FCC PART 15 SUBPART C TEST REPORT

for

JerryFish Wireless

Model No.: EXSD9705

FCC ID: ZPP-EX970501

of

Applicant: VTECH Technology Corp.
Address: 12F-1, No.99, Sec. 2, Zhongshan N. RD. Taipei 104, 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.: W6M21106-11599-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: wts@wts-lab.com

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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 is 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.

Tester:

July 13, 2011		Rick Chen	Rick Chen.
Date	WTS-Lab.	Name	Signature

Technical responsibility for area of testing:

July 13, 2011		Chang Tse-Ming	Chang Tse-Ming
Date	WTS	Name	Signature

1.2 Testing laboratory

1.2.1 Location

OATS
No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 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:	VTECH Technology Corp.
Street:	12F-1, No.99, Sec. 2, Zhongshan N. RD.
Town:	Taipei 104,
Country:	Taiwan(R.O.C)
Telephone:	+886-2-2521-3966
Fax:	+886-2-2521-6465

1.4 Application details

Date of receipt of test item: June 22, 2011

Date of test: from June 23, 2011 to July 12, 2011

1.5 General information of Test item

Type of test item: JerryFish Wireless

Model Number: EXSD9705

Brand Name: EXSOUND

Multi-listing model number: ./.

Photos: see Appendix

Technical data

Frequency band: 2.4 GHz – 2.4835 GHz

Frequency (A): 2.404 GHz

Frequency (B): 2.440 GHZ

Frequency (C): 2.476 GHz

Number of Channels: 25

Operation modes: simplex

Modulation Type: GFSK

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

Type of Antenna: PIFA Antenna

Antenna gain: 2.08 dBi

Power supply: 5Vdc (power from PC)

Emission designator: 1M38G1D

Host device: none

Classification:

Fixed Device	☒
Mobile Device (Human Body distance ＞ 20cm)	☐
Portable Device (Human Body distance ＜ 20cm)	☐

Transmitter	**Unom**
Power (A):	Conducted: 8.37 dBm
Power (B):	Conducted: 9.26 dBm
Power (C):	Conducted: 9.30 dBm

Manufacturer: (if applicable)

Name:	./.
Street:	./.
Town:	./.
Country:	./.

Additional information: ./.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART B / SUBPART C § 15.247 (2010-10)

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:	5Vdc (power from PC)
Extreme conditions parameters:	./.

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	2010/9/2	2011/9/1
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	2011/3/10	2012/3/9
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2010/9/8	2011/9/7
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2011/3/8	2012/3/7
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use NCR	
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2011/7/4	2012/7/3
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2010/10/21	2011/10/20
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2010/9/6	2011/9/5
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2011/2/21	2012/2/20
ETSTW-CS 004	COUPLING AND DECOUPLING NETWORK	CDN M016	20053	SCHAFFNER	2010/8/20	2011/8/19
ETSTW-CS 005	RF Power Amplifier	100A250A	306547	AR	Function Test	
ETSTW-CS 009	6 dB Attenuator	75-A-FFN-06	70998	BIRD	2011/5/20	2012/5/19
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2010/8/10	2011/8/9
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2010/9/14	2011/9/13
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2010/9/2	2011/9/1
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2010/9/6	2011/9/5
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2011/4/25	2012/4/24
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2010/8/20	2011/8/19
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2011/7/4	2012/7/3
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2011/2/25	2012/2/24
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2010/10/4	2011/10/3
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	Function Test	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2010/10/4	2011/10/3
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2011/1/14	2012/1/13
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2011/4/26	2012/4/25
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2011/4/25	2012/4/24
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use NCR	
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2010/8/30	2011/8/29
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2011/4/8	2012/4/7
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2011/3/4	2012/3/3

ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2011/3/4	2012/3/3
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2011/3/4	2012/3/3
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2011/5/30	2012/5/29
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2011/3/4	2012/3/3
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2011/5/18	2012/5/17
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2010/11/30	2011/11/29
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2011/4/8	2012/4/7
ETSTW-RE 066	Highpass Filter	H1G013G1	206015	MICROWAVE CIRCUITS, INC.	2011/3/4	2012/3/3
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2010/10/7	2011/10/6
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2011/1/10	2012/1/9
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2011/1/10	2012/1/9
ETSTW-RE 081	Highpass Filter	H03G13G1	4260-02 DC0428	MICROWAVE CIRCUITS, INC.	2011/3/4	2012/3/3
ETSTW-RE 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2011/5/31	2012/5/30
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2011/3/10	2012/3/9
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2011/3/11	2012/3/10
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2011/3/24	2012/3/23
ETSTW-RE 111	Log-Periodic Dipole Array Antenna	VULB 9160	9160-3309	Schwarz beck	2010/12/17	2011/12/16
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 114	2.4GHz Notch Filter	N0124411	473873	MICROWAVE CIRCUITS	2011/1/13	2012/1/12
ETSTW-RE 121	SPECTRUM ANALYZER	FSU43	100013	R&S	2011/6/23	2012/6/22
ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	093	EMC-PARTNER	2010/8/27	2011/8/26
ETSTW-EMS 001	BASELSTRASSE 160 CH-4242 LAUFEN	CN-EFT1000	354	EMC-PARTNER	Function Test	
ETSTW-EMS 002	Frequency Converter	YF-6020	0308014	None	Function Test	
ETSTW-EMS 003	EMC Immunity Test System	TRA2000IN6	579	EMC-PARTNER	2010/11/3	2011/11/2
ETSTW-EMS 009	Magnetic Field Antenna	MF1000-1	104	EMC-PARTNER	Function Test	
ETSTW-EMS 012	EM Injection Clamp	F-203I-23MM	476	FCC	2011/6/1	2012/5/31
ETSTW-EMS 015	HVAC Trms Power Clamp Meter	3079K	070800649	TES	2010/10/5	2011/10/4
ETSTW-EMS 016	EMF Tester	1390	071208732	TES	2010/10/5	2011/10/4
ETSTW-EMS 017	Multimeter	DM-1220	518614	HOLA	2010/8/18	2011/8/17
ETSTW-EMS 019	Electrostatic Discharge Simulator	ESS-2002	ESS06Y6300	NoiseKen	2010/11/25	2011/11/24
ETSTW-EMS 020	Humidity Temperature Meter	TES-1366	091011116	TES	2011/3/24	2012/3/23
ETSTW-RS 003	RF Power Amplifier	30S1G3	306933	AR	Function Test	
ETSTW-RS 004	RF Power Amplifier	150W1000	307009	AR	Function Test	
ETSTW-RS 006	SIGNAL GENERATOR	SML03	101551	R&S	2011/3/7	2012/3/6
ETSTW-RS 007	14" COLOR VIDEO MONITOR	HS-CM145A	0512011548	None	Function Test	
ETSTW-RS 009	SIGNAL GENERATOR	8648C	3642U01656	HP	2011/2/23	2012/2/22
ETSTW-RS 010	Broadband Field Meter	NBM-520	C-0195	Narda	2010/10/12	2011/10/11
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2010/10/7	2011/10/6
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2011/1/14	2012/1/13

ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2011/1/14	2012/1/13
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2011/1/14	2012/1/13
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2011/1/14	2012/1/13
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2010/9/20	2011/9/19
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104（S_Cable 7）	238093	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104（S_Cable 11）	209953	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2011/3/8	2012/3/7
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	Pre-test Use NCR	
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2011/3/8	2012/3/7
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104（S_Cable 5）	232345	HUBER+SUHNER	Function Test	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2011/3/4	2012/3/3
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2011/3/4	2012/3/3
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2011/3/10	2012/3/9
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2011/3/10	2012/3/9
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2011/4/26	2012/4/25
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2011/4/26	2012/4/25
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104（S_Cable 9）	279067	SPECTRUM	2011/3/10	2012/3/9
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104（S_Cable 10）	238092	HUBER+SUHNER	2010/11/30	2011/11/29
ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104（S_Cable 19）	316739	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 040	Microwave Cable	SUCOFLEX 104（S_Cable 20）	316738	HUBER+SUHNER	Function Test	
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2010/11/30	2011/11/29
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2010/11/30	2011/11/29
ETSTW-Cable 051	BNC Cable	BNC Cable 6	None	JYE BAO CO.,LTD.	2011/3/31	2012/3/30
ETSTW-Cable 052	BNC Cable	Clamp Cable	None	Schwarz beck	2011/3/31	2012/3/30
ETSTW-Cable 053	N TYPE To SMA Cable	OATS Cable 4	None	JYE BAO CO.,LTD.	2011/3/4	2012/3/3
ETSTW-Cable 054	BNC To SMA Cable	OATS Cable 5	None	JYE BAO CO.,LTD.	2011/3/4	2012/3/3
ETSTW-Cable 055	Microwave Cable	SUCOFLEX 104	None	HUBER+SUHNER	Function Test	
ETSTW-Cable 056	N TYPE Cable	N30N30-JBY240-80CM	20110621-1.0	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 057	N TYPE Cable	N30N30-JBY240-80CM	20110621-1.1	JYE BAO CO.,LTD.	Function Test	
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_EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	
WTSTW-SW 005	GSM Fading Level Correction	GSMFadLevCor	None	R&S	Version 1.66	

2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2009 5.2 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 C63.4-2009 6.4 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 C63.4-2009 6.3.1. 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, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 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.

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 (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

ANSI STANDARD C63.4-2009 10.2.7: Any measurements that utilize special test software shall be indicated and referenced in the test report. During testing, test software ’EZ EMC’ was used for setting up different operation modes.

3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)(3)	☒	☒	☐
Equivalent radiated Power	15.247(b)(3)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(c): 15.209	☒	☒	☐
Band Edge Measurement	15.247(c)	☒	☒	☐
Minimum 6 dB Bandwidth	15.247(a)(2)	☒	☒	☐
Peak Power Spectral Density	15.247(d)	☒	☒	☐
Radiated Emission from Digital Part	15.109	☒	☒	☐
Power Line Conducted Emission	15.207	☒	☒	☐

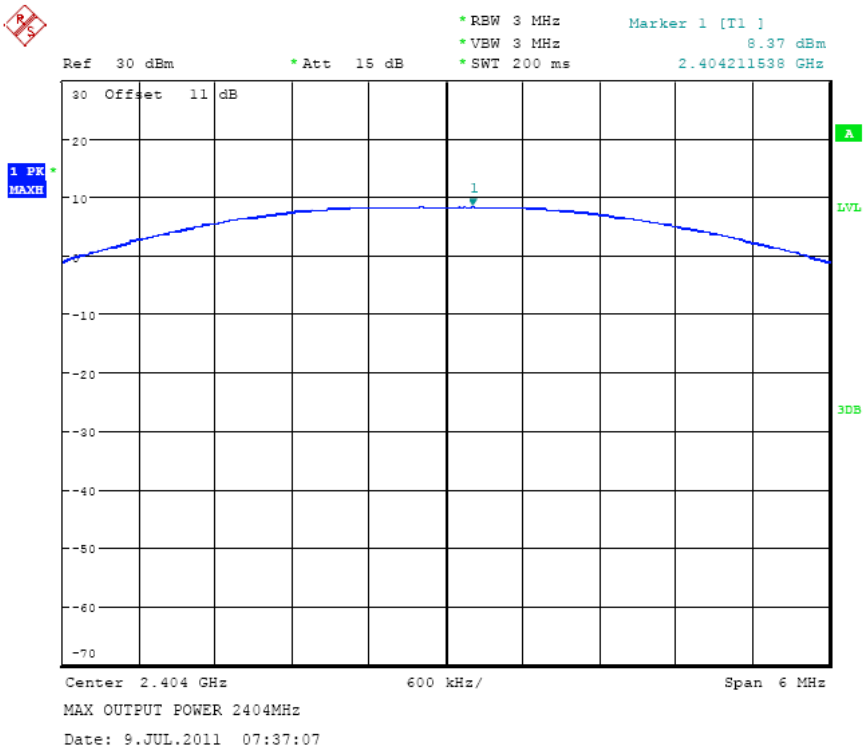
The follows is intended to leave blank.

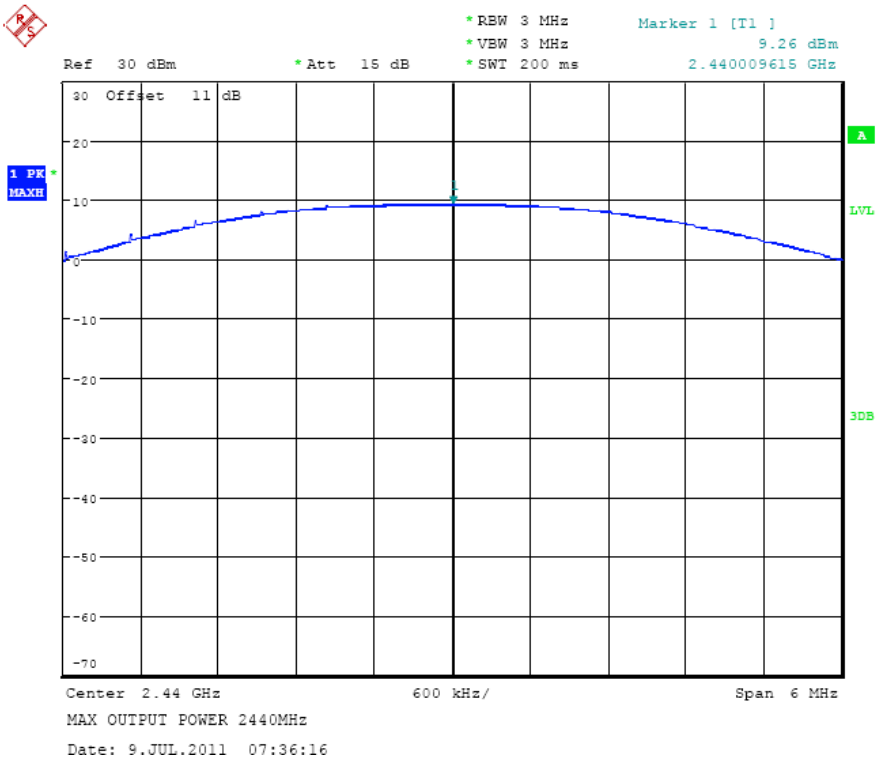
3.1 Peak Output Power (transmitter)

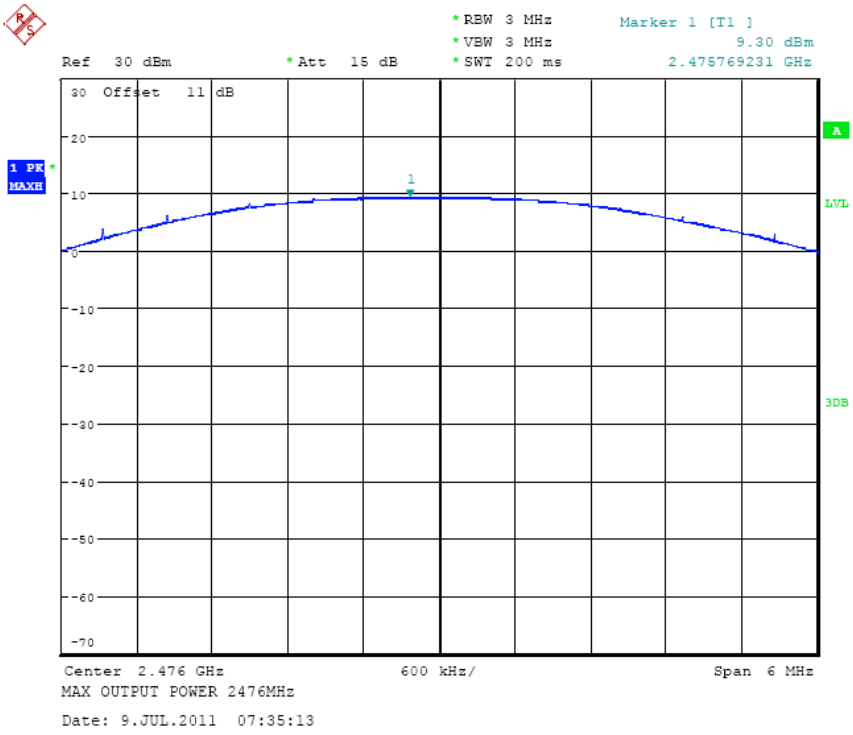
FCC Rule: 15.247(b)(3)

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).







Test condition T_{nom}= 23°C, V_{nom} = 5 V	Signal Field strength TX highest power mode dB μ V/m
Frequency [MHz]	--
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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 dBi and using fixed point-to point operation consider §15.247 (b)(4)

Test equipment used: ETSTW-RE 055

3.2 Equivalent isotropic radiated power

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain
EIRP = 9.30 dBm + (2.08 dBi)
= 11.38 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	8.511	Peak value
D	dB		
AG	dBi	2.08	
G		1.614	Calculated Value
R	cm	20	Assumed value
S	mW/cm^2	0.00273	Calculated value

Limits:

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

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 ≦ 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 (dwell time/ 100ms)

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

Explanation: see attached diagrams in Appendix.

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 (dwell time/100ms)

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044

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

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: EXSD9705 Date: 2011/6/29
Mode: 2404MHz Temperature: 24 °C Engineer: Kevin
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	23.59	peak	14.49	38.08	46.00	-7.92	130	100
970.5411	4.86	peak	27.79	32.65	54.00	-21.35	220	100

Polarization: Horizontal

Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin	Table Degree	Ant. High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
1202.4050	54.23	---	-2.44	51.79	---	74.00	54.00	-22.21	110	100
4808.0000	42.93	---	4.56	47.49	---	74.00	54.00	-26.51	310	100
7212.0000	40.91	---	6.93	47.84	---	74.00	54.00	-26.16	170	100
9616.0000	35.54	---	9.48	45.02	---	74.00	54.00	-28.98	110	100
12020.0000	33.63	---	13.33	46.96	---	74.00	54.00	-27.04	40	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	17.97	peak	14.49	32.46	46.00	-13.54	40	100
998.5972	5.70	peak	27.88	33.58	54.00	-20.42	50	100

Polarization: Vertical

Frequency	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin	Table Degree	Ant. High
(MHz)	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.	(dB)	(Deg.)	(cm)
4808.0000	46.15	---	4.56	50.71	---	74.00	54.00	-23.29	130	100
7212.0000	41.95	---	6.93	48.88	---	74.00	54.00	-25.12	250	100
9616.0000	35.00	---	9.48	44.48	---	74.00	54.00	-29.52	220	100
12020.0000	33.19	---	13.33	46.52	---	74.00	54.00	-27.48	40	100

Mode: 2440MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	23.25	peak	14.49	37.74	46.00	-8.26	310	100
984.5691	5.91	peak	27.83	33.74	54.00	-20.26	60	100

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
1220.4410	55.90	54.95	-2.42	53.48	52.53	74.00	54.00	-1.47	25	100
4880.0000	43.02	---	4.59	47.61	---	74.00	54.00	-26.39	130	100
7320.0000	40.75	---	6.92	47.67	---	74.00	54.00	-26.33	240	100
9760.0000	35.00	---	9.66	44.66	---	74.00	54.00	-29.34	220	100
12200.0000	32.42	---	14.79	47.21	---	74.00	54.00	-26.79	140	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	17.81	peak	14.49	32.30	46.00	-13.70	50	100
971.9440	6.67	peak	27.79	34.46	54.00	-19.54	240	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
4880.0000	45.79	---	4.59	50.38	---	74.00	54.00	-23.62	310	100
7320.0000	42.14	---	6.92	49.06	---	74.00	54.00	-24.94	60	100
9760.0000	34.56	---	9.66	44.22	---	74.00	54.00	-29.78	210	100
12200.0000	32.60	---	14.79	47.39	---	74.00	54.00	-26.61	40	100

Mode: 2476MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	23.40	peak	14.49	37.89	46.00	-8.11	40	100
970.5411	4.99	peak	27.79	32.78	54.00	-21.22	260	100

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Result (dBuV/m) Ave.	Limit (dBuV/m) Peak	Limit (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1238.4770	54.62	53.31	-2.39	52.23	50.92	74.00	54.00	-3.08	29	100
4952.0000	42.32	---	4.77	47.09	---	74.00	54.00	-26.91	355	100
7428.0000	39.93	---	6.73	46.66	---	74.00	54.00	-27.34	125	100
9904.0000	34.88	---	9.81	44.69	---	74.00	54.00	-29.31	210	100
12380.0000	33.40	---	14.33	47.73	---	74.00	54.00	-26.27	50	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
250.2204	18.07	peak	14.49	32.56	46.00	-13.44	220	100
995.7916	7.41	peak	27.87	35.28	54.00	-18.72	240	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Result (dBuV/m) Ave.	Limit (dBuV/m) Peak	Limit (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4953.9080	46.17	---	4.77	50.94	---	74.00	54.00	-23.06	120	100
7428.0000	39.90	---	6.73	46.63	---	74.00	54.00	-27.37	220	100
9904.0000	34.99	---	9.81	44.80	---	74.00	54.00	-29.20	110	100
12380.0000	32.94	---	14.33	47.27	---	74.00	54.00	-26.73	50	100

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. **Please see attached diagram as appendix.**

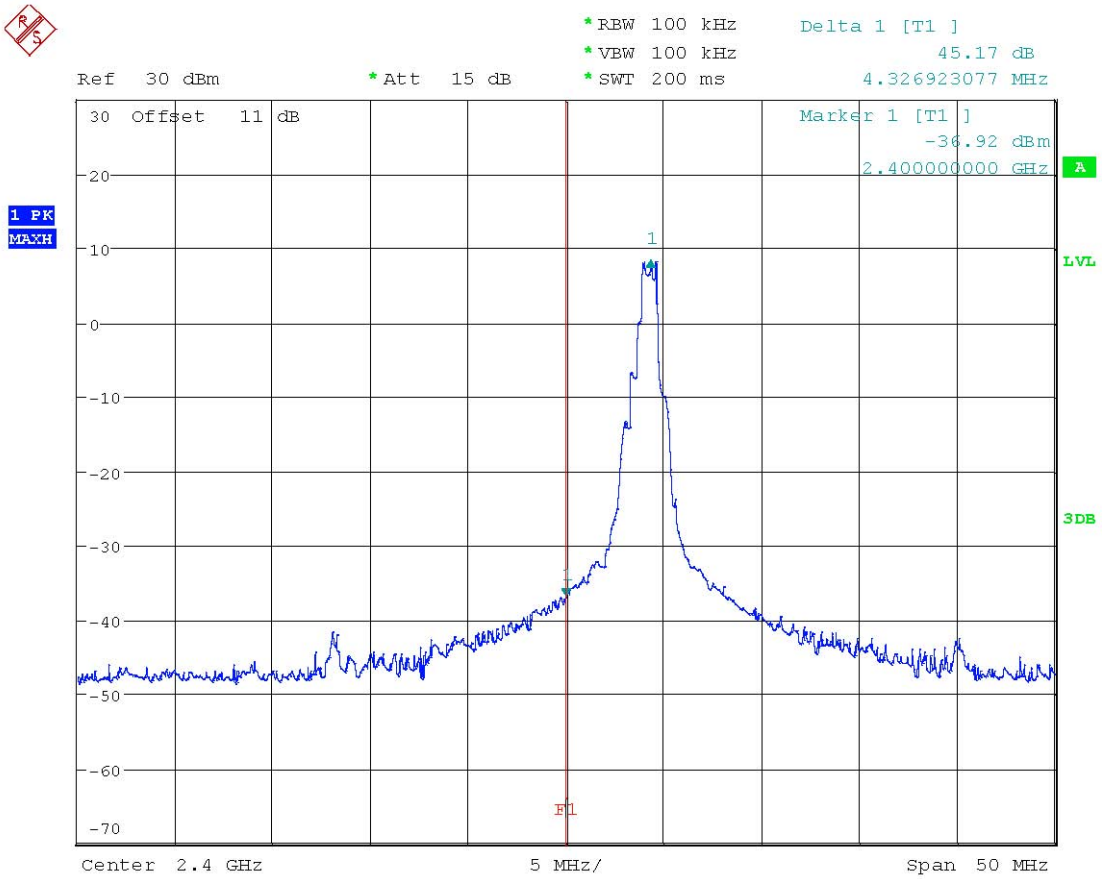
TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044

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.

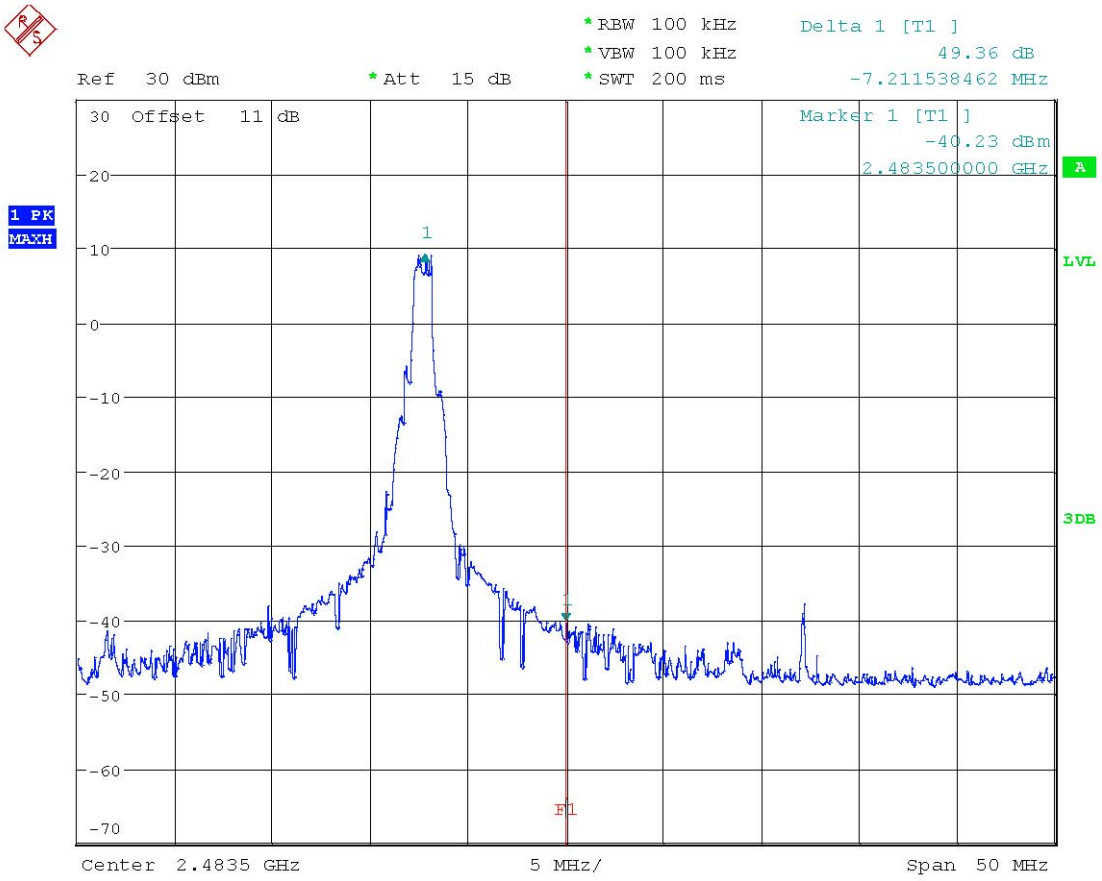
In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.



BANDEDGE 2404MHz

Date: 9.JUL.2011 07:39:08

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501



BANDEDGE 2476MHz
Date: 9.JUL.2011 07:40:22

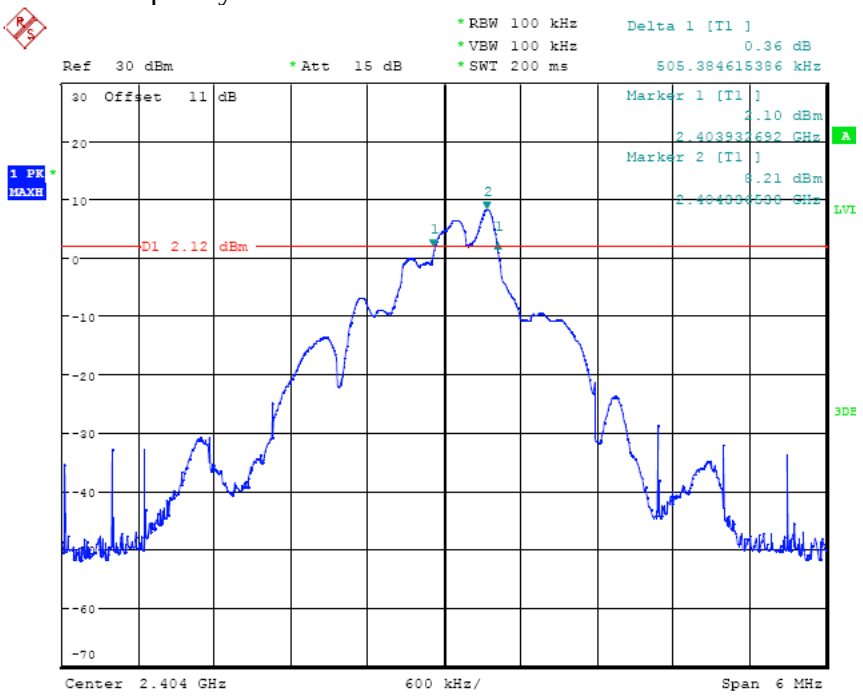
Limit:

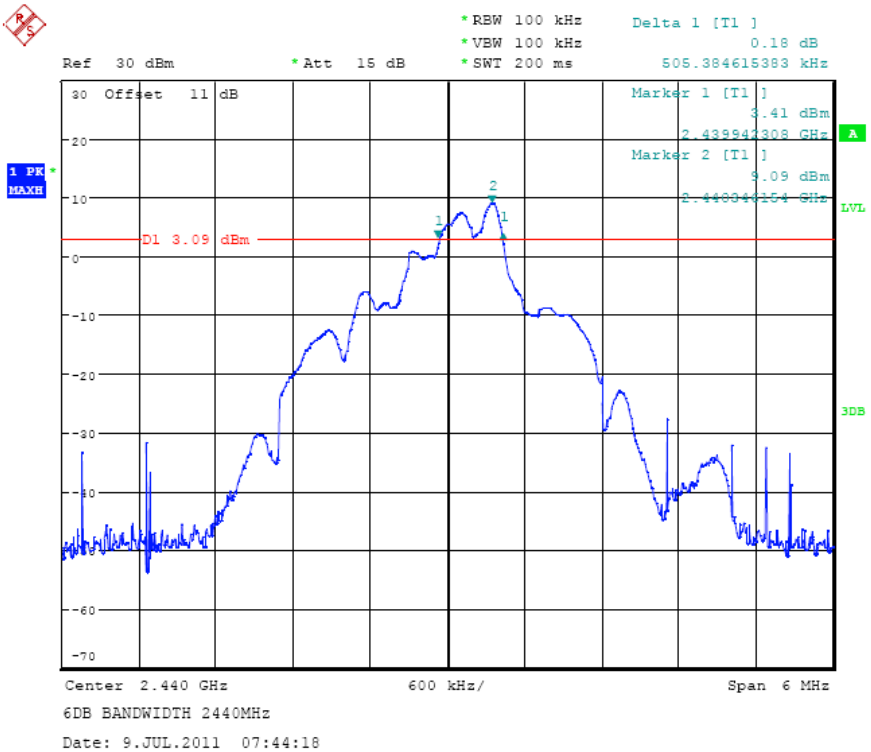
Frequency Range / MHz	Limit
902 –928 2400 – 2483.5 5725 - 5850	- 20 dB

Test equipment used: ETSTW-RE 055

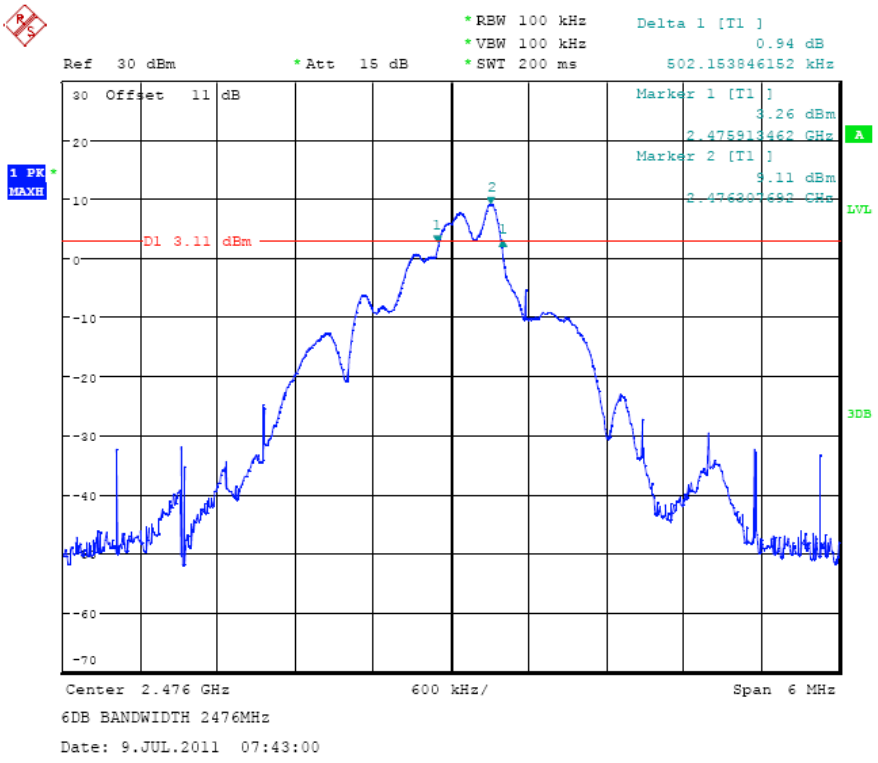
3.7 Minimum 6 dB Bandwidth

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.





Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501



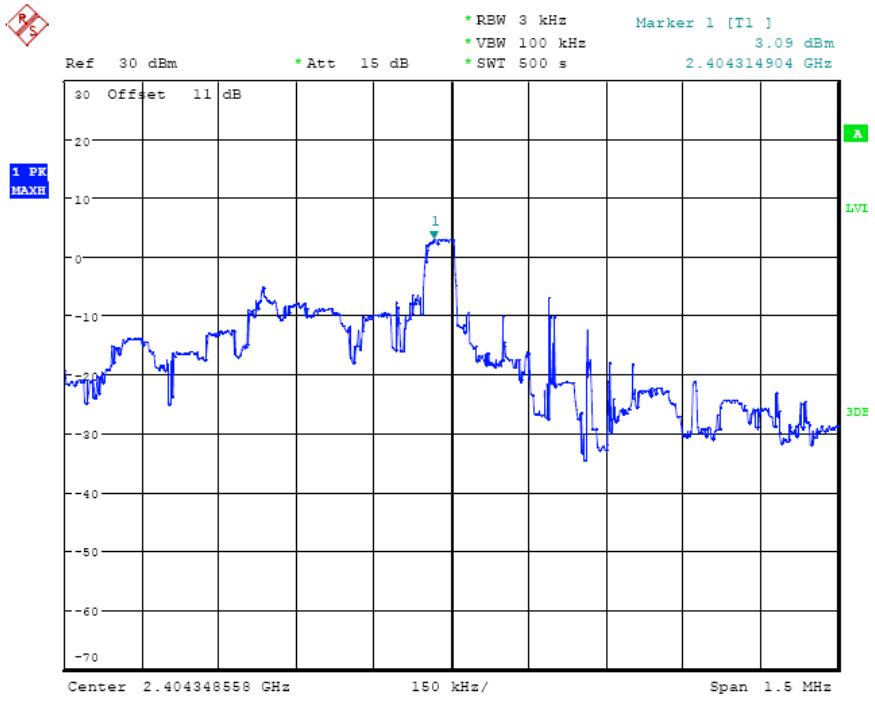
Limits:

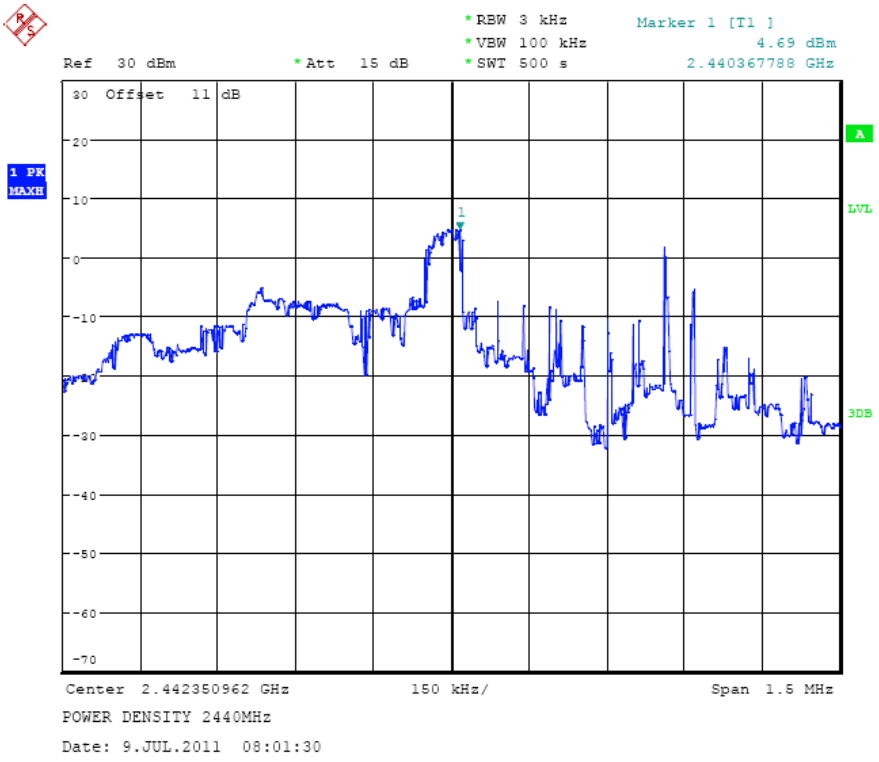
Frequency Range MHz	**Limits**
902-928	min 500 kHz
2400-2483.5	min 500 kHz
5725-5850	min 500 kHz

Test equipment used: ETSTW-RE 055

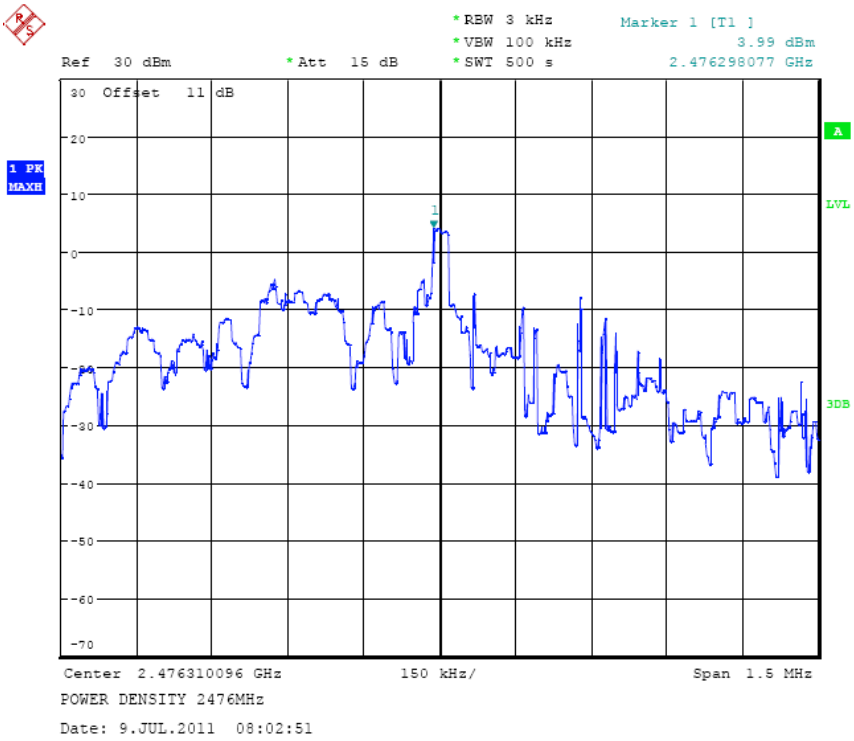
3.8 Peak Power Spectral Density

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.





Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501



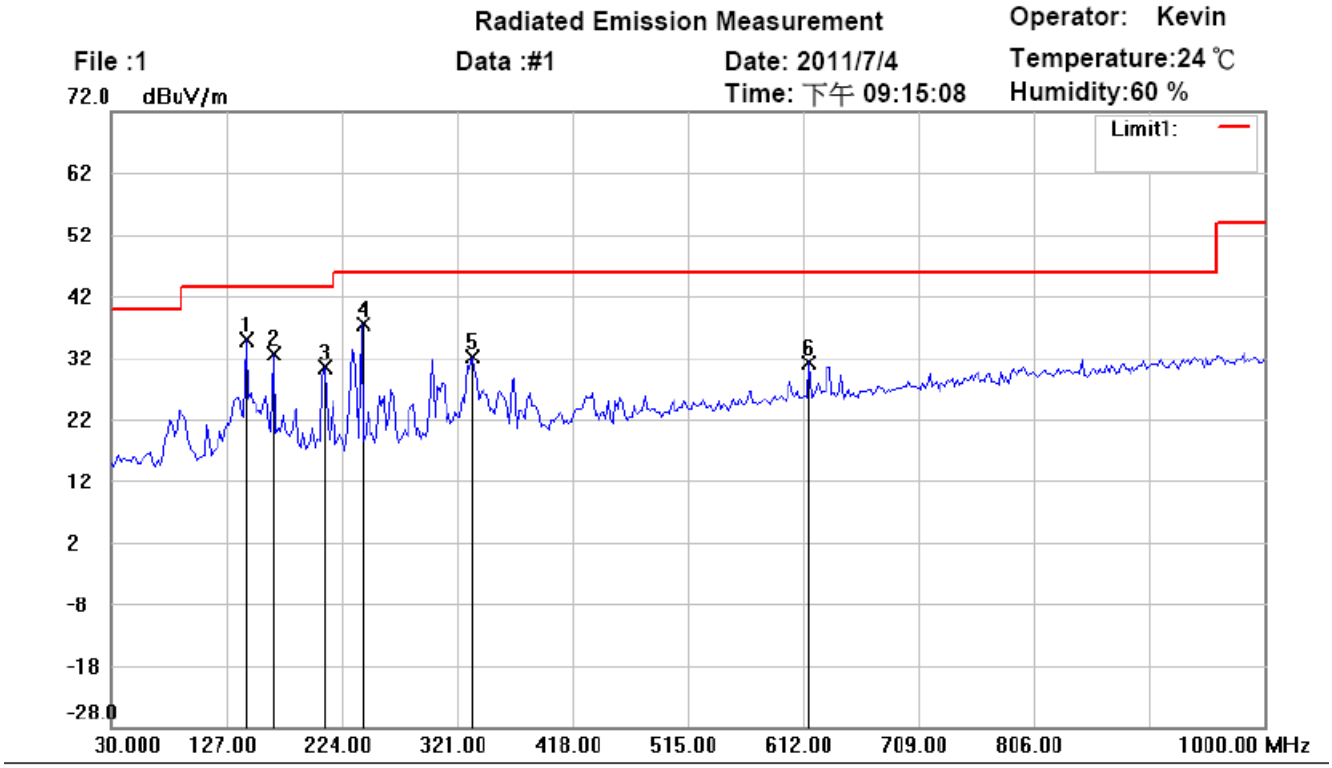
Limits:

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

Test equipment used: ETSTW-RE 055

3.9 Radiated Emissions from Digital Part

FCC Rule: 15.109

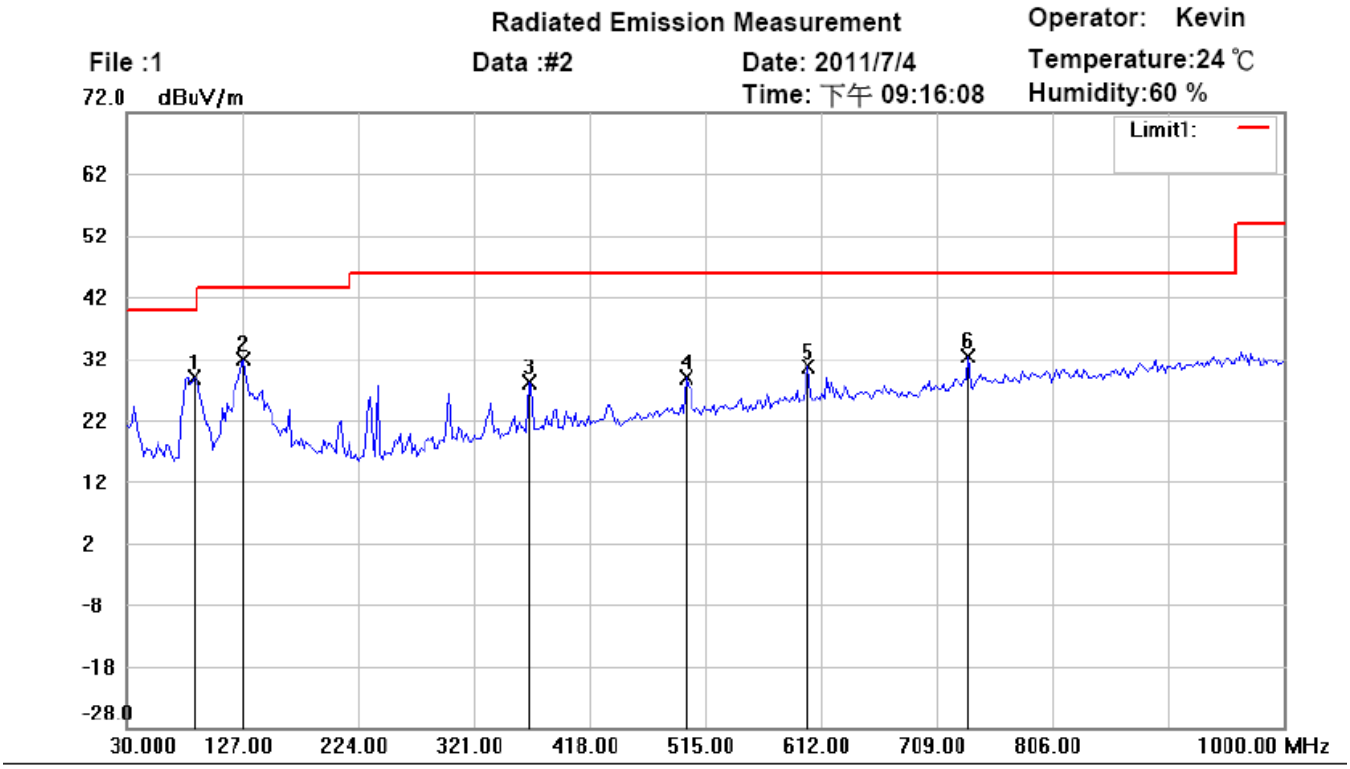


Site : Chamber
Condition : FCC_part 15 RE-Class B_30-1000MHz
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Polarization: *Horizontal*
Power : 5VDC
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	142.7455	19.35	QP	15.61	34.96	43.50	100	220	-8.54	
	166.0721	16.93	QP	15.74	32.67	43.50	100	125	-10.83	
	208.8377	17.35	QP	12.92	30.27	43.50	100	310	-13.23	
	239.9400	23.14	QP	14.24	37.38	46.00	100	290	-8.62	
	333.2465	15.44	QP	16.80	32.24	46.00	100	60	-13.76	
	617.0541	8.26	QP	22.92	31.18	46.00	100	165	-14.82	

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

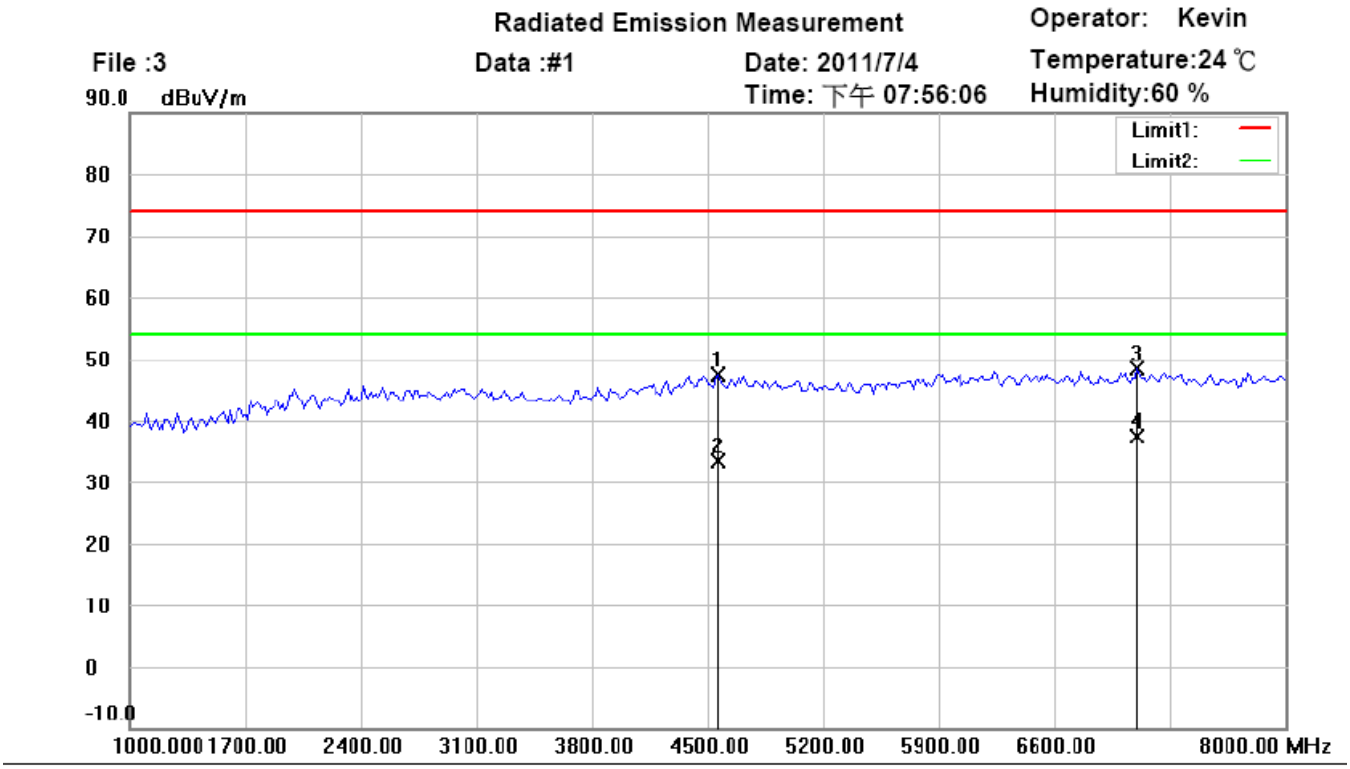


Site : Chamber
Condition : FCC_part 15 RE-Class B_30-1000MHz
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Polarization: *Vertical*
Power : 5VDC
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	86.3726	18.05	QP	10.92	28.97	40.00	100	210	-11.03	
	127.1944	17.51	QP	14.48	31.99	43.50	100	50	-11.51	
	366.2926	10.63	QP	17.50	28.13	46.00	100	10	-17.87	
	498.4770	8.59	QP	20.36	28.95	46.00	100	110	-17.05	
	601.5030	7.75	QP	22.76	30.51	46.00	100	280	-15.49	
	735.6312	7.62	QP	24.86	32.48	46.00	100	300	-13.52	

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

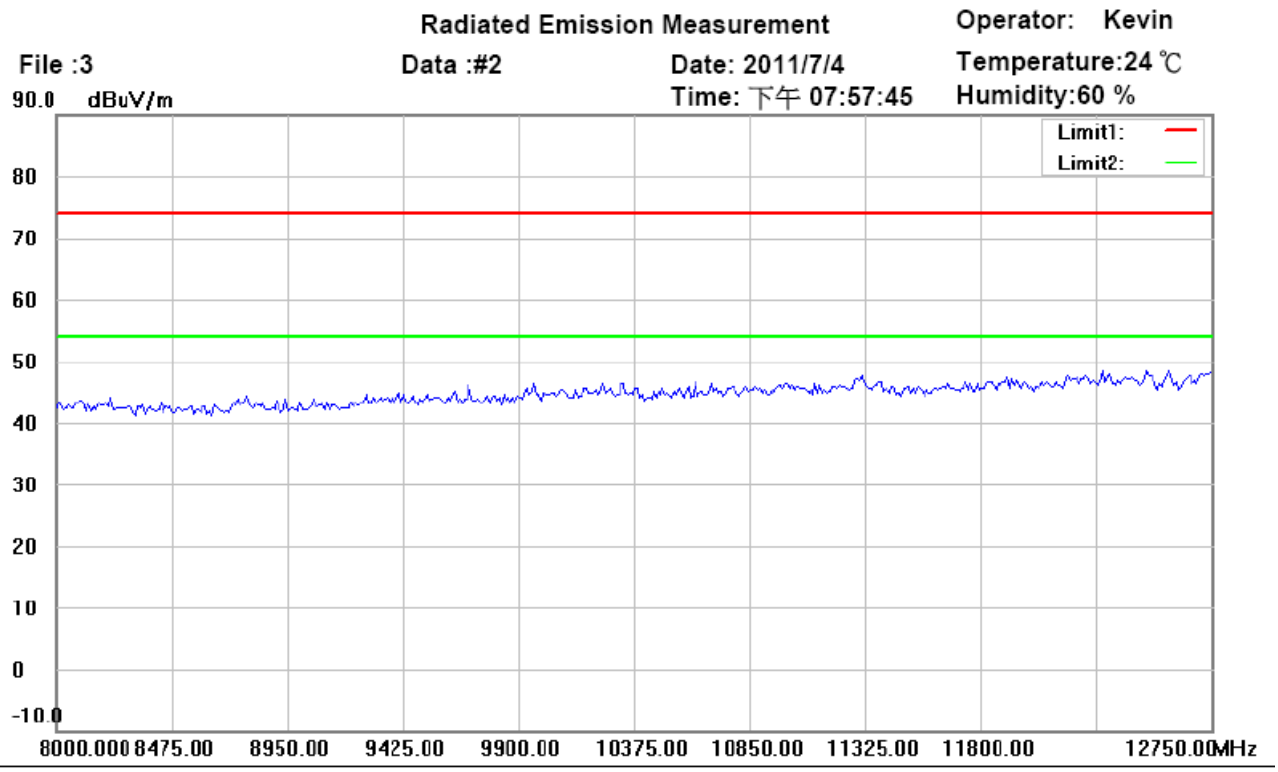


Site : Chamber
Condition : FCC_part 15 RE-Class B_Above 1GHz_PK
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Polarization: *Horizontal*
Power : 5VDC
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	4563.126	42.82	peak	4.59	47.41	74.00	100	310	-26.59	
	4563.126	28.73	AVG	4.59	33.32	54.00	100	310	-20.68	
	7102.204	41.32	peak	7.17	48.49	74.00	100	50	-25.51	
*	7102.204	30.28	AVG	7.17	37.45	54.00	100	50	-16.55	

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

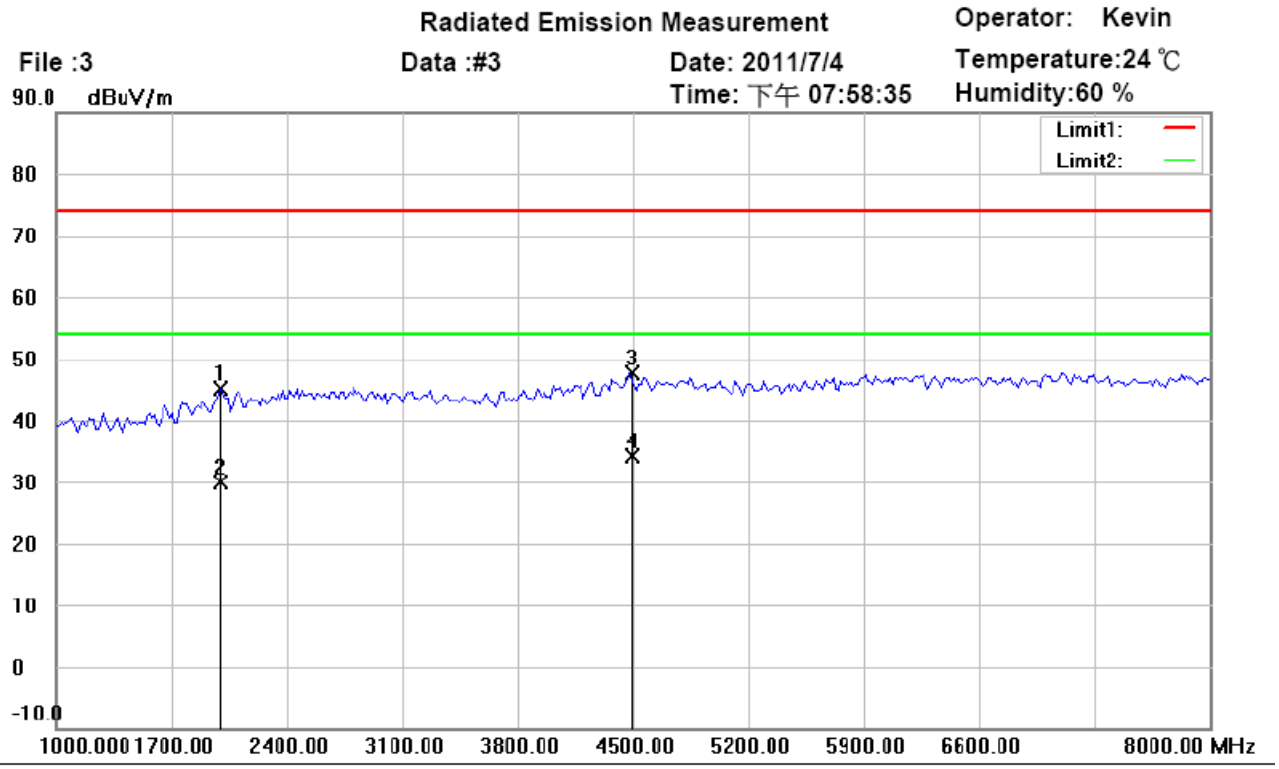


Site : Chamber
Condition : FCC_part 15 RE-Class B_Above 1GHz_PK
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Polarization: *Horizontal*
Power : 5VDC
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

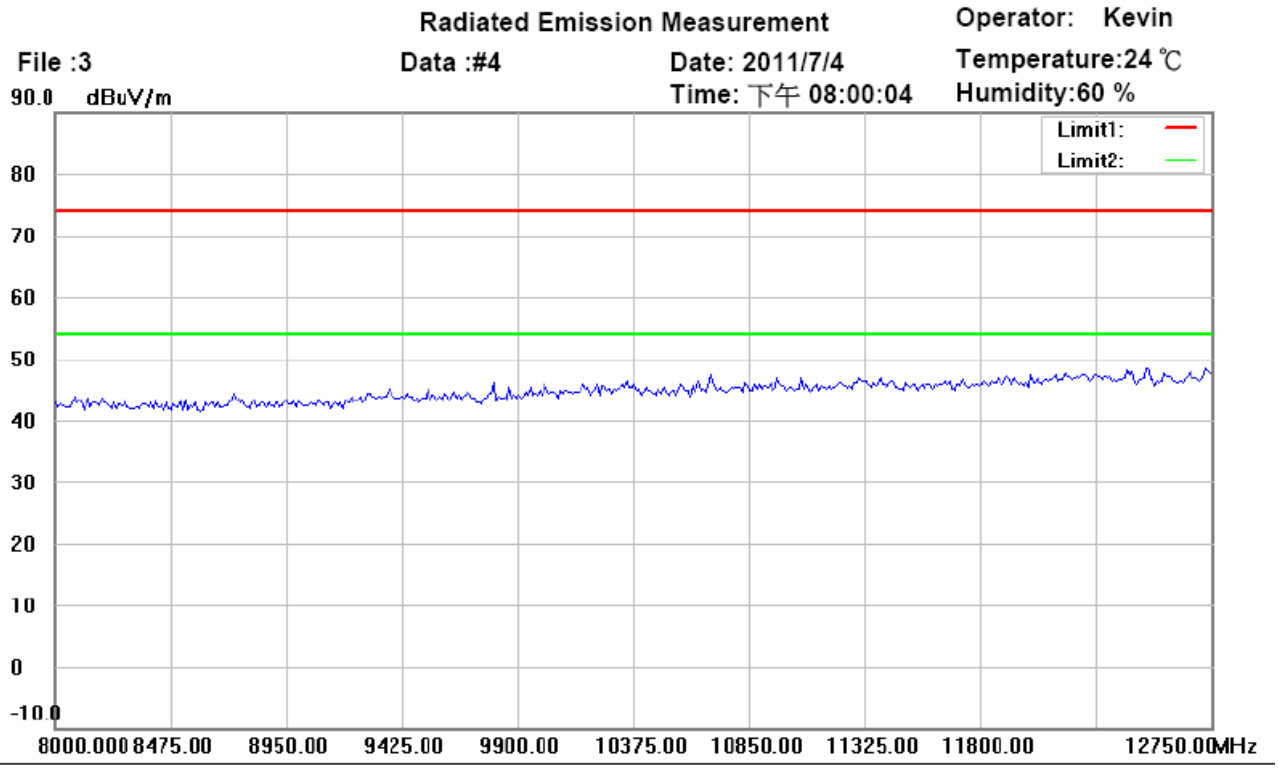


Site : Chamber
Condition : FCC_part 15 RE-Class B_Above 1GHz_PK
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Polarization: *Vertical*
Power : 5VDC
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1995.992	44.14	peak	1.06	45.20	74.00	100	110	-28.80	
	1995.992	28.76	AVG	1.06	29.82	54.00	100	110	-24.18	
	4478.958	42.98	peak	4.54	47.52	74.00	100	170	-26.48	
*	4478.958	29.68	AVG	4.54	34.22	54.00	100	170	-19.78	

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501



Site : Chamber
Condition : FCC_part 15 RE-Class B_Above 1GHz_PK
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Polarization: *Vertical*
Power : 5VDC
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment

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. **Up Line: Peak Limit Line, Down Line: Ave Limit Line.**

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

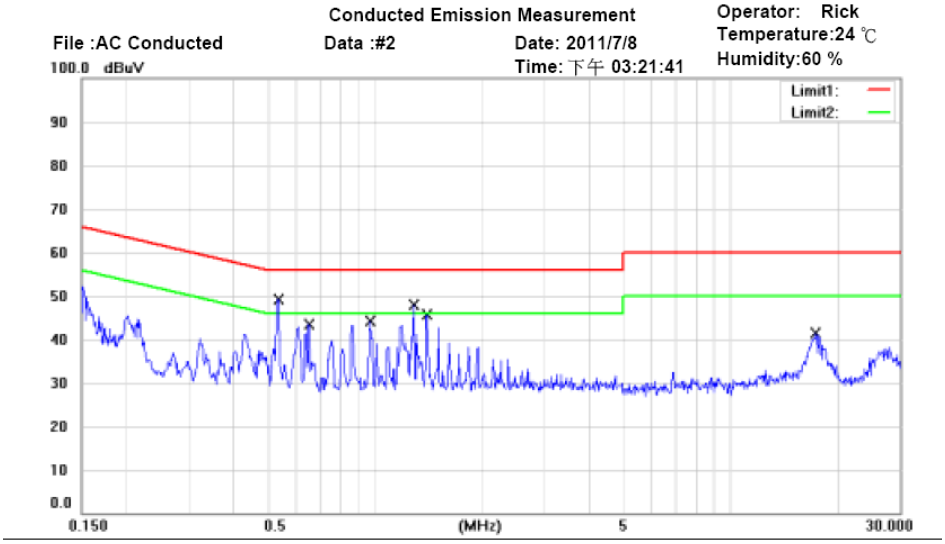
Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044, ETSTW-RE 064

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 (dBμV)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

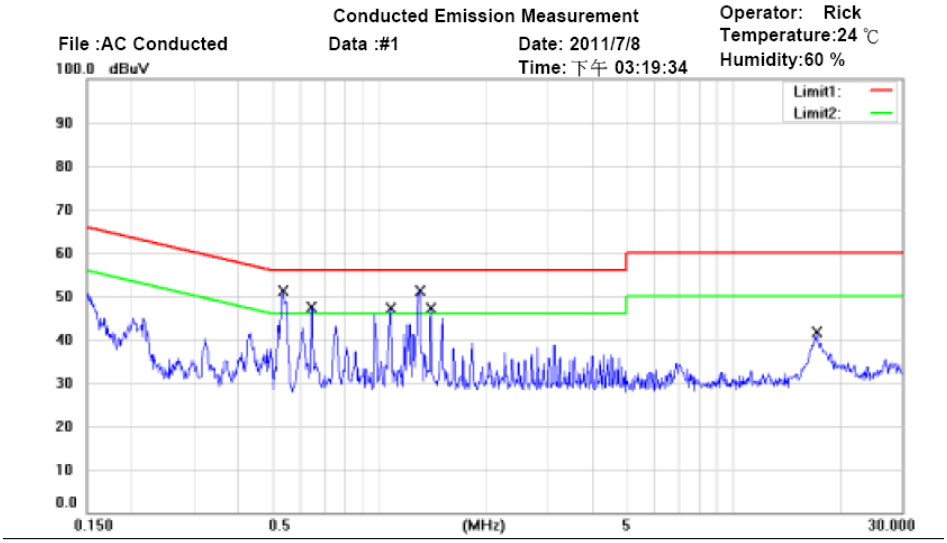


Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
EUT : W6M21106-11599
M/N: EXSD9705
Test Mode :
Note :

Phase: N
Power : 110VAC

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.5336	33.68	QP	9.93	43.61	56.00	-12.39	
	0.5336	16.68	AVG	9.93	26.61	46.00	-19.39	
	0.6530	20.48	QP	9.94	30.42	56.00	-25.58	
	0.6530	7.00	AVG	9.94	16.94	46.00	-29.06	
	0.9680	30.56	QP	9.96	40.52	56.00	-15.48	
	0.9680	15.43	AVG	9.96	25.39	46.00	-20.61	
	1.2875	32.33	QP	9.97	42.30	56.00	-13.70	
	1.2875	14.12	AVG	9.97	24.09	46.00	-21.91	
	1.4000	32.23	QP	9.98	42.21	56.00	-13.79	
	1.4000	15.95	AVG	9.98	25.93	46.00	-20.07	
	17.3250	23.34	QP	10.89	34.23	60.00	-25.77	
	17.3250	16.55	AVG	10.89	27.44	50.00	-22.56	

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: L1
EUT : W6M21106-11599
Power : 110VAC
M/N: EXSD9705
Test Mode :
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.5360	37.64	QP	10.00	47.64	56.00	-8.36	
	0.5360	19.04	AVG	10.00	29.04	46.00	-16.96	
	0.6440	33.40	QP	10.01	43.41	56.00	-12.59	
	0.6440	17.15	AVG	10.01	27.16	46.00	-18.84	
	1.0760	33.46	QP	10.02	43.48	56.00	-12.52	
	1.0760	17.07	AVG	10.02	27.09	46.00	-18.91	
	1.2965	32.85	QP	10.03	42.88	56.00	-13.12	
	1.2965	13.62	AVG	10.03	23.65	46.00	-22.35	
	1.4000	32.48	QP	10.04	42.52	56.00	-13.48	
	1.4000	16.62	AVG	10.04	26.66	46.00	-19.34	
	17.1375	22.19	QP	11.10	33.29	60.00	-26.71	
	17.1375	14.01	AVG	11.10	25.11	50.00	-24.89	

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. Up Line: QP Limit Line, Down Line: Ave Limit Line.

Limits:

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

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

Appendix

A Measurement diagrams

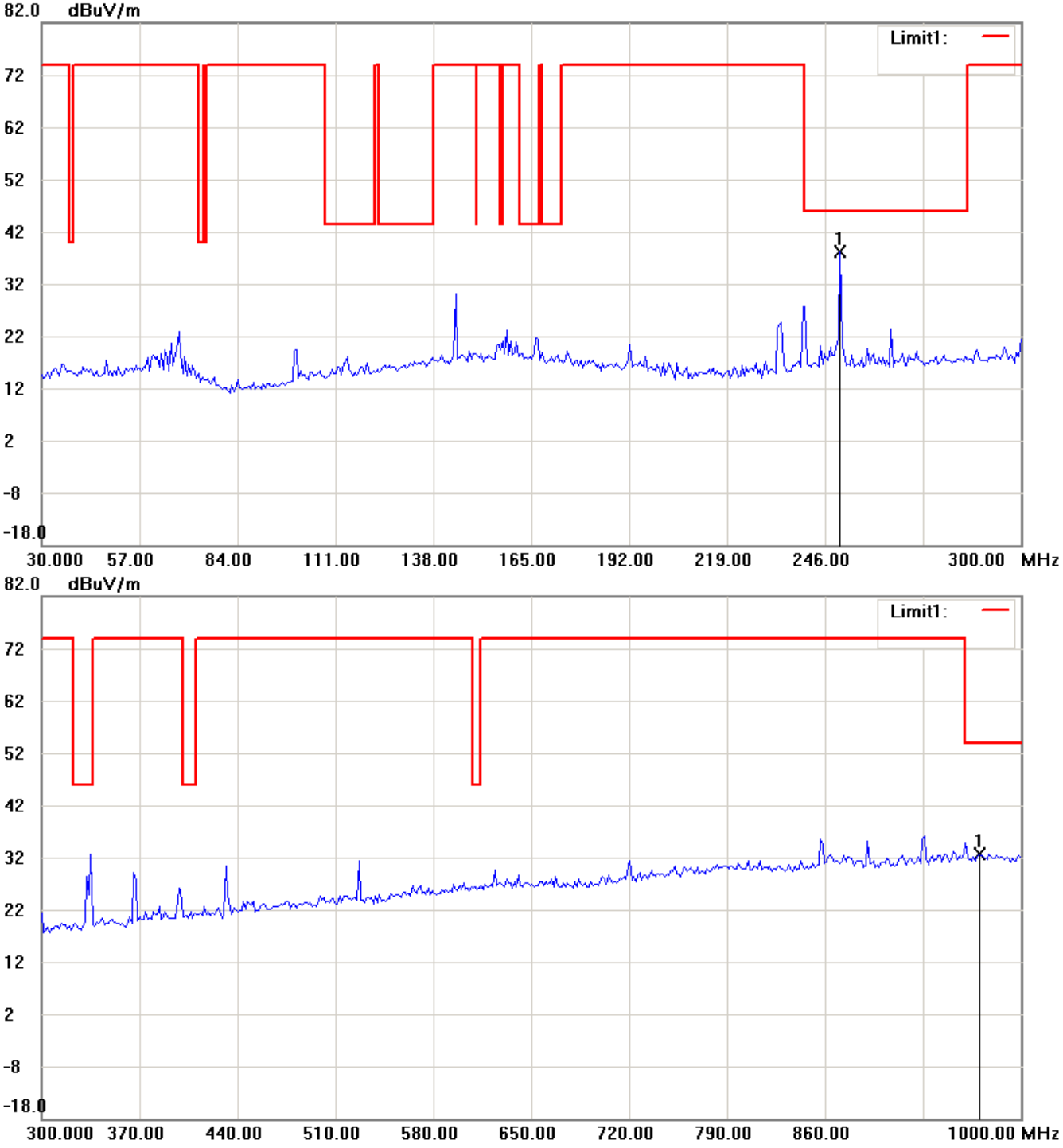
Spurious Emissions radiated

B Photos

1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission
4. Set Up Photo of Conducted Emission

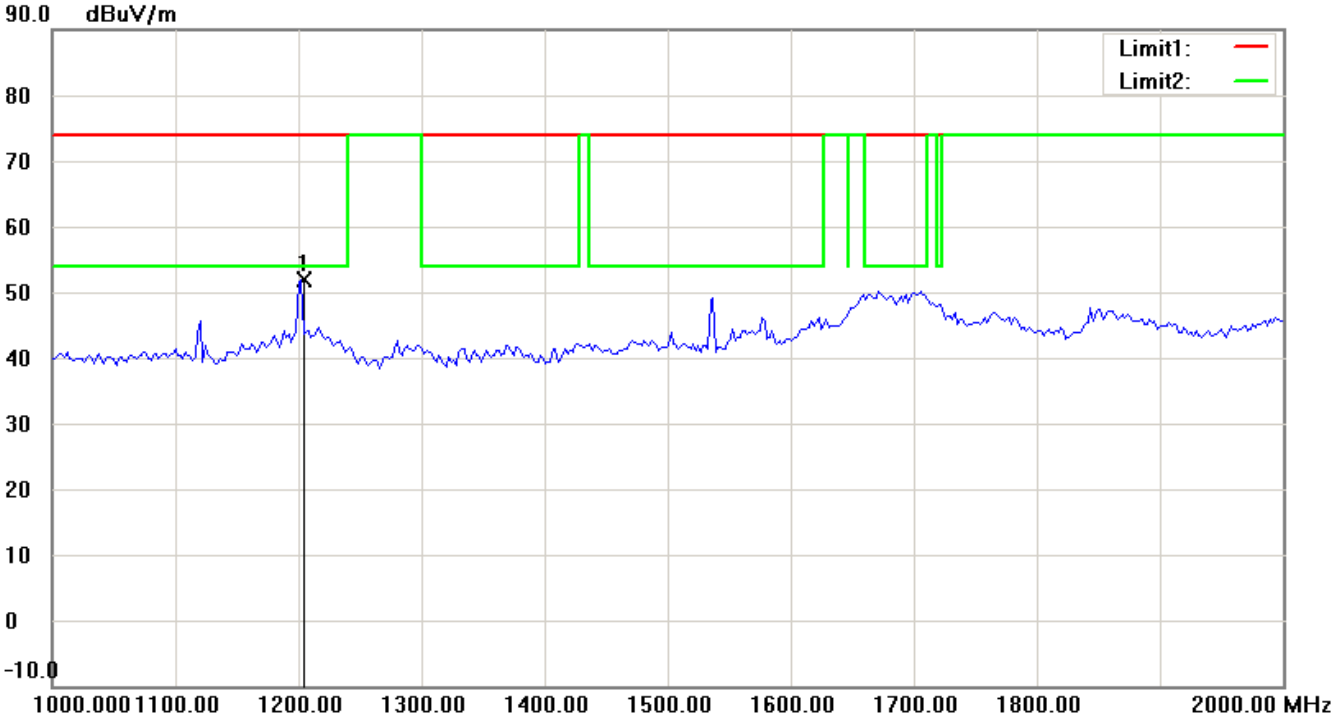
Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

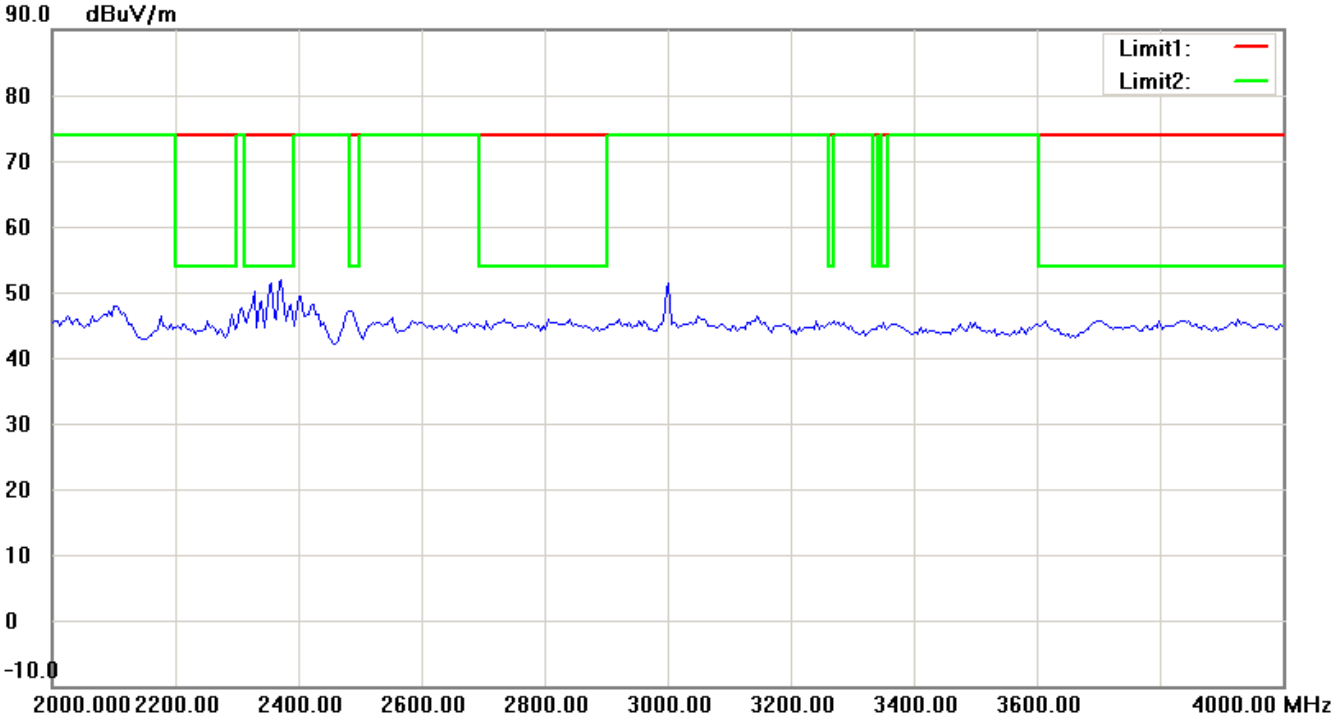
Spurious emission radiated
2404 MHz
Antenna Polarization H



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.**

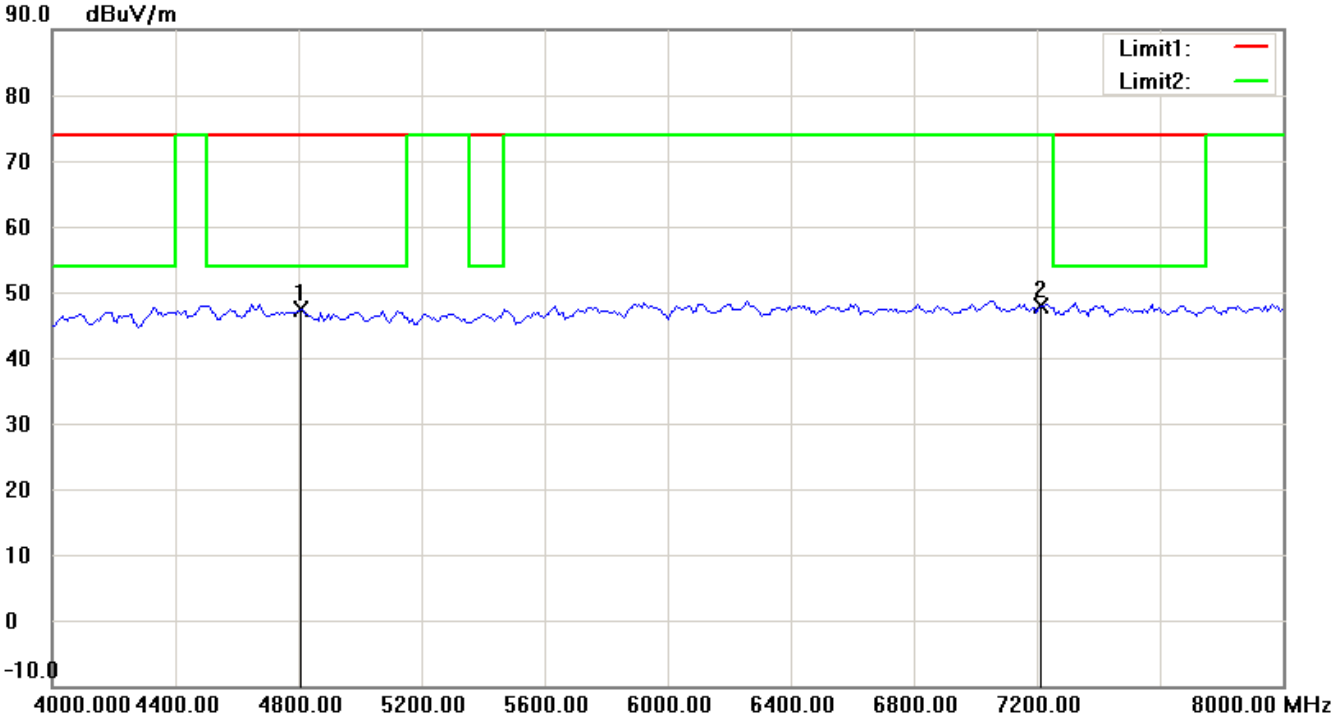


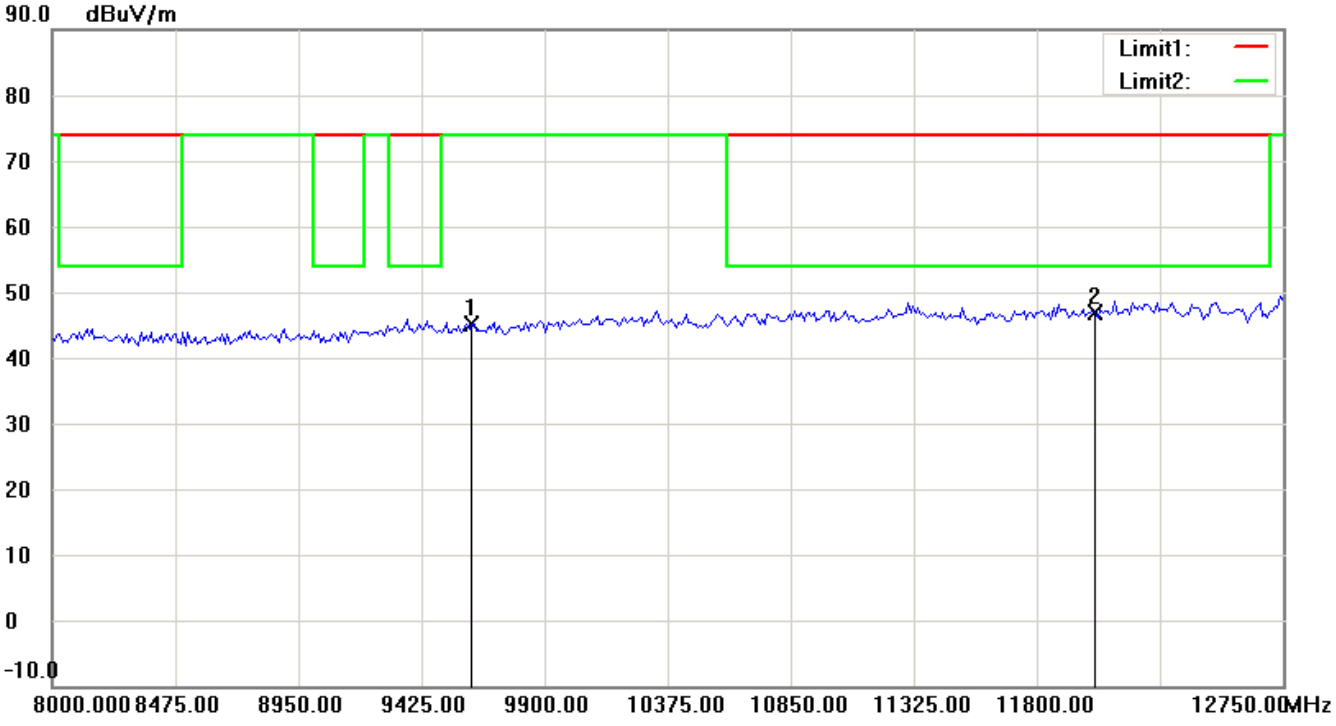


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

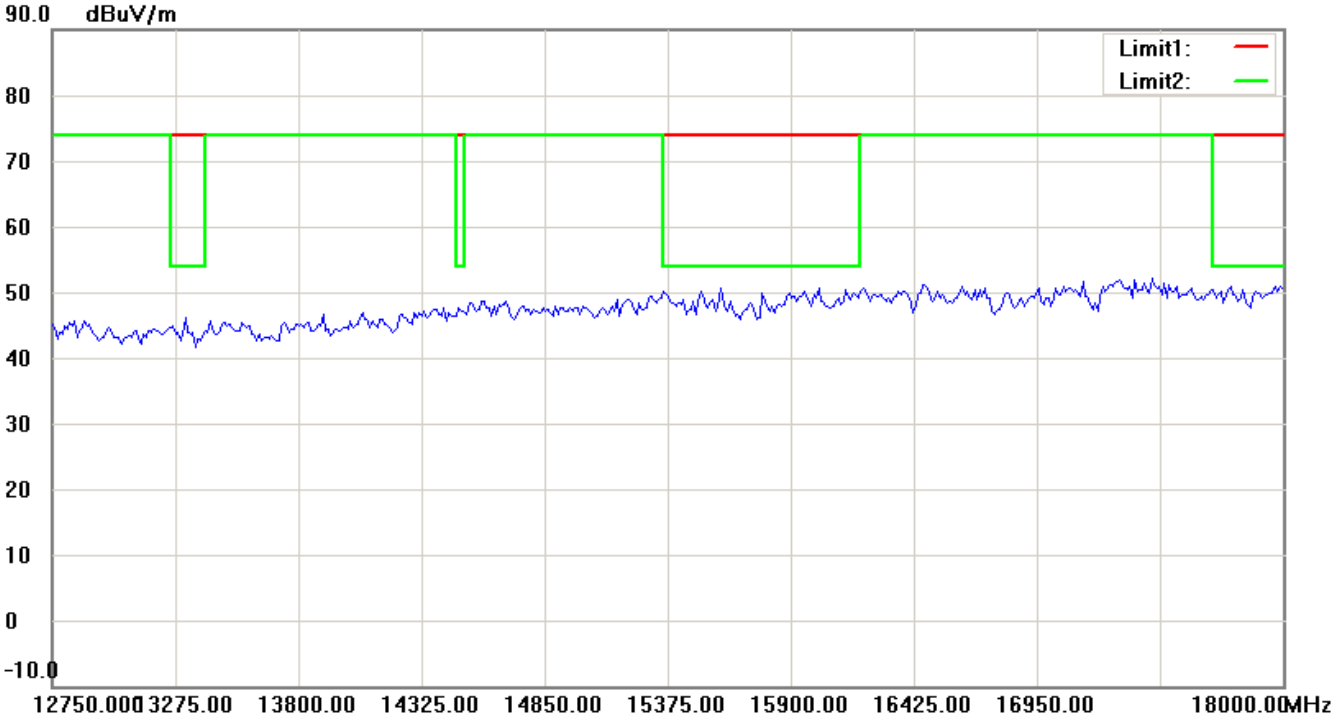


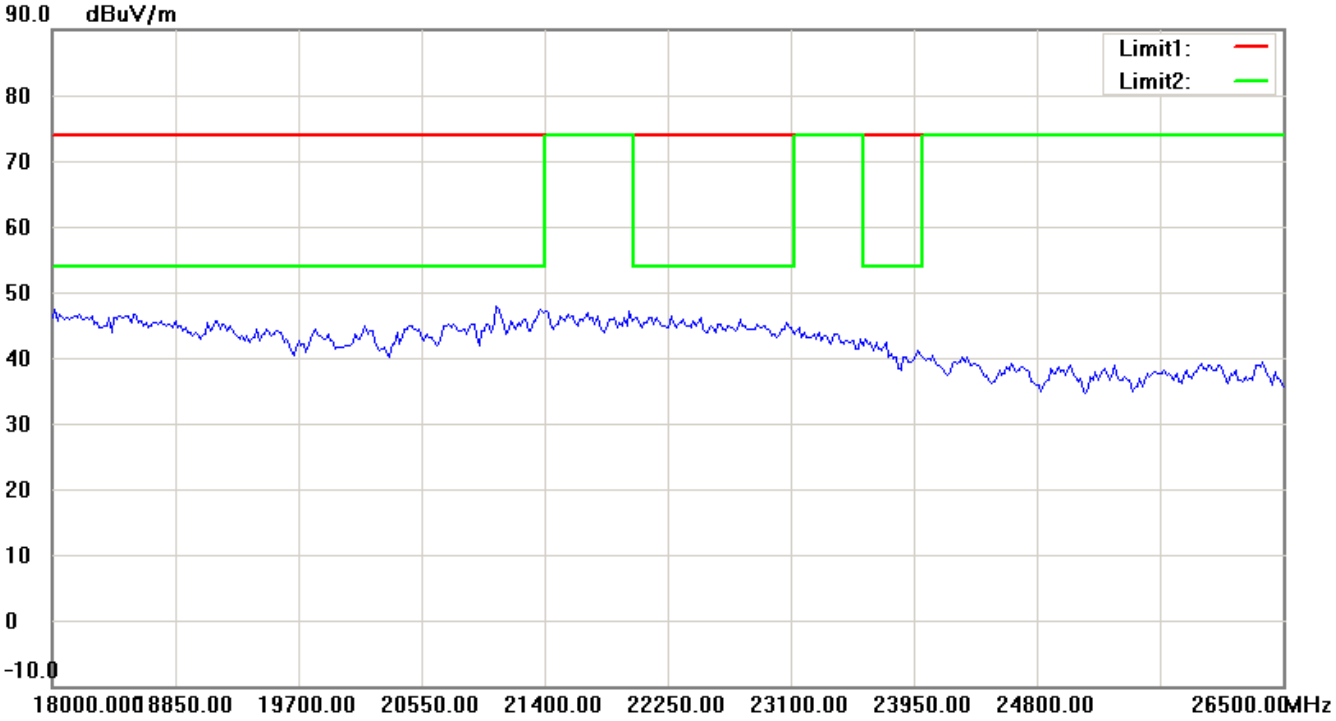


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11599-C-1
FCC ID: ZPP-EX970501



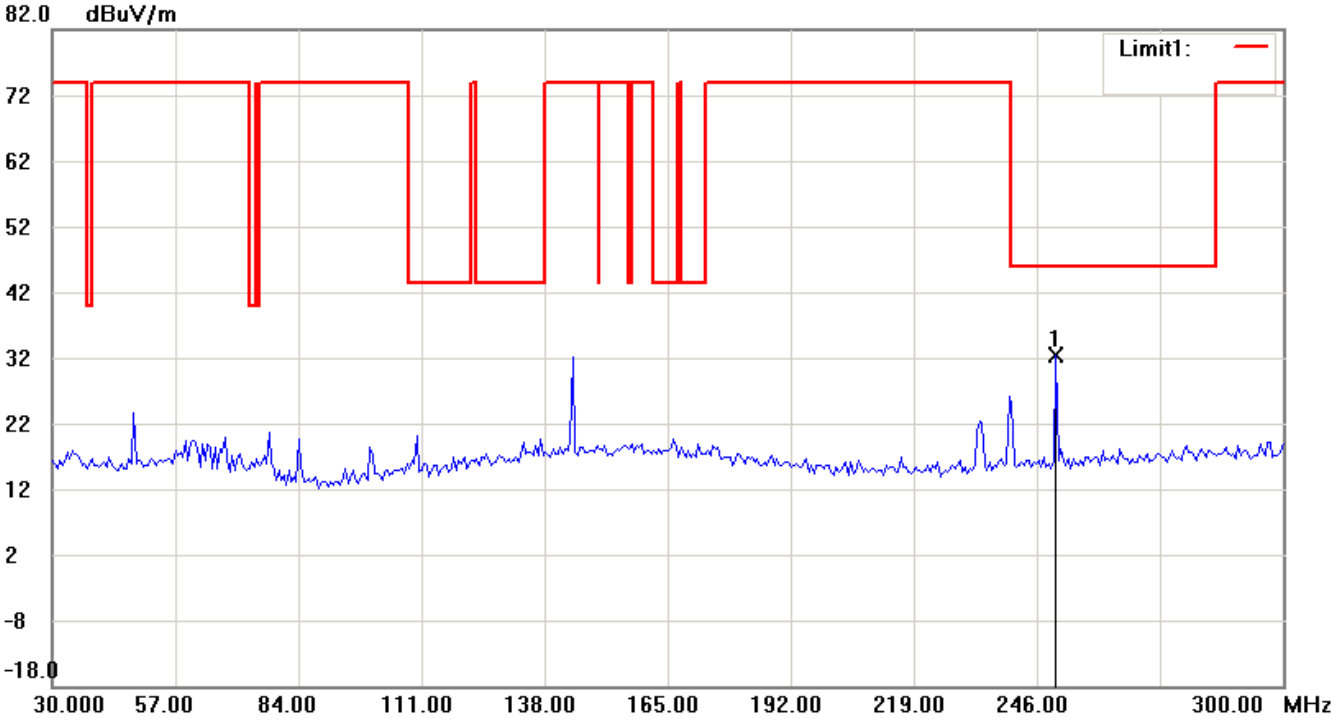


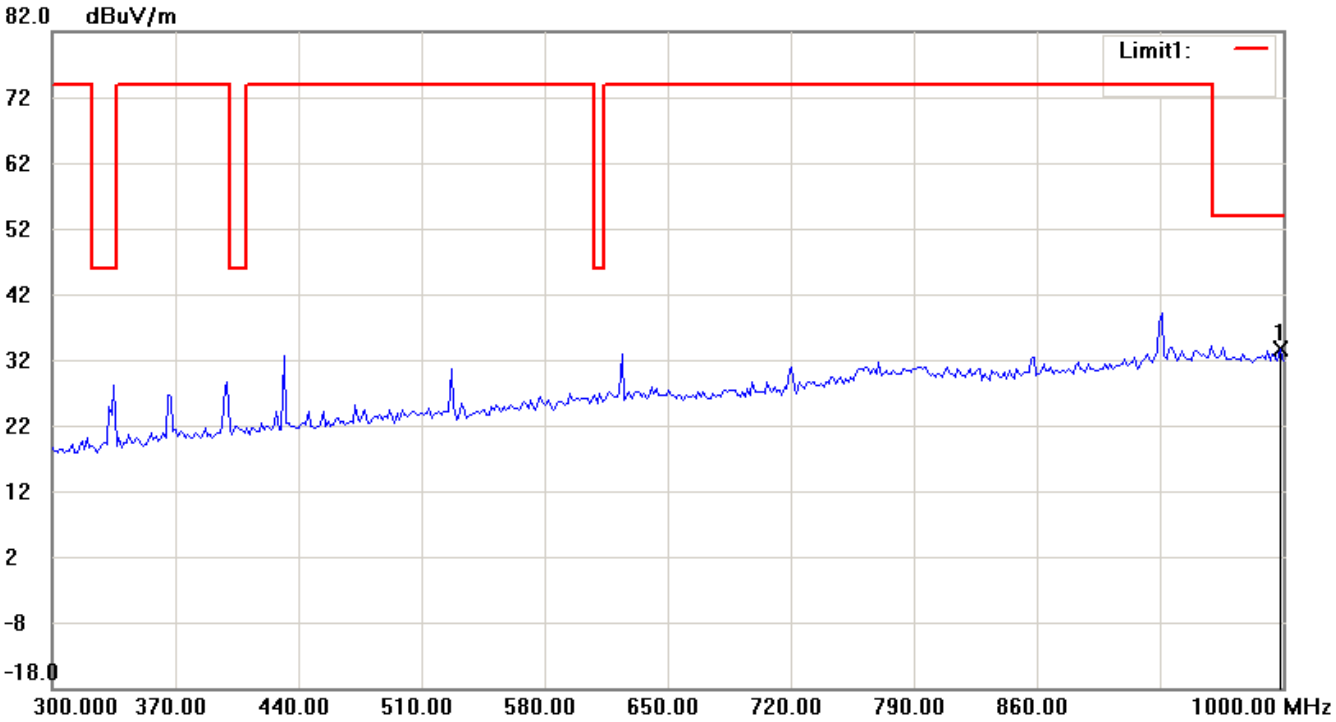
Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

Antenna Polarization V

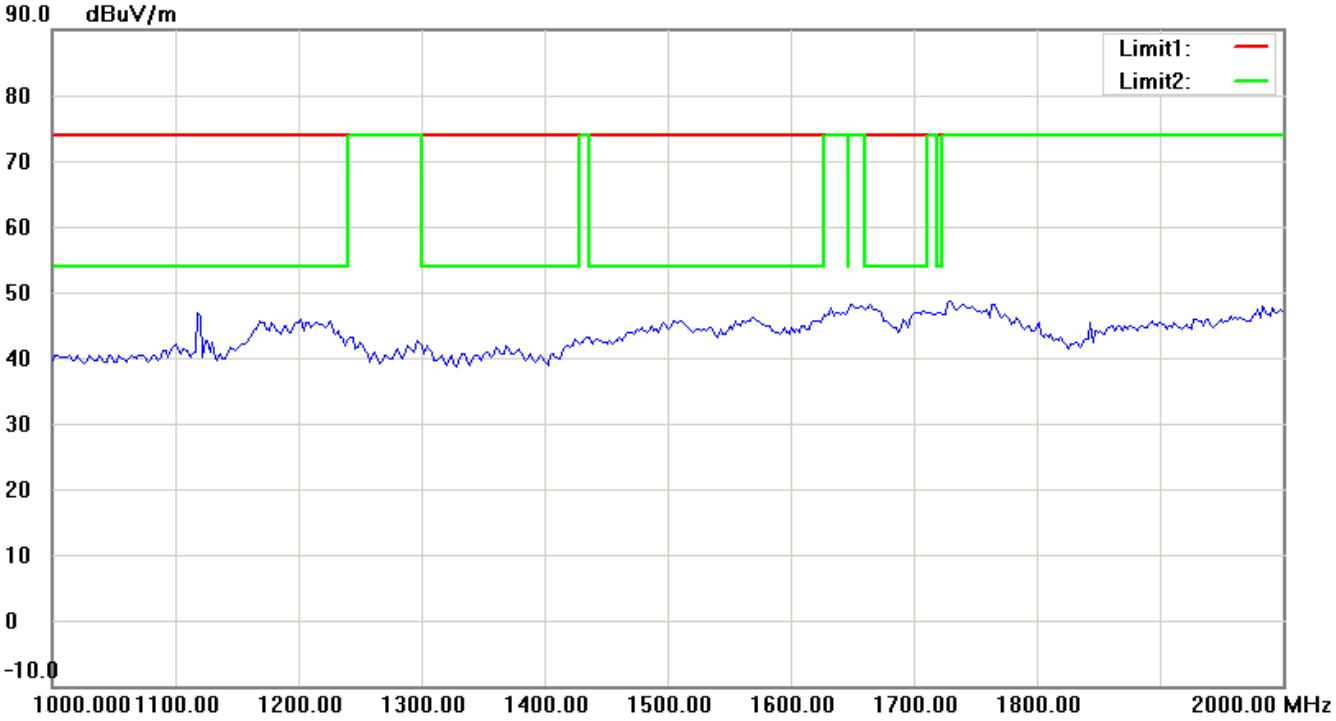


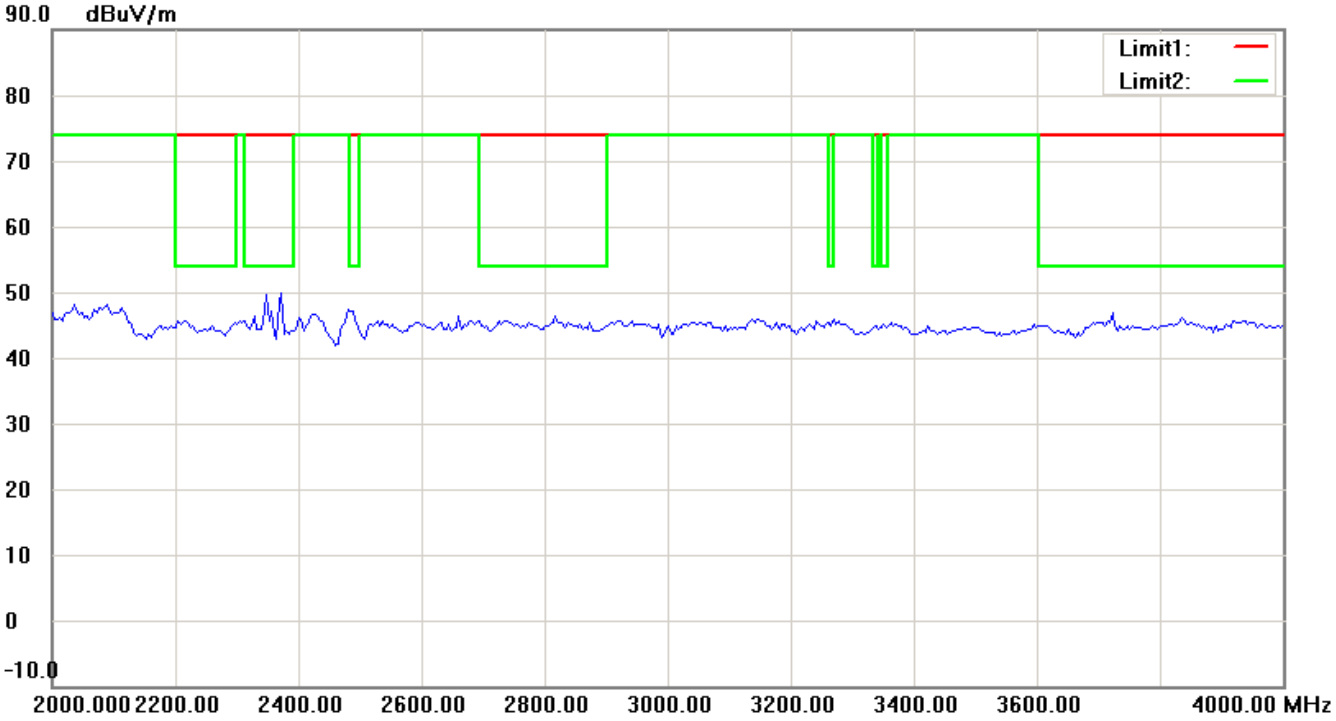


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**

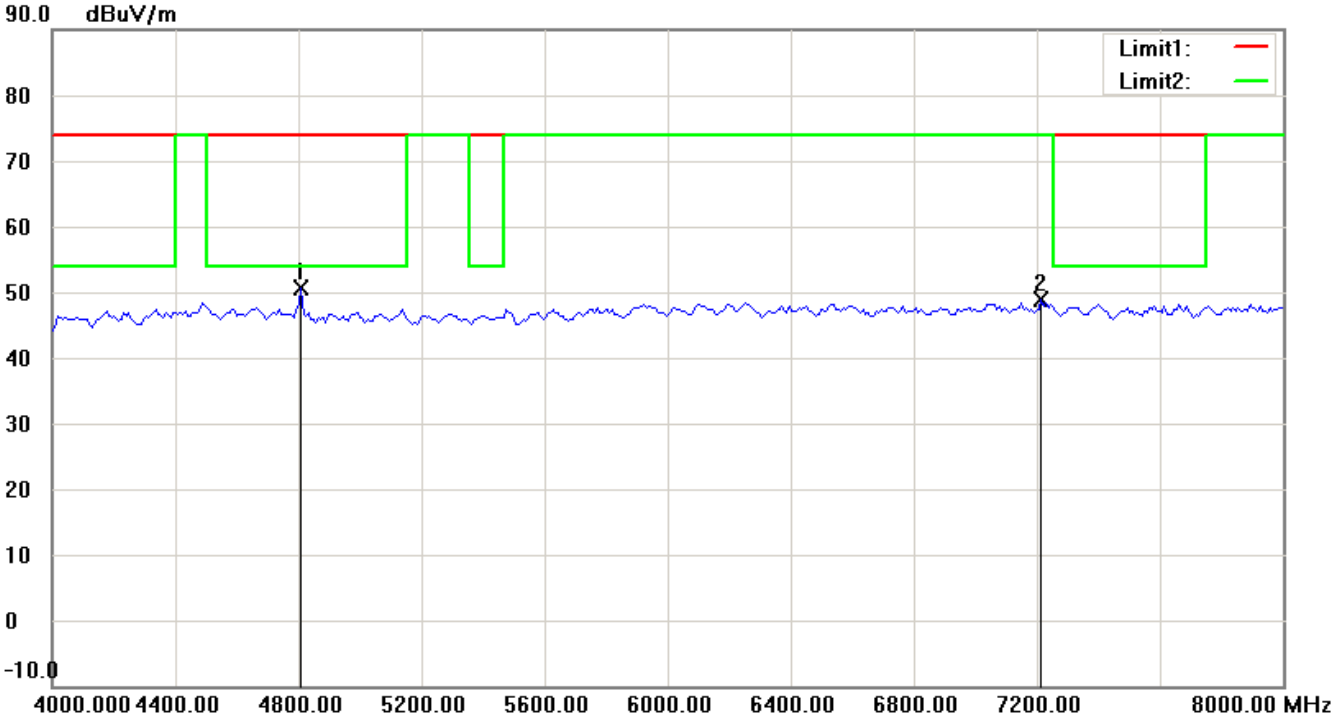
Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

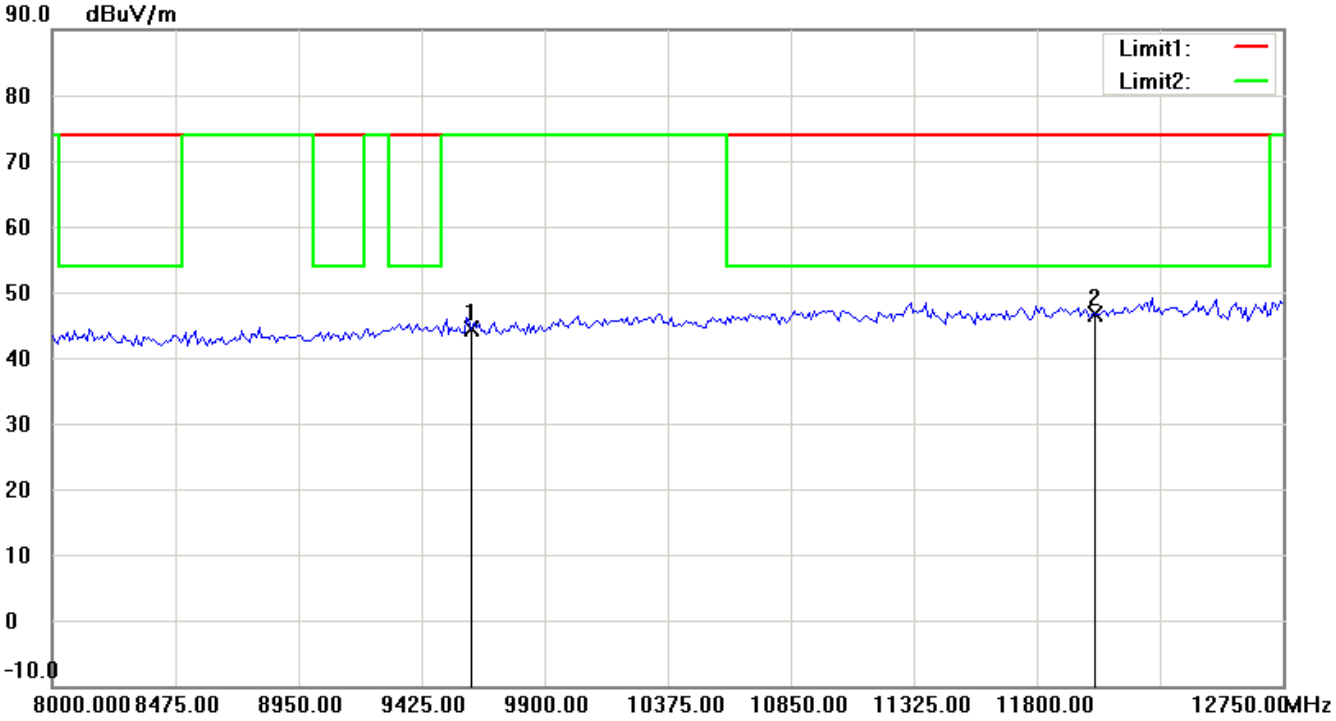




Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

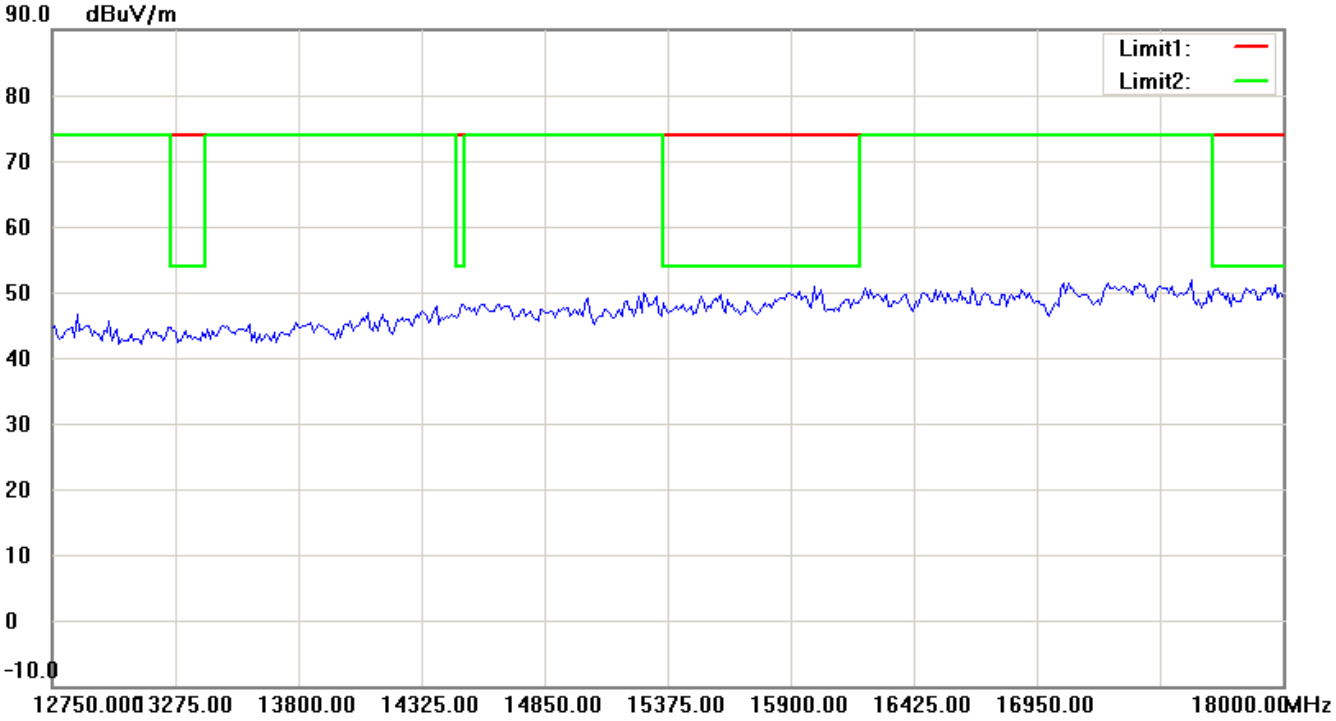
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the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

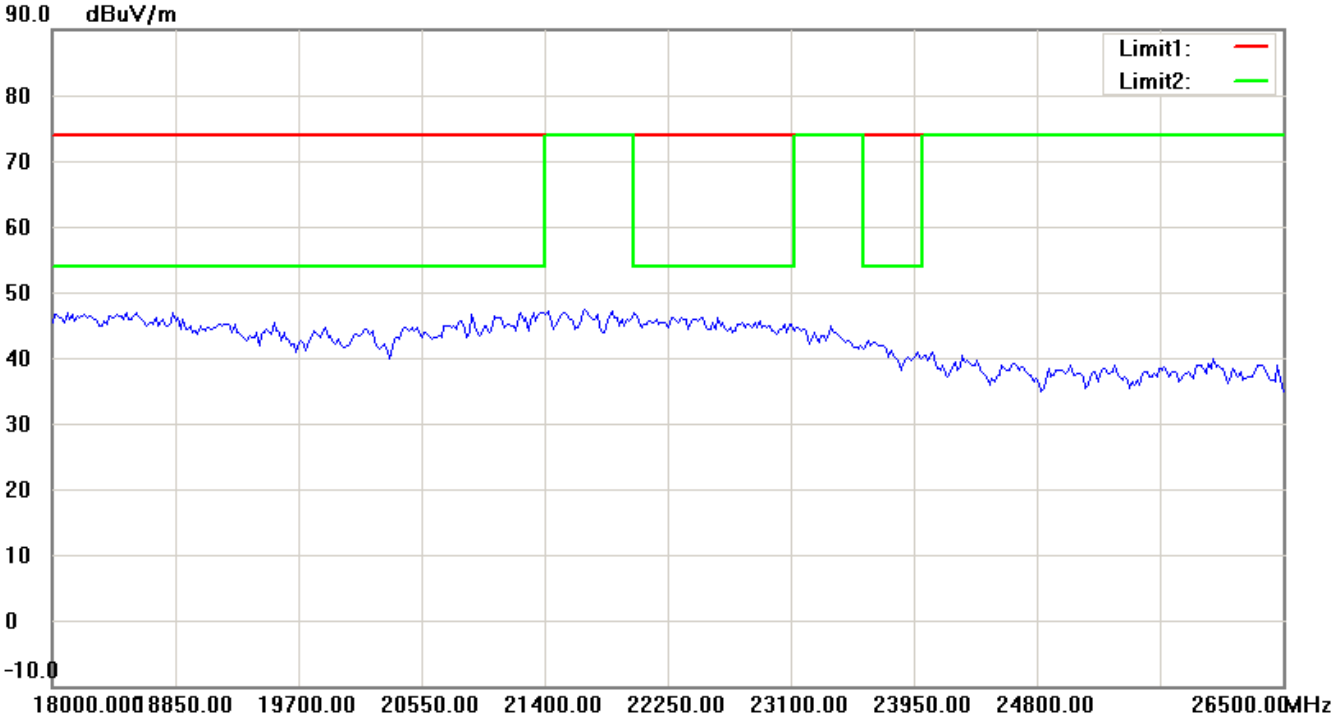




Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**



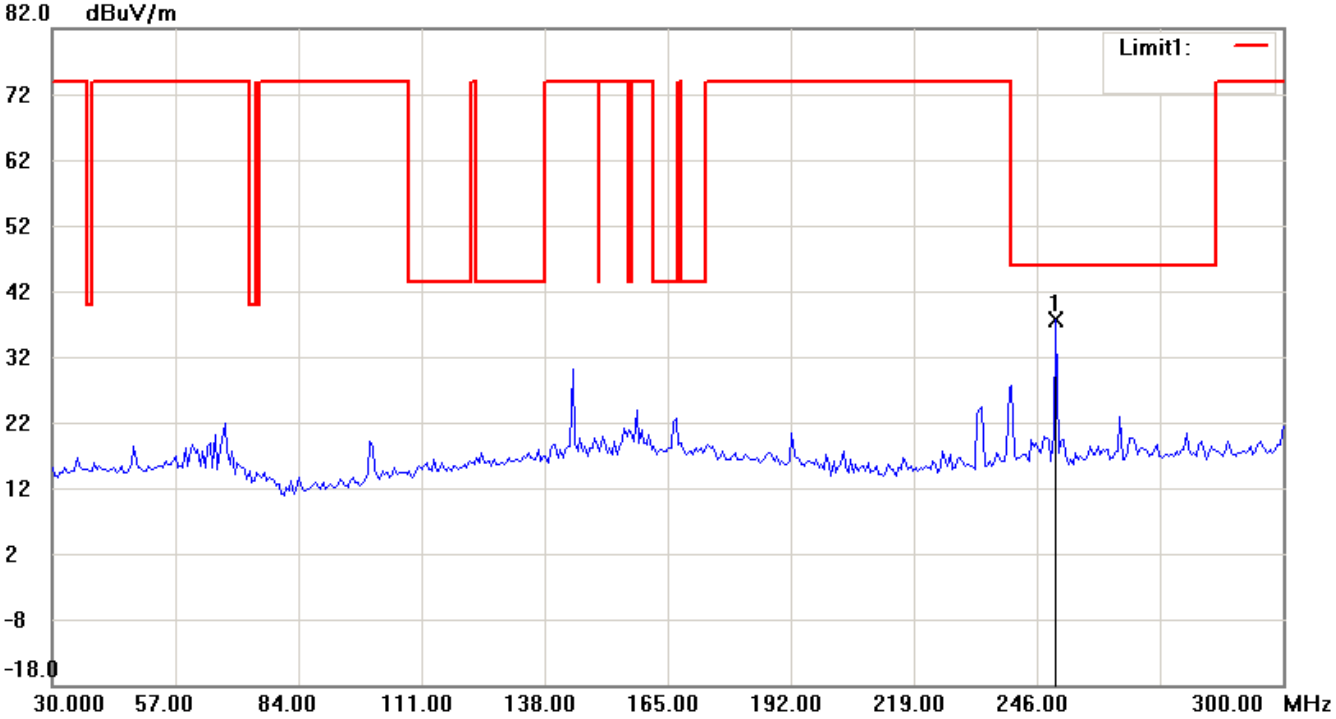


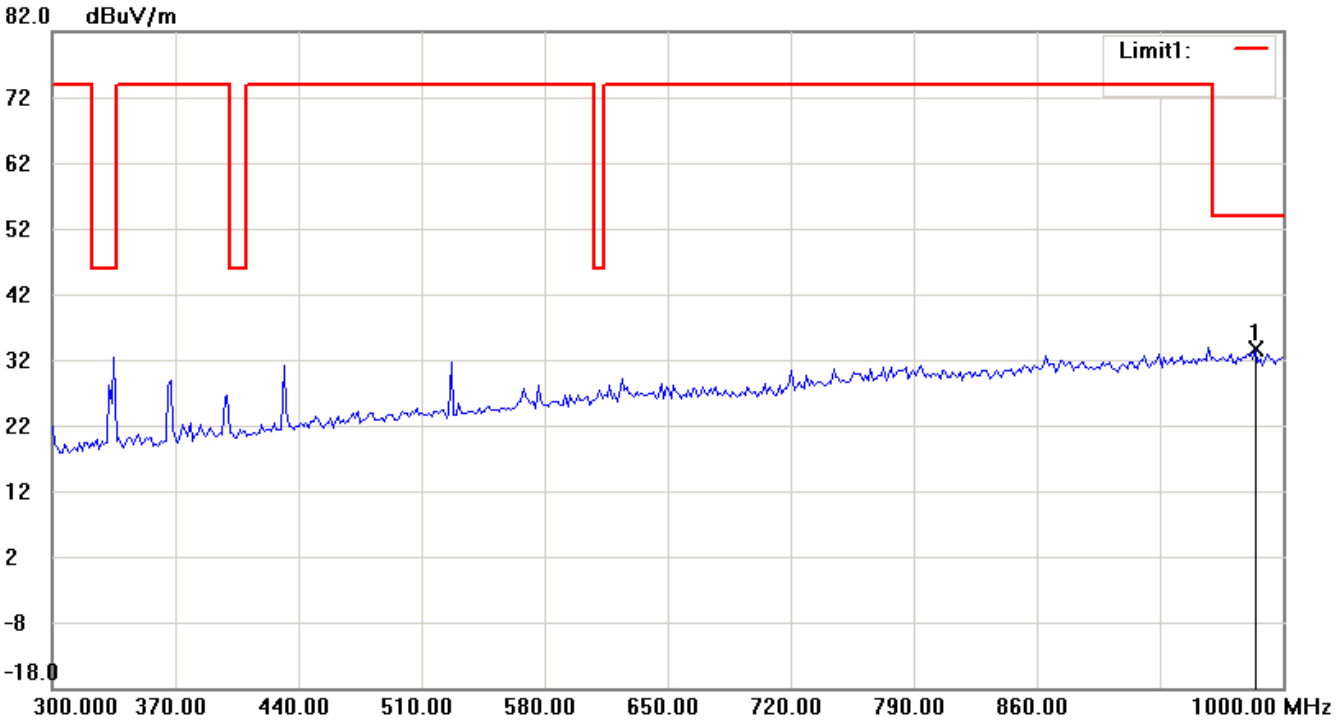
Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

2440 MHz
Antenna Polarization H

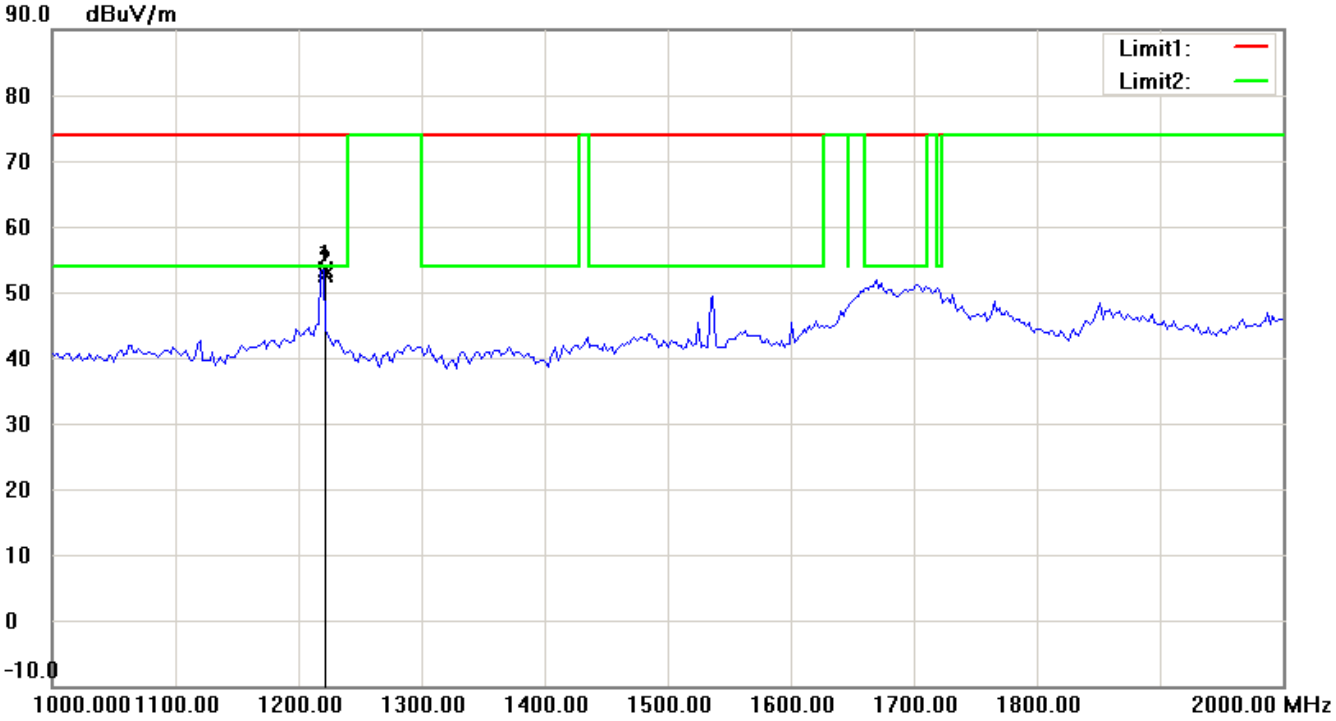


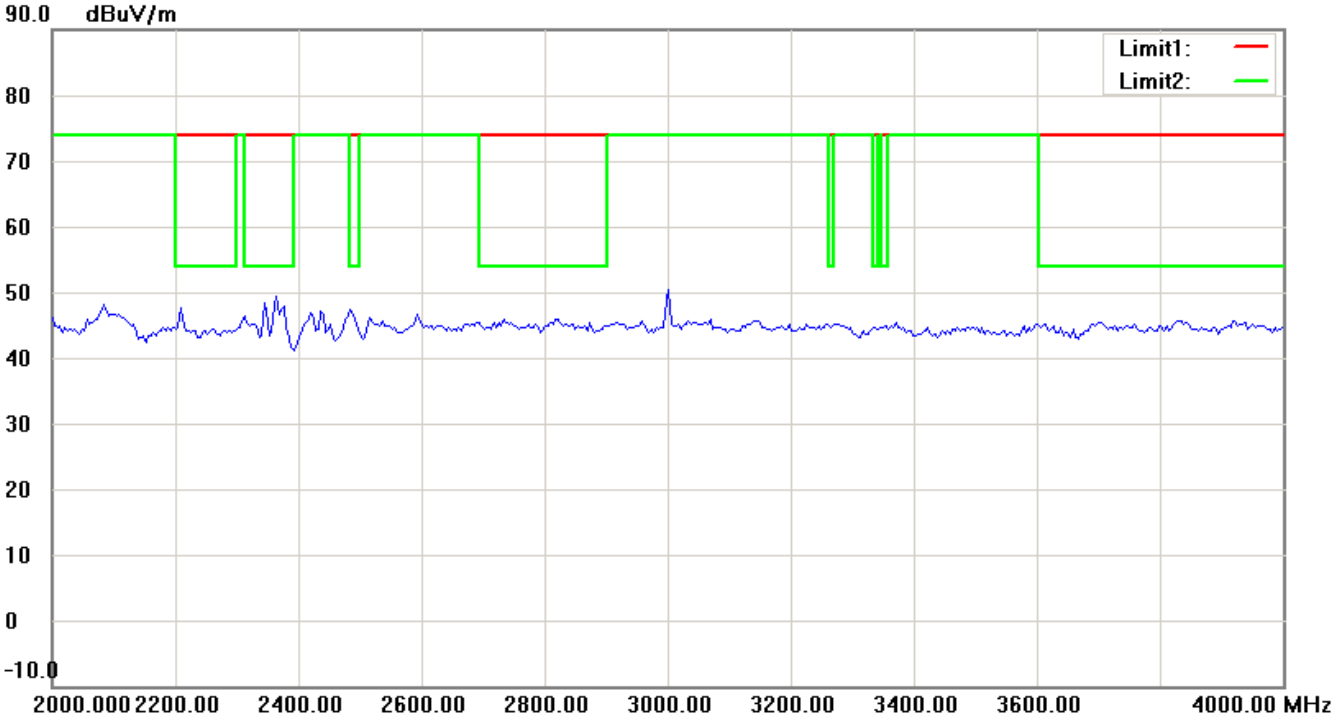


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**

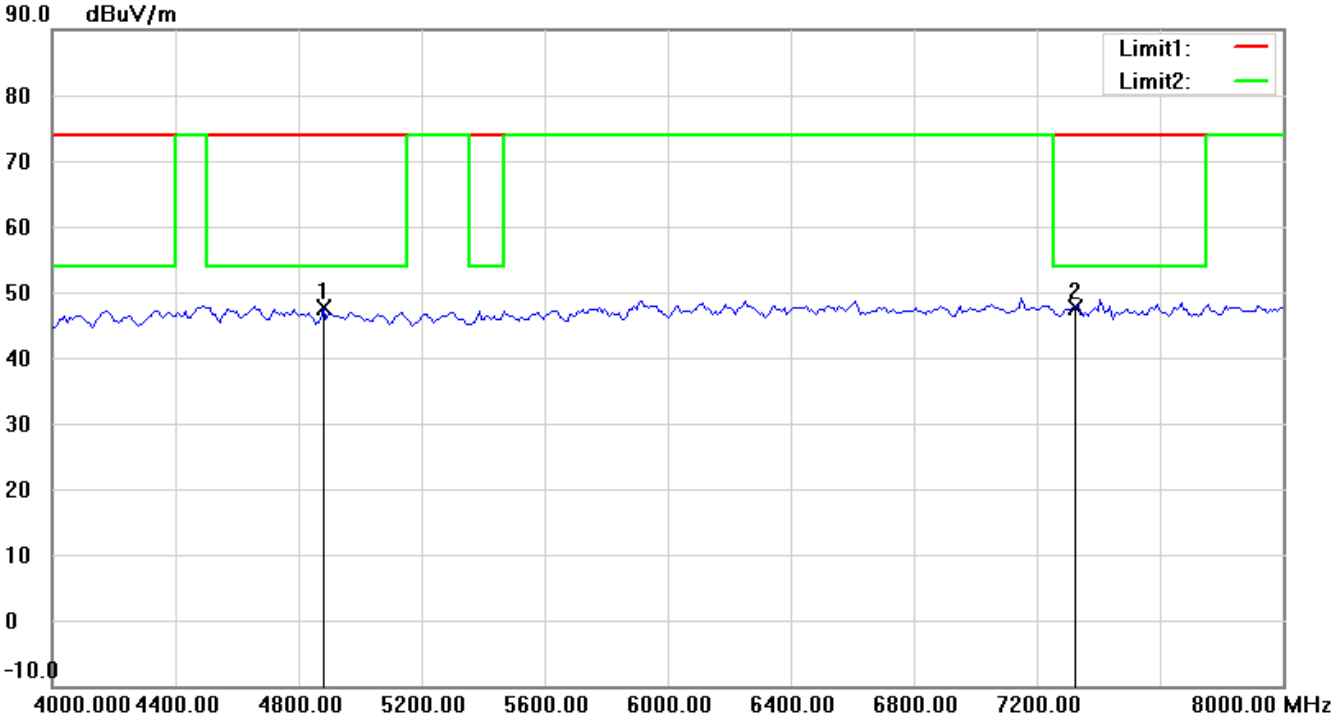
Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

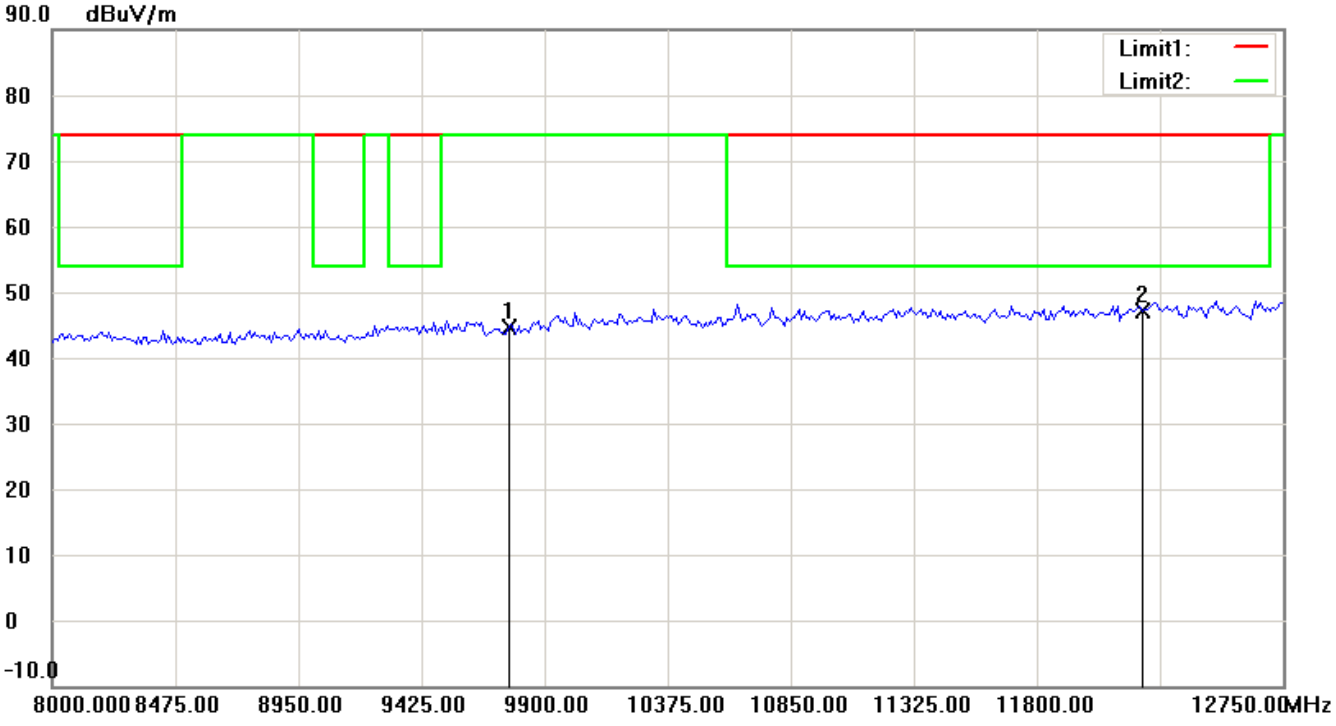




Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

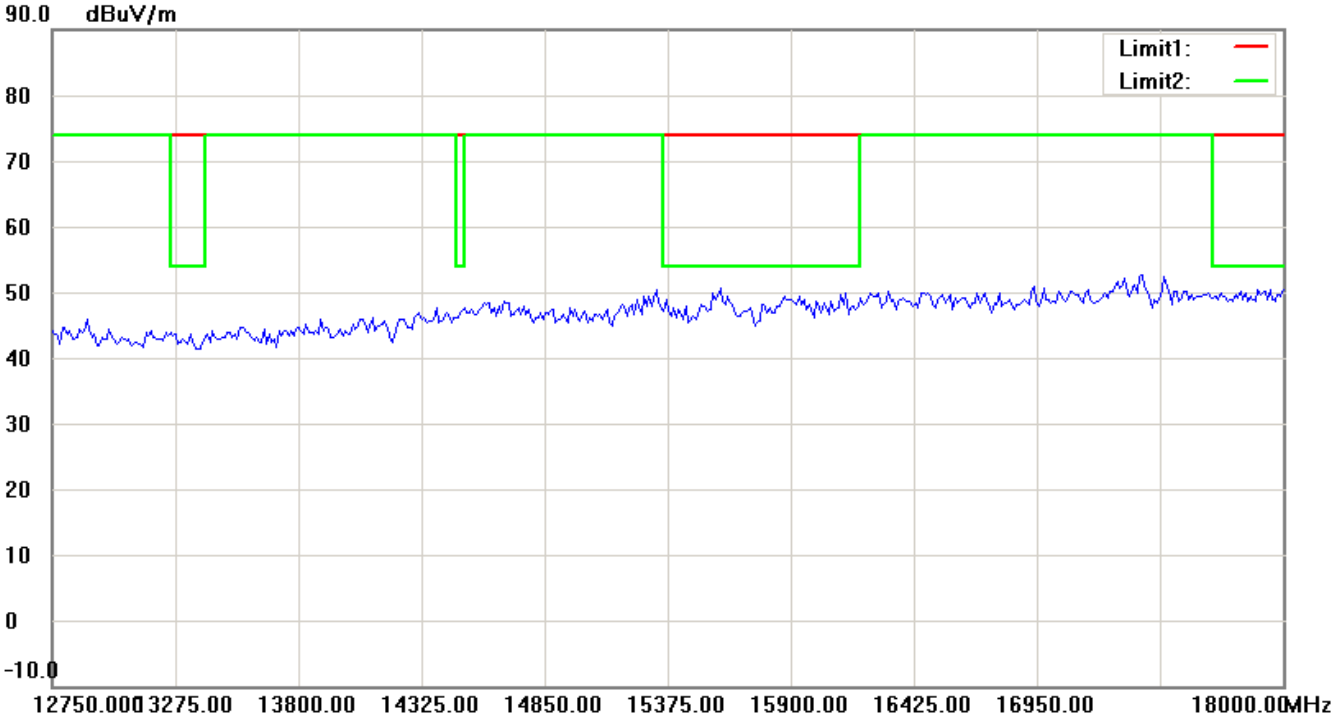
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the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

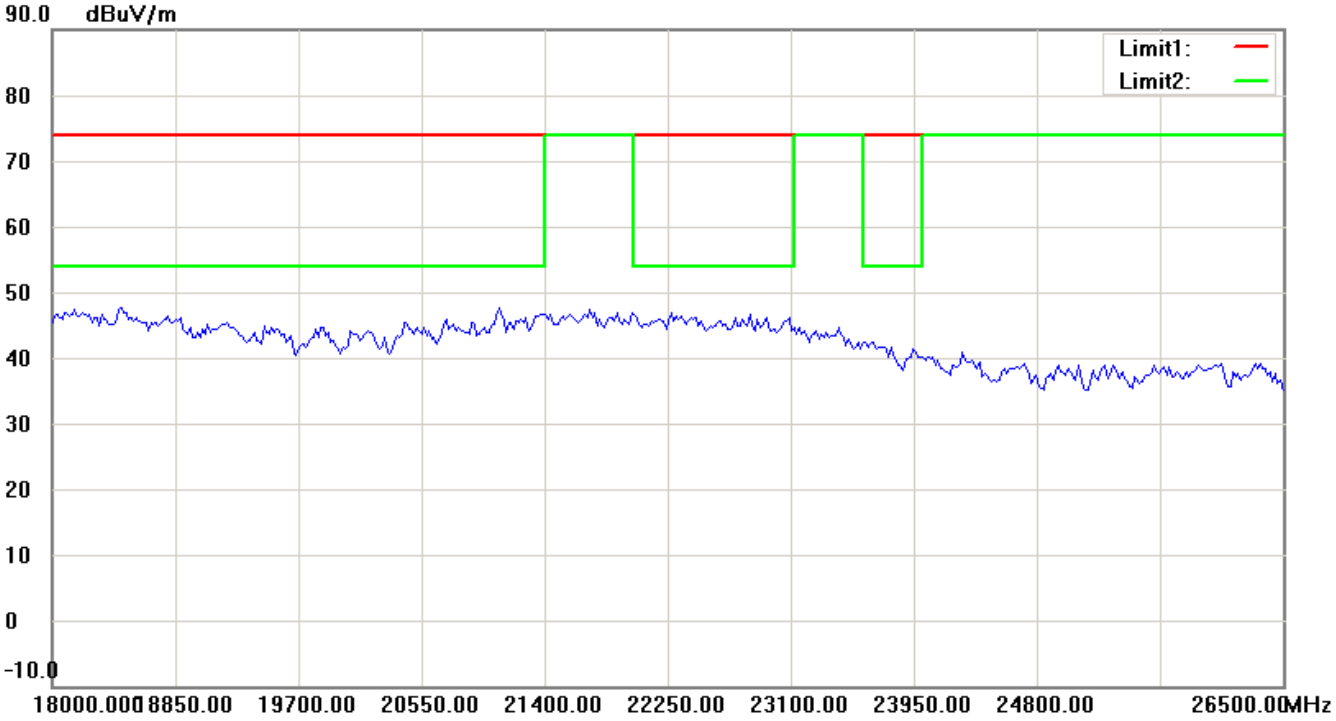




Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**



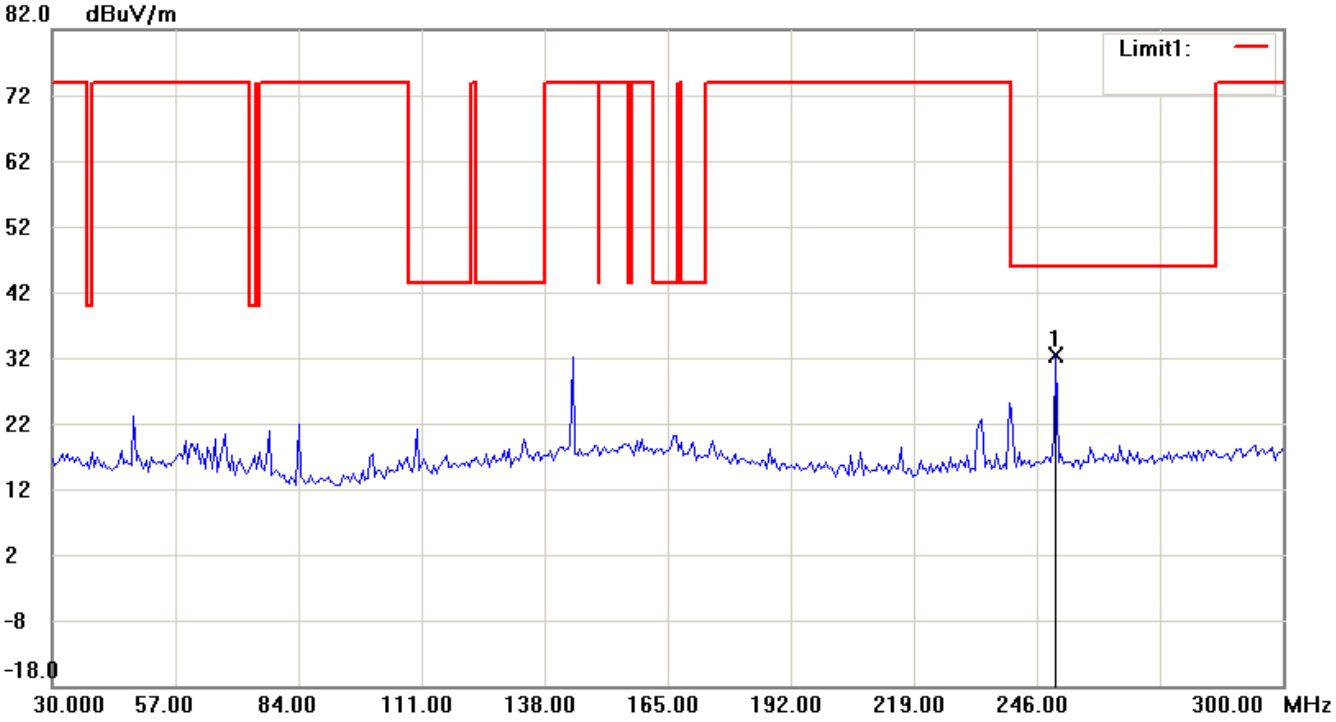


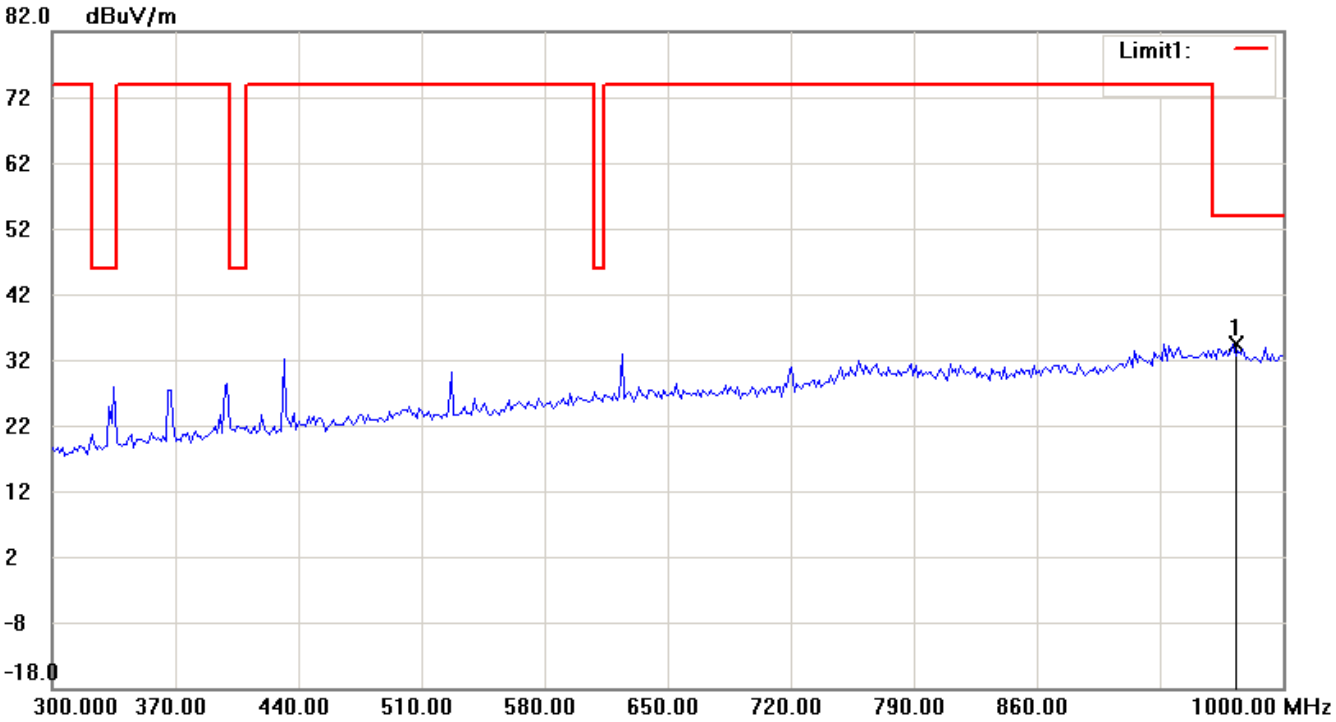
Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

Antenna Polarization V

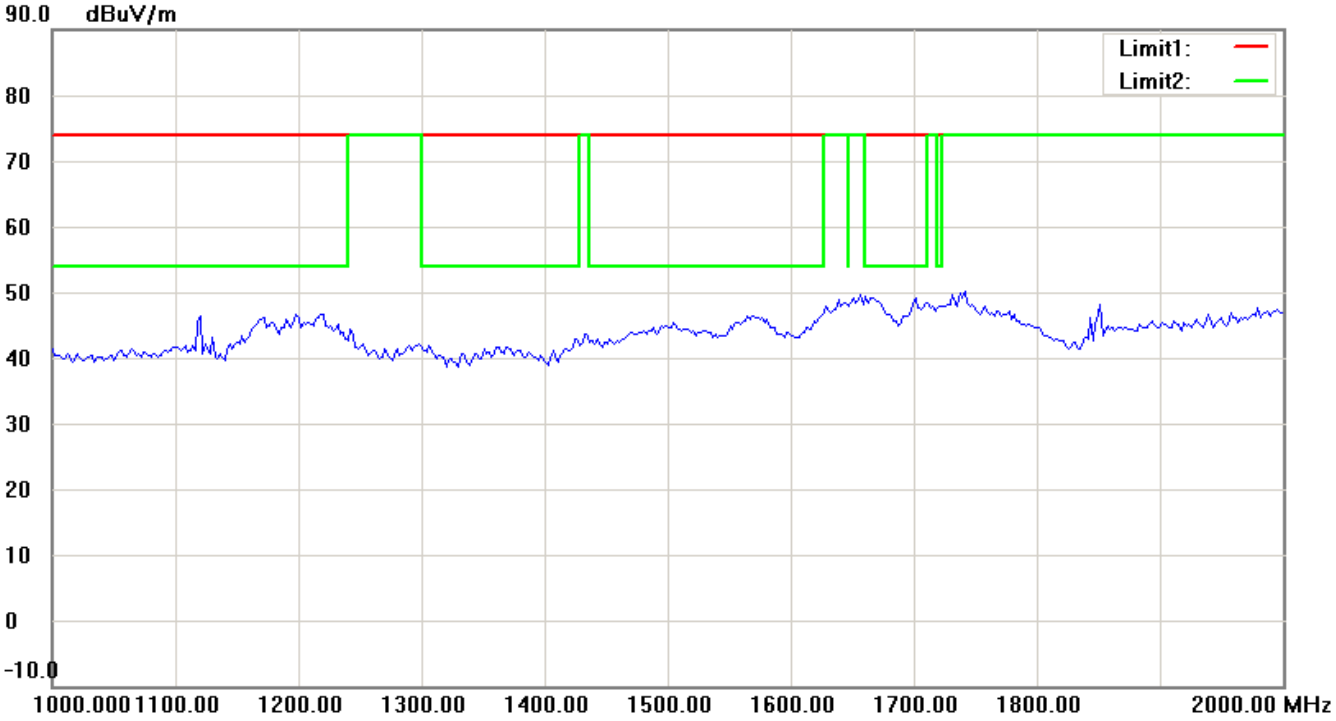


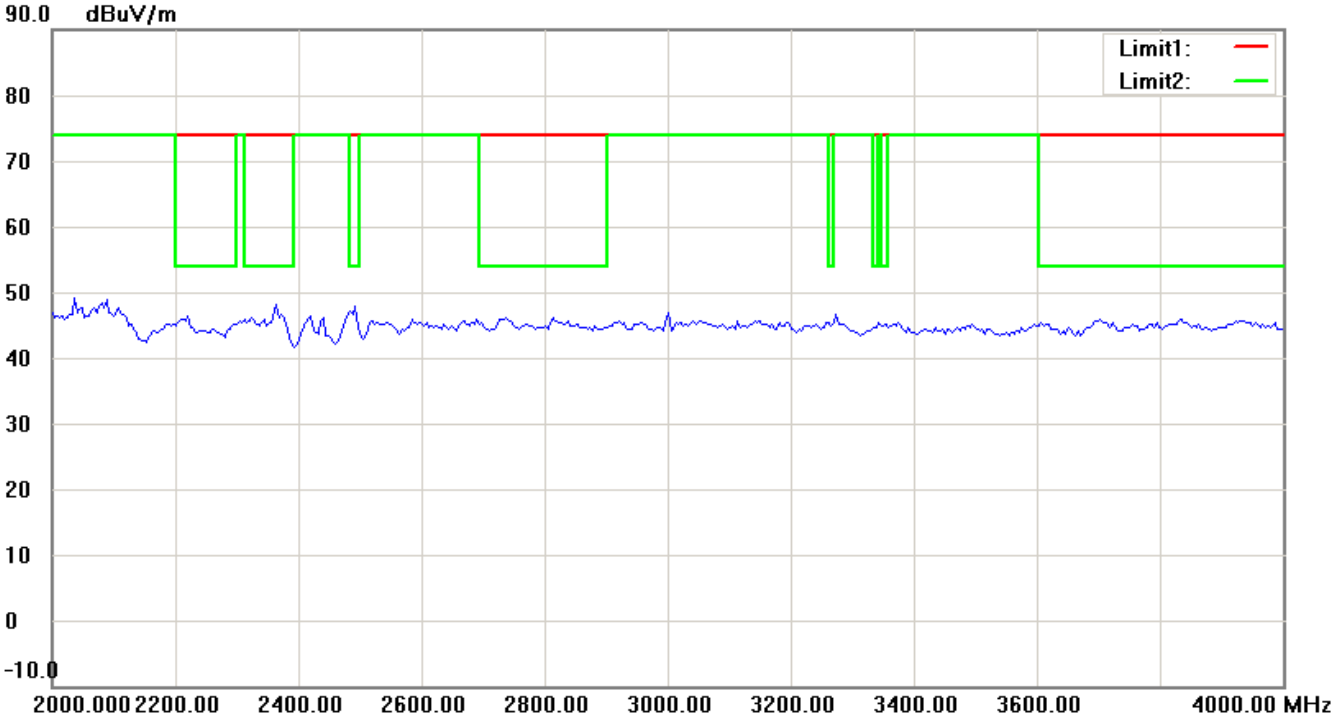


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

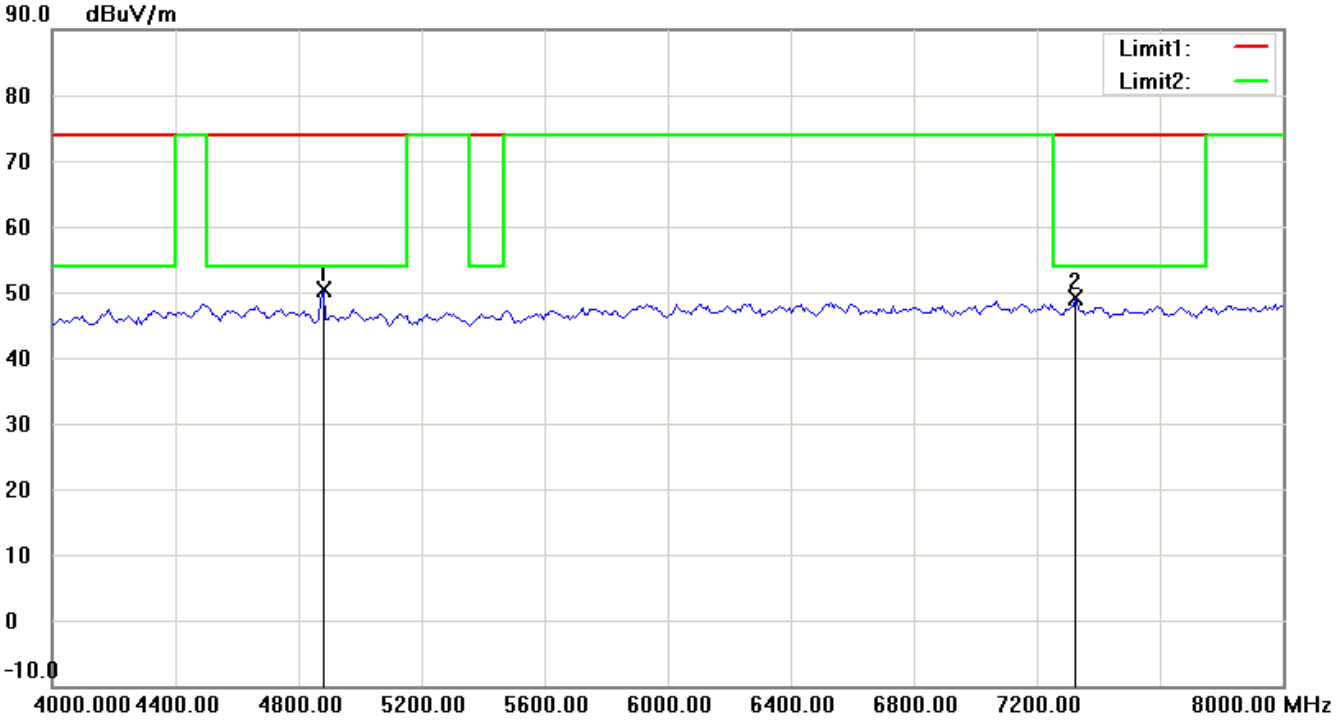


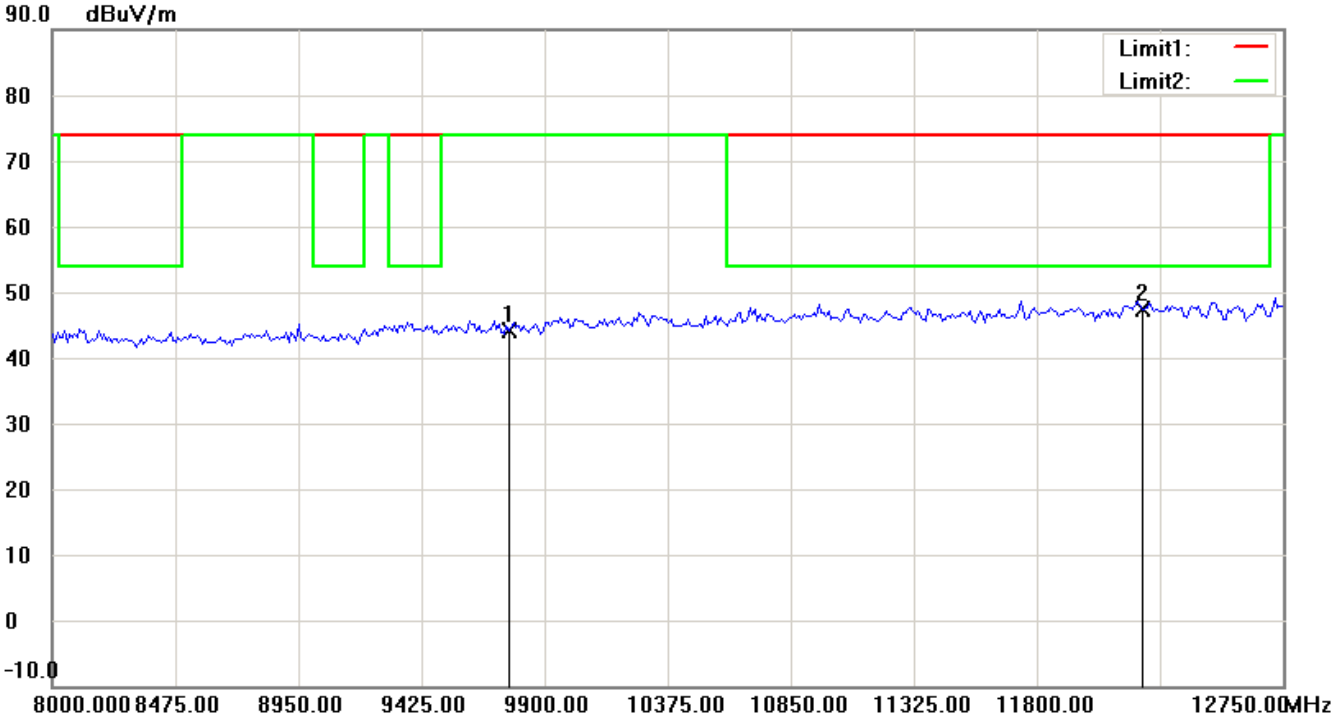


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**

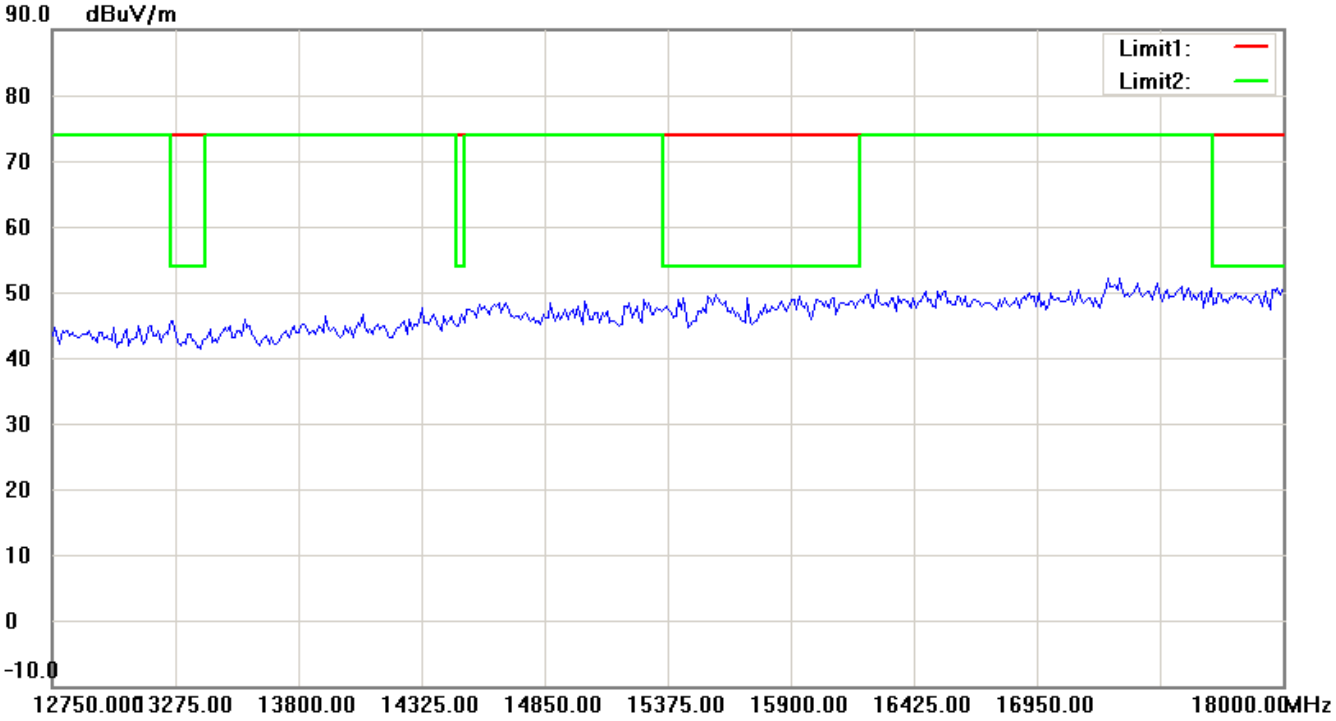
Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

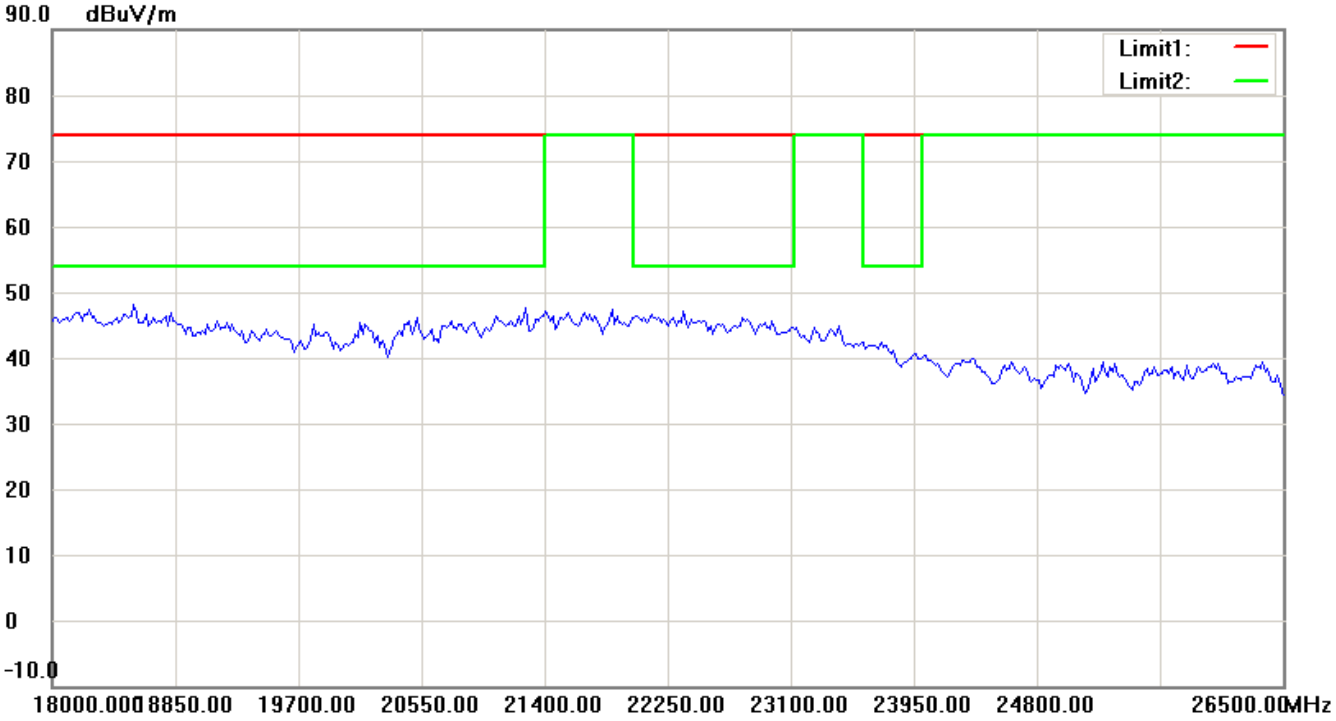




Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**



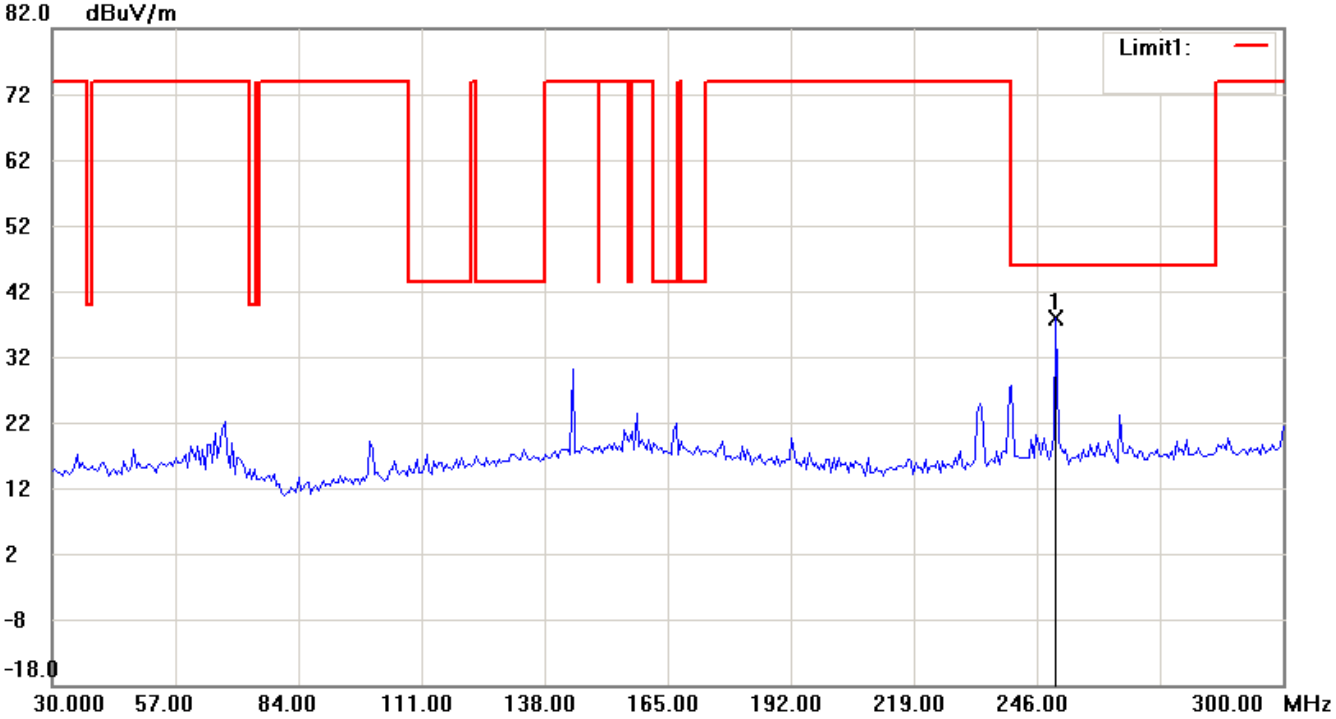


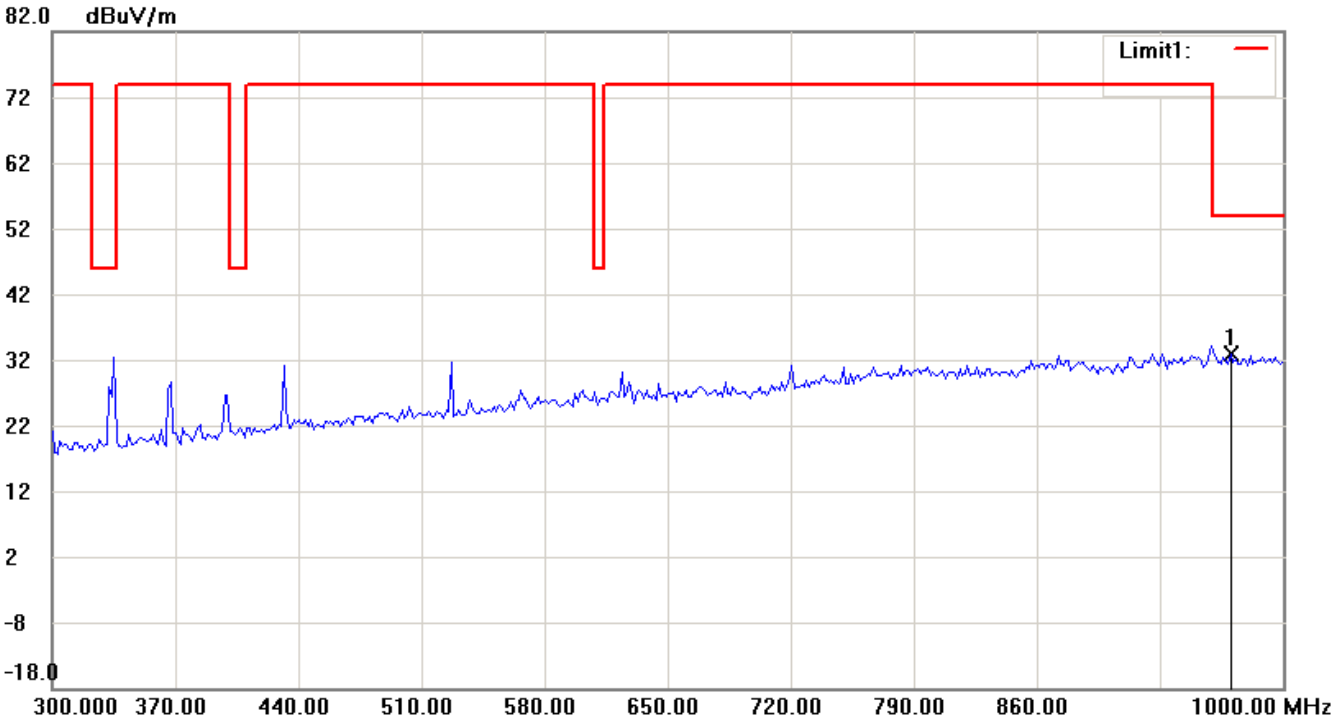
Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

2476 MHz
Antenna Polarization H

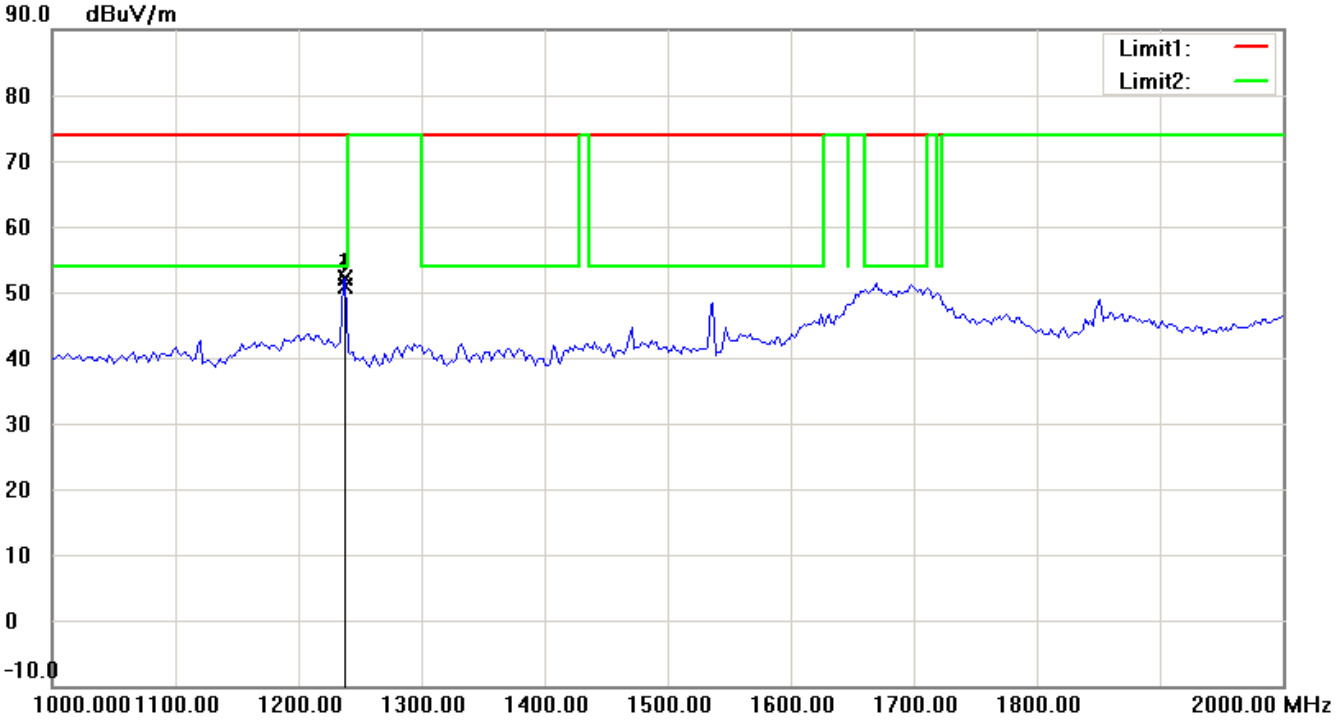


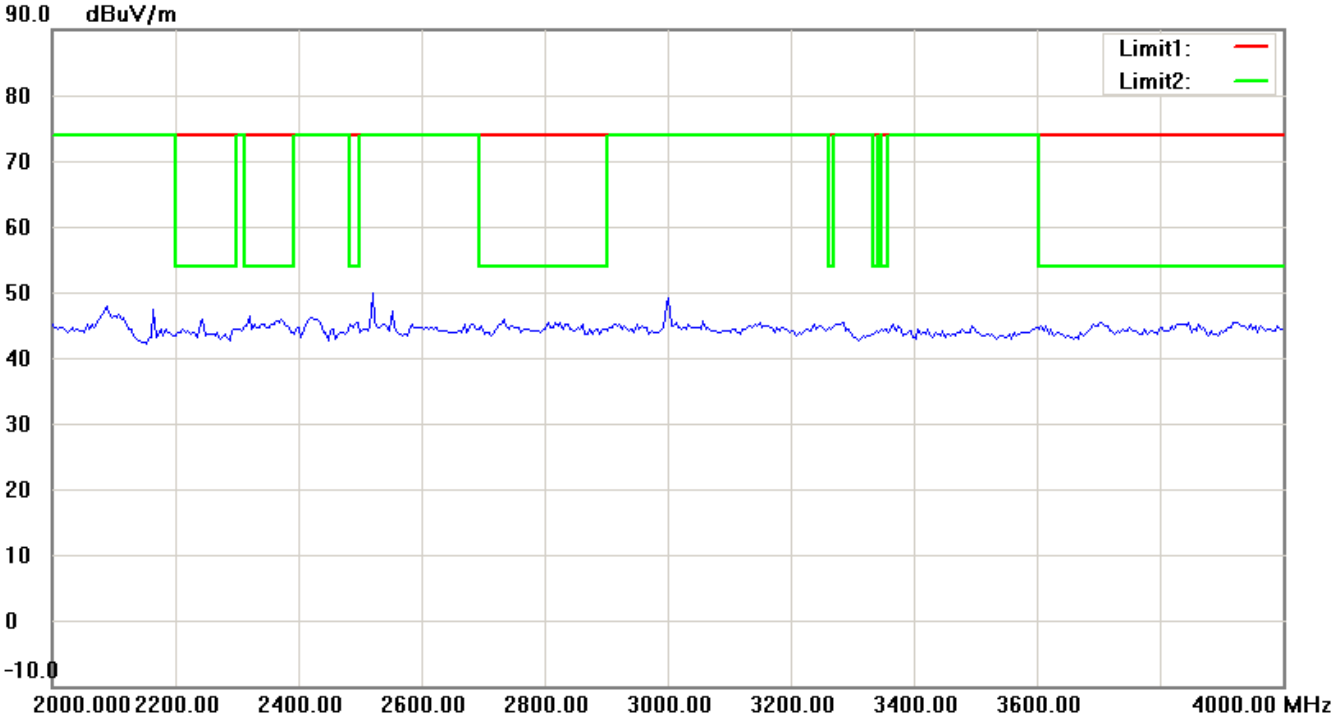


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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.**

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501





Up Line: Peak Limit Line Down Line: Ave Limit Line
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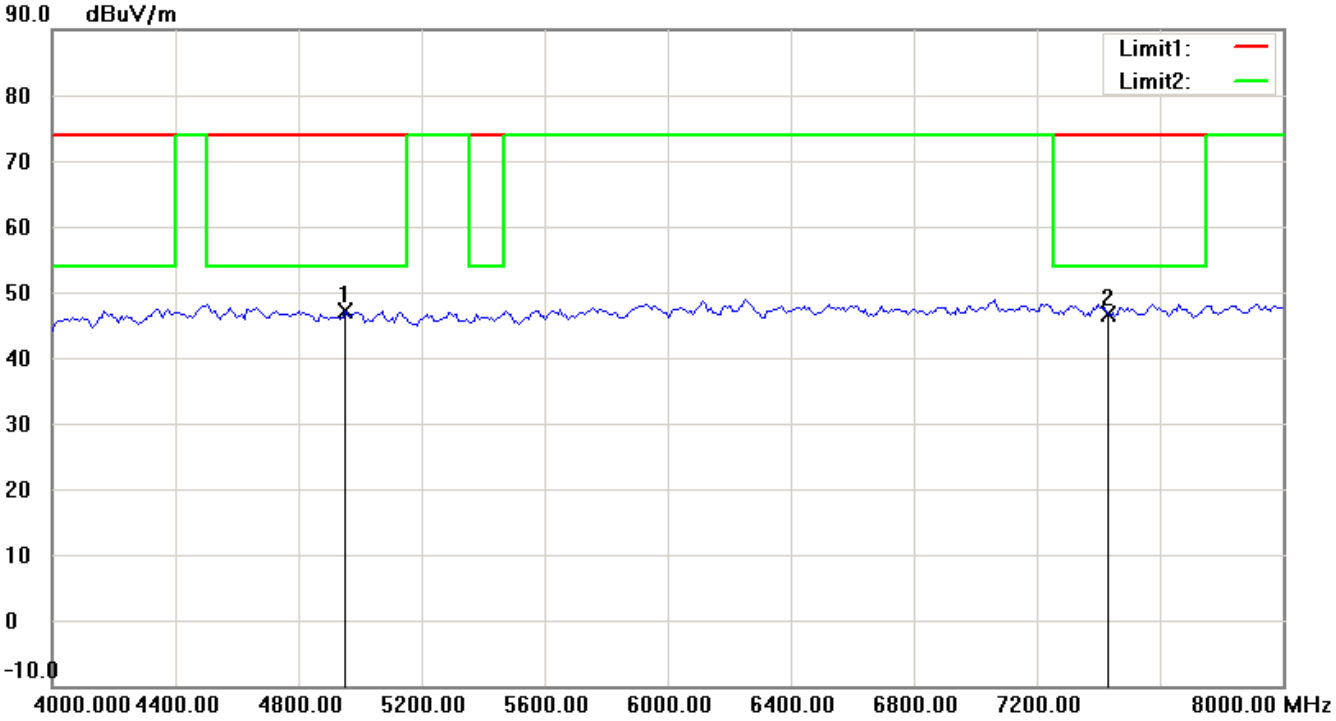
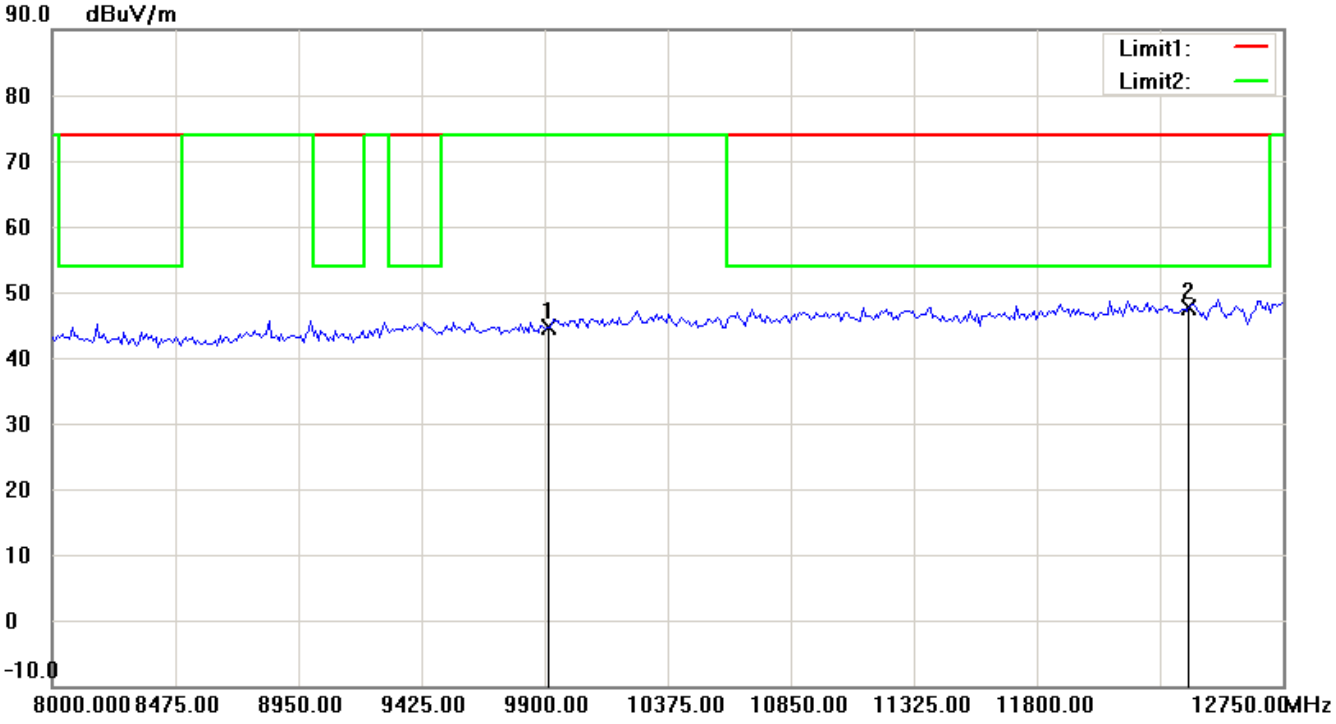
Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501





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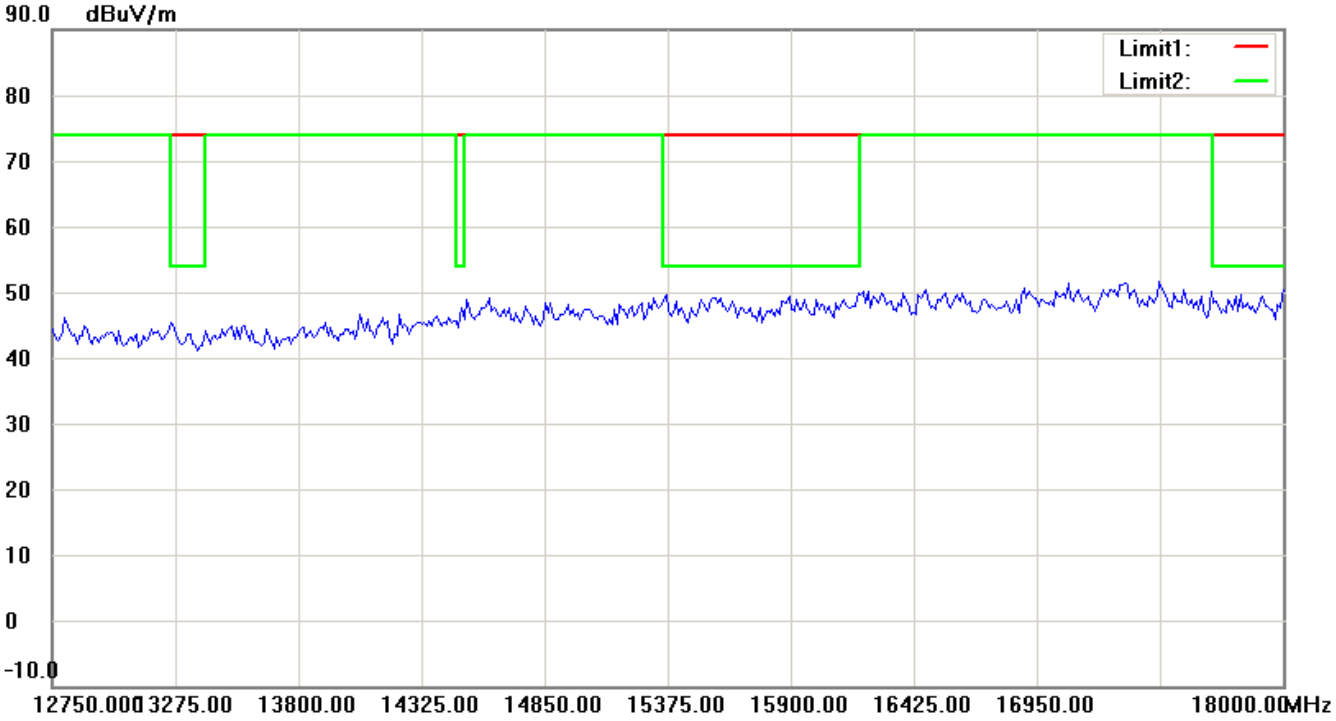
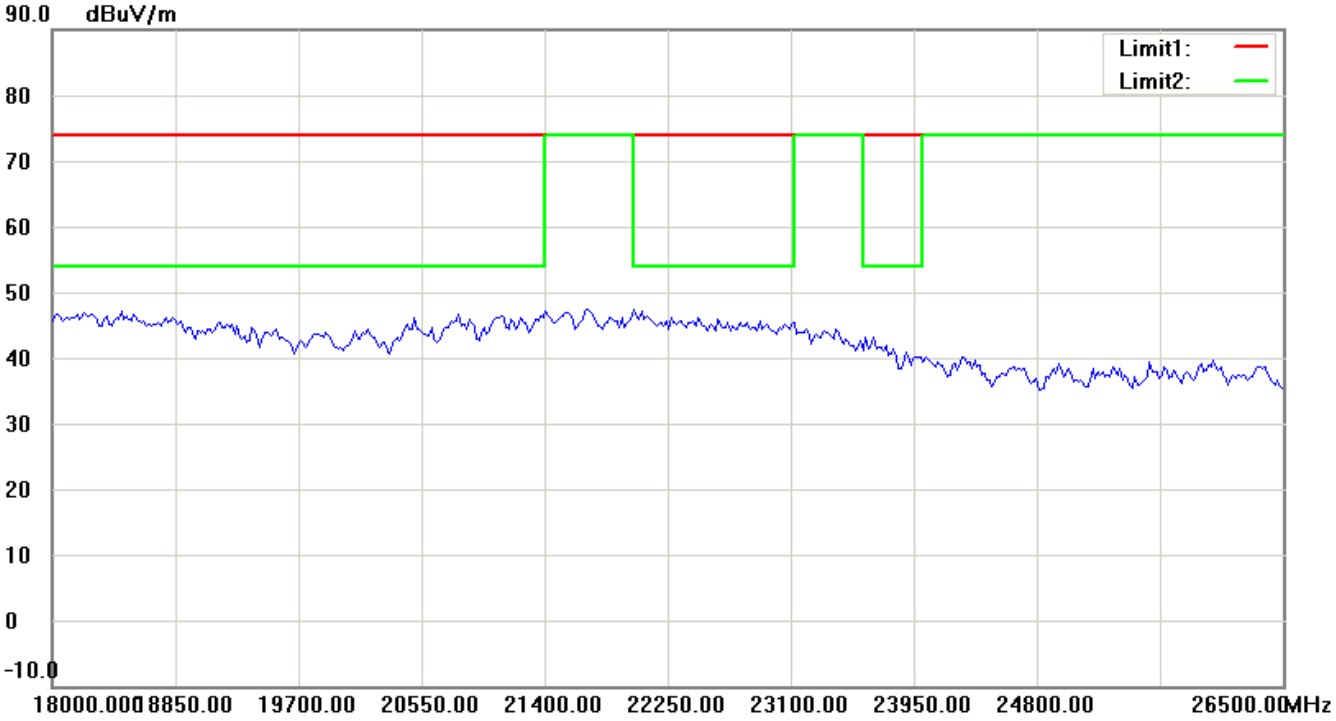
FCC ID: ZPP-EX970501





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

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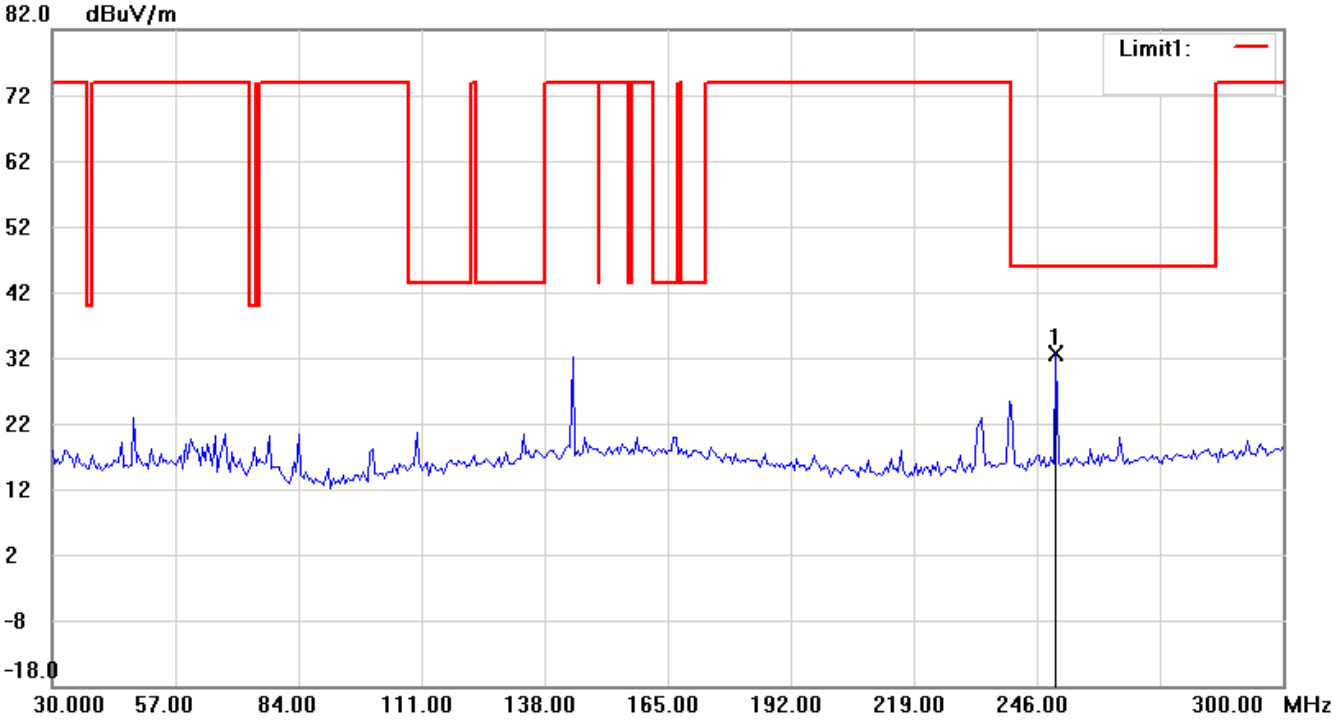
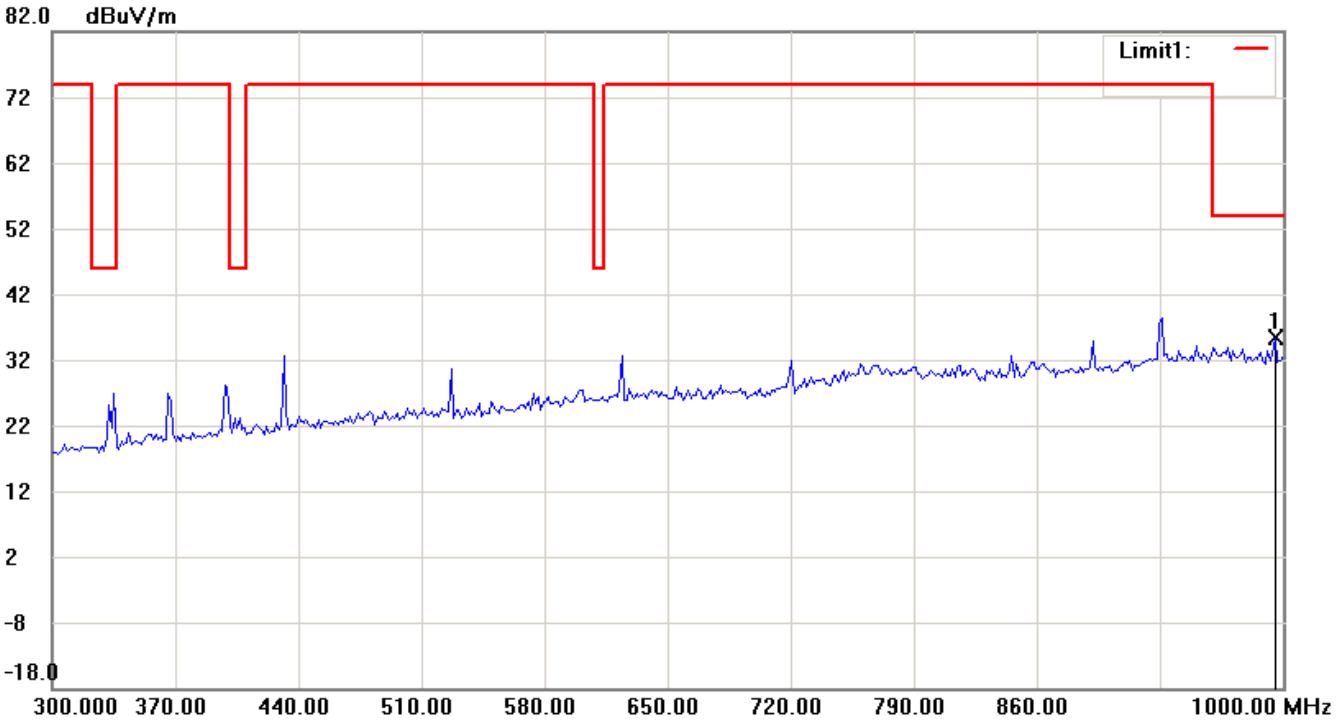
Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

Antenna Polarization V





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

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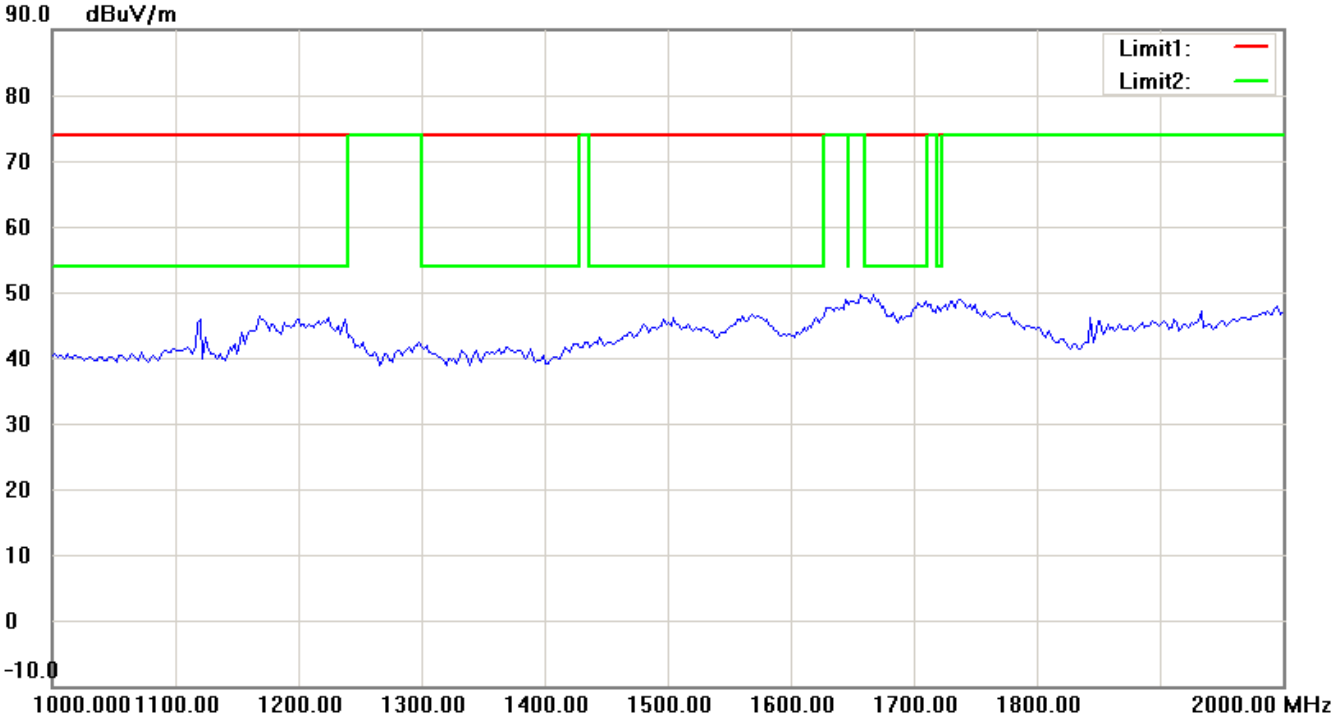

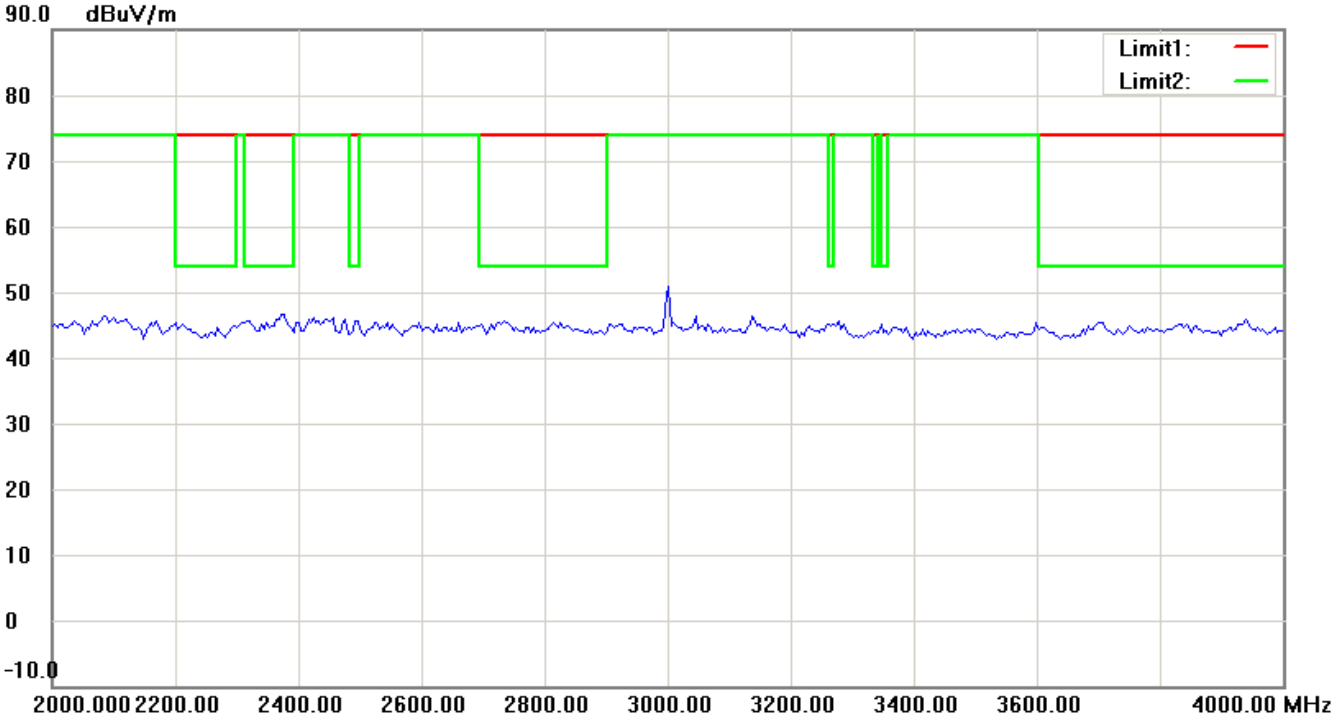

Up Line: Peak Limit Line Down Line: Ave Limit Line
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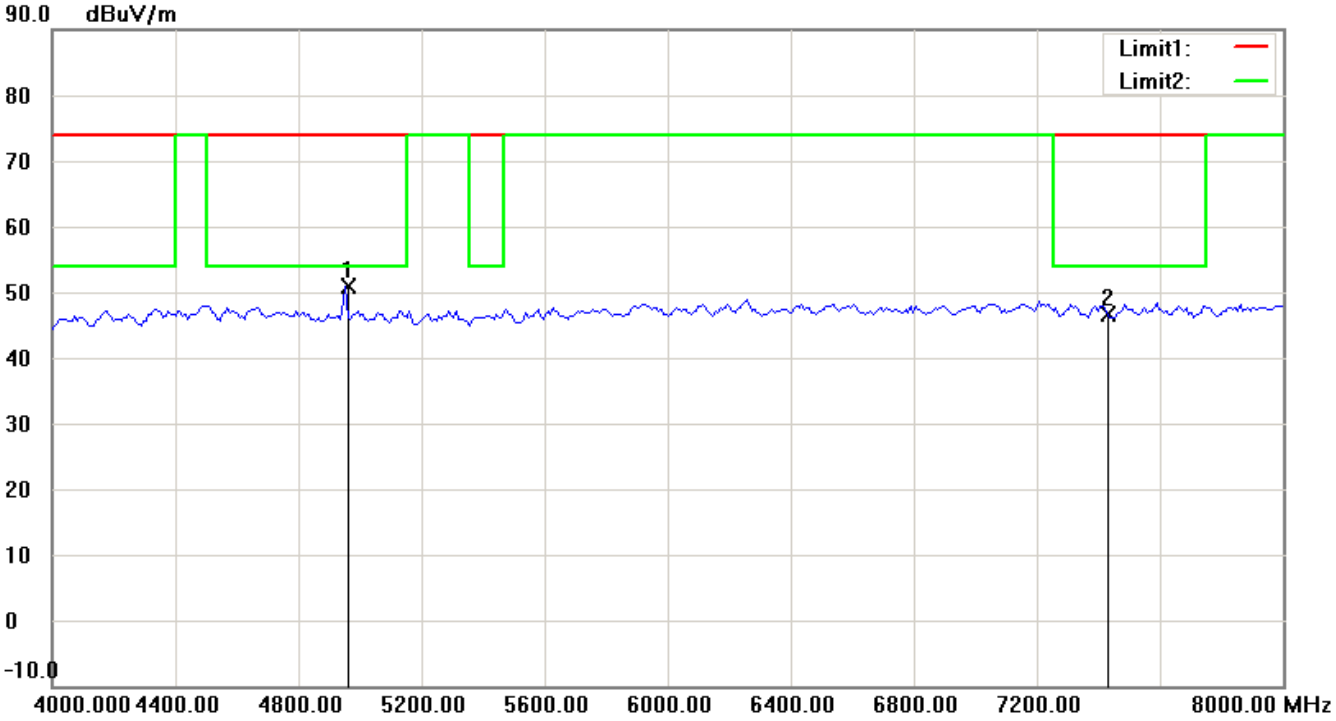

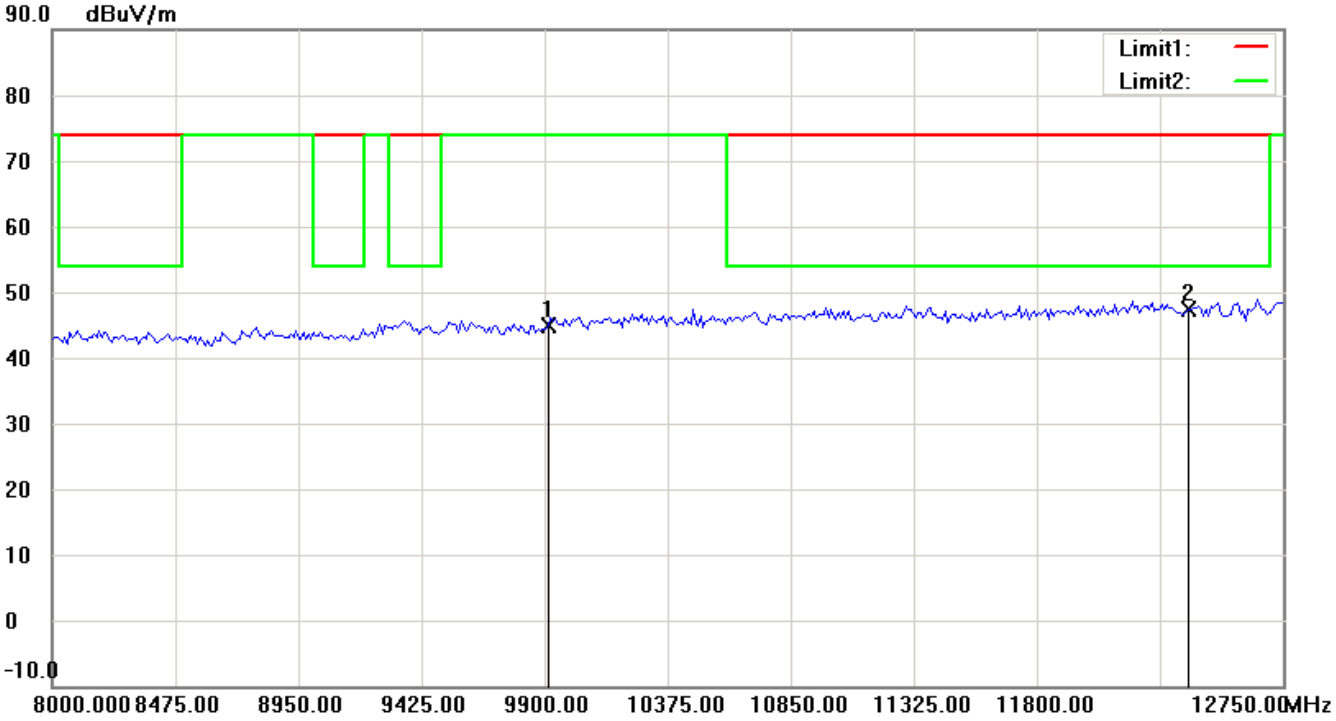

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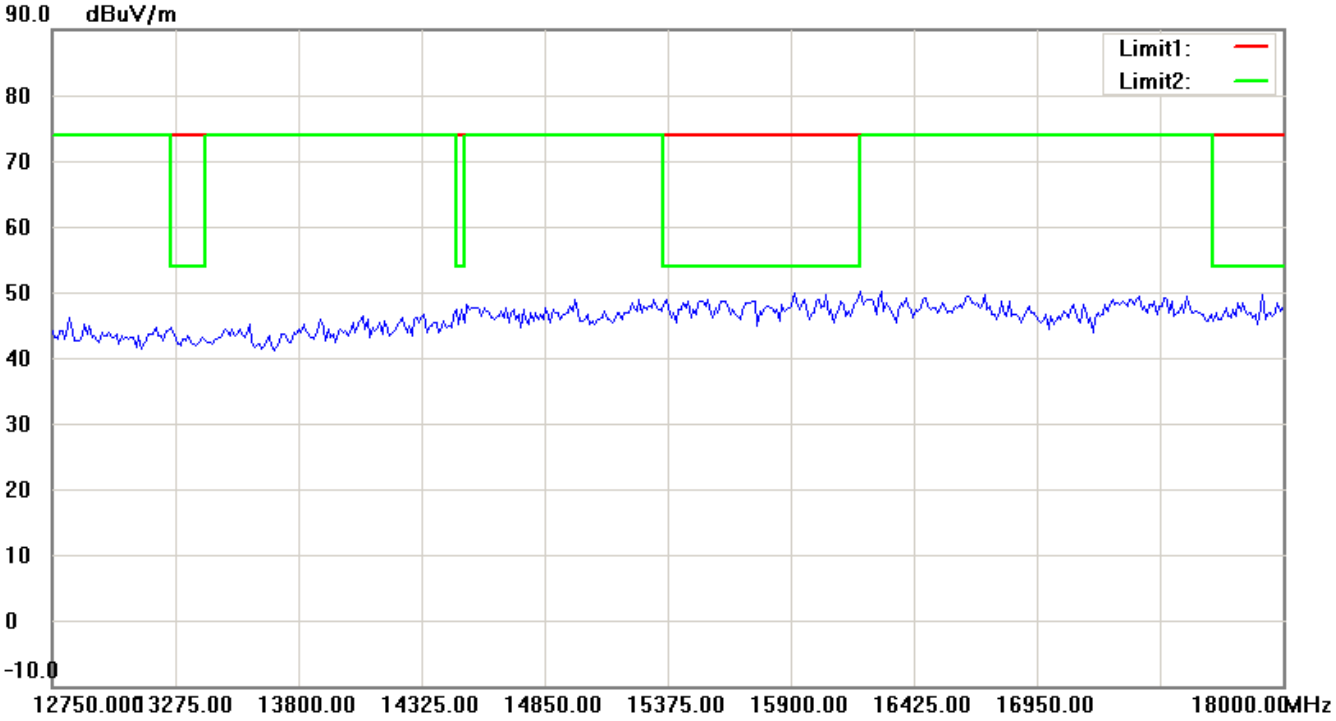

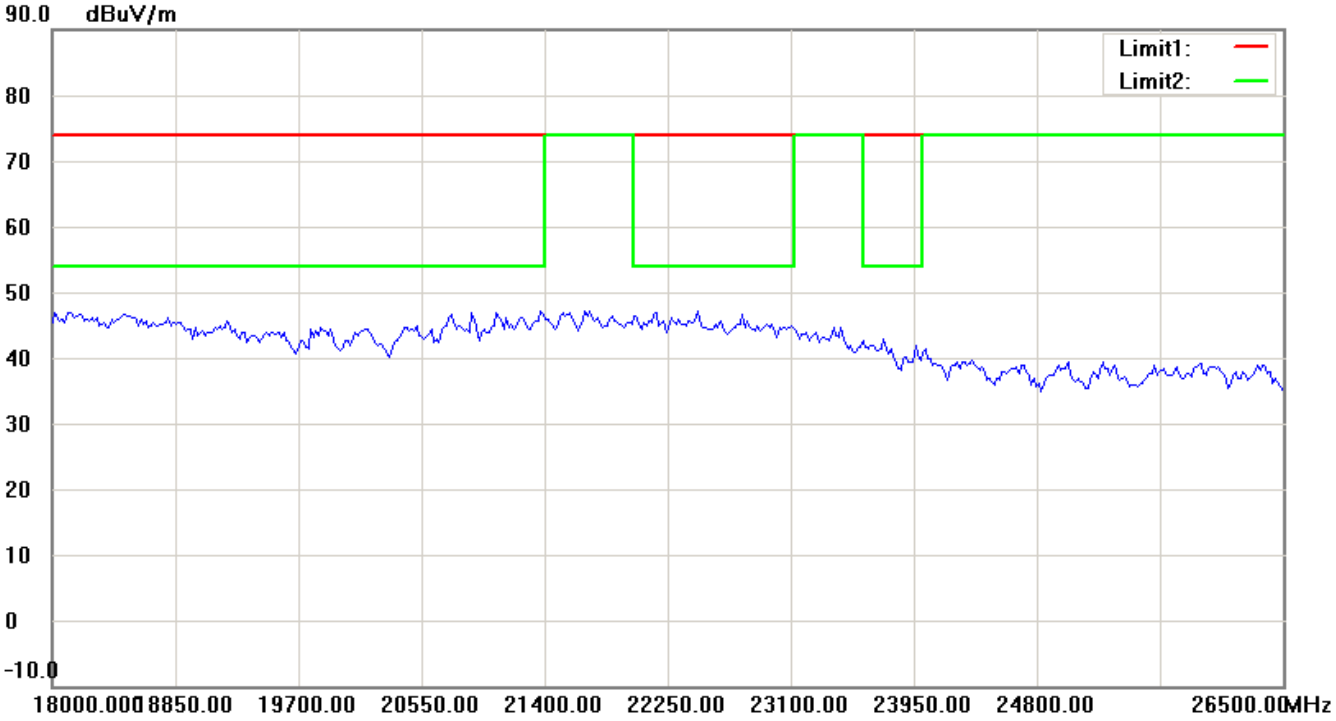

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External Photos


eX
SOUND
JERRYFISH
WIRELESS


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Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

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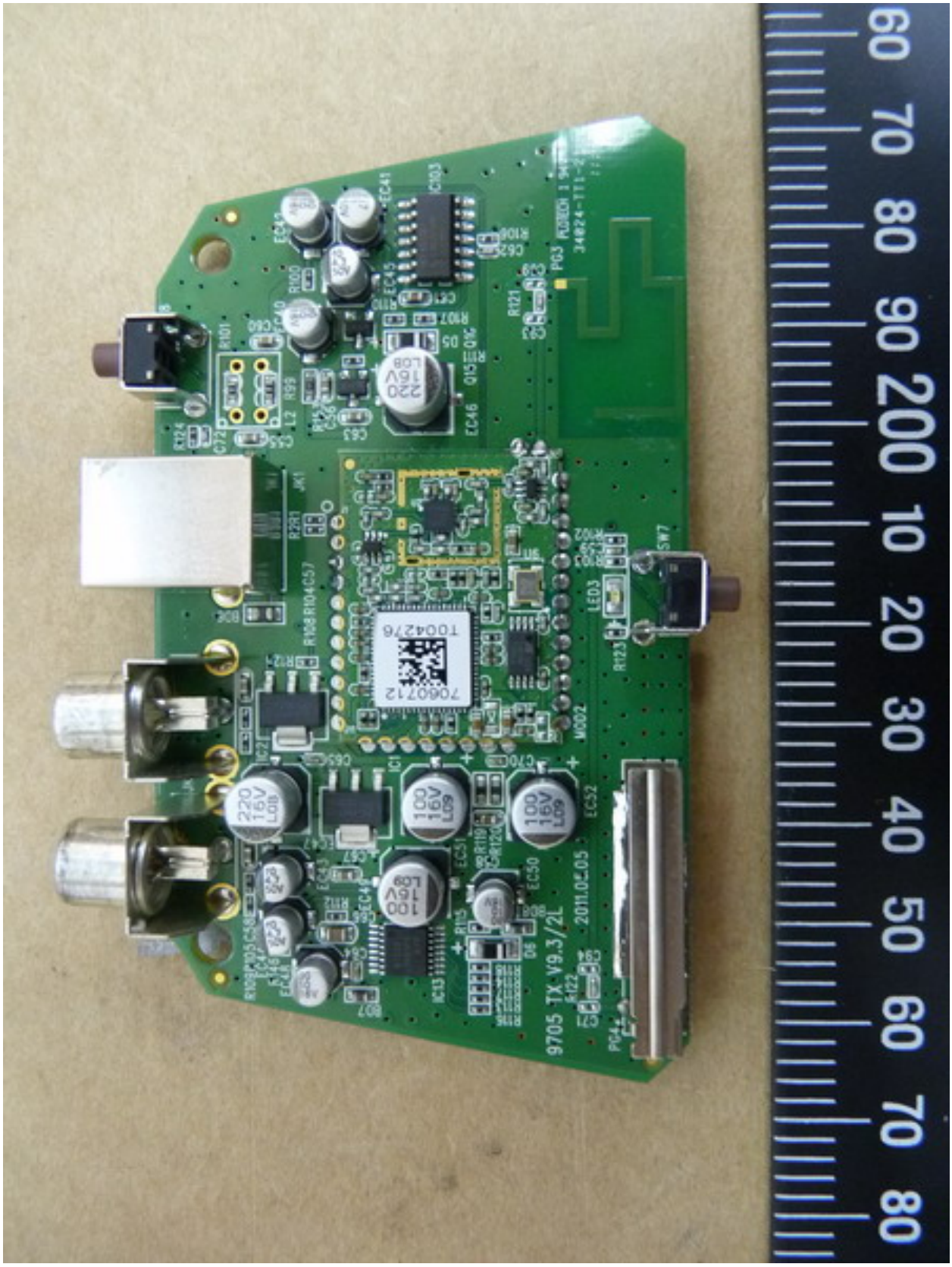
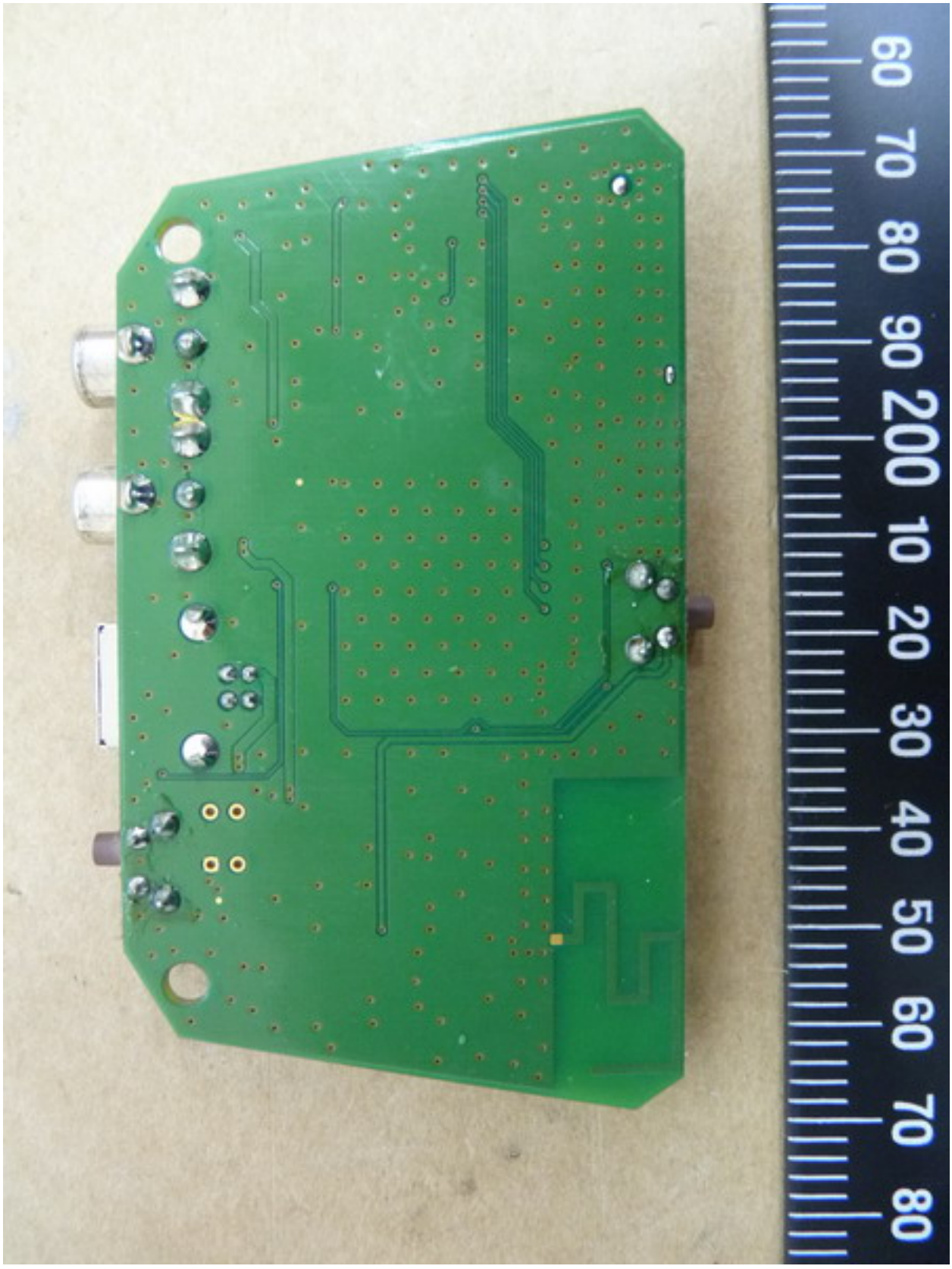
FCC ID: ZPP-EX970501

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

Internal Photos

Registration number: W6M21106-11599-C-1
FCC ID: ZPP-EX970501

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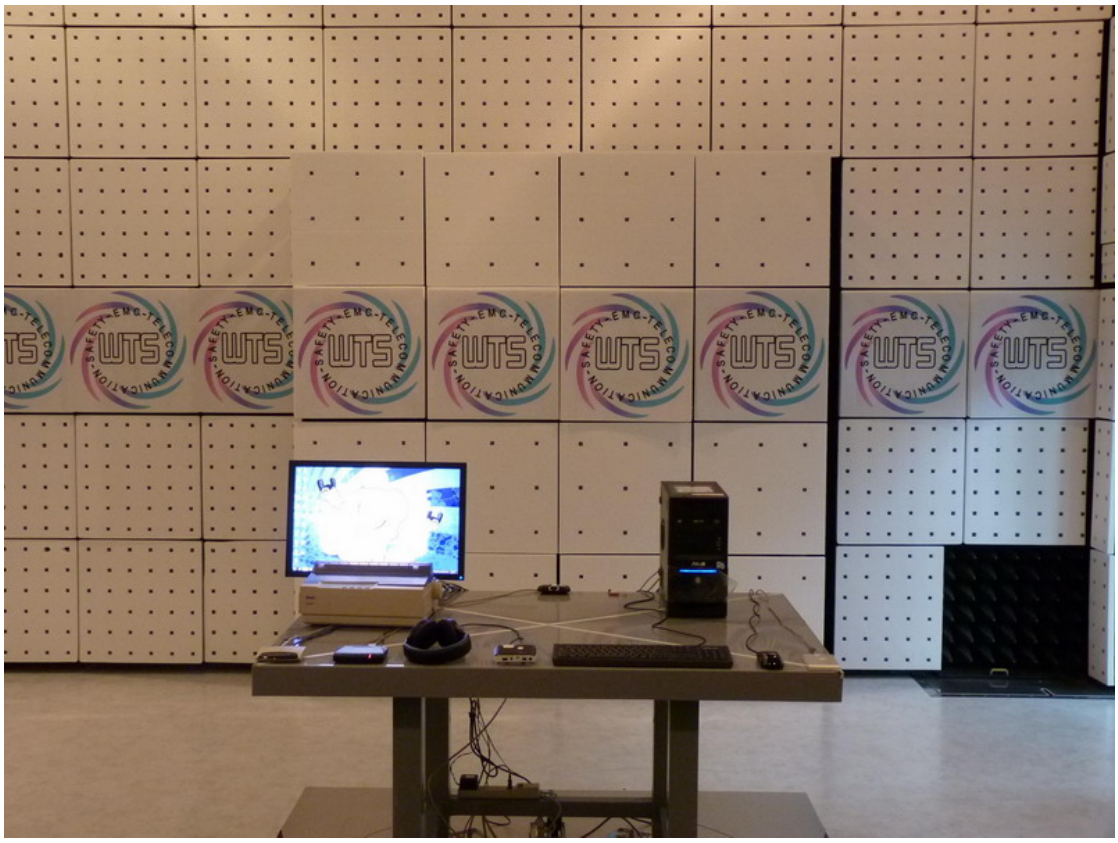
Set Up Photo of Radiated Emission
Digital part_below 1GHz



Digital part_above 1GHz

RF

Set Up Photo of Conducted Emission