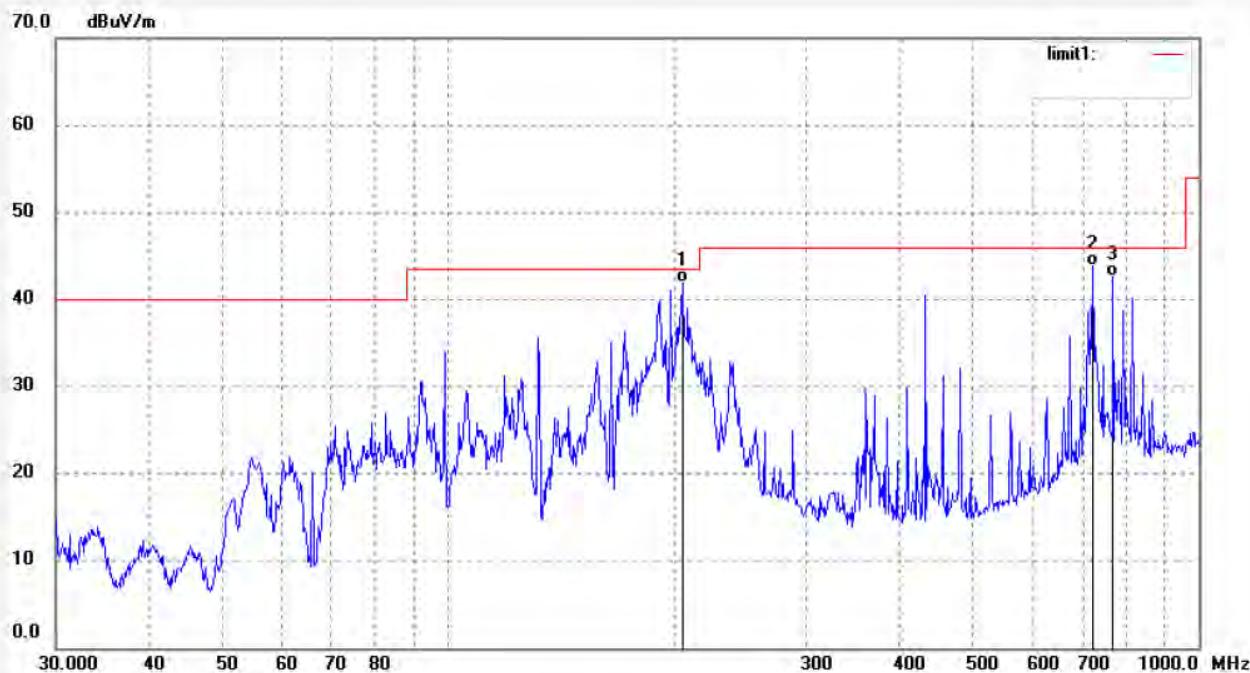
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	204.9550	61.92	-20.05	41.87	43.50	-1.63	QP			
2	721.7259	53.19	-9.28	43.91	46.00	-2.09	QP			
3	768.7481	50.90	-8.30	42.60	46.00	-3.40	QP			



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Job No.: STAR #3592

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/00/52

EUT: MID

Engineer Signature:

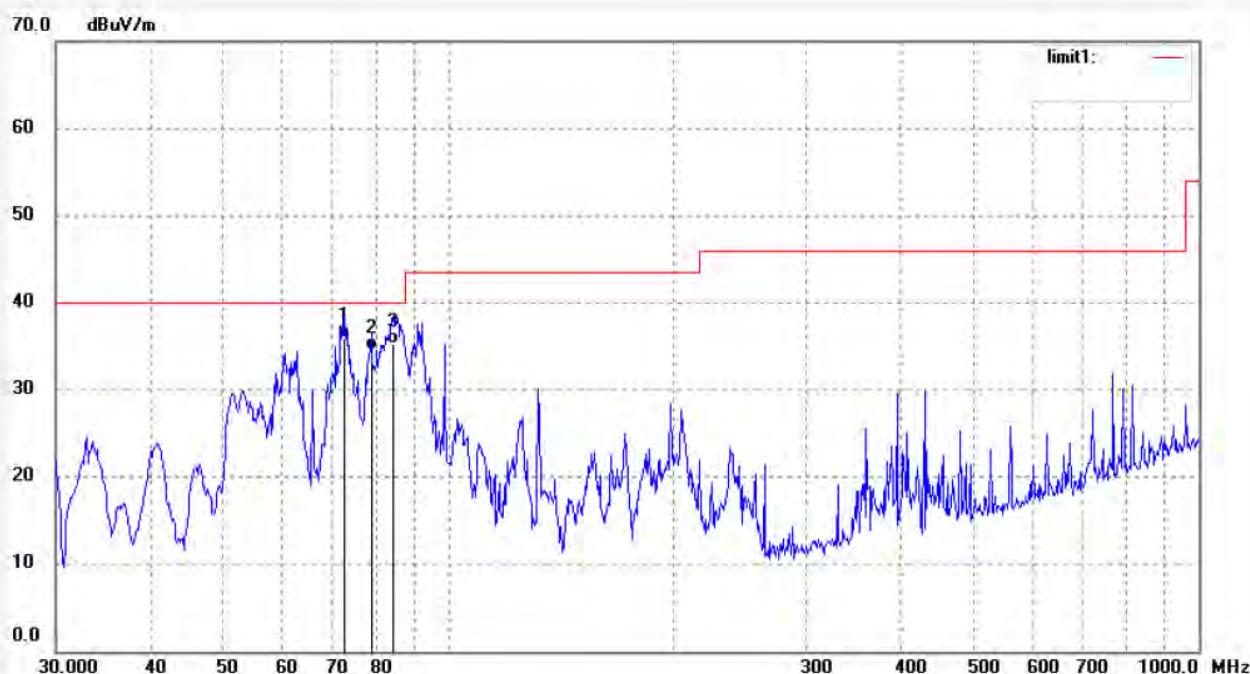
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.5916	57.39	-21.50	35.89	40.00	-4.11	QP			
2	78.9651	56.00	-21.43	34.57	40.00	-5.43	QP			
3	84.4054	56.80	-21.53	35.27	40.00	-4.73	QP			



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Job No.: STAR #3594

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/08/38

EUT: MID

Engineer Signature:

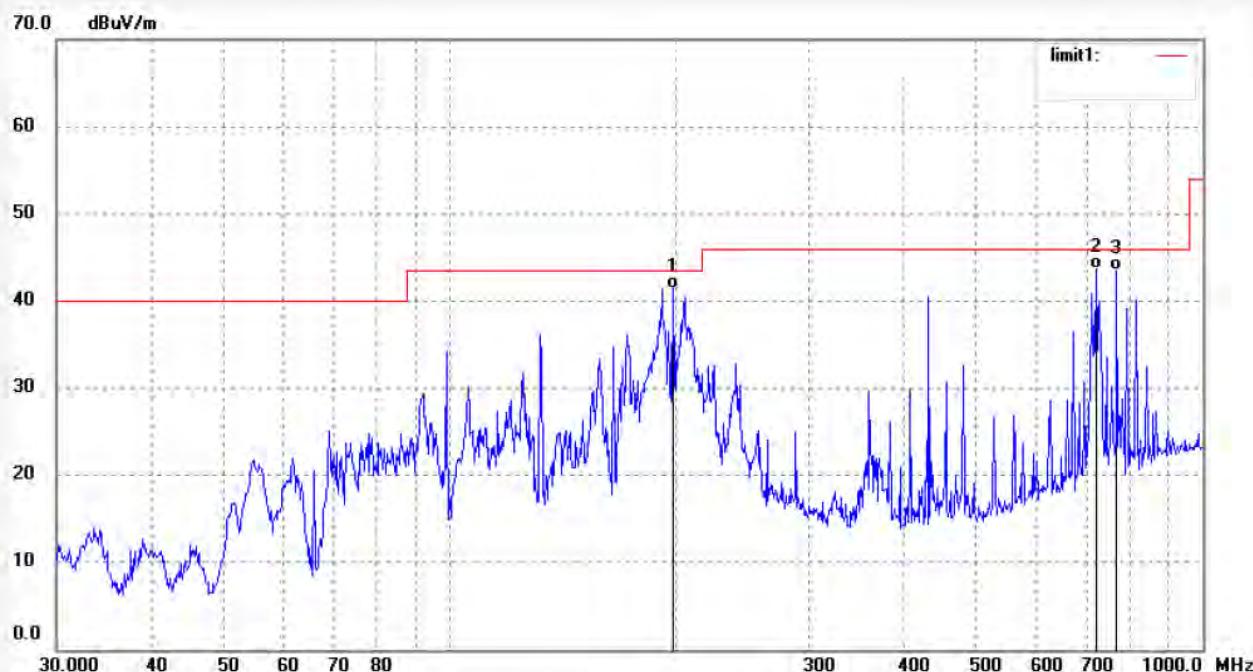
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8926	61.80	-20.35	41.45	43.50	-2.05	QP			
2	721.7259	52.93	-9.28	43.65	46.00	-2.35	QP			
3	768.7481	51.84	-8.30	43.54	46.00	-2.46	QP			



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Job No.: STAR #3595

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/11/21

EUT: MID

Engineer Signature:

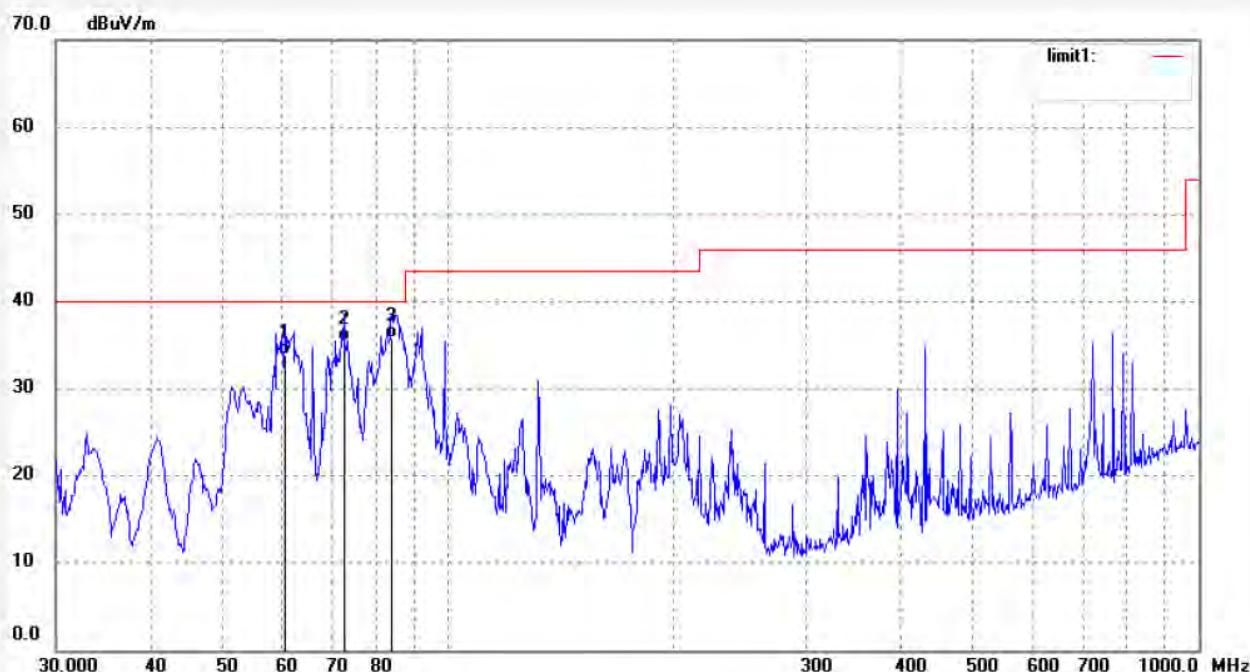
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	60.7044	55.00	-21.11	33.89	40.00	-6.11	QP			
2	72.5916	56.99	-21.50	35.49	40.00	-4.51	QP			
3	84.1100	57.25	-21.51	35.74	40.00	-4.26	QP			



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Job No.: STAR #3597

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/19/06

EUT: MID

Engineer Signature:

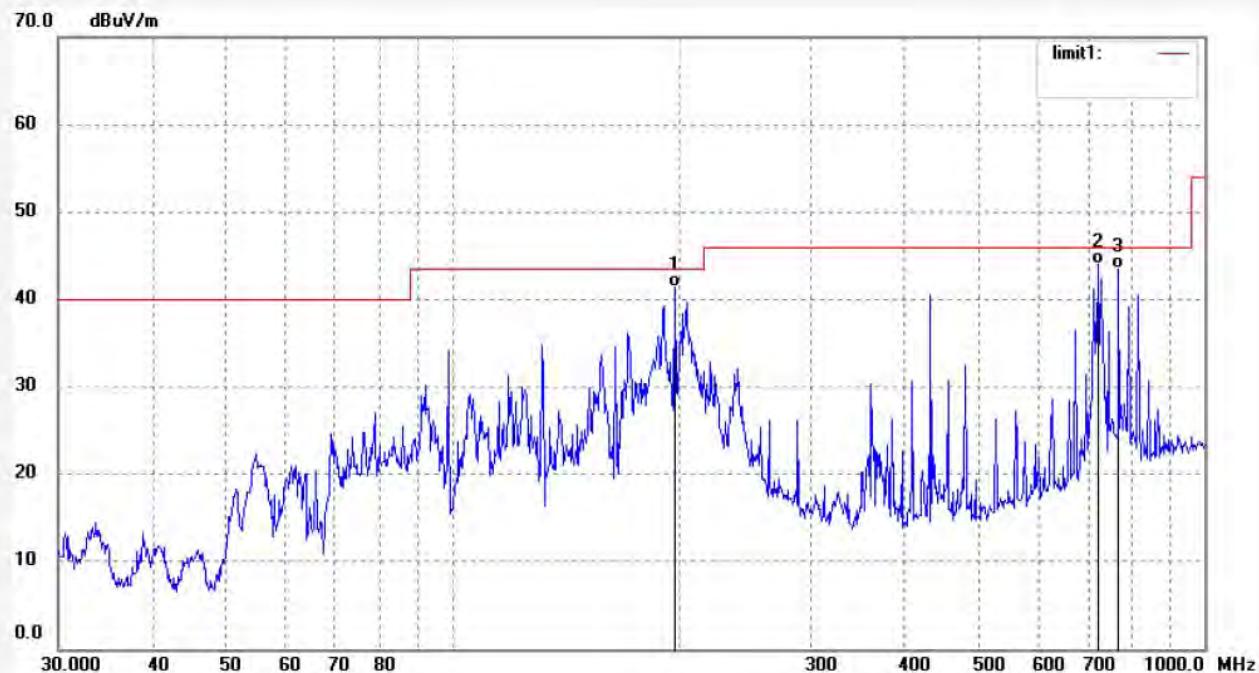
Mode: TX Channel 6(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8926	61.73	-20.35	41.38	43.50	-2.12	QP			
2	721.7259	53.36	-9.28	44.08	46.00	-1.92	QP			
3	768.7481	51.75	-8.30	43.45	46.00	-2.55	QP			



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Job No.: STAR #3596

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/14/12

EUT: MID

Engineer Signature:

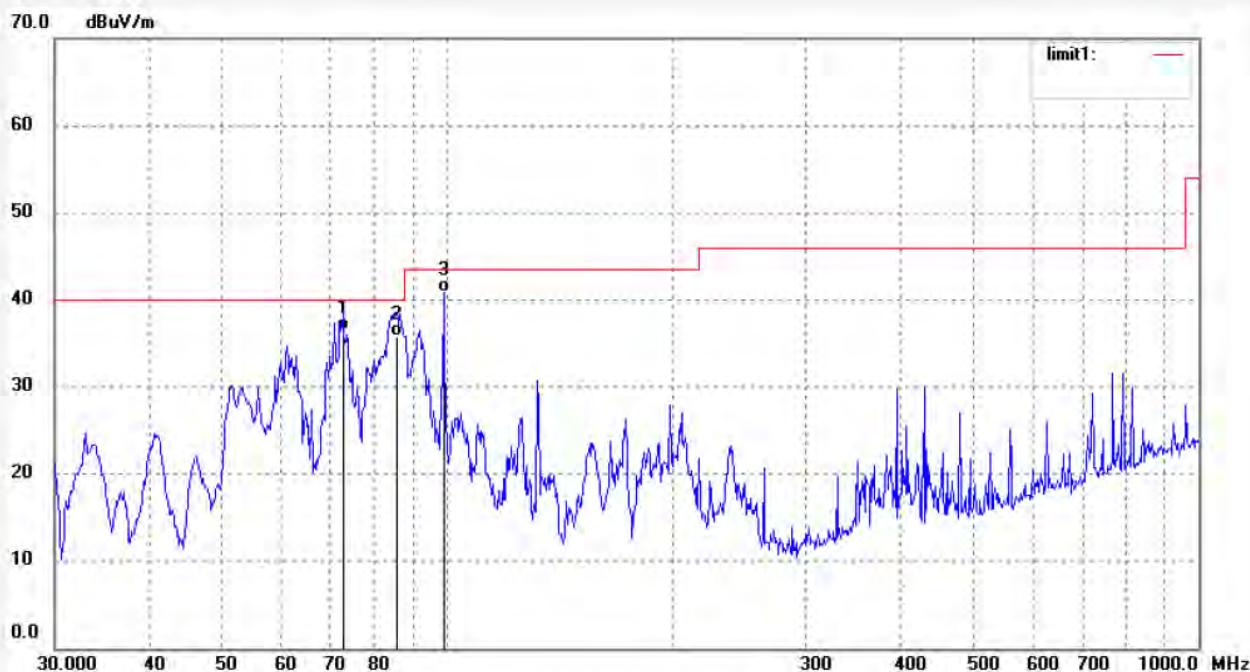
Mode: TX Channel 6(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.5916	57.91	-21.50	36.41	40.00	-3.59	QP			
2	85.5977	57.36	-21.56	35.80	40.00	-4.20	QP			
3	98.8324	63.27	-22.49	40.78	43.50	-2.72	QP			



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Job No.: STAR #3598

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31

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

Time: 14/22/43

EUT: MID

Engineer Signature:

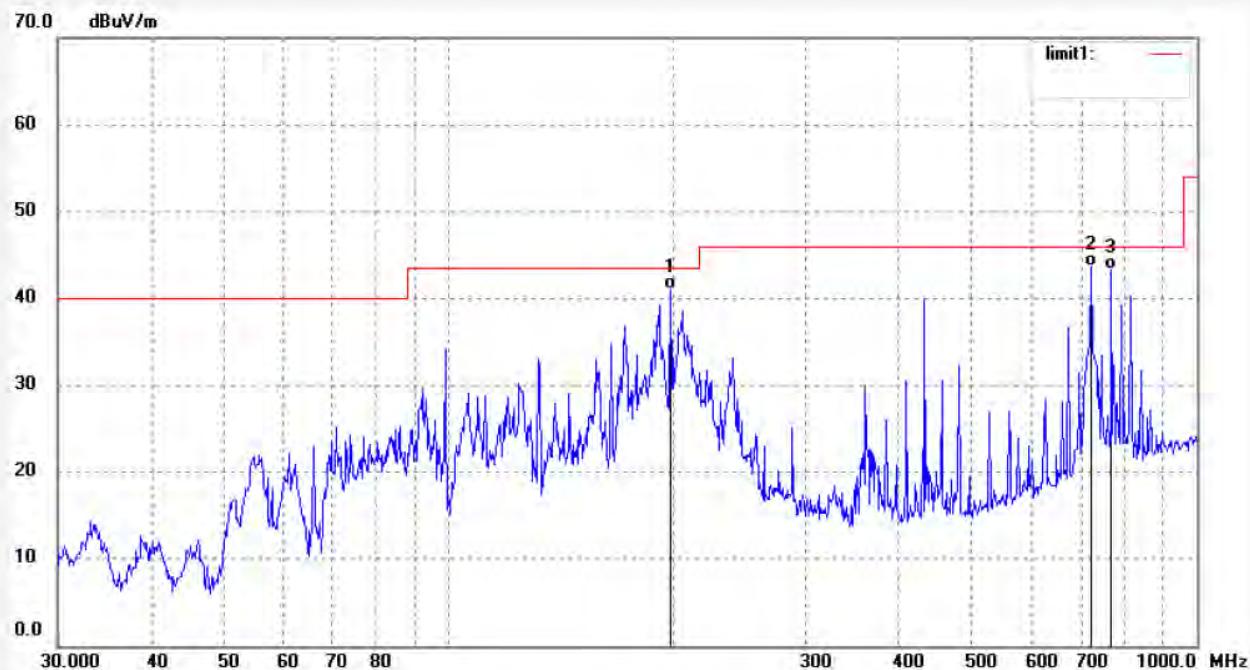
Mode: TX Channel 11(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8926	61.41	-20.35	41.06	43.50	-2.44	QP			
2	721.7259	52.89	-9.28	43.61	46.00	-2.39	QP			
3	768.7481	51.58	-8.30	43.28	46.00	-2.72	QP			

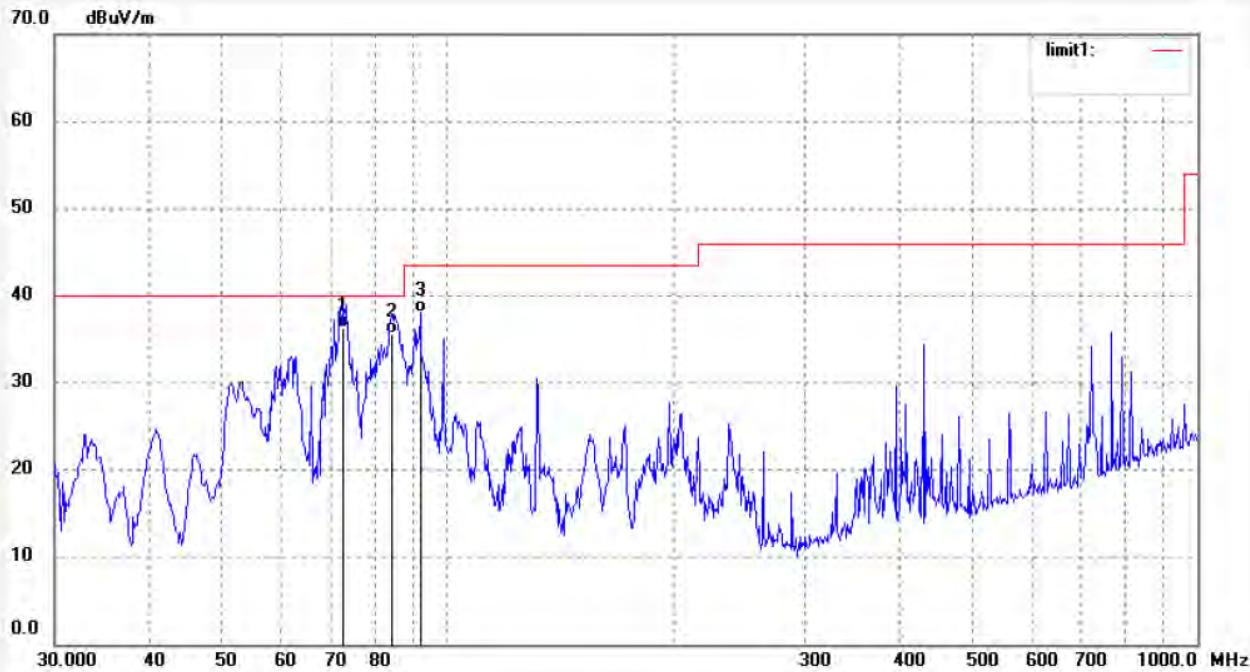


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Job No.:	STAR #3599	Polarization:	Vertical
Standard:	FCC Class B 3M Radiated	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	13/10/31/
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	14/26/19
EUT:	MID	Engineer Signature:	
Mode:	TX Channel 11(802.11g)	Distance:	3m
Model:	M7XX		
Manufacturer:	Sungworld		
Note:	Report No.:ATE20132325		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.8466	57.84	-21.50	36.34	40.00	-3.66	QP			
2	84.4054	57.20	-21.53	35.67	40.00	-4.33	QP			
3	92.1388	59.74	-21.76	37.98	43.50	-5.52	QP			



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Job No.: STAR #3601

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/34/22

EUT: MID

Engineer Signature:

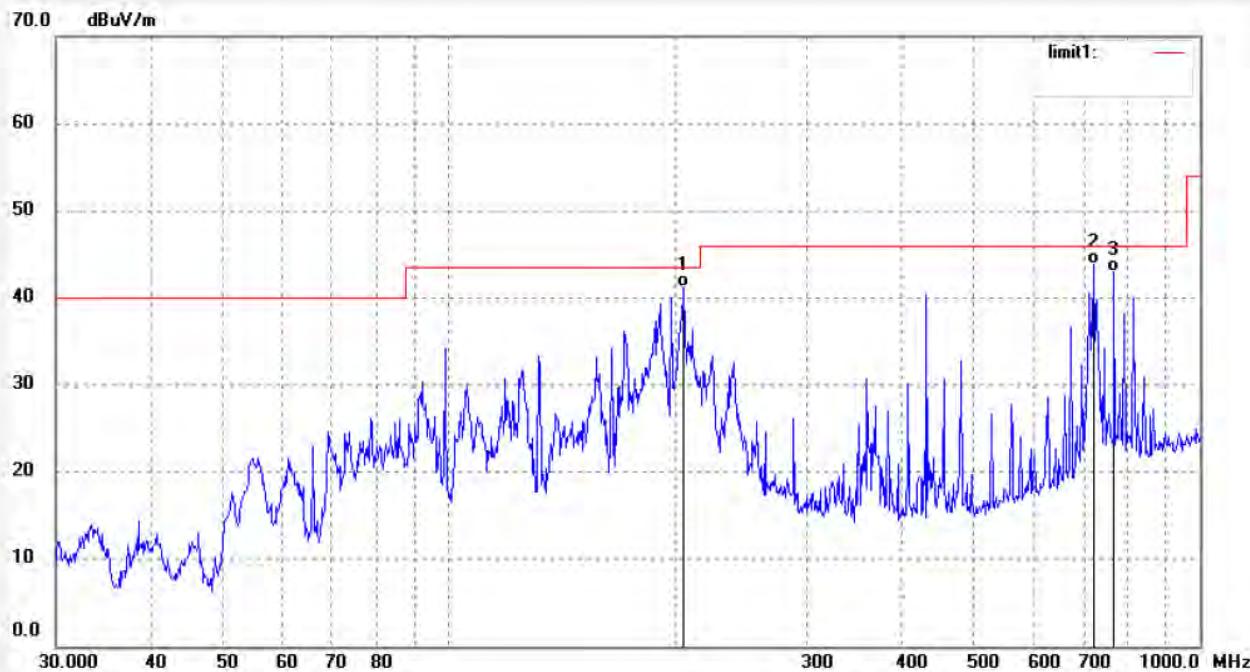
Mode: TX Channel 1(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	205.6750	61.31	-20.05	41.26	43.50	-2.24	QP			
2	721.7259	53.18	-9.28	43.90	46.00	-2.10	QP			
3	768.7481	51.28	-8.30	42.98	46.00	-3.02	QP			



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Job No.: STAR #3600

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/30/12

EUT: MID

Engineer Signature:

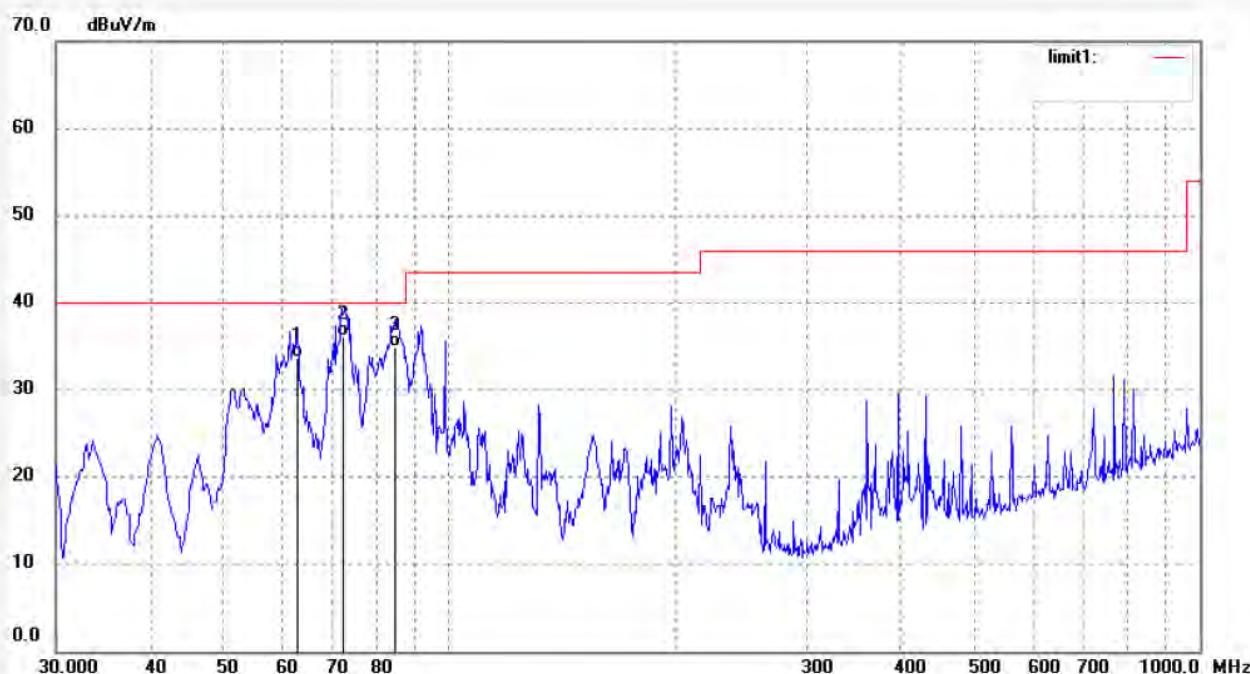
Mode: TX Channel 1(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	62.8708	54.90	-21.15	33.75	40.00	-6.25	QP			
2	72.3376	57.69	-21.48	36.21	40.00	-3.79	QP			
3	84.9995	56.48	-21.55	34.93	40.00	-5.07	QP			



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Job No.: STAR #3602

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31

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

Time: 14/38/55

EUT: MID

Engineer Signature:

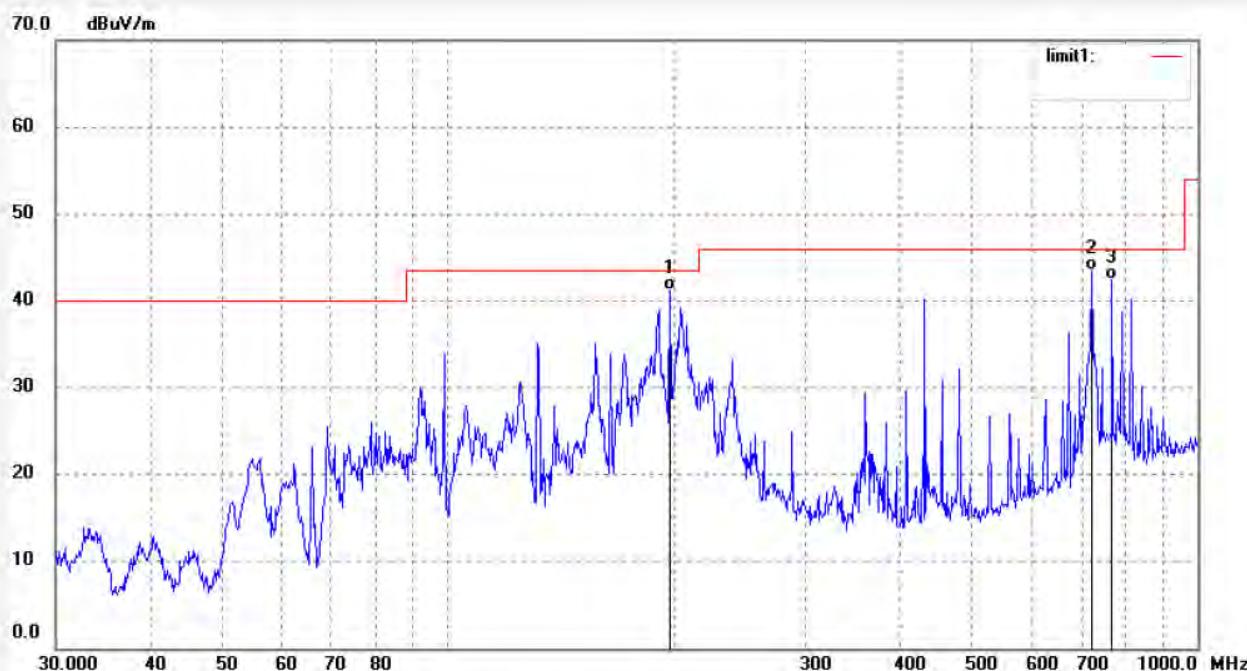
Mode: TX Channel 6(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8926	61.58	-20.35	41.23	43.50	-2.27	QP			
2	721.7259	52.85	-9.28	43.57	46.00	-2.43	QP			
3	768.7481	50.77	-8.30	42.47	46.00	-3.53	QP			



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Job No.: STAR #3603

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/42/36

EUT: MID

Engineer Signature:

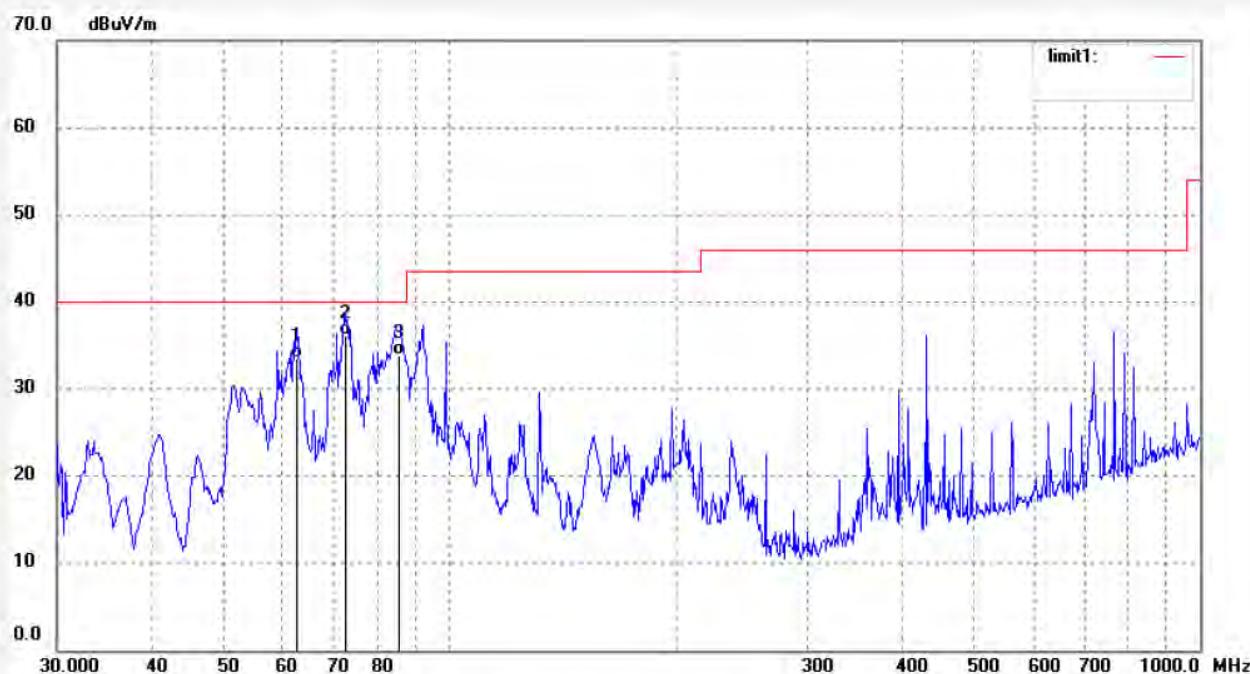
Mode: TX Channel 6(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	62.6507	54.68	-21.14	33.54	40.00	-6.46	QP			
2	72.5916	57.69	-21.50	36.19	40.00	-3.81	QP			
3	85.5977	55.36	-21.56	33.80	40.00	-6.20	QP			



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Job No.: STAR #3605

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31

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

Time: 14/50/06

EUT: MID

Engineer Signature:

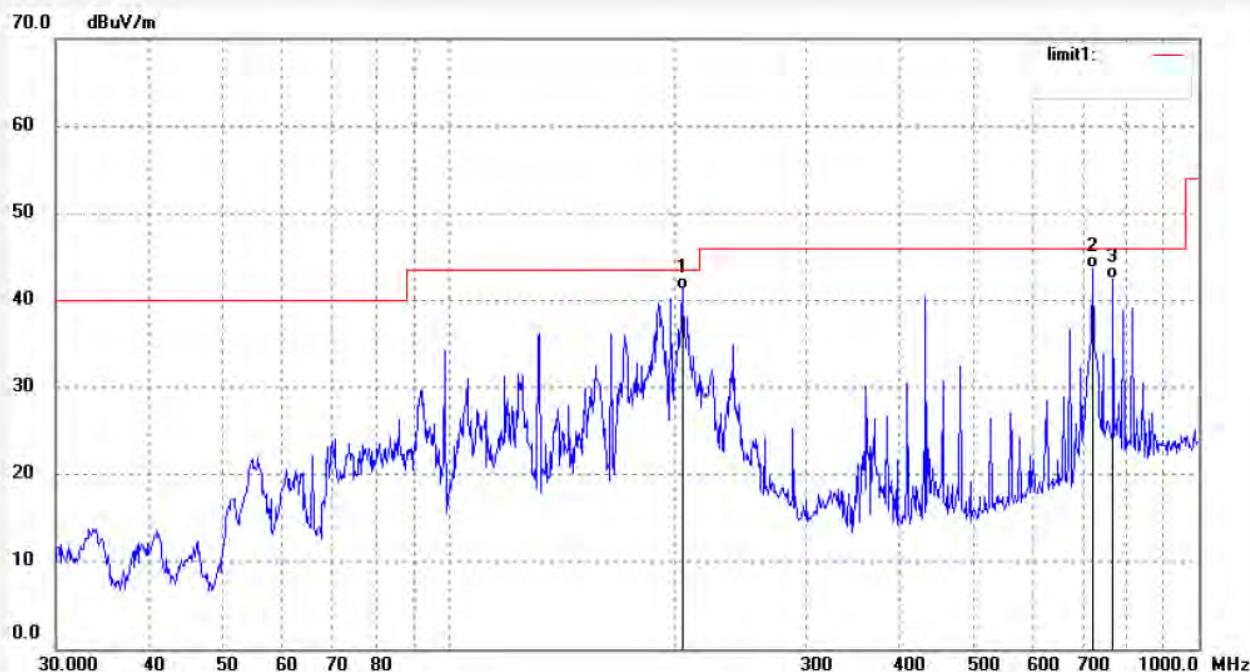
Mode: TX Channel 11(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	204.9551	61.28	-20.05	41.23	43.50	-2.27	QP			
2	721.7259	52.97	-9.28	43.69	46.00	-2.31	QP			
3	768.7481	50.68	-8.30	42.38	46.00	-3.62	QP			



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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: STAR #3604

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31

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

Time: 14/47/00

EUT: MID

Engineer Signature:

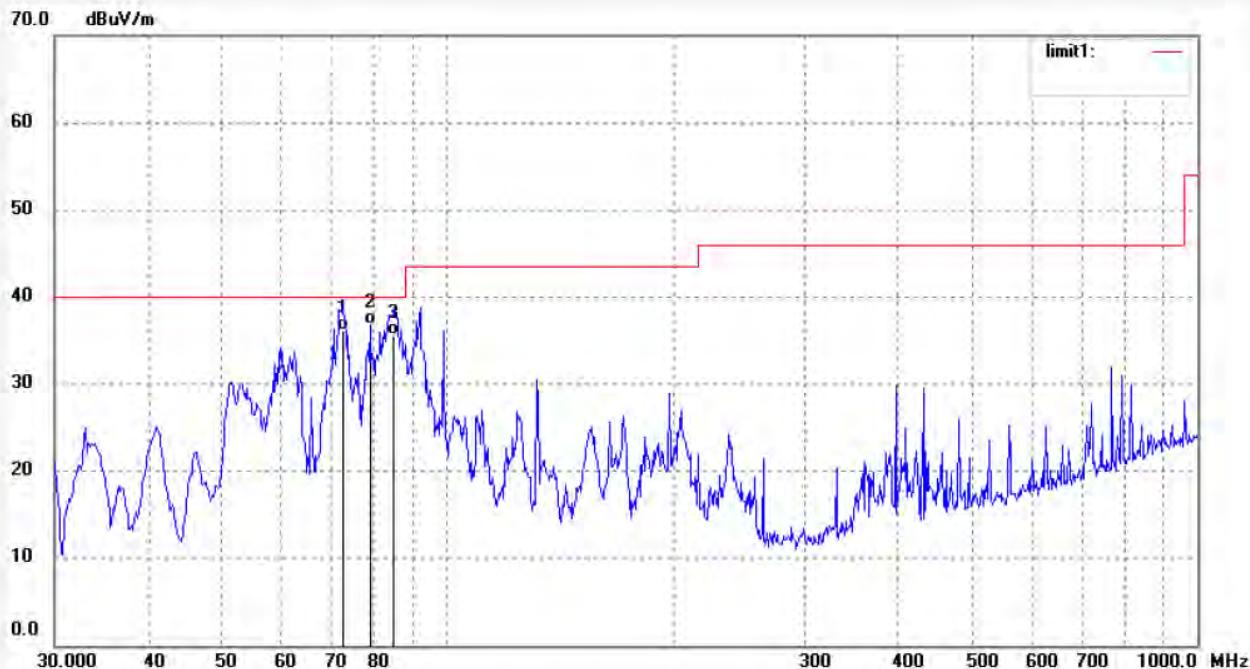
Mode: TX Channel 11(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.5916	57.62	-21.50	36.12	40.00	-3.88	QP			
2	78.9651	58.32	-21.43	36.89	40.00	-3.11	QP			
3	84.9993	57.20	-21.55	35.65	40.00	-4.35	QP			



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Fax:+86-0755-26503396

Job No.: STAR #3606

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/54/47

EUT: MID

Engineer Signature:

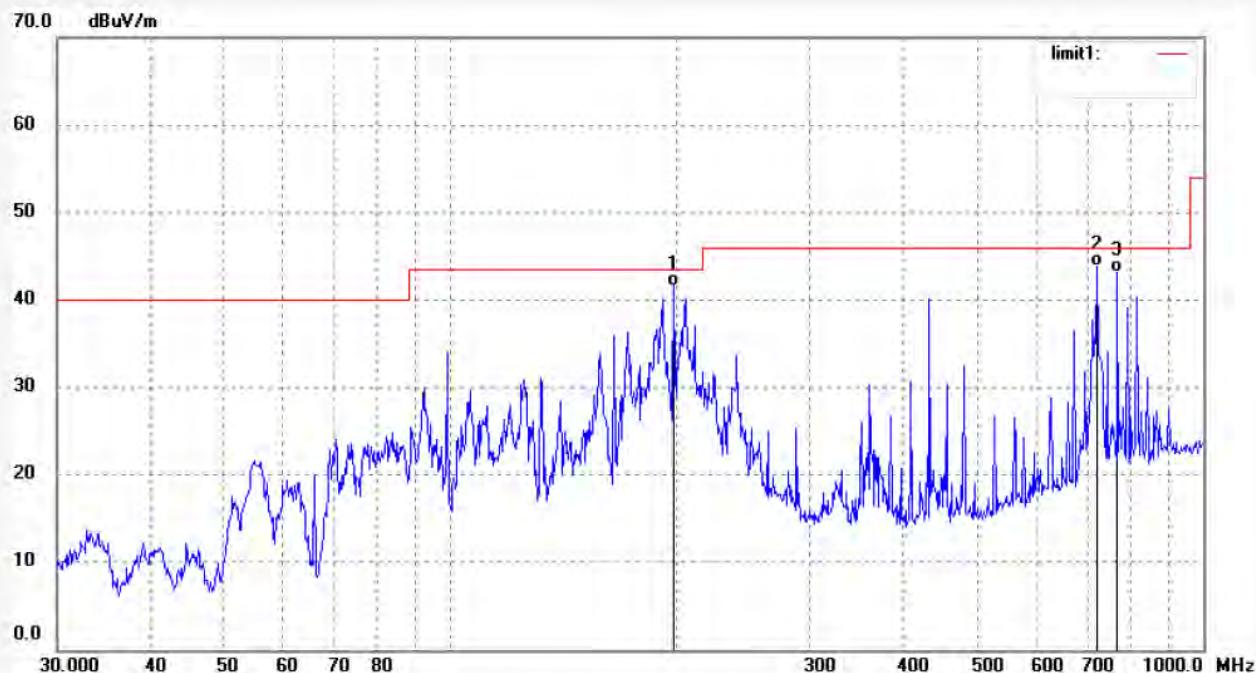
Mode: TX Channel 3(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8928	61.90	-20.35	41.55	43.50	-1.95	QP			
2	721.7259	53.05	-9.28	43.77	46.00	-2.23	QP			
3	768.7481	51.44	-8.30	43.14	46.00	-2.86	QP			



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Job No.: STAR #3607

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/59/32

EUT: MID

Engineer Signature:

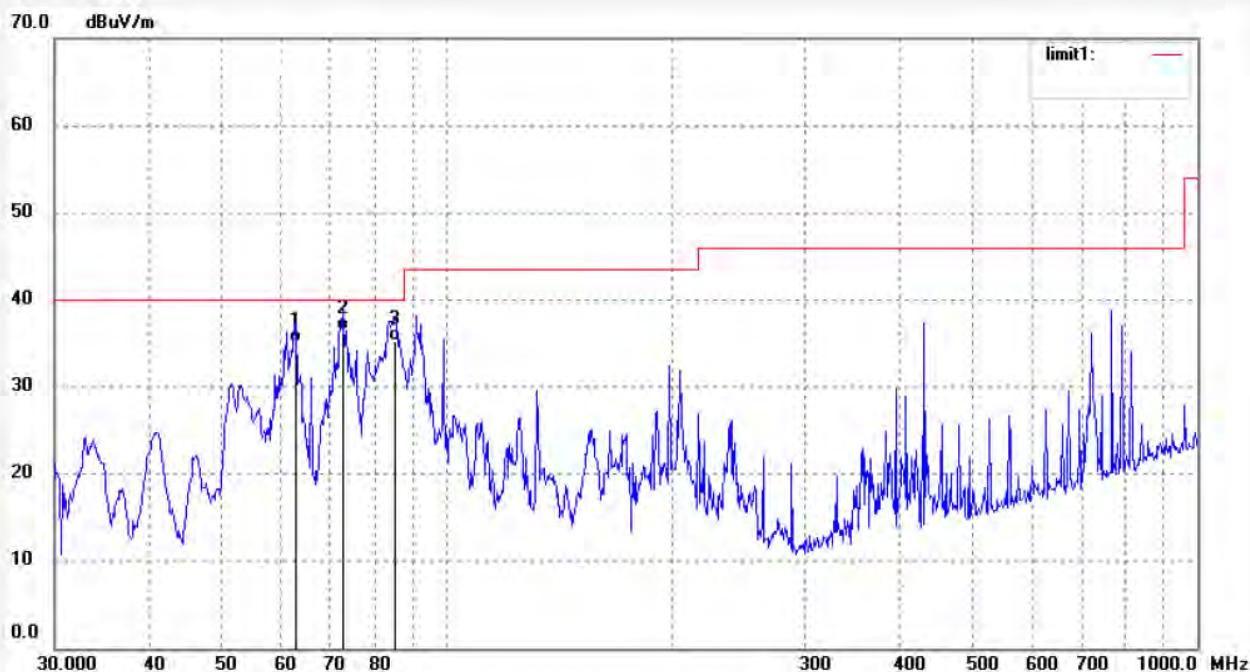
Mode: TX Channel 3(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	62.8708	56.30	-21.15	35.15	40.00	-4.85	QP			
2	72.5916	57.99	-21.50	36.49	40.00	-3.51	QP			
3	85.2980	56.80	-21.55	35.25	40.00	-4.75	QP			



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Fax:+86-0755-26503396

Job No.: STAR #3609

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 15/08/37

EUT: MID

Engineer Signature:

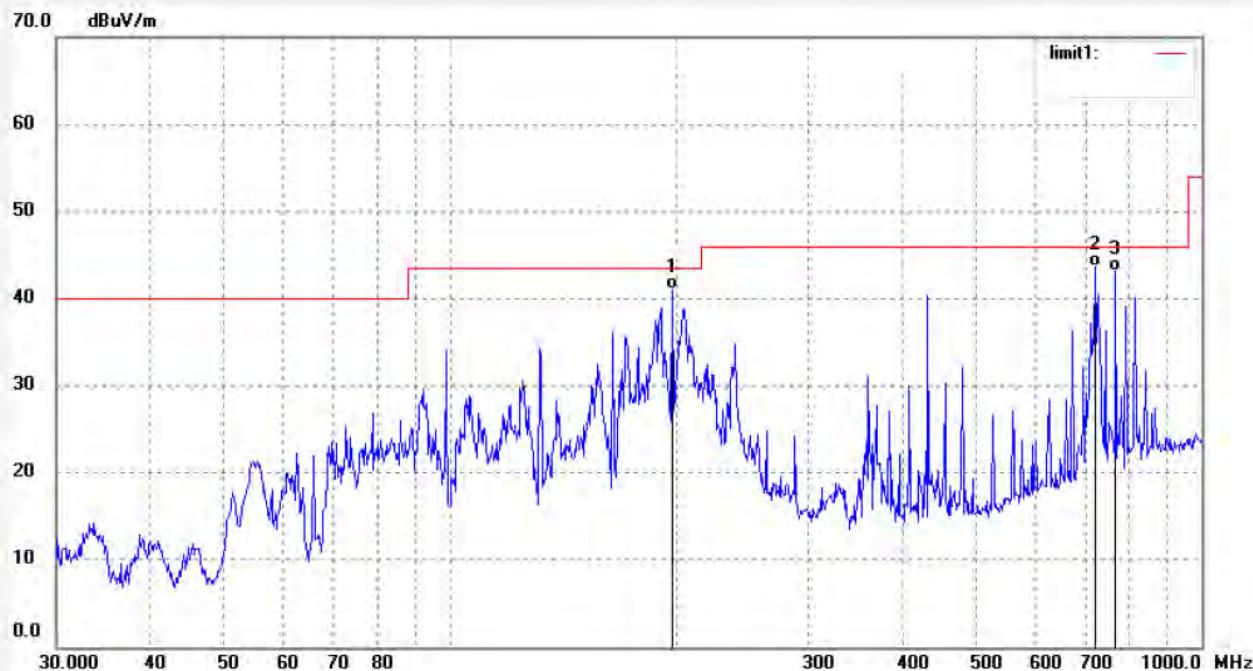
Mode: TX Channel 6(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8926	61.44	-20.35	41.09	43.50	-2.41	QP			
2	721.7259	53.00	-9.28	43.72	46.00	-2.28	QP			
3	768.7481	51.45	-8.30	43.15	46.00	-2.85	QP			



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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: STAR #3608

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 15/03/36

EUT: MID

Engineer Signature:

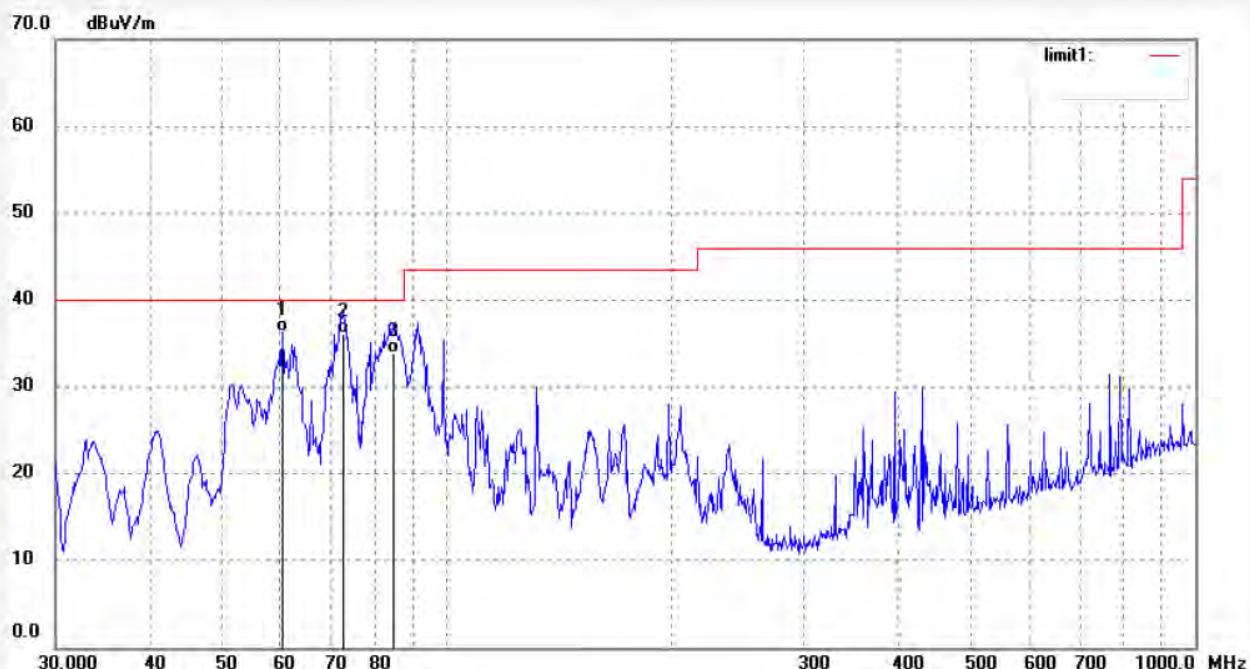
Mode: TX Channel 6(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	60.2801	57.48	-21.10	36.38	40.00	-3.62	QP			
2	72.5916	57.60	-21.50	36.10	40.00	-3.90	QP			
3	84.9995	55.34	-21.55	33.79	40.00	-6.21	QP			



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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: STAR #3610

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 15/12/10

EUT: MID

Engineer Signature:

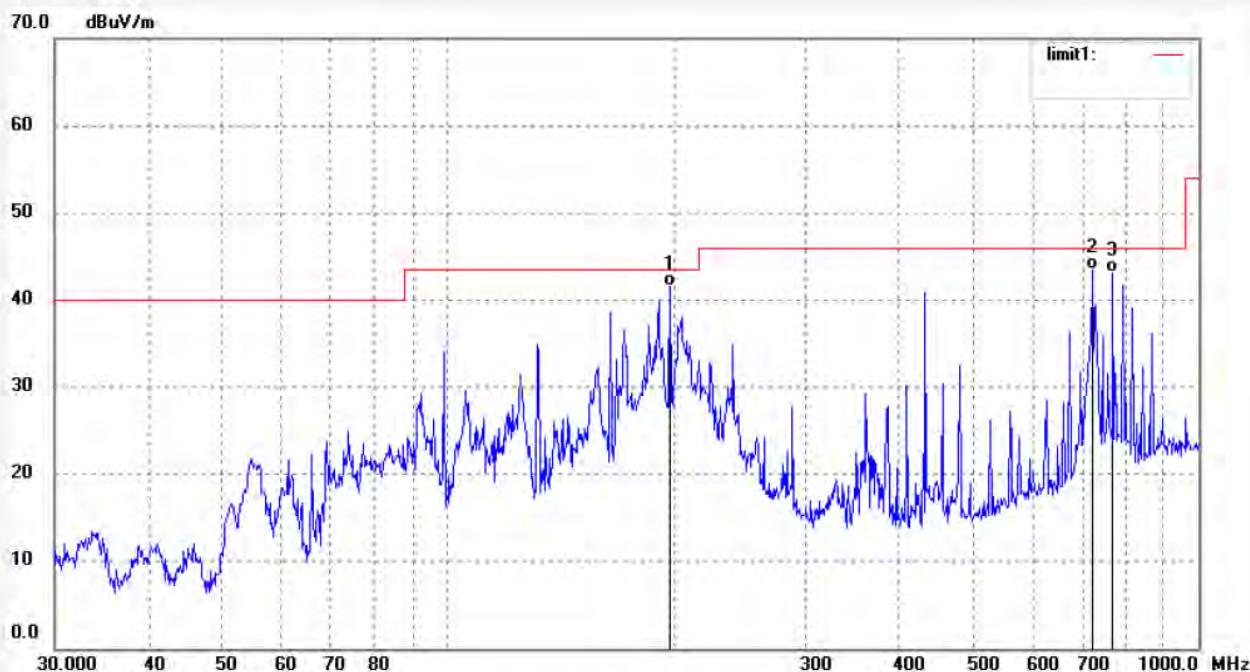
Mode: TX Channel 9(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.8928	61.87	-20.35	41.52	43.50	-1.98	QP			
2	721.7259	52.78	-9.28	43.50	46.00	-2.50	QP			
3	768.7481	51.42	-8.30	43.12	46.00	-2.88	QP			

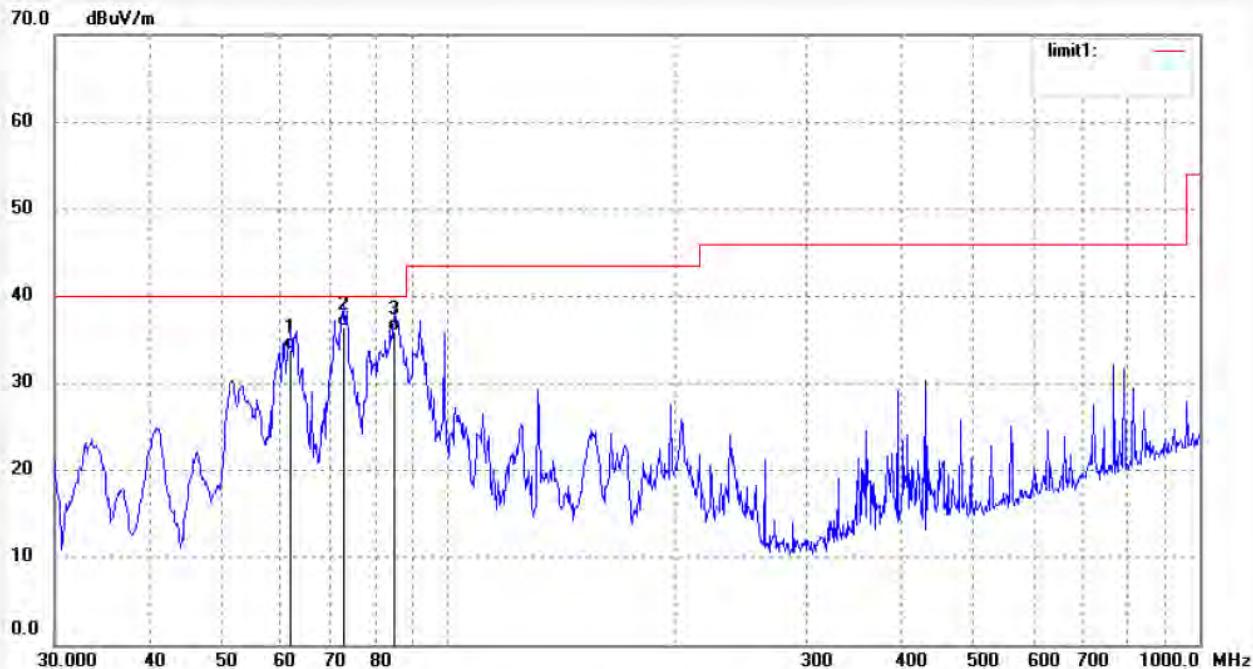


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Site: 1# Chamber
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Job No.:	STAR #3611	Polarization:	Vertical
Standard:	FCC Class B 3M Radiated	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	13/10/31/
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	15/16/42
EUT:	MID	Engineer Signature:	
Mode:	TX Channel 9(802.11n)40MHz	Distance:	3m
Model:	M7XX		
Manufacturer:	Sungworld		
Note:	Report No.:ATE20132325		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	61.7781	54.93	-21.12	33.81	40.00	-6.19	QP			
2	72.5916	57.91	-21.50	36.41	40.00	-3.59	QP			
3	84.7019	57.57	-21.54	36.03	40.00	-3.97	QP			

Above 1G



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Job No.: STAR #3613

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/23/10

EUT: MID

Engineer Signature:

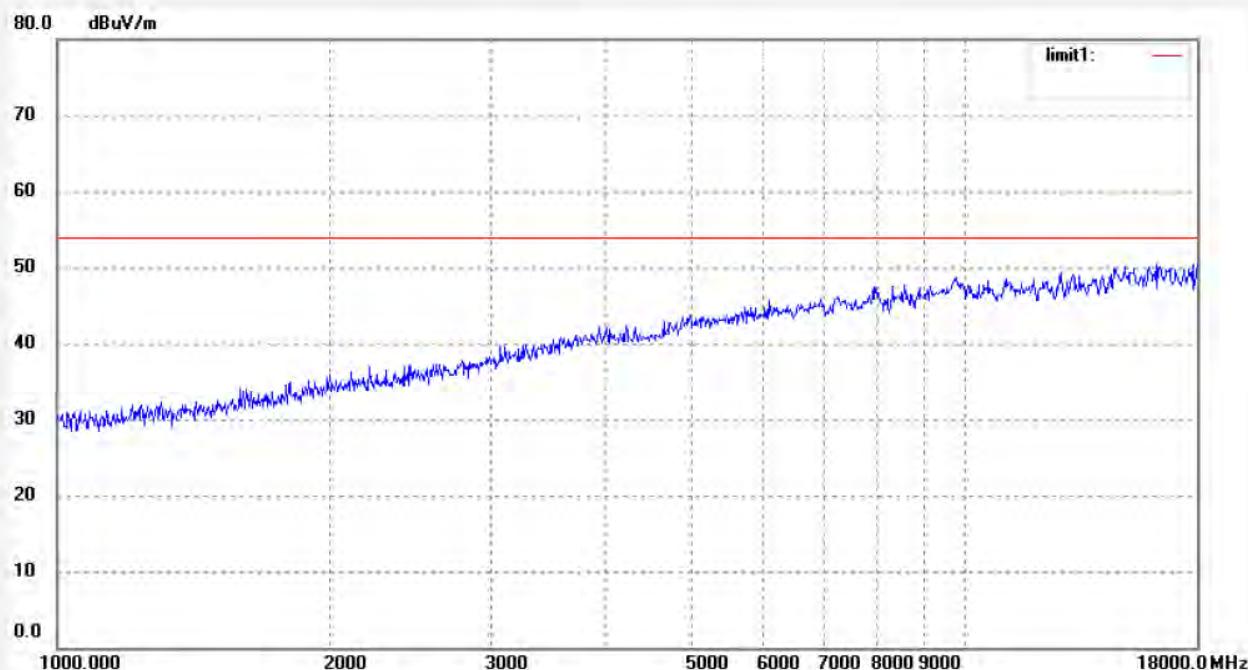
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
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Job No.: STAR #3612

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/10/31/

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

Time: 14/20/33

EUT: MID

Engineer Signature:

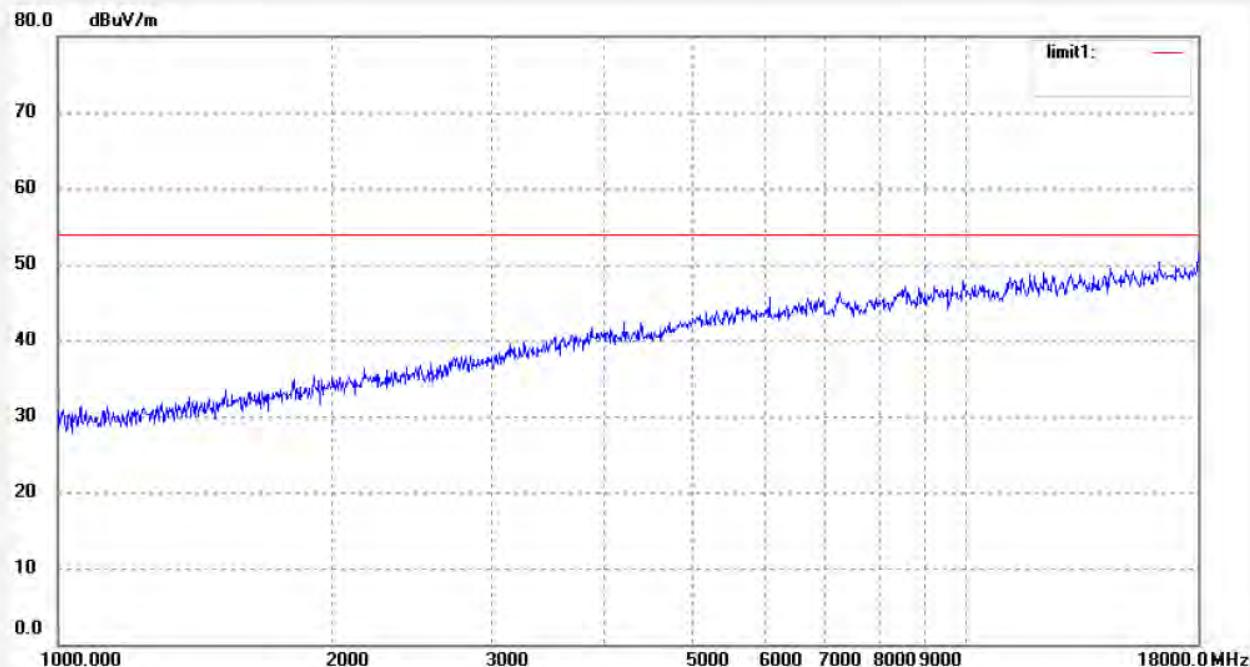
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: STAR #3614

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 8/48/07

EUT: MID

Engineer Signature:

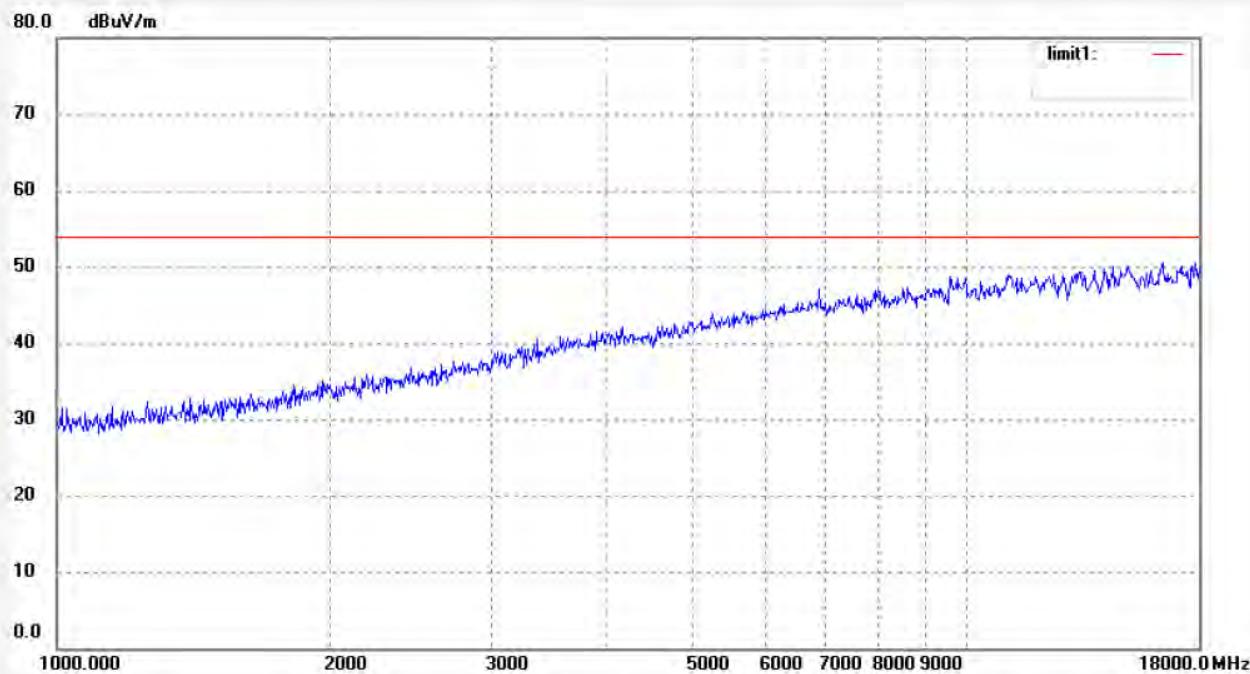
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR #3615

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 8/52/32

EUT: MID

Engineer Signature:

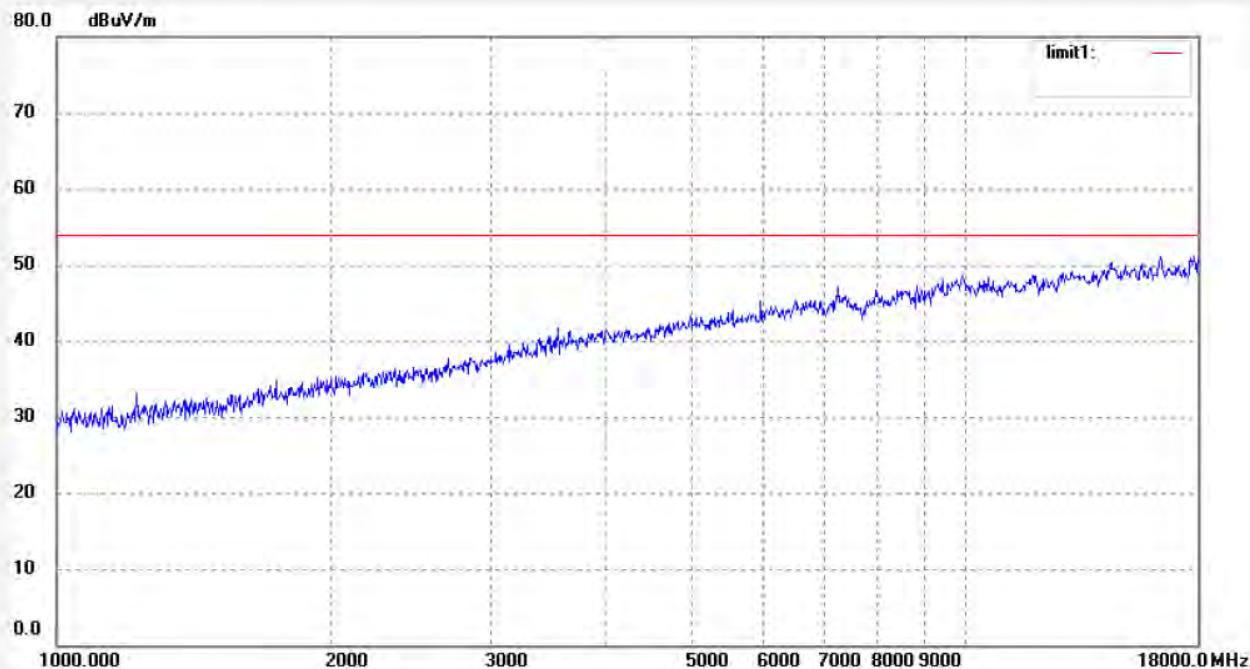
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Fax:+86-0755-26503396

Job No.: STAR #3617

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 8/59/36

EUT: MID

Engineer Signature:

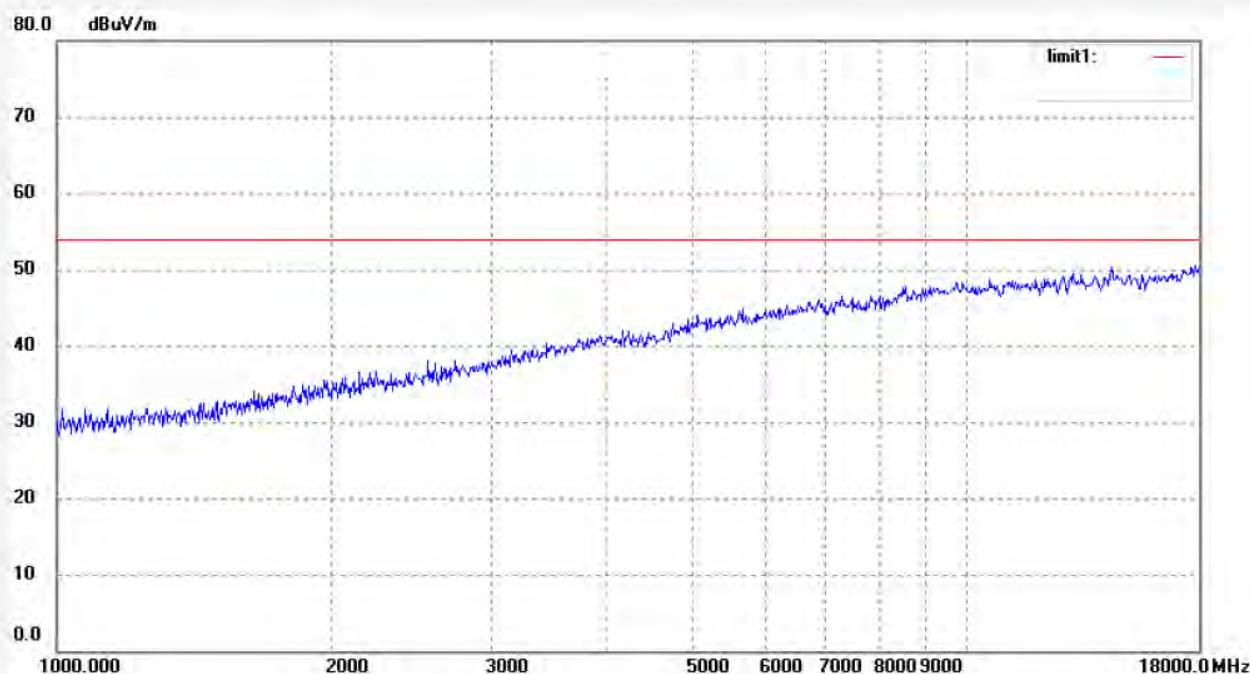
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------

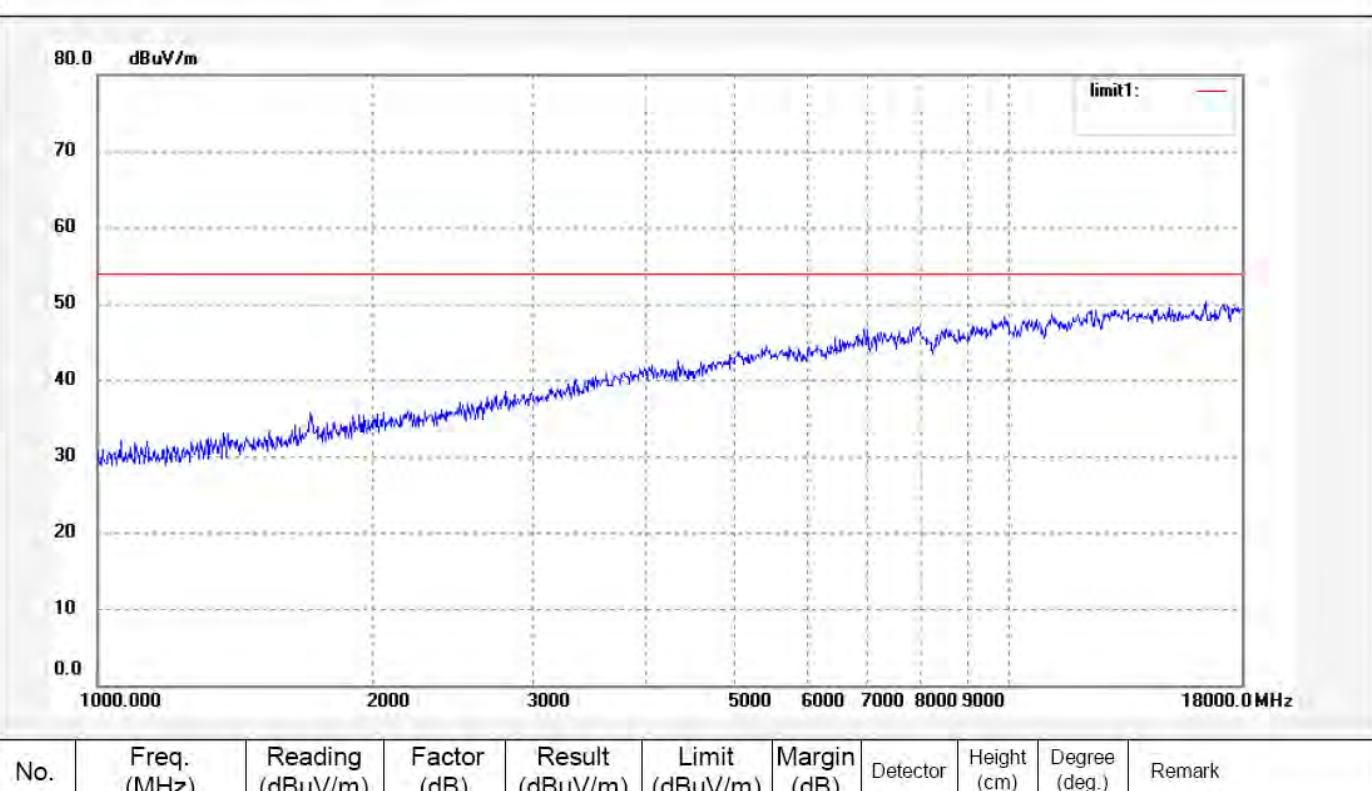


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Fax:+86-0755-26503396

Job No.:	STAR #3616	Polarization:	Vertical
Standard:	FCC Class B 3M Radiated	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	13/11/01/
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	8/55/06
EUT:	MID	Engineer Signature:	
Mode:	TX Channel 11(802.11b)	Distance:	3m
Model:	M7XX		
Manufacturer:	Sungworld		
Note:	Report No.:ATE20132325		





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Job No.: STAR #3618

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/04/03

EUT: MID

Engineer Signature:

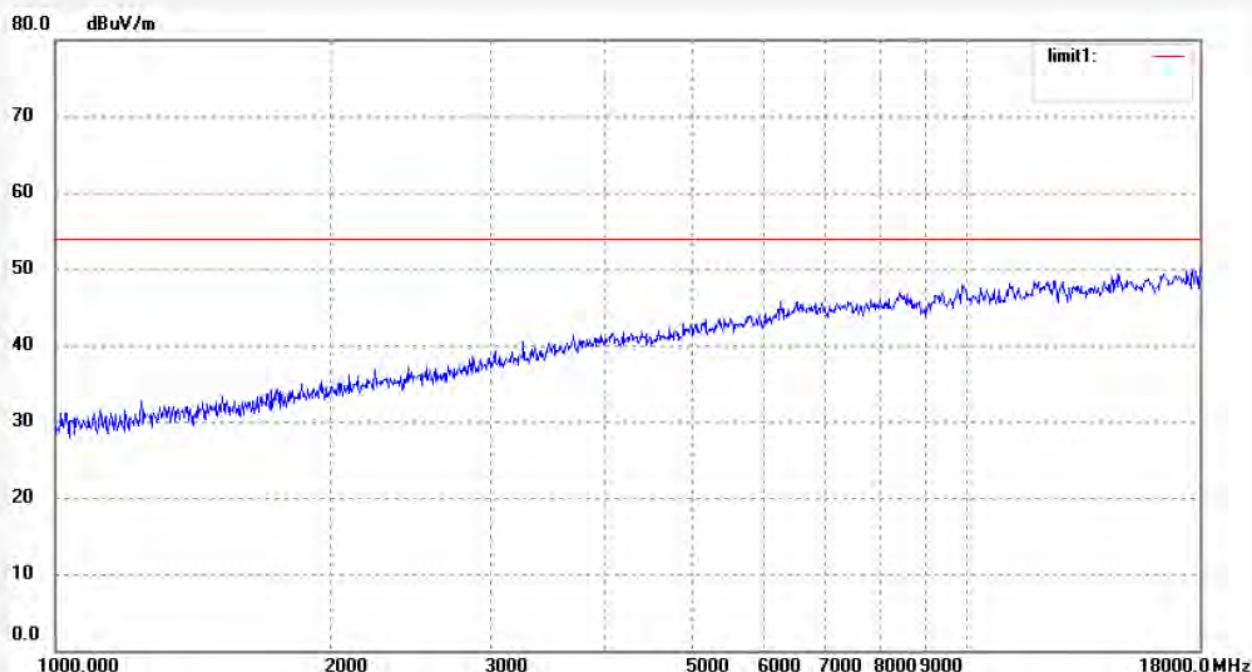
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: STAR #3619

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/08/31

EUT: MID

Engineer Signature:

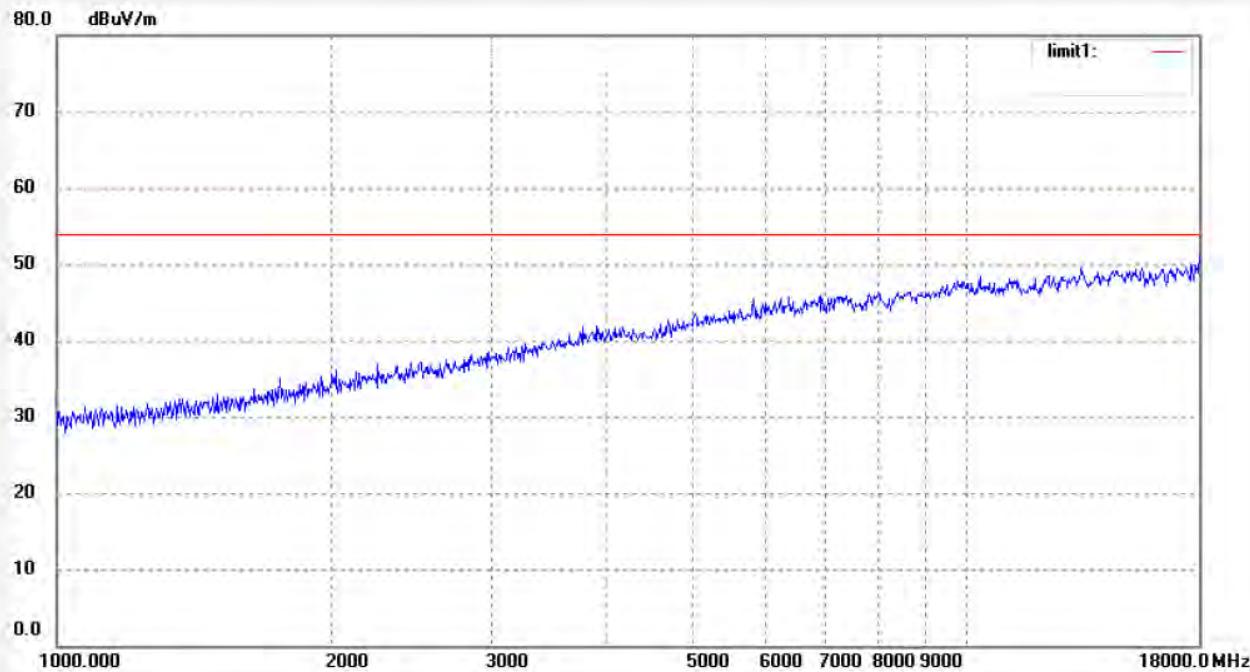
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: STAR #3621

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/15/44

EUT: MID

Engineer Signature:

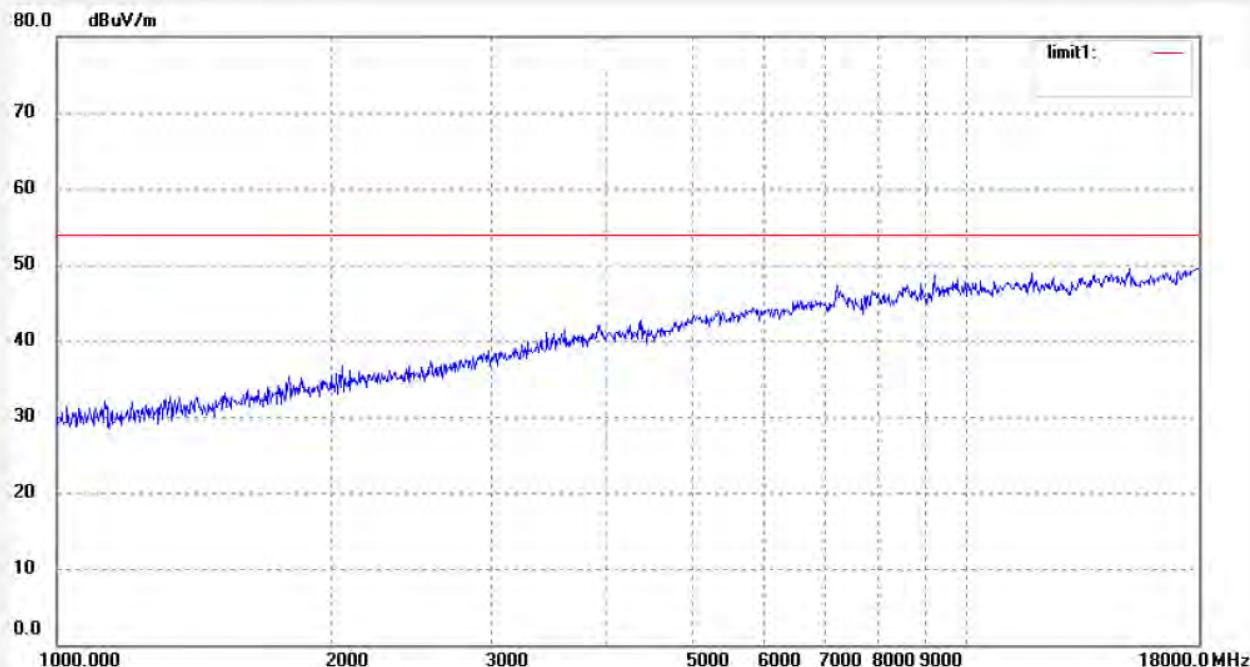
Mode: TX Channel 6(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------



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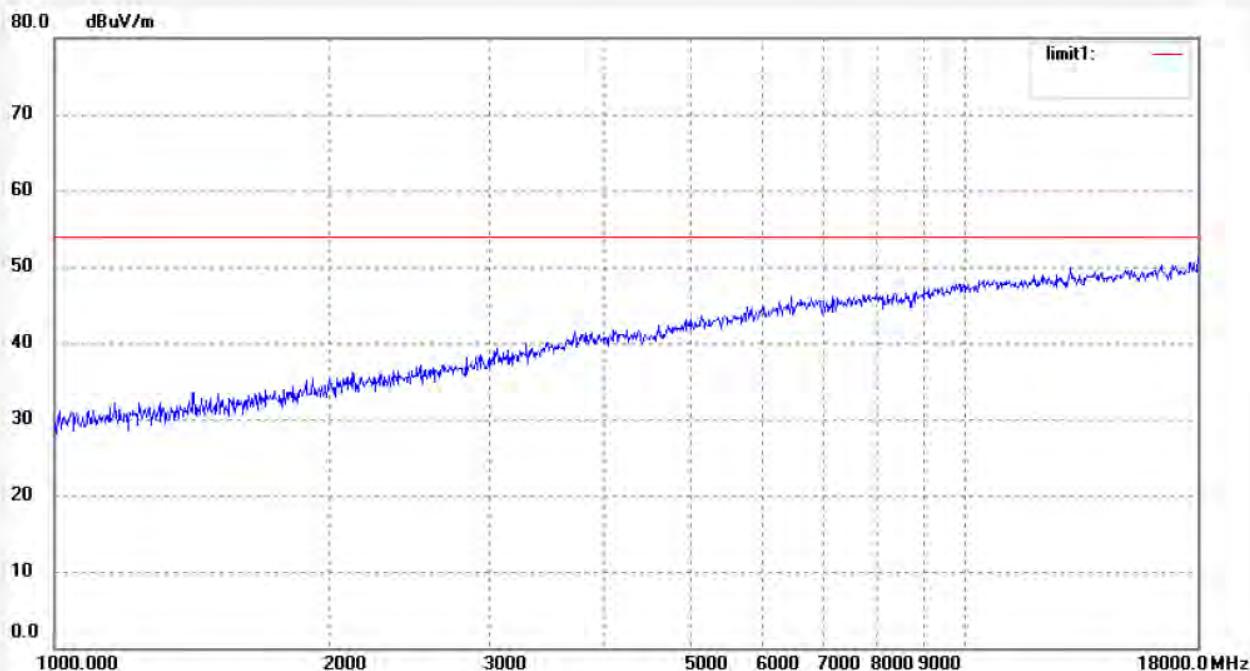
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3620
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: MID
Mode: TX Channel 6(802.11g)
Model: M7XX
Manufacturer: Sungworld

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 13/11/01/
Time: 9/11/05
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------

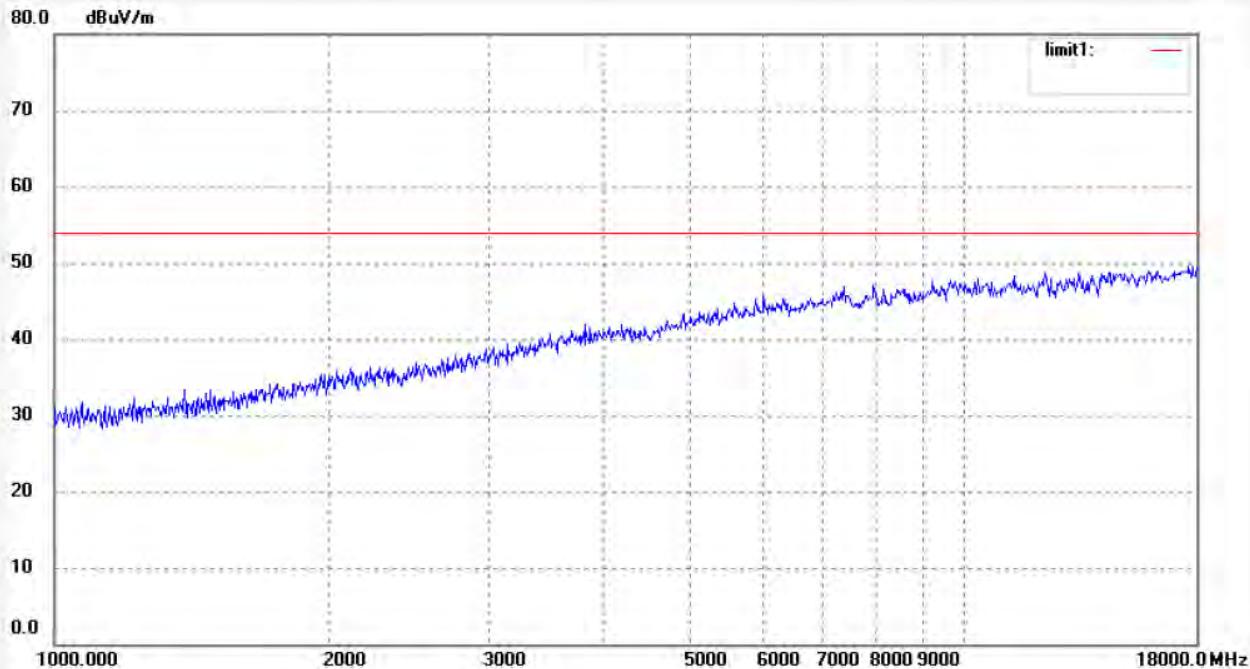


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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.:	STAR #3622	Polarization:	Horizontal
Standard:	FCC Class B 3M Radiated	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	13/11/01/
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	9/18/17
EUT:	MID	Engineer Signature:	
Mode:	TX Channel 11(802.11g)	Distance:	3m
Model:	M7XX		
Manufacturer:	Sungworld		
Note:	Report No.:ATE20132325		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark



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Fax:+86-0755-26503396

Job No.: STAR #3623

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01

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

Time: 9/22/46

EUT: MID

Engineer Signature:

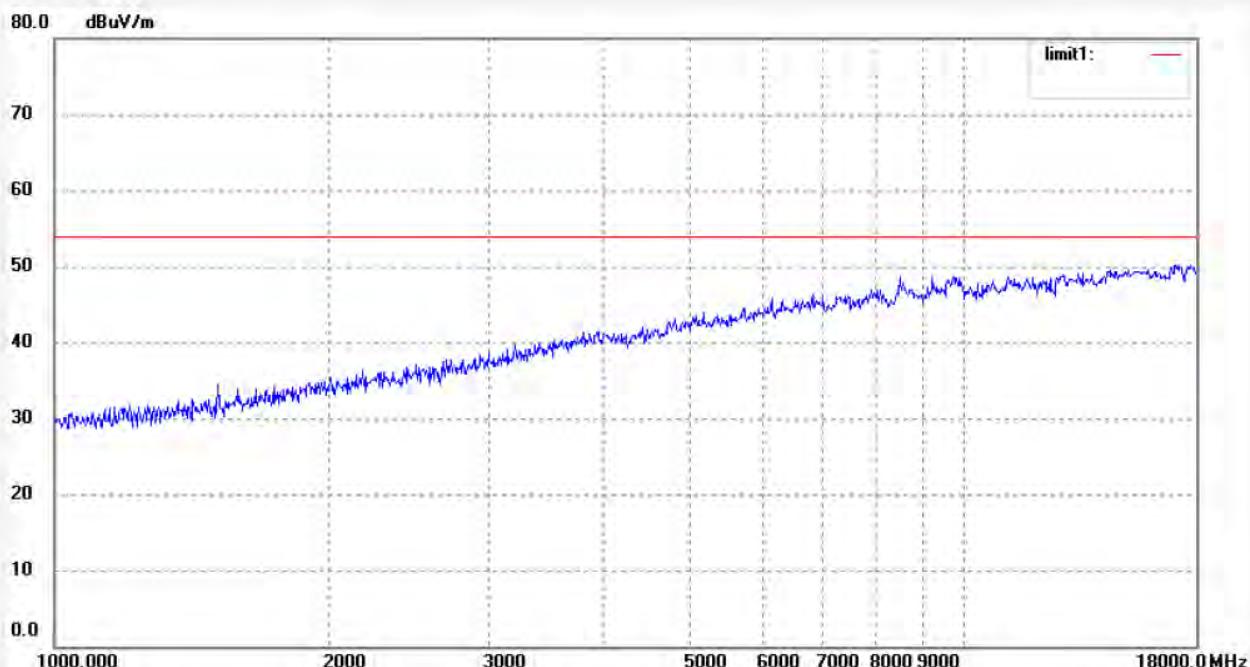
Mode: TX Channel 11(802.11g)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #3625

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/30/10

EUT: MID

Engineer Signature:

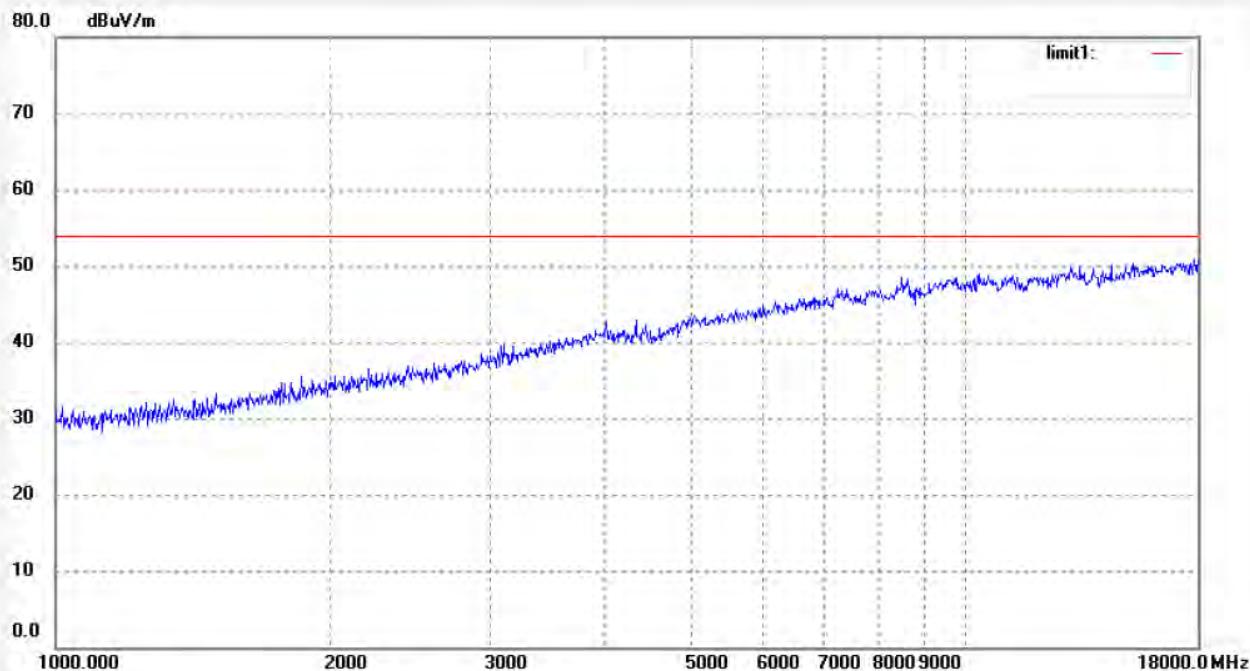
Mode: TX Channel 1(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3624

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01

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

Time: 9/26/32

EUT: MID

Engineer Signature:

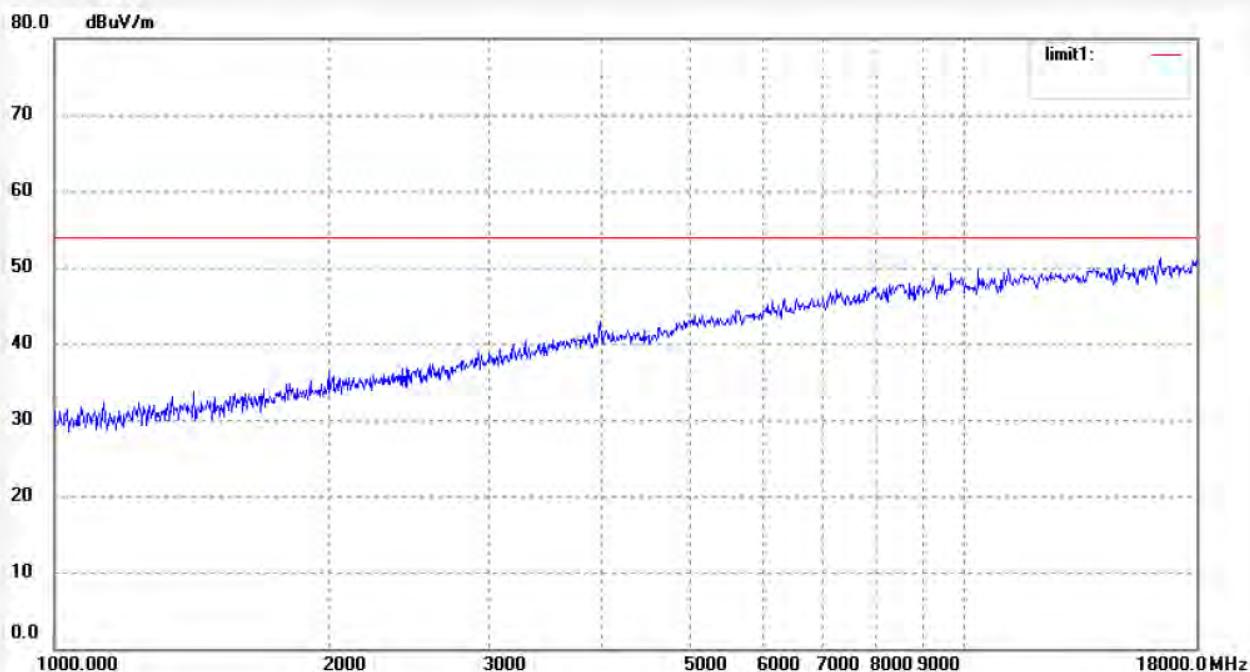
Mode: TX Channel 1(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Science & Industry Park,Nanshan Shenzhen,P.R.ChinaSite: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3626

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01

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

Time: 9/34/46

EUT: MID

Engineer Signature:

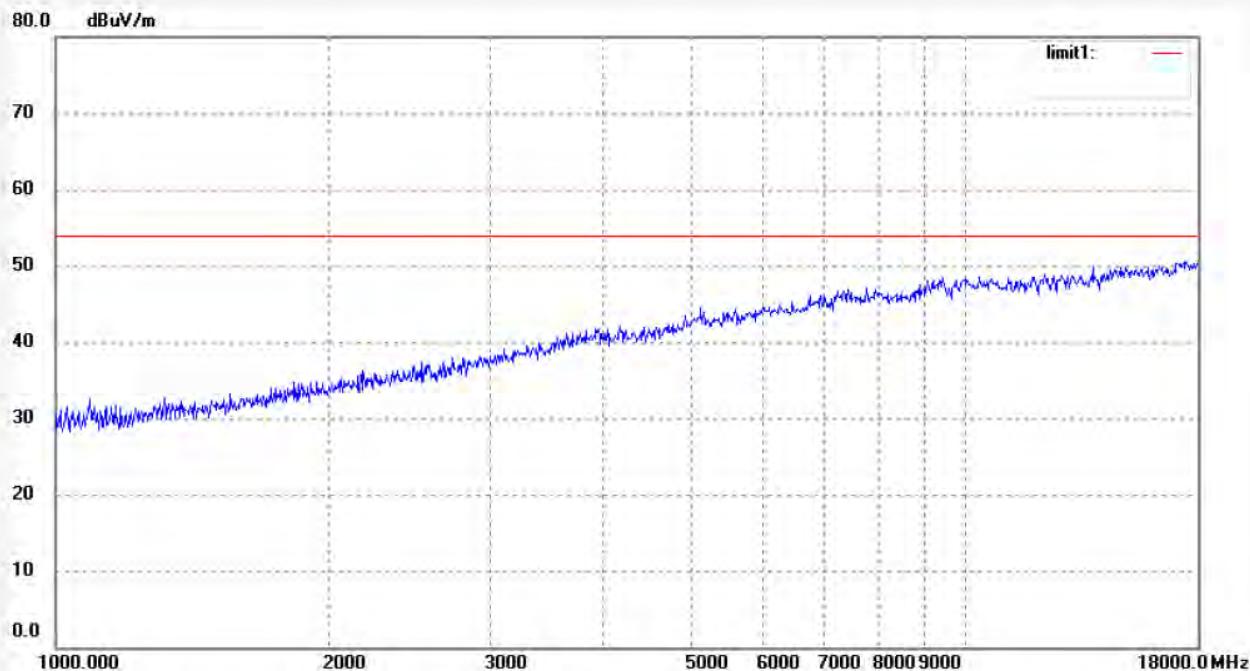
Mode: TX Channel 6(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3627

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/38/25

EUT: MID

Engineer Signature:

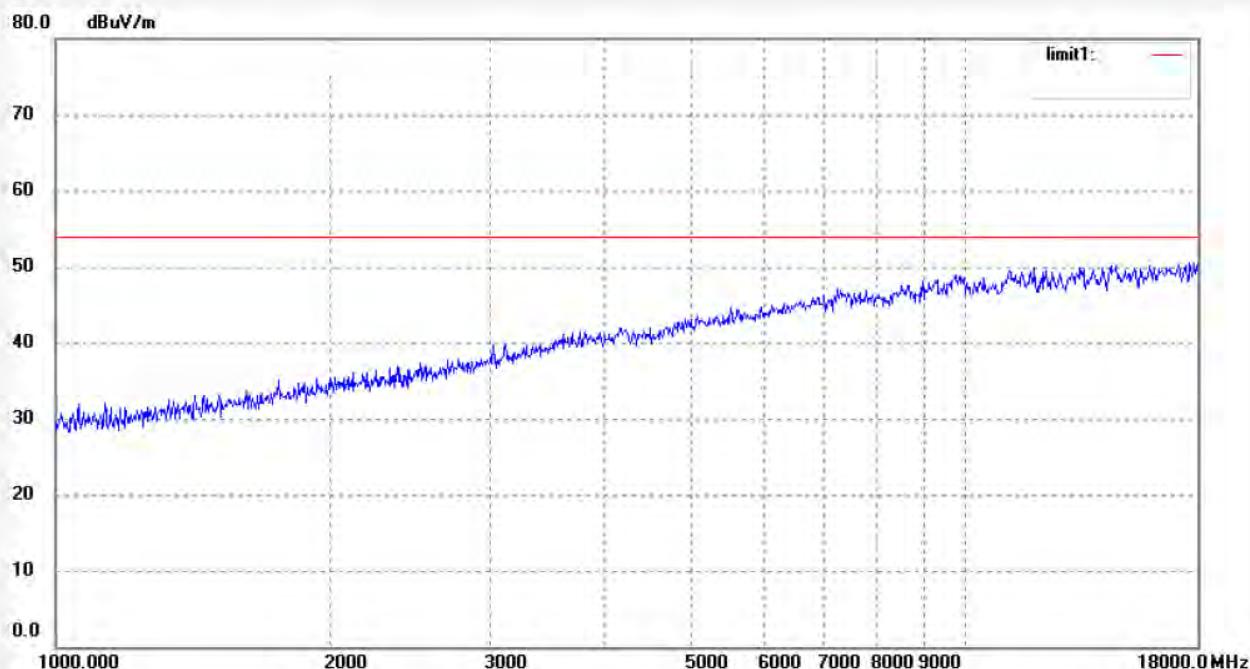
Mode: TX Channel 6(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3629

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/46/28

EUT: MID

Engineer Signature:

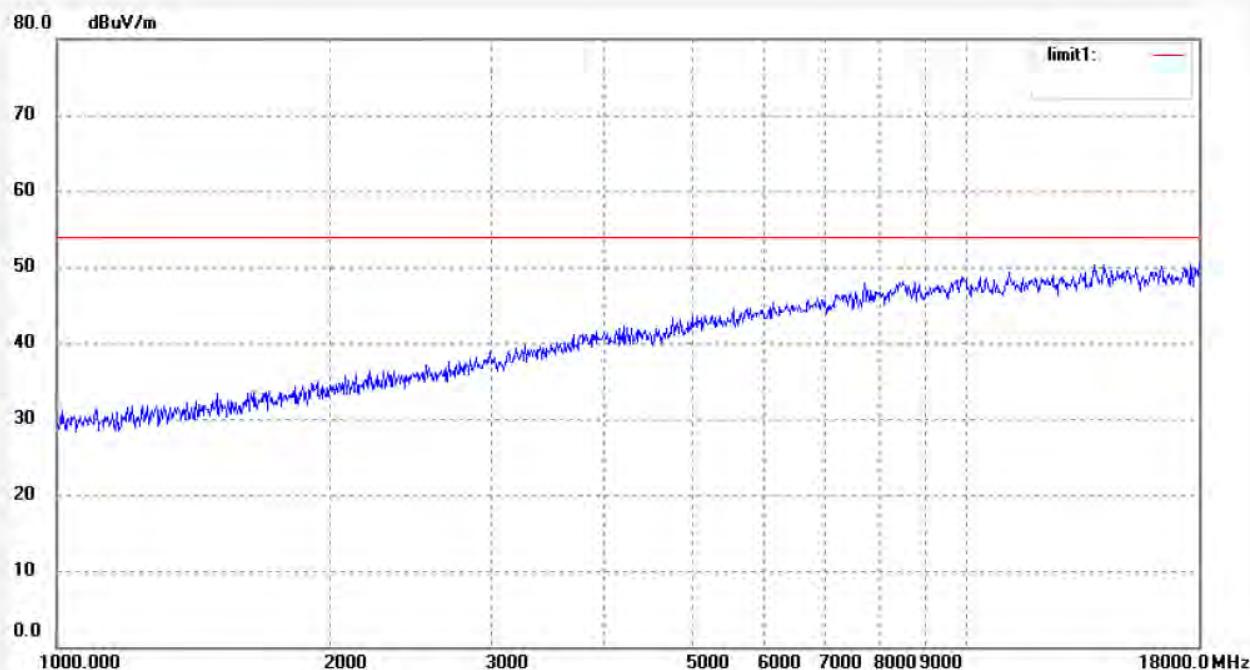
Mode: TX Channel 11(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #3628

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/42/58

EUT: MID

Engineer Signature:

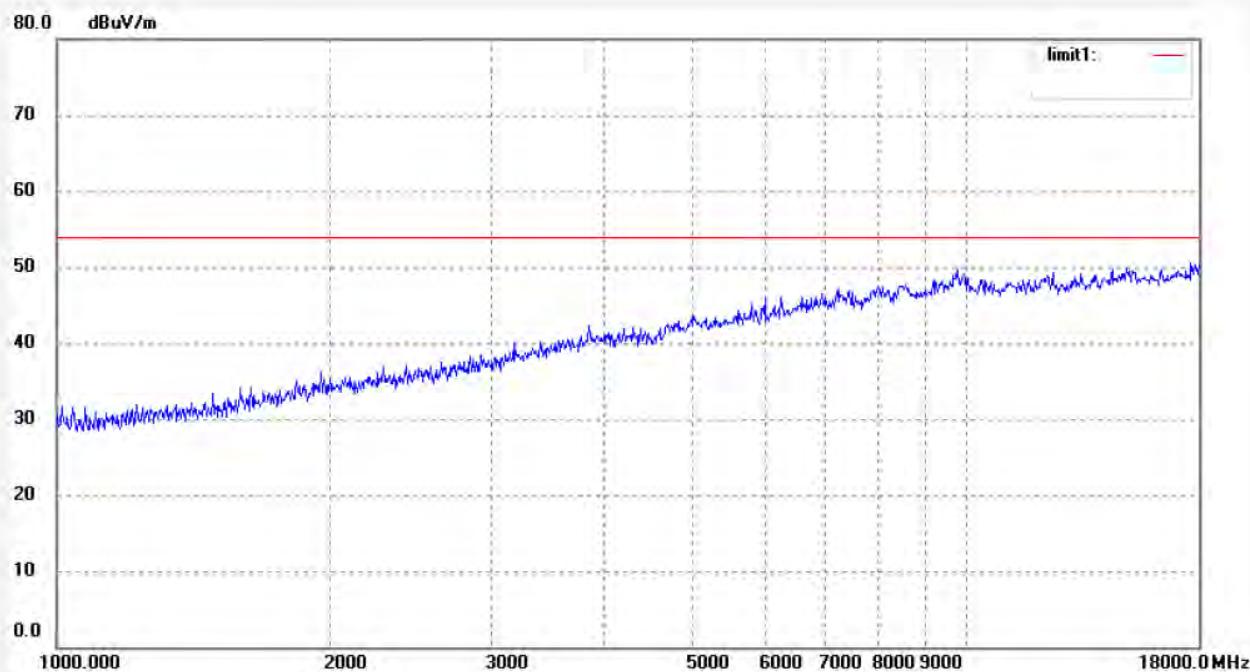
Mode: TX Channel 11(802.11n20)

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: STAR #3630

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 9/50/22

EUT: MID

Engineer Signature:

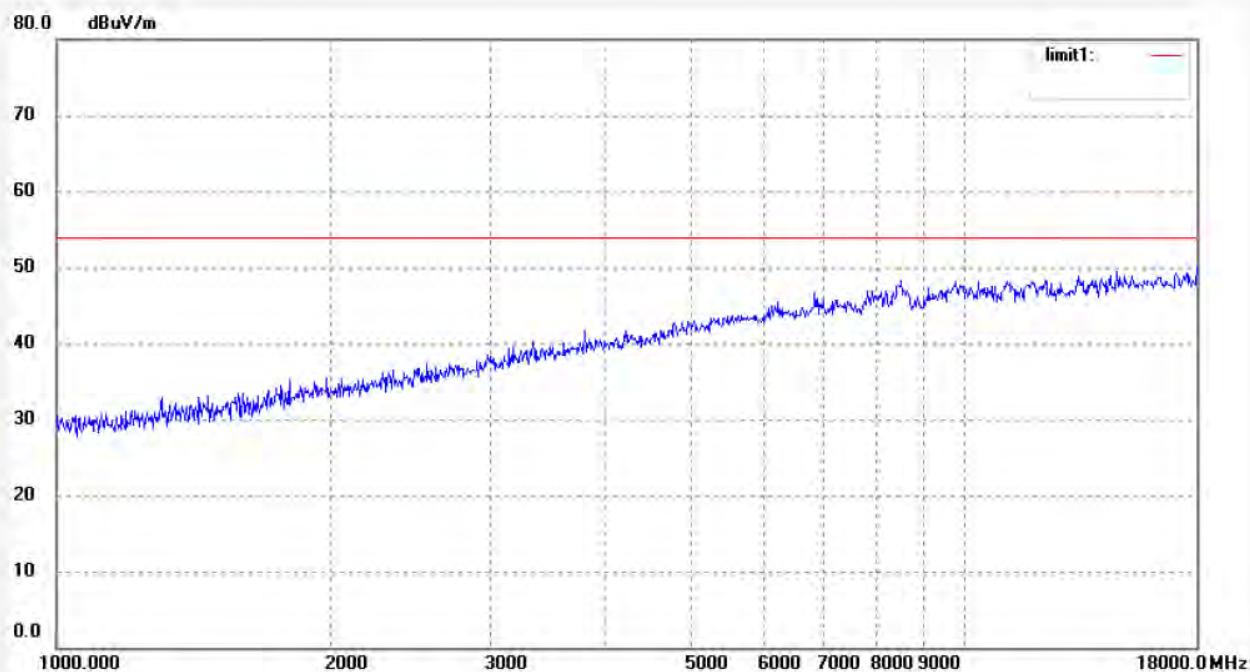
Mode: TX Channel 3(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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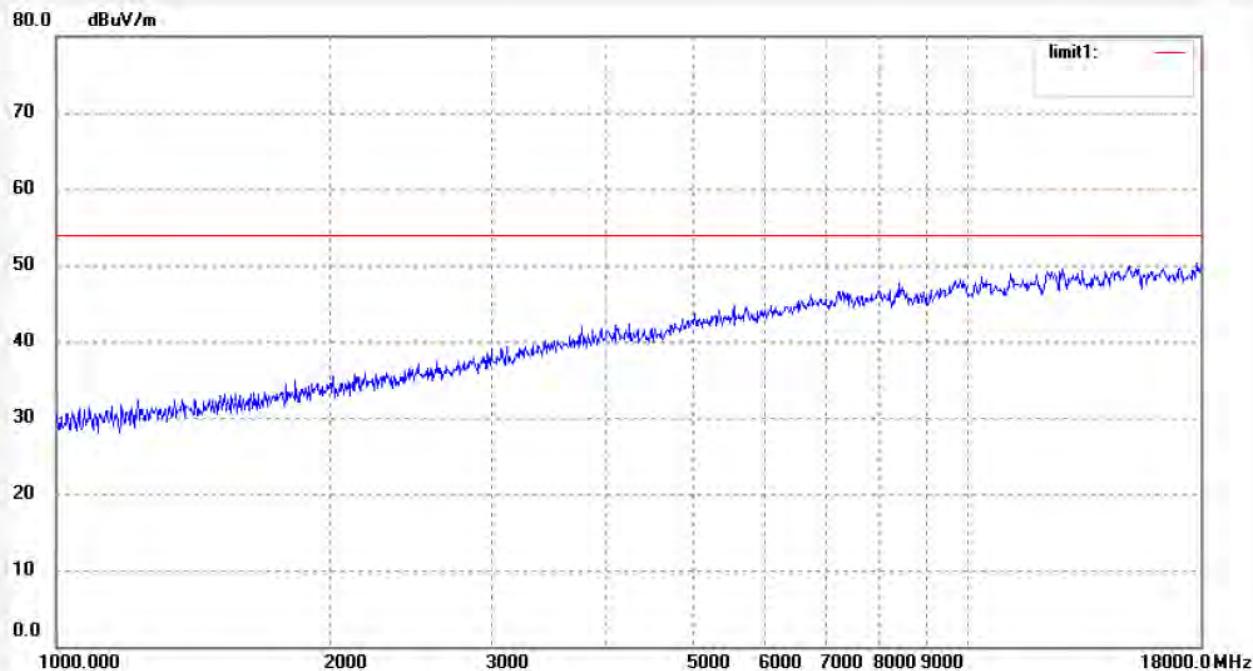
ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.:	STAR #3631	Polarization:	Vertical
Standard:	FCC Class B 3M Radiated	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	13/11/01/
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	9/54/52
EUT:	MID	Engineer Signature:	
Mode:	TX Channel 3(802.11n)40MHz	Distance:	3m
Model:	M7XX		
Manufacturer:	Sungworld		

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3633

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01/

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

Time: 10/03/03

EUT: MID

Engineer Signature:

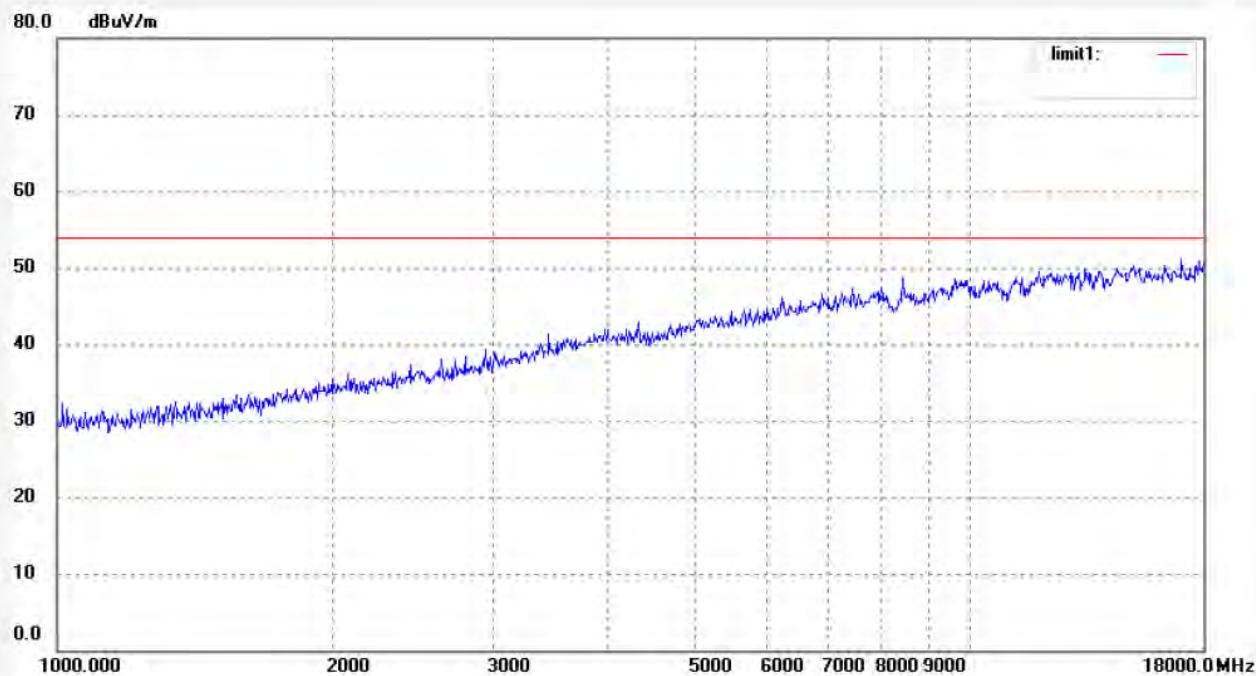
Mode: TX Channel 6(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
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Job No.: STAR #3632

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01

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

Time: 9/58/25

EUT: MID

Engineer Signature:

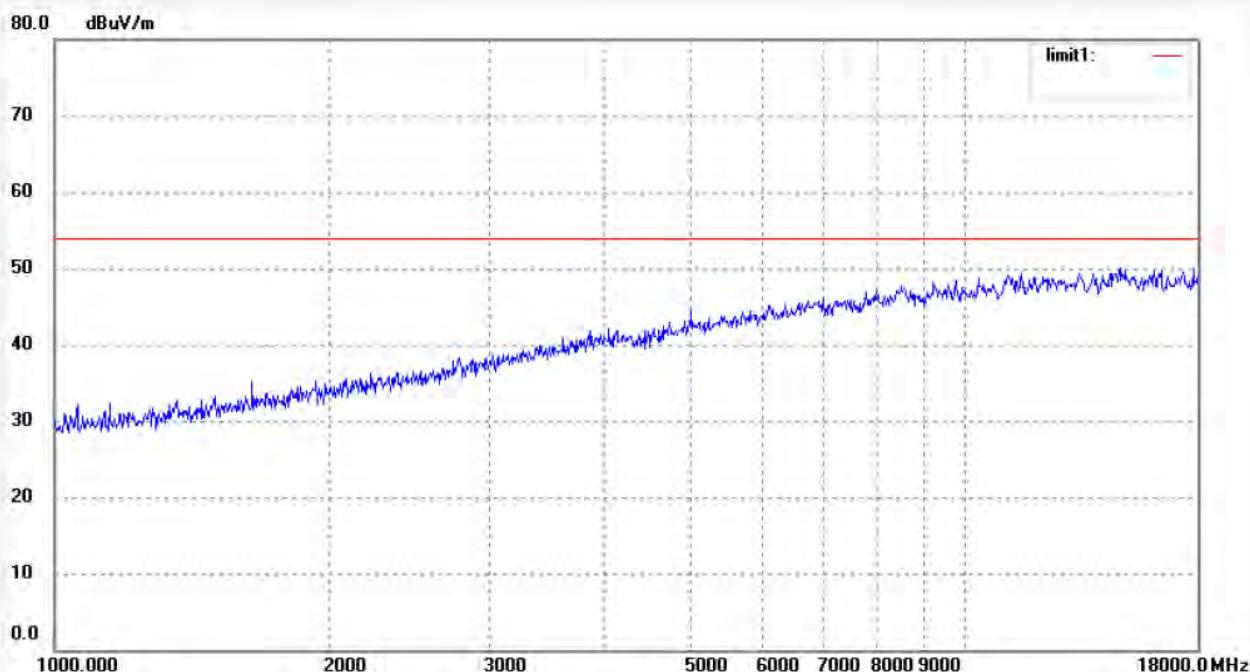
Mode: TX Channel 6(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
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Fax:+86-0755-26503396

Job No.: STAR #3634

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01

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

Time: 10/08/53

EUT: MID

Engineer Signature:

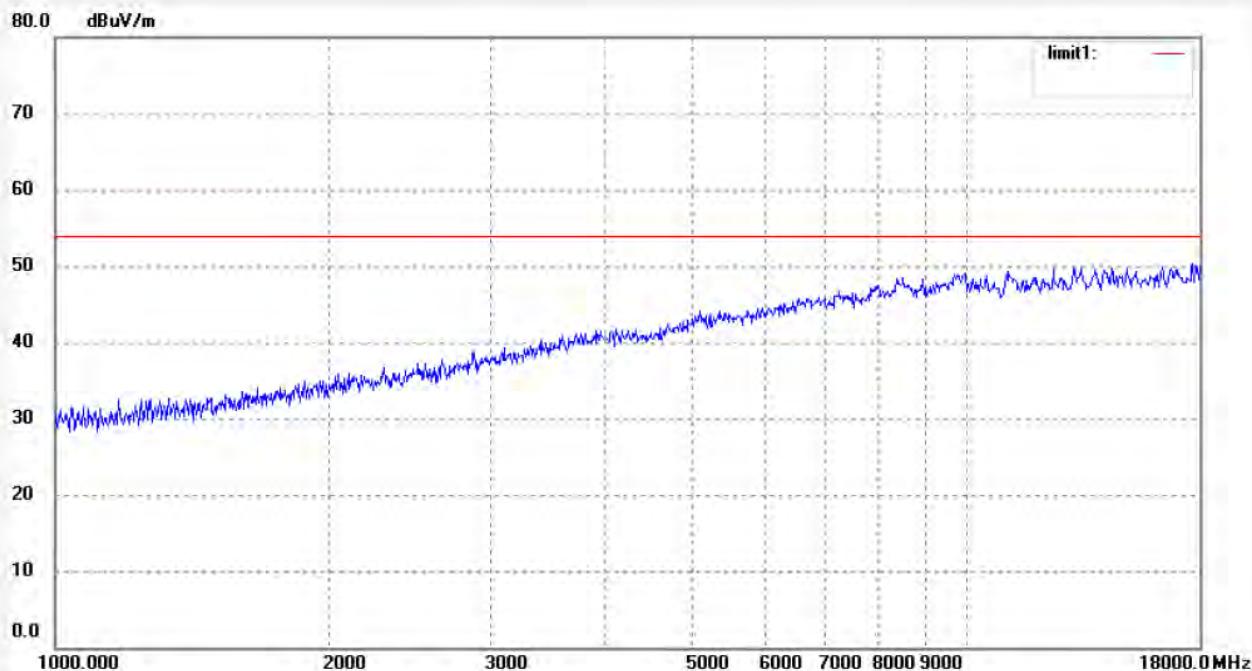
Mode: TX Channel 9(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3635

Polarization: Vertical

Standard: FCC Class B 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 13/11/01

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

Time: 10/12/16

EUT: MID

Engineer Signature:

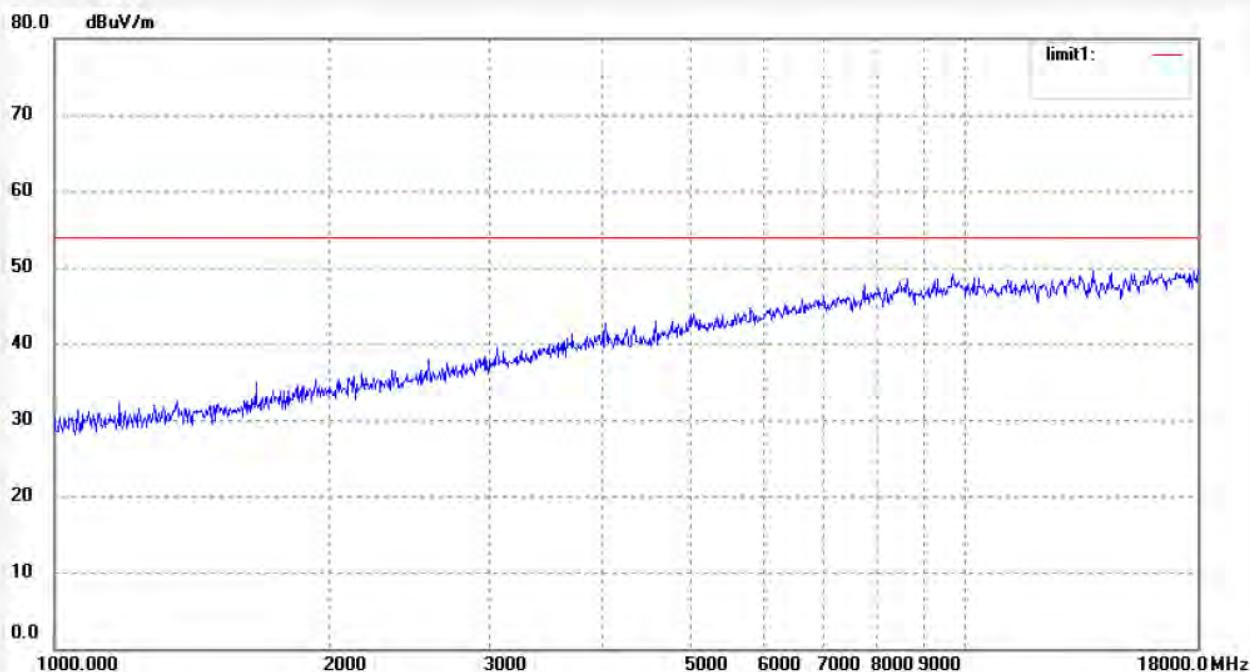
Mode: TX Channel 9(802.11n)40MHz

Distance: 3m

Model: M7XX

Manufacturer: Sungworld

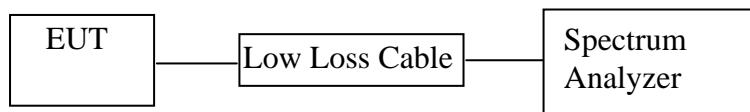
Note: Report No.:ATE20132325



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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11.CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

11.1.Block Diagram of Test Setup



11.2.The Requirement For Section 15.247(d)

Section 15.247(d): 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 (b)(3) of this section, 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).

11.3.EUT Configuration on Measurement

The equipment is 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.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

11.5. Test Procedure

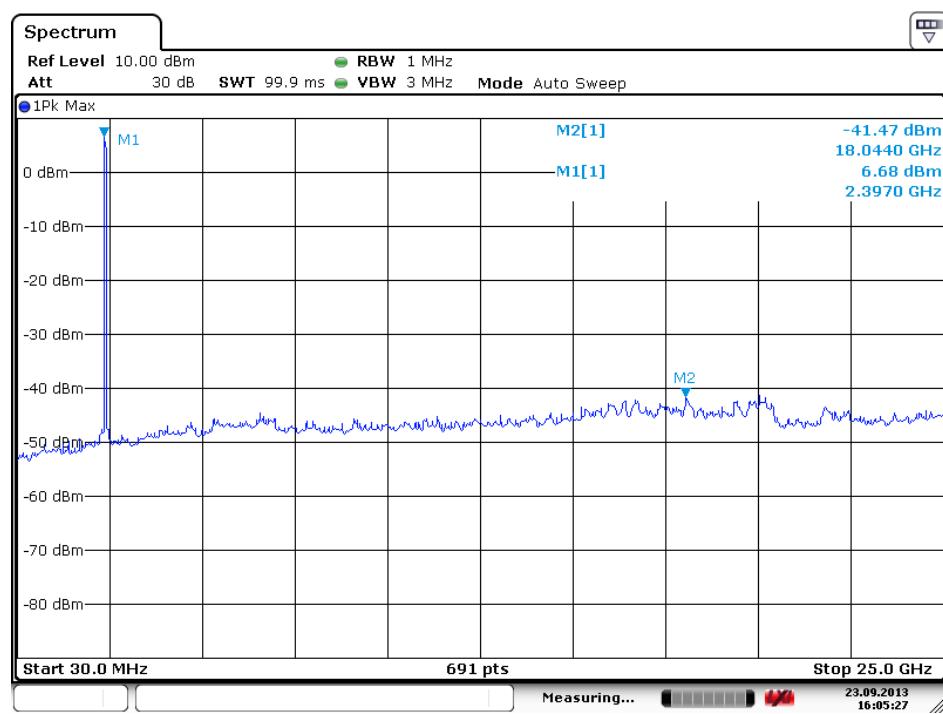
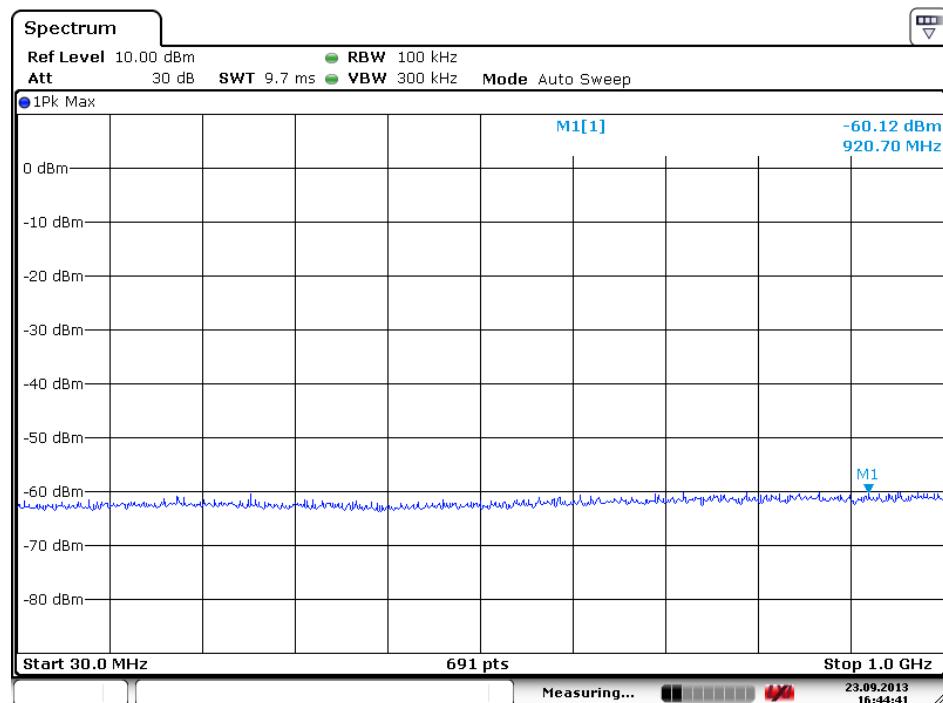
- 11.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 11.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz (below 1GHz).
- 11.5.3. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz (above 1GHz).
- 11.5.4. The Conducted Spurious Emission was measured and recorded.

11.6. Test Result

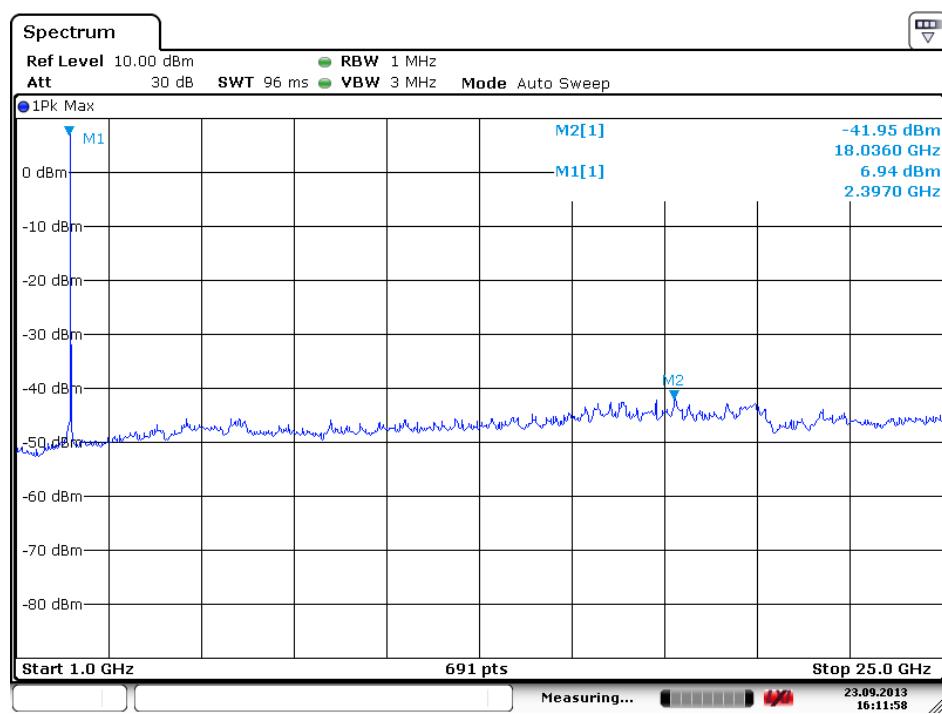
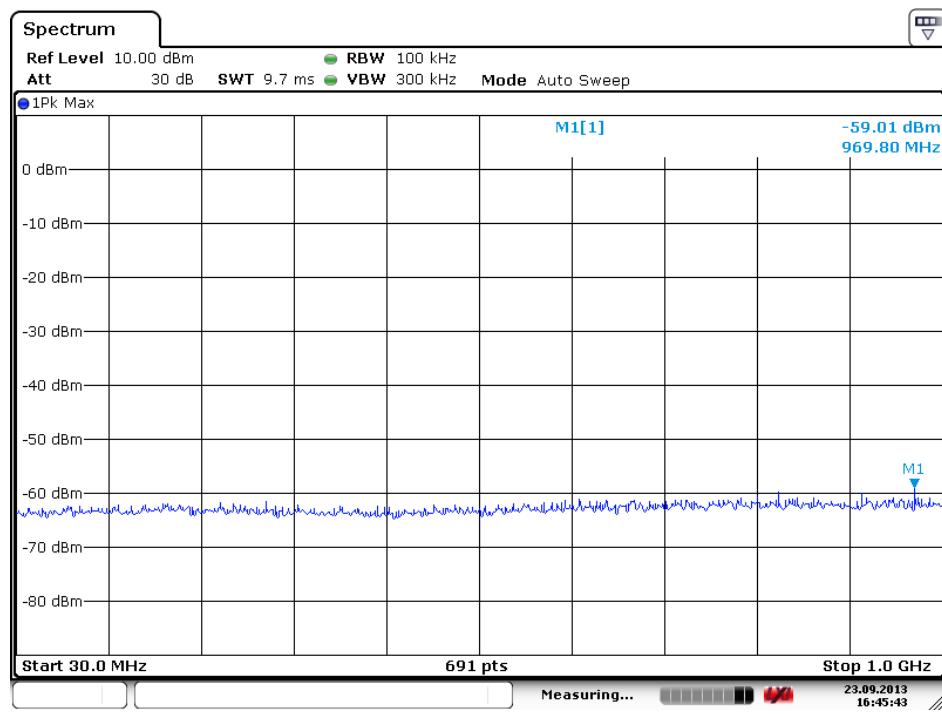
Pass.

The spectrum analyzer plots are attached as below.

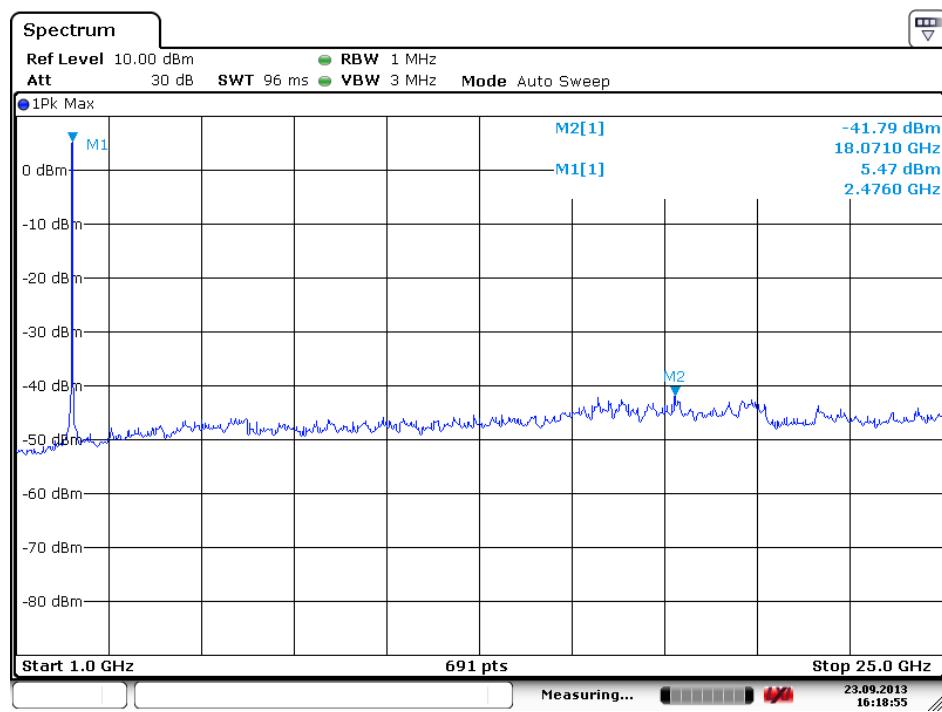
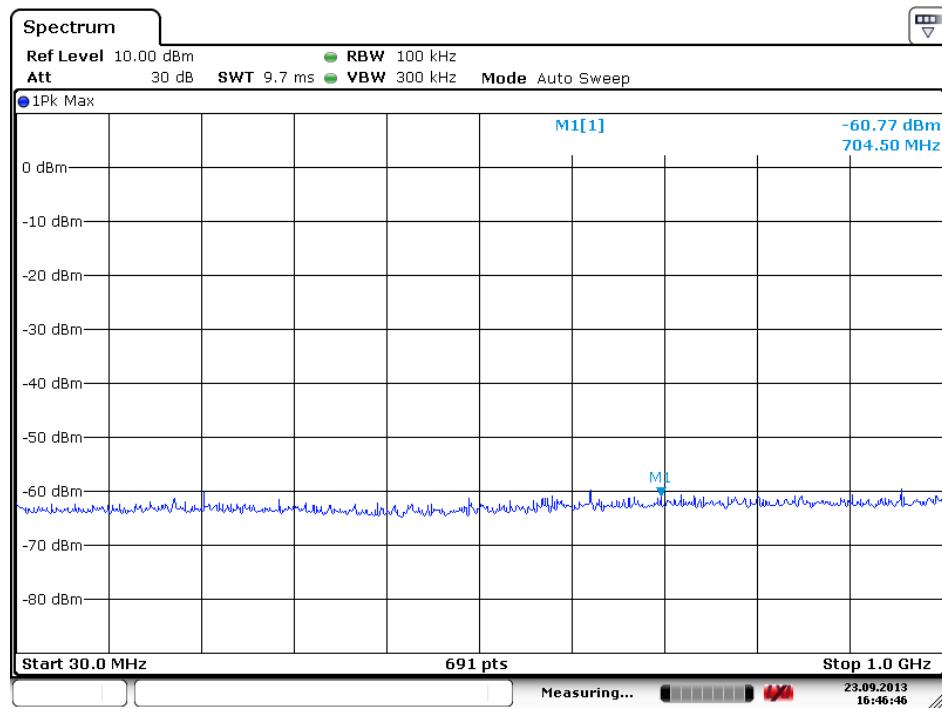
TX 802.11b Channel Low 2412MHz



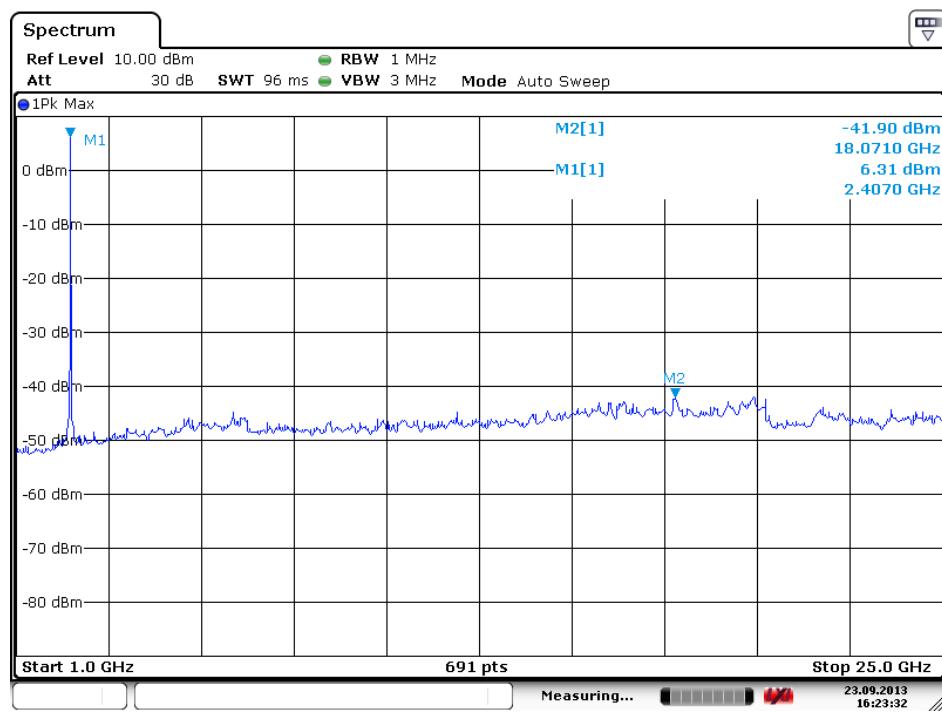
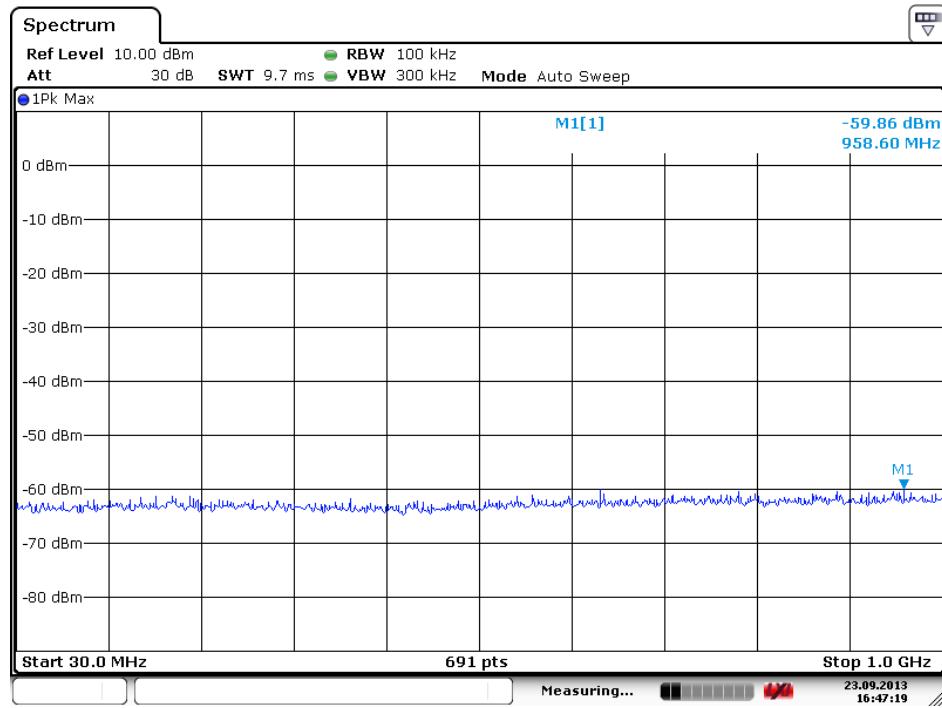
TX 802.11b Channel Middle 2437MHz



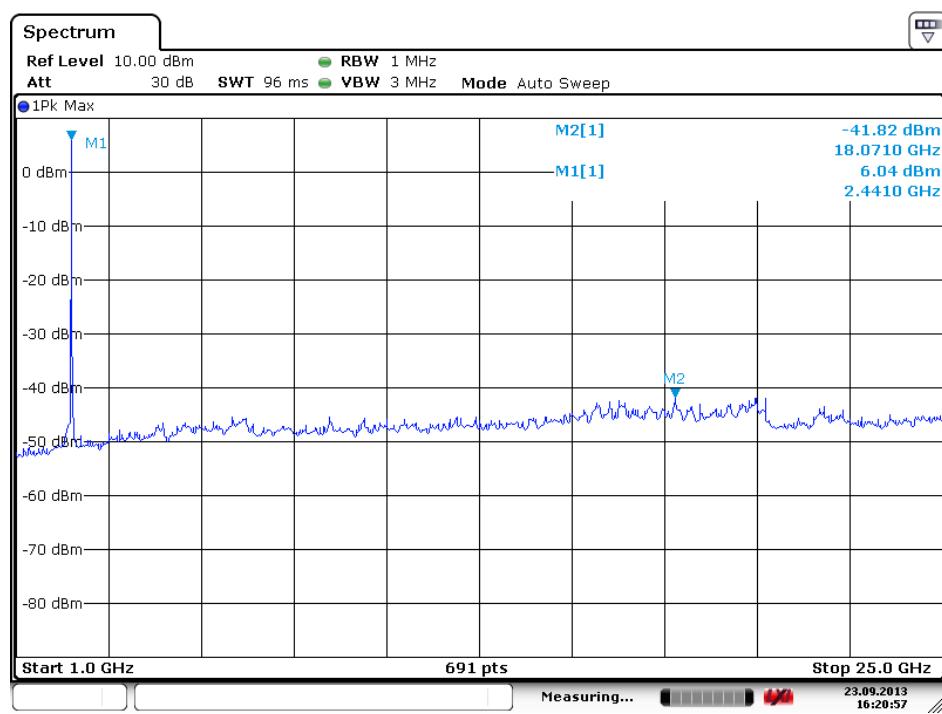
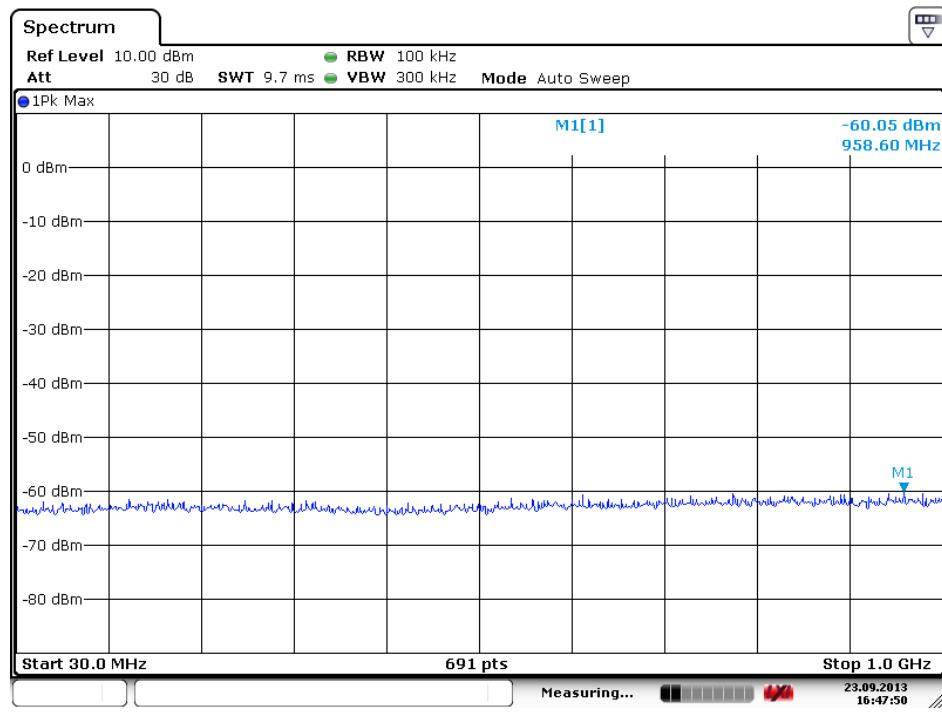
TX 802.11b Channel High 2462MHz



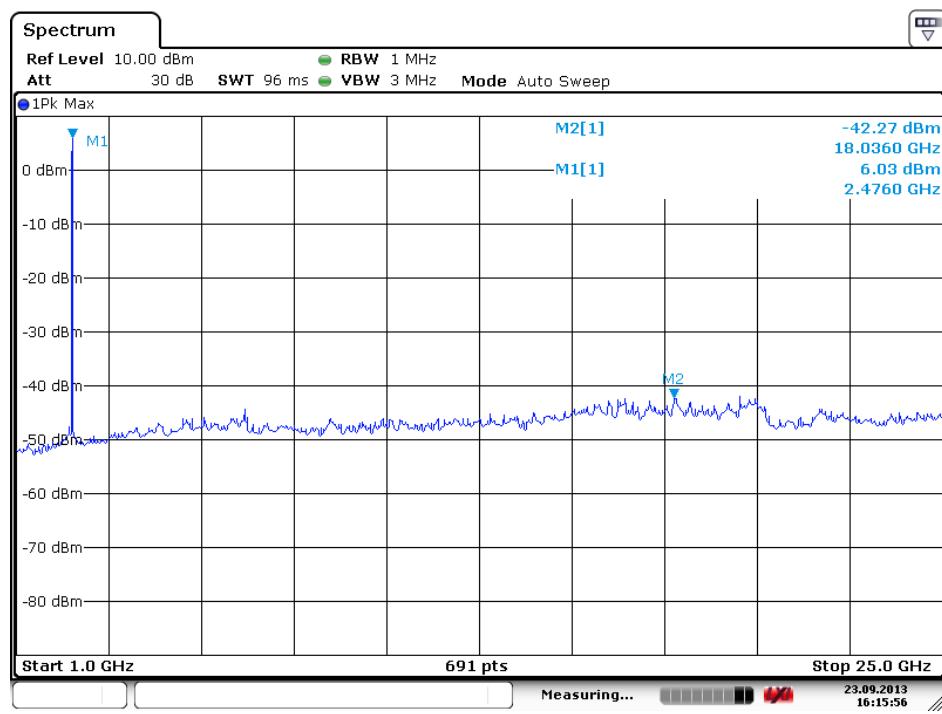
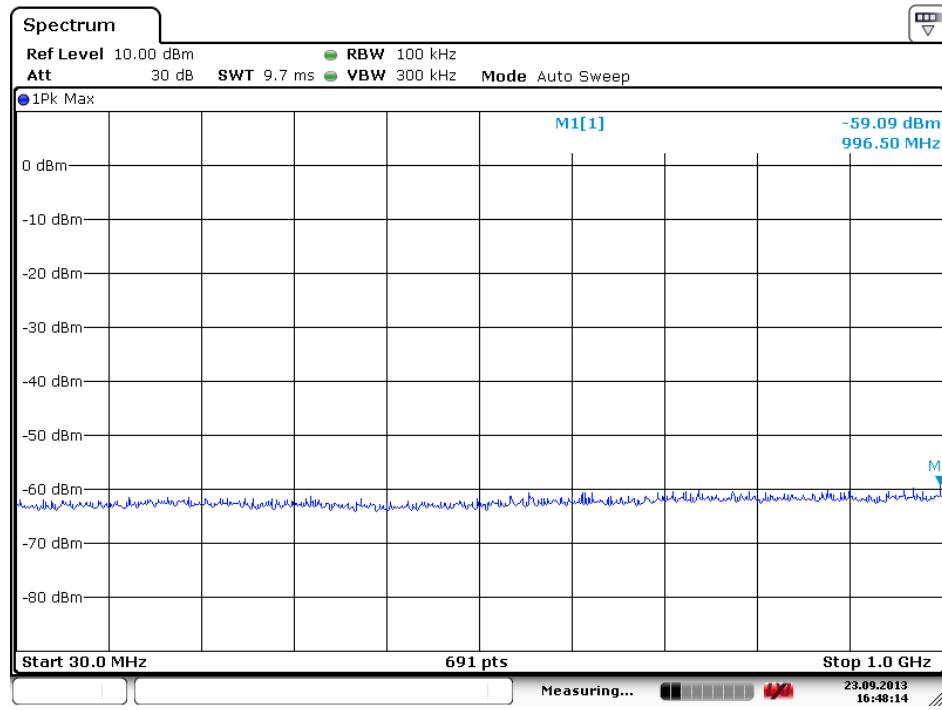
TX 802.11g Channel Low 2412MHz



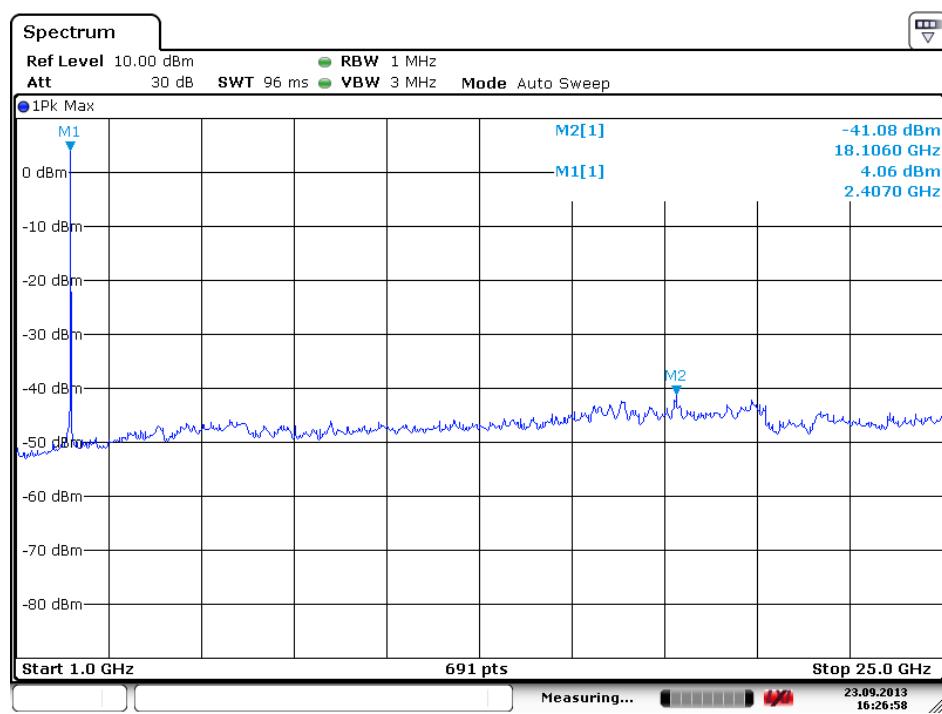
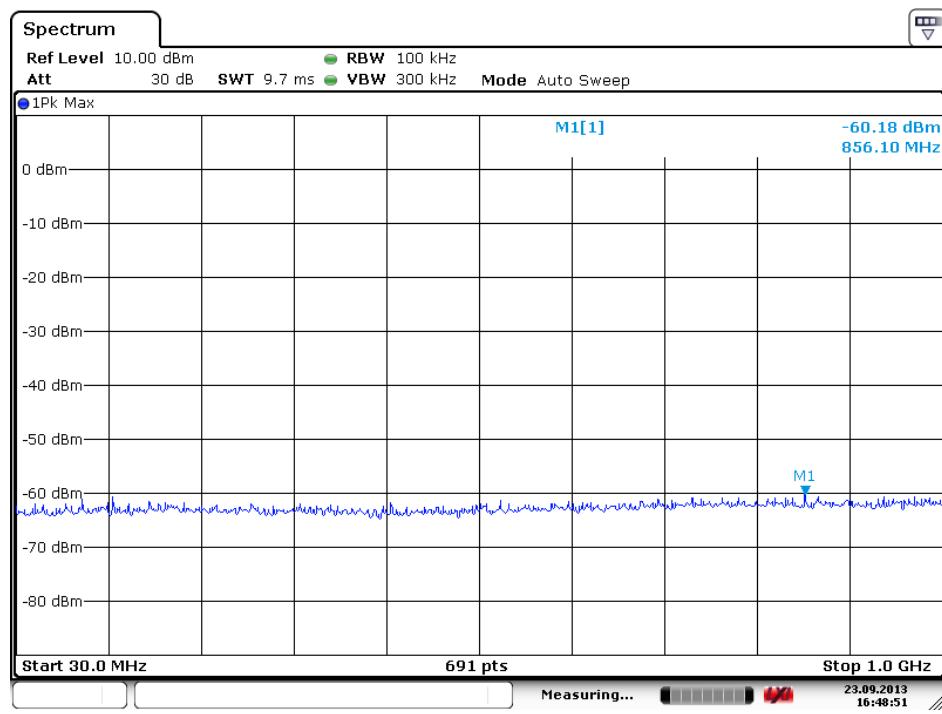
TX 802.11g Channel Middle 2437MHz



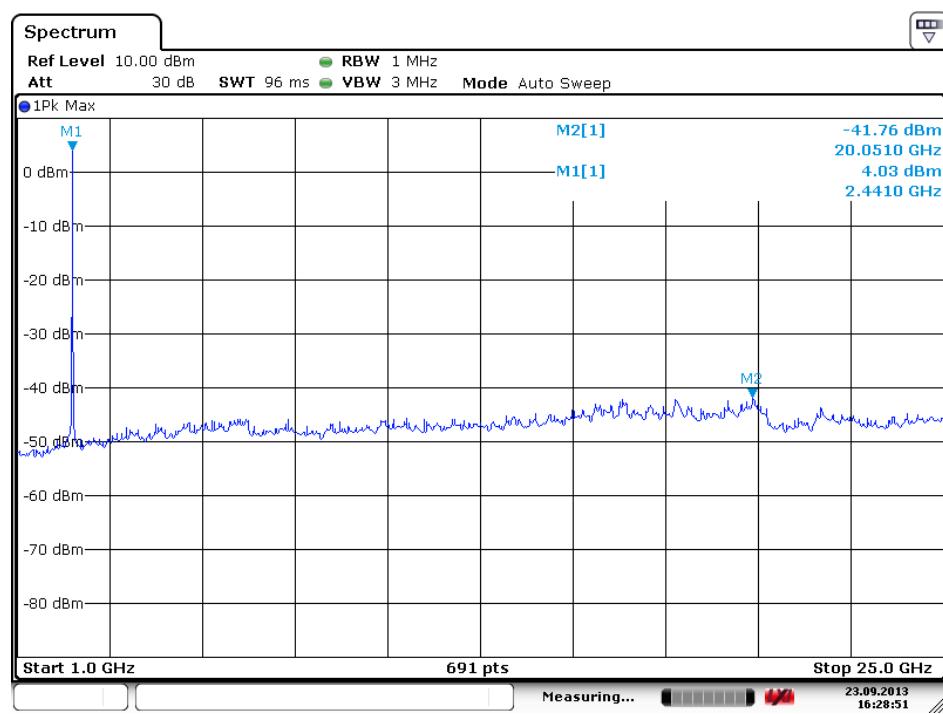
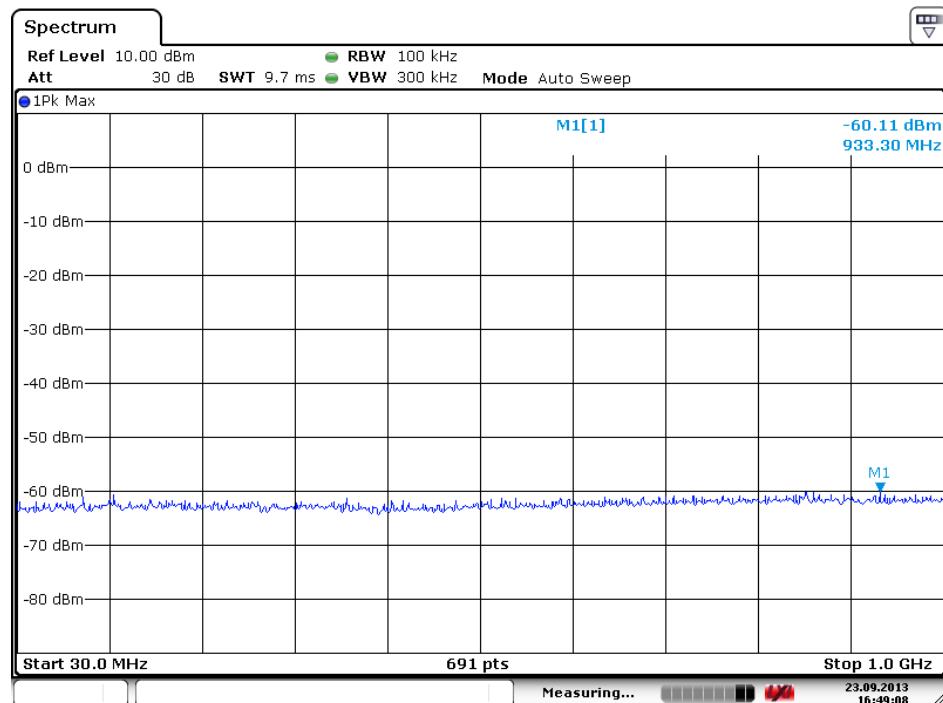
TX 802.11g Channel High 2462MHz



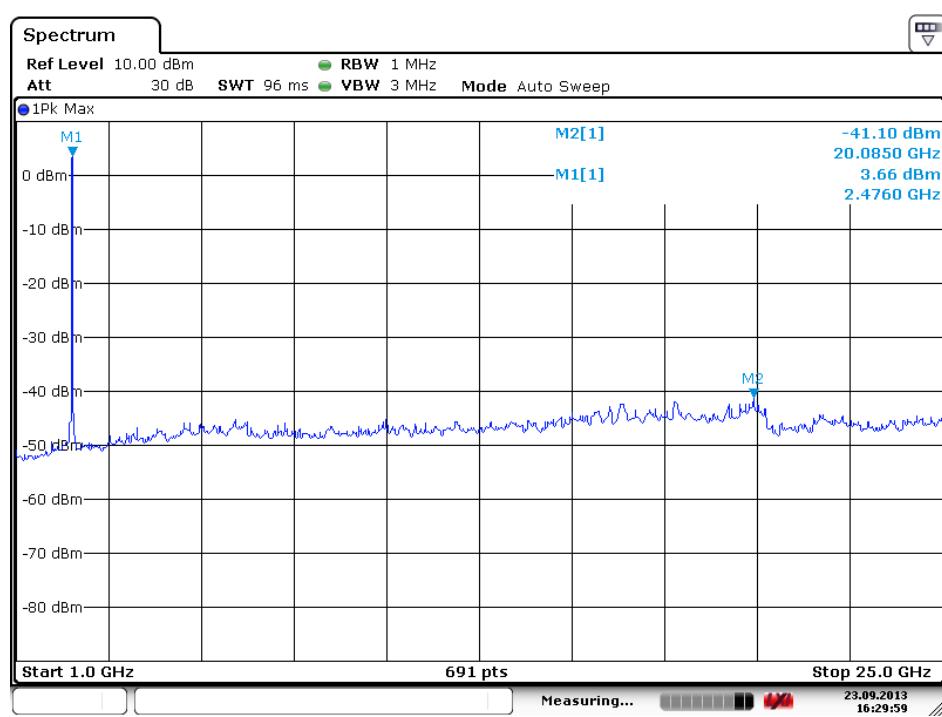
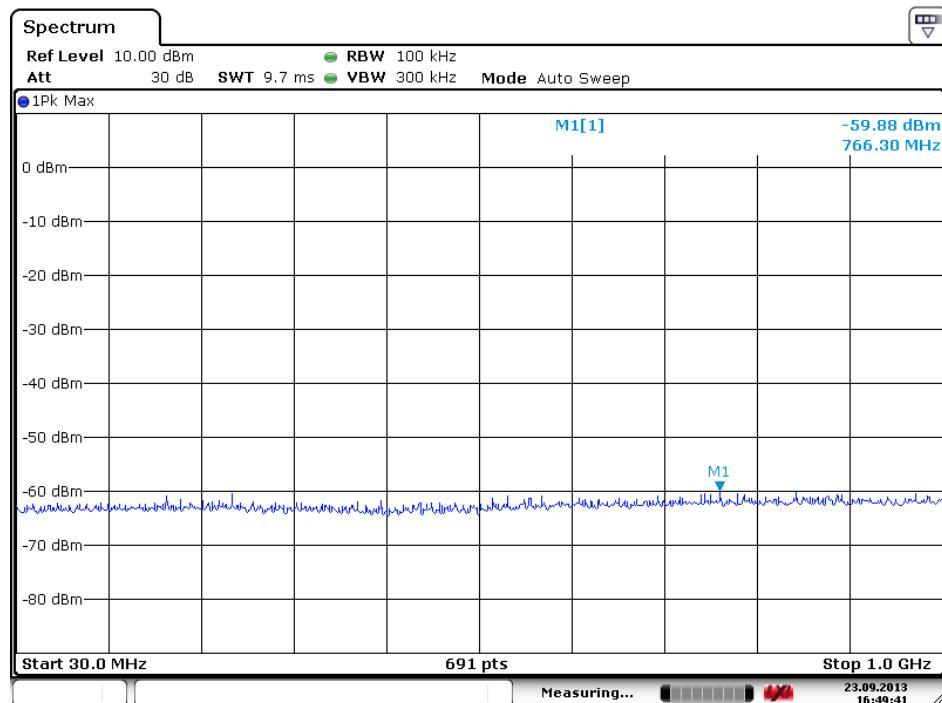
TX 802.11n Channel Low 2412MHz (20MHz)



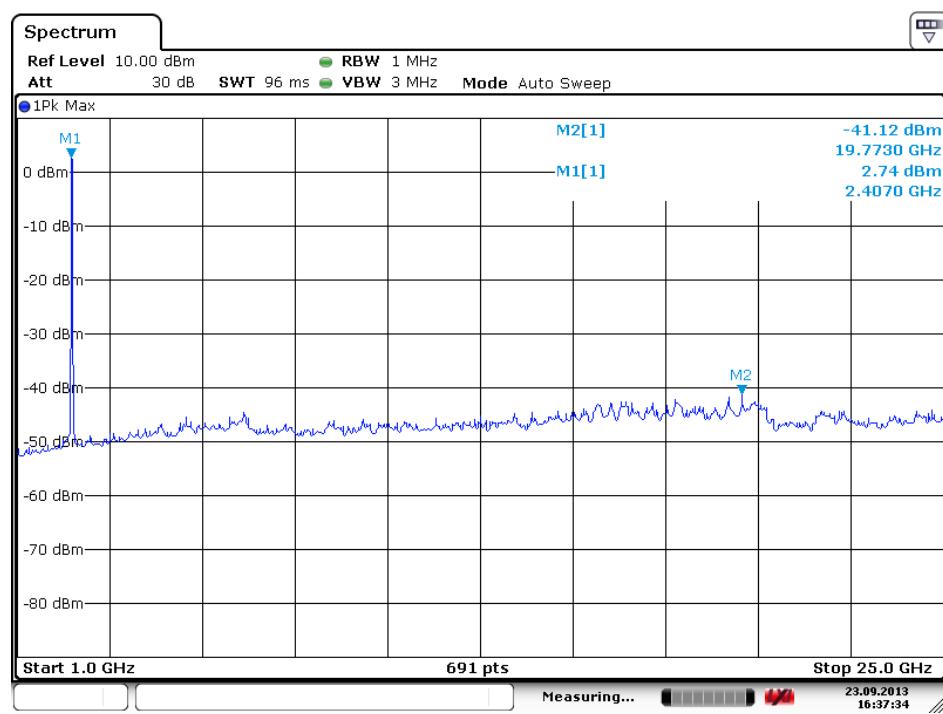
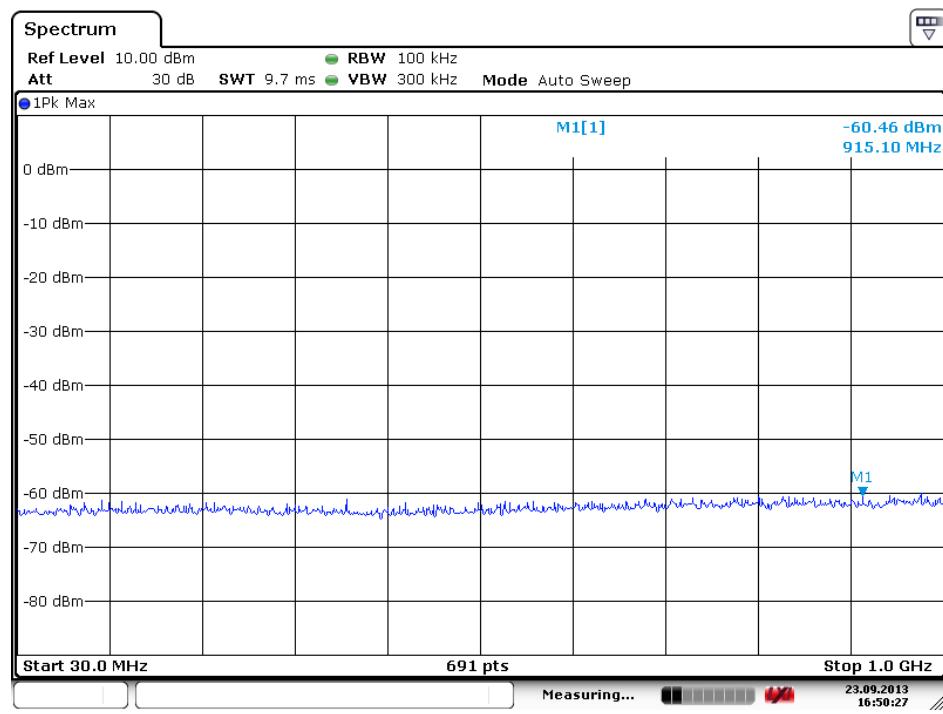
TX 802.11n Channel Middle 2437MHz (20MHz)



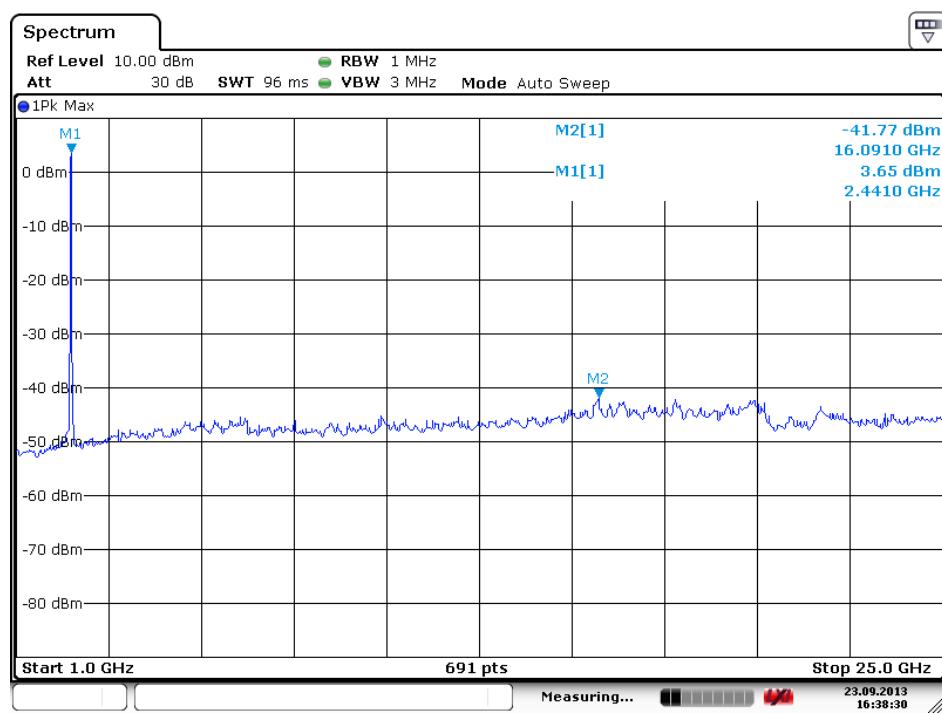
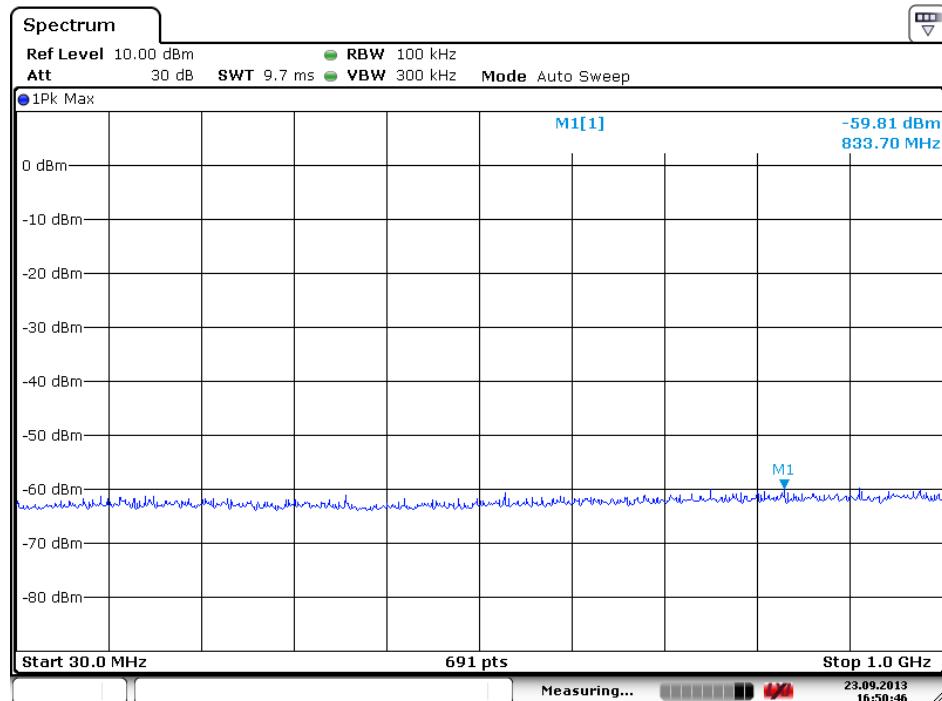
TX 802.11n Channel High 2462MHz (20MHz)



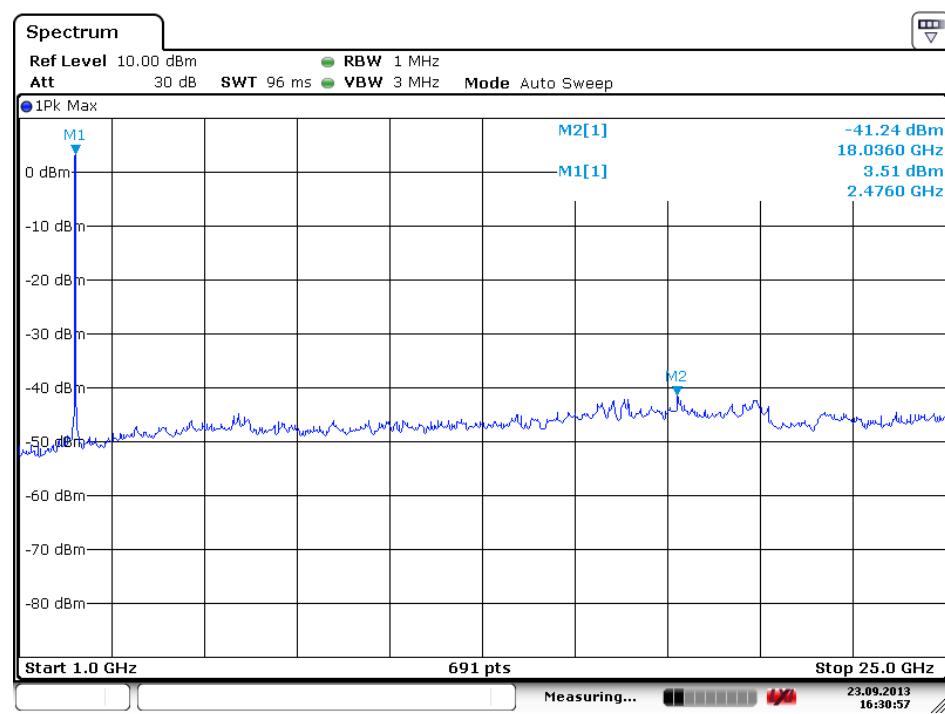
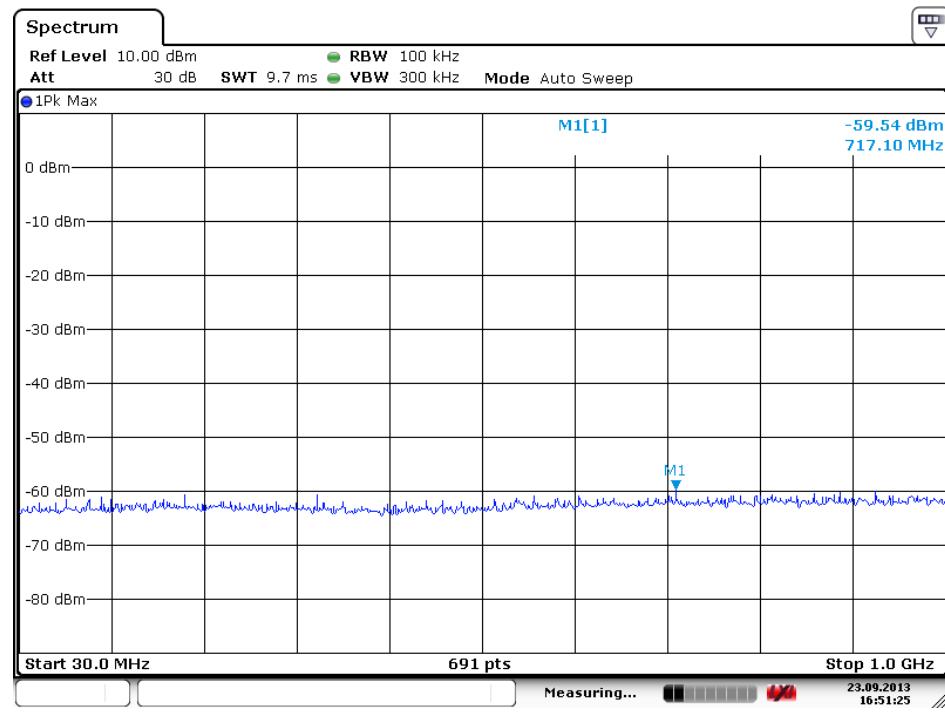
TX 802.11n Channel Low 2422MHz (40MHz)



TX 802.11n Channel Middle 2437MHz (40MHz)



TX 802.11n Channel High 2452MHz (40MHz)



12. ANTENNA REQUIREMENT

12.1. 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.

12.2. Antenna Construction

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

