

FCC PART 15 SUBPART C TEST REPORT

for

PCI Wireless LAN card

Model No.: WA-54P Pro

FCC ID: W8ONW06-WA54PP

of

Applicant: **KAIOMY TECHNOLOGY CO., LTD.**

Address: 2F-1, No.582, Ruiguang RD., Neihu District, Taipei,
Taiwan.(R.O.C.)

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1

A2LA Accredited No.: 2732.01



Report No.: W6M20903-9662-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wtst@wtst-lab.com

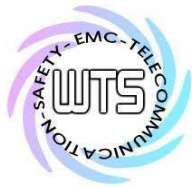
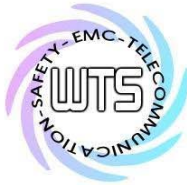


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Worldwide Testing Services(Taiwan) Co., Ltd.

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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.

The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Specific Conditions:

Usage of the hereunder tested device in combination with other integrated or external antennas requires at least additional output power measurements, spurious emission measurements, conducted emission measurements (AC supply lines) and radio frequency exposure evaluations for each individual configuration performed, for certification by FCC.

The test sample is able to work according IEEE 802.11 b/g.

This report is related to FCC Part 15 C (DSSS and OFDM device).

Tester:

May 15, 2009

Kevin Wang

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

May 15, 2009

Chang Tse-Ming

Date

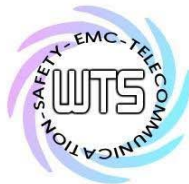
WTS

Name

Signature

Note:

1. This test report is valid in connection to the model has been tested, any modification to the product which is different from the test model will avoid the certification of the test report.
2. This test report shall always be duplicated in full pages unless the written approval of the testing laboratory is obtained.
3. The X in multi-listing model number is representing different housing, color and accessories.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)

Company

Worldwide Testing Services(Taiwan) Co., Ltd.

6F, NO. 58, LANE 188, RUEY-KUANG RD.

NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1



Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name: ./.

Accredited number: ./.

Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.

1.3 Details of approval holder

Name: KAIOMY TECHNOLOGY CO., LTD.

Street: 2F-1, No.582, Ruiguang RD., Neihu District,

Town: Taipei,

Country: Taiwan.(R.O.C.)

Telephone: +886-2-6600-3268

Fax: +886-2-6600-3269



Registration number: W6M20903-9662-C-1

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1.4 Application details

Date of receipt of test item: April 28, 2009

Date of test: from April 29, 2009 to May 13, 2009

1.5 General information of Test item

Type of test item: PCI Wireless LAN card

Model Number: WA-54P Pro

Brand Name: KAIOMY

Multi-listing model number: WA-54X XXXXXXXX (X can be A-Z, a-z, 0-9 or blank)

Photos: See Appendix

Technical data

Frequency band: 2.4 GHz – 2.4835 GHz

Frequency (ch 1 or A): 2.412 GHz

Frequency (ch 6 or B): 2.437 GHz

Frequency (ch 11 or C): 2.462 GHz

Number of Channels: 11

Operation modes: duplex

Modulation Type: DSSS / OFDM

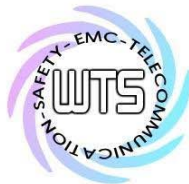
Fixed point-to-point operation: ☐ Yes / ☒ No

Type of Antenna: Dipole Antenna

Antenna gain: 2.725 dBi

Power supply: 3.3 Vdc from PC

Emission designator: DSSS: 17M0G1D
OFDM: 17M2W7D



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Host device: none

Classification:

| | |
|--|-------------------------------------|
| Fixed Device | <input checked="" type="checkbox"/> |
| Mobile Device (Human Body distance > 20cm) | <input type="checkbox"/> |
| Portable Device (Human Body distance < 20cm) | <input type="checkbox"/> |

Transmitter

Unom

Mode A (DSSS)

Power (ch 1 or A): Conducted: 15.37 dBm

Power (ch 6 or B): Conducted: 14.63 dBm

Power (ch 11 or C): Conducted: 15.12 dBm

Mode B (OFDM)

Power (ch 1 or A): Conducted: 15.25 dBm

Power (ch 6 or B): Conducted: 15.14 dBm

Power (ch 11 or C): Conducted: 15.55 dBm

Manufacturer: (if different from approval holder)

Name: ./.

Street: ./.

Town: ./.

Country: ./.

Additional information: The sample is using WLAN technology according IEEE 802.11 b/g.
There are two testing modes in the test report.

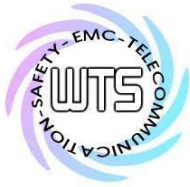
Mode A: IEEE 802.11b

Mode B: IEEE 802.11g

The scheme for frequency generation, spectrum spreading,
receiver parameters, synchronization procedure, and other parameters
are determined by the mentioned standard above.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART B / SUBPART C § 15.247 (2008-07)



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2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



or

The deviations as specified in 2.5 were ascertained in the course of the tests performed.



2.2 Test environment

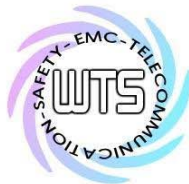
Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Power supply: 3.3 Vdc from PC

Extreme conditions parameters: ./.



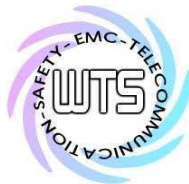
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2.3 Test Equipment List

| No. | Test equipment | Type | Serial No. | Manufacturer | Cal. Date | Next Cal. Date |
|--------------|---|------------------|----------------|--------------|---------------|----------------|
| ETSTW-CE 001 | EMI TEST RECEIVER | ESHS10 | 842121/013 | R&S | 2008/9/18 | 2009/9/17 |
| ETSTW-CE 002 | PREREULATOR MODE DC POWER SUPPLY | None | None | None | Function Test | |
| ETSTW-CE 003 | AC POWER SOURCE | APS-9102 | D161137 | GW | Function Test | |
| ETSTW-CE 004 | ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK | ESH3-Z5 | 840731/011 | R&S | 2009/3/27 | 2010/3/26 |
| ETSTW-CE 005 | Line-Impedance Stabilisation Network | NNBM 8126D | 137 | Schwarzbeck | 2008/9/15 | 2009/9/14 |
| ETSTW-CE 006 | IMPULSBEGRENZER PULSE LIMITER | ESH3-Z2 | 100226 | R&S | 2009/5/9 | 2010/5/8 |
| ETSTW-CE 008 | ABSORBING CLAMP | MDS 21 | 3469 | Schwarzbeck | 2008/9/18 | 2009/9/17 |
| ETSTW-CE 009 | TEMP.&HUMIDITY CHAMBER | GTH-225-40-1P-U | MAA0305-009 | GIANT FORCE | 2008/7/25 | 2009/7/24 |
| ETSTW-CE 015 | CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK | FCC-TLISN-T8-02 | 20307 | FCC | 2008/9/22 | 2009/9/21 |
| ETSTW-CE 016 | TWO-LINE V-NETWORK | ENV216 | 100050 | R&S | 2008/9/24 | 2009/9/23 |
| ETSTW-RE 002 | Function Generator | 33220A | MY43004982 | Agilent | 2007/10/12 | 2009/10/11 |
| ETSTW-RE 003 | EMI TEST RECEIVER | ESI 26 | 831438/001 | R&S | 2008/10/8 | 2009/10/7 |
| ETSTW-RE 004 | EMI TEST RECEIVER | ESI 40 | 832427/004 | R&S | 2008/9/22 | 2009/9/21 |
| ETSTW-RE 005 | EMI TEST RECEIVER | ESVS10 | 843207/020 | R&S | 2008/9/18 | 2009/9/17 |
| ETSTW-RE 011 | PROGRAMMABLE LINEAR POWER SUPPLY | LPS-305 | 30503070165 | MOTECH | Function Test | |
| ETSTW-RE 017 | Log-Periodic Antenna | HL025 | 352886/001 | R&S | 2009/5/4 | 2010/5/3 |
| ETSTW-RE 018 | MICROWAVE HORN ANTENNA | AT4560 | 27212 | AR | 2008/10/27 | 2009/10/26 |
| ETSTW-RE 020 | MICROWAVE HORN ANTENNA | AT4002A | 306915 | AR | Function Test | |
| ETSTW-RE 021 | SWEEP GENERATOR | SWM05 | 835130/010 | R&S | 2008/8/27 | 2009/8/26 |
| ETSTW-RE 028 | Log-Periodic Dipole Array Antenna | 3148 | 34429 | EMCO | 2009/4/15 | 2010/4/14 |
| ETSTW-RE 029 | Biconical Antenna | 3109 | 33524 | EMCO | 2009/4/15 | 2010/4/14 |
| ETSTW-RE 030 | Double-Ridged Guide Horn Antenna | 3117 | 00035224 | EMCO | 2009/3/23 | 2010/3/22 |
| ETSTW-RE 032 | Millivoltmeter | URV 55 | 849086/013 | R&S | 2008/9/1 | 2009/8/31 |
| ETSTW-RE 033 | WaveRunner 6000A Serie Oscilloscope | WAVERUNNER 6100A | LCRY0604P14508 | LeCroy | 2008/6/27 | 2009/6/26 |
| ETSTW-RE 034 | Power Sensor | URV5-Z4 | 839313/006 | R&S | 2008/9/1 | 2009/8/31 |
| ETSTW-RE 042 | Biconical Antenna | HK116 | 100172 | R&S | 2009/1/8 | 2011/1/7 |
| ETSTW-RE 043 | Log-Periodic Dipole Antenna | HL223 | 100166 | R&S | 2009/5/1 | 2010/4/30 |
| ETSTW-RE 044 | Log-Periodic Antenna | HL050 | 100094 | R&S | 2008/5/22 | 2009/5/21 |
| ETSTW-RE 047 | ESA-E SERIES SPECTRUM ANALYZER | E4445A | MY46181369 | Agilent | 2008/6/26 | 2009/6/25 |
| ETSTW-RE 048 | Triple Loop Antenna | HXYZ 9170 | HXYZ 9170-134 | Schwarzbeck | 2008/9/1 | 2009/8/31 |
| ETSTW-RE 049 | TRILOG Super Broadband test Antenna | VULB 9160 | 9160-3185 | Schwarzbeck | 2009/4/14 | 2011/4/13 |
| ETSTW-RE 055 | SPECTRUM ANALYZER | FSU 26 | 200074 | R&S | 2008/7/1 | 2009/6/30 |
| ETSTW-RE 064 | Bluetooth Test Set | MT8852B-042 | 6K00005709 | Anritsu | 2008/9/1 | 2009/8/31 |

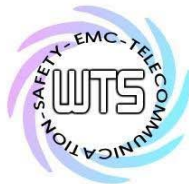


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| | | | | | | |
|-----------------|--------------------------------------|------------------------|------------|--------------|---|------------|
| ETSTW-RE 065 | Amplifier | AMF-6F-18002650-25-10P | 941608 | MITEQ | 2009/4/21 | 2010/4/20 |
| ETSTW-RE 072 | CELL SITE TEST SET | 8921A | 3339A00375 | HP | 2008/10/28 | 2009/10/27 |
| ETSTW-RE 073 | Power Meter | N1911A | MY45100769 | Agilent | 2009/1/9 | 2011/1/8 |
| ETSTW-RE 074 | Power Sensor | N1921A | MY45241198 | Agilent | 2009/1/9 | 2011/1/8 |
| ETSTW-RE 091 | Match Pad | MDCS1500 | None | WOKEN | 2008/10/9 | 2009/10/8 |
| ETSTW-RE 092 | Match Pad | MDCS1510 | None | WOKEN | 2008/10/9 | 2009/10/8 |
| ETSTW-RE 093 | LUMPED ELEMENT POWER DIVIDER | PL2-10 | 146 | MCLI | 2009/3/6 | 2010/3/5 |
| ETSTW-RE 094 | Precision Coaxial Termination | HP 909F | 03941 | Agilent | 2008/12/19 | 2009/12/18 |
| ETSTW-RE 095 | Digital Thermo-Hygro Meter | 0410 | 01 | WISEWIND | 2009/3/24 | 2010/3/23 |
| ETSTW-GSM 002 | Universal Radio Communication Tester | CMU 200 | 109439 | R&S | 2008/9/23 | 2009/9/22 |
| ETSTW-GSM 023 | Power Divider | 4901.19.A | None | SUHNER | 2008/9/22 | 2009/9/21 |
| ETSTW-Cable 001 | Microwave Cable | SUCOFLEX 104 | 238094 | HUBER+SUHNER | 2008/9/22 | 2009/9/21 |
| ETSTW-Cable 002 | Microwave Cable | SUCOFLEX 104 | 238093 | HUBER+SUHNER | 2008/9/22 | 2009/9/21 |
| ETSTW-Cable 003 | Microwave Cable | SUCOFLEX 104 | 209953 | HUBER+SUHNER | 2008/9/22 | 2009/9/21 |
| WTSTW-SW 001 | EMI TEST SOFTWARE | Harmonics-1000 | None | EMC PARTNER | HARCS Version 4.16 Firmware Version 2.18 | |
| WTSTW-SW 002 | EMI TEST SOFTWARE | EZ_EMG | None | Farad | Version ETS-03A1 | |
| WTSTW-SW 003 | EMI TEST SOFTWARE | i2 | None | AUDIX | Version 3.2007-8-17b | |



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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50μH LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBμV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

| | |
|------------|---|
| Freq (MHz) | METER READING + ACF + CABLE LOSS (to the receiver) = FS |
| 33 | 20 dBμV + 10.36 dB + 6 dB = 36.36 dBμV/m @3m |

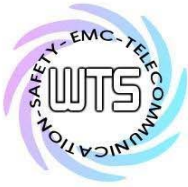
The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.4-2003 Section 13.1.2. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Shuang Sing Village, LiShuei Rd., Wanli Township, Taipei County 207, Taiwan (R.O.C.) The Registration Number: 930600.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



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When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

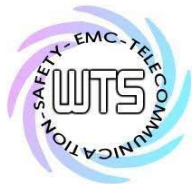
The formula is as follows:

Average = Peak + Duty Factor

Duty Factor = $20 \log (\text{dwell time}/T)$

T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB



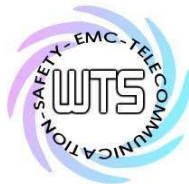
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3 Test results (enclosure)

| TEST CASE | Para. Number | Required | Test passed | Test failed |
|---|----------------------|-------------------------------------|-------------------------------------|--------------------------|
| Peak Output Power | 15.247(b)(3) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Equivalent radiated Power | 15.247(b)(3) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Spurious Emissions radiated – Transmitter operating | 15.247(c): 15.209 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Band Edge Measurement | 15.247(c) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Minimum 6 dB Bandwidth | 15.247(a)(2) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Peak Power Spectral Density | 15.247(d) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Radiated Emission from Digital Part | 15.109 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Power Line Conducted Emission | 15.207 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

The follows is intended to leave blank.



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3.1 Peak Output Power (transmitter)

FCC Rule: 15.247(b)(3)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Mode A

| Test condition | | Conducted Power | | |
|--------------------------------|---------------------------|-----------------|-----------|-----------|
| | | Channel A | Channel B | Channel C |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | [dBm] | [dBm] | [dBm] |
| | | 15.37 | 14.63 | 15.12 |

Mode B

| Test condition | | Conducted Power | | |
|--------------------------------|---------------------------|-----------------|-----------|-----------|
| | | Channel A | Channel B | Channel C |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | [dBm] | [dBm] | [dBm] |
| | | 15.25 | 15.14 | 15.55 |

Mode A

| Test condition $T_{nom} = \text{--}^{\circ}\text{C}, V_{nom} = \text{--} \text{ V}$ | Signal Field strength TX highest power mode dB $\mu\text{V/m}$ |
|--|---|
| Frequency [MHz] | -- |
| -- | |

Mode B

| Test condition $T_{nom} = \text{--}^{\circ}\text{C}, V_{nom} = \text{--} \text{ V}$ | Signal Field strength TX highest power mode dB $\mu\text{V/m}$ |
|--|---|
| Frequency [MHz] | -- |
| -- | |

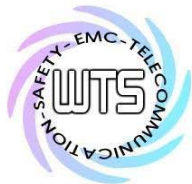
Limits:

| Frequency MHz | Power dBm |
|------------------|--------------|
| 902 - 928 | 30 |
| 2400 – 2483.5 | 30 |
| 5725 – 5850 | 30 |

In case of employing transmitter antennas having antenna gain $> 6 \text{ dBi}$ and using fixed point-to point operation consider §15.247 (b)(4)

Test equipment used: ETSTW-RE 055

Explanation: The diagrams for the peak output power measurements are included in Appendix.



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3.2 Equivalent isotropic radiated power

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain

EIRP = 15.55 dBm + 2.725dBi

= 18.275 dBm

Limit: EIRP = +36 dBm for Antenna gain <6dBi

Test equipment used: ETSTW-RE 055

3.3 RF Exposure Compliance Requirements

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.

The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

$$S = \frac{PG}{4\pi R^2}$$

S – Power Density

P – Output power ERP

R – Distance

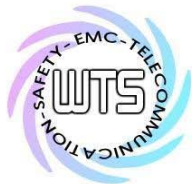
D – Cable Loss

AG – Antenna Gain

| Item | Unit | Value | Remarks |
|------|--------------------|---------|------------------|
| P | mW | 35.8922 | Peak value |
| D | dB | | |
| AG | dBi | 2.725 | |
| G | | 1.87 | Calculated Value |
| R | cm | 20 | Assumed value |
| S | mW/cm ² | 0.01335 | Calculated value |

Limits:

| Limit for General Population / Uncontrolled Exposure | |
|--|--|
| Frequency (MHz) | Power Density (mW/cm ²) |
| 1500 – 100.000 | 1.0 |



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3.4 Transmitter Radiated Emissions in Restricted Bands

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 26500 MHz.

For radiated emission tests, the analyzer setting was as followings:

Frequency \leq 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)

Frequency $>$ 1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)

Frequency $>$ 1 GHz , RBW:1 MHz , VBW: 10 Hz (Average measurements)

Limits.

For frequencies below 1GHz:

| Frequency of Emission (MHz) | Field strength (microvolts/meter) | Field Strength (dB microvolts/meter) |
|--------------------------------|--------------------------------------|---|
| 30 - 88 | 100 | 40.0 |
| 88 - 216 | 150 | 43.5 |
| 216 - 960 | 200 | 46.0 |
| Above | 500 | 54.0 |

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of Digit Transmission Systems:

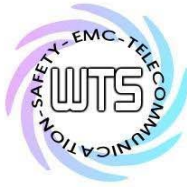
“If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty cycle correction = $20 \log (\text{dwell time} / 100\text{ms})$

Note: No duty cycle correction was added to the reading of this EUT.

Explanation: See attached diagrams in Appendix.



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3.5 Spurious Emissions (tx)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

FCC Rule: 15.247(c), 15.35

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies above 1GHz (Peak measurements).

Modified Limit for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

For frequencies above 1GHz (Average measurements).

Max. reading – 20dB

Max. reading – 20 dB

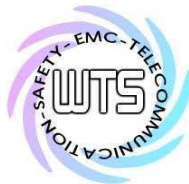
Guidance on Measurement of Digit Transmission Systems:

“If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty Cycle correction = $20 \log (\text{dwell time}/100\text{ms})$

Note: No duty cycle correction was added to the reading of EUT.



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SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance with point 2.3.

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value and exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Correction Factor".

Summary table with radiated data of the test plots

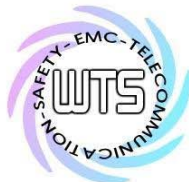
Model: WA-54P Pro Date: 2009/5/8
Mode: Mode A CH1 Temperature: 24 °C Engineer: Kevin
Polarization: Horizontal Humidity: 51 %

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 264.830 | 17.35 | peak | 14.26 | 31.61 | 46.00 | -14.39 | 120 | 150 |
| 612.826 | 6.86 | peak | 22.24 | 29.10 | 46.00 | -16.90 | 210 | 150 |

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|------|-------------------|---------------------|------|--------------------|-------|-------------|---------------------|----------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 3002.004 | 49.34 | --- | -2.60 | 46.74 | --- | 74.00 | 54.00 | -27.26 | 200 | 150 |
| 4824.000 | 40.58 | --- | -1.30 | 39.28 | --- | 74.00 | 54.00 | -34.72 | 210 | 150 |
| 6436.874 | 54.88 | --- | 4.06 | 58.94 | --- | 74.00 | 54.00 | -15.06 | 260 | 150 |
| 7236.000 | 45.12 | --- | 1.86 | 46.98 | --- | 74.00 | 54.00 | -27.02 | 250 | 150 |
| 9648.000 | 20.33 | --- | 25.06 | 39.39 | --- | 74.00 | 54.00 | -34.61 | 120 | 150 |
| 12060.000 | 21.89 | --- | 29.44 | 45.33 | --- | 74.00 | 54.00 | -28.67 | 170 | 150 |

Polarization: Vertical

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 255.631 | 12.61 | peak | 13.97 | 26.58 | 46.00 | -19.42 | 110 | 150 |
| 610.020 | 6.82 | peak | 22.22 | 29.04 | 46.00 | -16.96 | 130 | 150 |



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| Frequency (MHz) | Reading (dBuV) Peak Ave. | | Factor (dB) Corr. | Result @3m (dBuV/m) Peak Ave. | | Limit @3m (dBuV/m) Peak Ave. | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|--------------------------------|-----|-------------------------|-------------------------------------|-----|------------------------------------|-------|----------------|---------------------------|-------------------|
| 4824.000 | 40.82 | --- | -1.30 | 39.52 | --- | 74.00 | 54.00 | -34.48 | 140 | 150 |
| 6436.874 | 52.12 | --- | 4.06 | 56.18 | --- | 74.00 | 54.00 | -17.82 | 250 | 150 |
| 7236.000 | 42.74 | --- | 1.86 | 44.60 | --- | 74.00 | 54.00 | -29.40 | 130 | 150 |
| 9648.000 | 20.70 | --- | 25.06 | 39.76 | --- | 74.00 | 54.00 | -34.24 | 170 | 150 |
| 12060.000 | 21.29 | --- | 29.44 | 44.73 | --- | 74.00 | 54.00 | -29.27 | 310 | 150 |

Mode: Mode A CH6

Polarization: Horizontal

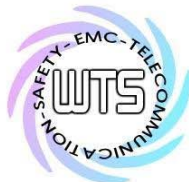
| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|----------|----------------|--------------------|-------------------|----------------|---------------------------|----------------------|
| 270.241 | 16.45 | peak | 14.47 | 30.92 | 46.00 | -15.08 | 170 | 150 |
| 608.617 | 5.97 | peak | 22.22 | 28.19 | 46.00 | -17.81 | 210 | 150 |

| Frequency (MHz) | Reading (dBuV) Peak Ave. | | Factor (dB) Corr. | Result @3m (dBuV/m) Peak Ave. | | Limit @3m (dBuV/m) Peak Ave. | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|--------------------------------|-----|-------------------------|-------------------------------------|-----|------------------------------------|-------|----------------|---------------------------|-------------------|
| 4874.000 | 40.40 | --- | -1.30 | 39.10 | --- | 74.00 | 54.00 | -34.90 | 210 | 150 |
| 6501.002 | 56.23 | --- | 4.50 | 60.73 | --- | 74.00 | 54.00 | -13.27 | 280 | 150 |
| 7311.000 | 43.25 | --- | 1.82 | 45.07 | --- | 74.00 | 54.00 | -28.93 | 250 | 150 |
| 9748.000 | 21.63 | --- | 24.94 | 40.57 | --- | 74.00 | 54.00 | -33.43 | 185 | 150 |
| 12185.000 | 21.19 | --- | 29.74 | 44.93 | --- | 74.00 | 54.00 | -29.07 | 130 | 150 |

Polarization: Vertical

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|----------|----------------|--------------------|-------------------|----------------|---------------------------|----------------------|
| 170.140 | 11.46 | peak | 14.96 | 26.42 | 43.50 | -17.08 | 130 | 150 |
| 612.826 | 7.05 | peak | 22.24 | 29.29 | 46.00 | -16.71 | 180 | 150 |

| Frequency (MHz) | Reading (dBuV) Peak Ave. | | Factor (dB) Corr. | Result @3m (dBuV/m) Peak Ave. | | Limit @3m (dBuV/m) Peak Ave. | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|--------------------------------|-----|-------------------------|-------------------------------------|-----|------------------------------------|-------|----------------|---------------------------|-------------------|
| 4874.000 | 40.74 | --- | -1.30 | 39.44 | --- | 74.00 | 54.00 | -34.56 | 170 | 150 |
| 6501.002 | 53.51 | --- | 4.50 | 58.01 | --- | 74.00 | 54.00 | -15.99 | 320 | 150 |
| 7311.000 | 42.44 | --- | 1.82 | 44.26 | --- | 74.00 | 54.00 | -29.74 | 215 | 150 |
| 9748.000 | 21.56 | --- | 24.94 | 40.50 | --- | 74.00 | 54.00 | -33.50 | 210 | 150 |
| 12185.000 | 22.41 | --- | 29.74 | 46.15 | --- | 74.00 | 54.00 | -27.85 | 250 | 150 |



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Mode: Mode A CH11

Polarization: Horizontal

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 270.241 | 16.67 | peak | 14.47 | 31.14 | 46.00 | -14.86 | 140 | 150 |
| 325.250 | 12.76 | peak | 16.00 | 28.76 | 46.00 | -17.24 | 240 | 150 |

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|------|-------------------|---------------------|------|--------------------|-------|-------------|---------------------|----------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4924.000 | 40.61 | --- | -1.20 | 39.41 | --- | 74.00 | 54.00 | -34.59 | 130 | 150 |
| 6565.130 | 54.19 | --- | 4.70 | 58.89 | --- | 74.00 | 54.00 | -15.11 | 125 | 150 |
| 7390.782 | 46.91 | --- | 1.98 | 48.89 | --- | 74.00 | 54.00 | -25.11 | 340 | 150 |
| 9848.000 | 21.00 | --- | 25.49 | 40.49 | --- | 74.00 | 54.00 | -33.51 | 210 | 150 |
| 12310.000 | 20.84 | --- | 30.04 | 44.88 | --- | 74.00 | 54.00 | -29.12 | 270 | 150 |

Polarization: Vertical

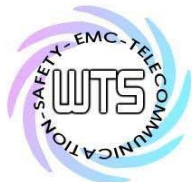
| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 282.144 | 13.74 | peak | 14.88 | 28.62 | 46.00 | -17.38 | 120 | 150 |
| 611.423 | 7.54 | peak | 22.23 | 29.77 | 46.00 | -16.23 | 170 | 150 |

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|------|-------------------|---------------------|------|--------------------|-------|-------------|---------------------|----------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4924.000 | 40.26 | --- | -1.20 | 39.06 | --- | 74.00 | 54.00 | -34.94 | 140 | 150 |
| 6565.130 | 50.87 | --- | 4.70 | 55.57 | --- | 74.00 | 54.00 | -18.43 | 250 | 150 |
| 7368.000 | 41.77 | --- | 1.94 | 43.71 | --- | 74.00 | 54.00 | -30.29 | 170 | 150 |
| 9848.000 | 21.29 | --- | 25.49 | 40.78 | --- | 74.00 | 54.00 | -33.22 | 210 | 150 |
| 12310.000 | 21.58 | --- | 30.04 | 45.62 | --- | 74.00 | 54.00 | -28.38 | 320 | 150 |

Mode: Mode B CH1

Polarization: Horizontal

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 264.830 | 17.85 | peak | 14.26 | 32.11 | 46.00 | -13.89 | 100 | 150 |
| 610.020 | 6.66 | peak | 22.22 | 28.88 | 46.00 | -17.12 | 140 | 150 |



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| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|------|-------------------------|------------------------|------|-----------------------|-------|----------------|---------------------------|-------------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4824.000 | 40.12 | --- | -1.30 | 38.82 | --- | 74.00 | 54.00 | -35.18 | 130 | 150 |
| 6436.874 | 54.60 | --- | 4.06 | 58.66 | --- | 74.00 | 54.00 | -15.34 | 120 | 150 |
| 7236.000 | 43.41 | --- | 1.86 | 45.27 | --- | 74.00 | 54.00 | -28.73 | 180 | 150 |
| 9648.000 | 20.22 | --- | 25.06 | 39.28 | --- | 74.00 | 54.00 | -34.72 | 120 | 150 |
| 12060.000 | 22.07 | --- | 29.44 | 45.51 | --- | 74.00 | 54.00 | -28.49 | 260 | 150 |

Polarization: Vertical

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|----------|----------------|--------------------|-------------------|----------------|---------------------------|----------------------|
| 170.140 | 12.43 | peak | 14.96 | 27.39 | 43.50 | -16.11 | 120 | 150 |
| 611.423 | 6.94 | peak | 22.23 | 29.17 | 46.00 | -16.83 | 210 | 150 |

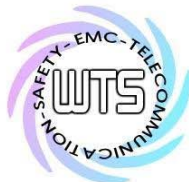
| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|------|-------------------------|------------------------|------|-----------------------|-------|----------------|---------------------------|-------------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4824.000 | 40.52 | --- | -1.30 | 39.22 | --- | 74.00 | 54.00 | -34.78 | 210 | 150 |
| 6436.874 | 51.64 | --- | 4.06 | 55.70 | --- | 74.00 | 54.00 | -18.30 | 340 | 150 |
| 7236.000 | 42.08 | --- | 1.86 | 43.94 | --- | 74.00 | 54.00 | -30.06 | 250 | 150 |
| 9648.000 | 20.27 | --- | 25.06 | 39.33 | --- | 74.00 | 54.00 | -34.67 | 120 | 150 |
| 12060.000 | 21.66 | --- | 29.44 | 45.10 | --- | 74.00 | 54.00 | -28.90 | 100 | 150 |

Mode: Mode B CH6

Polarization: Horizontal

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|----------|----------------|--------------------|-------------------|----------------|---------------------------|----------------------|
| 270.240 | 17.45 | peak | 14.47 | 31.92 | 46.00 | -14.08 | 90 | 150 |
| 611.423 | 6.00 | peak | 22.23 | 28.23 | 46.00 | -17.77 | 95 | 150 |

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|------|-------------------------|------------------------|------|-----------------------|-------|----------------|---------------------------|-------------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4874.000 | 41.05 | --- | -1.30 | 39.75 | --- | 74.00 | 54.00 | -34.25 | 130 | 150 |
| 6501.002 | 55.39 | --- | 4.50 | 59.89 | --- | 74.00 | 54.00 | -14.11 | 180 | 150 |
| 7311.000 | 44.32 | --- | 1.82 | 46.14 | --- | 74.00 | 54.00 | -27.86 | 255 | 150 |
| 9748.000 | 21.80 | --- | 24.94 | 40.74 | --- | 74.00 | 54.00 | -33.26 | 210 | 150 |
| 12185.000 | 21.72 | --- | 29.74 | 45.46 | --- | 74.00 | 54.00 | -28.54 | 250 | 150 |



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Polarization: Vertical

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 278.898 | 10.58 | peak | 14.80 | 25.38 | 46.00 | -20.62 | 105 | 150 |
| 611.423 | 6.29 | peak | 22.23 | 28.52 | 46.00 | -17.48 | 120 | 150 |

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|------|-------------------|---------------------|------|--------------------|-------|-------------|---------------------|----------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4874.000 | 40.77 | --- | -1.30 | 39.47 | --- | 74.00 | 54.00 | -34.53 | 120 | 150 |
| 6501.002 | 54.26 | --- | 4.50 | 58.76 | --- | 74.00 | 54.00 | -15.24 | 250 | 150 |
| 7311.000 | 42.90 | --- | 1.82 | 44.72 | --- | 74.00 | 54.00 | -29.28 | 70 | 150 |
| 9748.000 | 21.16 | --- | 24.94 | 40.10 | --- | 74.00 | 54.00 | -33.90 | 120 | 150 |
| 12185.000 | 21.35 | --- | 29.74 | 45.09 | --- | 74.00 | 54.00 | -28.91 | 250 | 150 |

Mode: Mode B CH11

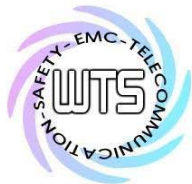
Polarization: Horizontal

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 270.240 | 17.17 | peak | 14.47 | 31.64 | 46.00 | -14.36 | 140 | 150 |
| 612.826 | 7.14 | peak | 22.24 | 29.38 | 46.00 | -16.62 | 140 | 150 |

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|------|-------------------|---------------------|------|--------------------|-------|-------------|---------------------|----------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4924.000 | 40.45 | --- | -1.20 | 39.25 | --- | 74.00 | 54.00 | -34.75 | 120 | 150 |
| 6565.130 | 55.52 | --- | 4.70 | 60.22 | --- | 74.00 | 54.00 | -13.78 | 280 | 150 |
| 7382.766 | 47.32 | --- | 1.97 | 49.29 | --- | 74.00 | 54.00 | -24.71 | 140 | 150 |
| 9848.000 | 20.77 | --- | 25.49 | 40.26 | --- | 74.00 | 54.00 | -33.74 | 140 | 150 |
| 12310.000 | 21.63 | --- | 30.04 | 45.67 | --- | 74.00 | 54.00 | -28.33 | 170 | 150 |

Polarization: Vertical

| Frequency (MHz) | Reading (dBuV) | Detector | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|-----------------|----------------|----------|-------------|-----------------|----------------|-------------|---------------------|----------------|
| 274.569 | 11.99 | peak | 14.63 | 26.62 | 46.00 | -19.38 | 210 | 150 |
| 408.016 | 12.56 | peak | 17.95 | 30.51 | 46.00 | -15.49 | 120 | 150 |



Worldwide Testing Services(Taiwan) Co., Ltd.

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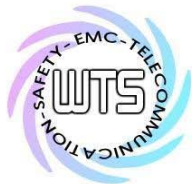
FCC ID: W8ONW06-WA54PP

| Frequency (MHz) | Reading (dBuV) | | Factor (dB) Corr. | Result @3m (dBuV/m) | | Limit @3m (dBuV/m) | | Margin (dB) | Table Degree (Deg.) | Ant. High (cm) |
|--------------------|-------------------|------|-------------------------|------------------------|------|-----------------------|-------|----------------|---------------------------|-------------------|
| | Peak | Ave. | | Peak | Ave. | Peak | Ave. | | | |
| 4924.000 | 40.41 | --- | -1.20 | 39.21 | --- | 74.00 | 54.00 | -34.79 | 100 | 150 |
| 6565.130 | 51.18 | --- | 4.70 | 55.88 | --- | 74.00 | 54.00 | -18.12 | 350 | 150 |
| 7368.000 | 42.36 | --- | 1.94 | 44.30 | --- | 74.00 | 54.00 | -29.70 | 250 | 150 |
| 9848.000 | 20.62 | --- | 25.49 | 40.11 | --- | 74.00 | 54.00 | -33.89 | 120 | 150 |
| 12310.000 | 21.62 | --- | 30.04 | 45.66 | --- | 74.00 | 54.00 | -28.34 | 310 | 150 |

- Note**
1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
 2. **The formula of measured value as: Test Result = Reading + Correction Factor**
 3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
 4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
 5. **See the attached diagram as appendix.**

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018,
ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042,
ETSTW-RE 043



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3.6 Radiated Emission on the band edge

According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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. Attenuation below the general limits specified in § 15.209(a) is not required.

In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.

Mode A

| Test conditions | | Attenuation at or outside band-edges | |
|--------------------------------|---------------------------|--------------------------------------|-----------------|
| | | Lower Band-edge | Upper Band-edge |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | 38.41 dB | 51.02 dB |

Mode B

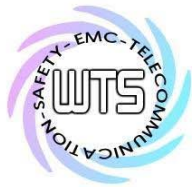
| Test conditions | | Attenuation at or outside band-edges | |
|--------------------------------|---------------------------|--------------------------------------|-----------------|
| | | Lower Band-edge | Upper Band-edge |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | 34.05 dB | 49.76 dB |

Limit:

| Frequency Range / MHz | Limit |
|-----------------------|---------|
| 902 – 928 | - 20 dB |
| 2400 – 2483.5 | |
| 5725 - 5850 | |

Test equipment used: ETSTW-RE 055

Explanation: Please see attached diagram as appendix.



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3.7 Minimum 6 dB Bandwidth

The analyzer ResBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission.

The 6 dB bandwidth is the frequency difference between the two markers.

Mode A

| Test conditions | | 6 dB Bandwidth | | |
|--------------------------------|---------------------------|------------------|------------------|------------------|
| | | Channel 1 | Channel 6 | Channel 11 |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | 10.961538462 MHz | 11.442307692 MHz | 12.115384615 MHz |

Mode B

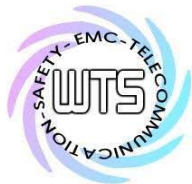
| Test conditions | | 6 dB Bandwidth | | |
|--------------------------------|---------------------------|------------------|------------------|------------------|
| | | Channel 1 | Channel 6 | Channel 11 |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | 16.532051282 MHz | 16.570512821 MHz | 16.570512821 MHz |

Limits:

| Frequency Range MHz | Limits |
|------------------------|-------------|
| 902-928 | min 500 kHz |
| 2400-2483.5 | min 500 kHz |
| 5725-5850 | min 500 kHz |

Test equipment used: ETSTW-RE 055

Explanation: See attached diagrams in Appendix.



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3.8 Peak Power Spectral Density

Peak Power Spectral density is a measured at low, middle and high channel.

The peak output power is measured with a measurement bandwidth of 10 MHz and displayed on diagram together with Peak Power Spectral Density result which was measured with a bandwidth of 3 kHz, appreciate frequency span and sweep time.

Mode A

| Test conditions | | Peak Power Spectral Density (3 kHz) | | |
|--------------------------------|---------------------------|-------------------------------------|--------------------|---------------------|
| | | Channel 1 [dBm] | Channel 6 [dBm] | Channel 11 [dBm] |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | -15.80 | -16.62 | -16.27 |

Mode B

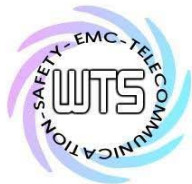
| Test conditions | | Peak Power Spectral Density (3 kHz) | | |
|--------------------------------|---------------------------|-------------------------------------|--------------------|---------------------|
| | | Channel 1 [dBm] | Channel 6 [dBm] | Channel 11 [dBm] |
| $T_{nom} = 23^{\circ}\text{C}$ | $V_{nom} = 3.3 \text{ V}$ | -18.20 | -18.43 | -17.54 |

Limits:

| Frequency Range MHz | dBm |
|------------------------|-----|
| 902-928 | 8 |
| 2400-2483.5 | 8 |
| 5725-5850 | 8 |

Test equipment used: ETSTW-RE 055

Explanation: See attached diagrams in Appendix.



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3.9 Radiated Emission from Digital Part

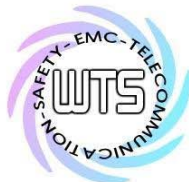
According to FCC part 15.109 (g), digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, “Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement”.

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency of Emission (MHz) | Field Strength (microvolts/meter) | Field Strength (dBmicrovolts/meter) |
|--------------------------------|--------------------------------------|--|
| 30 – 88 | 100 | 40.0 |
| 88 – 216 | 150 | 43.5 |
| 216 – 960 | 200 | 46.0 |
| Above 960 | 500 | 54.0 |

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043

Explanation: The test results are listed in the separated test report no. W6M20903-9662-P-15B.



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3.10 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

| Frequency | Level (dB μ V) | |
|-----------|--------------------|------------------|
| | quasi-peak | average |
| 150 kHz | lower limit line | Lower limit line |

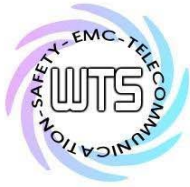
Model: WA-54P Pro Date: 2009/5/12
Mode: Temperature: 24 °C Engineer: Kevin
Polarization: N Humidity: 51 %

| Frequency (MHz) | Reading (dB μ V) | | Factor (dB) Corr. | Result (dB μ V) | | Limit (dB μ V) | | Margin (dB) |
|--------------------|-------------------------|-------|-------------------------|------------------------|-------|-----------------------|-------|----------------|
| | QP | Ave. | | QP | Ave. | QP | Ave. | |
| 0.1729 | 25.82 | 10.75 | 10.14 | 35.96 | 20.89 | 64.82 | 54.82 | -28.86 |
| 0.2306 | 23.99 | 23.21 | 10.06 | 34.05 | 33.27 | 62.43 | 52.43 | -19.16 |
| 0.5736 | 23.00 | 22.30 | 10.16 | 33.16 | 32.46 | 56.00 | 46.00 | -13.54 |
| 1.2633 | 24.19 | 23.50 | 10.09 | 34.28 | 33.59 | 56.00 | 46.00 | -12.41 |
| 2.7532 | 23.31 | 20.26 | 10.06 | 33.37 | 30.32 | 56.00 | 46.00 | -15.68 |
| 14.4529 | 23.74 | 20.90 | 10.45 | 34.19 | 31.35 | 60.00 | 50.00 | -18.65 |

Polarization: L1

| Frequency (MHz) | Reading (dB μ V) | | Factor (dB) Corr. | Result (dB μ V) | | Limit (dB μ V) | | Margin (dB) |
|--------------------|-------------------------|-------|-------------------------|------------------------|-------|-----------------------|-------|----------------|
| | QP | Ave. | | QP | Ave. | QP | Ave. | |
| 0.2301 | 33.36 | 31.80 | 10.14 | 43.50 | 41.94 | 62.45 | 52.45 | -10.51 |
| 0.9200 | 25.49 | 24.33 | 10.22 | 35.71 | 34.55 | 56.00 | 46.00 | -11.45 |
| 2.8215 | 17.46 | 12.53 | 10.23 | 27.69 | 22.76 | 56.00 | 46.00 | -23.24 |
| 7.3723 | 16.12 | 12.63 | 10.71 | 26.83 | 23.34 | 60.00 | 50.00 | -26.66 |
| 11.0403 | 2.97 | -0.21 | 11.04 | 14.01 | 10.83 | 60.00 | 50.00 | -39.17 |
| 14.6111 | 5.40 | -2.25 | 11.19 | 16.59 | 8.94 | 60.00 | 50.00 | -41.06 |

- Note**
1. The formula of measured value as: **Test Result = Reading + Correction Factor**
 2. The **Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss**
 3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
 4. All not in the table noted test results are more than 20 dB below the relevant limits.
 5. See attached diagrams as appendix.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

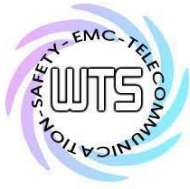
FCC ID: W8ONW06-WA54PP

Limits:

| Frequency of Emission (MHz) | Conducted Limit (dBuV) | |
|-----------------------------|------------------------|----------|
| | Quasi Peak | Average |
| 0.15-0.5 | 66 to 56 | 56 to 46 |
| | 56 | 46 |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

Test equipment used:ETSTW-CE 001, ETSTW-CE 003, ETSTW-CE 004, ETSTW-CE 006

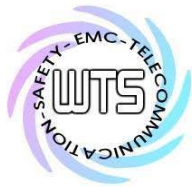
Explanation: See attached diagrams in Appendix.



Appendix

Measurement diagrams

1. Peak Output Power
2. Spurious Emissions Radiated
3. Band Edge Measurement
4. Minimum 6dB Bandwidth
5. Peak Power Spectral Density
6. Power Line Conducted Emission

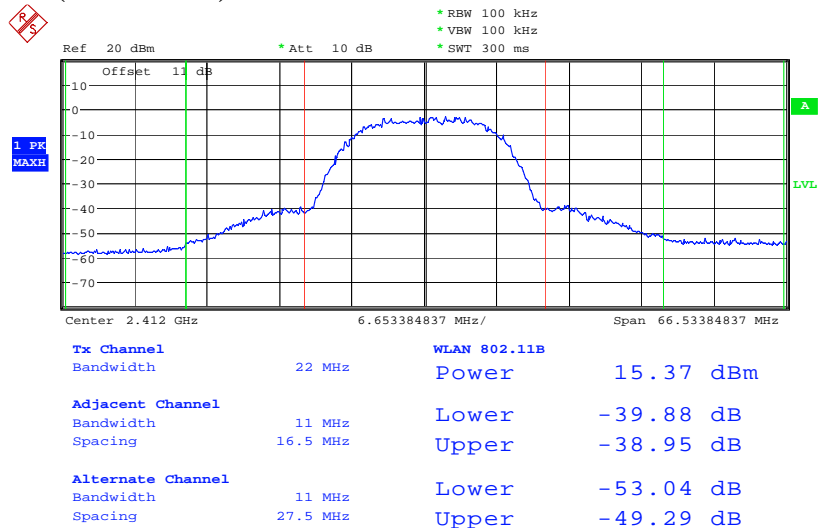


Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

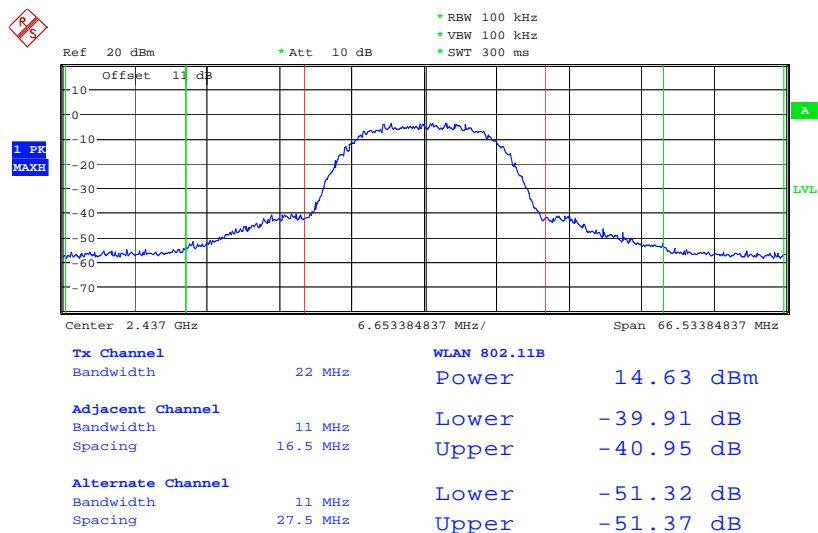
Peak Output Power

802.11B Mode (Mode A)



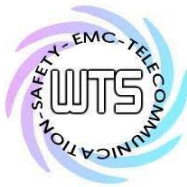
MAX OUTPUT POWER 802.11b CH1

Date: 30.APR.2009 15:33:00



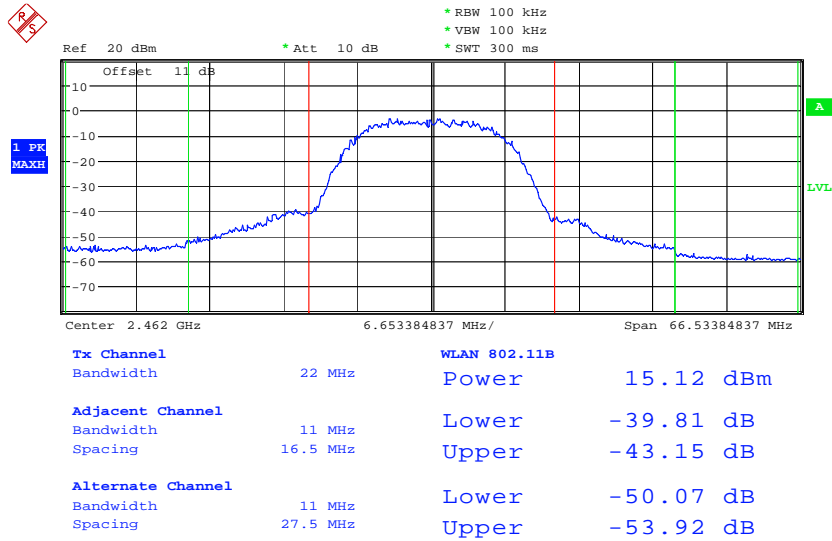
MAX OUTPUT POWER 802.11b CH6

Date: 30.APR.2009 15:37:35



Registration number: W6M20903-9662-C-1

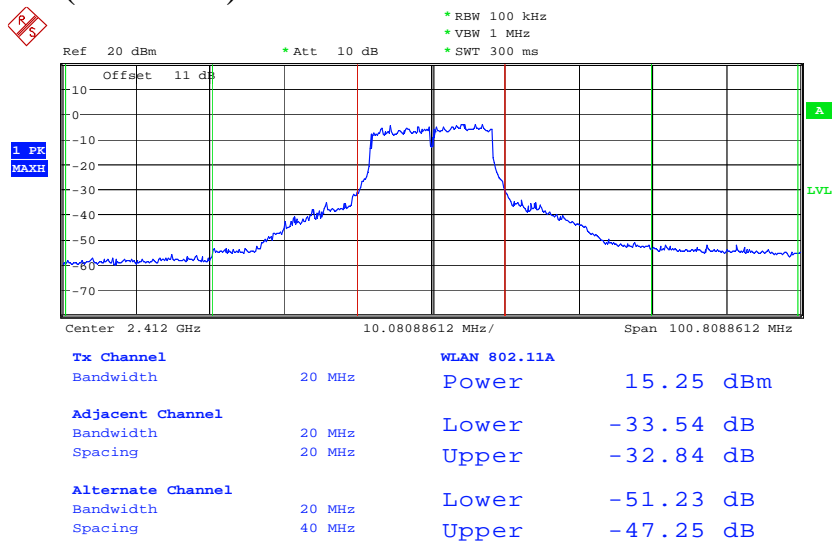
FCC ID: W8ONW06-WA54PP



MAX OUTPUT POWER 802.11b CH11

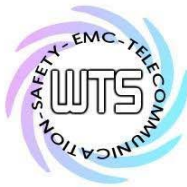
Date: 30.APR.2009 15:38:38

802.11G Mode (Mode B)



MAX OUTPUT POWER 802.11g CH1

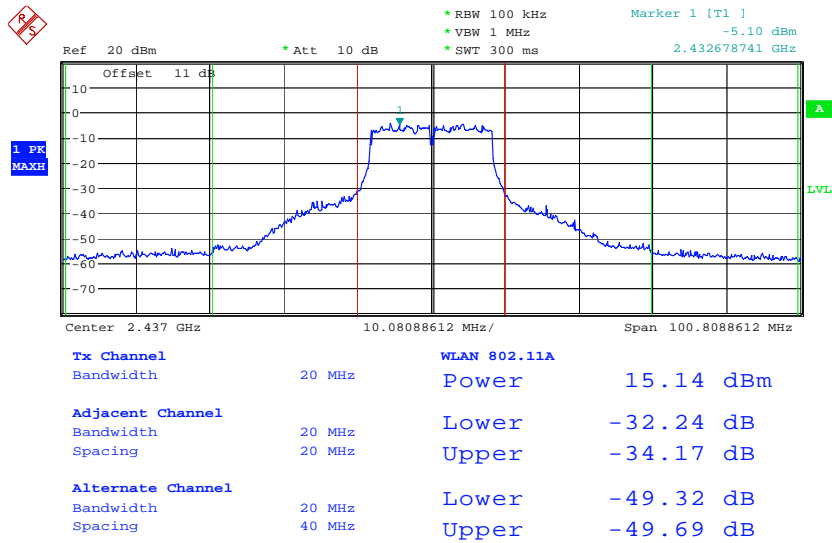
Date: 30.APR.2009 15:45:17



Worldwide Testing Services(Taiwan) Co., Ltd.

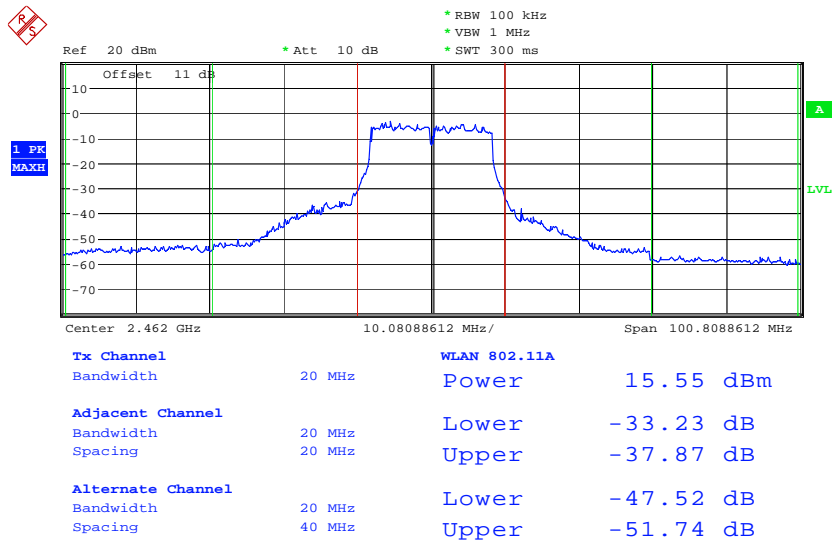
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



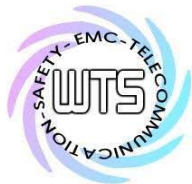
MAX OUTPUT POWER 802.11g CH6

Date: 30.APR.2009 15:46:19



MAX OUTPUT POWER 802.11g CH11

Date: 30.APR.2009 15:43:34



Worldwide Testing Services(Taiwan) Co., Ltd.

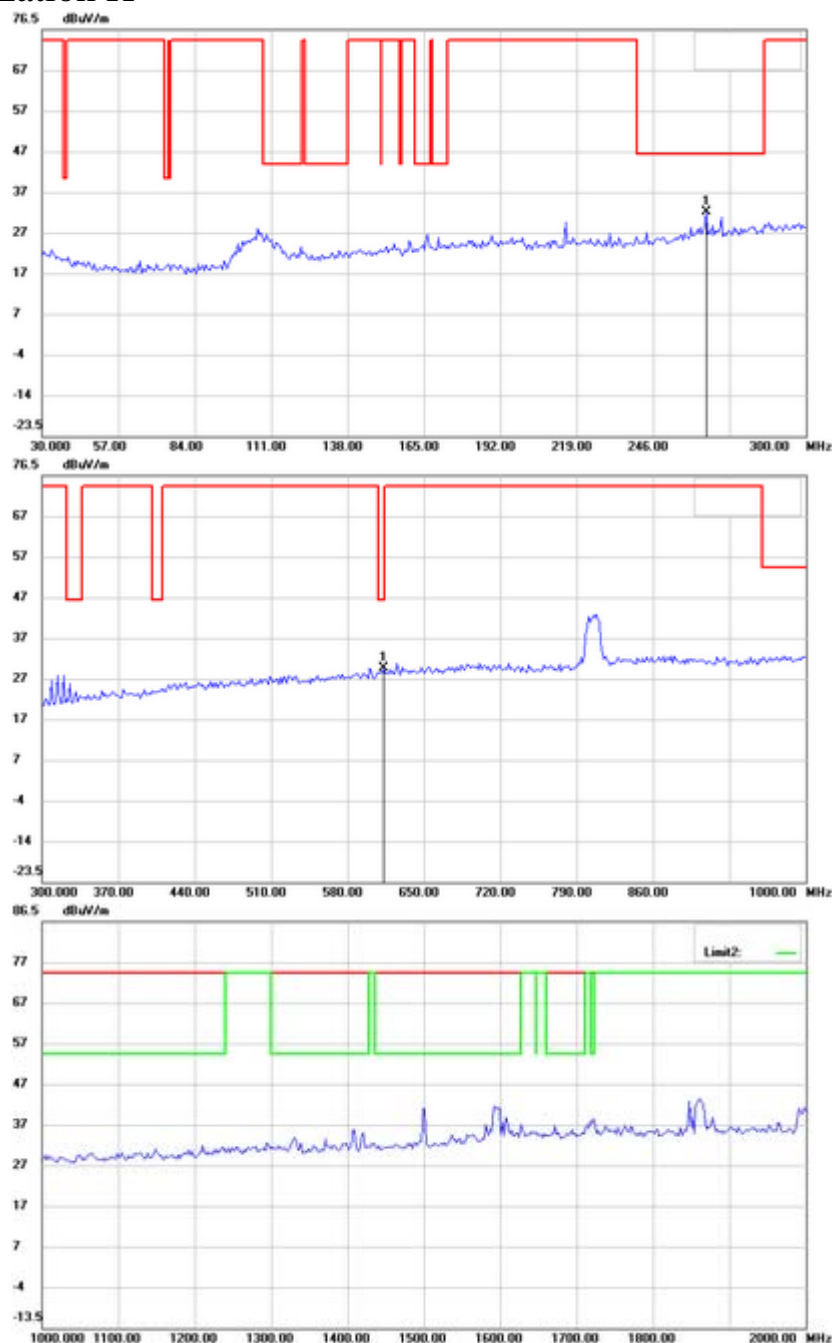
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

Spurious Emissions Radiated

802.11B Mode (Mode A)_CH1

Antenna Polarization H

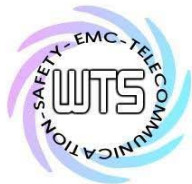


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

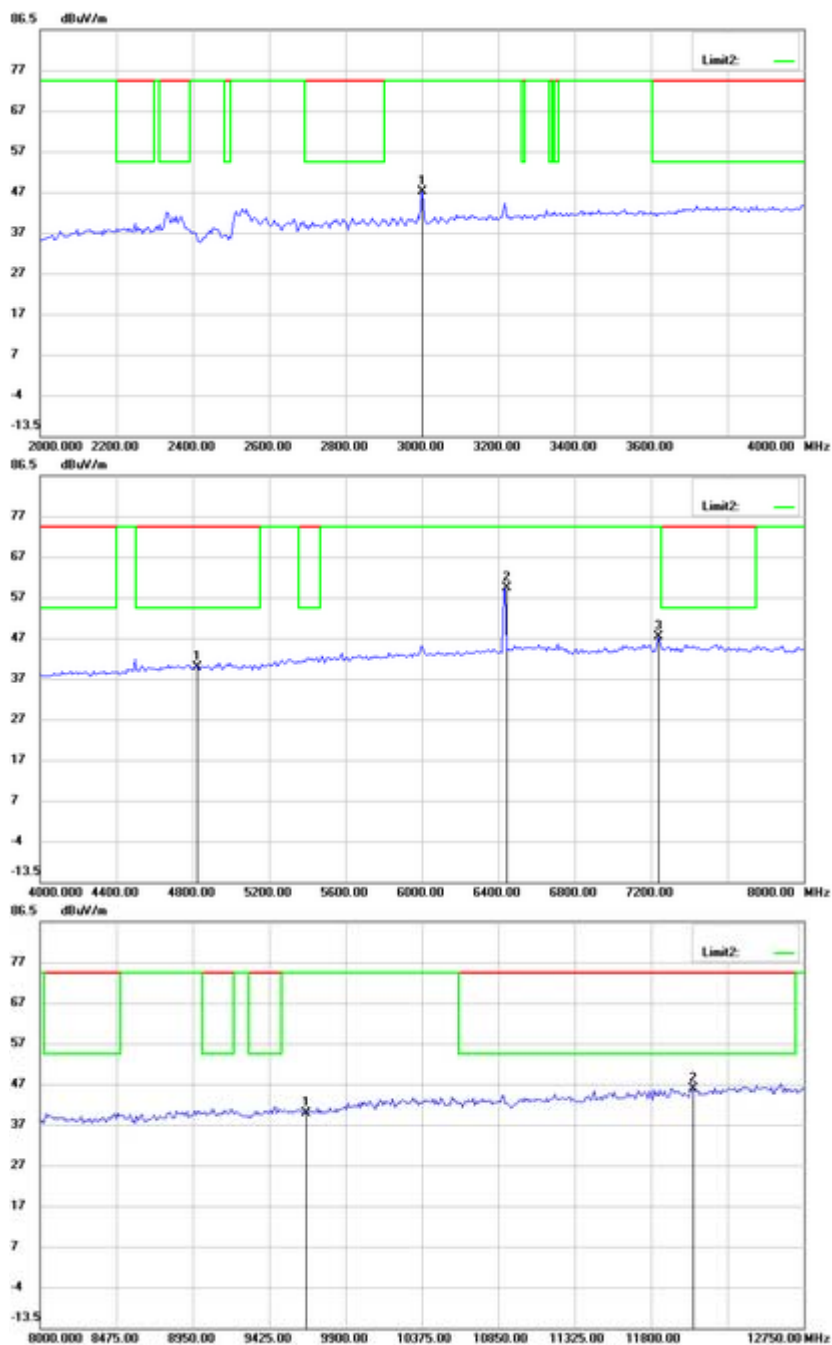
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

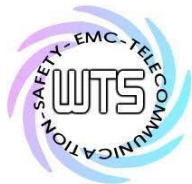


Up Line: Peak Limit Line

Down Line: Ave Limit Line

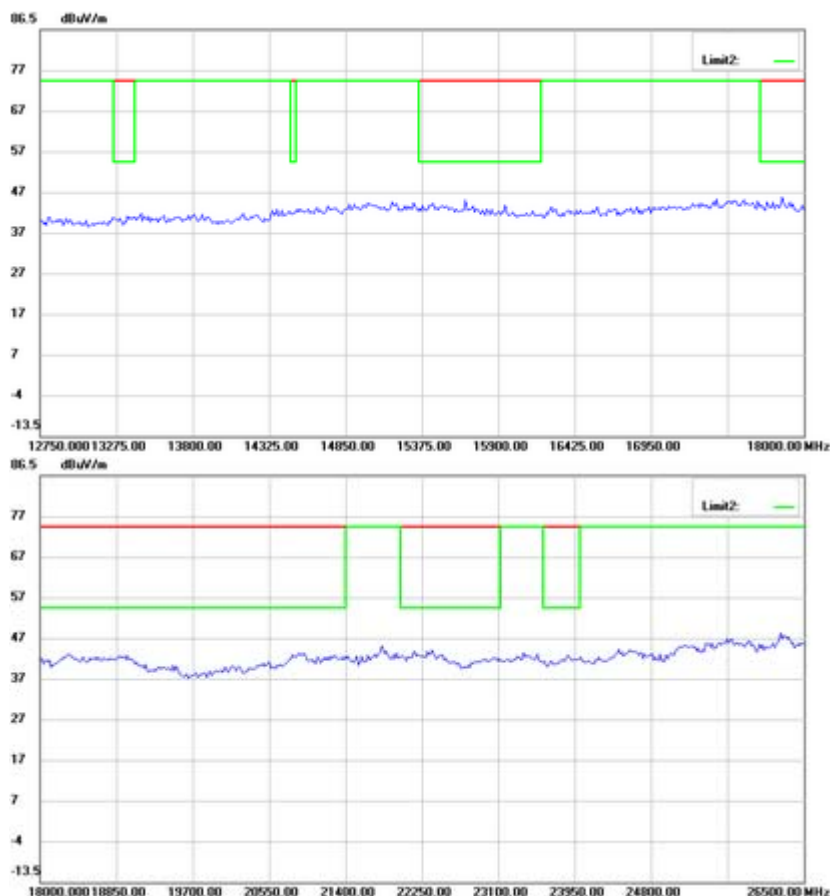
Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

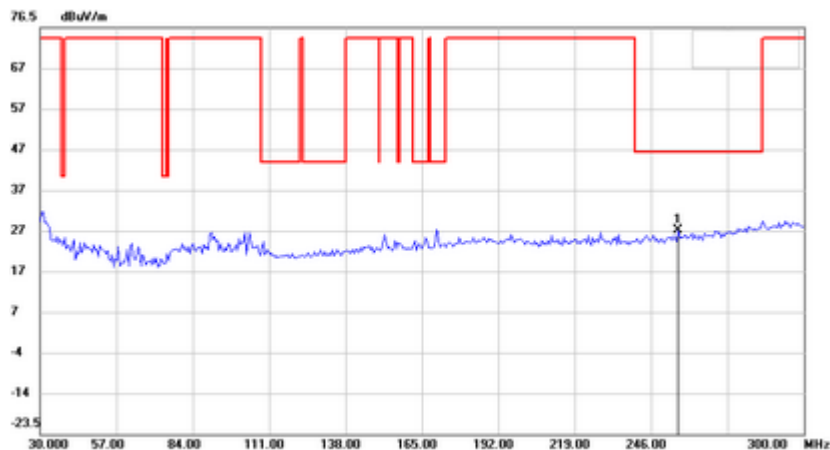


Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Antenna Polarization V

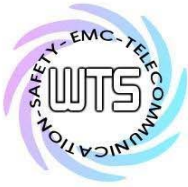


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

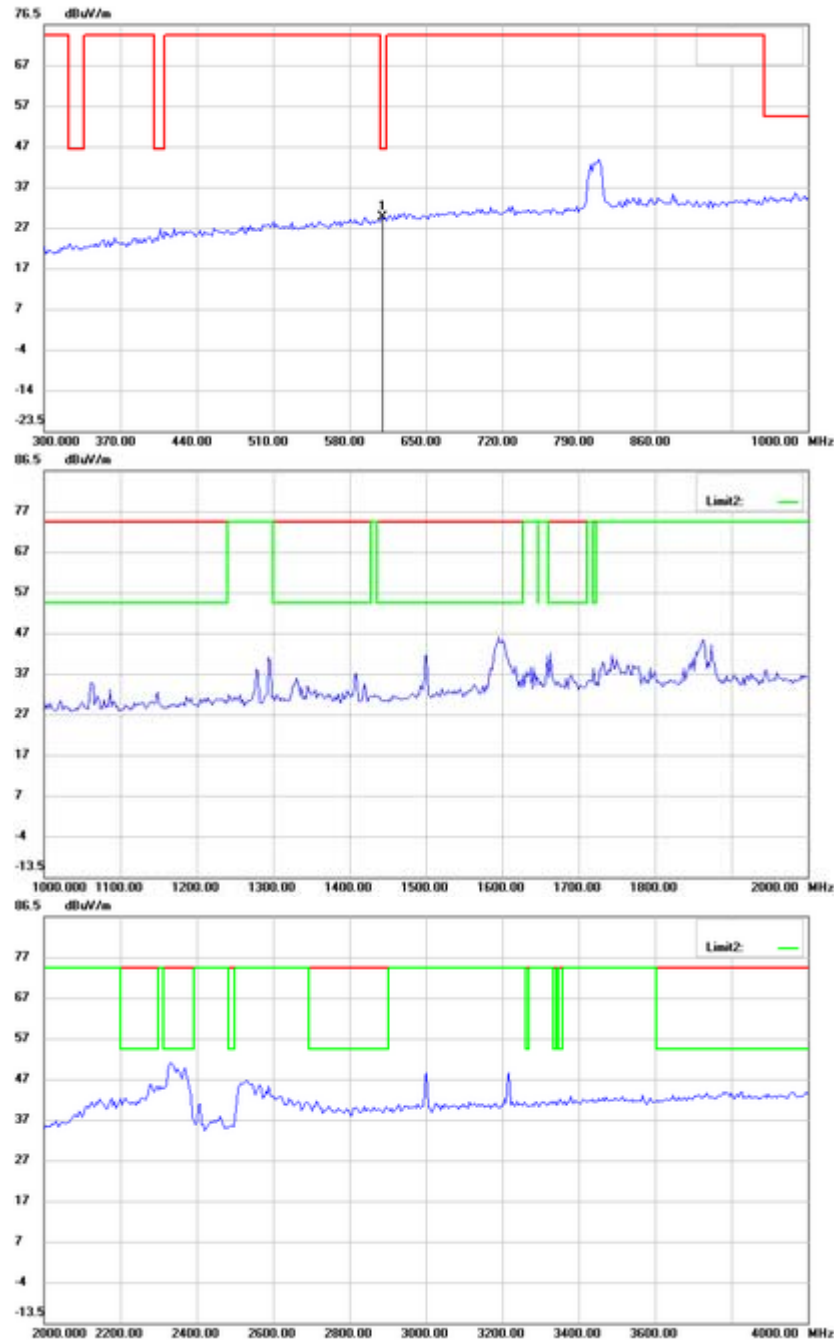
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

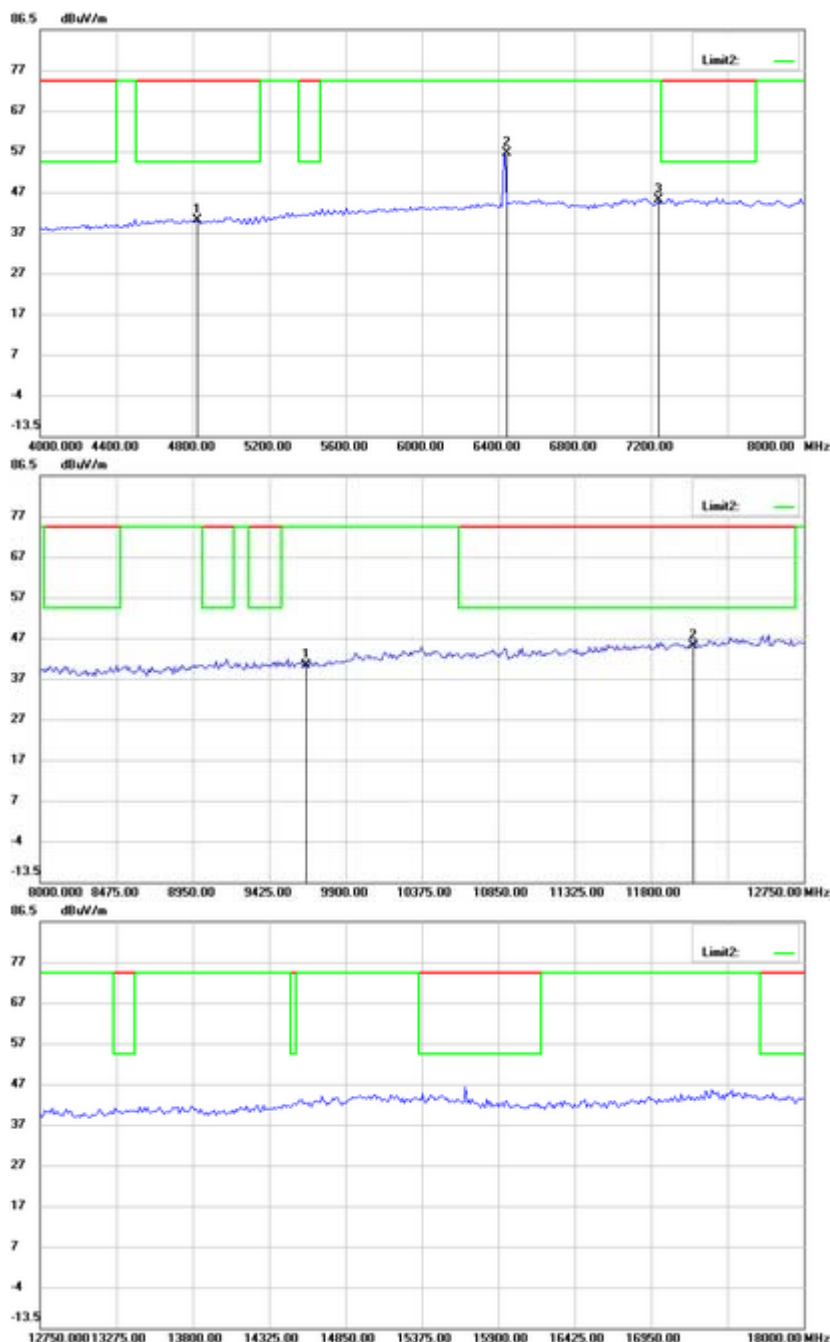
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

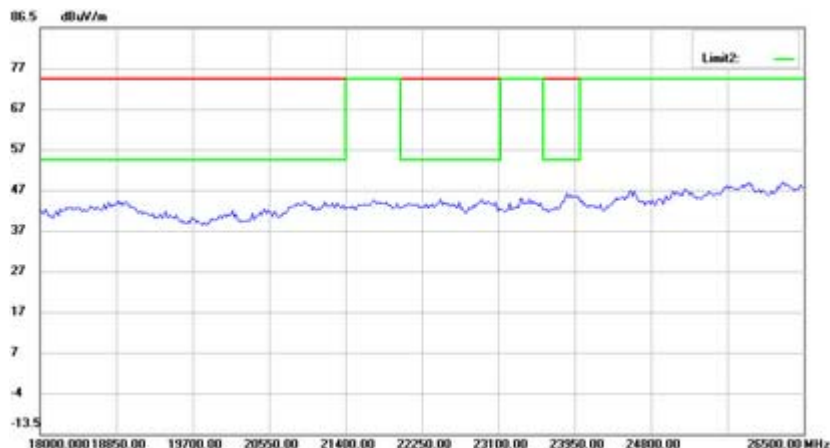
Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



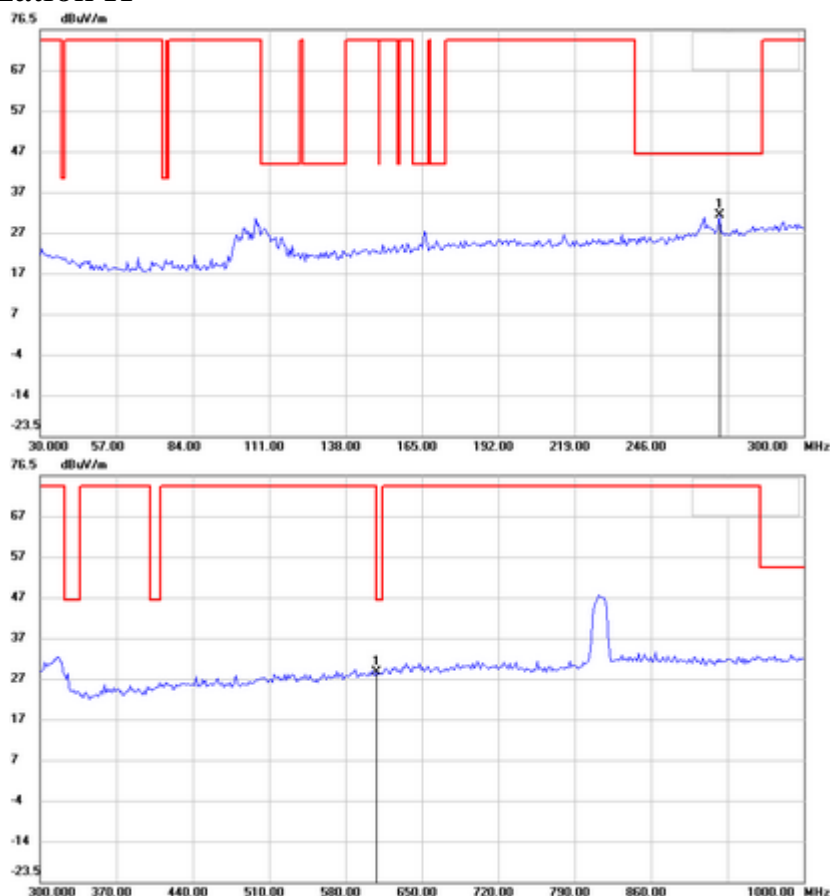
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



802.11B Mode (Mode A)_CH6

Antenna Polarization H



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

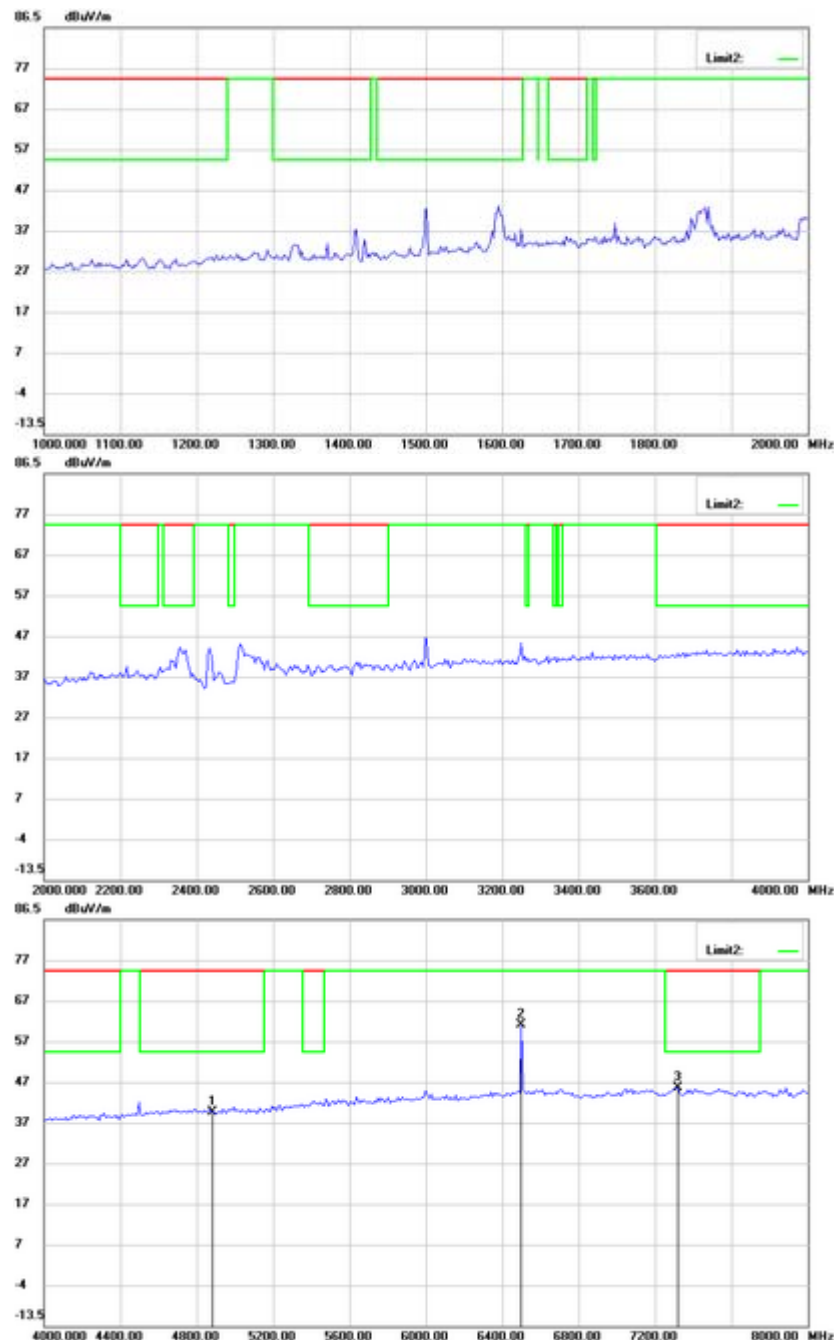
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

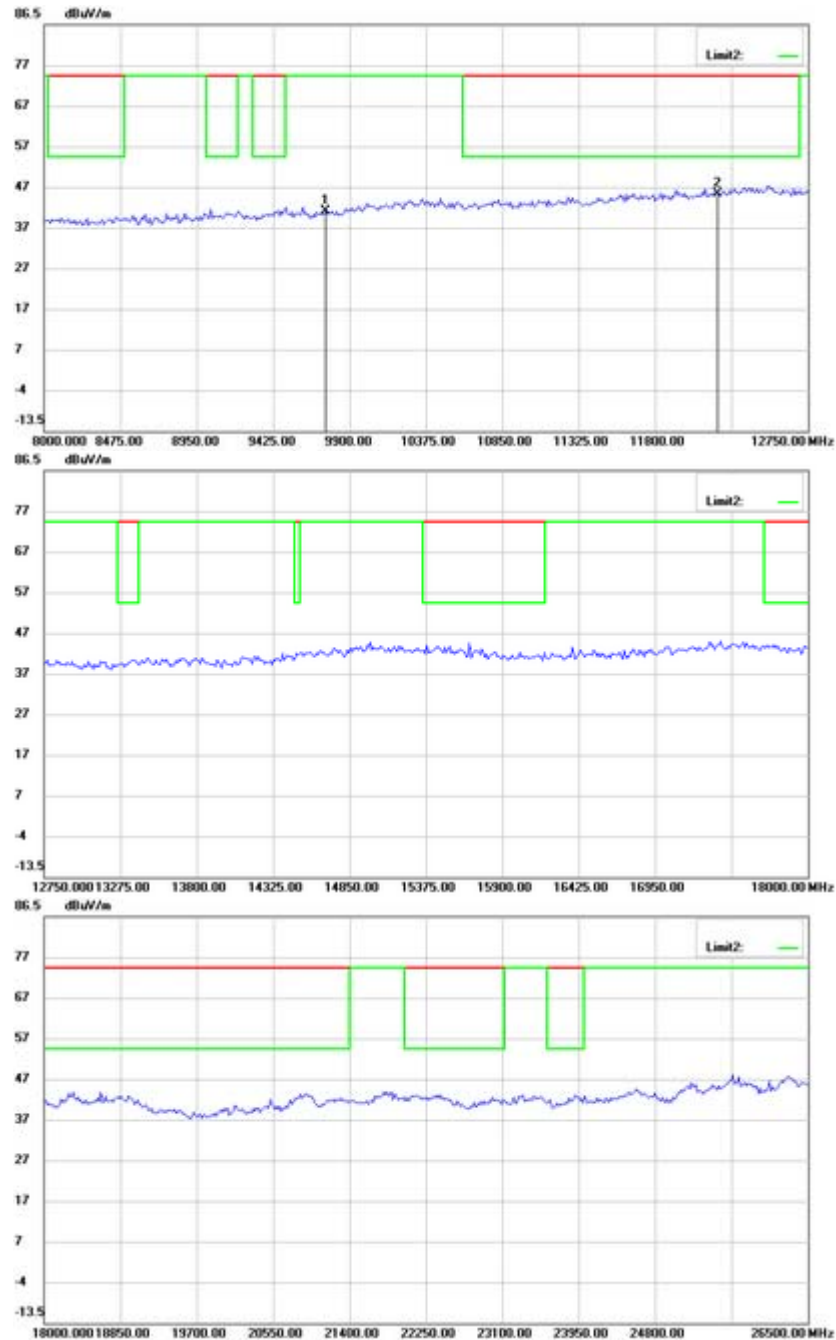
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

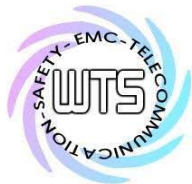
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

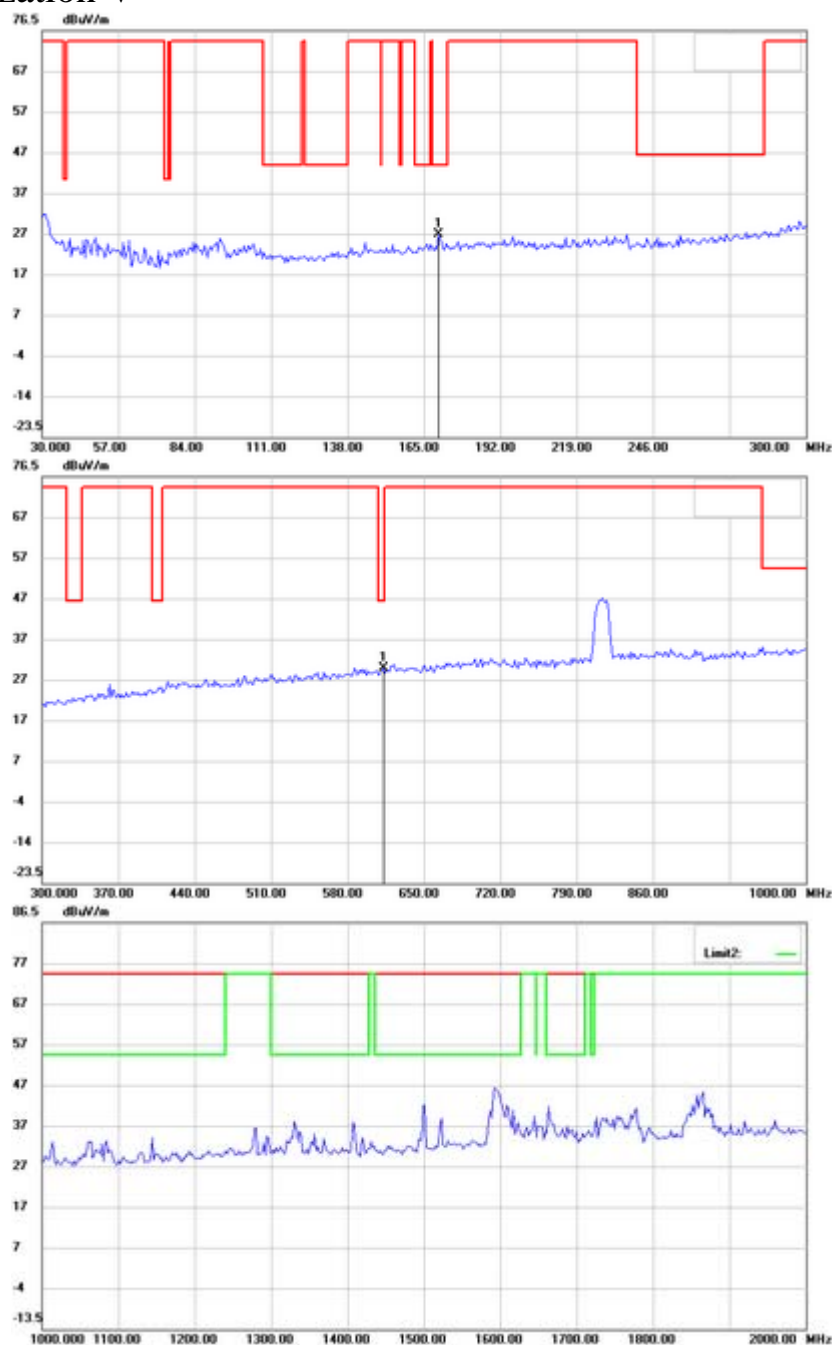
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

Antenna Polarization V

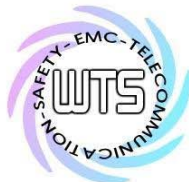


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

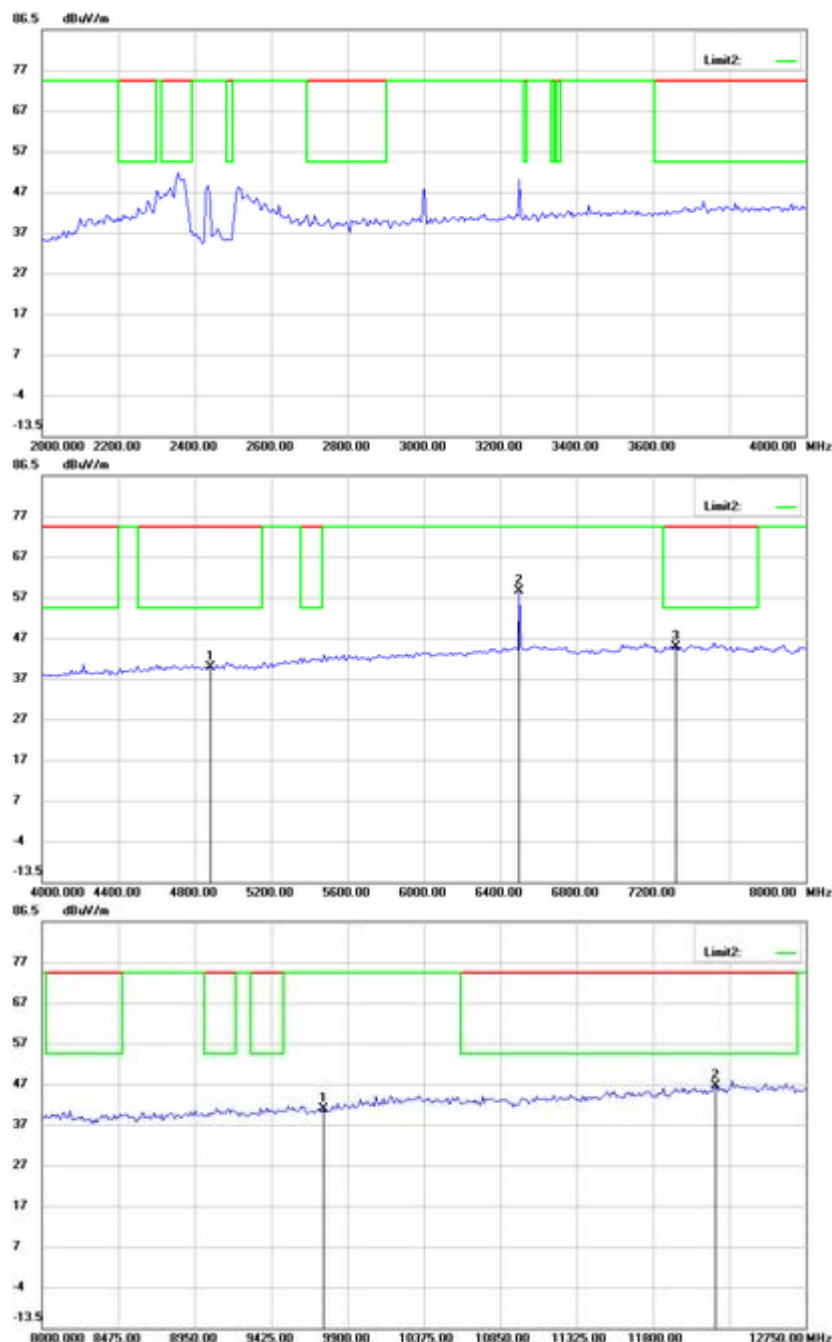
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

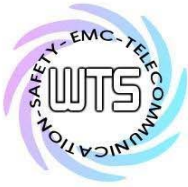
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

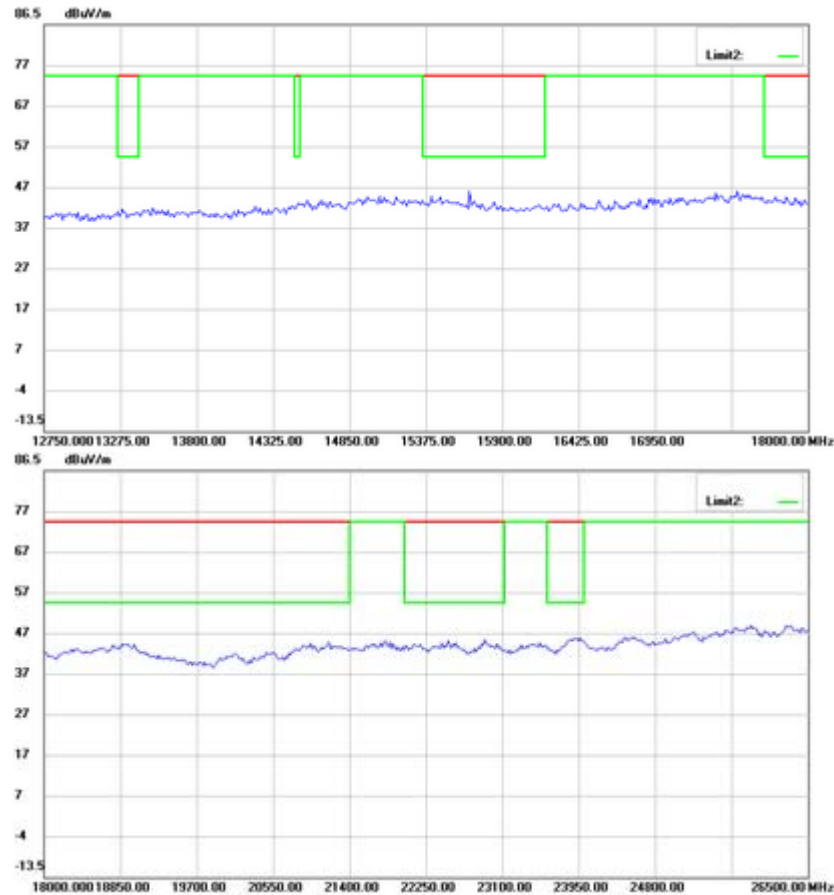
Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



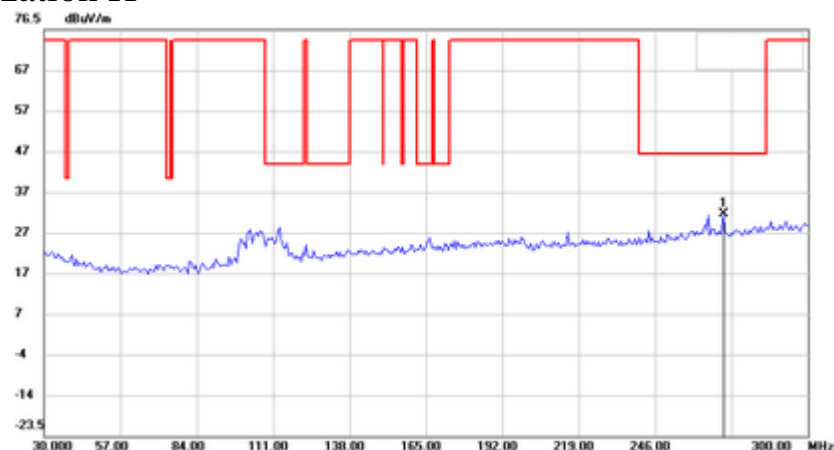
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



802.11B Mode (Mode A)_CH11

Antenna Polarization H

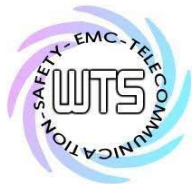


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

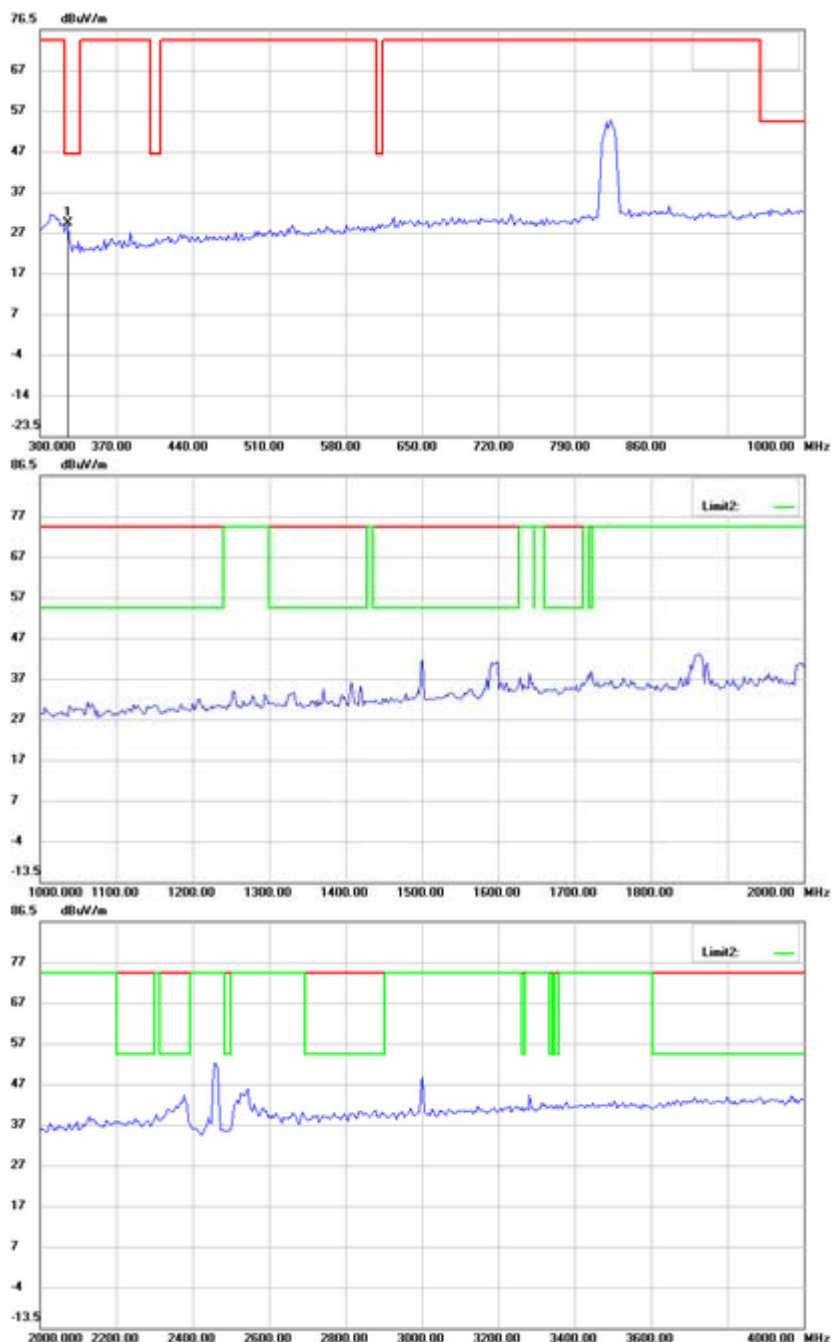
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

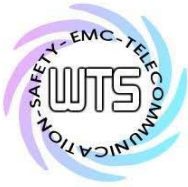
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

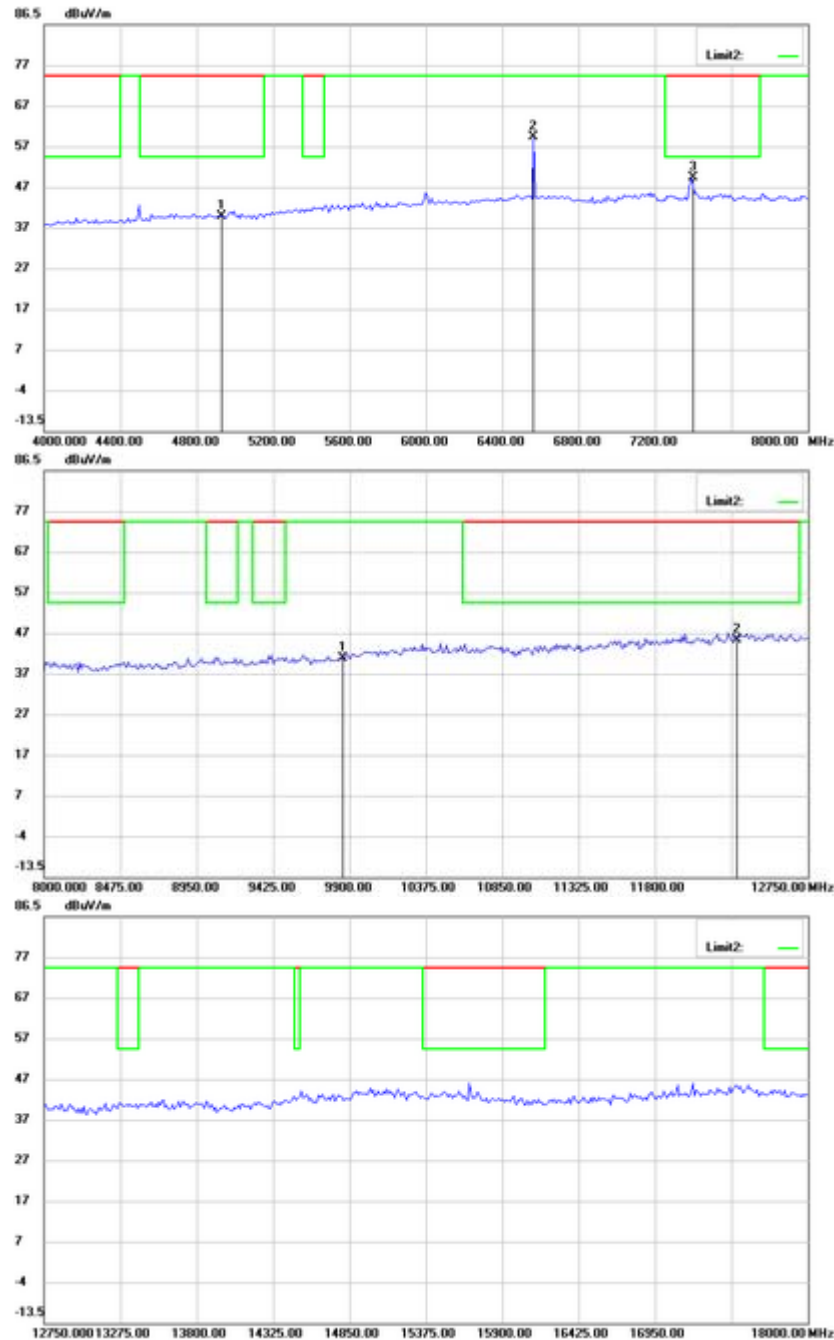
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

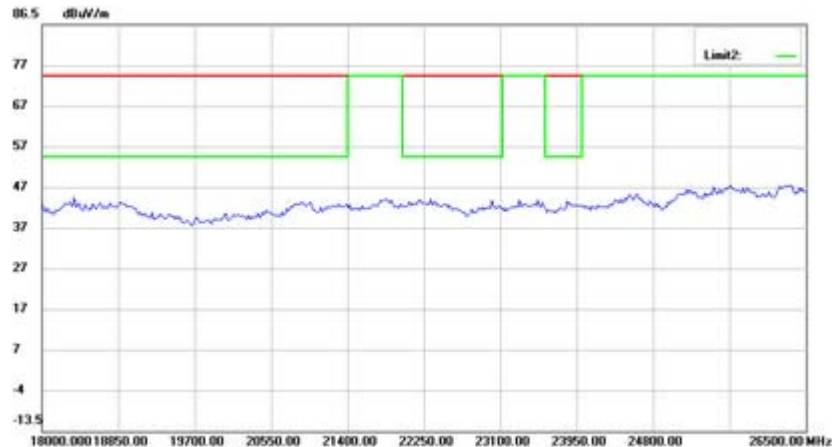
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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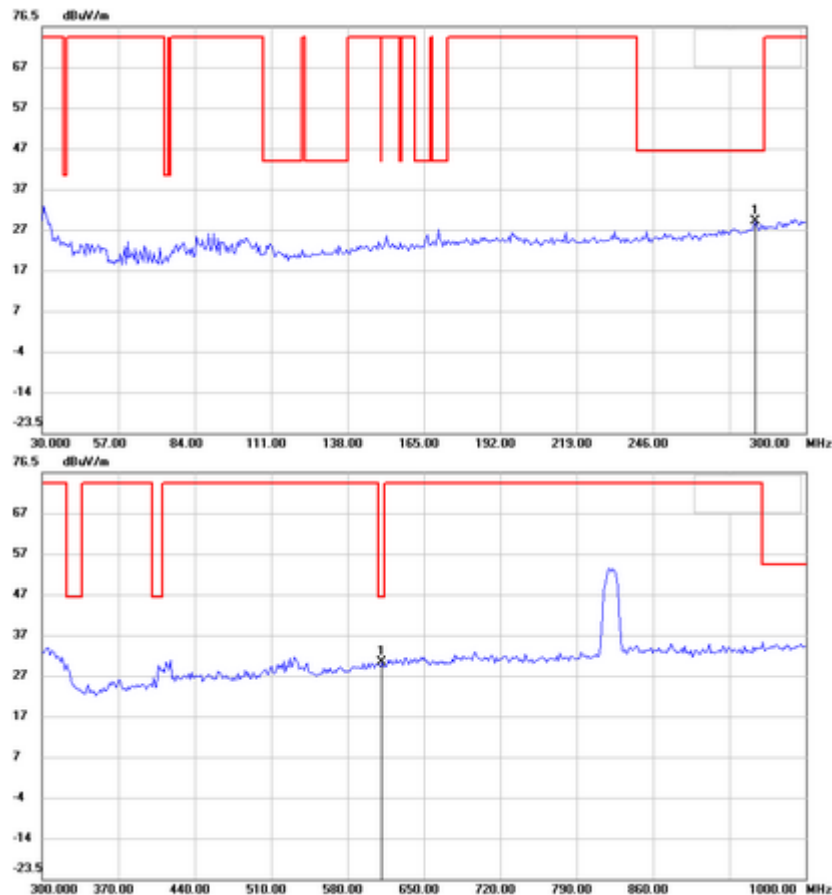
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Antenna Polarization V



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

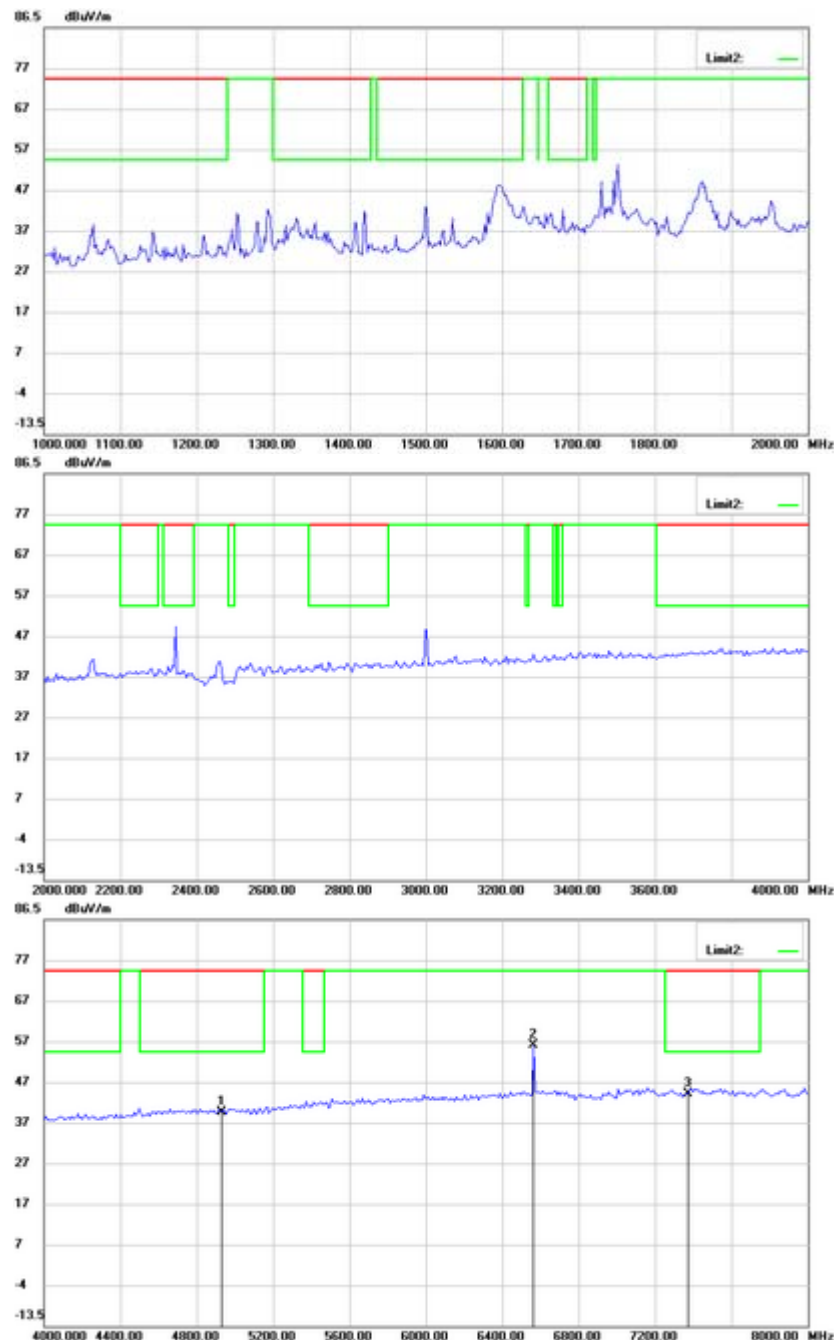
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

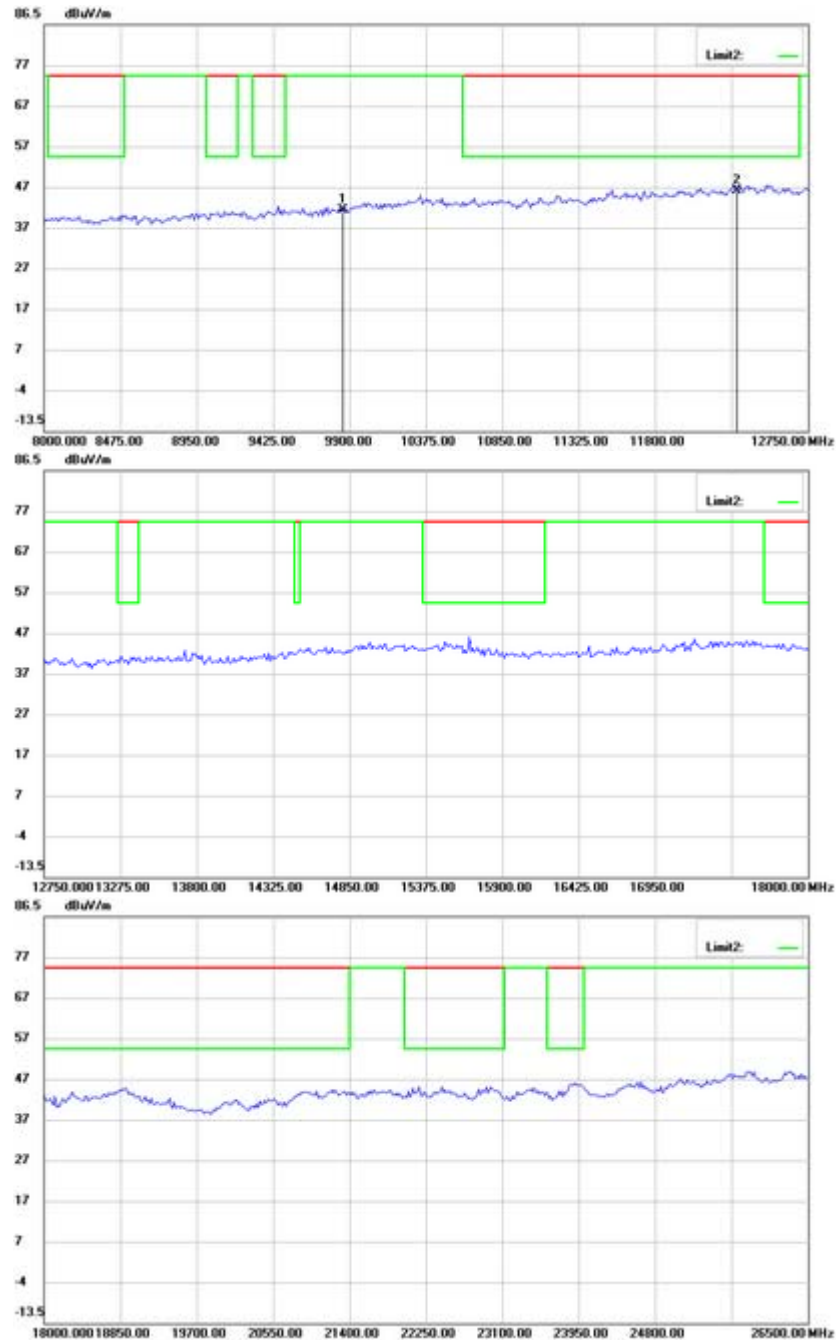
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

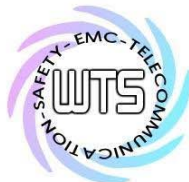
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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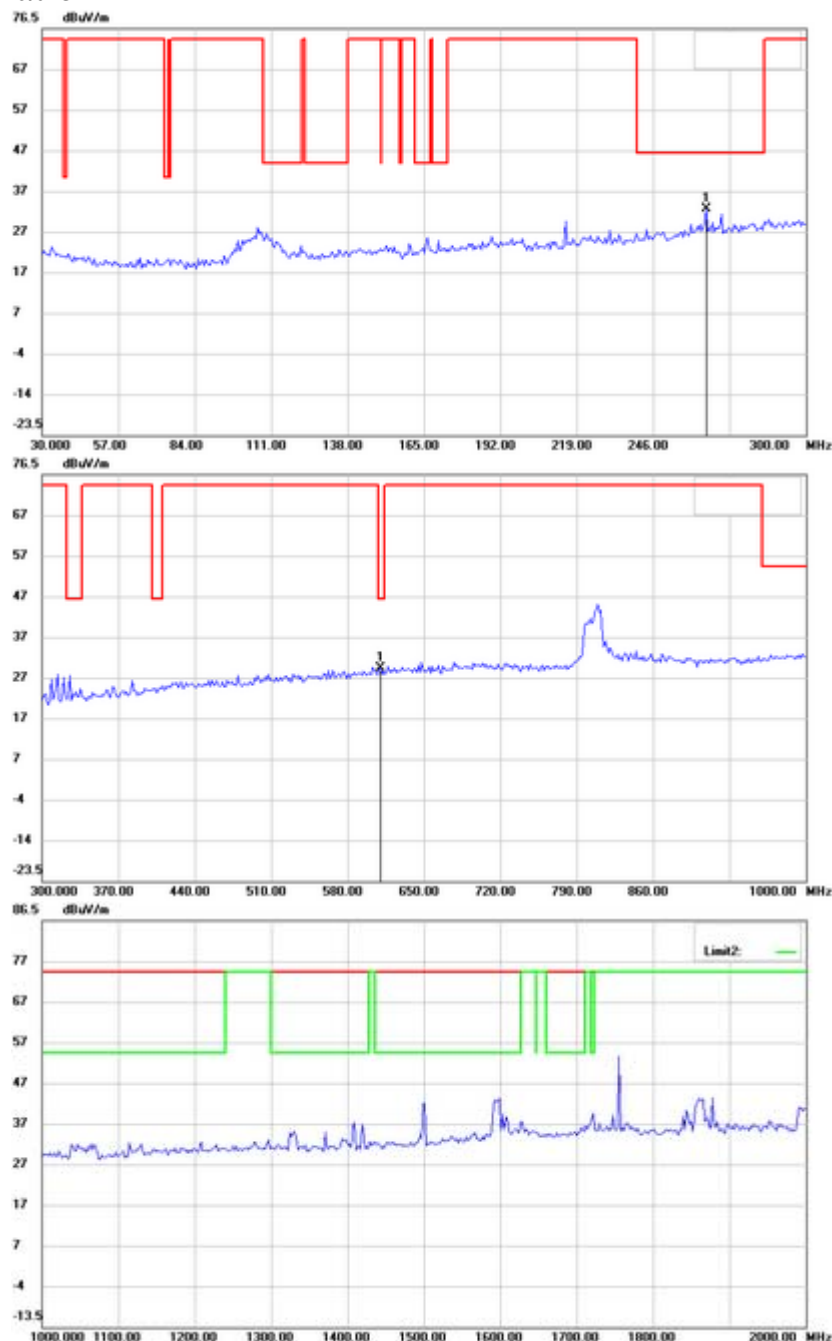
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

802.11G Mode (Mode B)_CH1

Antenna Polarization H



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

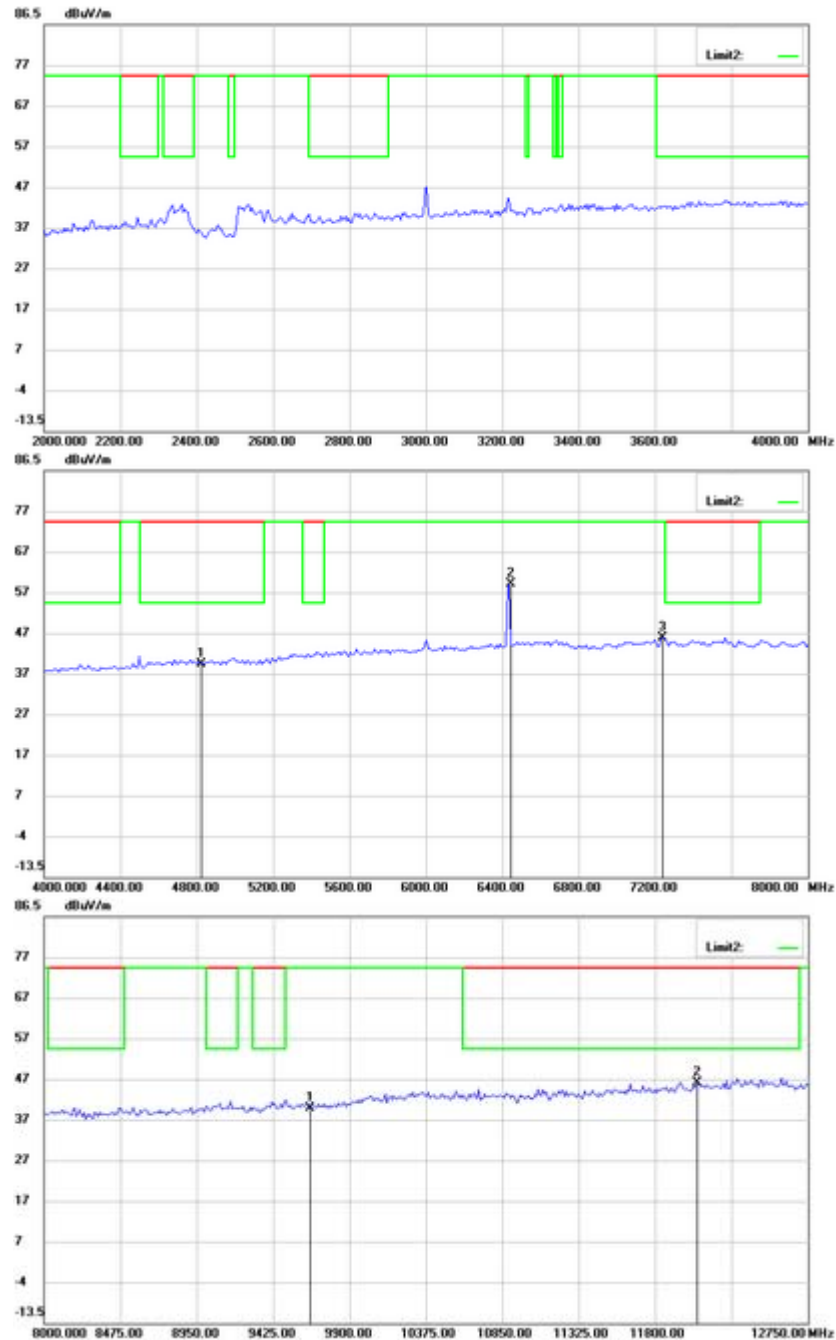
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

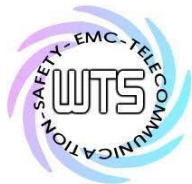


Up Line: Peak Limit Line

Down Line: Ave Limit Line

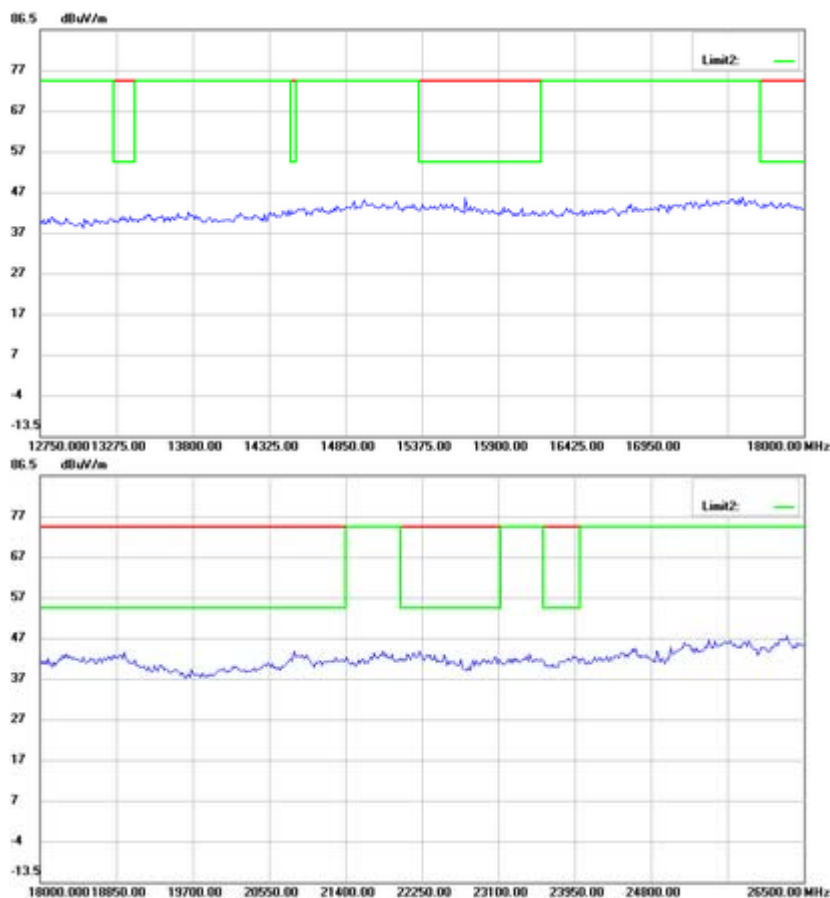
Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

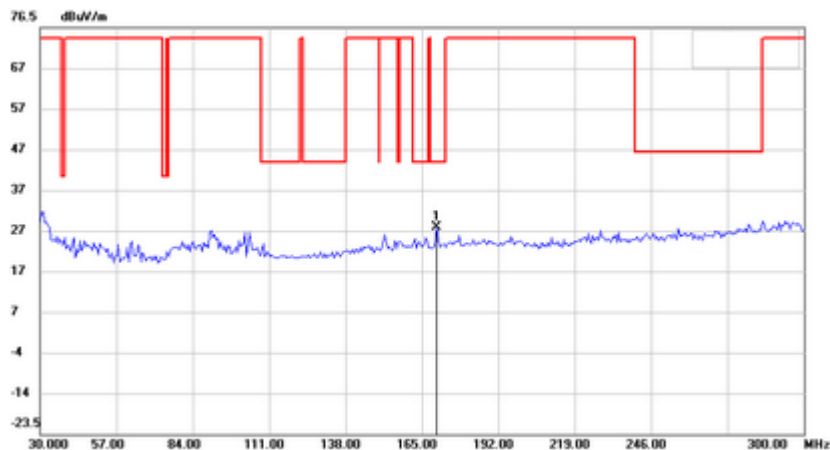


Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Antenna Polarization V



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

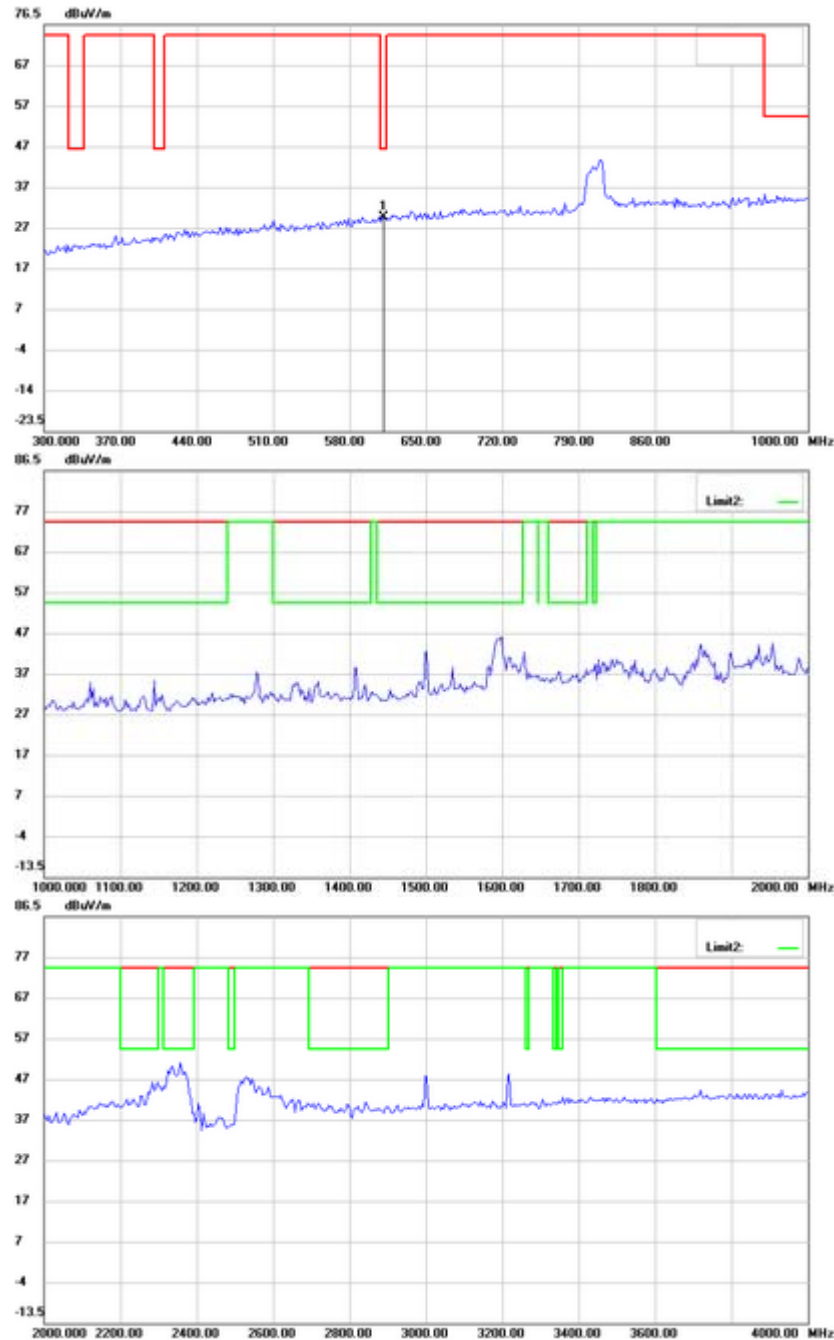
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

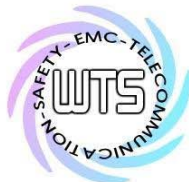
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

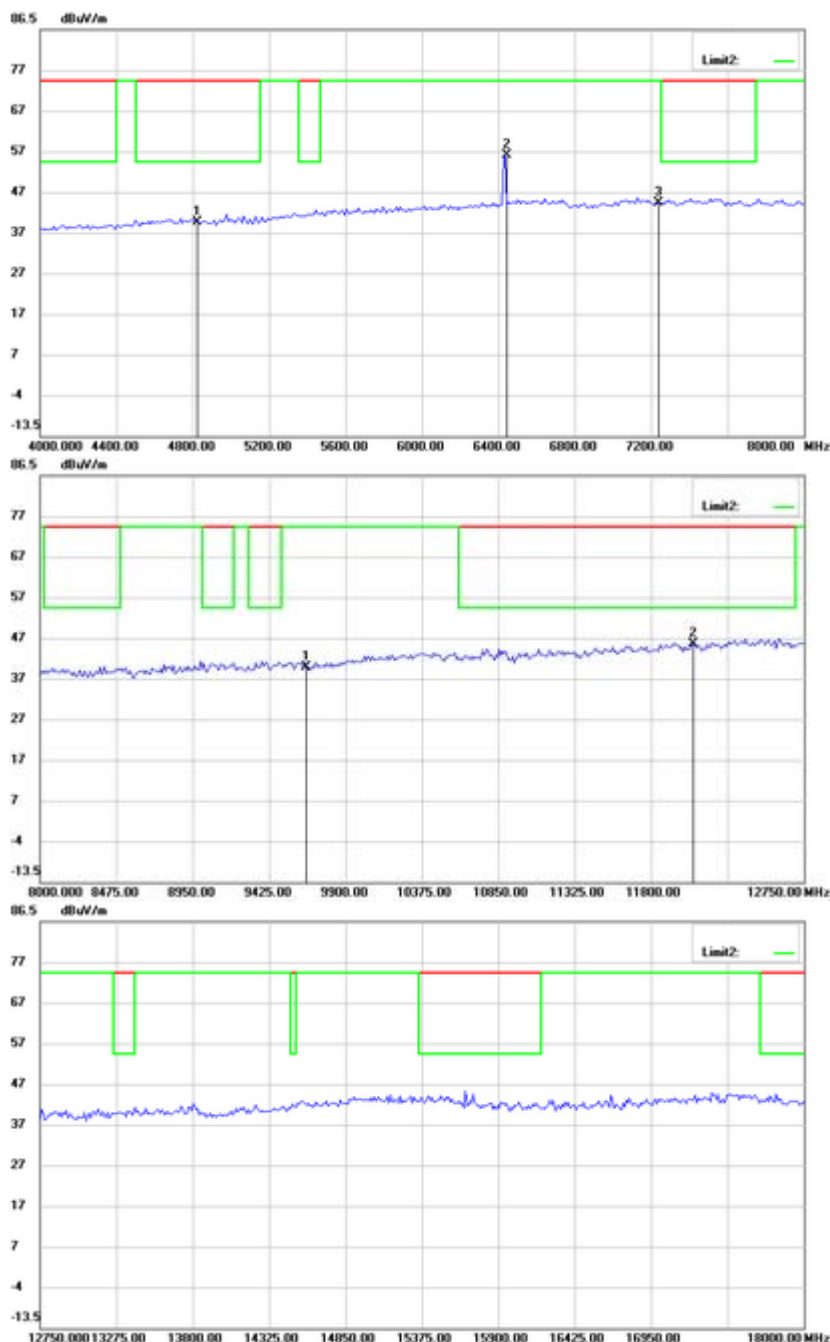
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

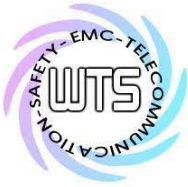
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

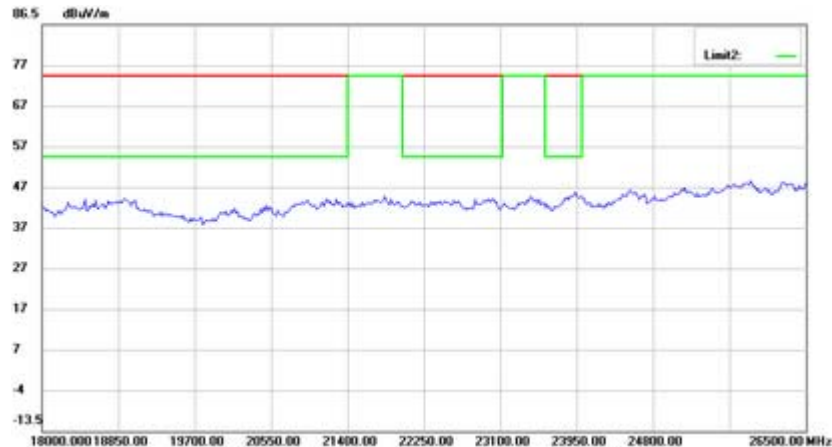
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

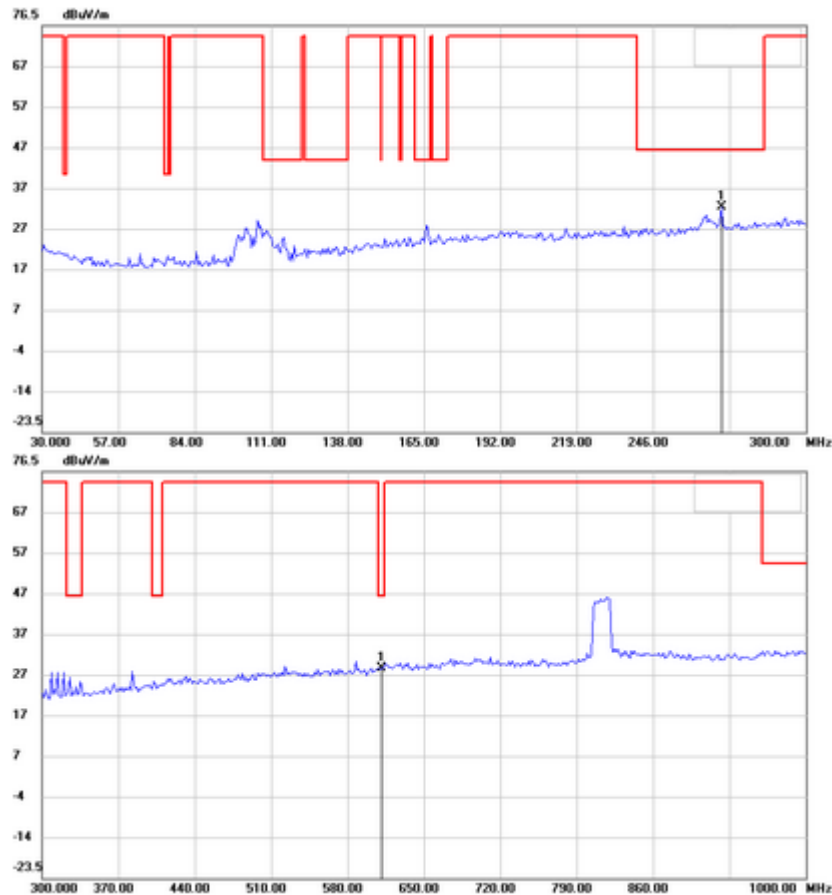
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



802.11G Mode (Mode B)_CH6

Antenna Polarization H

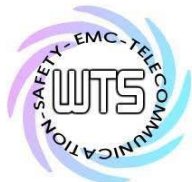


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

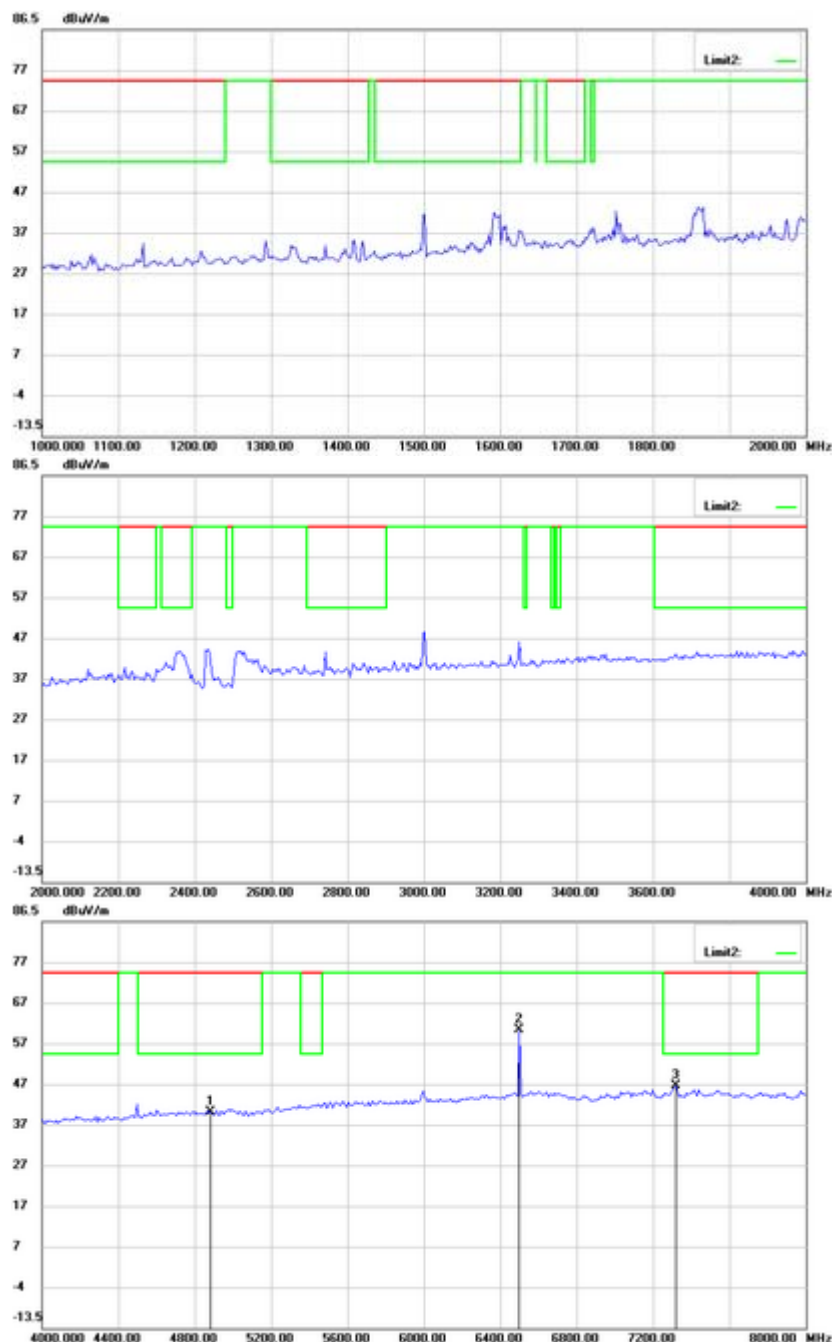
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

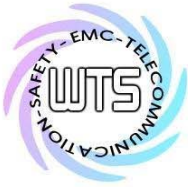


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

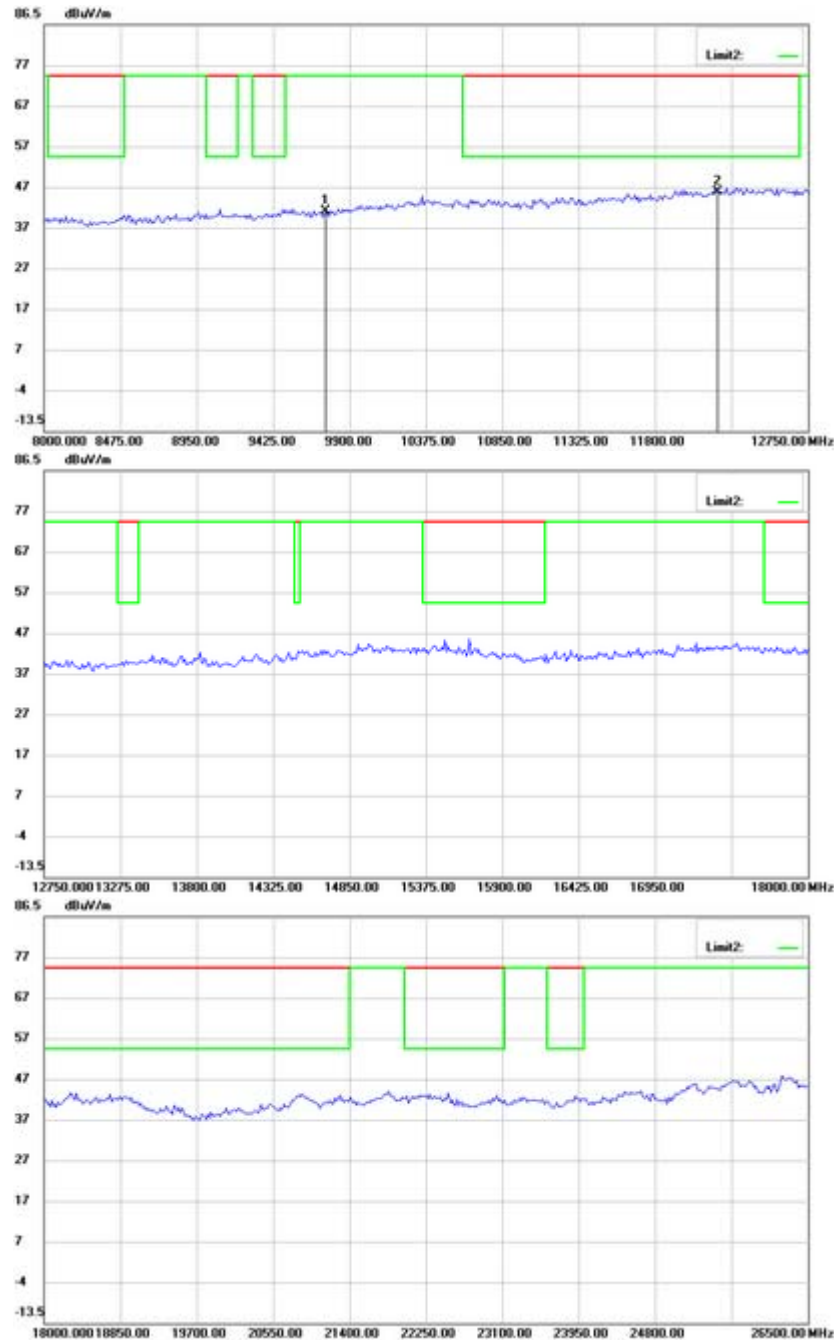
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

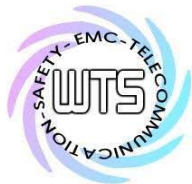
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

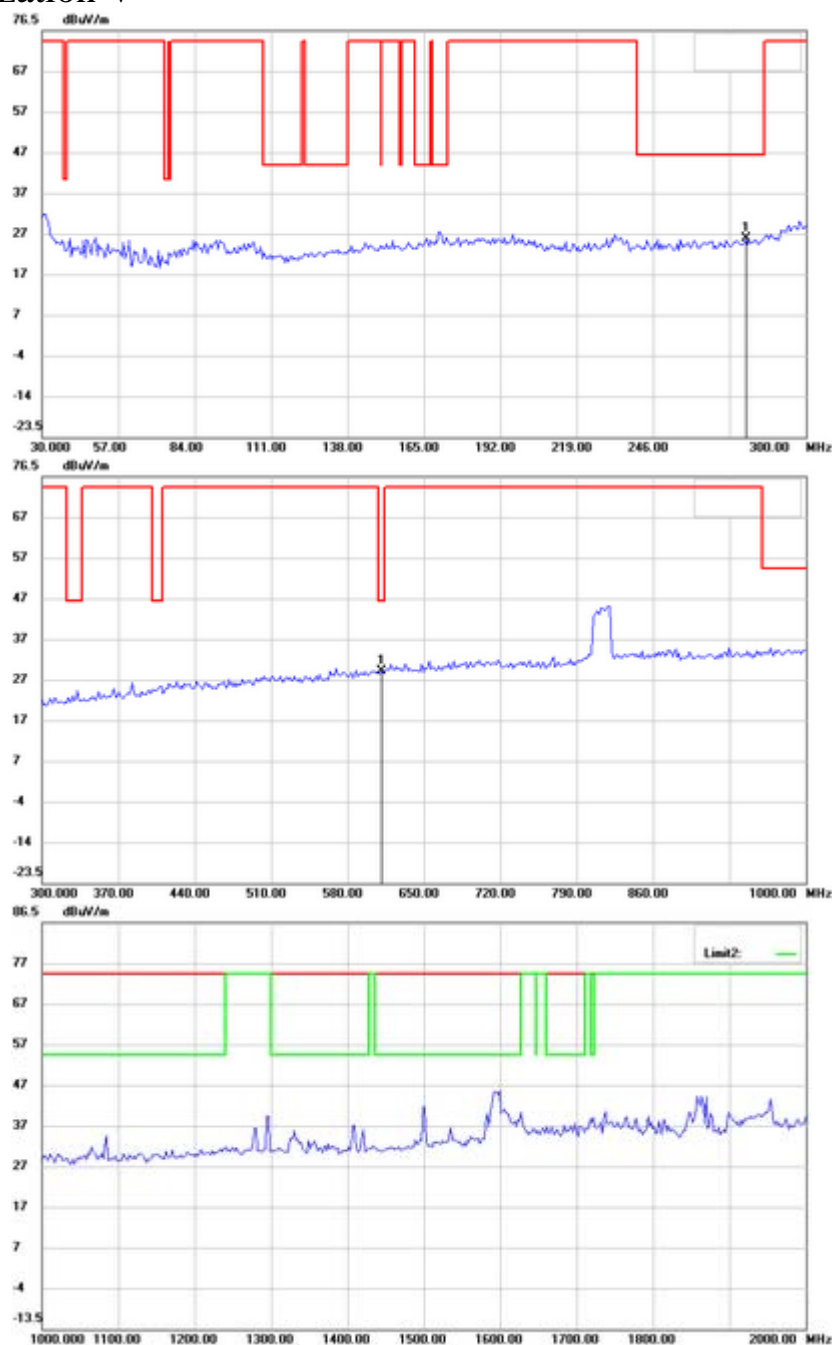
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

Antenna Polarization V

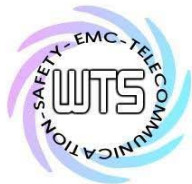


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

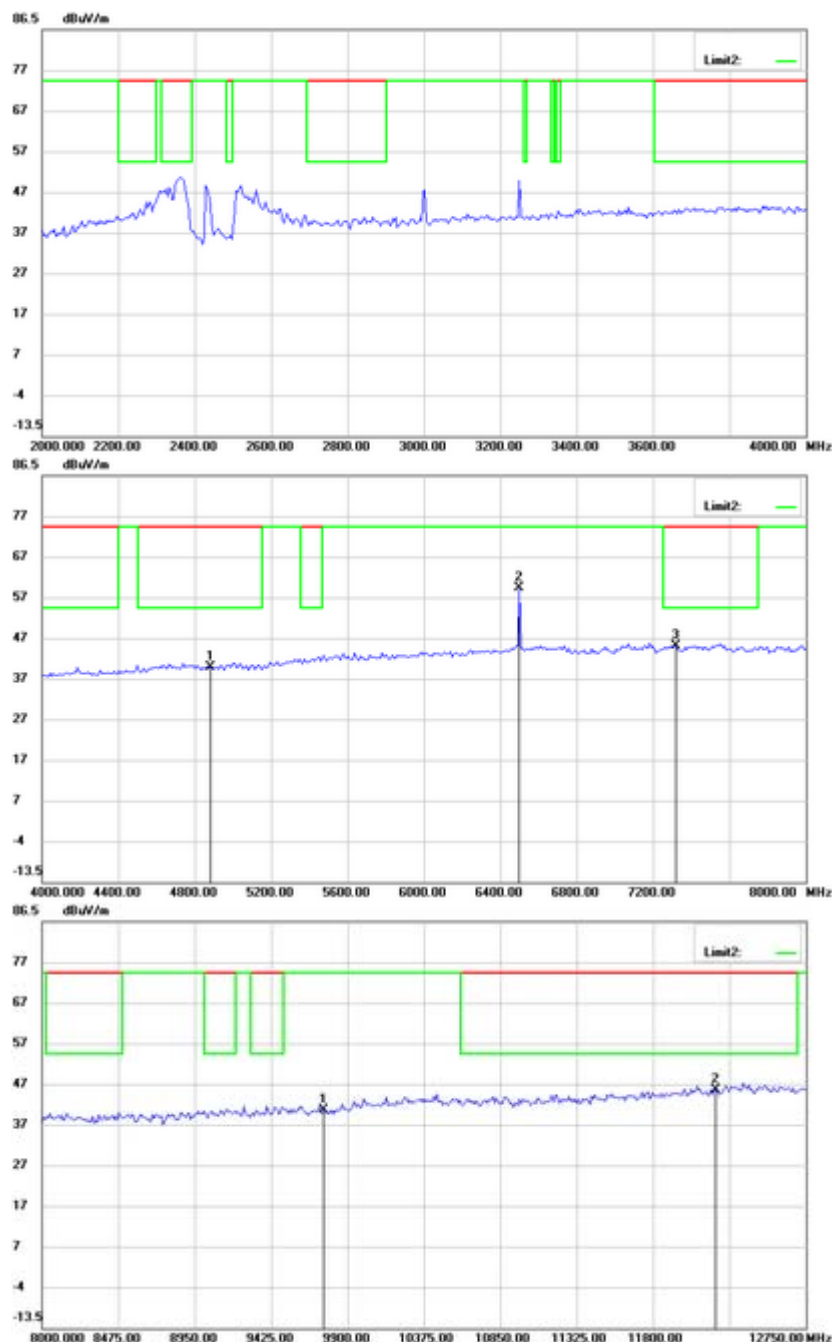
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line

Down Line: Ave Limit Line

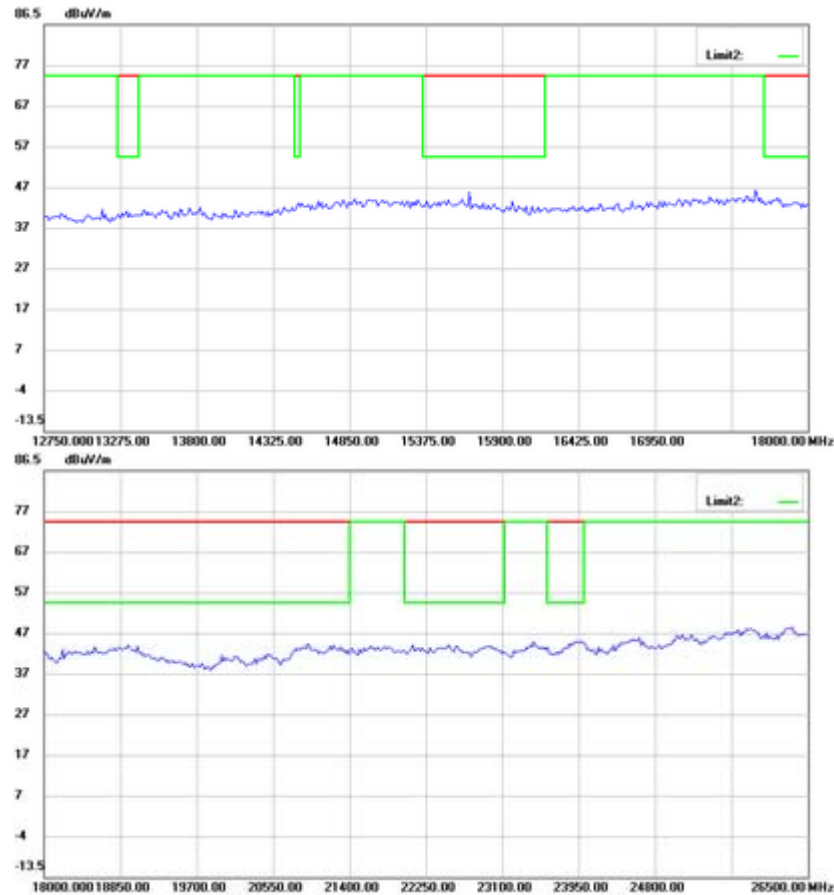
Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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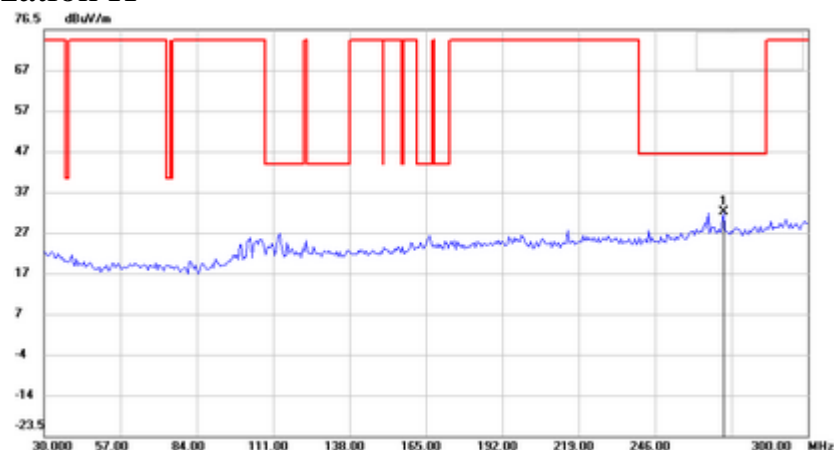
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



802.11G Mode (Mode B)_CH11

Antenna Polarization H



Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

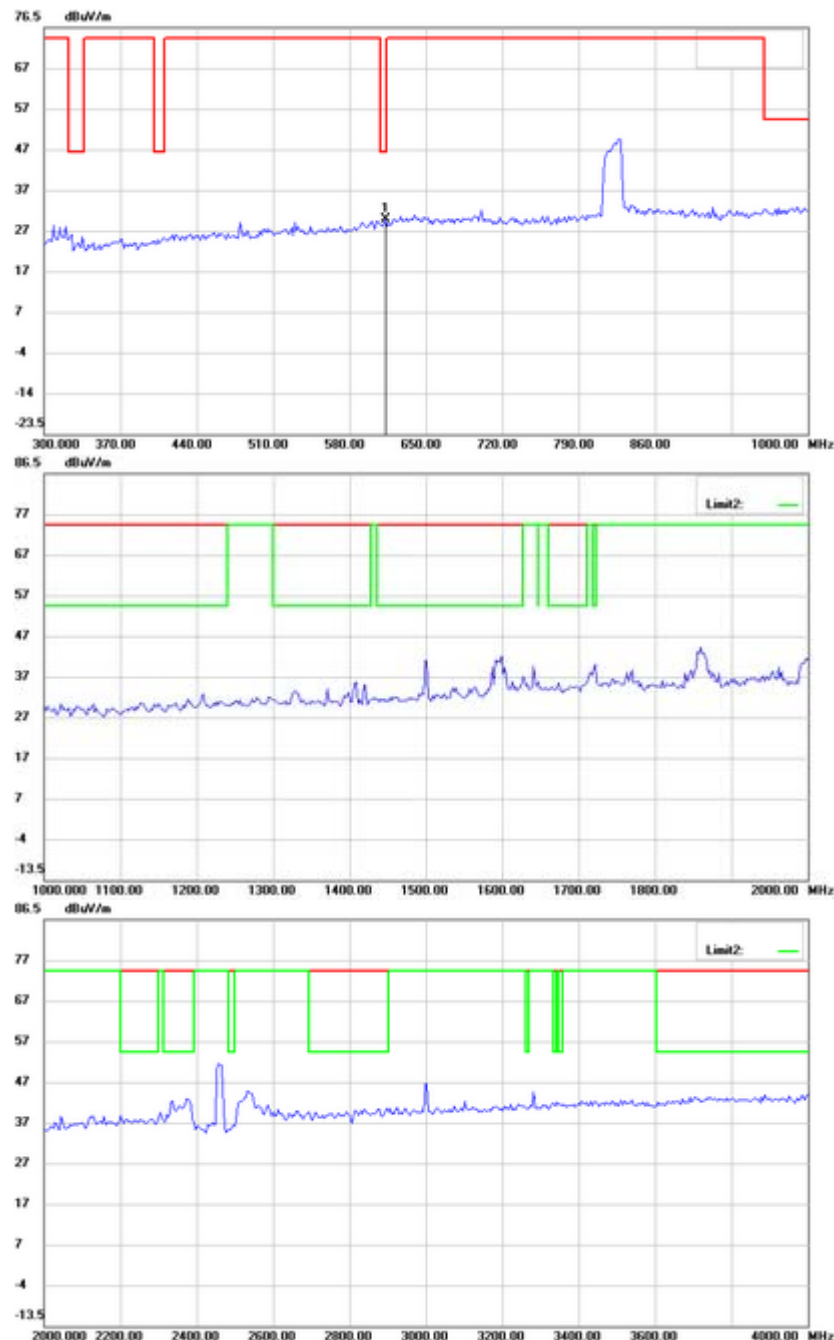
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

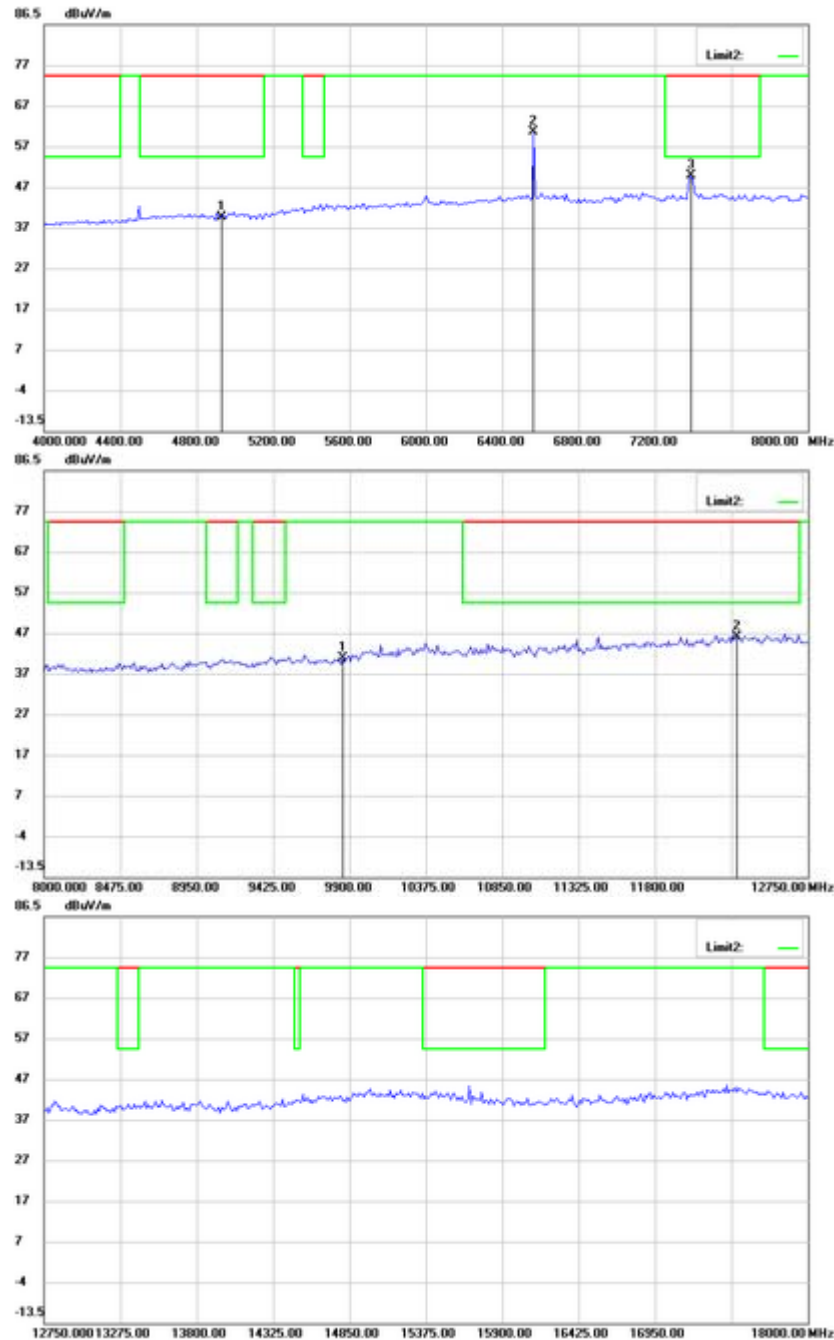
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

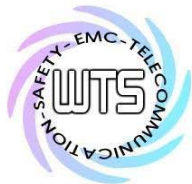
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

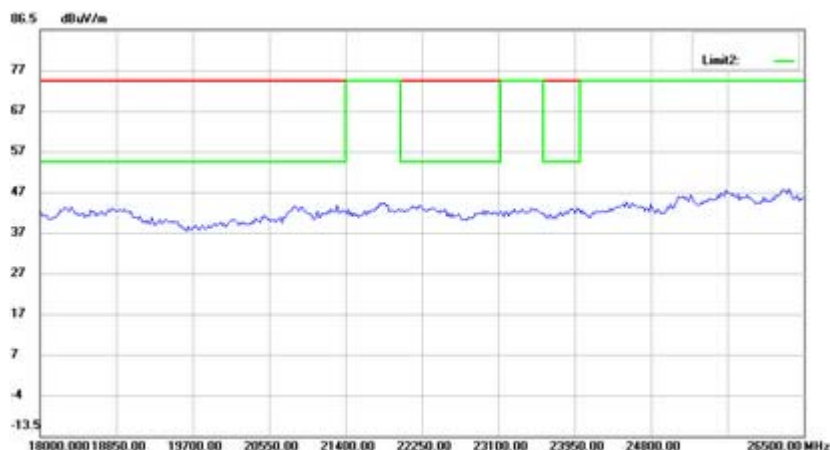
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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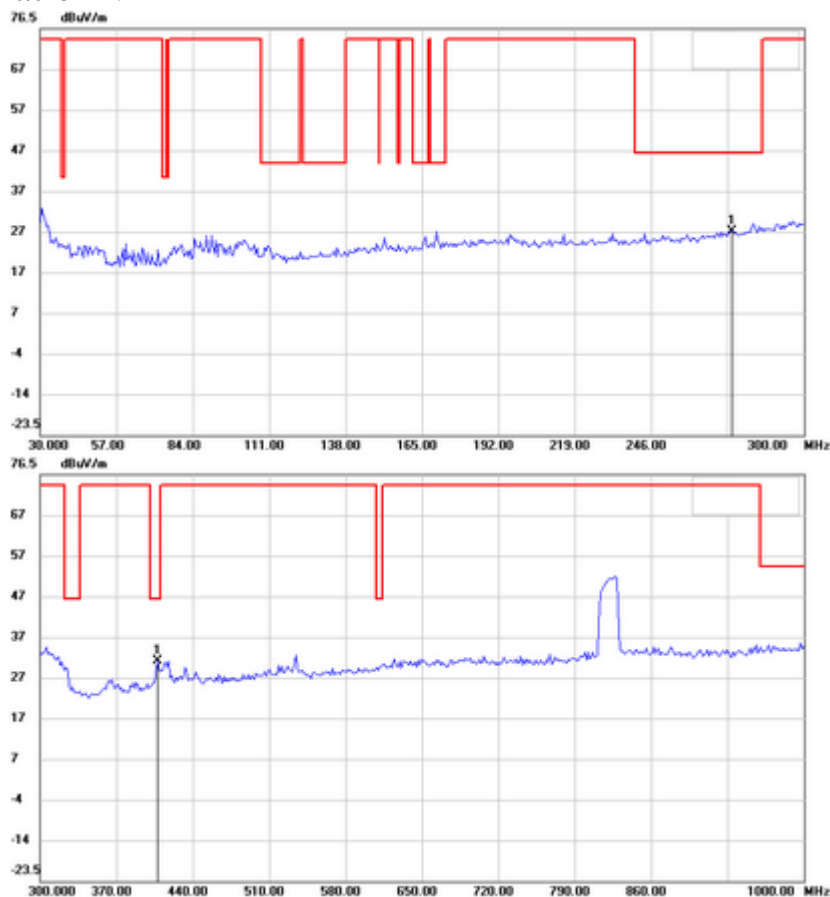
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP



Antenna Polarization V

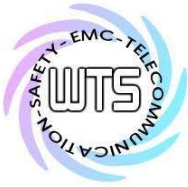


Up Line: Peak Limit Line

Down Line: Ave Limit Line

Note:

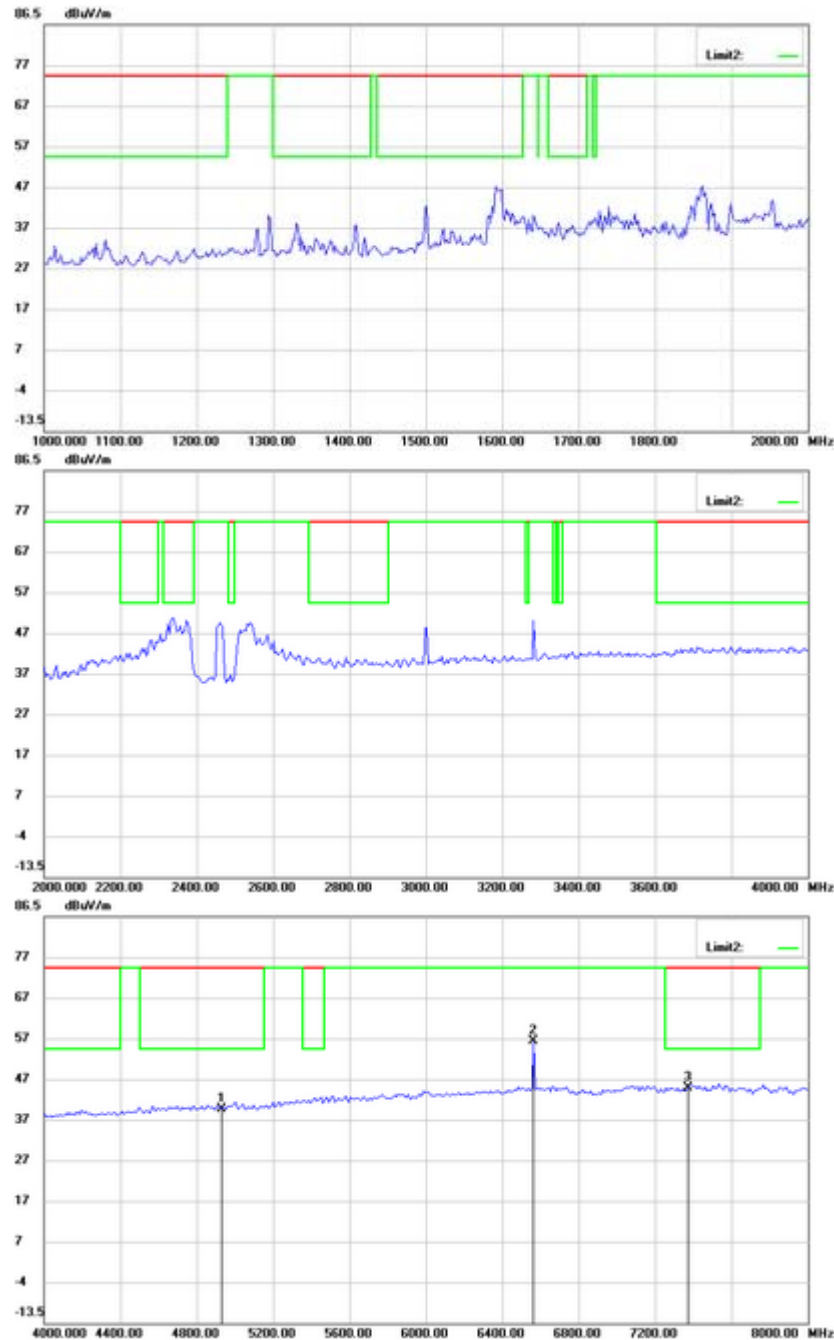
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

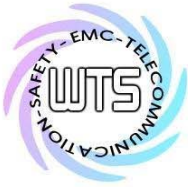
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

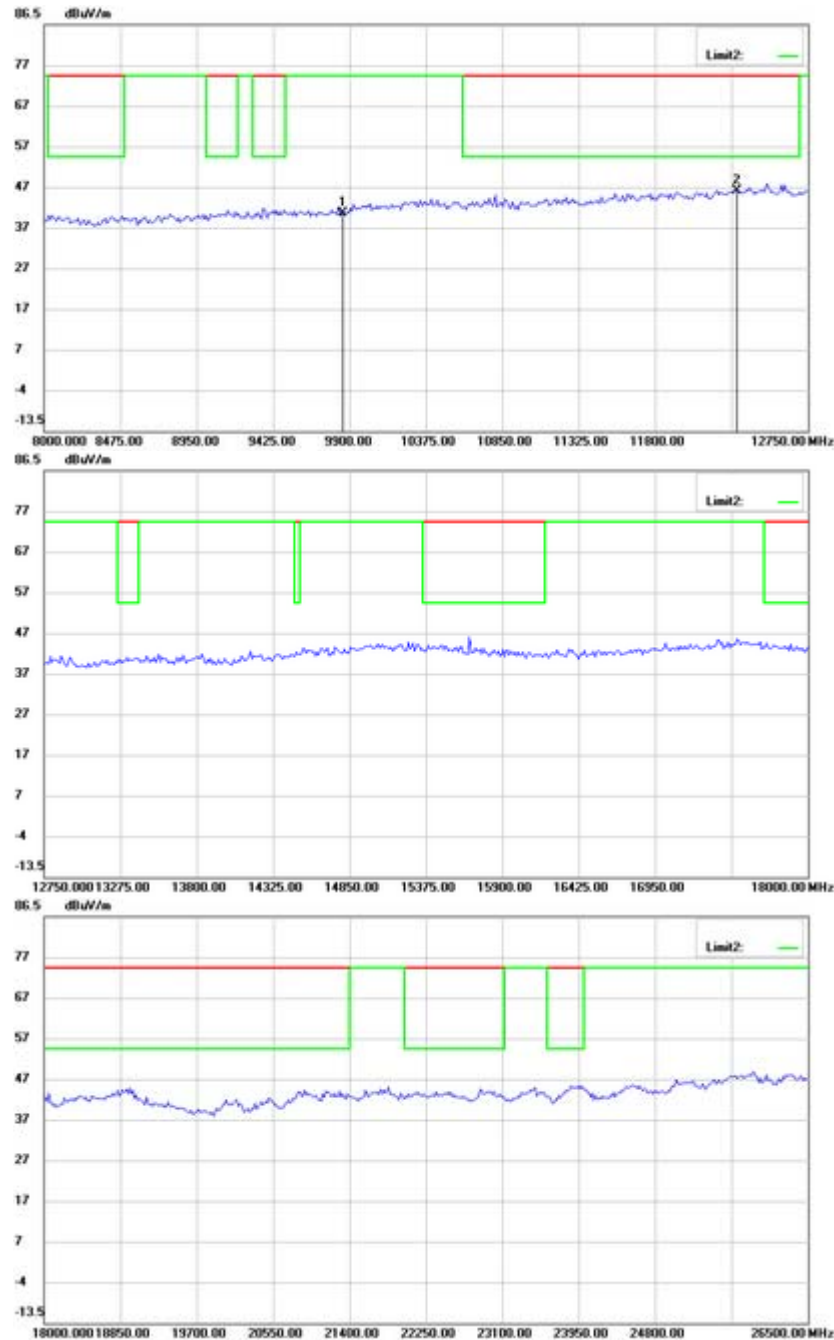
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

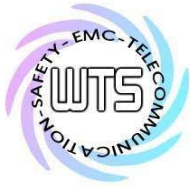
FCC ID: W8ONW06-WA54PP



Up Line: Peak Limit Line
Down Line: Ave Limit Line

Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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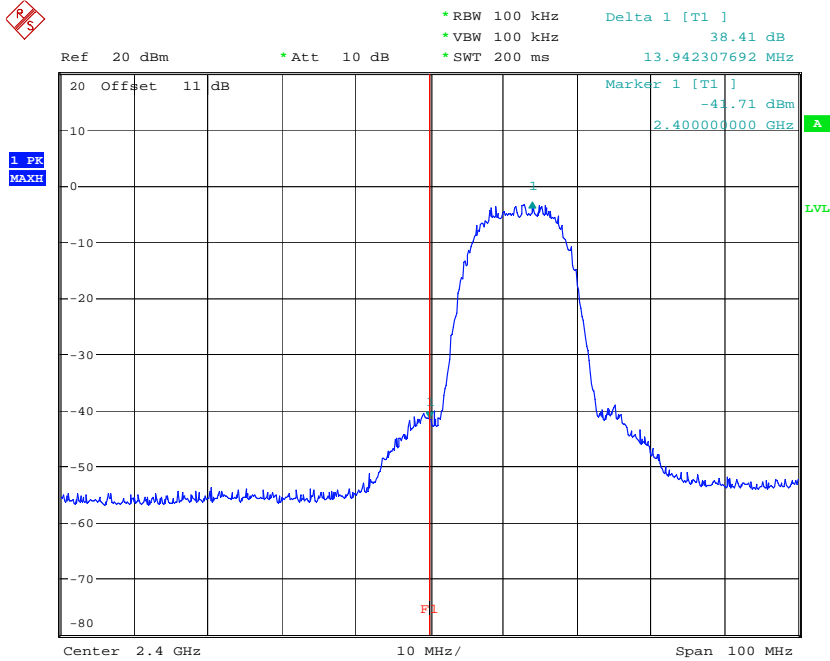


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

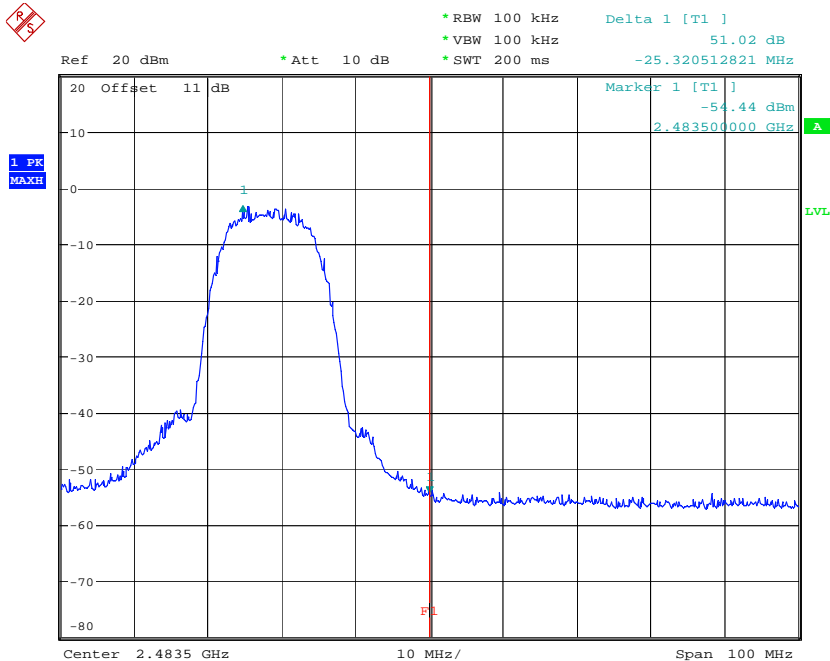
FCC ID: W8ONW06-WA54PP

Band Edge Measurement 802.11B Mode (Mode A)



FREQUENCY RANGE 802.11b CH1

Date: 30.APR.2009 15:49:59



FREQUENCY RANGE 802.11b CH11

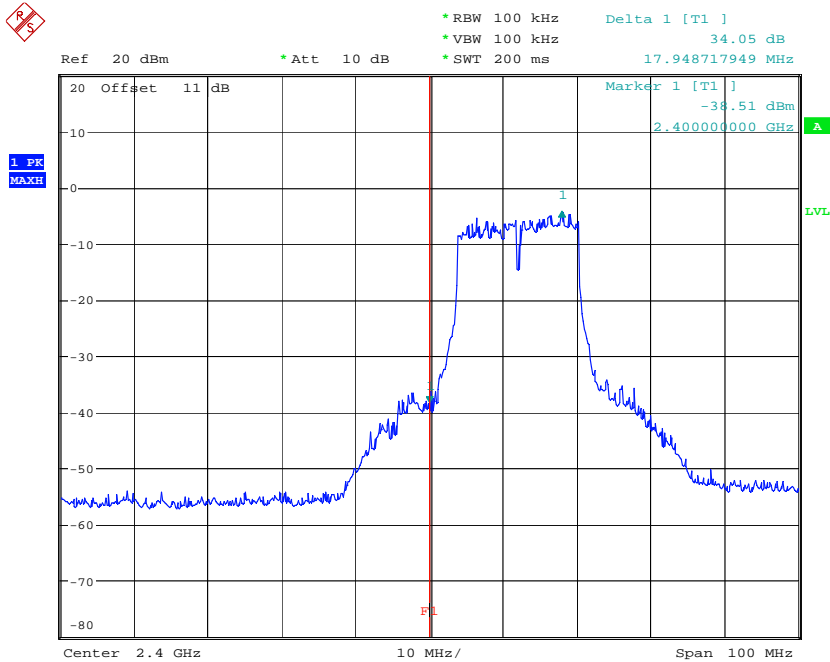
Date: 30.APR.2009 15:51:32



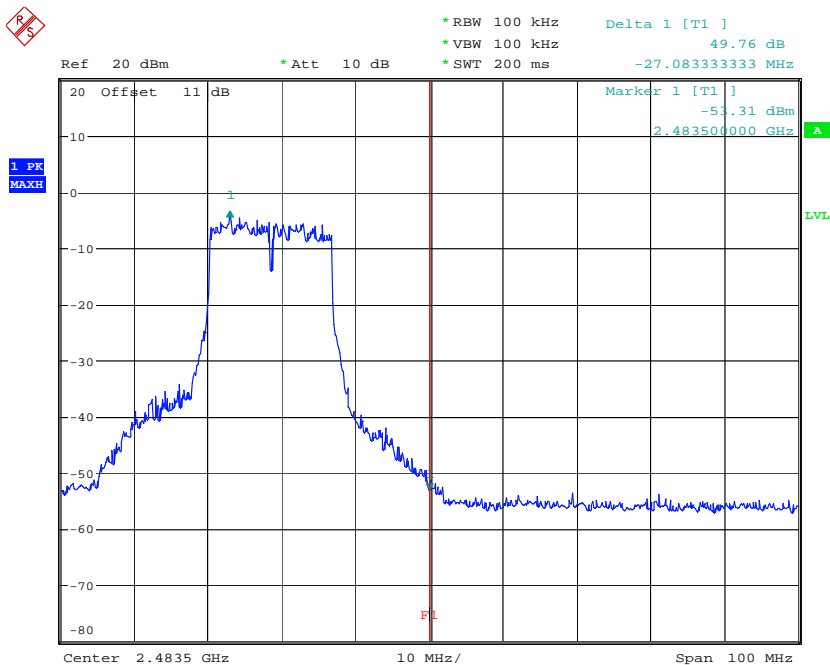
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

802.11G Mode (Mode B)



FREQUENCY RANGE 802.11g CH1
Date: 30.APR.2009 15:54:35



FREQUENCY RANGE 802.11g CH11
Date: 30.APR.2009 15:53:12



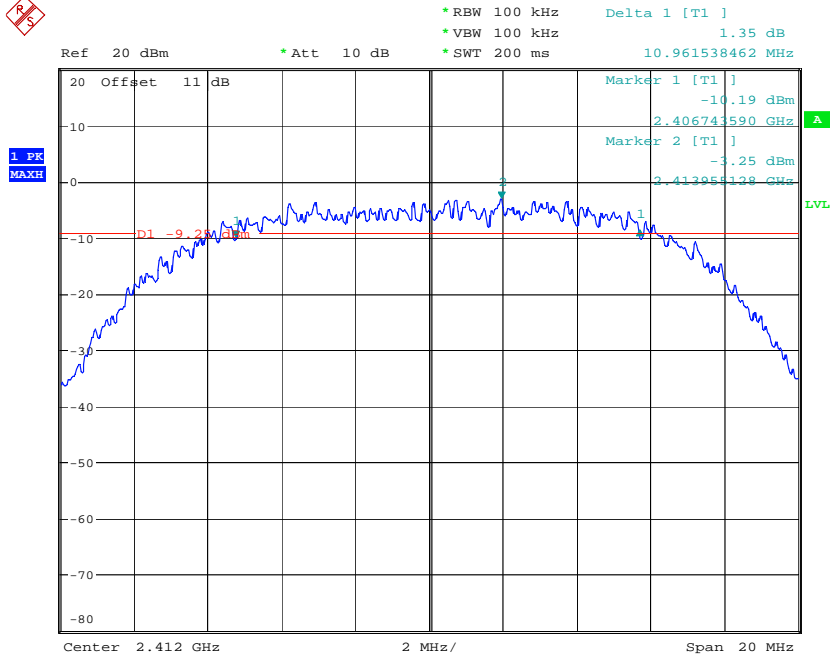
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

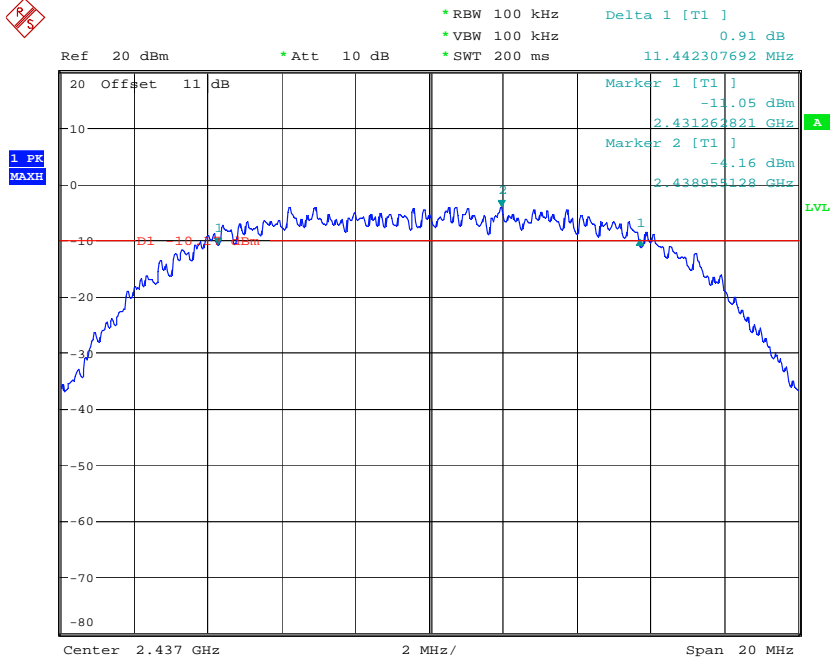
FCC ID: W8ONW06-WA54PP

Minimum 6dB Bandwidth

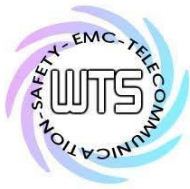
802.11b Mode (Mode A)



6DB BANDWIDTH 802.11b CH1
Date: 30.APR.2009 15:58:37

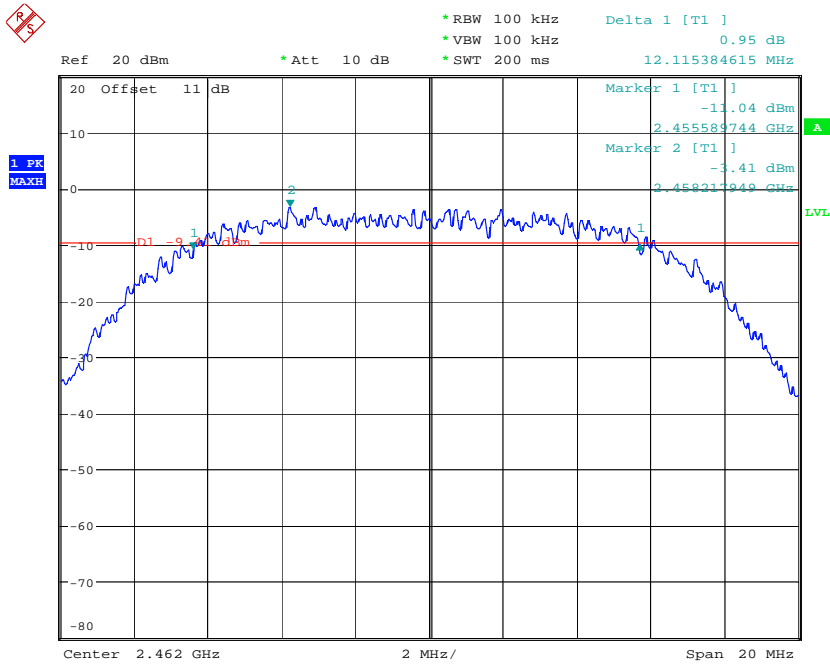


6DB BANDWIDTH 802.11b CH6
Date: 30.APR.2009 16:00:00



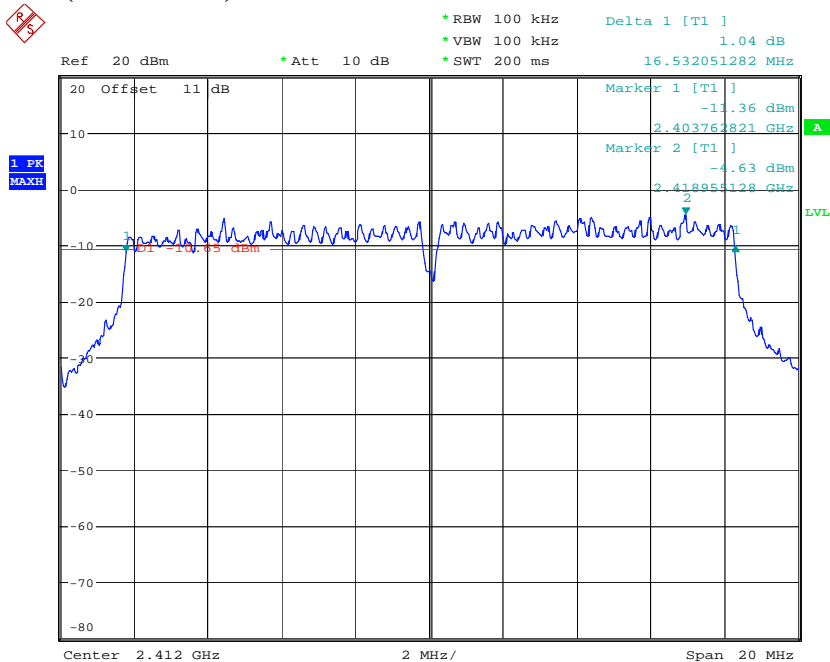
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1
FCC ID: W8ONW06-WA54PP



6DB BANDWIDTH 802.11b CH11
Date: 30.APR.2009 16:01:35

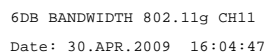
802.11G Mode (Mode B)

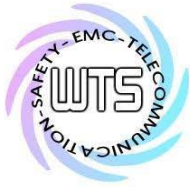


6DB BANDWIDTH 802.11g CH1
Date: 30.APR.2009 16:08:18



FCC ID: W8ONW06-WA54PP





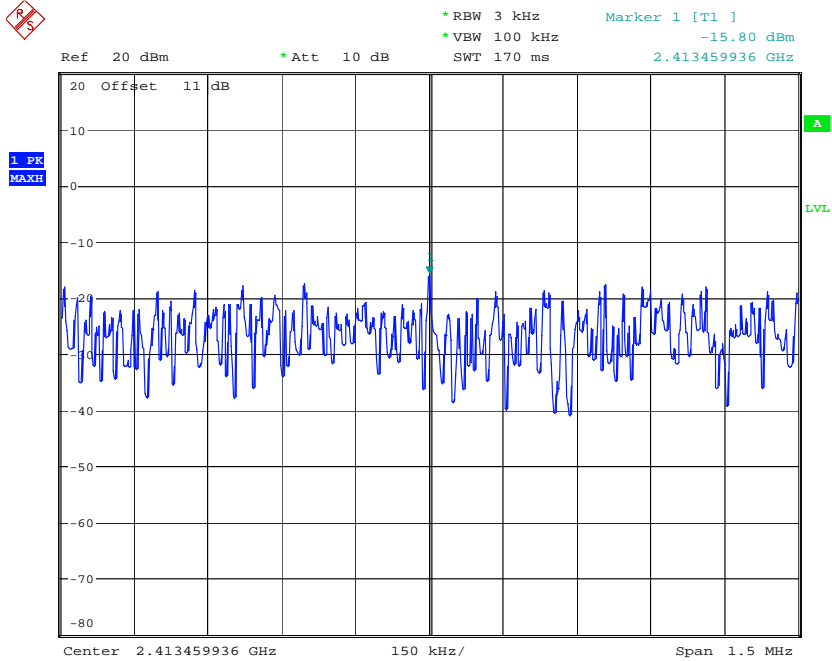
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1

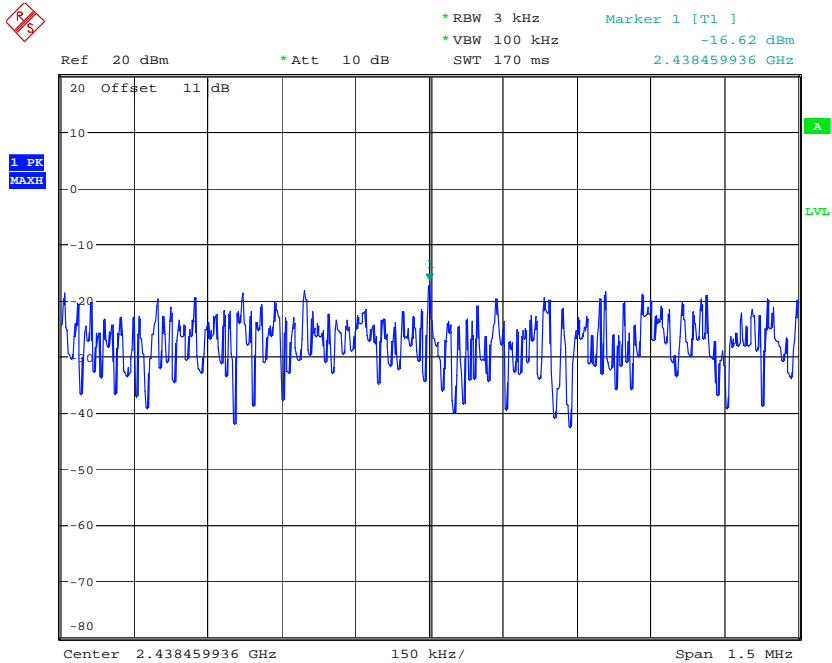
FCC ID: W8ONW06-WA54PP

Peak Power Spectral Density

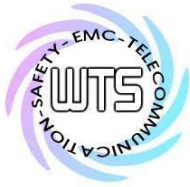
802.11B Mode (Mode A)



POWER DENSITY 802.11b CH1
Date: 30.APR.2009 16:11:27

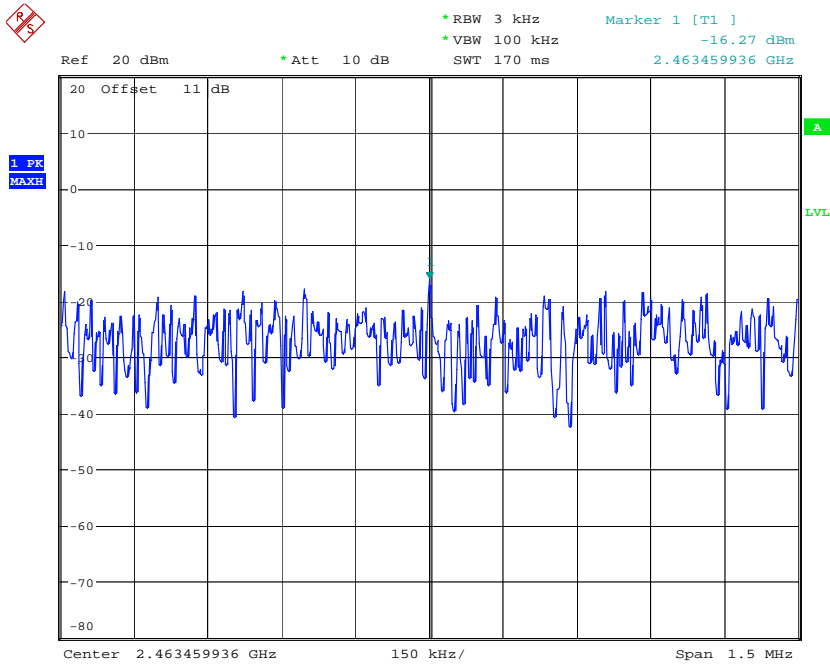


POWER DENSITY 802.11b CH6
Date: 30.APR.2009 16:13:08



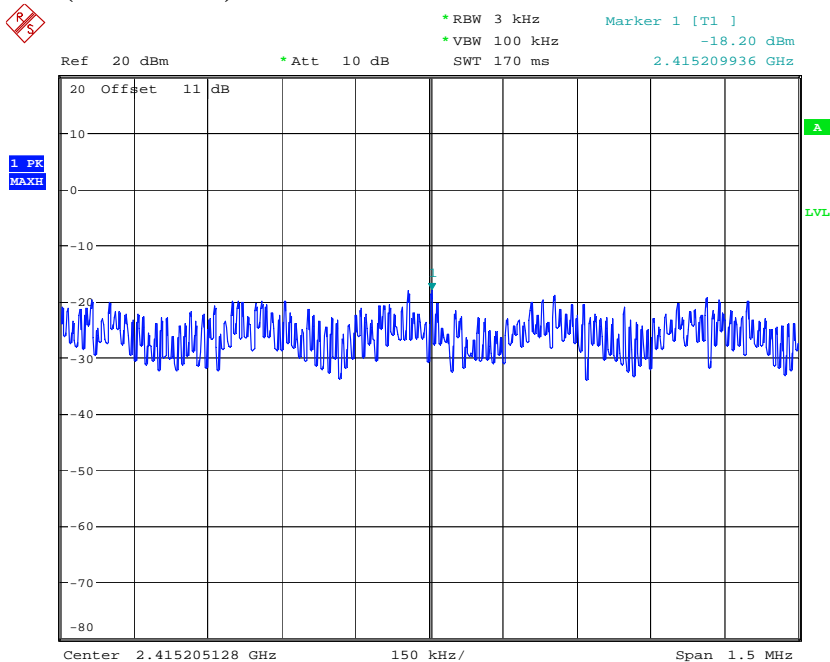
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20903-9662-C-1
FCC ID: W8ONW06-WA54PP

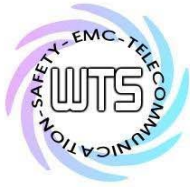


POWER DENSITY 802.11b CH11
Date: 30.APR.2009 16:14:15

802.11G Mode (Mode B)

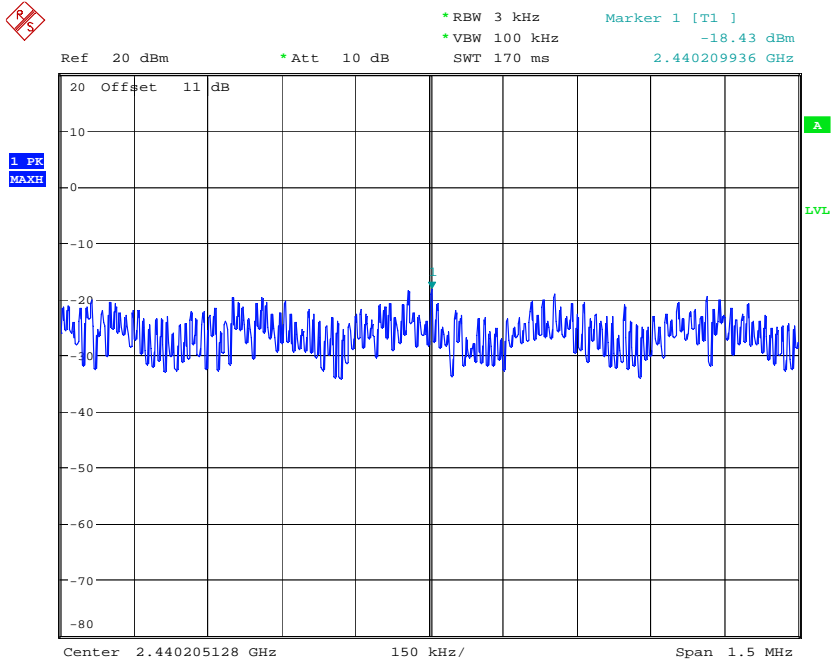


POWER DENSITY 802.11g CH1
Date: 30.APR.2009 16:16:22

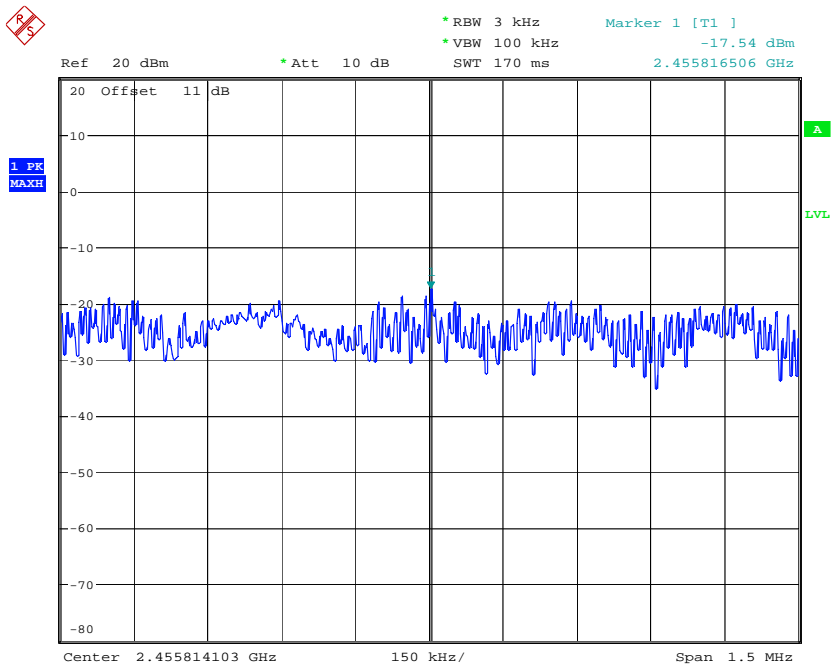


Worldwide Testing Services(Taiwan) Co., Ltd.

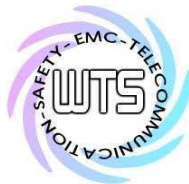
Registration number: W6M20903-9662-C-1
FCC ID: W8ONW06-WA54PP



POWER DENSITY 802.11g CH6
Date: 30.APR.2009 16:17:26



POWER DENSITY 802.11g CH11
Date: 30.APR.2009 16:54:29



Worldwide Testing Services(Taiwan) Co., Ltd.

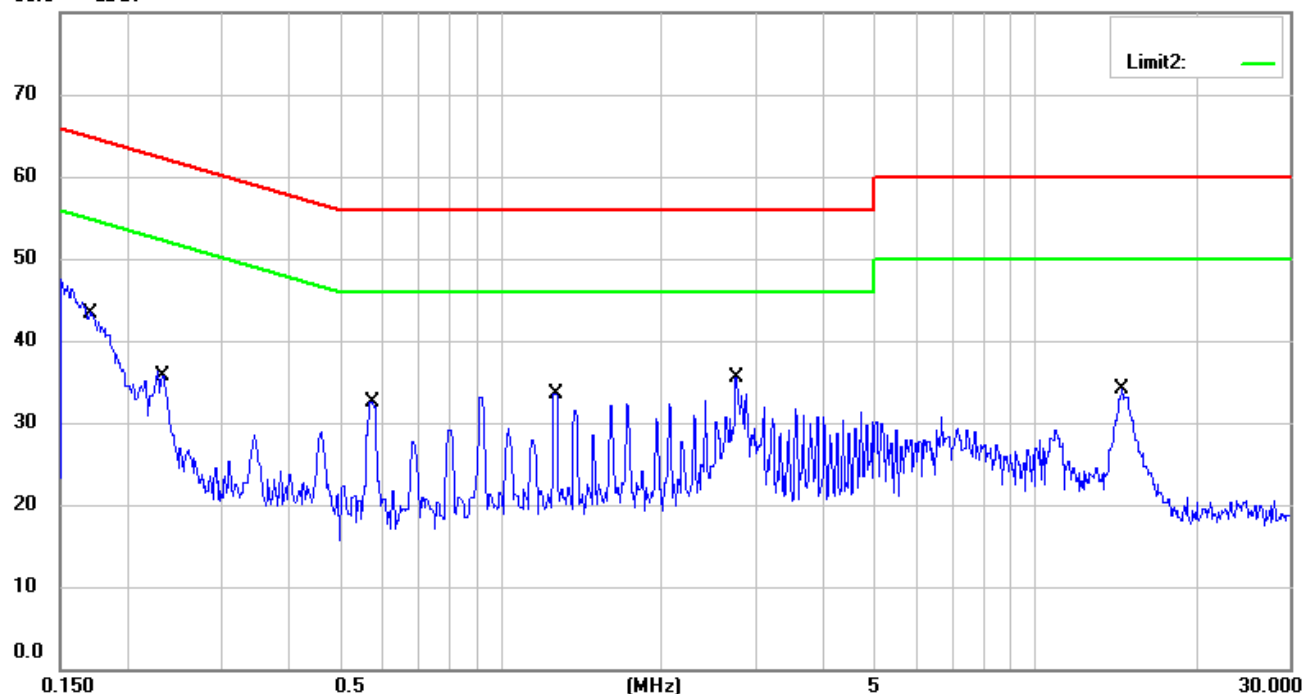
Registration number: W6M20903-9662-C-1

FCC ID: W8ONW06-WA54PP

Power Line Conducted Emission

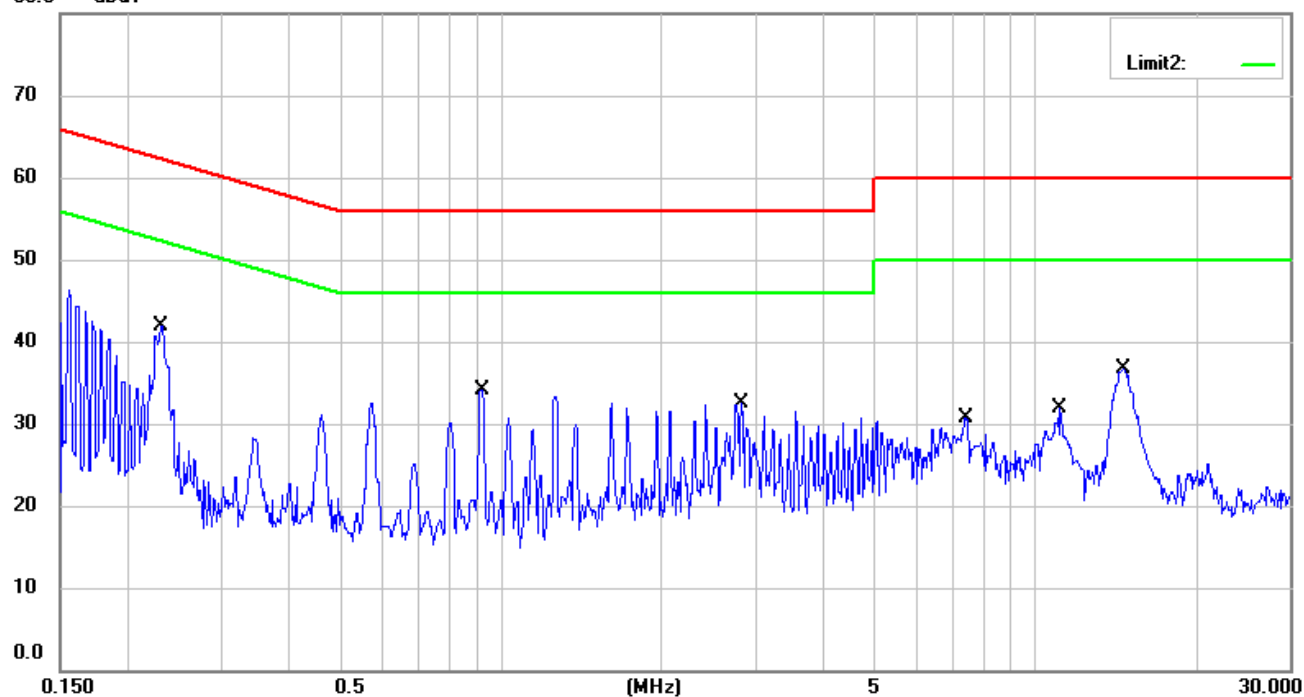
LISN N

80.0 dBuV



LISN L1

80.0 dBuV



Up Line: QP Limit Line

Down Line: Ave Limit Line

Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of AC conducted test data of this test report.