FCC PART 15 SUBPART C TEST REPORT

for

Remote Controller

Model No.: Cougar P3

FCC ID: VEJTT-FHM2P4G-A15

of

Applicant: **THUNDER TIGER CORP.**
Address: **NO.7, 6TH ROAD INDUSTRY PARK TAICHUNG. TAIWAN R.O.C. 407**

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.: W6M21106-11601-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

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

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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.

Tester:

July 12, 2011		Danny Sung	Danny Sung
Date	WTS-Lab.	Name	Signature

Technical responsibility for area of testing:

July 12, 2011		Chang Tse-Ming	Chang Tse-Ming
Date	WTS	Name	Signature

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

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:	THUNDER TIGER CORP.
Street:	NO.7, 6TH ROAD INDUSTRY PARK
Town:	TAICHUNG.
Country:	TAIWAN R.O.C. 407
Telephone:	04-2359-1616
Fax:	04-2359-1902

1.4 Application details

Date of receipt of test item: June 24, 2011
Date of test: from June 25, 2011 to July 12, 2011

1.5 General information of Test item

Type of test item: Remote Controller

Model Number: Cougar P3

Multi-listing model number: XP3-SS

Brand Name: ACE RC

Brand Name for multi-listing model no.: AE

Photos: see Annex

Technical data

Frequency band: 2402 - 2479 MHz
Frequency (ch A): 2.402 GHz
Frequency (ch B): 2.441 GHz
Frequency (ch C): 2.479 GHz

Transmitter **Unom**

Power (ch A or ch 1): Conducted: 11.65 dBm
Power (ch B or ch 40): Conducted: 11.70 dBm
Power (ch C or ch 78): Conducted: 11.21 dBm

Power supply: Battery 7.2 ~ 9.6 V
Adaptor (I/P: AC 120 V/ 60Hz O/P: 110 mA / TX: 9.6 V)

Operation modes: simplex

Modulation Type: GFSK

Antenna Type: 1/4λ Dipole Sleeve antenna

Antenna gain: 2 dBi

Host device: none

Classification:

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

Manufacturer: (if applicable)

Name: Thunder Tiger Corp. (Ningbo)
Street: 28 Jin-Feng Road, Liang Hui Industrial Park, Yuyao,
Town: Zhejiang 315400
Country: China

Additional information: ./.

1.6 Test standards

Technical standard : FCC RULES PART 15 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 3 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
Details of power supply	Battery 7.2 ~ 9.6 V Adaptor (I/P: AC 120 V/ 60Hz O/P: 110 mA / TX: 9.6 V)
Extreme conditions parameters:	test voltage : -- extreme min : -- V max : -- V

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. The ambient. temperature of the UUT was 23°C with a humidity of 40 %.

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 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)	☒	☒	☐
Equivalent radiated Power	15.247(b)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(c)	☒	☒	☐
Spurious Emissions conducted – Transmitter operating	15.247	☐	☐	☐
Carrier Frequency Separation	15.247(a) (1)	☒	☒	☐
Number of Hopping Frequencies	15.247(a) (1)(i)	☒	☒	☐
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	☒	☒	☐
20 dB Bandwidth	15.247(a) (1)(i)	☒	☒	☐
Band-edge Compliance of RF Emission	15.247(c)	☒	☒	☐
Radiated Emission from Digital Part	15.109	☐	☐	☐
Power Line Conducted Emission	15.207(a)	☒	☒	☐

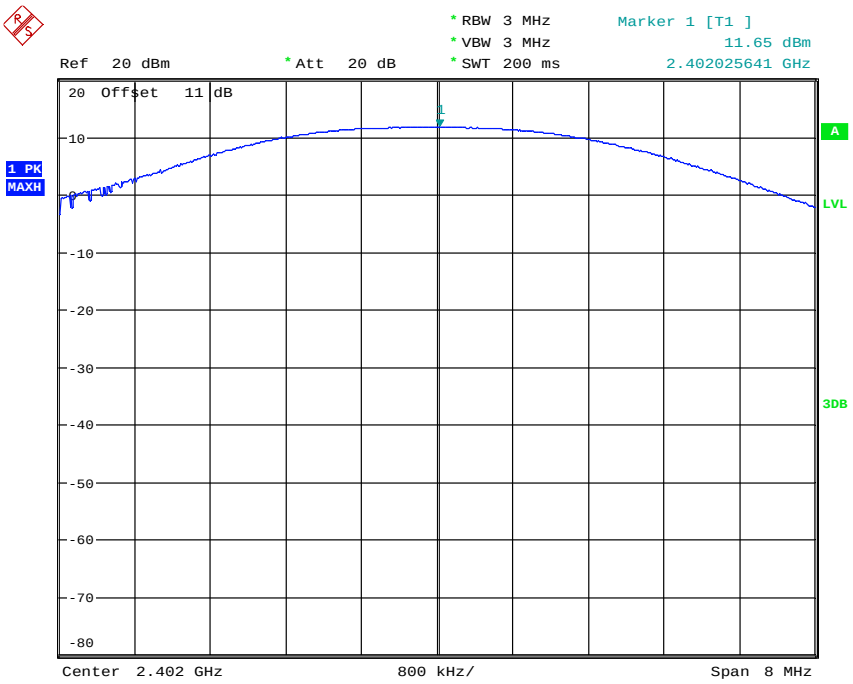
The follows is intended to leave blank.

3.1 Peak Output Power (transmitter)

FCC Rule: 15.247

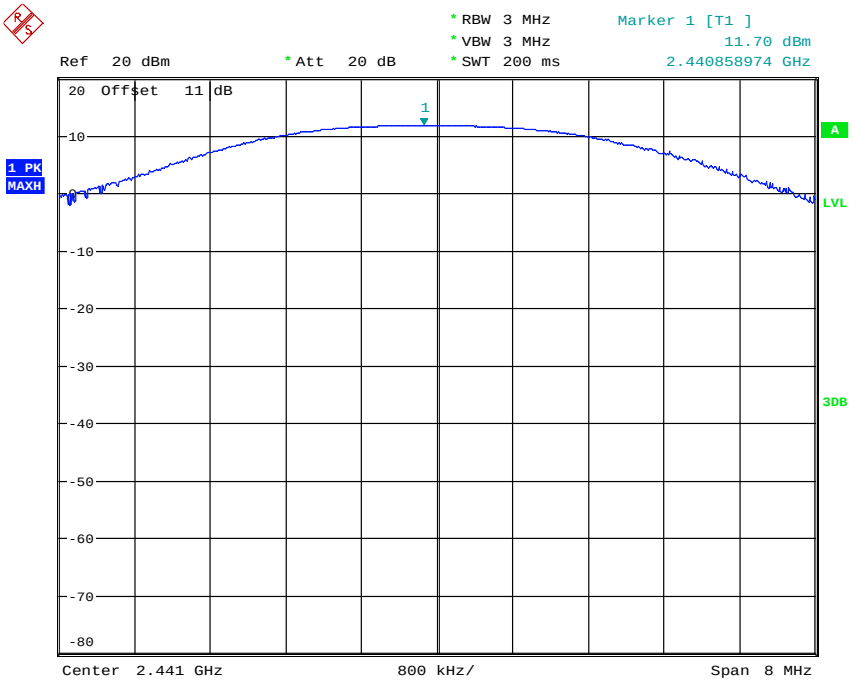
This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

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

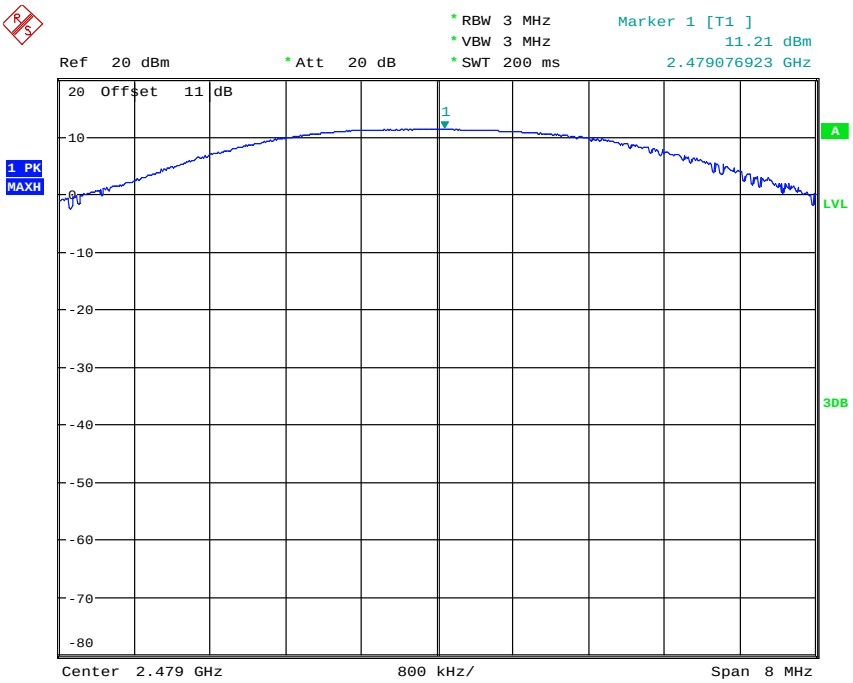


MAX OUTPUT POWER 2402MHz
Date: 7.JUL.2011 10:28:50

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



MAX OUTPUT POWER 2441MHz
Date: 7.JUL.2011 10:29:16



MAX OUTPUT POWER 2479MHz
Date: 7.JUL.2011 10:28:22

Test conditions T_{nom}= 23°C, V_{nom}= -- V Frequency[MHz]	Signal Field strength TX highest power mode dBµV/m
--	--
Measurement uncertainty	< 3 dB

The diagrams for the field strength measurements are included in Appendix.

Maximum Peak Output Power

Limits:

Frequency	Number of hopping channels			
MHz	≥ 75	≥ 50	49 ≥ 25	74 ≥ 15
902-928		30 dBm	24 dBm	
2400-2483.5 MHz	30 dBm	-		21 dBm
5725-5850 MHz	30 dBm	-		

In case of employing transmitter antennas having antenna gain >dBi and using fixed poin-to point operation consider §15.247 (b)(4).

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.2 RF Exposure Compliance Requirements

According to Supplement C, Edition 01-01 to OET Bulletin 65, Edition 97-01 this spread spectrum transmitter is categorically excluded from routine environmental evaluation because of the low power level, where there is a high likelihood of compliance with RF exposure standards.
The antenna used for this Bluetooth transceiver module must not be co-located or operating in conjunction with any other antenna or transmitter.

3.3 Out of Band Radiated Emissions

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 below 1GHz :
Max. reading – 20 dB

Guidance on Measurement of FHSS 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." Here the correction was added to the limit instead subtracted from the reading.

Duty Cycle correction = 20 log (dwell time/100ms)
For frequencies above 1GHz (Peak measurements).
Limit = max. aver. reading-20dB +20dB(because Peak detector is used)

For frequencies above 1GHz (Average measurements).
Max. reading – 20 dB - duty cycle correction:

No duty cycle correction was added to the reading

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 021, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044, ETSTW-RE 064

Explanation: See attached diagrams in appendix.

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 26000 MHz.
For radiated emission tests, the analyzer setting was as followings:
RES BW VID BW
Frequency <1 GHz 100 kHz 100 kHz (Peak measurements)
Frequency >1 GHz 1 MHz 1 MHz (Peak measurements)
1 MHz 1 MHz (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 960	500	54.0

For frequencies above 1GHz (Average measurements).
Guidance on Measurement of FHSS Systems:
“If the emission is pulsed, modify the unit for continues operation , use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.” Here the correction was added to the limit instead subtracted from the reading.

Duty cycle correction = 20 log (dwell time/100ms)

For frequencies above 1GHz (Average measurements).

Limit – duty cycle correction

No duty cycle correction was added to the reading.

54.0dBμV/m

For frequencies above 1GHz (Peak measurements).

Limit + 20dB

54.0dBμV/m + 20 dB= 74 dBμV/m

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

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))

SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance to 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 an 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 “Marker-Delta-Method“ or the „Duty-Cycle Correction Factor“.

Summary table with radiated data of the test plots

Model: Cougar P3 Date: 2011/6/26
Mode: TX 2402 MHz Temperature: 22.2 °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)
276.1924	14.71	peak	14.73	29.44	46.00	-16.56	170	100
408.0160	14.26	peak	17.89	32.15	46.00	-13.85	220	130

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
2328.6570	59.90	42.10	1.31	61.21	43.41	74.00	54.00	-10.59	335	100
2701.4030	58.98	41.83	2.18	61.16	44.01	74.00	54.00	-9.99	125	100
4801.6030	66.71	42.69	4.56	71.27	47.25	74.00	54.00	-6.75	100	100
7206.4130	47.36	37.35	6.93	54.29	44.28	74.00	54.00	-9.72	130	100
9608.7170	40.14	---	9.47	49.61	---	74.00	54.00	-24.39	230	100
12010.0000	37.47	---	13.25	50.72	---	74.00	54.00	-23.28	260	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
167.9760	8.43	peak	15.33	23.76	43.50	-19.74	140	100
408.0160	20.07	peak	17.89	37.96	46.00	-8.04	280	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1601.2020	51.40	---	-2.01	49.39	---	74.00	54.00	-24.61	140	110
2328.6570	62.16	41.23	1.31	63.47	42.54	74.00	54.00	-11.46	215	100
2701.4030	64.79	42.08	2.18	66.97	44.26	74.00	54.00	-9.74	300	100
4801.6030	66.02	42.73	4.56	70.58	47.29	74.00	54.00	-6.71	58	100
7206.4130	52.48	33.45	6.93	59.41	40.38	74.00	54.00	-13.62	220	100
9608.7170	42.16	---	9.47	51.63	---	74.00	54.00	-22.37	165	100
12017.0340	35.52	---	13.30	48.82	---	74.00	54.00	-25.18	120	100

Mode: TX 2441 MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
276.1924	13.50	peak	14.73	28.23	46.00	-17.77	170	100
335.0701	18.69	peak	16.17	34.86	46.00	-11.14	160	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
3254.5090	54.10	---	2.73	56.83	---	74.00	54.00	-17.17	240	100
4881.7640	61.04	41.25	4.59	65.63	45.84	74.00	54.00	-8.16	60	100
7326.6530	46.63	40.57	6.91	53.54	47.48	74.00	54.00	-6.52	140	100
9761.0220	38.59	---	9.66	48.25	---	74.00	54.00	-25.75	220	100
12207.4150	36.8	---	14.75	51.55	---	74.00	54.00	-22.45	310	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
167.9760	8.13	peak	15.33	23.46	43.50	-20.04	200	100
408.0160	19.04	peak	17.89	36.93	46.00	-9.07	120	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
2368.7380	62.58	41.59	1.39	63.97	42.98	74.00	54.00	-11.02	220	100
2741.4830	58.96	40.76	2.22	61.18	42.98	74.00	54.00	-11.02	60	100
4881.7640	67.47	42.88	4.59	72.06	47.47	74.00	54.00	-6.53	125	100
7326.6530	52.13	41.29	6.91	59.04	48.20	74.00	54.00	-5.80	210	100
9761.0220	40.66	---	9.66	50.32	---	74.00	54.00	-23.68	220	100
12205.0000	32.75	---	14.76	47.51	---	74.00	54.00	-26.49	310	100

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

Mode: TX 2479 MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
276.1924	13.11	peak	14.73	27.84	46.00	-18.16	160	100
408.0160	14.11	peak	17.89	32.00	46.00	-14.00	210	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4958.1220	64.12	41.19	4.79	68.91	45.98	74.00	54.00	-8.02	280	100
7437.3000	51.05	39.06	6.70	57.75	45.76	74.00	54.00	-8.24	80	100
9916.0000	33.79	---	9.84	43.63	---	74.00	54.00	-30.37	270	100
12395.0000	32.81	---	14.35	47.16	---	74.00	54.00	-26.84	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)
167.9760	7.73	peak	15.33	23.06	43.50	-20.44	205	100
408.0160	18.93	peak	17.89	36.82	46.00	-9.18	260	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
2380.7620	56.28	40.11	1.41	57.69	41.52	74.00	54.00	-12.48	240	100
2729.4590	57.85	39.92	2.21	60.06	42.13	74.00	54.00	-11.87	300	100
4953.9080	66.20	42.58	4.77	70.97	47.35	74.00	54.00	-6.65	120	100
7438.8780	52.15	41.20	6.70	58.85	47.90	74.00	54.00	-6.10	160	100
9916.0000	33.93	---	9.84	43.77	---	74.00	54.00	-30.23	250	100
12395.0000	33.21	---	14.35	47.56	---	74.00	54.00	-26.44	310	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. **See attached diagrams in appendix.**

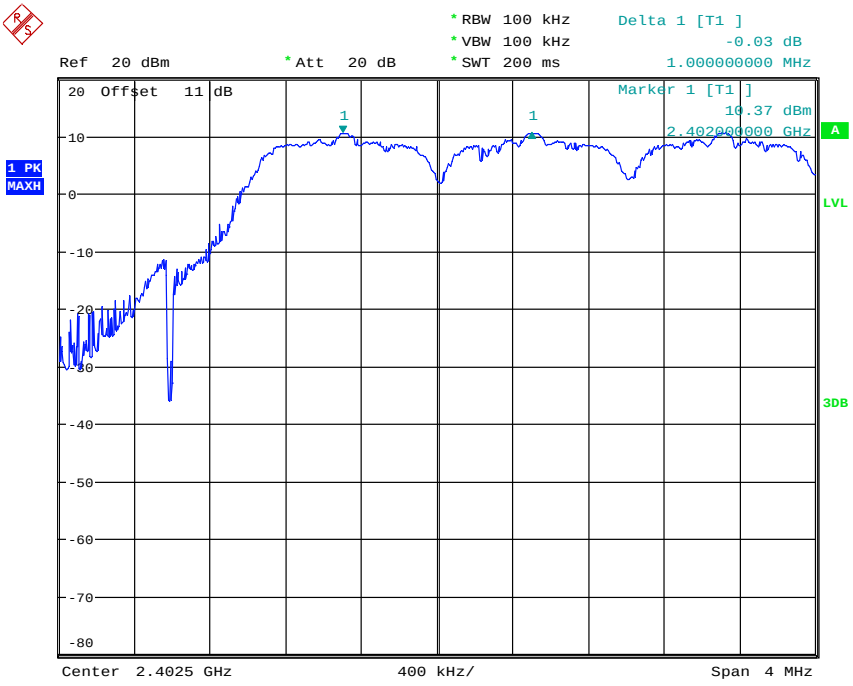
All other not noted test plots do not contain significant test results in relation to the limits.
TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

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

3.6 Carrier Frequency Separation

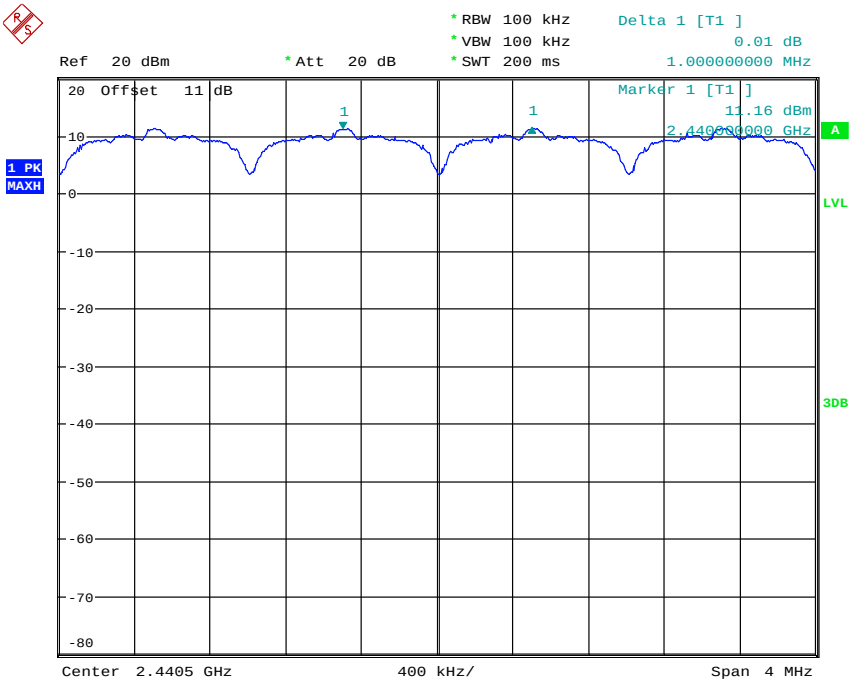
Carrier Frequency Separation was measured with modulation (declared by manufacturer).

According to FCC rules part 15 subpart C §15.247 frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.

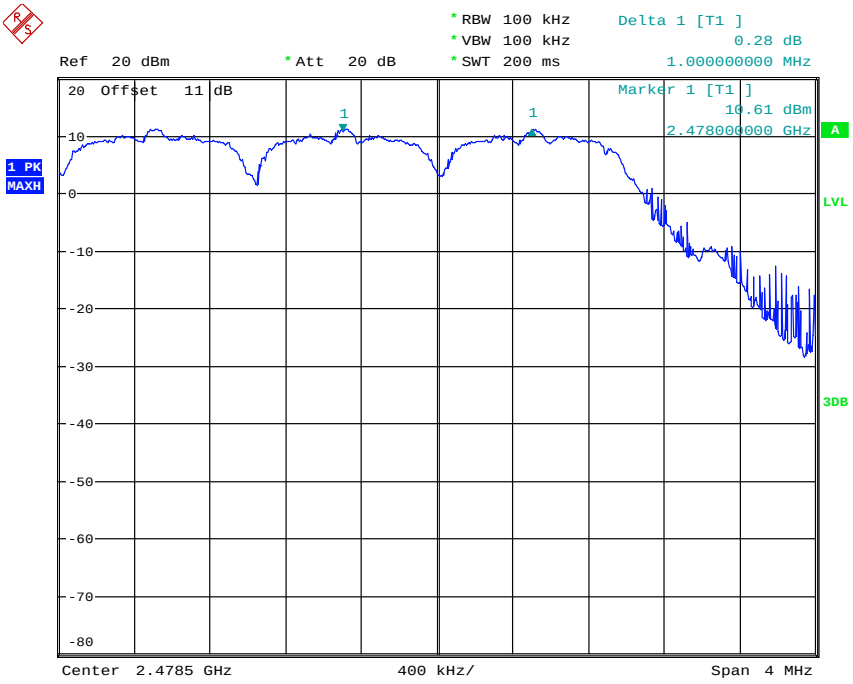


FREQUENCY SEPARATION 2402MHz
Date: 7.JUL.2011 06:43:07

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



FREQUENCY SEPARATION 2441MHz
Date: 7.JUL.2011 06:57:02



FREQUENCY SEPARATION 2479MHz
Date: 7.JUL.2011 07:01:03

Limits:

Frequency Range MHz	Limits	
	20 dB bandwidth < 25 kHz	20 dB bandwidth > 25 kHz
902-928	25 kHz	20 dB bandwidth
2400-2483.5 5725-5850.0	25 kHz	20 dB bandwidth

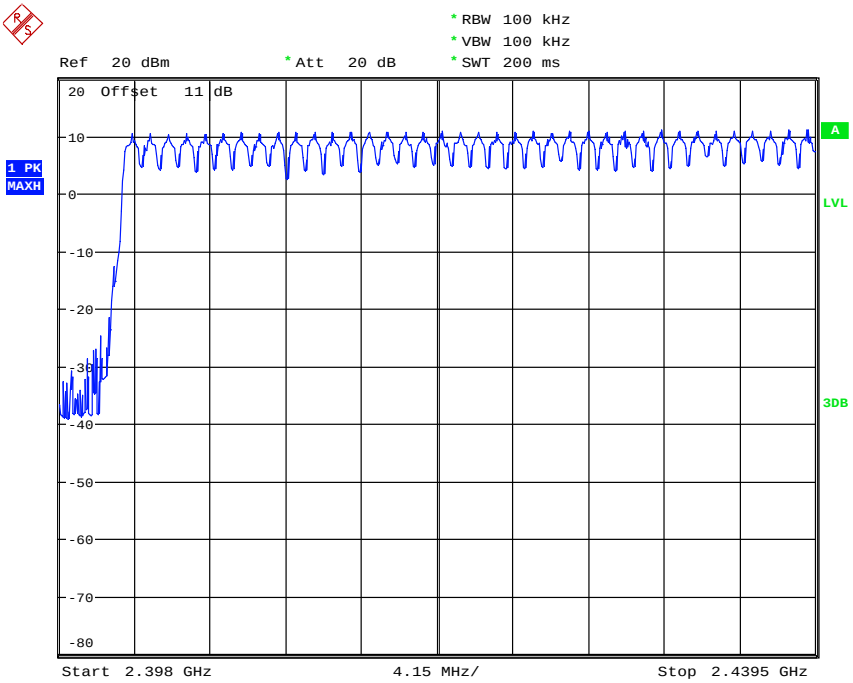
Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.7 Number of Hopping Frequencies

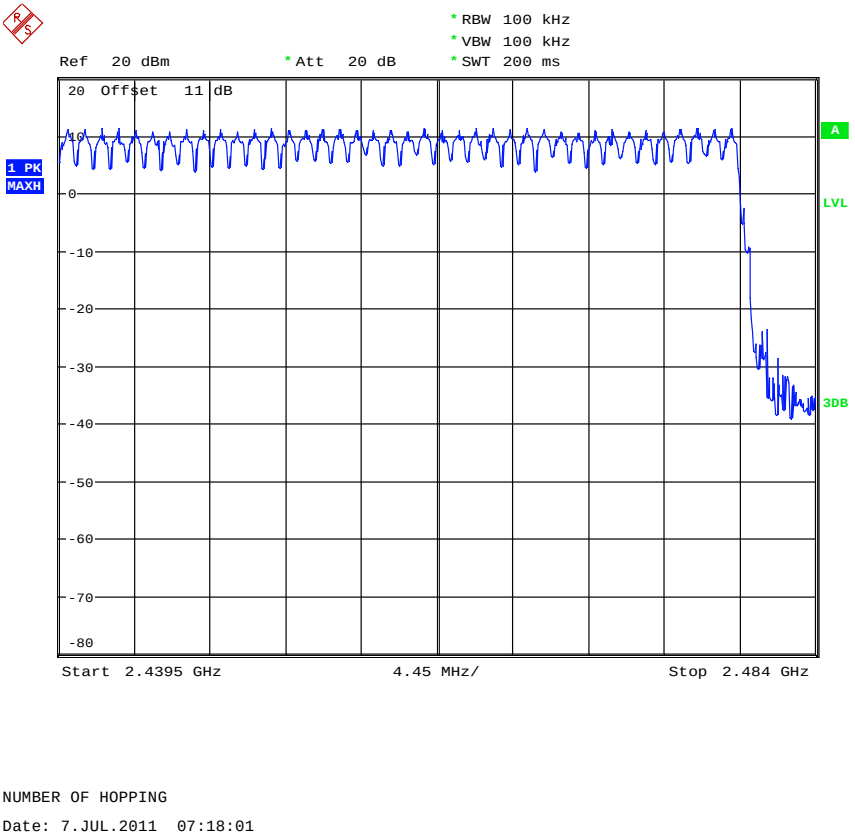
According to FCC rules part 15 subpart C §15.247 frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies. Frequency hopping systems in 5725-5850 MHz bands shall use least 75 hopping frequencies.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20dB bandwidth of the hopping channel 250 kHz or greater, the system shall use at least 25 hopping frequencies.

Test conditions		Operating Mode	Number of Channels
T_{nom}= 23°C	V_{nom}= 9.6 V	normal transmitting	78



NUMBER OF HOPPING
Date: 7.JUL.2011 07:14:06



Limits:

Frequency Range MHz	Limit	
	20dB Bandwidth	Number of Channels
902-928 MHz	Bandwidth < 250 kHz	≥ 50
	Bandwidth ≥ 250 kHz	≥ 25
2400-2483.5	not defined	15
5725-5850.0 MHz	1 MHz	75

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.7.1 Pseudorandom Frequency Hopping Sequence

The CYWUSB6935 contains a 2.4GHz radio transceiver, a GFSK modem, and a dual DSSS reconfigurable baseband. The radio and baseband are both code- and frequency-agile.
Forty-nine spreading codes selected for optimal performance (Gold codes) are supported across 78 (1MHz) channels yielding a theoretical spectral capacity of 3822 channels. The CYWUSB6935 supports a range of up to 50 meters or more. The transmitter uses a DSP-based vector modulator to convert the 1-MHz chips to an accurate GFSK carrier. The receiver uses a fully integrated Frequency Modulator (FM) detector with automatic data slicer to demodulate the GFSK signal.

3.7.2 Coordination of hopping sequences to other transmitters

The CYWUSB6935 transceiver is a single-chip 2.4-GHz Direct Sequence Spread Spectrum (DSSS) Gaussian Frequency Shift Keying (GFSK) baseband modem radio that connects directly to a microcontroller via a simple serial peripheral interface.

3.7.3 System Receiver Hopping Capability

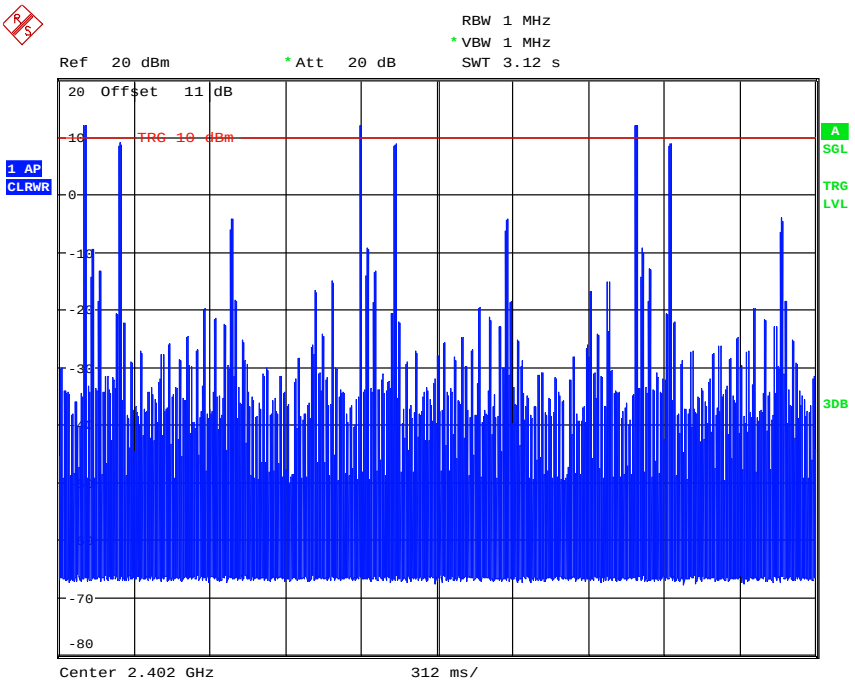
The receiver and transmitter are a single-conversion, low-Intermediate Frequency (low-IF) architecture with fully integrated IF channel matched filters to achieve high performance in the presence of interference. An integrated Power Amplifier (PA) provides an output power control range of 30 dB in seven steps. Both the receiver and transmitter integrated Voltage Controlled Oscillator (VCO) and synthesizer have the agility to cover the complete 2.4-GHz GFSK radio transmitter ISM band. The synthesizer provides the frequency-hopping local oscillator for the transmitter and receiver. The VCO loop filter is also integrated on-chip.

3.8 Time of Occupancy (Dwell Time)

Frequency hopping systems operating in the 5725-5850 MHz band shall use an average time of occupancy on any frequency not greater than 0.4 seconds within a 30 second period.

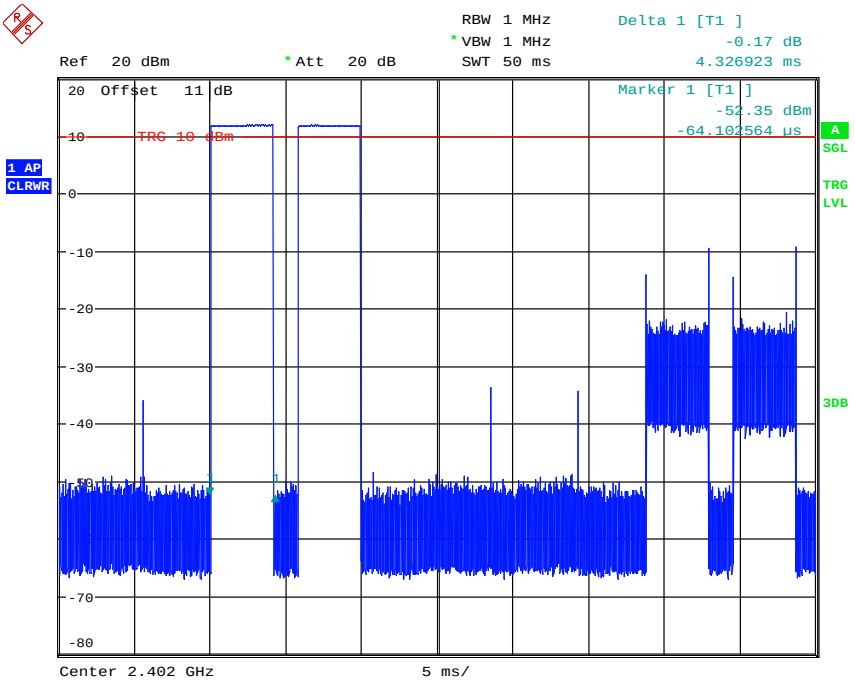
In 2400-2483.5 MHz band the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

For frequency hopping systems operating in the 902-928 MHz band: if the 20dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not greater than 0.4 seconds within a 20 second period; if the 20dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

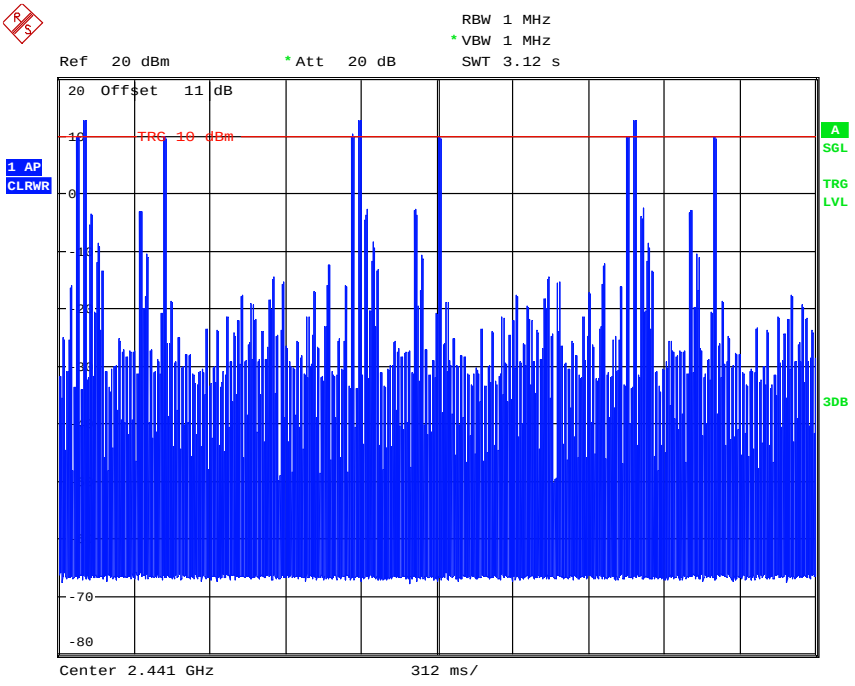


DWELL TIME 2402MHz (4.326ms * 30events = 129.78ms)
Date: 7.JUL.2011 06:35:51

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

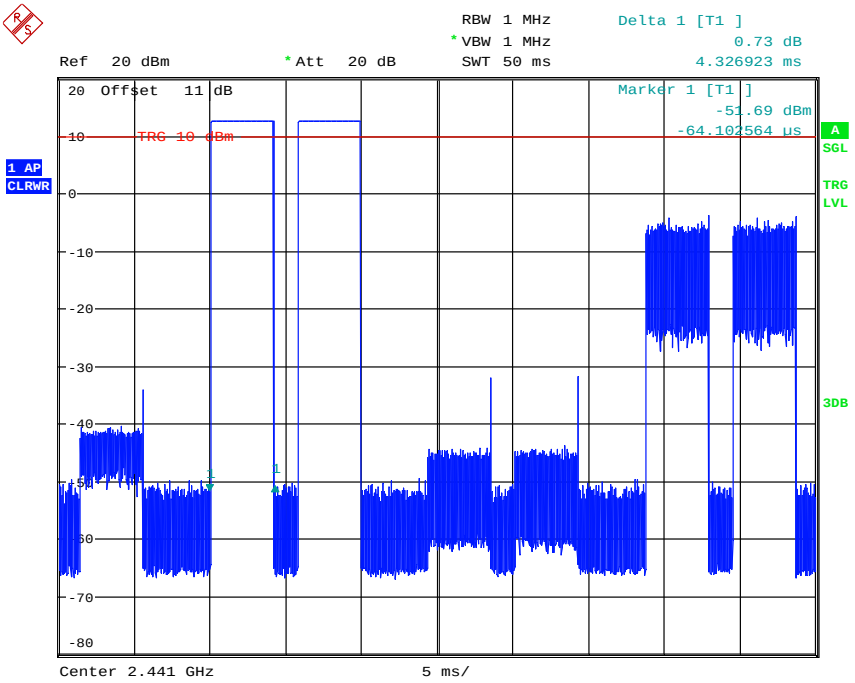


DWELL TIME 2402MHz
Date: 7.JUL.2011 06:38:04

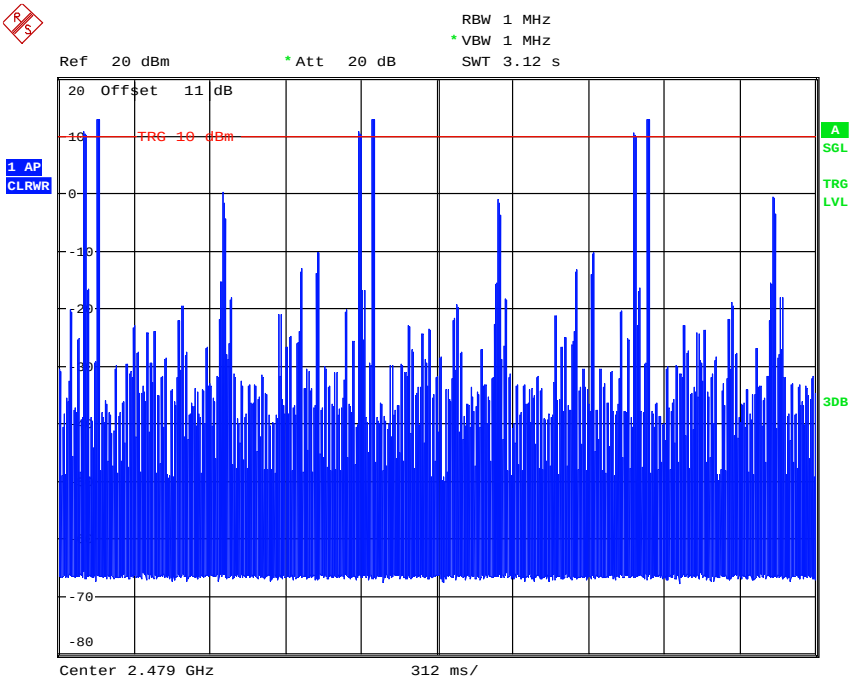


DWELL TIME 2441MHz (4.326ms * 30events = 129.78ms)
Date: 7.JUL.2011 06:36:17

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

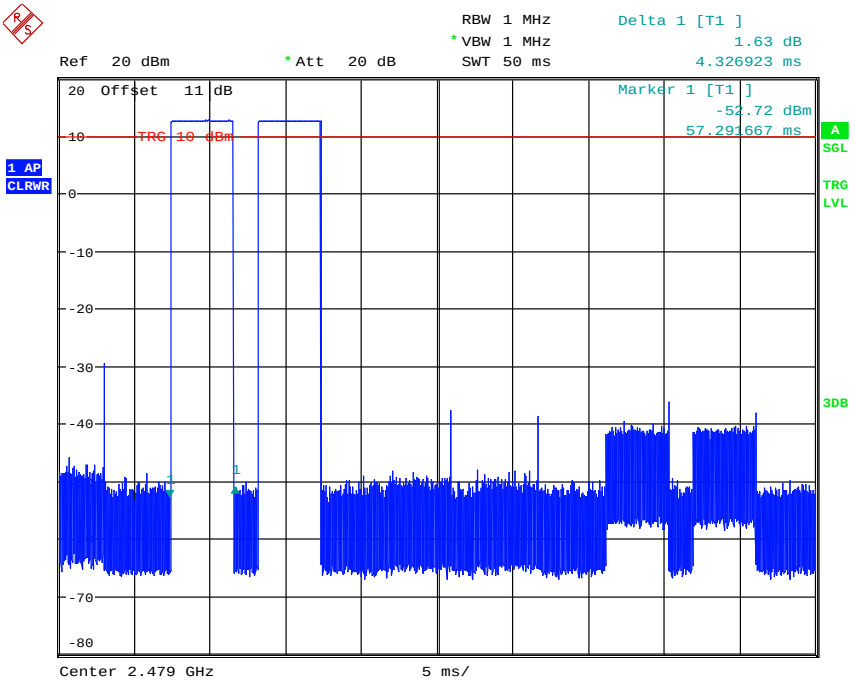


DWELL TIME 2441MHz
Date: 7.JUL.2011 06:37:48



DWELL TIME 2479MHz (4.326ms * 30events = 129.78ms)
Date: 7.JUL.2011 06:36:43

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



DWELL TIME 2479MHz
Date: 7.JUL.2011 06:40:21

Limits and measurement periods:

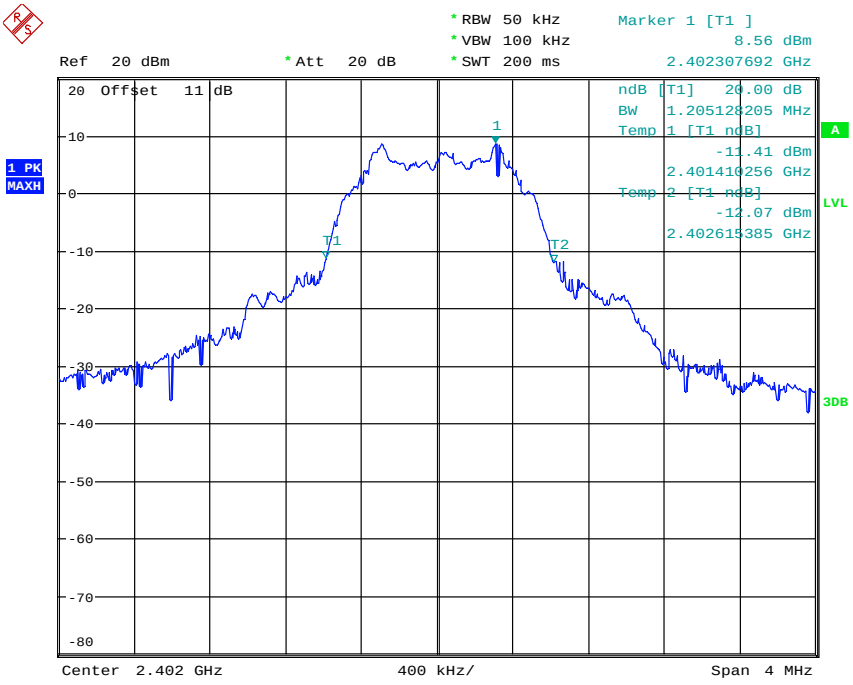
Frequency MHz	Number of channels	Measurement Periode	Limit
902 – 928	≥50	20 s	0.4 s
	49 ≥ 25	10 s	0.4 s
2400 – 2483.5	≥ 15	0.4 s * number of used channels	0.4 s
5725- 5850	≥ 75	30 s	0.4s

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.9 20dB Bandwidth

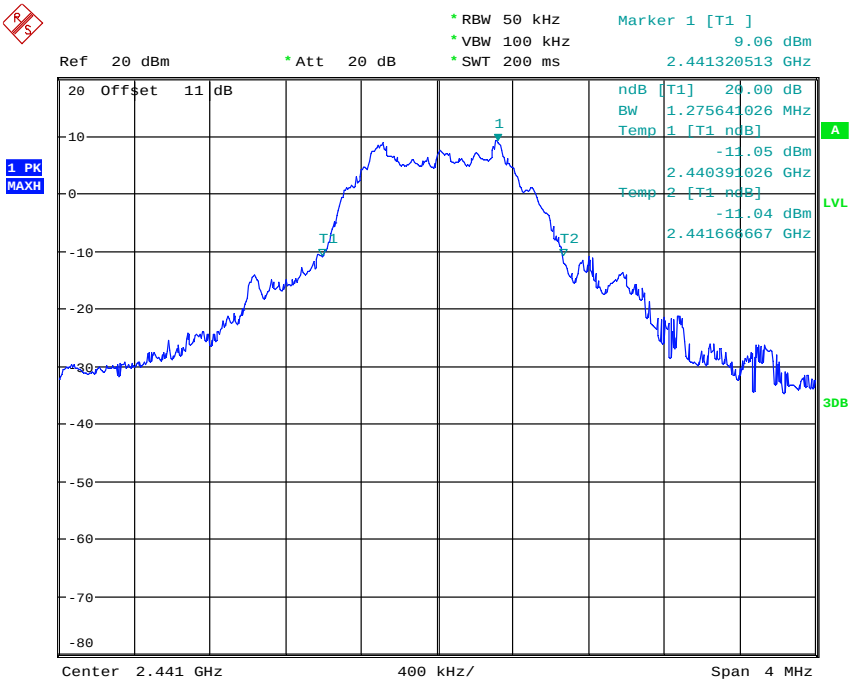
Frequency hopping systems operating in the 5725-5850 MHz bands shall use a maximum 20dB bandwidth of 1 MHz.
The 20dB bandwidth is measured on the lowest, middle and highest hopping channel.

For frequency hopping systems operating in the 902-928 MHz band the maximum 20dB bandwidth of the hopping channel is 500 kHz.

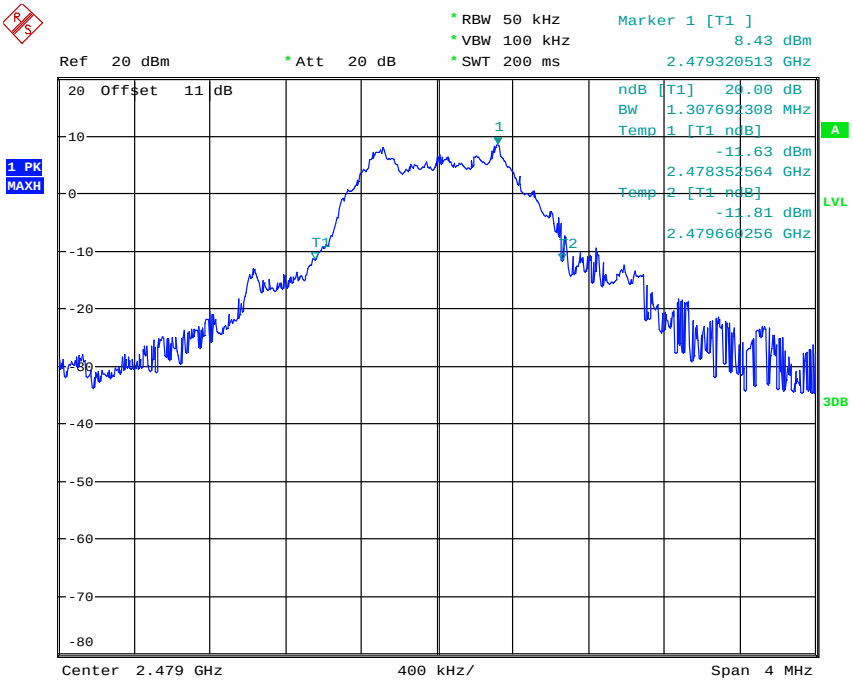


20DB BANDWIDTH 2402MHz
Date: 7.JUL.2011 10:30:48

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



20DB BANDWIDTH 2441MHz
Date: 7.JUL.2011 10:29:46



20DB BANDWIDTH 2479MHz
Date: 7.JUL.2011 10:30:19

Limits:

Frequency Range / MHz	Limit
902-928	≤ 500 kHz
2400-2483.5	not defined
5725-5850	≤ 1 MHz

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

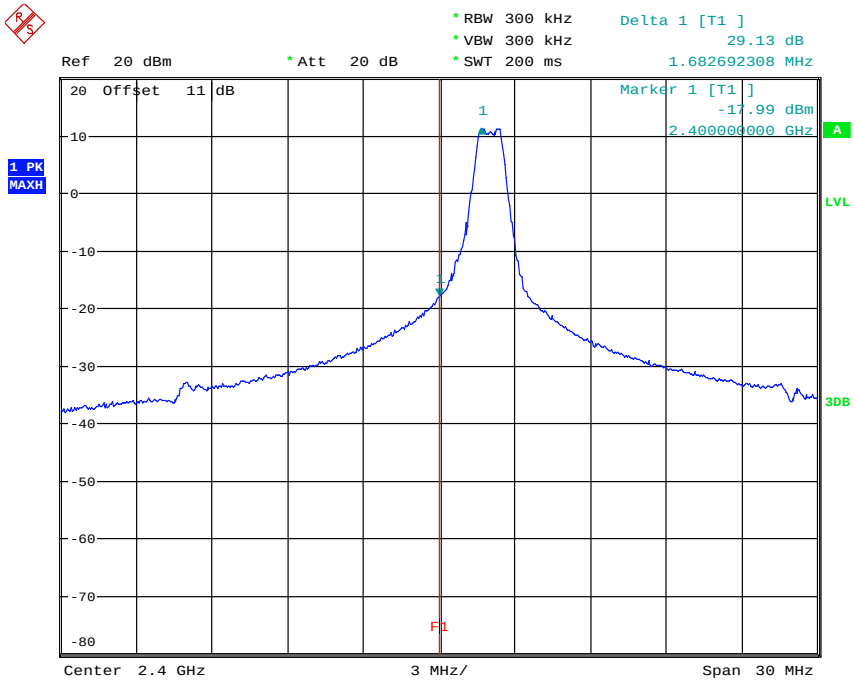
3.9.1 System Receiver Input Bandwidth

According to the 2.4GHz DSSS Radio SoC's providing the frequency-hopping function for transceiver, the bandwidth of the transceiver was determined to which it was matched the appropriate required value.

3.10 Band-edge Compliance of RF Emissions

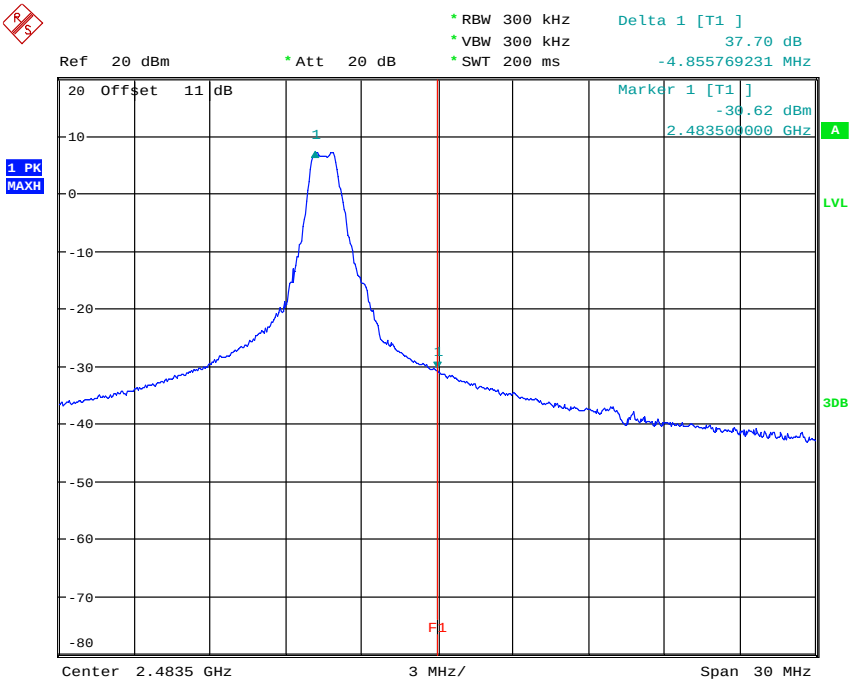
According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that 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.

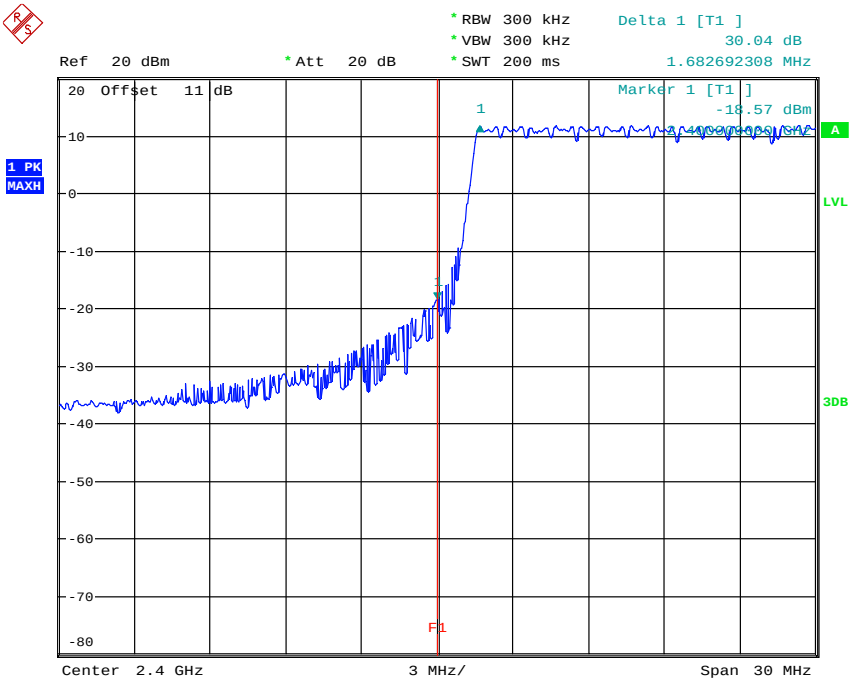


BAND EDGE 2402MHz
Date: 7.JUL.2011 10:31:54

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

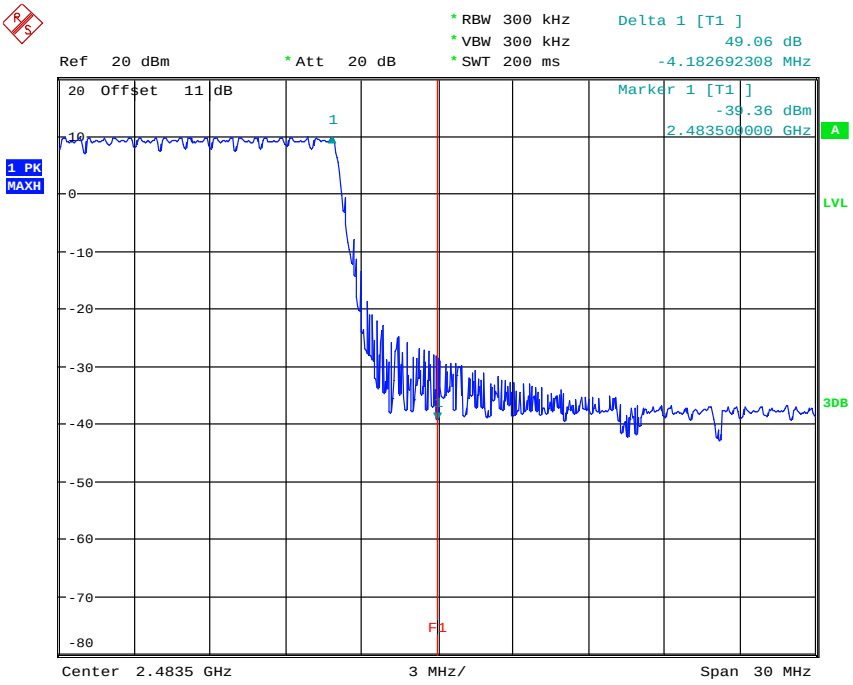


BAND EDGE 2479MHz
Date: 7.JUL.2011 10:50:57



BAND EDGE HOPPING MODE 2402MHz
Date: 7.JUL.2011 07:27:44

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



BAND EDGE HOPPING MODE 2479MHz
Date: 7.JUL.2011 07:29:12

Limits:

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

Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.11 Radiated Emissions from Digital Part

FCC Rule: 15.109

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

Explanation: Please refer to separated test report no.: W6M21106-11601-P-15B.

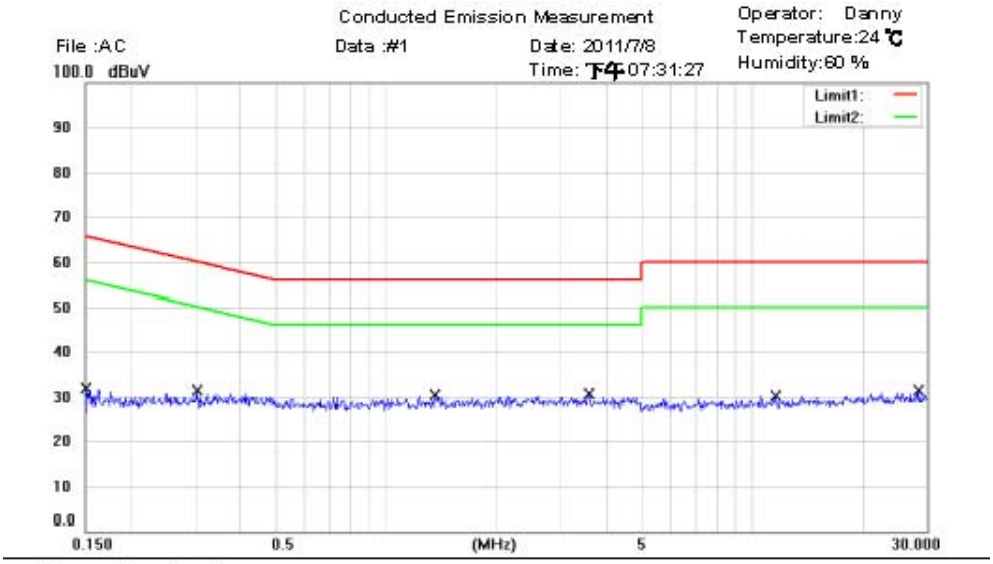
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

3.12 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.

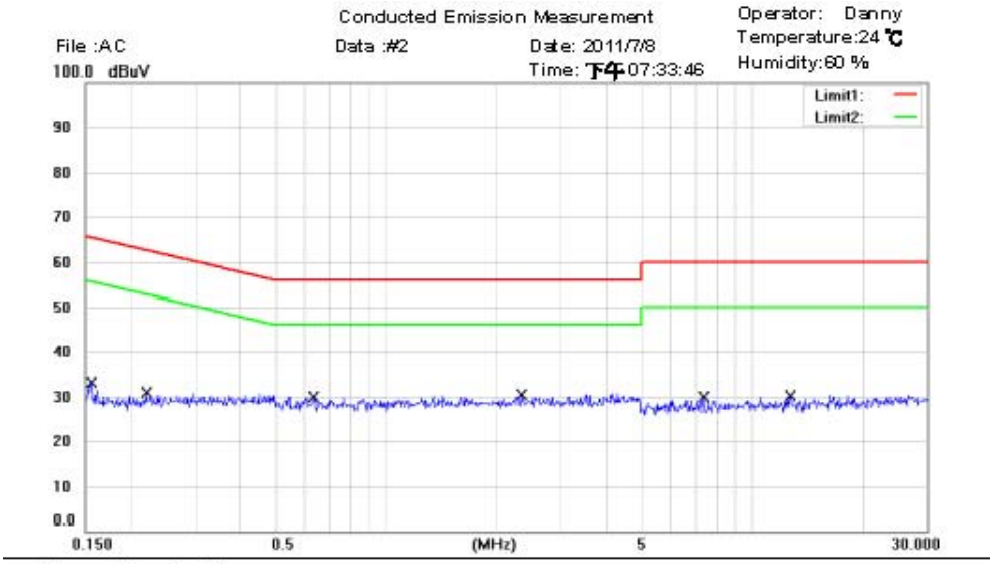
Frequency	Level (dBμV)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: N
EUT : W6M21106-11601
Power : 110VAC
M/N : Cougar P3
Test Mode :
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1504	12.18	QP	9.94	22.12	65.98	-43.86	
	0.1504	8.79	AVG	9.94	18.73	55.98	-37.25	
	0.3021	11.34	QP	9.92	21.26	60.18	-38.92	
	0.3021	7.49	AVG	9.92	17.41	50.18	-32.77	
	1.3595	10.60	QP	9.97	20.57	56.00	-35.43	
	1.3595	7.36	AVG	9.97	17.33	46.00	-28.67	
	3.5668	10.75	QP	10.09	20.84	56.00	-35.16	
*	3.5668	7.47	AVG	10.09	17.56	46.00	-28.44	
	11.5000	10.48	QP	10.56	21.04	60.00	-38.96	
	11.5000	7.46	AVG	10.56	18.02	50.00	-31.98	
	28.3125	11.76	QP	11.34	23.10	60.00	-36.90	
	28.3125	7.93	AVG	11.34	19.27	50.00	-30.73	

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: L1
EUT : W6M21106-11601
Power : 110VAC
M/N: Cougar P3
Test Mode :
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1550	11.18	QP	9.99	21.17	65.73	-44.56	
	0.1550	7.63	AVG	9.99	17.62	55.73	-38.11	
	0.2197	10.66	QP	9.95	20.61	62.83	-42.22	
	0.2197	7.48	AVG	9.95	17.43	52.83	-35.40	
	0.6372	10.18	QP	10.01	20.19	56.00	-35.81	
	0.6372	7.37	AVG	10.01	17.38	46.00	-28.62	
	2.3450	10.45	QP	10.10	20.55	56.00	-35.45	
*	2.3450	7.35	AVG	10.10	17.45	46.00	-28.55	
	7.3625	10.14	QP	10.43	20.57	60.00	-39.43	
	7.3625	7.32	AVG	10.43	17.75	50.00	-32.25	
	12.7000	10.51	QP	10.82	21.33	60.00	-38.67	
	12.7000	7.47	AVG	10.82	18.29	50.00	-31.71	

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

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, Down line: Average limit.**

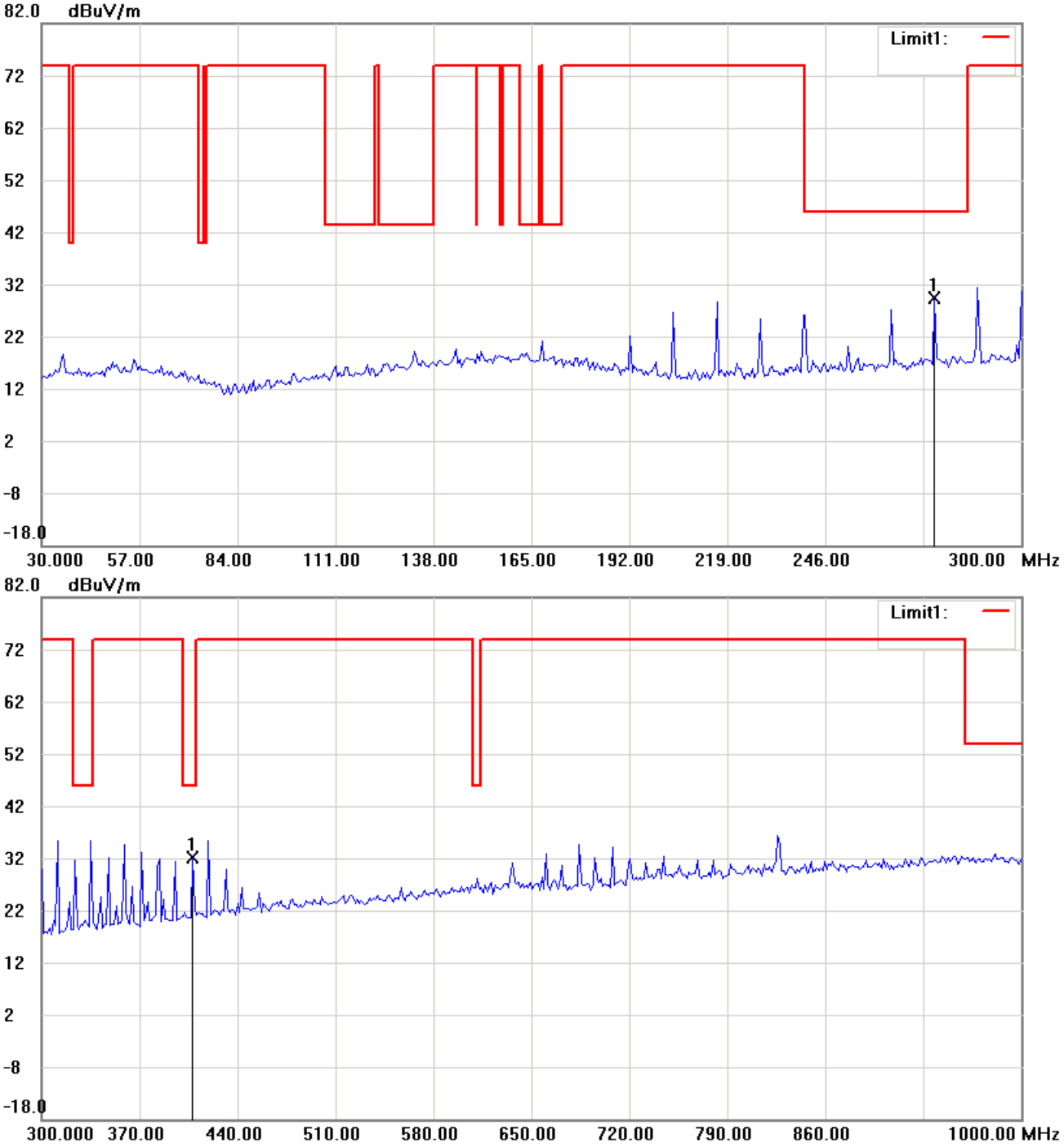
Test equipment used: ETSTW-CE 001, ETSTW-CE 004, ETSTW-CE 006, ETSTW-RE 064

Appendix

Measurement diagrams

Spurious Emissions radiated

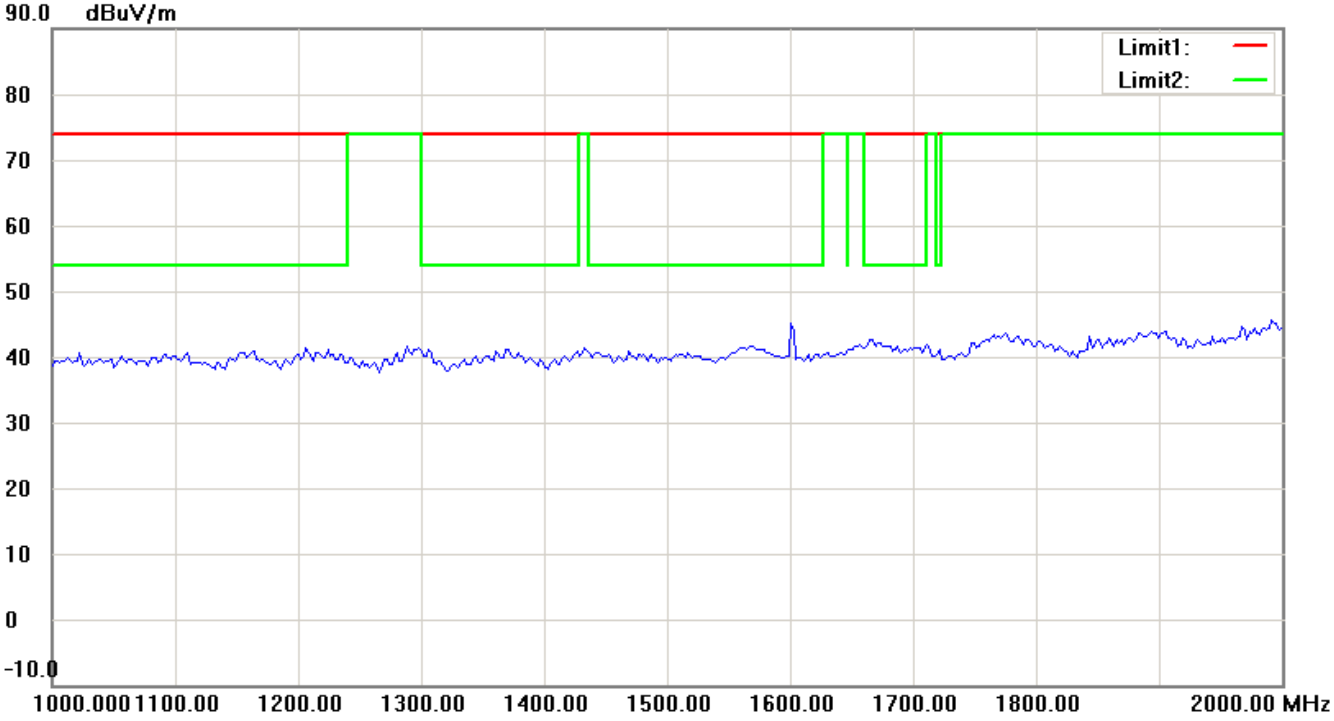
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15
Radiated Emission-Transmitter part
TX-2402 MHz
Antenna Polarization H

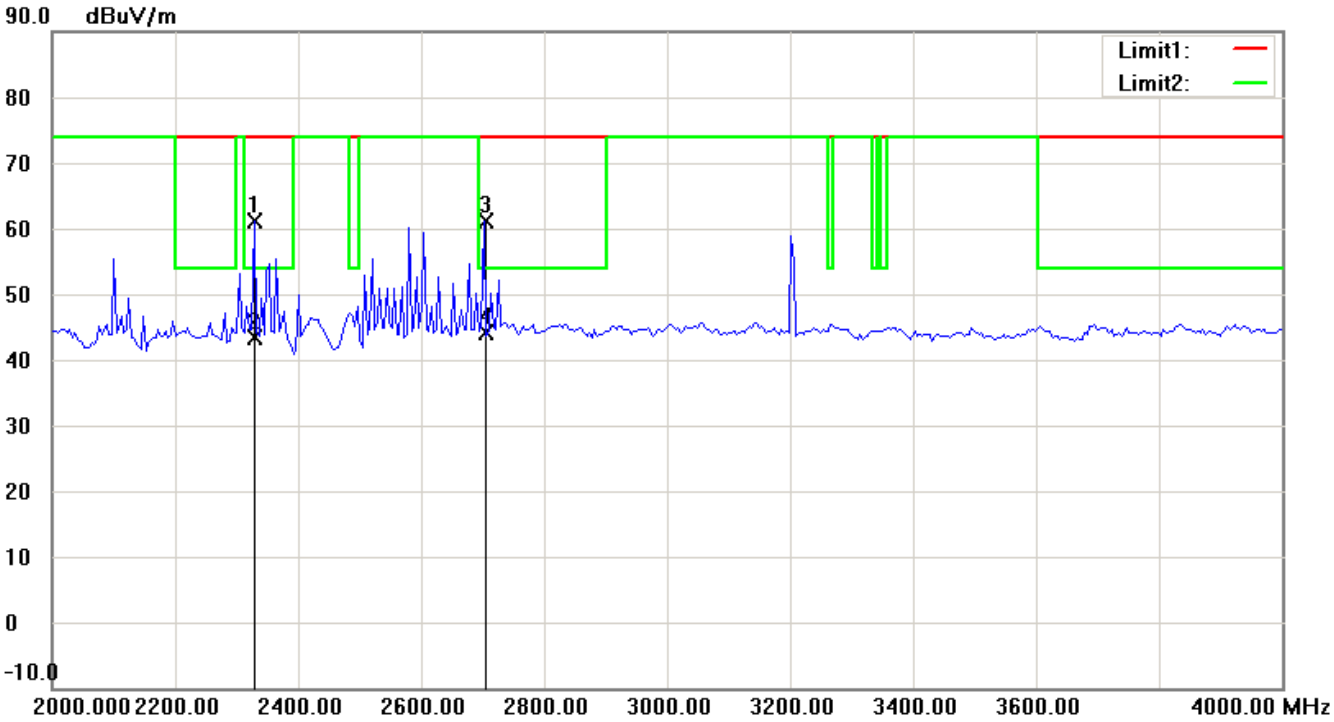


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

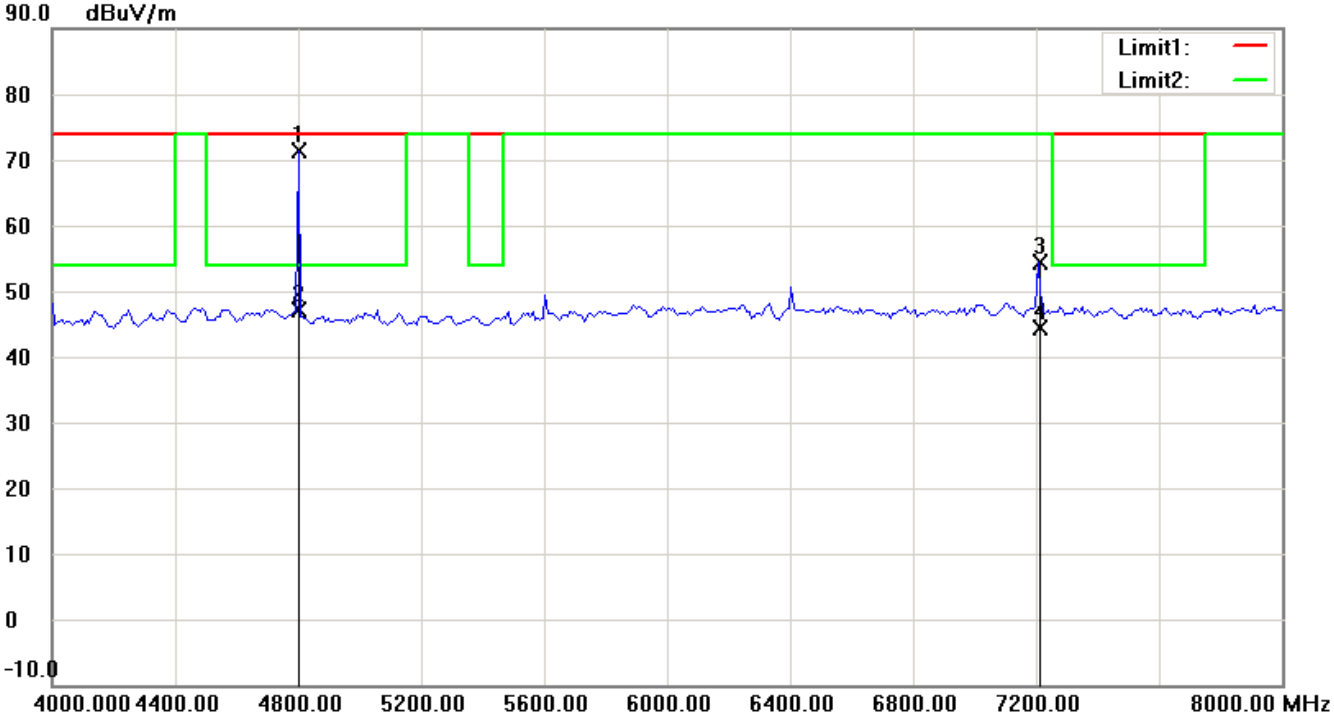


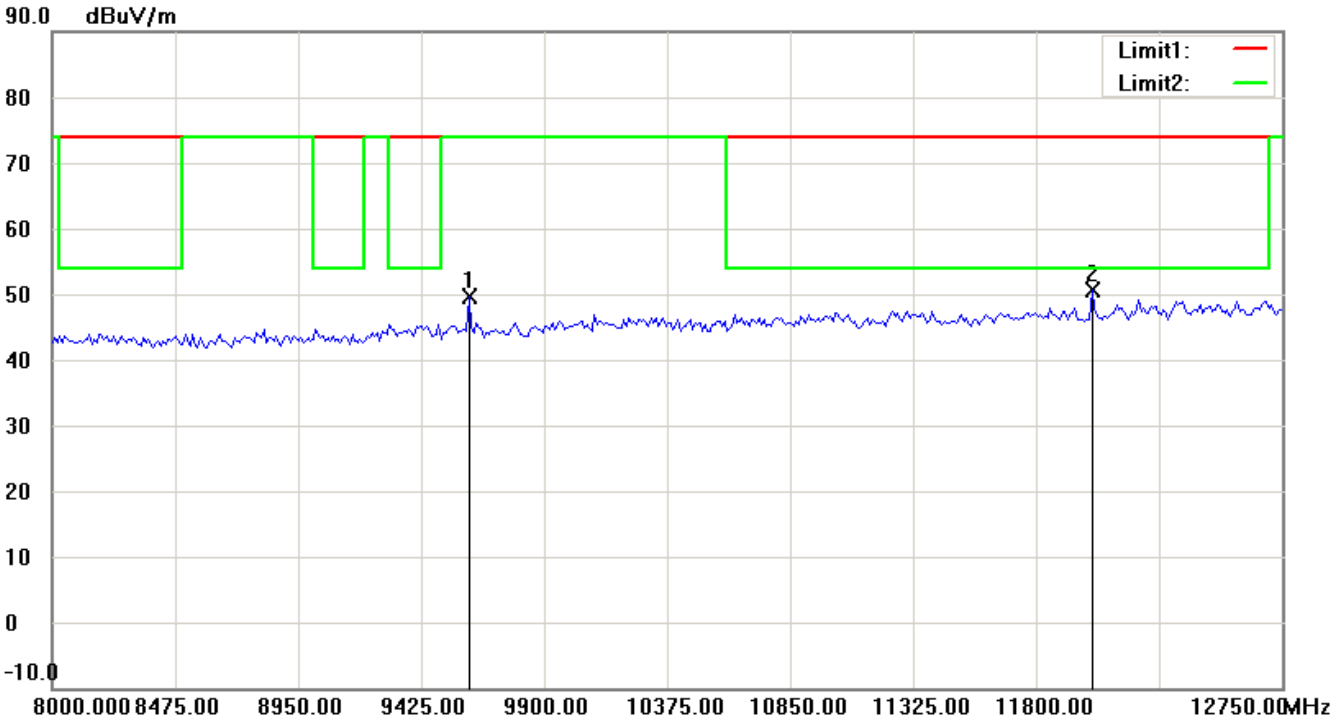


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

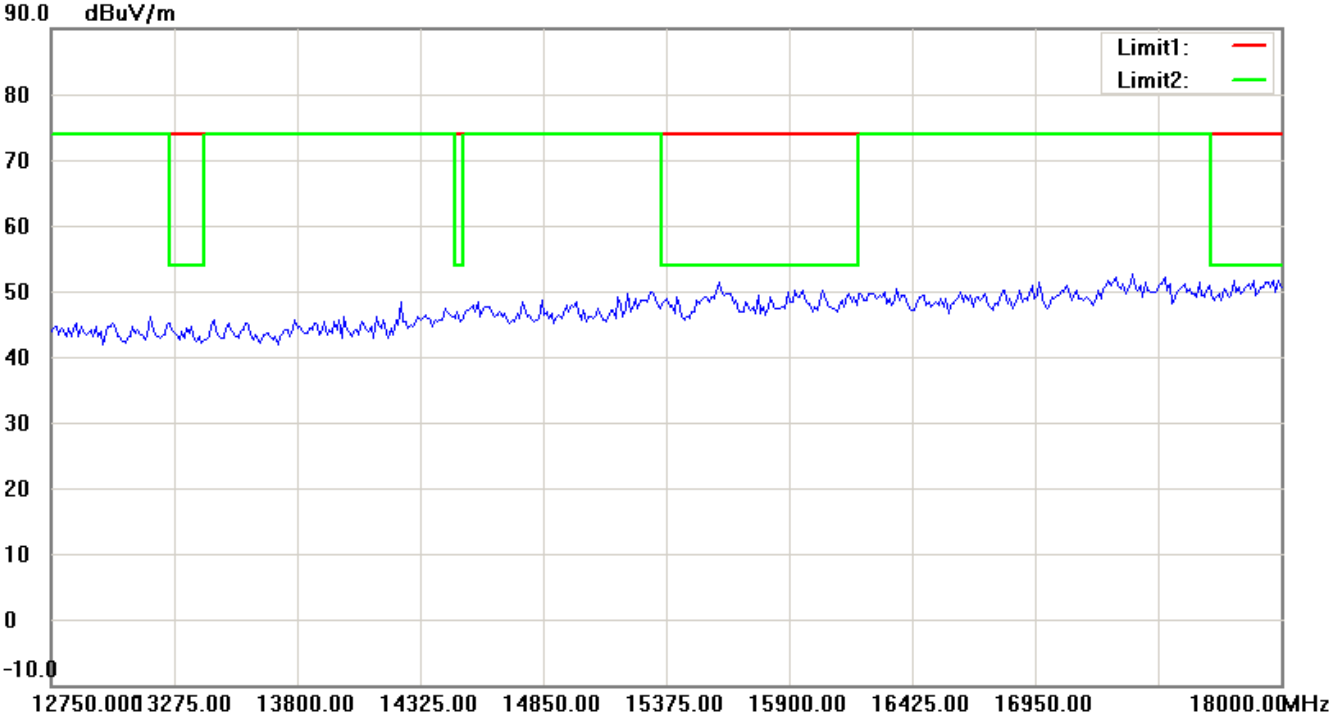


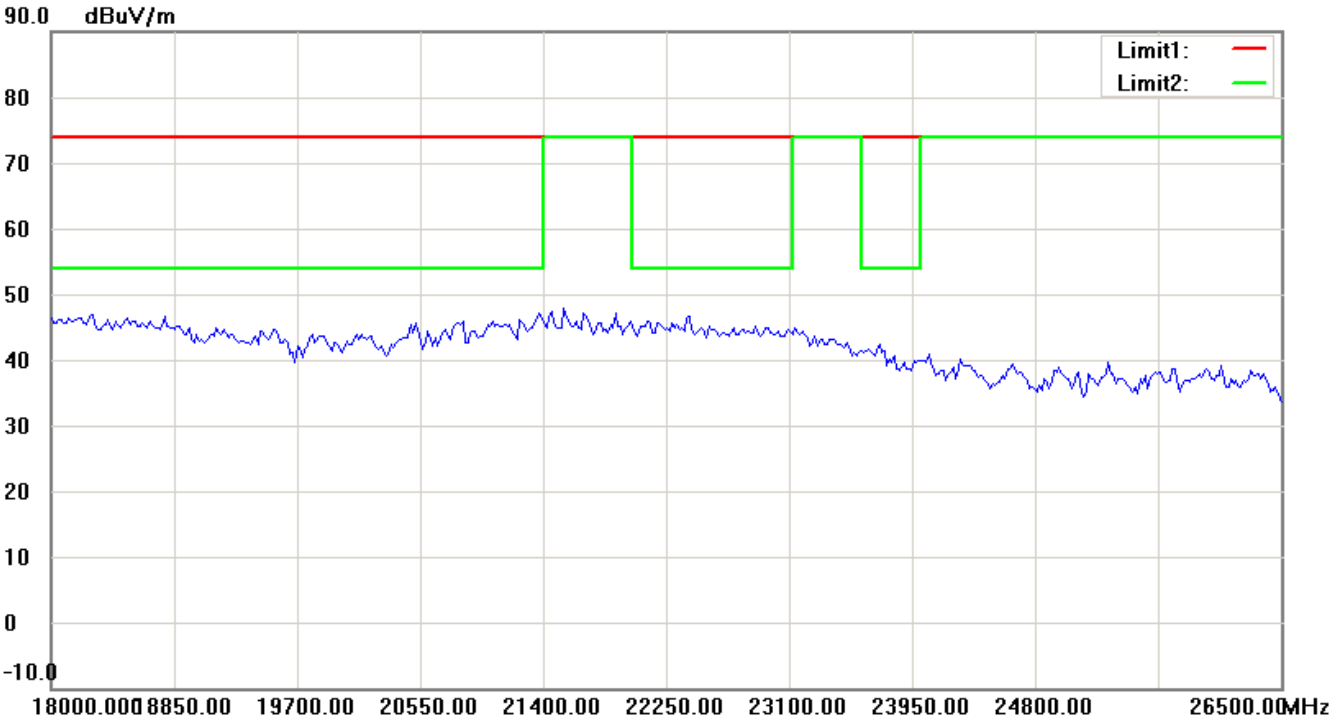


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



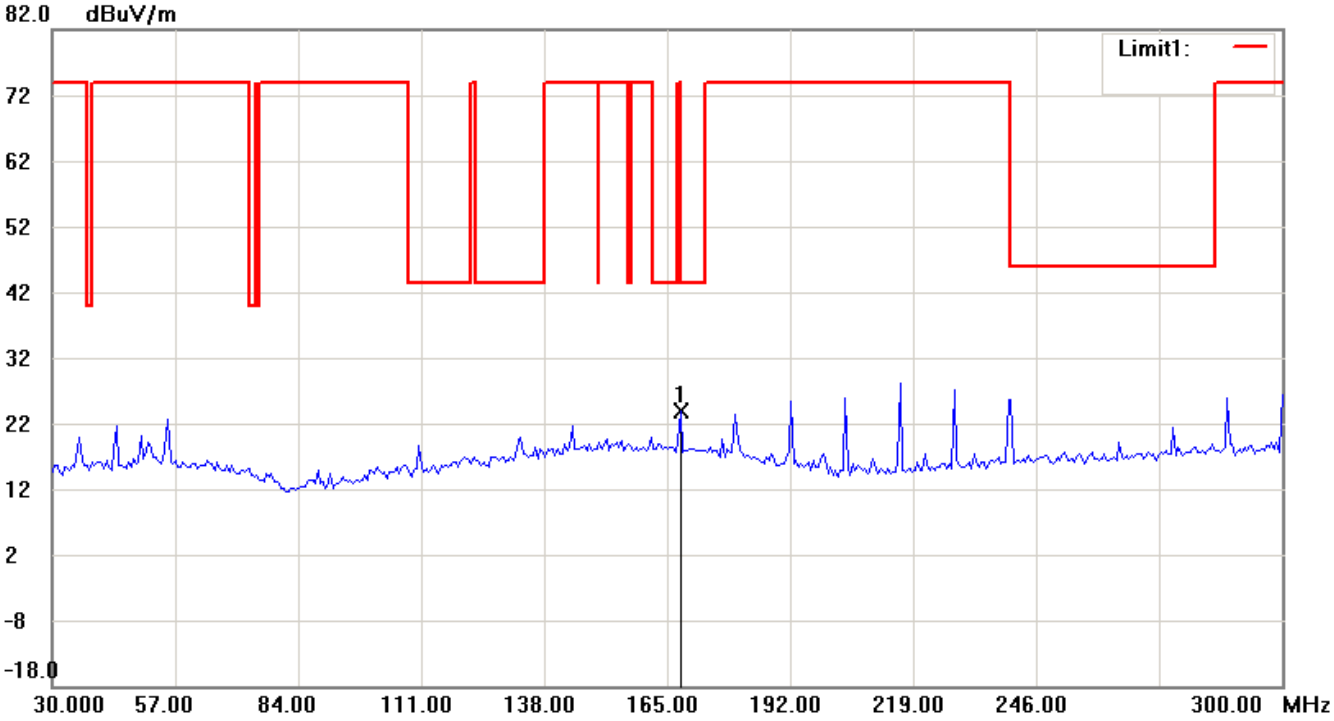


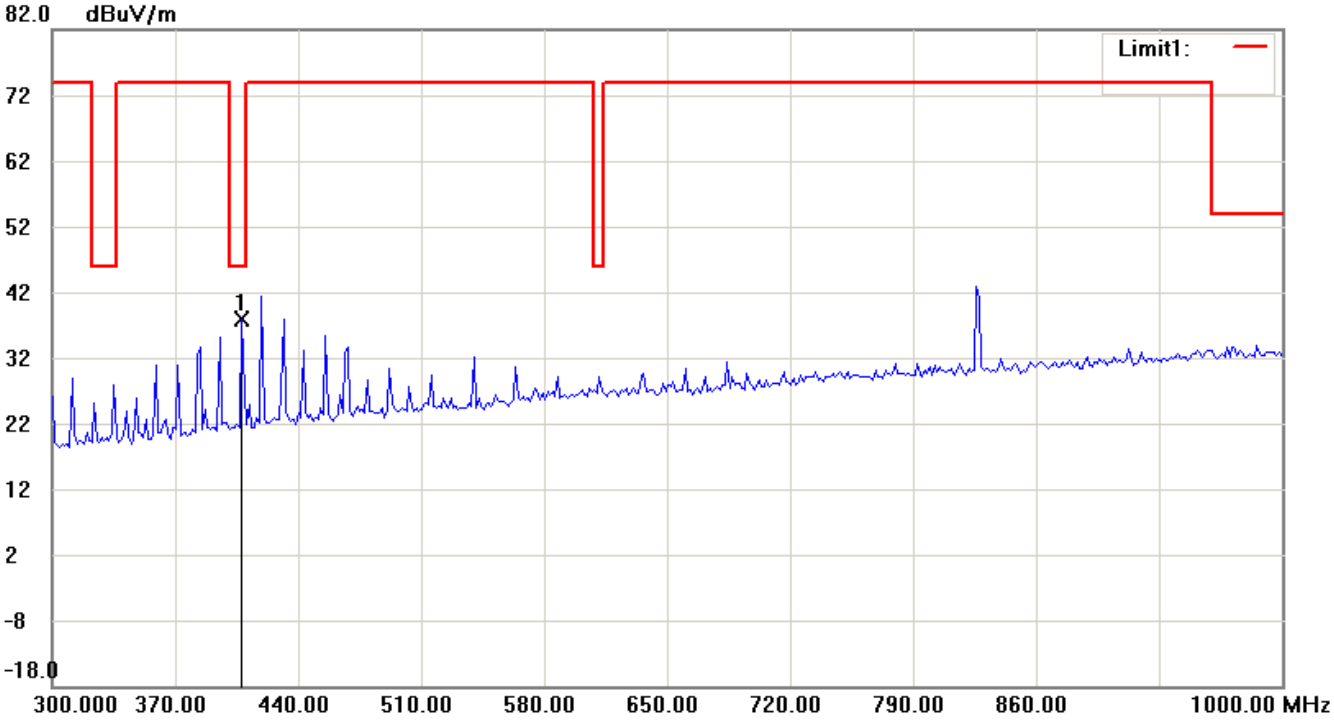
Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

Antenna Polarization V



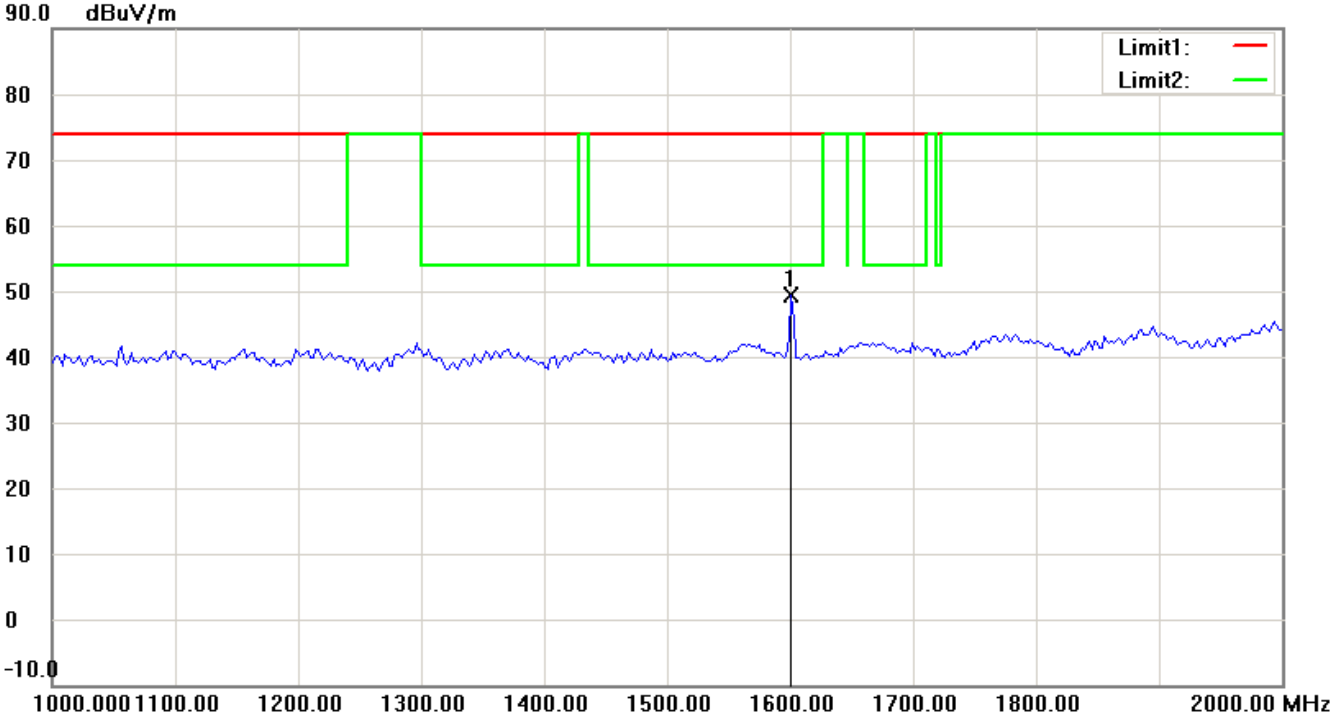


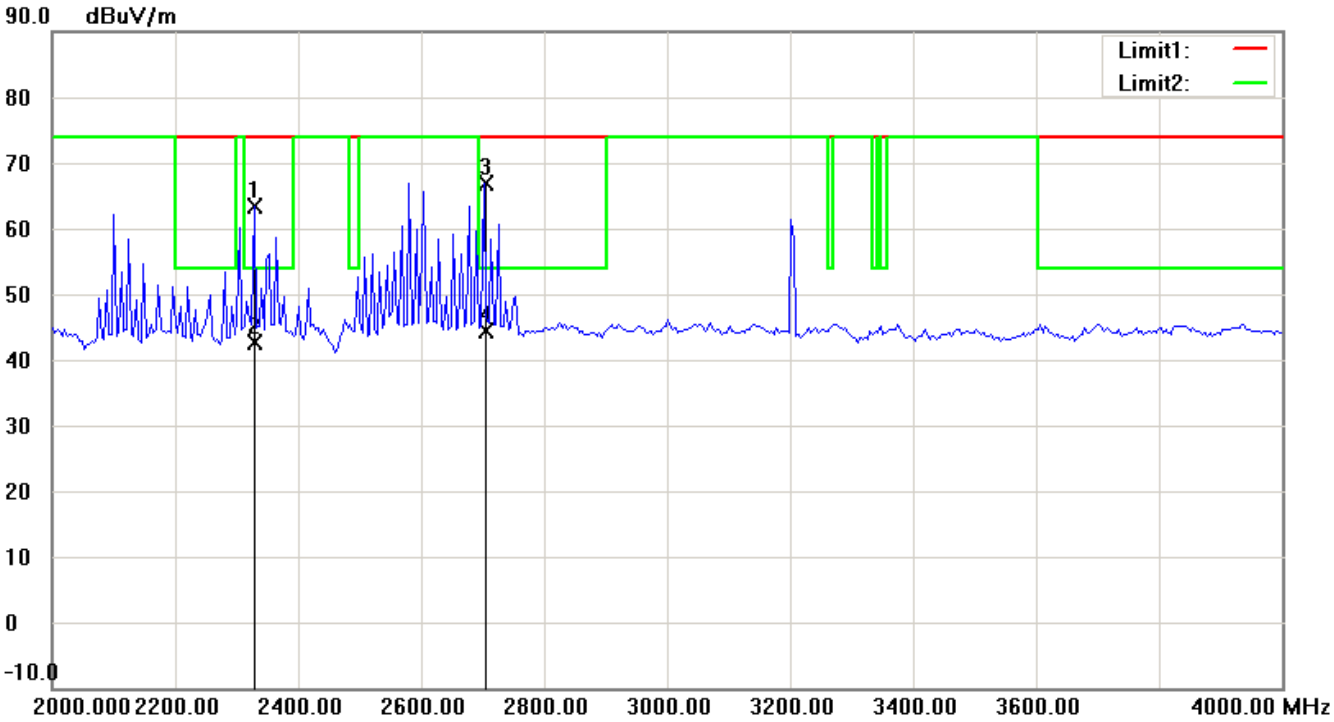
Up Line: Peak Limit Line Down Line: Ave Limit Line

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

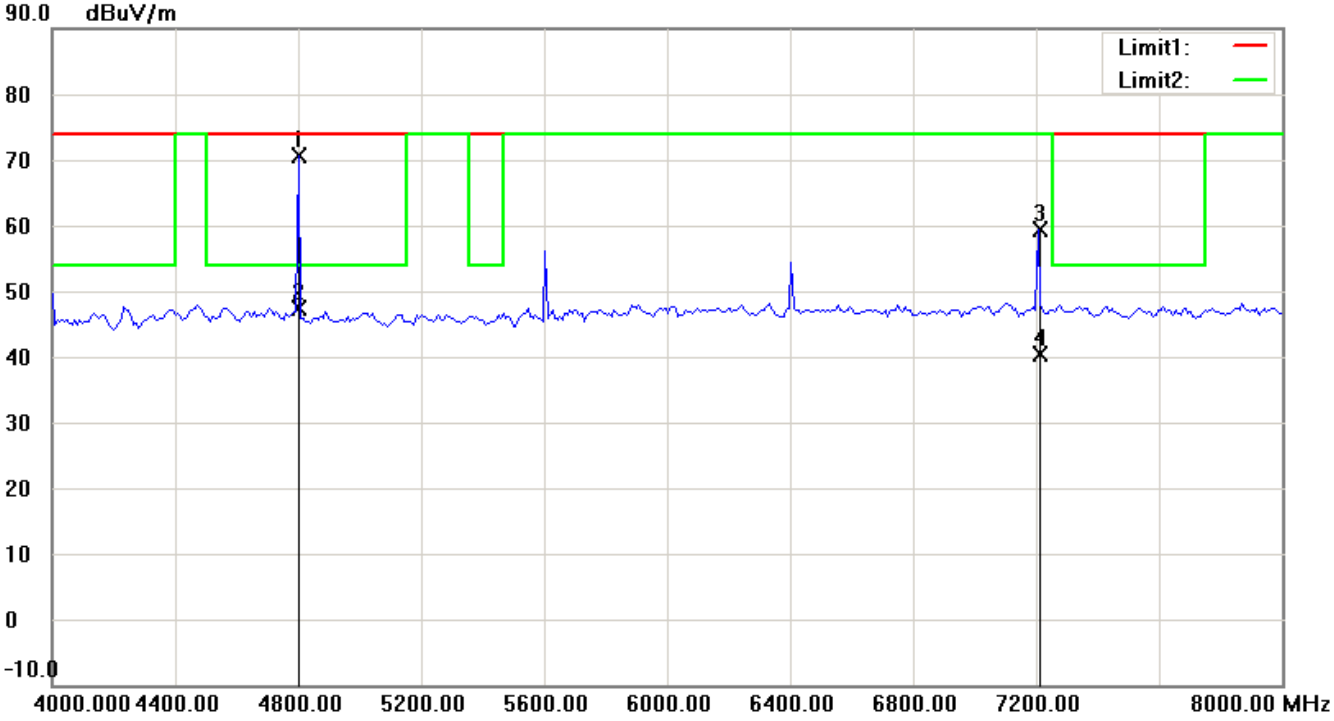


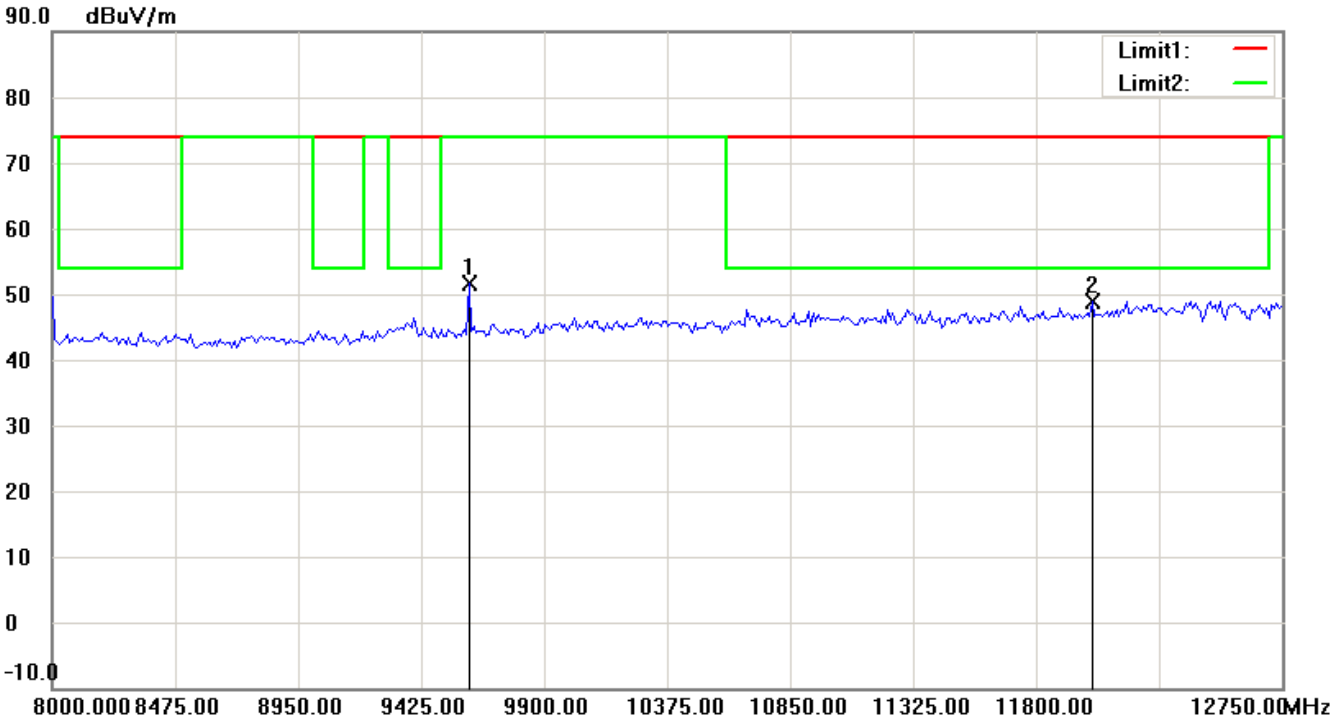


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

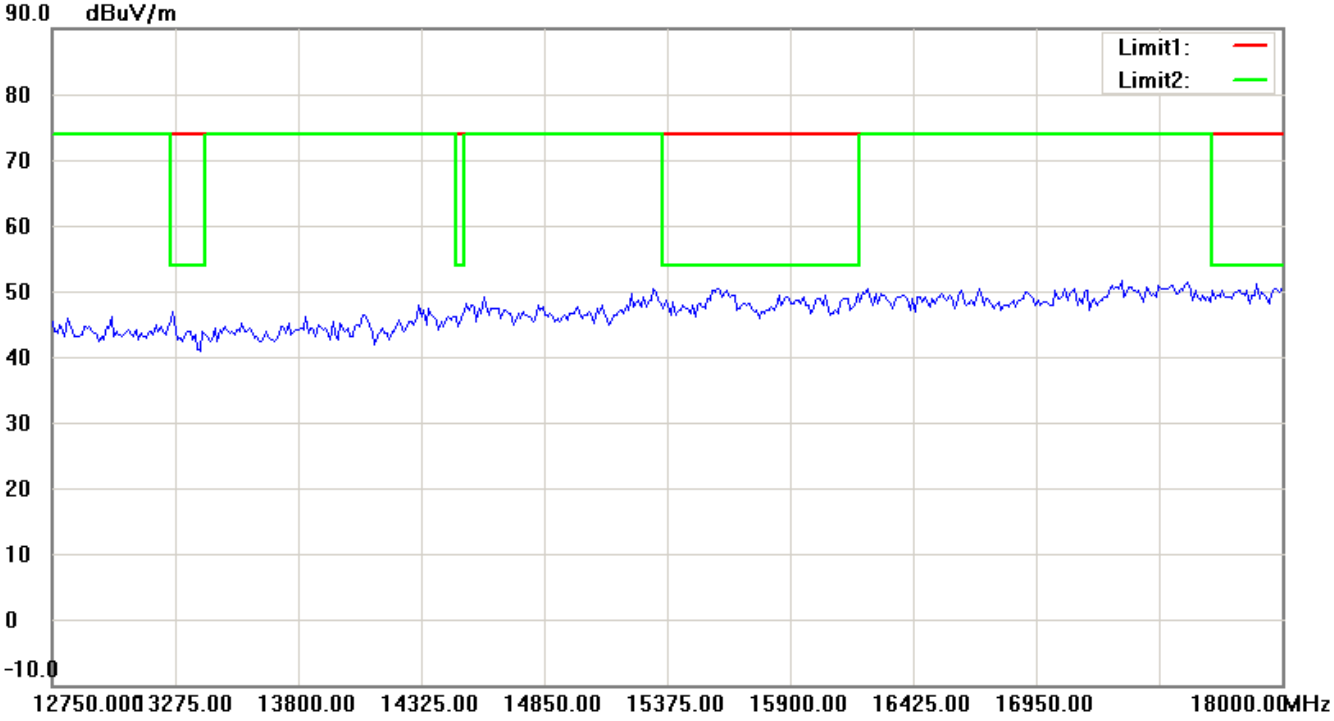


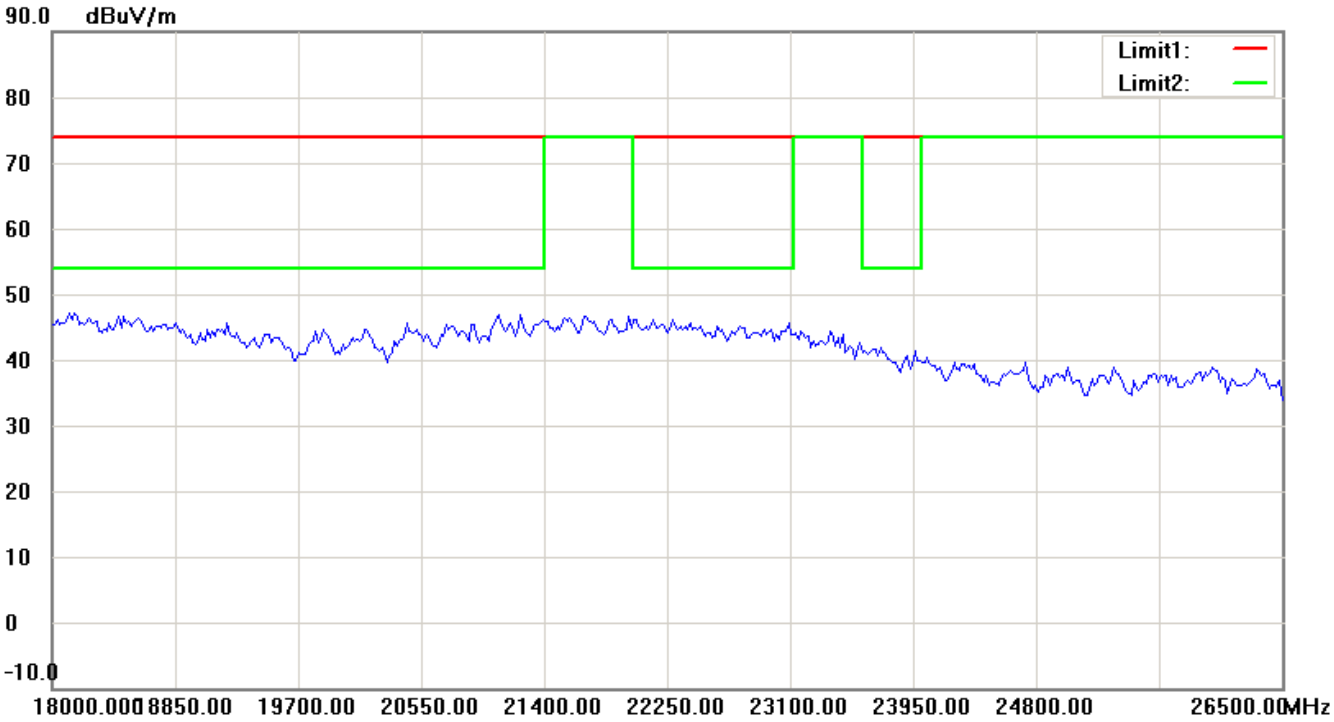


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

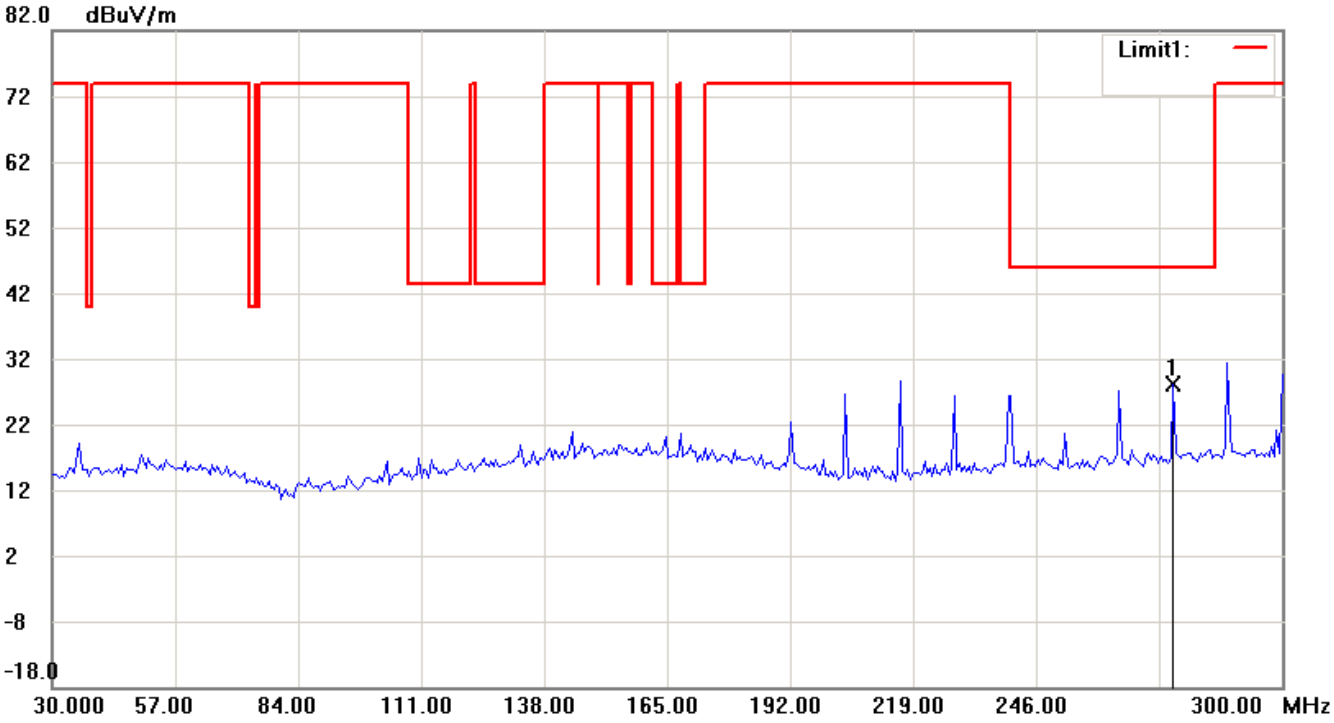


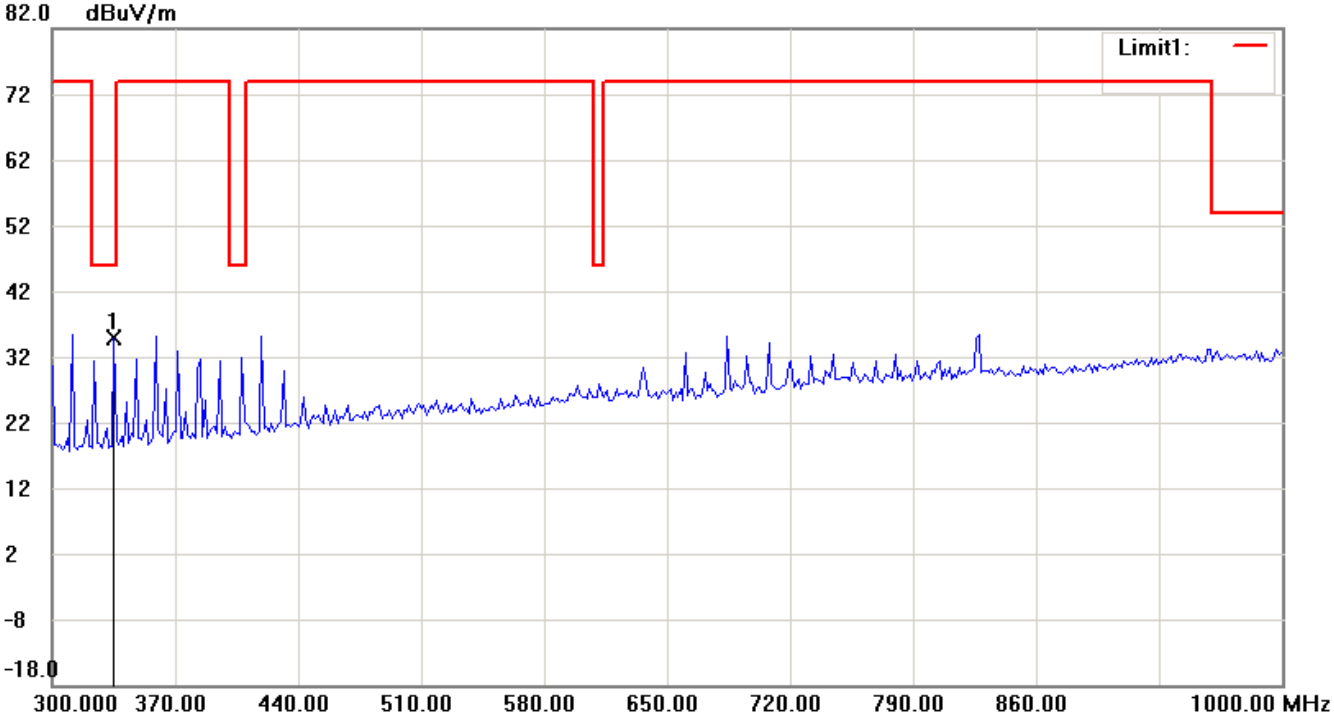


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15
TX-2441 MHz
Antenna Polarization H

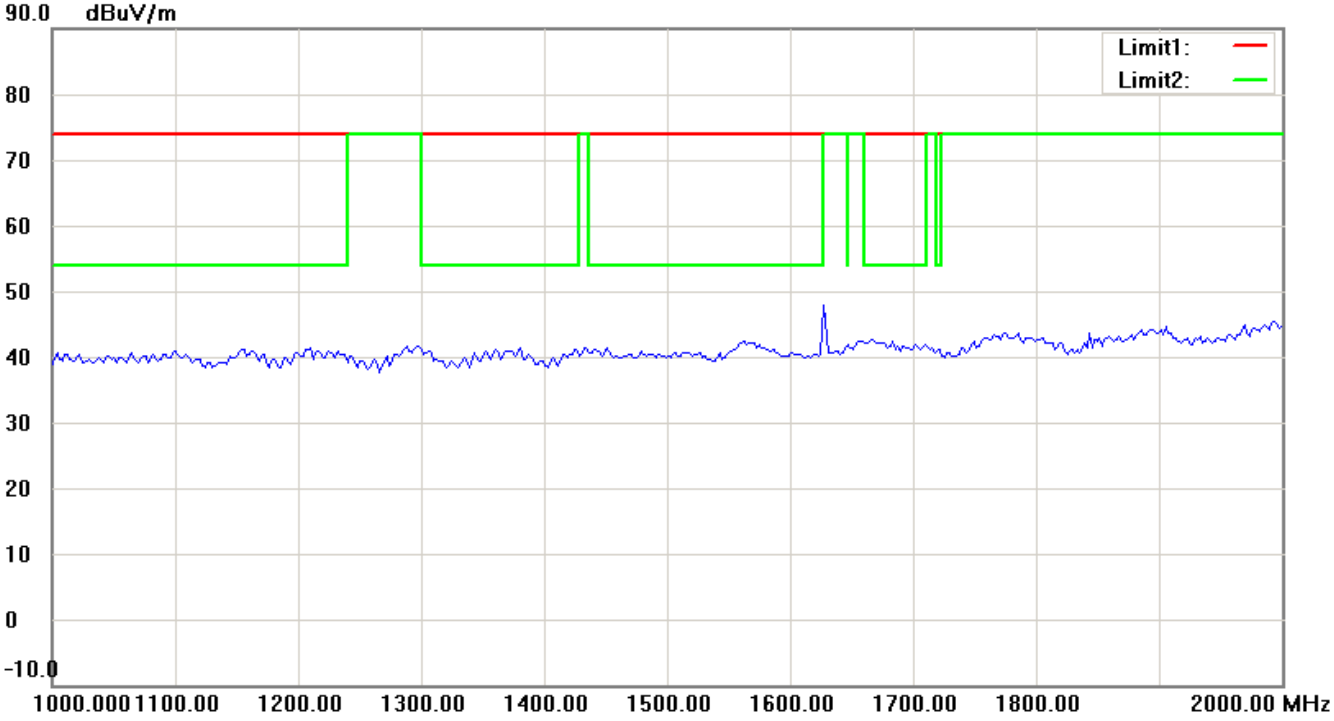


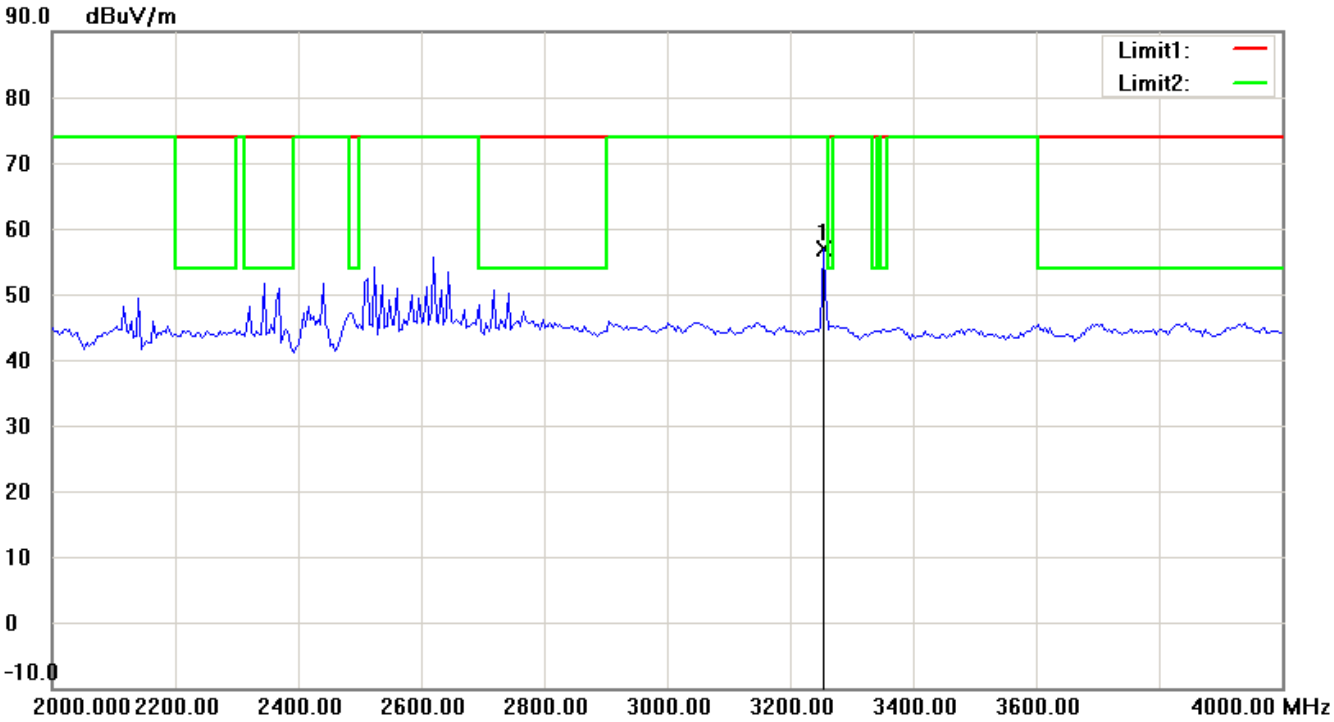


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

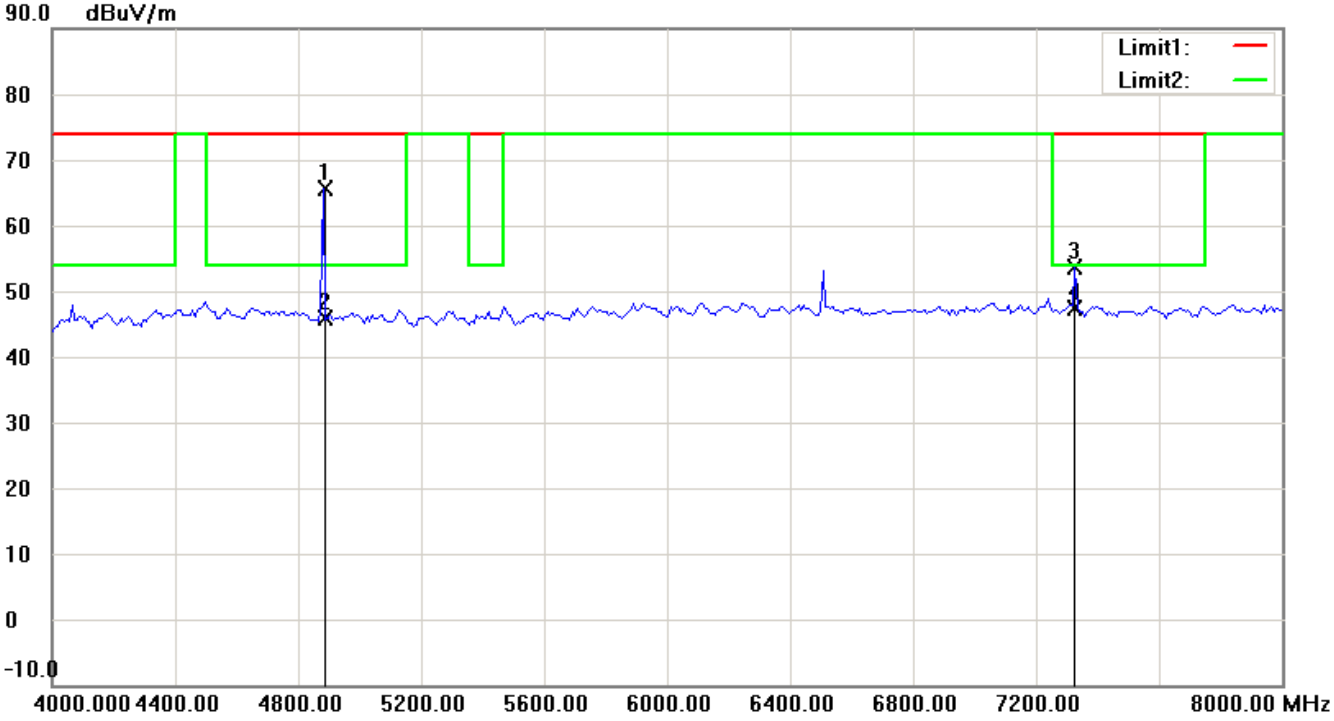


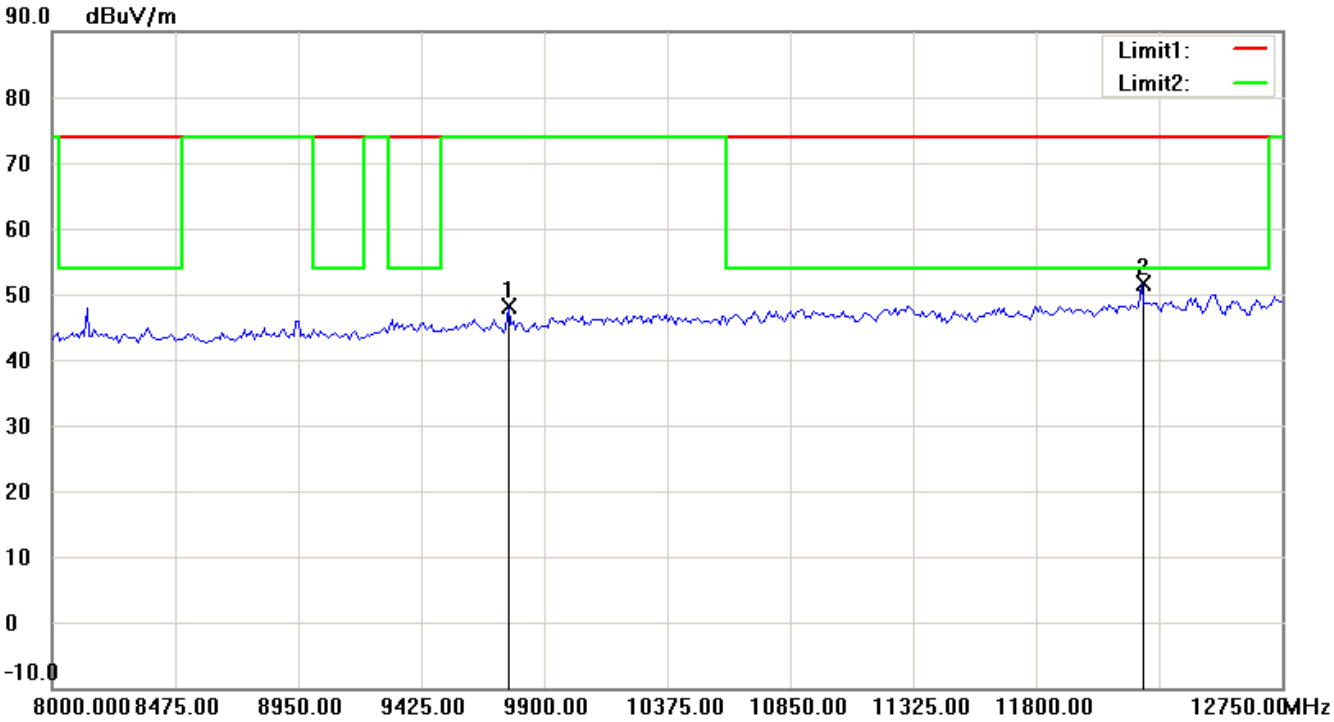


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

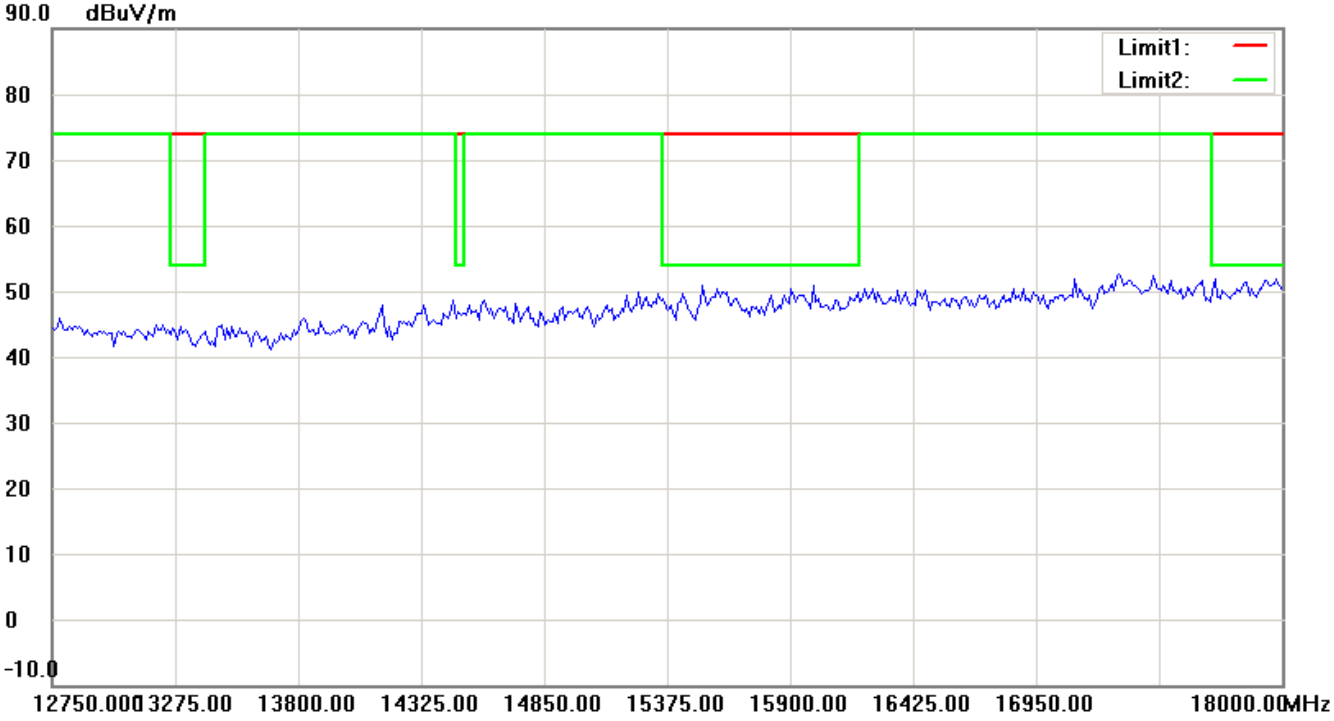


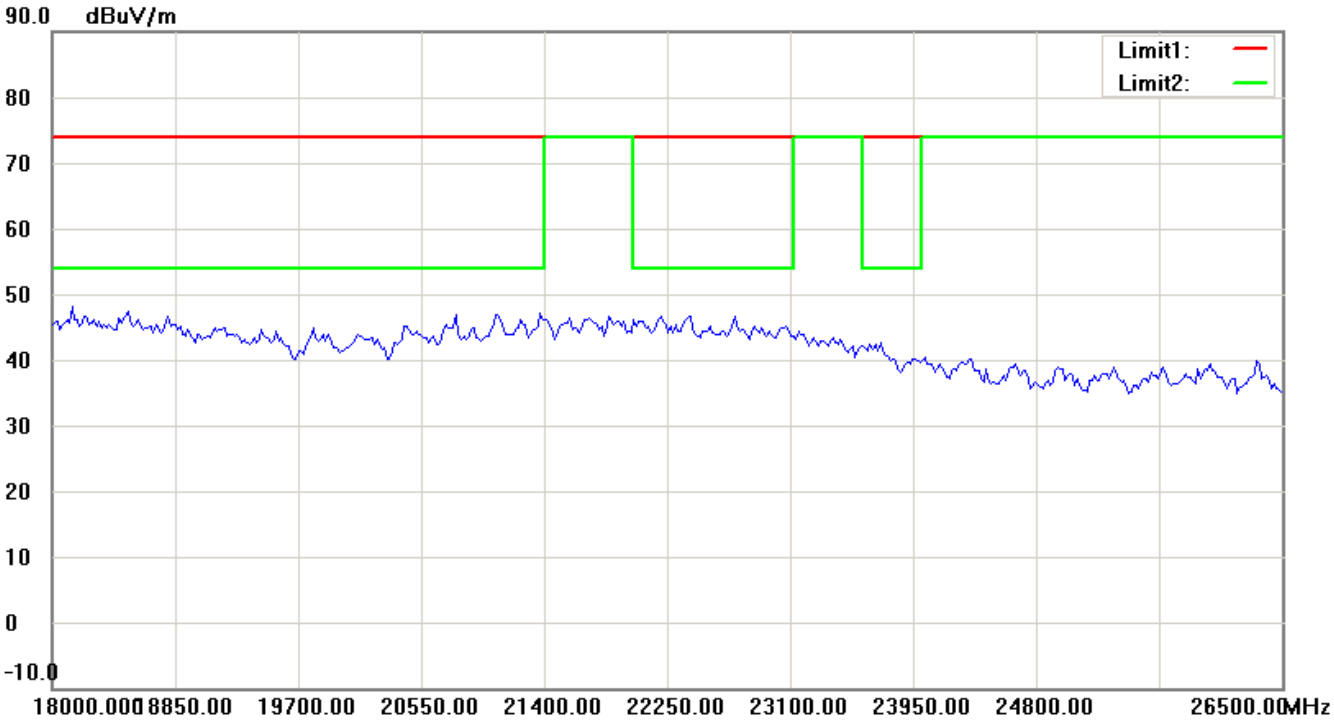


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15



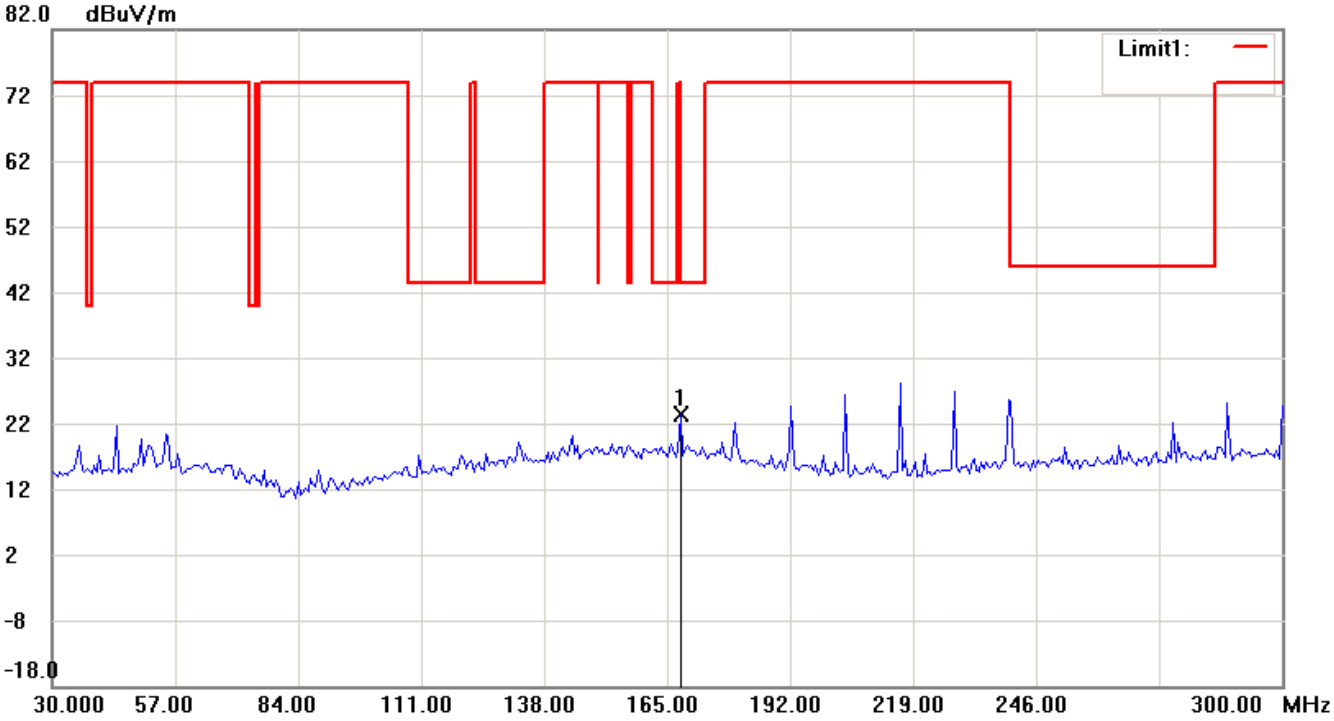


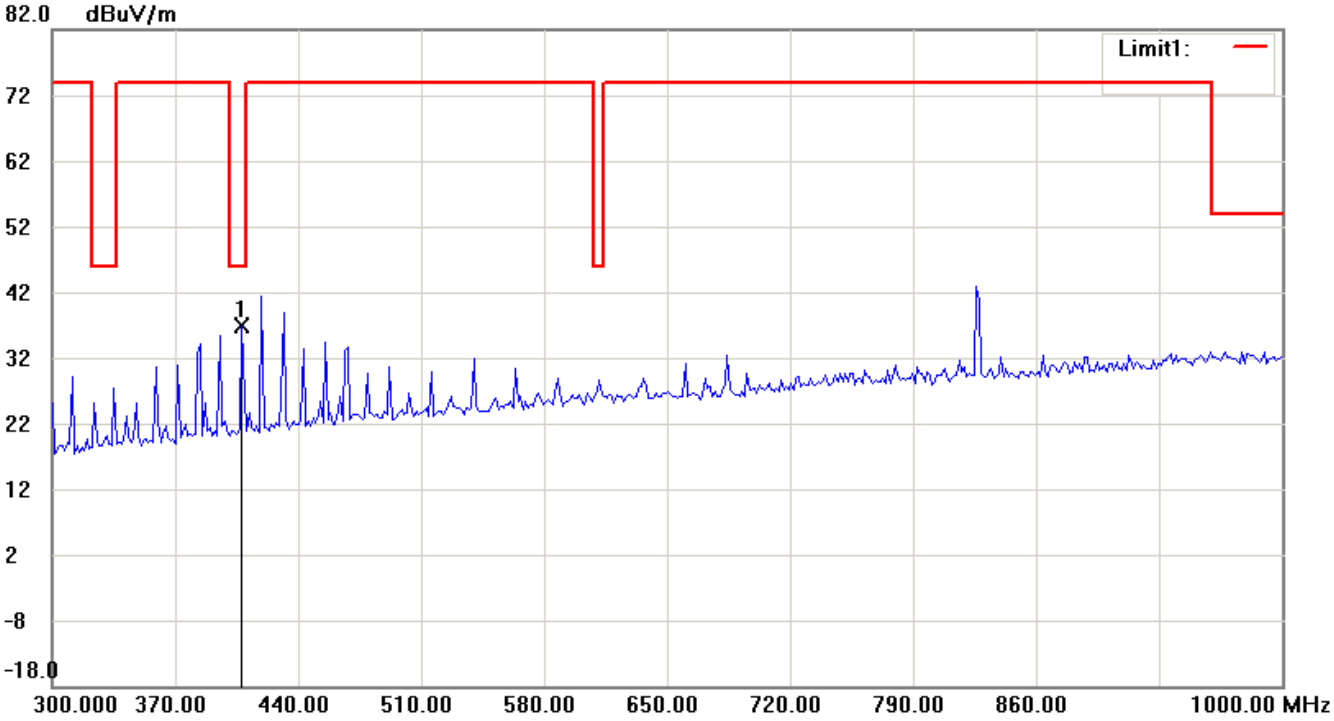
Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

Antenna Polarization V



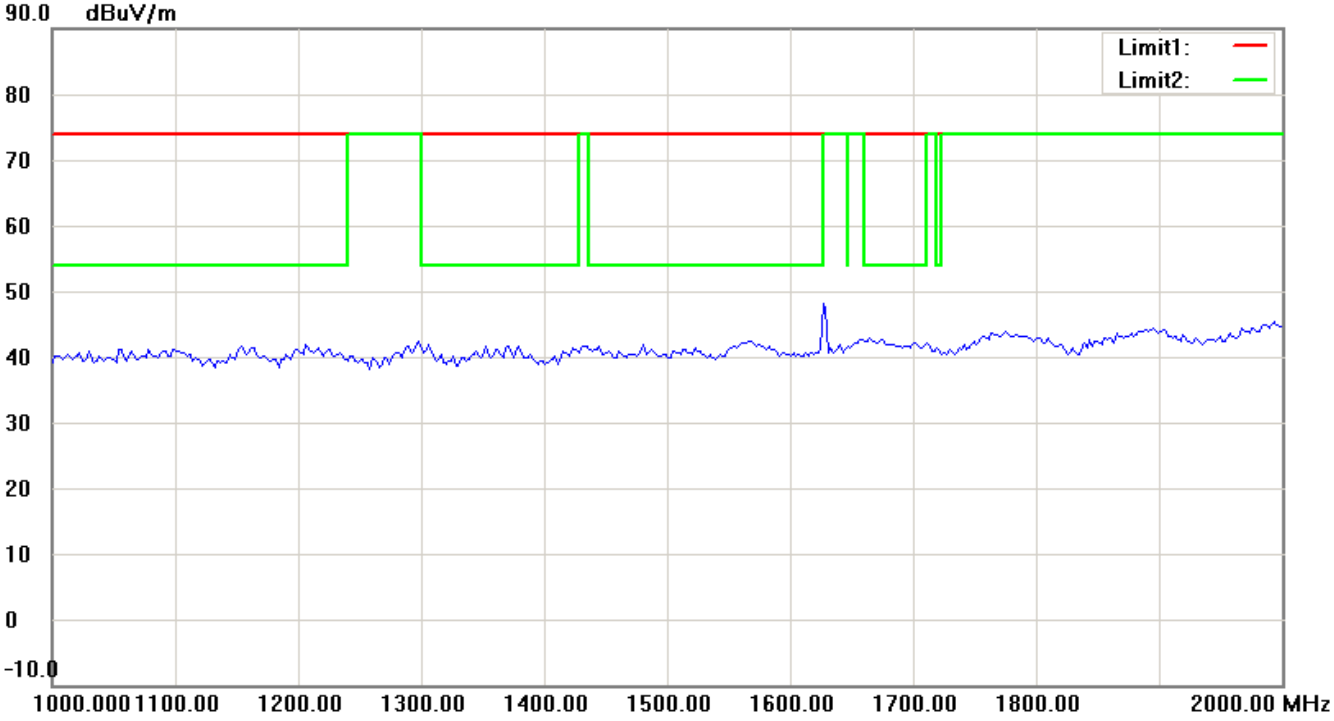


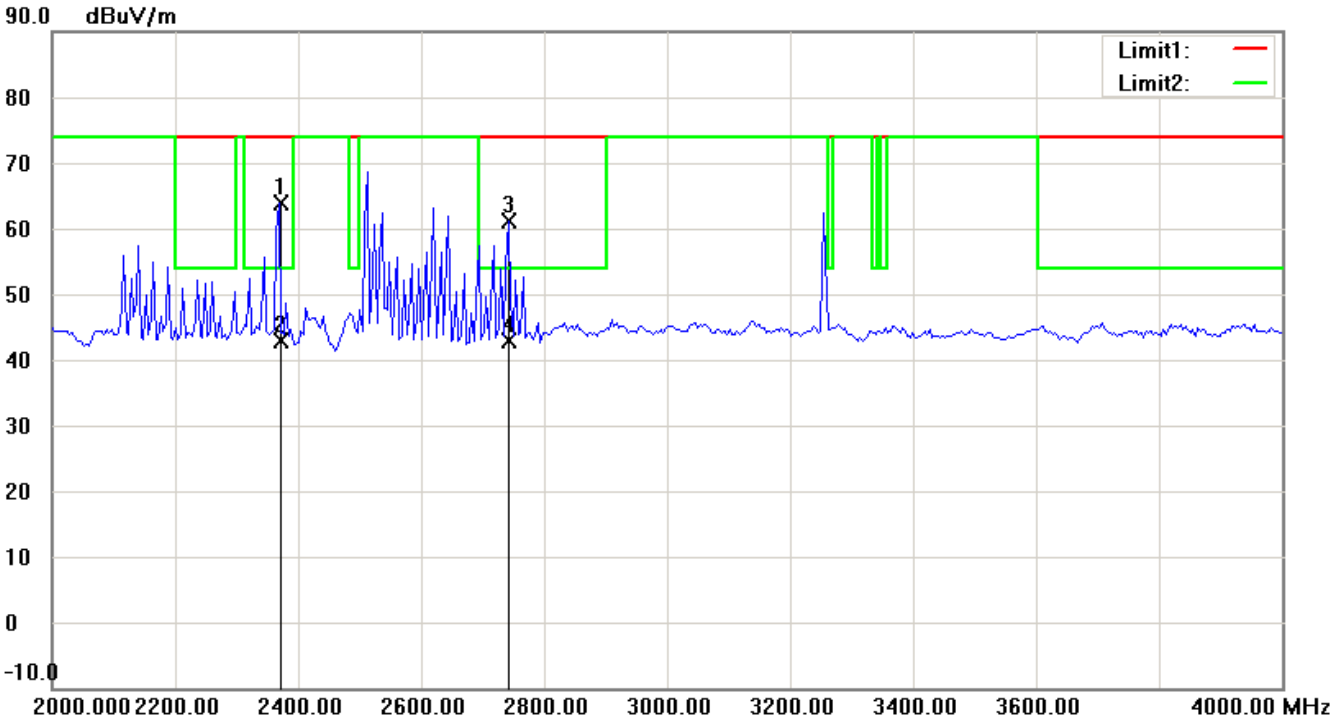
Up Line: Peak Limit Line Down Line: Ave Limit Line

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: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15





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

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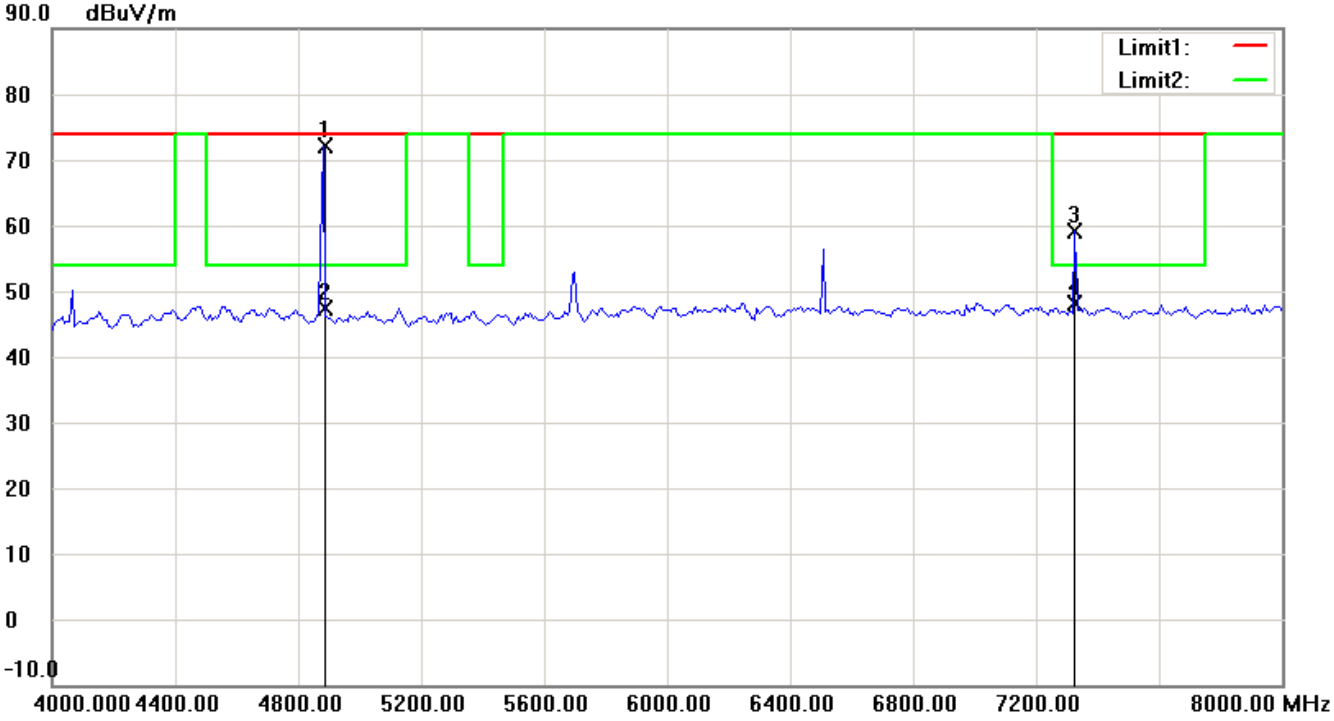
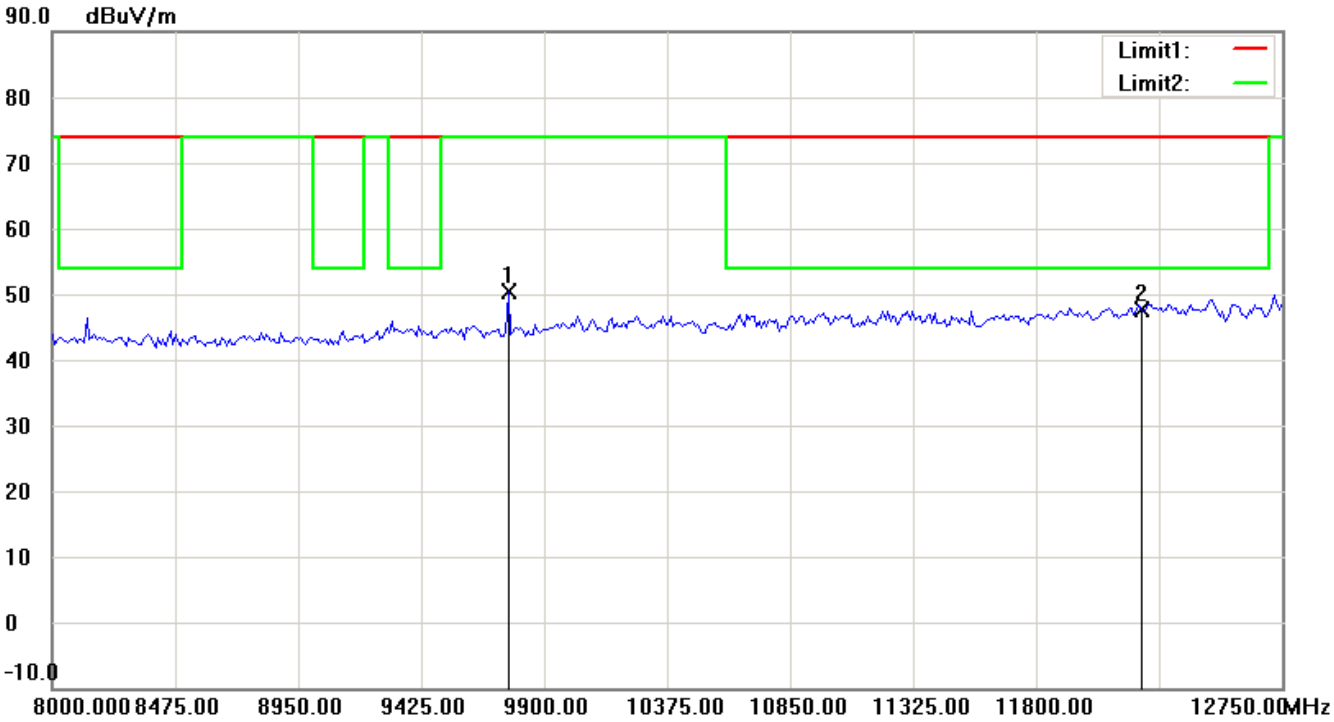
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15





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

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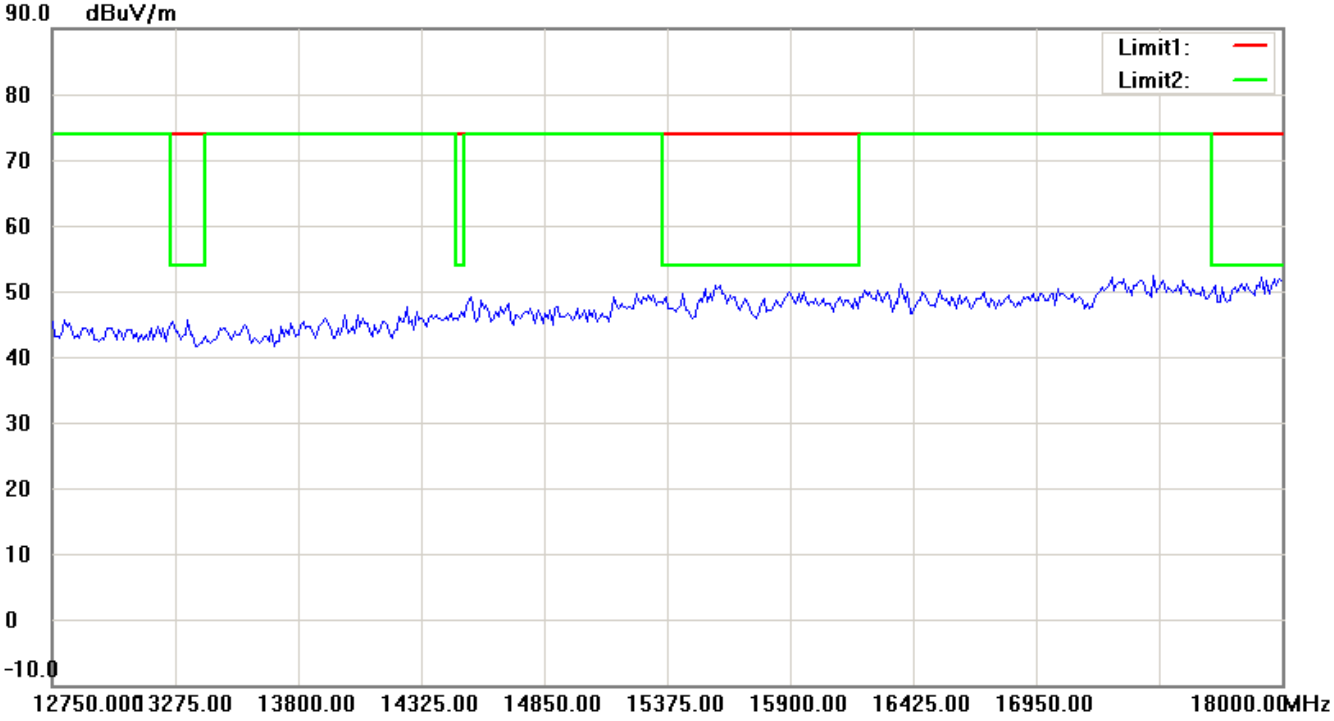
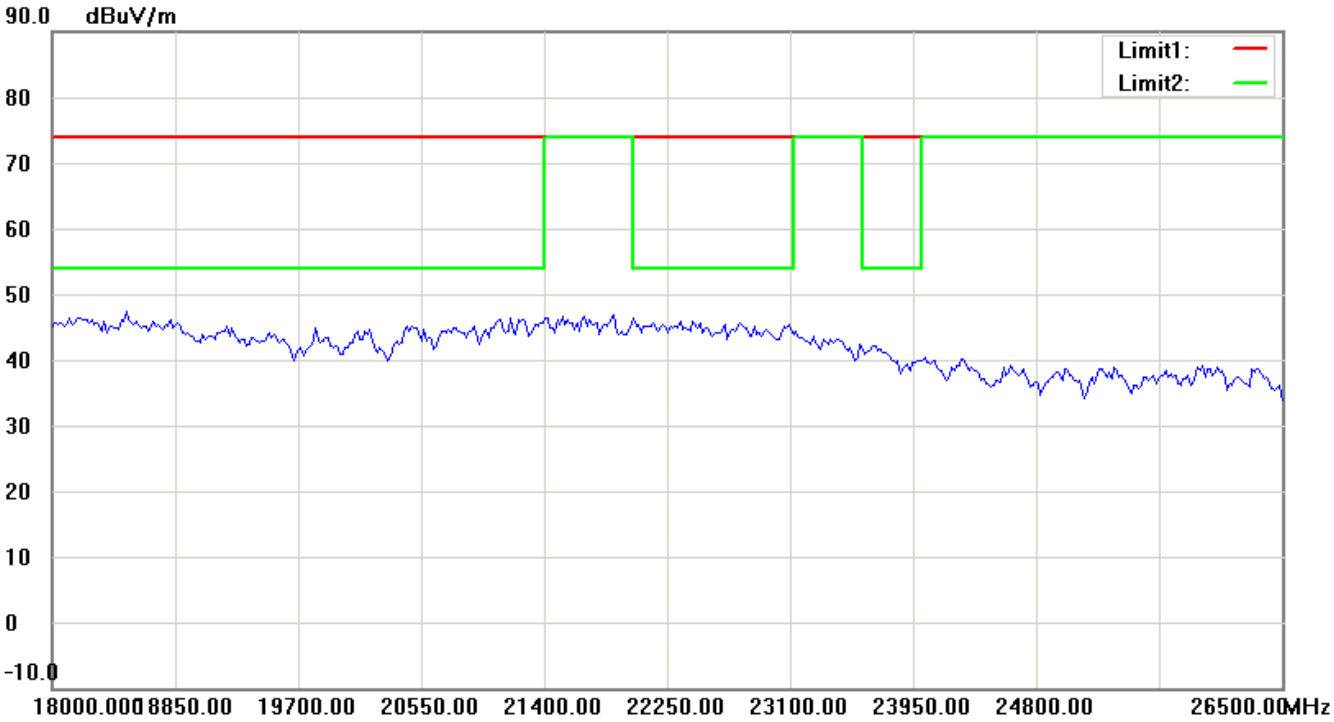
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15





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

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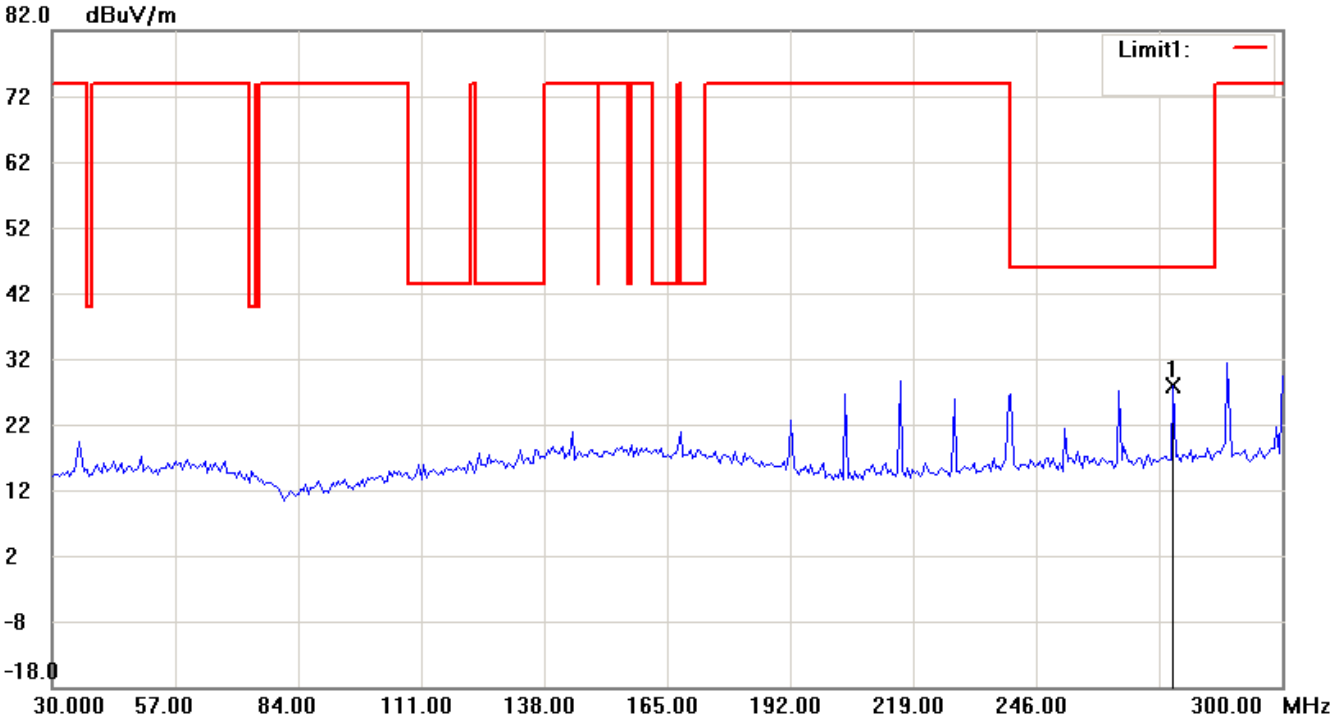
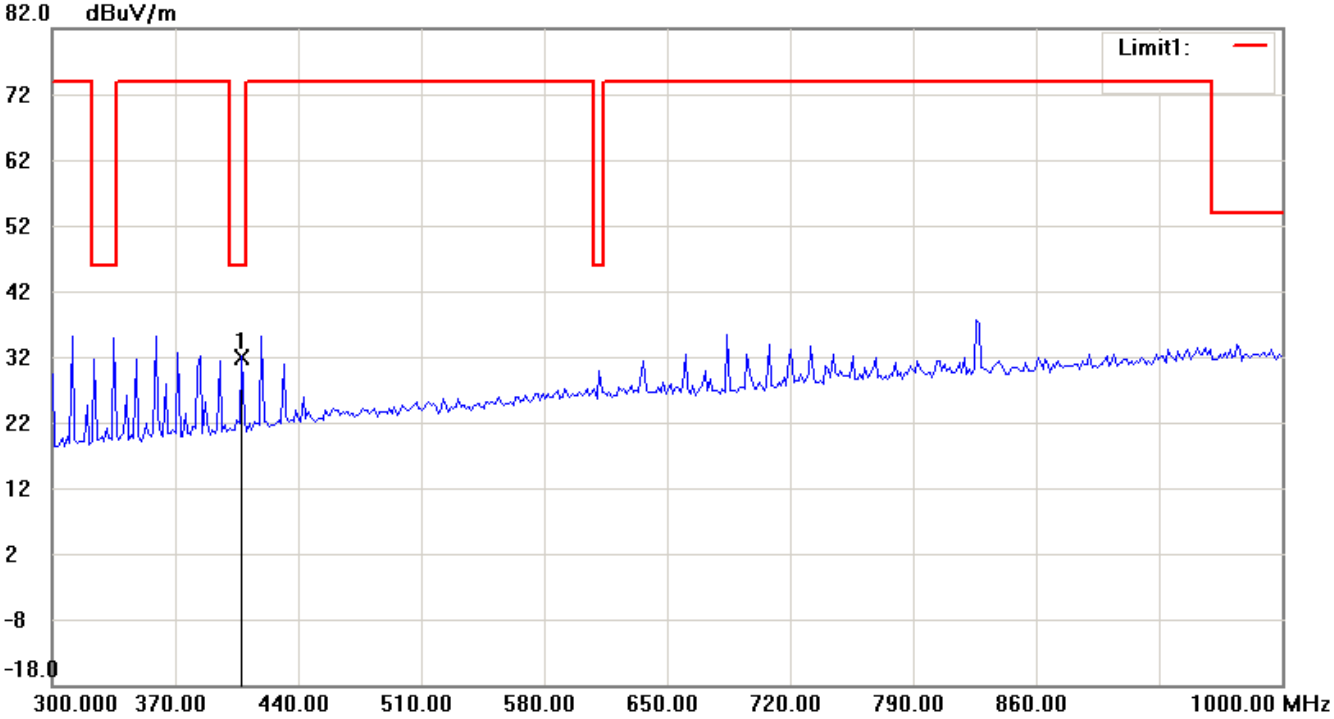
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15
TX-2479 MHz
Antenna Polarization H





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

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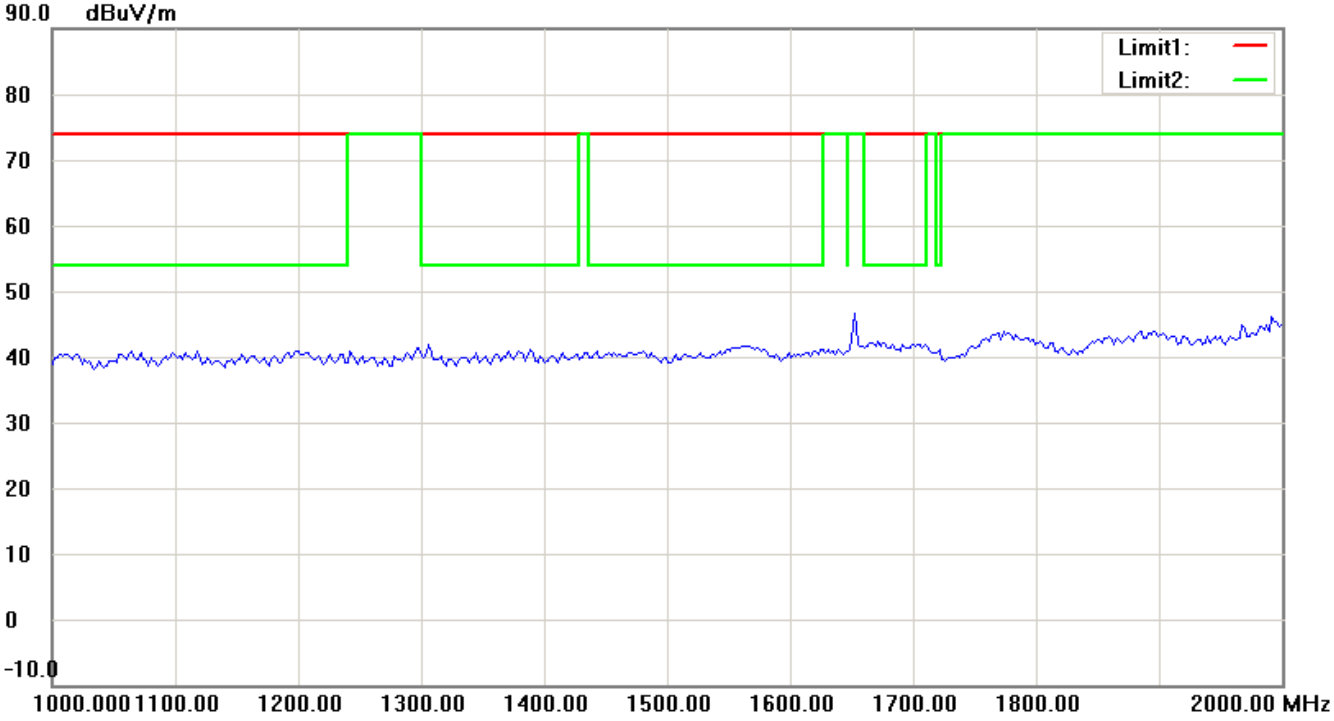
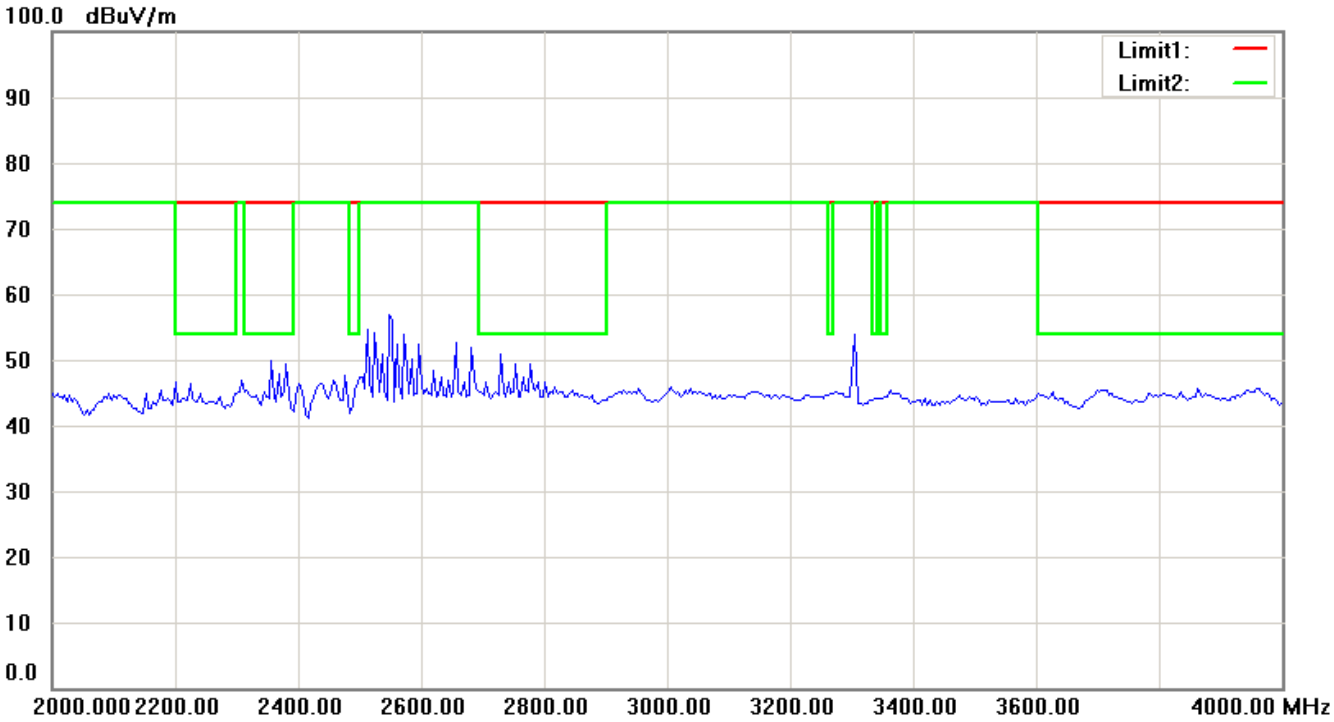
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15





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

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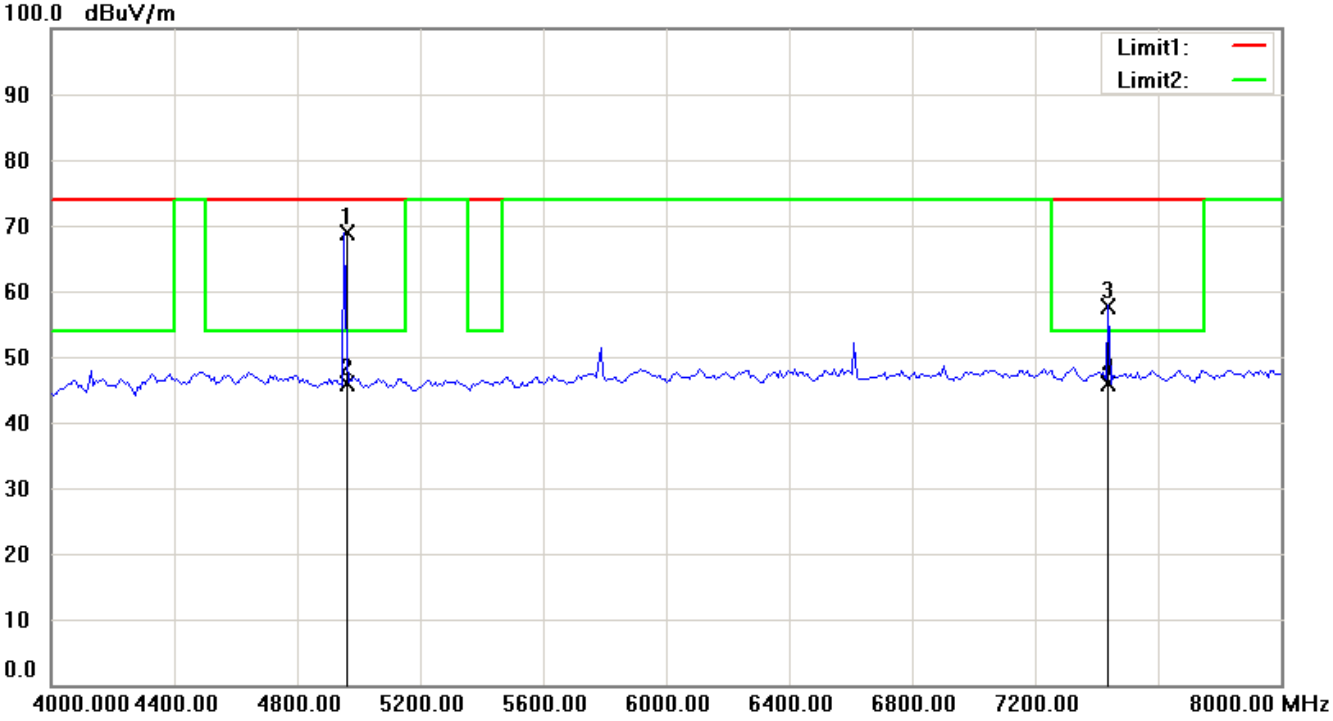
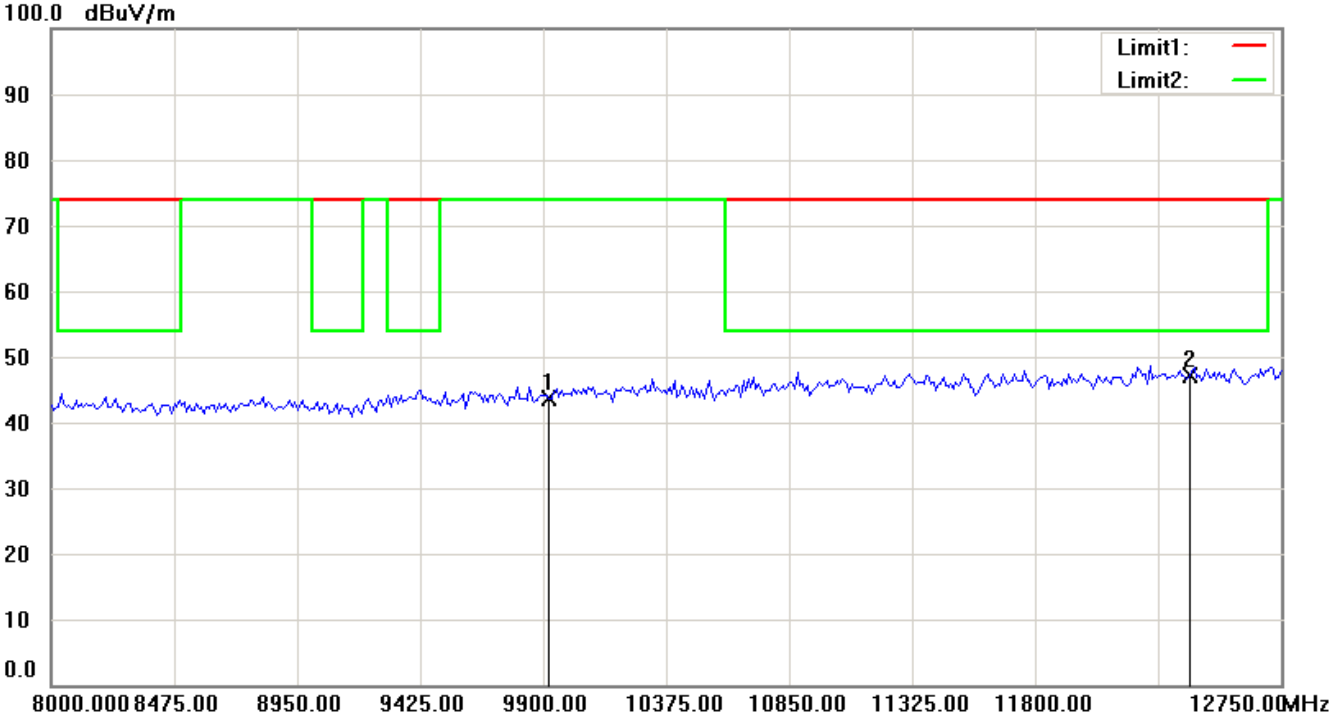
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15





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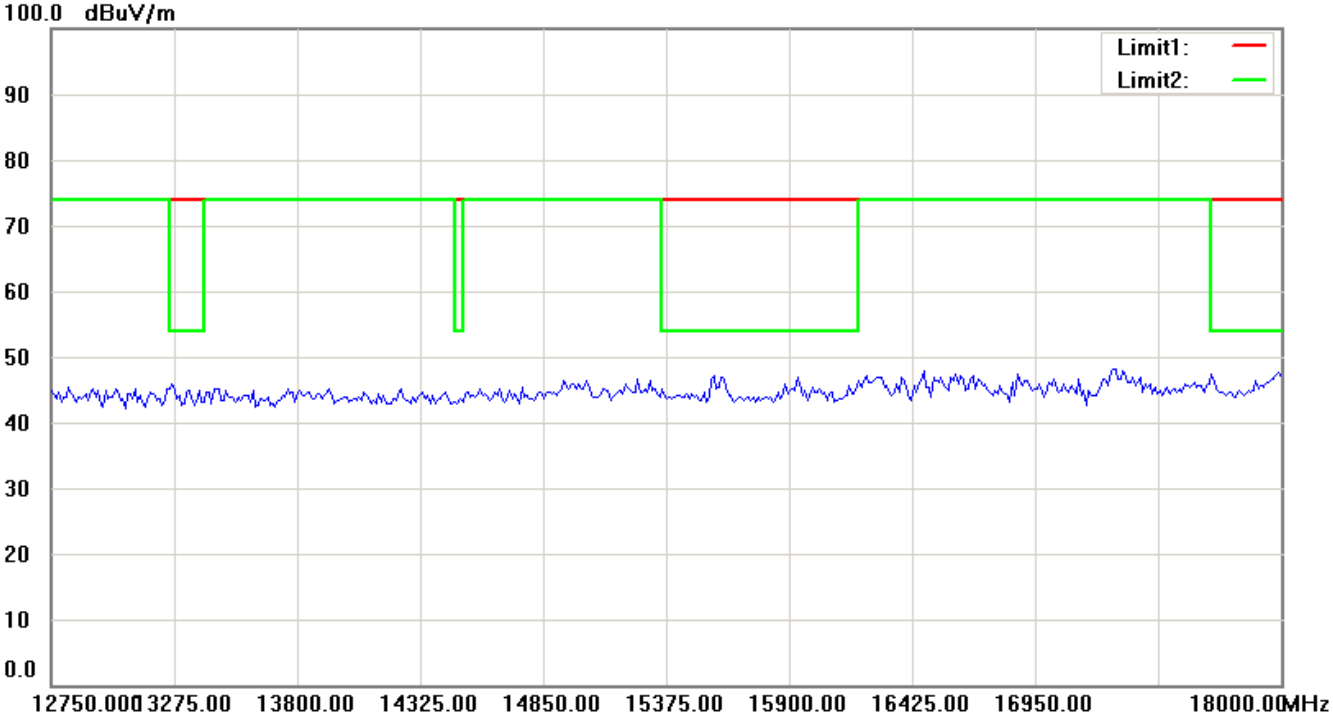
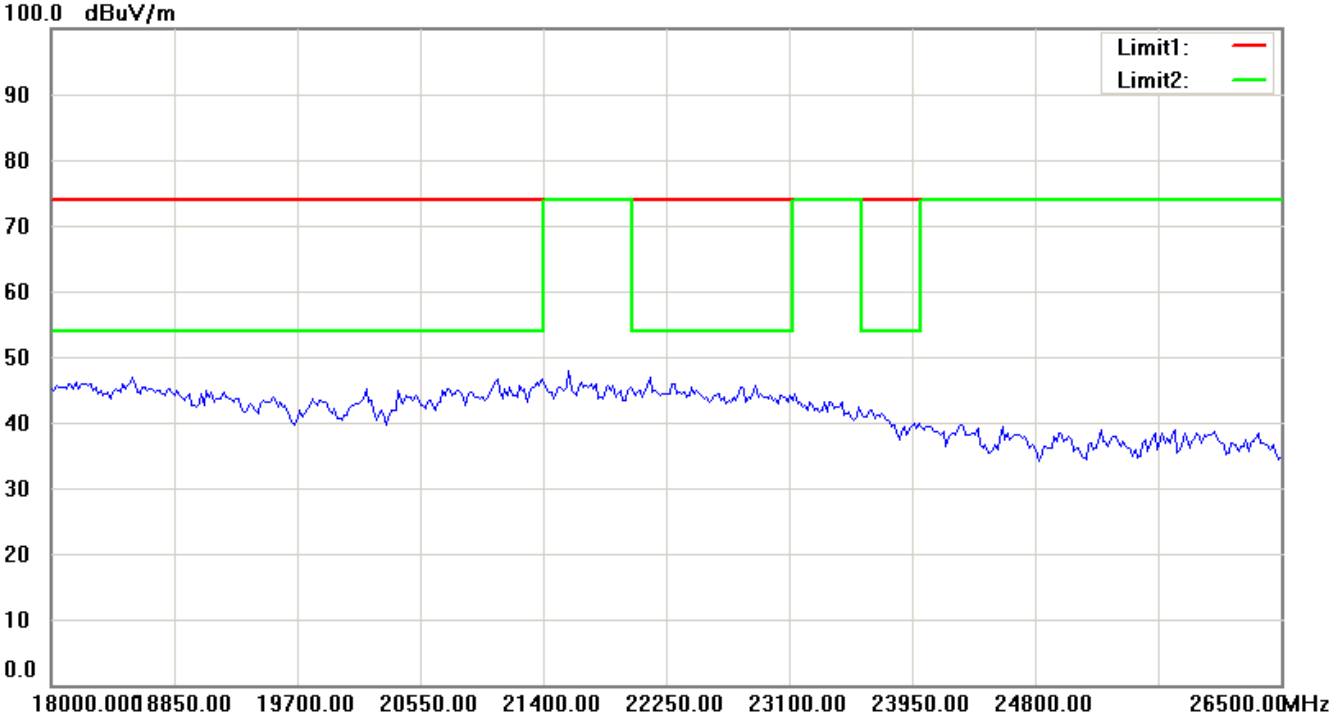
FCC ID: VEJTT-FHM2P4G-A15





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

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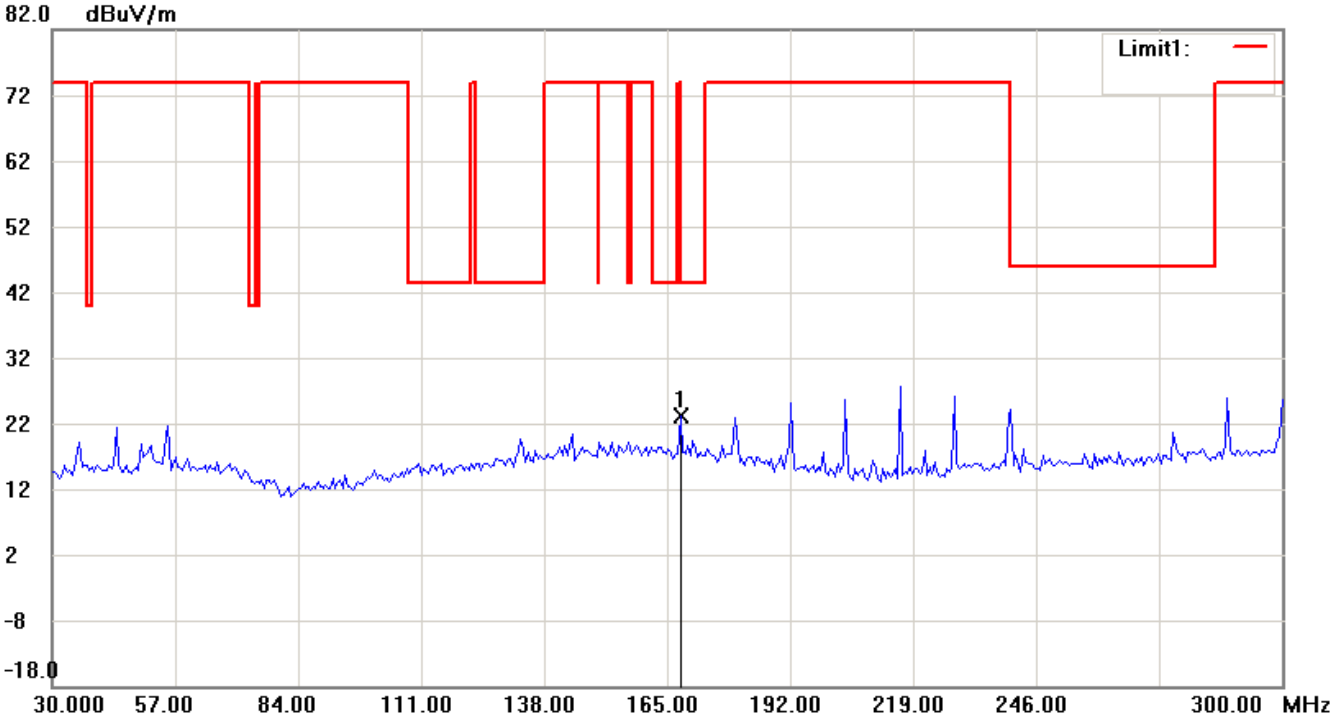
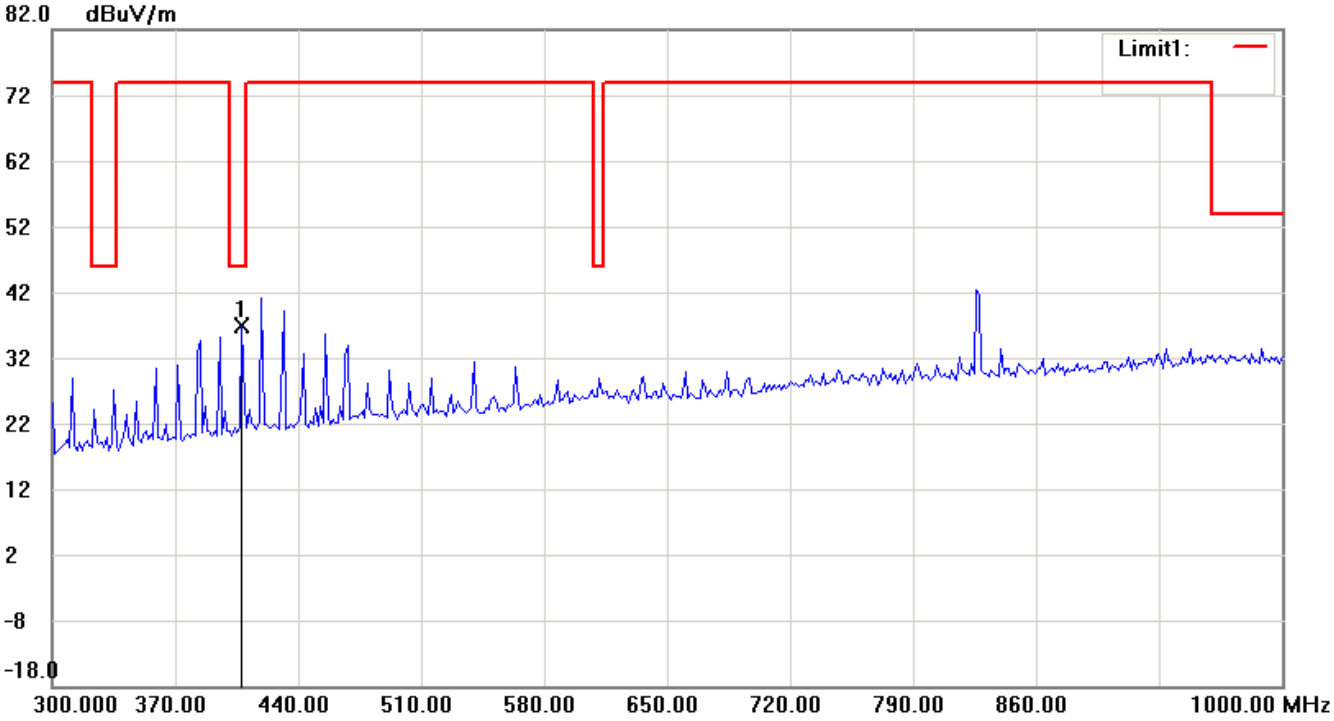
Registration number: W6M21106-11601-C-1
FCC ID: VEJTT-FHM2P4G-A15

Antenna Polarization V





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

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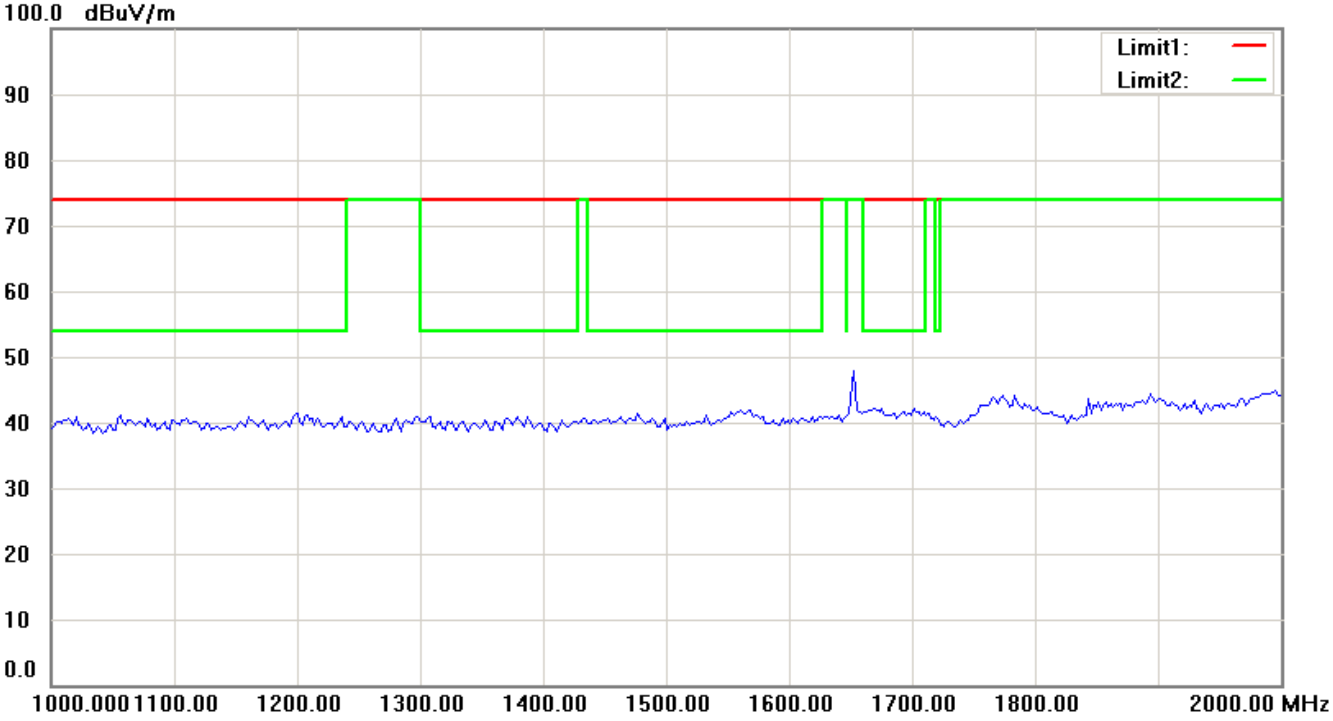
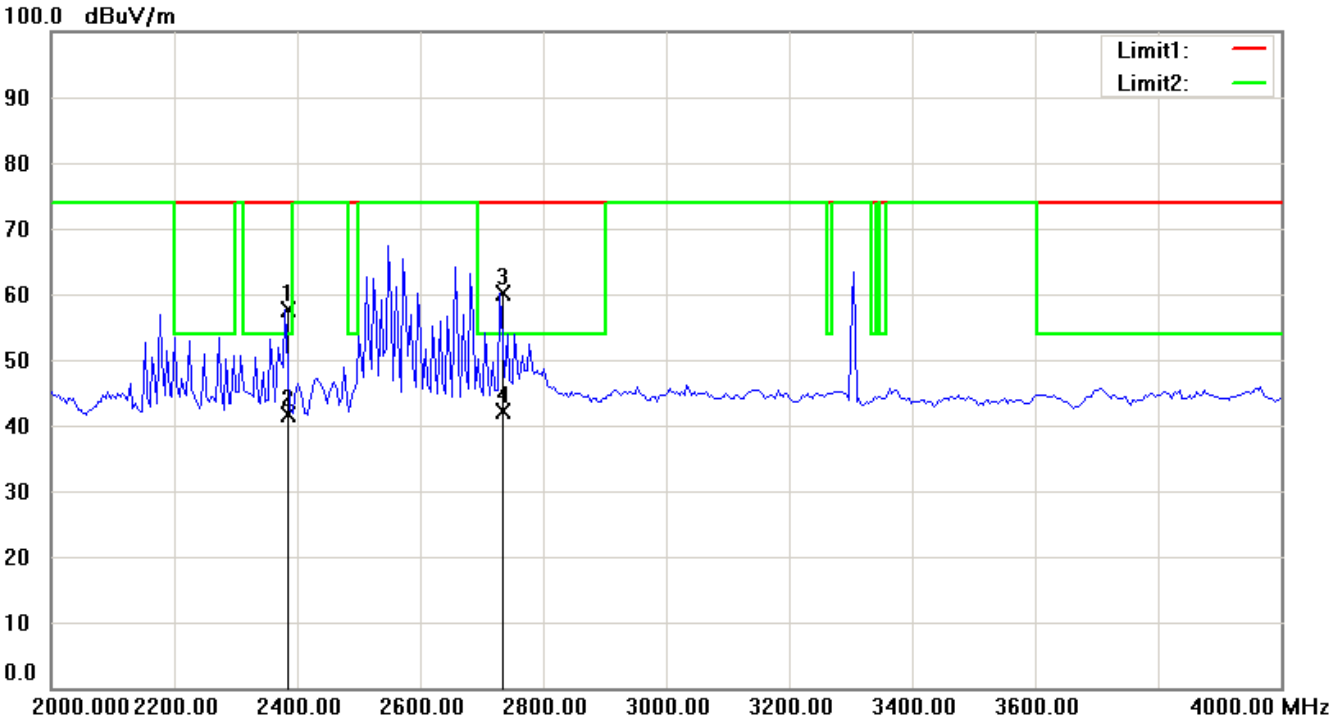
FCC ID: VEJTT-FHM2P4G-A15





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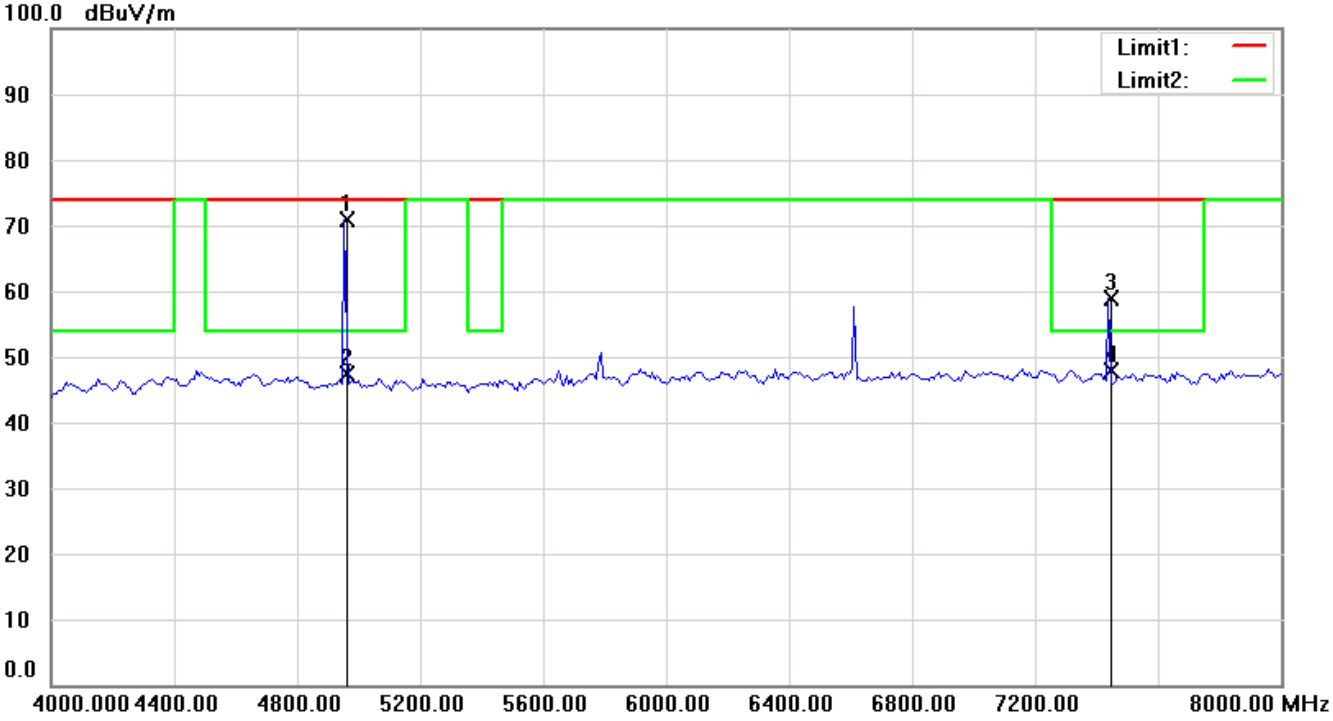
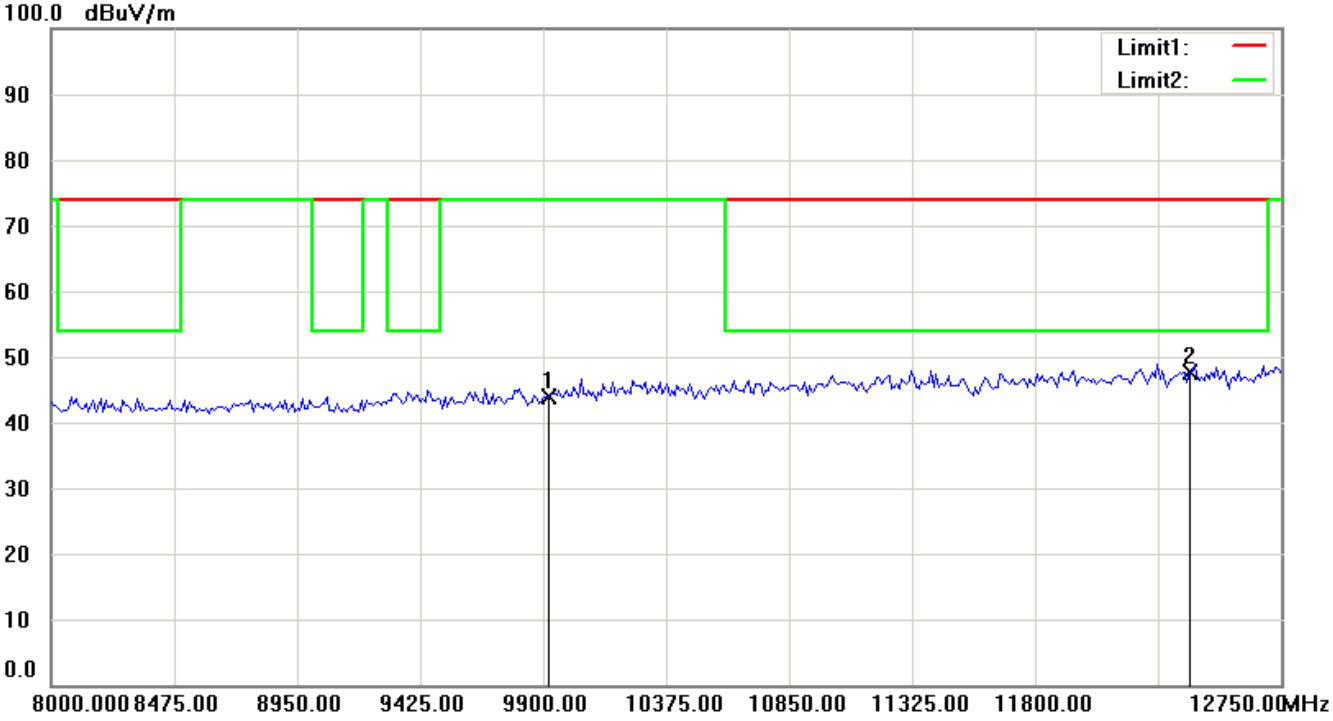
FCC ID: VEJTT-FHM2P4G-A15





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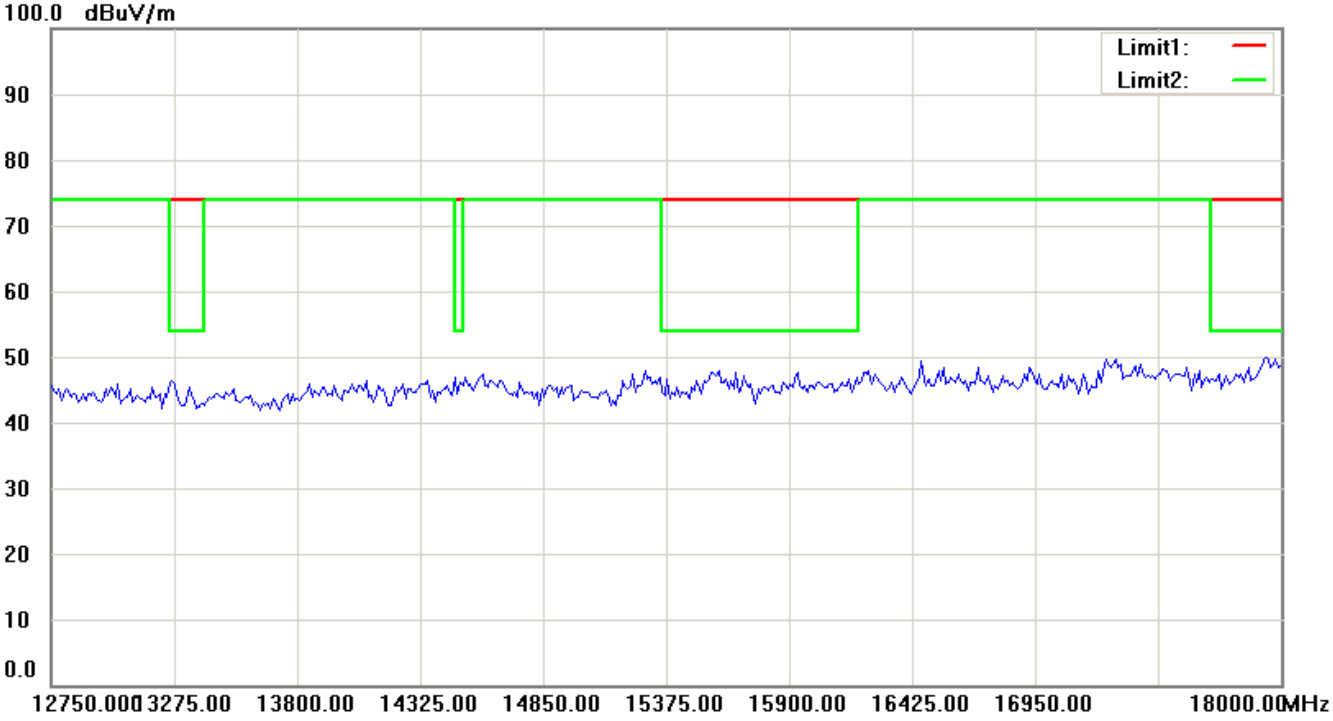
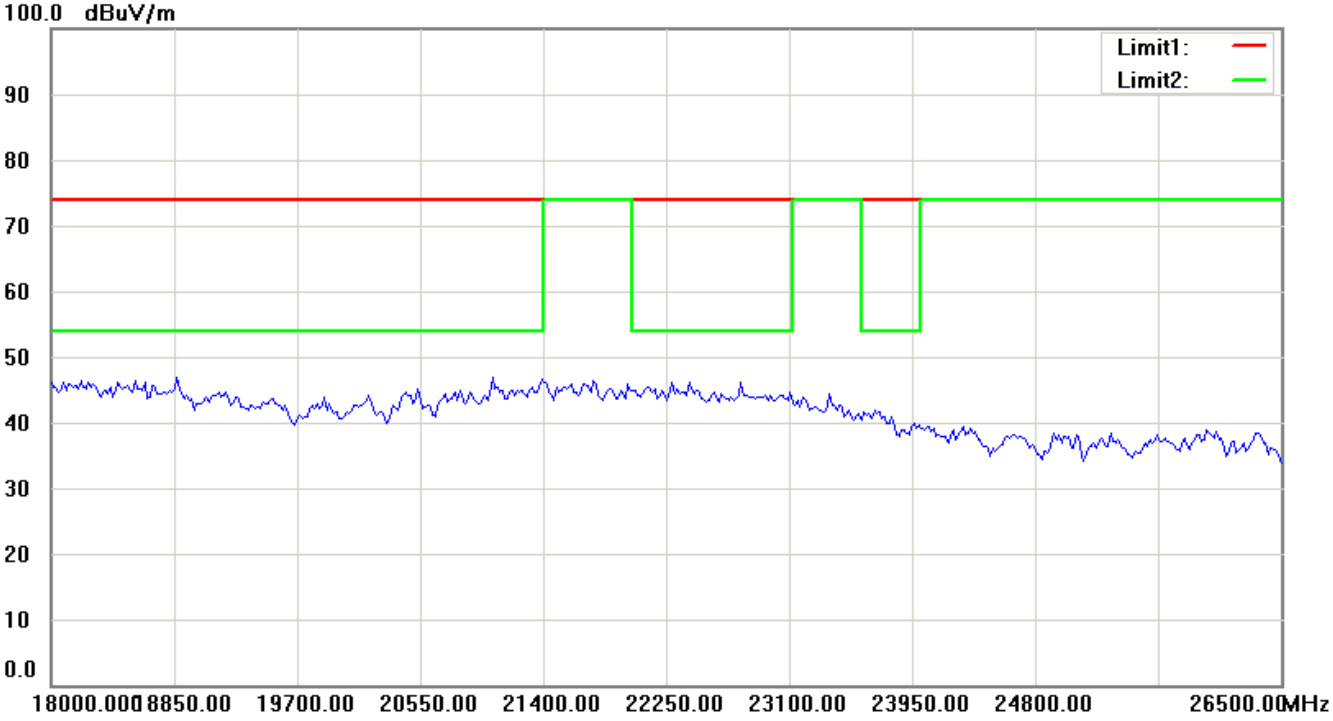
FCC ID: VEJTT-FHM2P4G-A15





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