FCC PART 90 TEST REPORT

for

UHF FM TRANSCEIVER

Model No.: SR-2

FCC ID: 2AAT7-SR-2

of

Applicant: Wintec Co., Ltd.
Address: 16F.-3, No.716, Zhongzheng Rd., Zhonghe Dist.,
New Taipei City 235, 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.: W6M21307-13386-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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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:

October 02, 2013	Robert Ren	Robert Ren
Date	Name	Signature

Technical responsibility for area of testing:

October 02, 2013	Kevin Wang	Kevin Wang
Date	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:	./.

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

1.3 Details of approval holder

Name:	Wintec Co., Ltd.
Street:	16F.-3, No.716, Zhongzheng Rd., Zhonghe Dist.,
City:	New Taipei City 235,
Country:	Taiwan (R.O.C.)
Telephone:	02-8227-3319
Fax:	02-8227-3597

1.4 Application details

Date of receipt of test item:	July 29, 2013
Date of test:	from July 30, 2013 to October 01, 2013

1.5 General information of Test item

Type of product:	UHF FM TRANSCEIVER
Type identification:	SR-2
Multi-listing model number:	./.
Brand Name:	Sure-Response
Photos:	See appendix

Technical data

Operating frequency band:

Frequency(MHz)	Used Band
406.1~430	☐
450~470	☒

Sample tested frequency:	450.0125 MHz ~ 469.9875 MHz
Type of modulation:	FM
Channel Bandwidth:	12.5 kHz
Designation of emission:	8K23F3E
Antenna Type / Gain:	Helix antenna / 1.8 dBi
Connection of Antenna:	☐ detachable ☒ not detachable
Power Rating:	Adaptor: (I/P: 100-240V / 50-60Hz / 0.3A; O/P: 12V / 500mAh / 6W Max) Charger: DC12V / 0.5A Battery: 7.4V / 1100mAh / 8.14Wh
Operation modes:	half-duplex

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

Manufacturer: (if applicable)

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

1.6 Test standards

Technical standard: FCC RULES PART 90 (2011-10)

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

2.3 Description of Tested System

The EUT was tested with the Accessories or Peripherals Listed below:

Equipment	Model No.	Series No.	Software	Cable information	Note
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

Explanation: The EUT was configured as stand alone device, and there are no accessories or peripherals during the test.

2.4 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	2013/9/4	2014/9/3
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	2012/12/21	2013/12/20
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2013/3/4	2014/3/3
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use	
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	2013/7/10	2014/7/9
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2013/9/4	2014/9/3
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2013/9/4	2014/9/3
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 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2012/10/12	2013/10/11
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2013/7/3	2014/7/2
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2013/3/4	2014/3/3
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2013/3/21	2014/3/20
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2013/3/4	2014/3/3
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2013/3/4	2014/3/3
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2013/3/4	2014/3/3
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2013/5/31	2014/5/30
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2013/3/4	2014/3/3
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2012/11/28	2013/11/27
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	EMCO	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2012/10/5	2013/10/4
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2012/10/12	2013/10/11
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2013/3/4	2014/3/3
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2012/12/4	2013/12/3
ETSTW-RE 111	TRILOG Super Broadband test Antenna	VULB 9160	9160-3309	Schwarz beck	2012/12/13	2013/12/12
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2013/1/11	2014/1/10
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	

ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2013/6/28	2014/6/27
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2013/8/16	2014/8/15
ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2013/8/16	2014/8/15
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2013/3/4	2014/3/3
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circits	2013/8/13	2014/8/12
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circits	2013/8/13	2014/8/12
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2012/10/5	2013/10/4
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2013/1/11	2014/1/10
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2013/1/11	2014/1/10
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2013/1/11	2014/1/10
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2013/1/11	2014/1/10
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2012/9/18	2013/9/17
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2013/3/4	2014/3/3
ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	Pre-test Use NCR	
ETSTW-Cable 012	N TYPE To SMA Cable	Cable 012	None	JYE BAO CO.,LTD.	2013/3/4	2014/3/3
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2013/3/4	2014/3/3
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2013/3/4	2014/3/3
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2013/3/4	2014/3/3
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2013/3/4	2014/3/3
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2013/3/26	2014/3/25
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2013/3/4	2014/3/3
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2013/3/4	2014/3/3
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2012/10/12	2013/10/11
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2012/10/12	2013/10/11
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104（S_Cable 9）	279067	HUBER+SUHNER	2013/3/4	2014/3/3
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104（S_Cable 10）	238092	HUBER+SUHNER	2012/11/28	2013/11/27
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2012/11/28	2013/11/27
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2012/11/28	2013/11/27
ETSTW-Cable 053	N TYPE To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2013/3/26	2014/3/25
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2013/6/20	2014/6/19
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1	

2.5 General Test Procedure

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

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100 kHz 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.

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

Measurements were made by at the registered open field test site located at 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.

3. Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Modulation Characteristics	2.1047(a) (b); 2.1033(c)	☒	☒	☐
Bandwidth limitations	90.209	☒	☒	☐
Frequency stability.	90.213	☒	☒	☐
Transmitter Output Power	90.205	☒	☒	☐
Emission masks	90.210	☒	☒	☐
Transmitter Spurious Radiated Emission	90.210	☒	☒	☐
Transmitter Spurious Conducted Emission	90.210	☒	☒	☐
Transient frequency behavior	90.214	☒	☒	☐
Receiver Radiated Spurious Emission	FCC part 15B	☒	☒	☐
Power Line Conducted Emission	15.207	☒	☒	☐

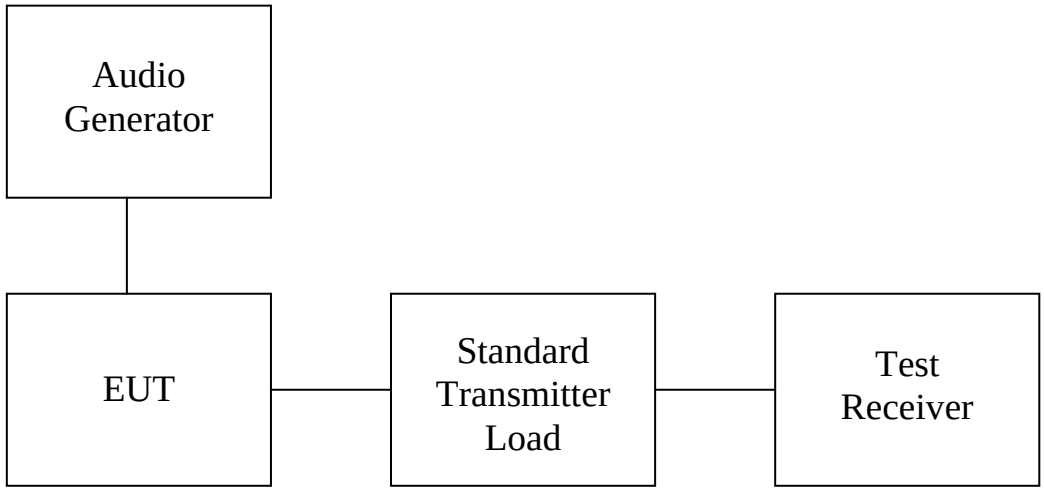
The following is intentionally left blank.

4. Modulation Characteristics

4.1 Test procedure

Modulation limiting is the transmitter circuit's ability to limit the transmitter from producing deviations in excess of rated system deviation.
The audio signal generator is connected to the audio input of the EUT with its full rating.
The modulation response is measured at certain modulation frequencies, related to 1000Hz reference signal. Tests are performed for positive and negative modulation.

4.2 Test Setup



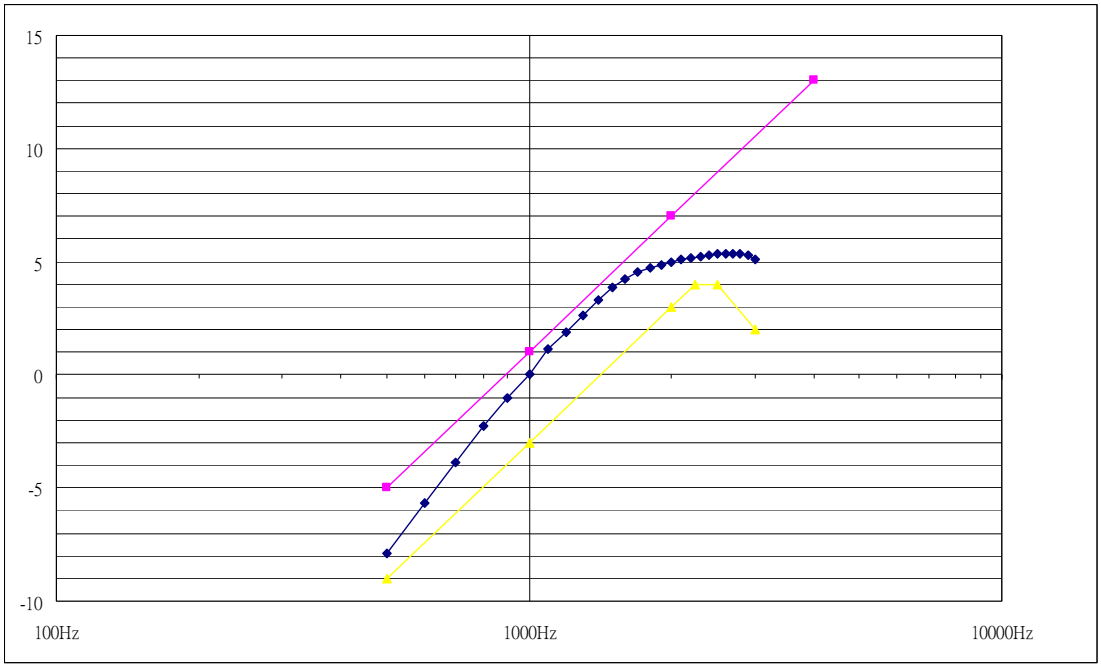
4.3 Test results

4.3.1 Audio Frequency Response

Rule Part No.: Part 2.1047(a)(b) Method of Measurement: The audio frequency response was measured in accordance with TIA/EIA Specification 603 with no exception. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 300 – 3000Hz shall be submitted. The audio frequency response curve is shown below.
Test Audio level (1kHz and 20% max. deviation): 25mV

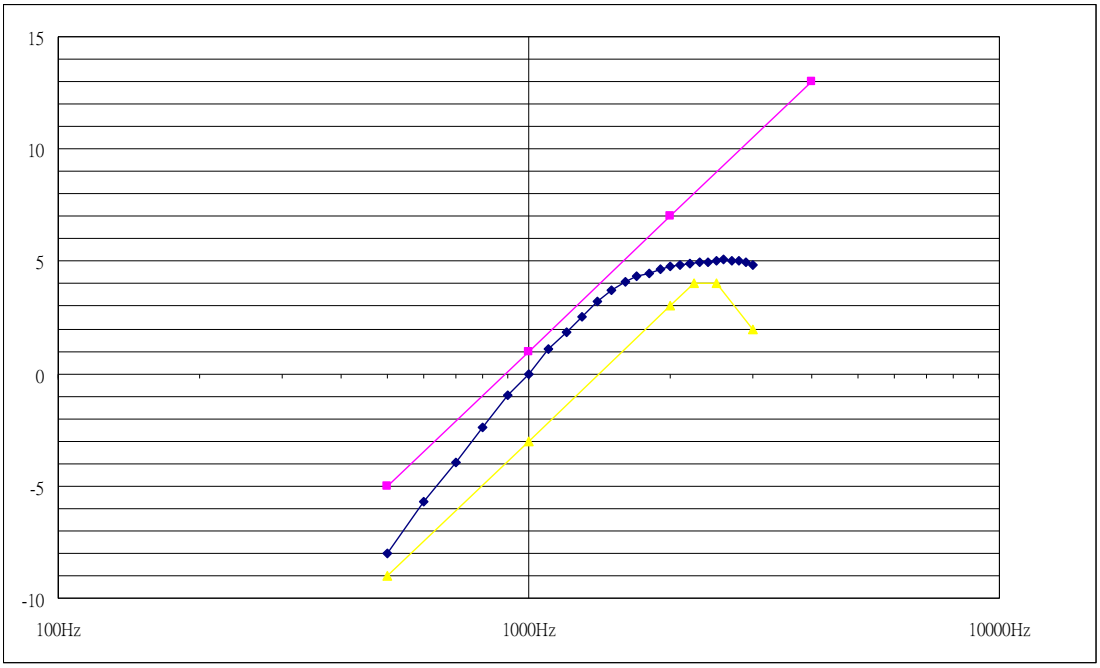
450.0125 MHz

Audio Frequency (kHz)	A.R (dB)	F.D.
0.5	-7.922	0.47
0.6	-5.657	0.61
0.7	-3.862	0.75
0.8	-2.279	0.90
0.9	-1.023	1.04
1.0	0.000	1.17
1.1	1.113	1.33
1.2	1.864	1.45
1.3	2.609	1.58
1.4	3.296	1.71
1.5	3.838	1.82
1.6	4.257	1.91
1.7	4.570	1.98
1.8	4.743	2.02
1.9	4.871	2.05
2.0	4.956	2.07
2.1	5.081	2.1
2.2	5.163	2.12
2.3	5.245	2.14
2.4	5.297	2.15
2.5	5.325	2.16
2.6	5.365	2.17
2.7	5.365	2.17
2.8	5.325	2.16
2.9	5.285	2.15
3.0	5.122	2.11


15
10
5
0
-5
-10
100Hz
1000Hz
10000Hz

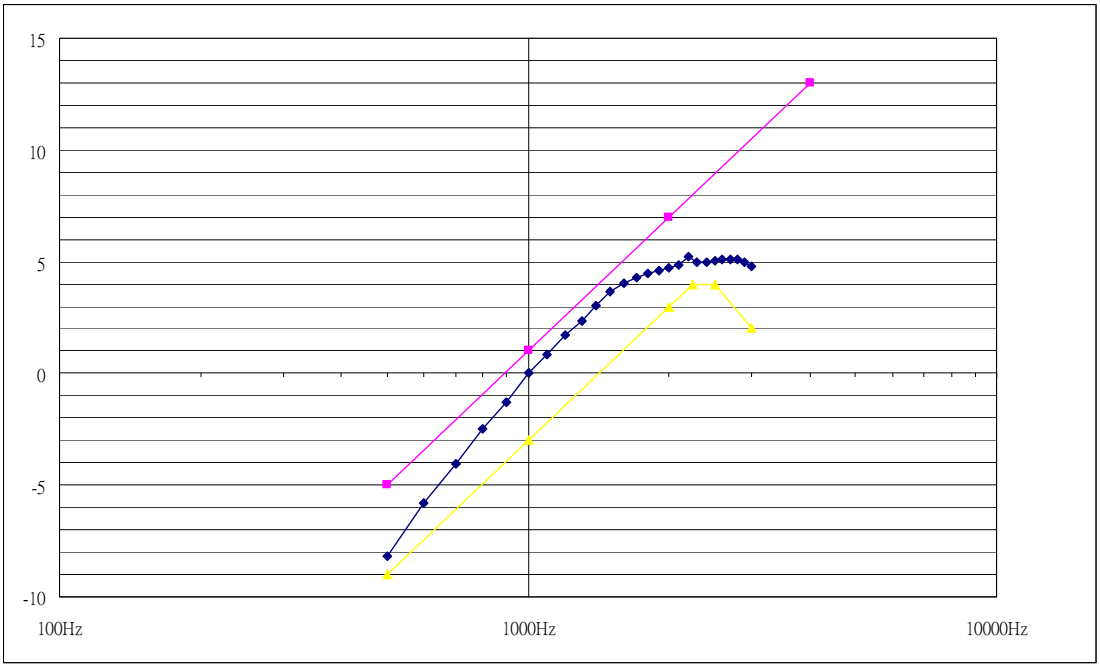
460 MHz

Audio Frequency (kHz)	A.R (dB)	F.D.
0.5	-8.031	0.48
0.6	-5.669	0.63
0.7	-3.926	0.77
0.8	-2.380	0.92
0.9	-0.987	1.08
1.0	0.000	1.21
1.1	1.079	1.37
1.2	1.866	1.50
1.3	2.535	1.62
1.4	3.205	1.75
1.5	3.735	1.86
1.6	4.100	1.94
1.7	4.365	2.00
1.8	4.494	2.03
1.9	4.622	2.06
2.0	4.789	2.10
2.1	4.830	2.11
2.2	4.871	2.12
2.3	4.953	2.14
2.4	4.993	2.15
2.5	5.033	2.16
2.6	5.073	2.17
2.7	5.033	2.16
2.8	5.033	2.16
2.9	4.993	2.15
3.0	4.830	2.11


15
10
5
0
-5
-10
100Hz
1000Hz
10000Hz

469.9875 MHz

Audio Frequency (kHz)	A.R (dB)	F.D.
0.5	-8.214	0.47
0.6	-5.808	0.62
0.7	-4.039	0.76
0.8	-2.475	0.91
0.9	-1.315	1.04
1.0	0.000	1.21
1.1	0.821	1.33
1.2	1.691	1.47
1.3	2.372	1.59
1.4	3.004	1.71
1.5	3.641	1.84
1.6	4.010	1.92
1.7	4.278	1.98
1.8	4.451	2.02
1.9	4.622	2.06
2.0	4.747	2.09
2.1	4.830	2.11
2.2	5.232	2.21
2.3	4.953	2.14
2.4	4.993	2.15
2.5	5.033	2.16
2.6	5.073	2.17
2.7	5.073	2.17
2.8	5.073	2.17
2.9	4.993	2.15
3.0	4.789	2.10



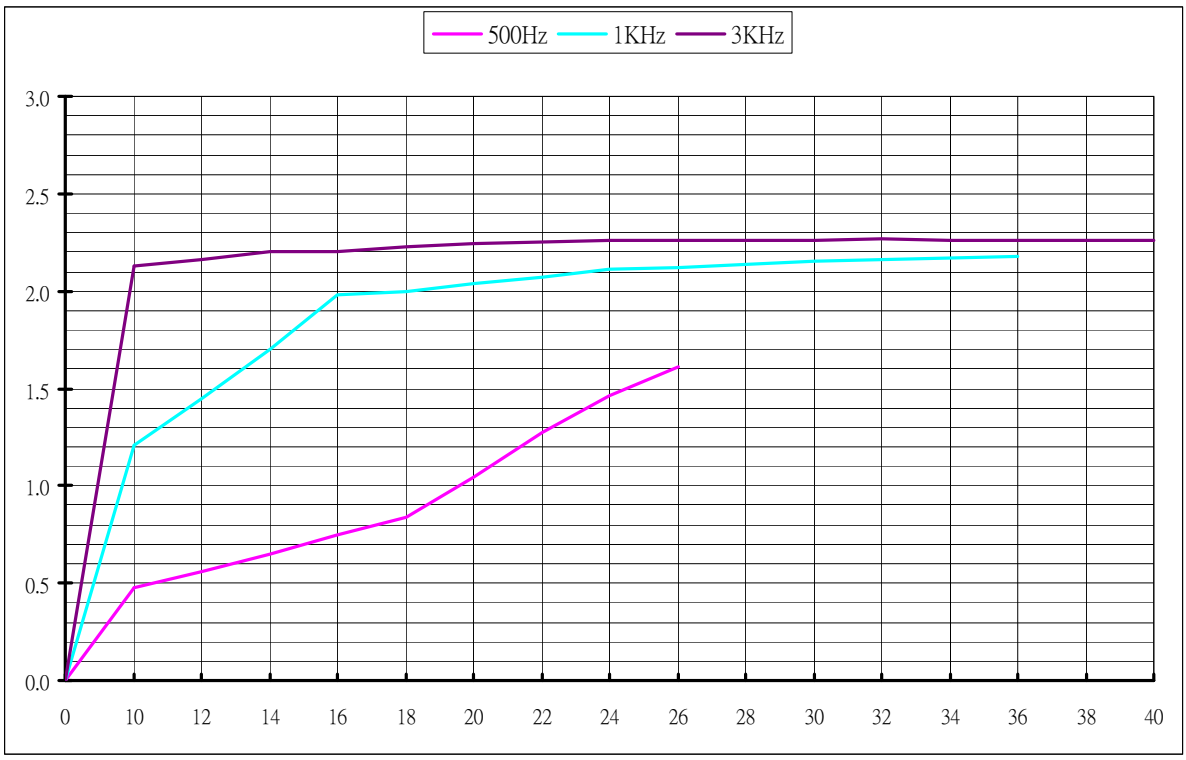
Test equipment used: ETSTW-RE 072

4.3.2 AUDIO INPUT VERSUS MODULATION

Rule Part No.: Part 2.1047(b) & 90
Test Requirements: Modulation cannot exceed 100%
Method of Measurement: The audio input level needed for a particular percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are shown below. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.
EUT Max deviation: 2.5kHz.

450.0125 MHz

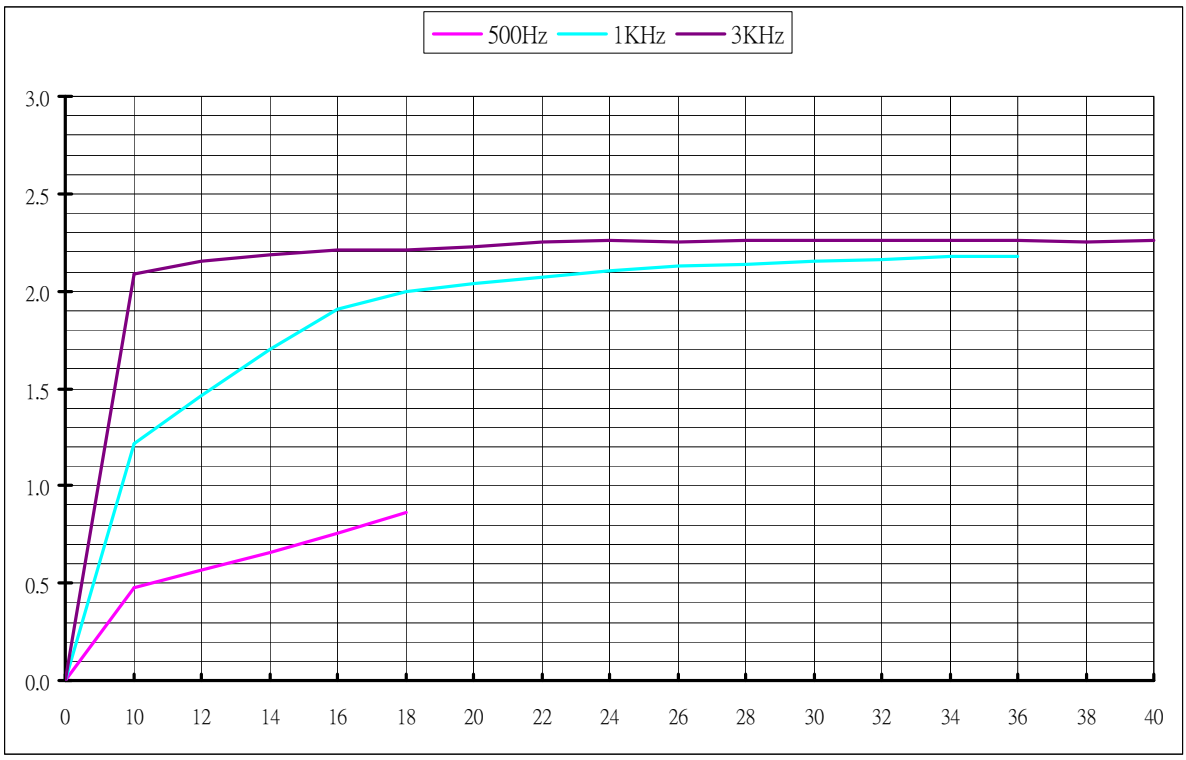
Input Audio Level (mV)	500Hz	1kHz	3kHz
0	0.0	0.0	0.0
10	0.48	1.21	2.13
12	0.56	1.45	2.16
14	0.65	1.70	2.20
16	0.75	1.98	2.20
18	0.84	2.00	2.23
20	1.04	2.04	2.24
22	1.27	2.07	2.25
24	1.46	2.11	2.26
26	1.61	2.12	2.26
28	--	2.14	2.26
30	--	2.15	2.26
32	--	2.16	2.27
34	--	2.17	2.26
36	--	2.18	2.26
38	--	--	2.26
40	--	--	2.26



460 MHz

Input Audio Level (mV)	500Hz	1kHz	3kHz
0	0.0	0.0	0.0
10	0.48	1.22	2.09
12	0.57	1.46	2.15
14	0.66	1.70	2.19
16	0.76	1.91	2.21
18	0.86	2.00	2.21
20	--	2.04	2.23
22	--	2.07	2.25
24	--	2.10	2.26
26	--	2.13	2.25
28	--	2.14	2.26
30	--	2.15	2.26
32	--	2.16	2.26
34	--	2.18	2.26
36	--	2.18	2.26
38	--	--	2.25
40	--	--	2.26

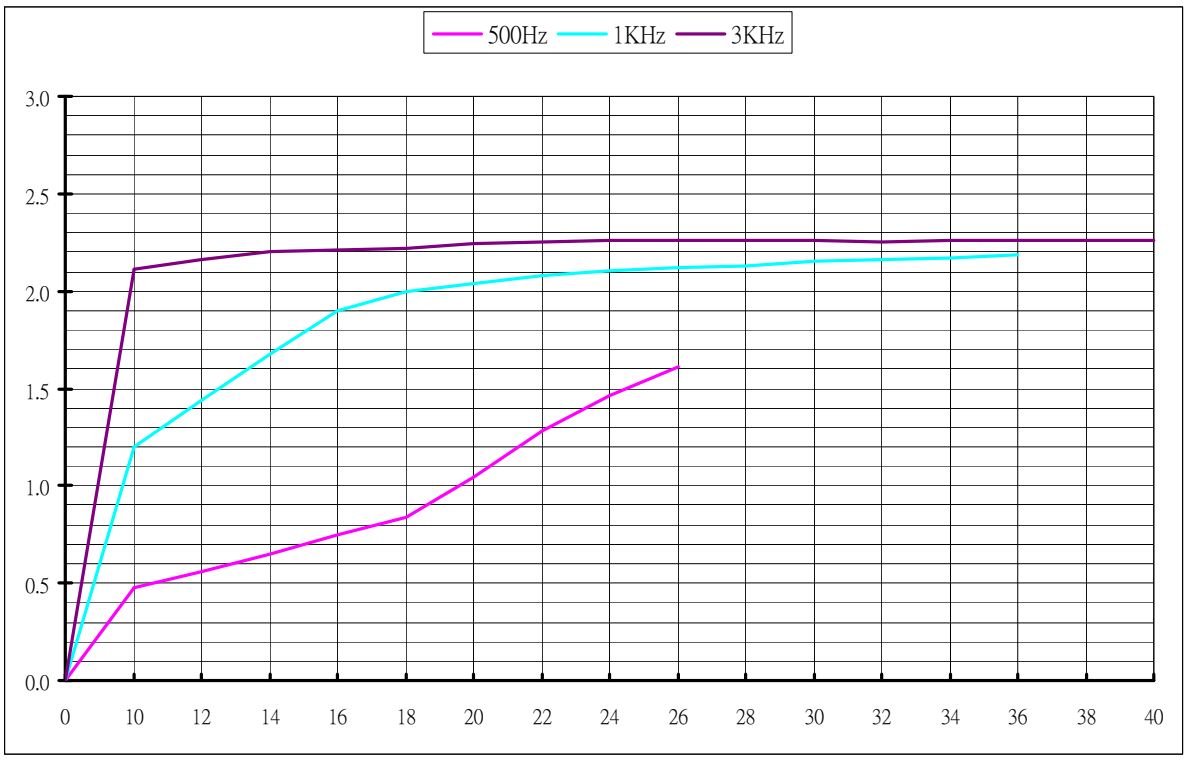
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



469.9875 MHz

Input Audio Level (mV)	500Hz	1kHz	3kHz
0	0.0	0.0	0.0
10	0.48	1.20	2.11
12	0.56	1.44	2.16
14	0.65	1.68	2.20
16	0.75	1.90	2.21
18	0.84	2.00	2.22
20	1.04	2.04	2.24
22	1.28	2.08	2.25
24	1.46	2.10	2.26
26	1.61	2.12	2.26
28	--	2.13	2.26
30	--	2.15	2.26
32	--	2.16	2.25
34	--	2.17	2.26
36	--	2.19	2.26
38	--	--	2.26
40	--	--	2.26

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

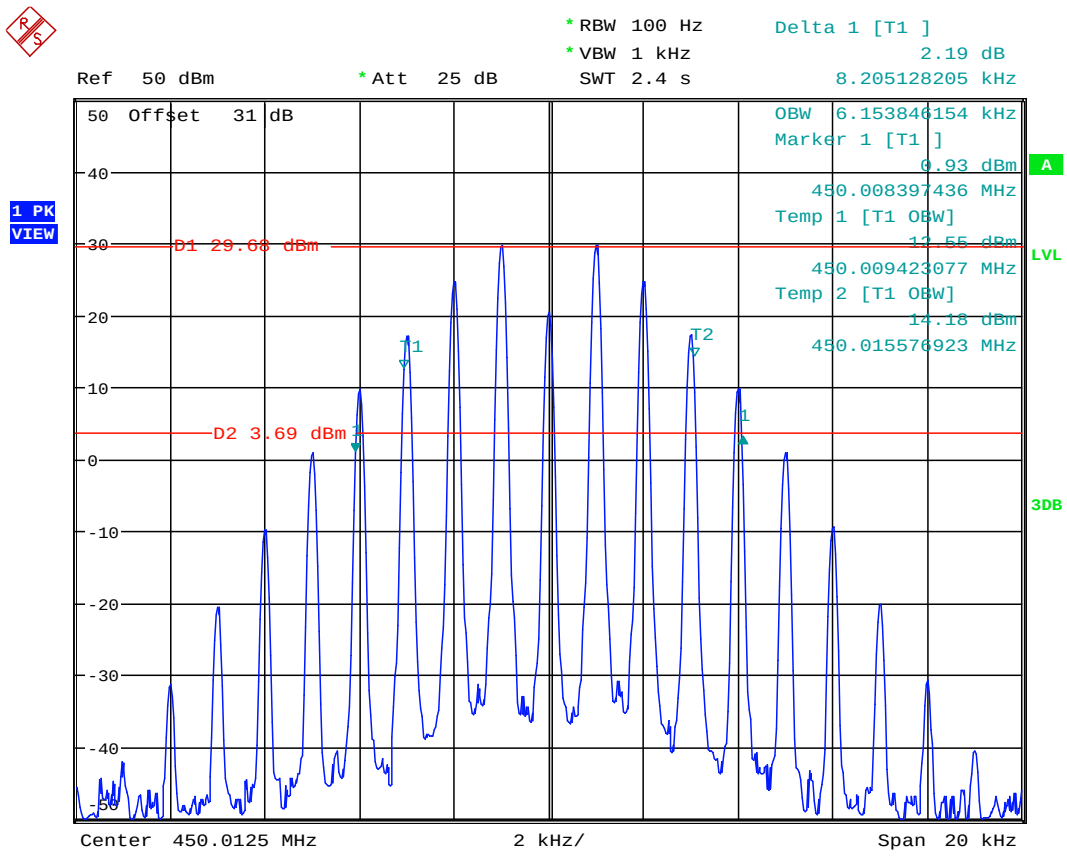


Test equipment used: ETSTW-RE 072

4.3.3 Necessary Bandwidth

12.5 kHz

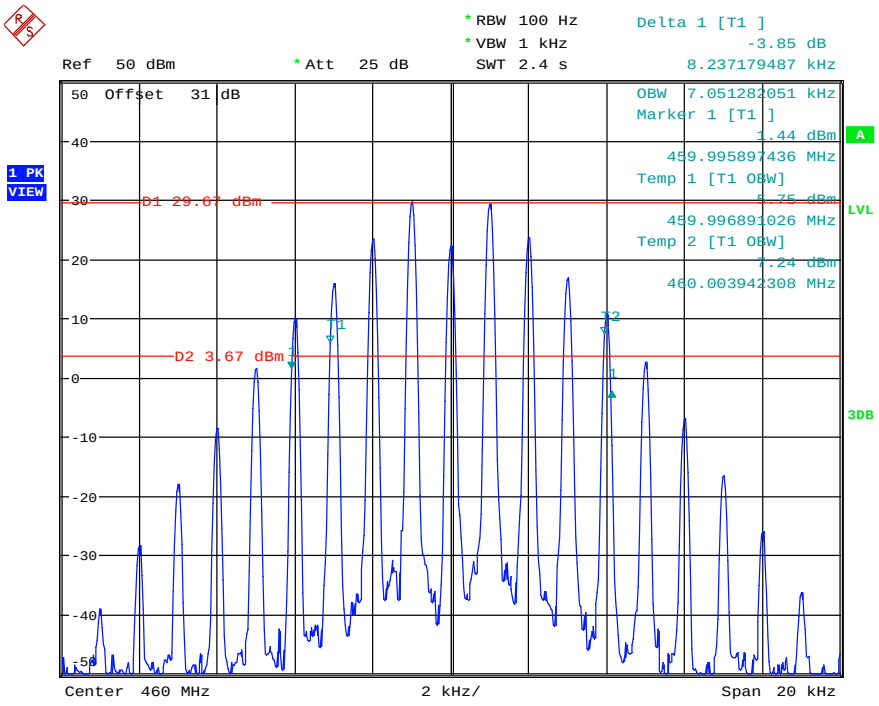
Frequency (MHz)	26dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Max. Limit (kHz)
450.0125	8.205128205	6.153846154	11.25
460	8.237179487	7.051282051	11.25
469.9875	8.205128205	6.121794872	11.25



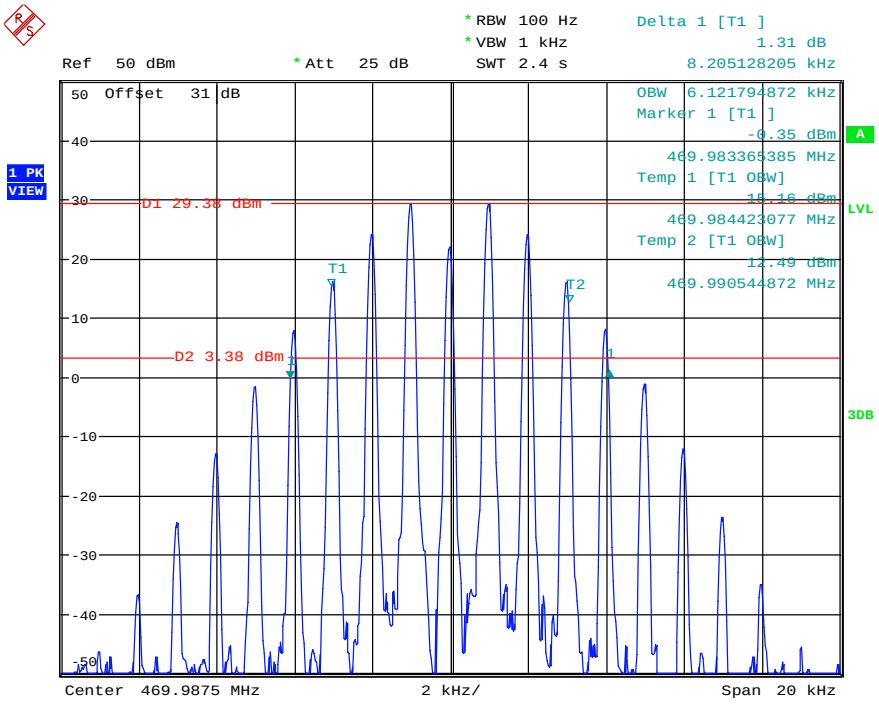
OBW Bandwidth

Date: 20.AUG.2013 21:36:18

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



OBW Bandwidth
Date: 20.AUG.2013 21:37:49



OBW Bandwidth
Date: 20.AUG.2013 21:39:26

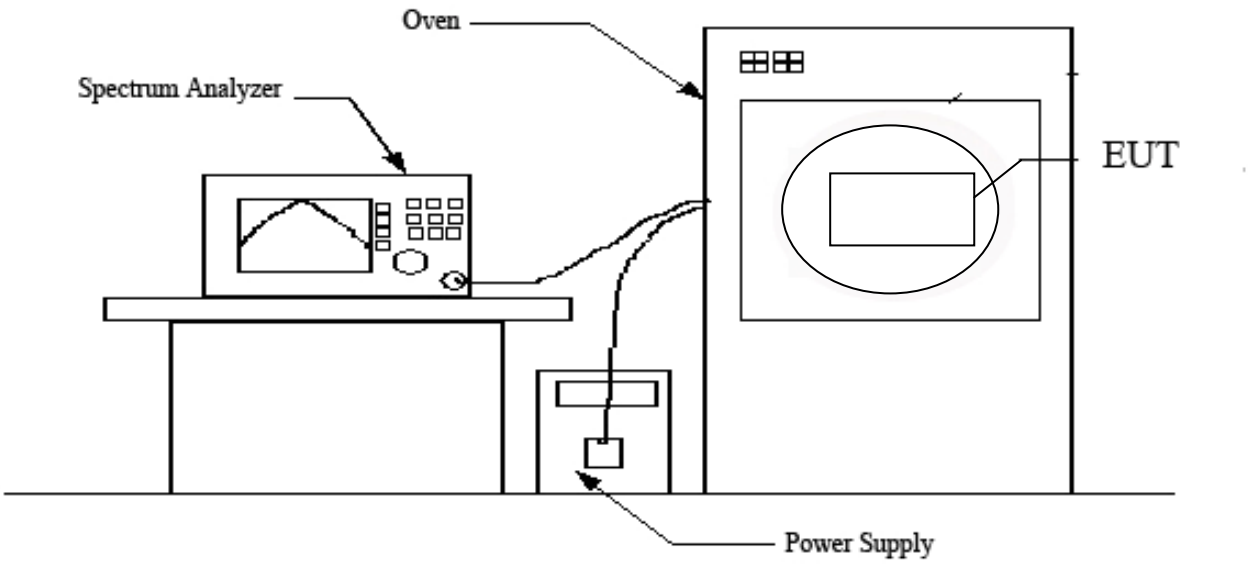
Test equipment used: ETSTW-RE 055, ETSTW-RE072

5. Frequency stability

5.1 Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 1kHz and VBW to 1kHz.
3. Use peak detector mode, Max-hold and search the peak of trace 1.
4. According to the part 2.1055(d)(1), the supply voltage has to be changed from 85 to 115 percent of the nominal value.
5. According to the part 2.1055(a)(1), extreme temperature has to be changed from -20℃ to 50℃.
6. Read the frequency of the carrier and calculate the deviation.

5.2 Test Setup



5.3 Test Result

450.0125 MHz

Voltage VS. Frequency Stability	
Voltage	Measurement Frequency
7.4 VDC	450.0125 MHz
8.14 VDC	450.012512
6.66 VDC	450.124991
Max Deviation (MHz)	0.000012
Max Deviation (ppm)	0.026
Limit (ppm)	2.5
Temperature VS. Frequency Stability	
Temperature	Measurement Frequency
-20.00	450.012544
-10.00	450.012574
0.00	450.012556
10.00	450.012534
20.00	450.012519
30.00	450.012529
40.00	450.012521
50.00	450.012516
Max Deviation (MHz)	0.000074
Max Deviation (ppm)	0.164
Limit (ppm)	2.5

460 MHz

Voltage VS. Frequency Stability	
Voltage	Measurement Frequency
7.4 VDC	460 MHz
8.14 VDC	460.000042
6.66 VDC	459.999984
Max Deviation (MHz)	0.000042
Max Deviation (ppm)	0.091
Limit (ppm)	2.5
Temperature VS. Frequency Stability	
Temperature	Measurement Frequency
-20.00	459.999861
-10.00	459.999884
0.00	459.999921
10.00	459.999992
20.00	460.000023
30.00	460.000004
40.00	460.000017
50.00	460.000003
Max Deviation (MHz)	0.000139
Max Deviation (ppm)	-0.302
Limit (ppm)	2.5

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469.9875MHz

Voltage VS. Frequency Stability	
Voltage	Measurement Frequency
7.4 VDC	469.975 MHz
8.14 VDC	469.975038
6.66 VDC	469.975006
Max Deviation (MHz)	0.000038
Max Deviation (ppm)	0.08
Limit (ppm)	2.5
Temperature VS. Frequency Stability	
Temperature	Measurement Frequency
-20.00	469.975164
-10.00	469.975123
0.00	469.975009
10.00	469.975002
20.00	469.974994
30.00	469.974991
40.00	469.974982
50.00	469.974972
Max Deviation (MHz)	0.000164
Max Deviation (ppm)	0.348
Limit (ppm)	2.5

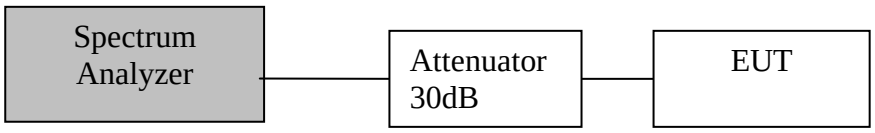
Test equipment used: ETSTW-RE 055

6. Transmitter Output Power

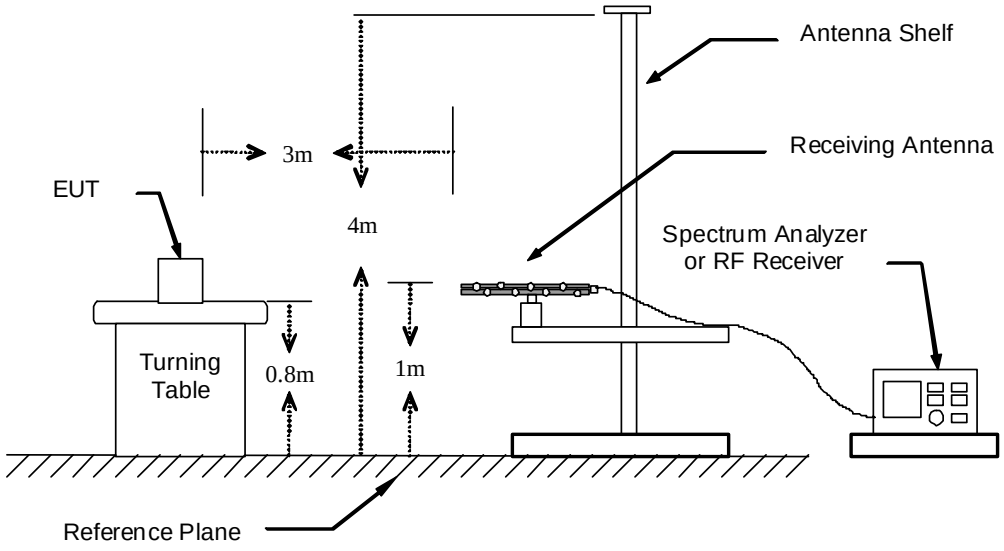
6.1 Test Procedures

1. The EUT was placed on the top of the turntable in semi-anechoic chamber.
2. The test shall be made in the transmitting mode. Antenna tower was scan (from 1 M to 4 M) and the turn table was rotated by 360 degrees to determine the position of the highest radiation.
3. The receiving Horn antenna was placed 0.5 meters far away from the turntable.
4. The receiving antenna was fixed on the same height with the EUT to find maximum suspected emissions. Recorded suspected value is indicated as Read Level (Raw).
5. Replace the EUT by standard antenna and feed the RF port by signal generator.
6. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
7. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
8. The level of the spurious emission is the power level of (7) plus the gain of the standard antenna in dBd and minus the loss of the cable used between the signal generator and the standard antenna.

6.2 Test Setup



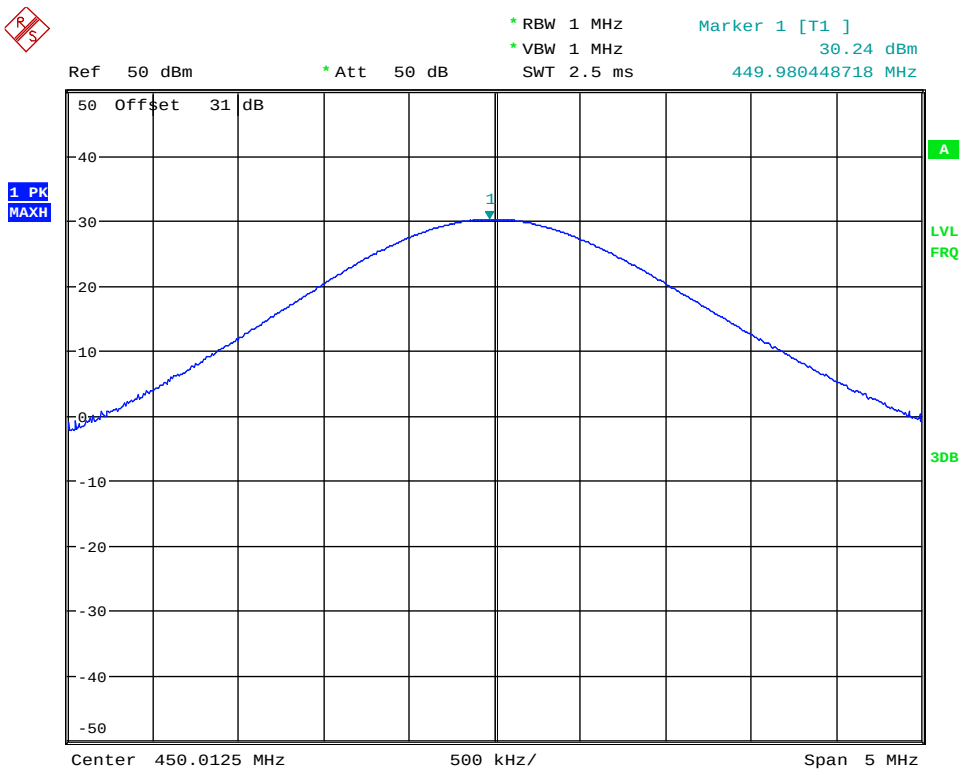
Setup for Conducted Power



Setup for Radiated Power

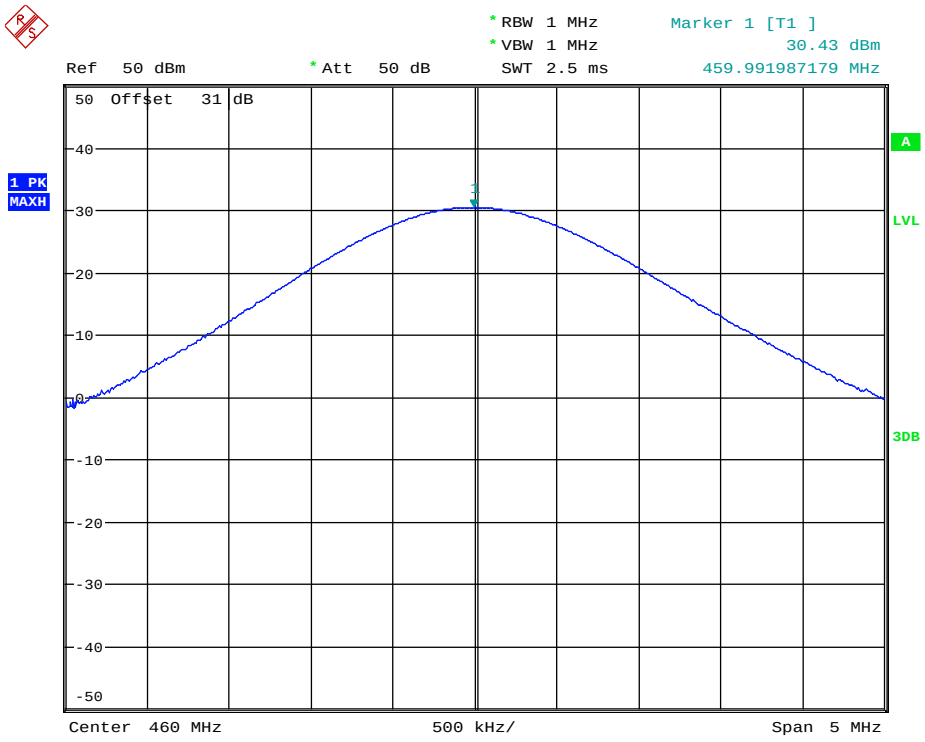
6.3 Test Result

6.3.1 Conducted Power

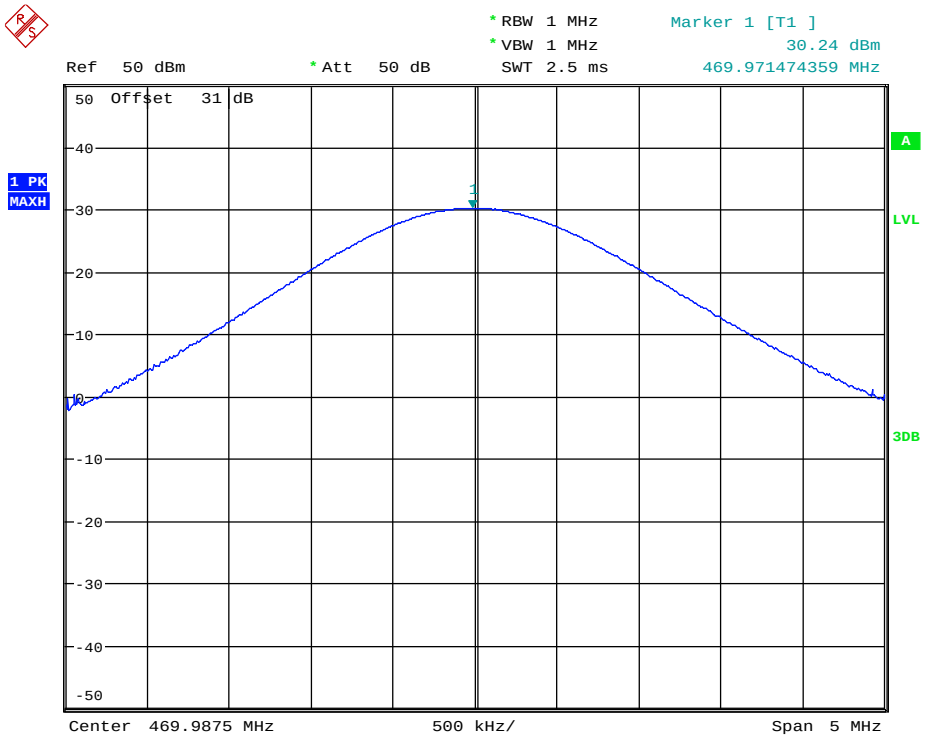


Date: 5.SEP.2013 19:22:11

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



Date: 5.SEP.2013 19:17:56



Date: 5.SEP.2013 19:19:21

6.3.2 Radiated Power

Model: SR-2 Date: 2013/9/5
Mode: 450.0125MHz Temperature: 24 °C Engineer: Robert
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
450.0040	-2.90	29.09	26.19	43.00	-16.81	130	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
450.0060	-1.84	28.56	26.72	43.00	-16.28	100	150

Mode: 460 MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
459.9925	-5.69	29.34	23.65	43.00	-19.35	130	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
459.9945	-1.93	29.33	27.40	43.00	-15.60	100	150

Mode: 469.9875 MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
469.9800	-4.86	29.13	24.27	43.00	-18.73	130	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
469.9820	-2.55	29.68	27.13	43.00	-15.87	100	150

Test equipment used: ETSTW-RE 055, ETSTW-RE 072
Note: See attached diagrams in appendix.

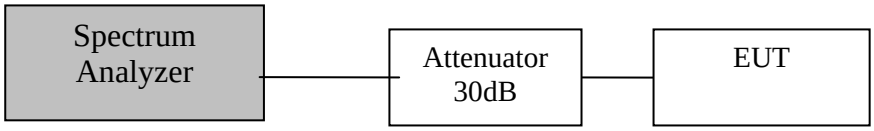
6.4 Limit
Power limit according to FCC § 90.261: 20 watts (43 dBm)

7. Emission masks

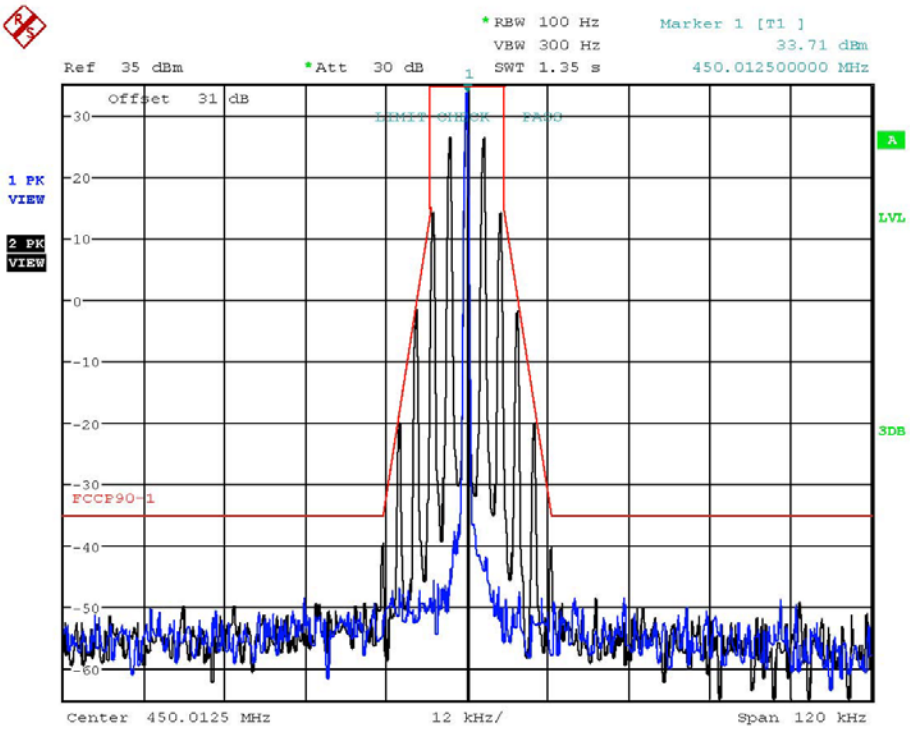
7.1 Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 300Hz and VBW to 1 kHz.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum
4. Set the span to 120 kHz and the sweep time to Auto.
5. Record the power spectral and compare to the Mask.

7.2 Test Setup



7.3 Test Result



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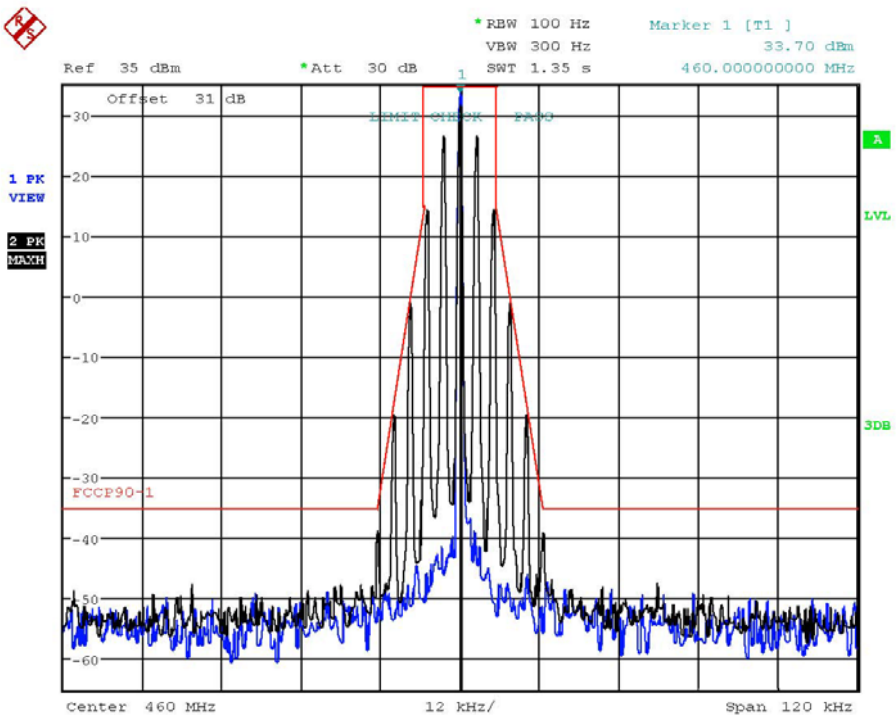
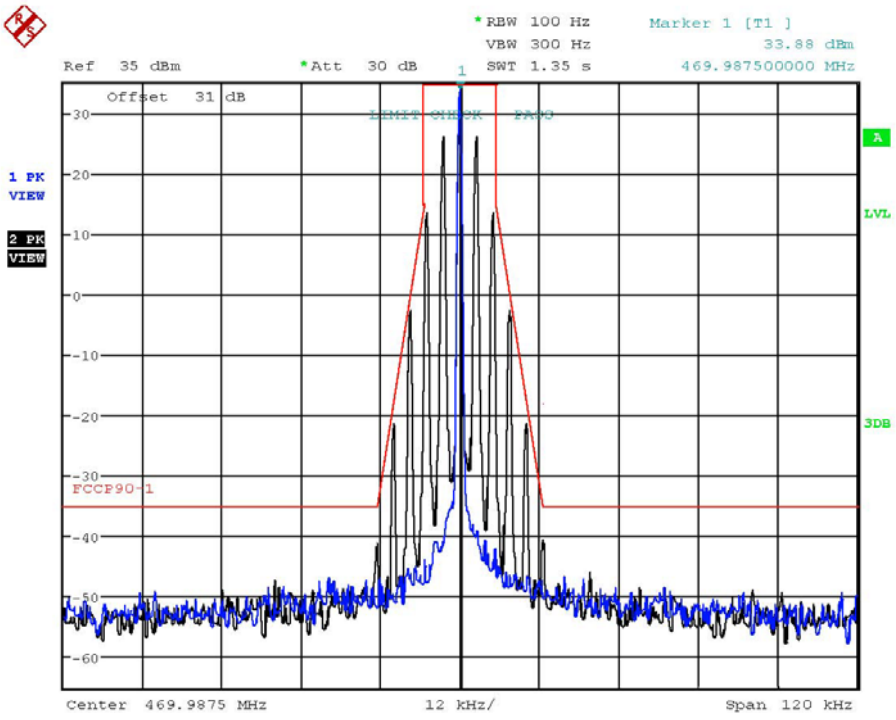
FCC ID: 2AAT7-SR-2



Emission Mask
Date: 20.AUG.2013 21:53:25



Emission Mask
Date: 20.AUG.2013 21:52:03

Limit according to FCC § 90.210: 12.5 kHz: Emission Mask D.

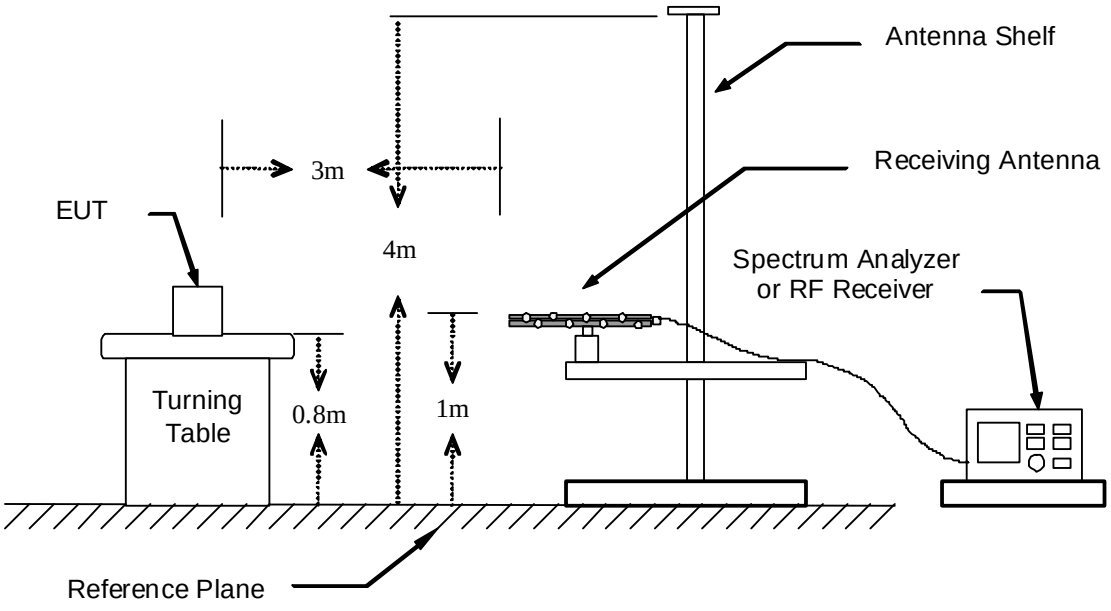
Test equipment used: ETSTW-RE 055, ETSTW-RE072

8. Transmitter Spurious Radiated Emission

8.1 Test Procedures

The EUT was positioned on a non-conductive turntable, 0.8m above the ground plane.
The radiated emission at the fundamental frequency was measured at 3 m distance with a test antenna and spectrum analyzer.
Worst case emission was recorded with the rotation of the turntable and the raising and lowering of the test antenna.
ERP was measured using a substitution method. The EUT was replaced by reference antenna connected to a signal generator.
The test of spurious radiated emission has been carried out with the validated test software. The measurements below 1GHz were performed with a measurement bandwidth of 100 kHz, above 1GHz with a bandwidth of 1MHz.
Spurious emission limits near the carrier are defined by a emission mask.

8.2 Test Setup



8.3 Test Result

Model: SR-2 Date: 2013/8/13
Mode: TX 450.0125 MHz Temperature: 24 °C Engineer: Robert
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
77.1314	-79.44	23.88	-55.56	-13.00	-42.56	290	150
155.8654	-78.04	24.30	-53.74	-13.00	-40.74	40	150
314.1026	-69.04	26.33	-42.71	-13.00	-29.71	140	150
901.2821	-70.93	36.47	-34.46	-13.00	-21.46	260	150
3149.0390	-39.77	9.02	-30.75	-13.00	-17.75	170	150
3600.9620	-47.32	11.03	-36.29	-13.00	-23.29	120	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
101.6506	-79.69	24.45	-55.24	-13.00	-42.24	130	150
171.1218	-79.24	25.34	-53.90	-13.00	-40.90	210	150
584.6154	-74.00	32.08	-41.92	-13.00	-28.92	190	150
901.2821	-64.26	34.49	-29.77	-13.00	-16.77	210	150
2836.5390	-42.27	7.75	-34.52	-13.00	-21.52	280	150
3149.0390	-44.44	9.77	-34.67	-13.00	-21.67	160	150

Mode: TX 460MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
80.9455	-79.85	24.11	-55.74	-13.00	-42.74	170	150
155.0481	-78.68	24.25	-54.43	-13.00	-41.43	160	150
666.6667	-78.40	34.89	-43.51	-13.00	-30.51	290	150
920.5128	-68.44	35.94	-32.50	-13.00	-19.50	140	150
2298.0770	-28.58	8.24	-20.34	-13.00	-7.34	180	150
3221.1540	-24.91	8.91	-16.00	-13.00	-3.00	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
83.1250	-79.20	23.99	-55.21	-13.00	-42.21	70	150
166.7628	-79.27	25.30	-53.97	-13.00	-40.97	200	150
770.5128	-78.94	34.35	-44.59	-13.00	-31.59	100	150
920.5128	-62.88	34.42	-28.46	-13.00	-15.46	240	150
3221.1540	-25.86	9.98	-15.88	-13.00	-2.88	250	150
3682.6920	-34.01	10.91	-23.10	-13.00	-10.10	130	150

Mode: TX 469.9875 MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
78.7660	-78.43	24.09	-54.34	-13.00	-41.34	100	150
164.8558	-78.78	24.70	-54.08	-13.00	-41.08	140	150
655.1282	-79.18	35.01	-44.17	-13.00	-31.17	160	150
941.0256	-68.38	35.38	-33.00	-13.00	-20.00	240	150
2822.1150	-26.26	8.30	-17.96	-13.00	-4.96	200	150
3293.2690	-24.66	9.58	-15.08	-13.00	-2.08	100	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
79.5833	-78.86	24.17	-54.69	-13.00	-41.69	140	150
164.5833	-79.22	25.29	-53.93	-13.00	-40.93	240	150
707.6923	-78.71	34.25	-44.46	-13.00	-31.46	140	150
941.0256	-66.66	34.36	-32.30	-13.00	-19.30	230	150
3293.2690	-24.71	8.56	-16.15	-13.00	-3.15	200	150
3764.4230	-35.47	11.84	-23.63	-13.00	-10.63	140	150

Test equipment used: ETSTW-RE 055, ETSTW-RE 072

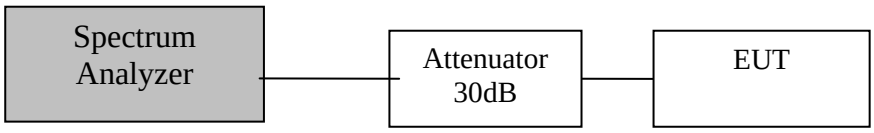
Note: See attached diagrams in appendix.

9. Transmitter Spurious Conducted Emission

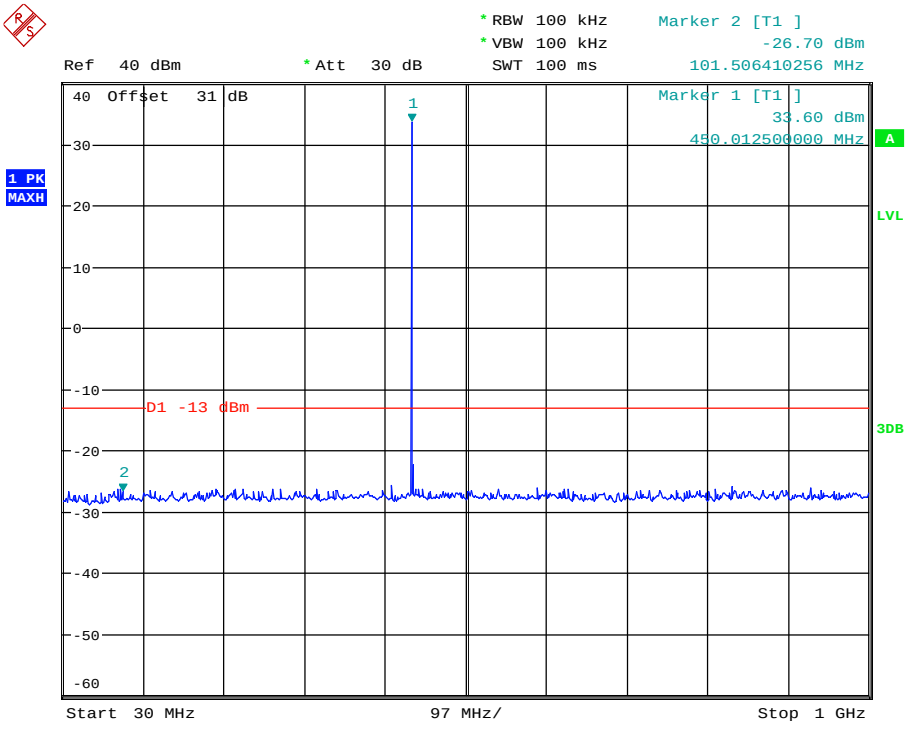
9.1 Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Adjust the spectrum analyzer for the following settings:
   - Resolution Bandwidth = 100 kHz for spurious emissions below 1 GHz and 1 MHz for spurious emissions above 1GHz.
   - Video Bandwidth = 100 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
   - Sweep Speed slow enough to maintain measurement calibration. Detector Mode = Positive Peak.
3. Limits=P (dBm)+10log(P(W)) = -13dBm

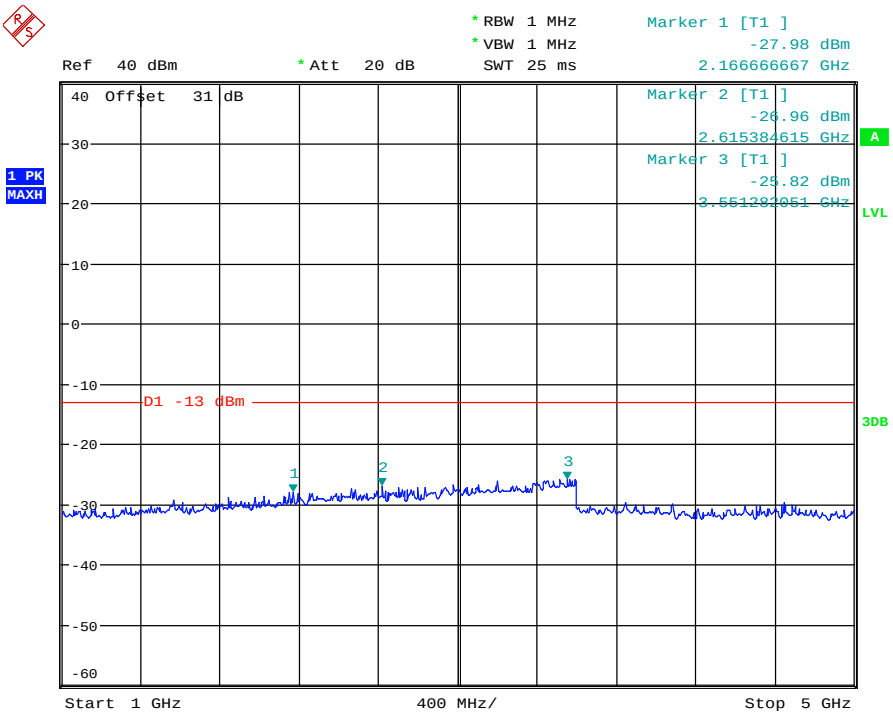
9.2 Test Setup



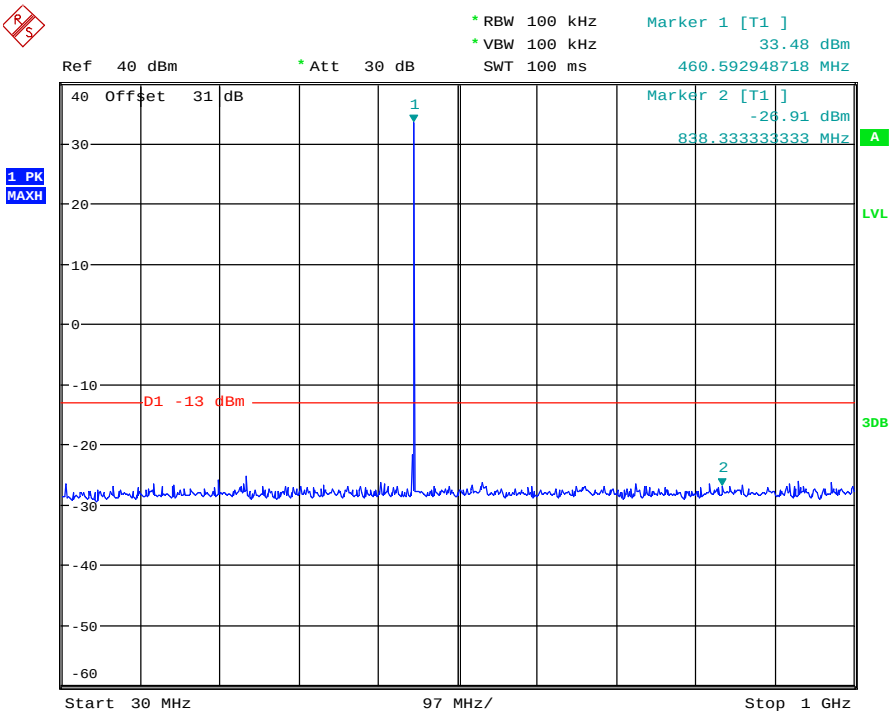
9.3 Test Result



Conducted Spurious Emission 450.0125MHz
Date: 20.AUG.2013 21:58:45

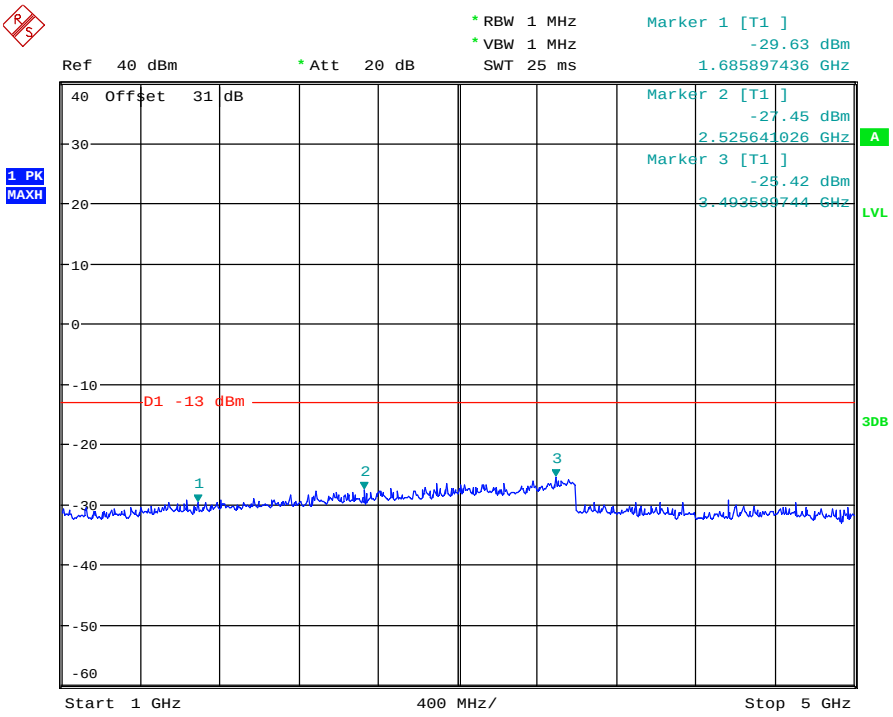


Conducted Spurious Emission 450.0125MHz
Date: 20.AUG.2013 21:59:56



Conducted Spurious Emission 460MHz
Date: 20.AUG.2013 22:06:28

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



Conducted Spurious Emission 460MHz
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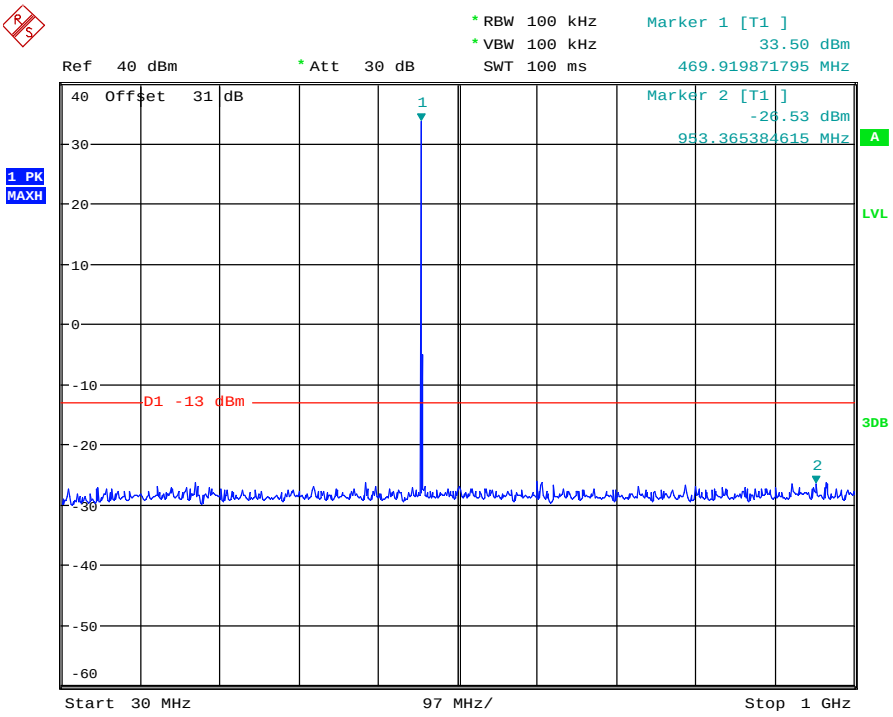
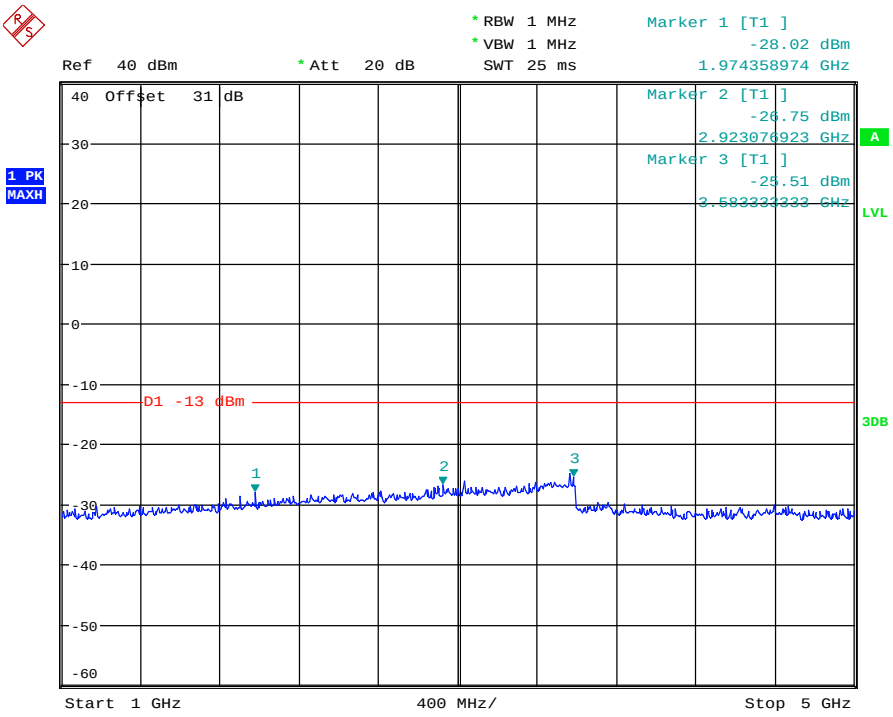


Conducted Spurious Emission 469.9875MHz
Date: 20.AUG.2013 22:02:19

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



Conducted Spurious Emission 469.9875MHz
Date: 20.AUG.2013 22:01:46

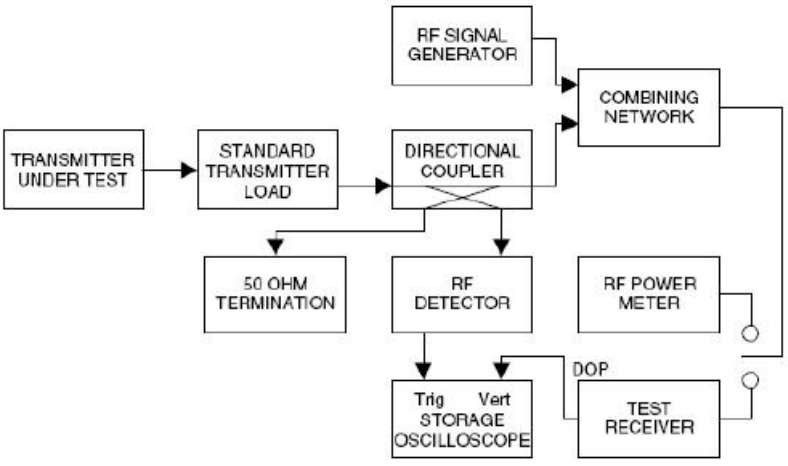
Test equipment used: ETSTW-RE 055, ETSTW-RE 072

10. Transient frequency behavior

10.1 Test Procedures

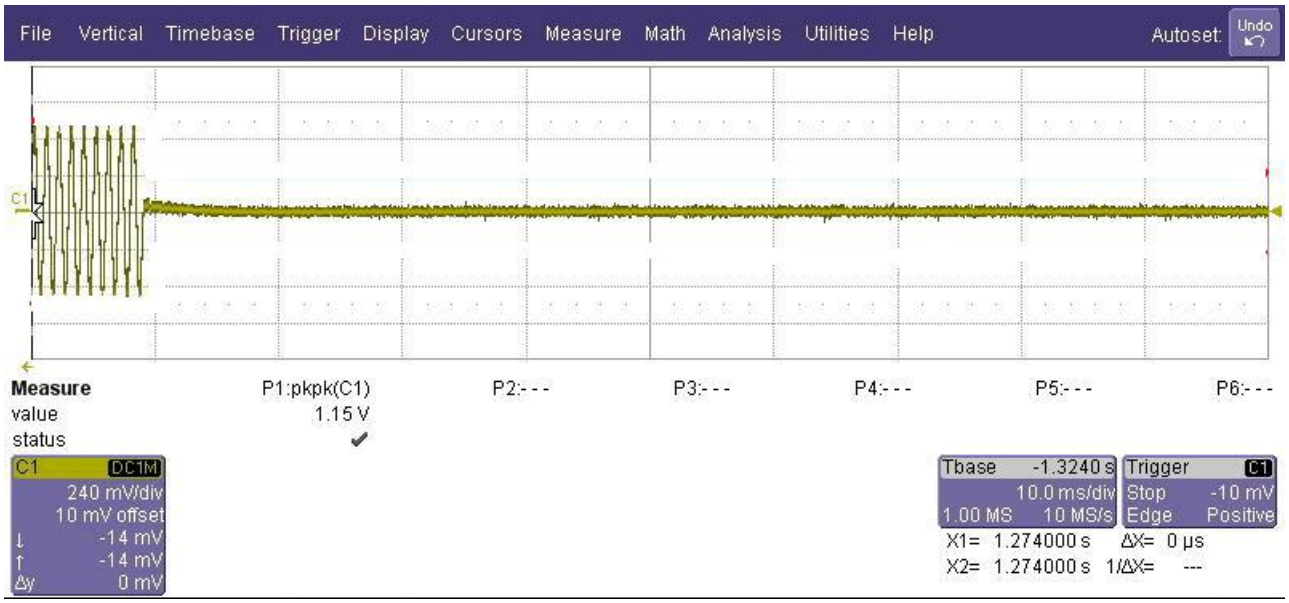
1. SG to the assigned transmitter frequency and modulate it with a 1 kHz tone at ±25 kHz deviation and set its output level to below 30dB of EUT signal level to receiver.
2. Set the horizontal sweep rate on the storageoscilloscope to 10 ms per division and adjust the display to continuously view the 1000 Hz tone from the DOP. Adjust the vertical amplitude control of the oscilloscope to display the 1000 Hz at ±4 divisions vertically centered on the display.
3. Transmitter on and observe the stored display. The output at the DOP, due to the change in the ratio of power between the signal generator input power and the transmitter output power will, because of the capture effect of the test receiver, produce a change in display: For the first part of the sweep it will show the 1 kHz test signal. Then once the receiver's demodulator has been captured by the transmitter power, the display will show the frequency difference from the assigned frequency to the actual transmitter frequency versus time. The instant when the 1 kHz test signal is completely suppressed (including any capture time due to phasing) is considered to be ton . The trace should be maintained within the allowed divisions during the period t1 and t2 . See the figure in the appropriate standards section.
4. During the time from the end of t2 to the beginning of t3 the frequency difference should not exceed the limits set by the FCC in 47 CFR 90.214 and outlined in 3.2.2. The allowed limit is equal to the transmitter frequency times its FCC frequency tolerance times ±4 display divisions divided by 25 kHz. For example, at a transmitter assigned frequency of 500 MHz and a frequency tolerance of 5 ppm. This would be 500 MHz times 5 ppm times ±4 divisions divided by 25 kHz. This equals ±0.4 divisions in this example. Greater vertical sensitivity may be required to view this accurately
5. Adjust the oscilloscope trigger controls so it will trigger on a decreasing magnitude from the RF peak detector, at 1 division from the right side of the display, when the transmitter is turned off. Set the controls to store the display. The moment when the 1 kHz test signal starts to rise is considered to provide toff.

10.2 Test Setup

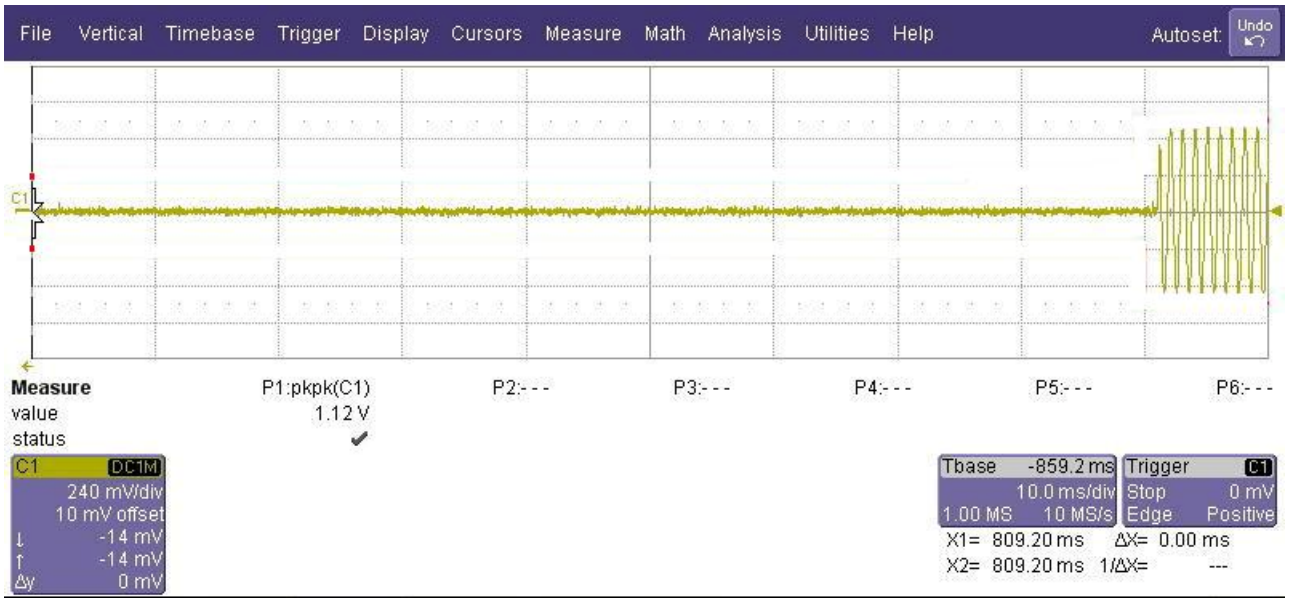


10.3 Test Result

450.0125 MHz On



450.0125 MHz Off



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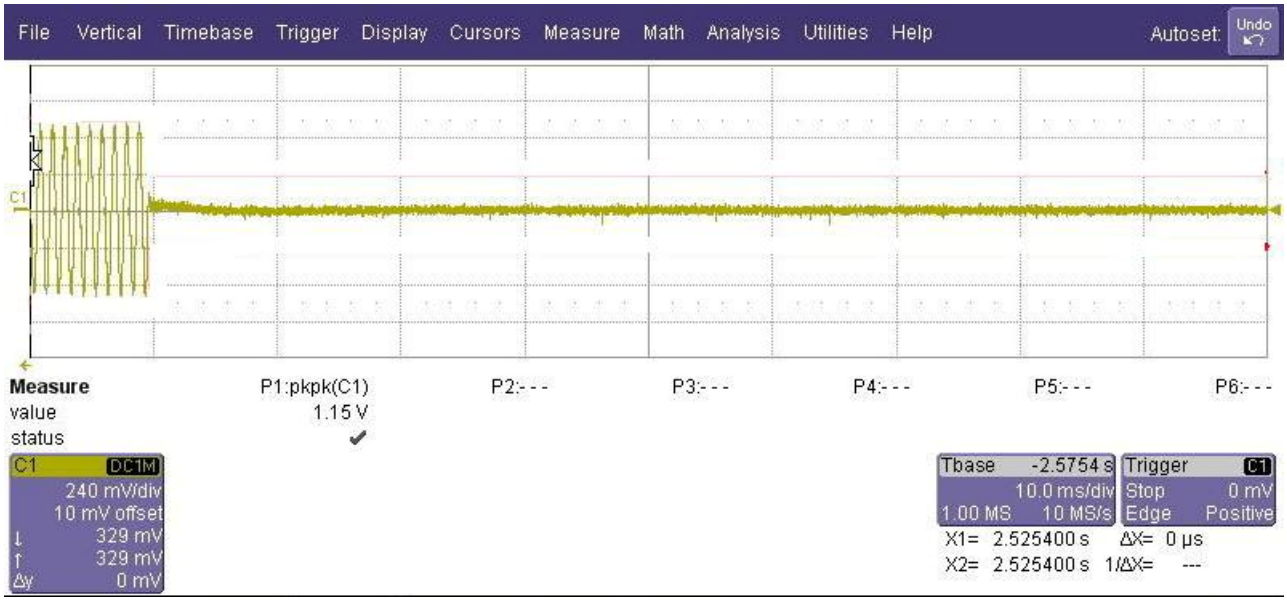
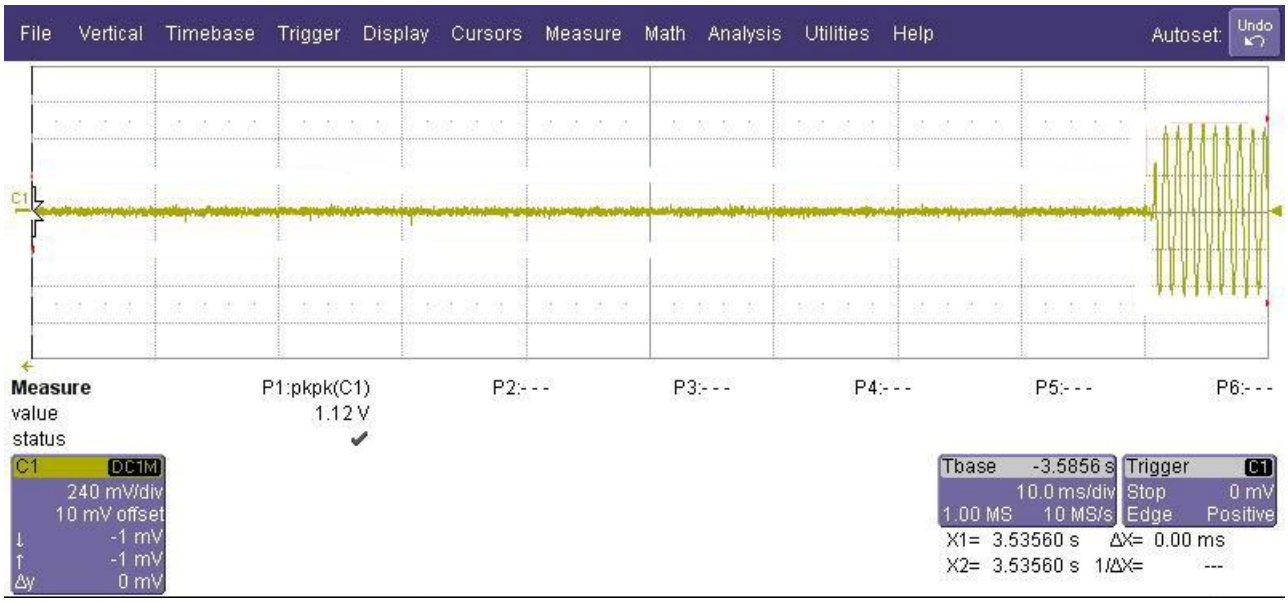
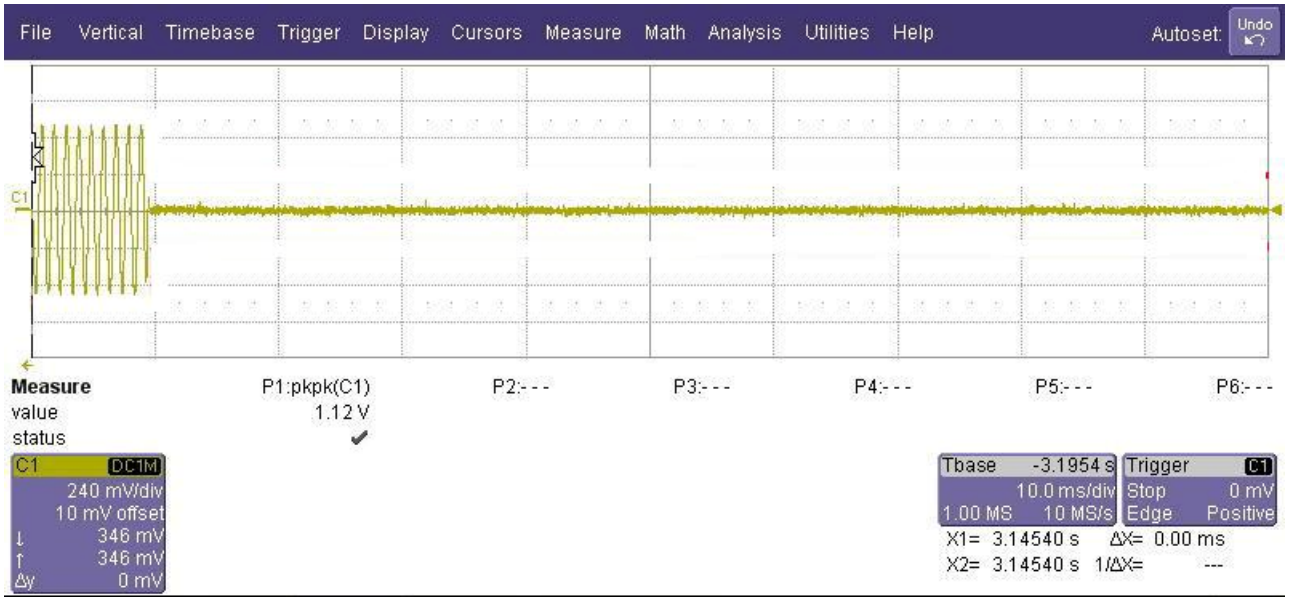
460 MHz On



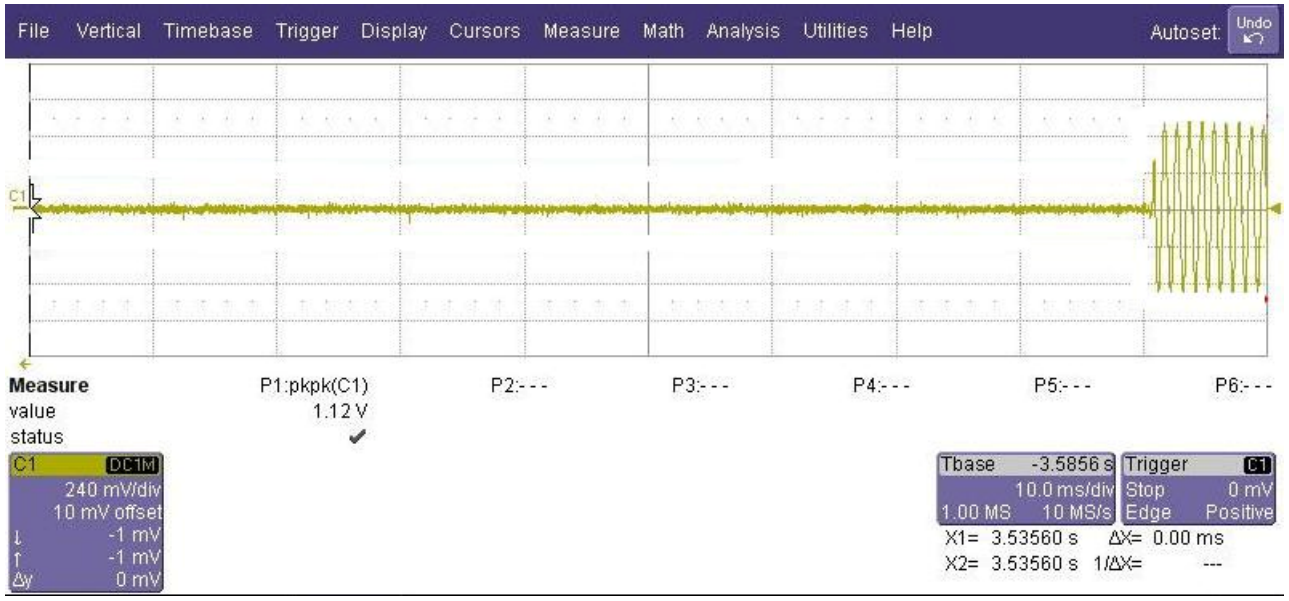
460 MHz Off



469.9875 MHz On



469.9875 MHz Off



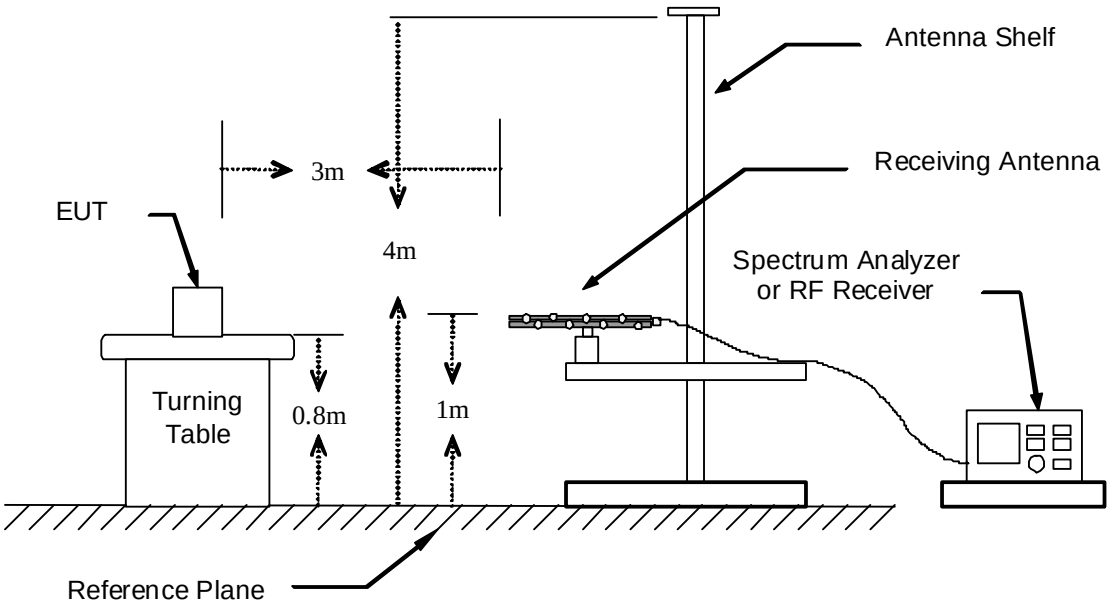
Test equipment used: ETSTW-RE 072, ETSTW-RE 096, ETSTW-RE 033

11. Receiver Radiated Spurious Emission

11.1 Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turn table.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Adjust the spectrum analyzer for the following settings:
   - Resolution Bandwidth = 100 kHz for spurious emissions below 1 GHz and 1 MHz for spurious emissions above 1GHz.
   - Video Bandwidth = 100 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
   - Sweep Speed slow enough to maintain measurement calibration.
   - Detector Mode = Positive Peak.

11.2 Test Setup



11.3 Test Result

Model: SR-2 Date: 2013/8/14
Mode: RX 450.0125MHz Temperature: 24 °C Engineer: Leon
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)
35.8317	7.12	peak	13.60	20.72	40.00	-19.28	225	100
304.0881	4.70	peak	16.02	20.72	46.00	-25.28	190	100
554.8497	4.54	peak	21.61	26.15	46.00	-19.85	70	100
632.6052	4.63	peak	23.45	28.08	46.00	-17.92	145	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1350.0370	41.43	---	-8.24	33.19	---	74.00	54.00	-40.81	155	100
1800.0500	42.86	---	-6.09	36.77	---	74.00	54.00	-37.23	170	100

Polarization: Vertifcal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
35.8317	7.23	peak	13.60	20.83	40.00	-19.17	155	100
166.0721	3.87	peak	15.02	18.89	43.50	-24.61	120	100
306.0321	3.91	peak	16.07	19.98	46.00	-26.02	240	100
504.3086	4.56	peak	20.73	25.29	46.00	-20.71	160	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1350.0370	41.27	---	-8.24	33.03	---	74.00	54.00	-40.97	235	100
1800.0500	42.51	---	-6.09	36.42	---	74.00	54.00	-37.58	210	100

Mode: RX 460MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
35.8317	6.45	peak	13.60	20.05	40.00	-19.95	220	100
152.4650	3.79	peak	15.28	19.07	43.50	-24.43	180	100
531.5230	5.09	peak	21.21	26.30	46.00	-19.70	145	100
611.2224	4.58	peak	23.27	27.85	46.00	-18.15	130	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1380.0000	41.79	---	-8.29	33.50	---	74.00	54.00	-40.50	110	100
1840.0000	42.71	---	-5.67	37.04	---	74.00	54.00	-36.96	90	100

Polarization: Vertifcal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
35.8317	6.55	peak	13.60	20.15	40.00	-19.85	125	100
286.5932	3.49	peak	15.68	19.17	46.00	-26.83	140	100
372.1242	3.68	peak	17.75	21.43	46.00	-24.57	90	100
517.9158	4.06	peak	21.01	25.07	46.00	-20.93	135	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1380.0000	41.50	---	-8.29	33.21	---	74.00	54.00	-40.79	220	100
1840.0000	42.34	---	-5.67	36.67	---	74.00	54.00	-37.33	195	100

Mode: RX 469.9875MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
35.8317	6.77	peak	13.60	20.37	40.00	-19.63	240	100
152.4650	4.43	peak	15.28	19.71	43.50	-23.79	170	100
302.1443	3.69	peak	15.96	19.65	46.00	-26.35	115	100
463.4870	4.13	peak	20.17	24.30	46.00	-21.70	130	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1409.9630	41.64	---	-8.29	33.35	---	74.00	54.00	-40.65	115	100
1879.9500	42.63	---	-5.25	37.38	---	74.00	54.00	-36.62	200	100

Polarization: Vertifcal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
35.8317	6.72	peak	13.60	20.32	40.00	-19.68	235	100
148.5772	3.86	peak	15.26	19.12	43.50	-24.38	170	100
508.1964	5.42	peak	20.81	26.23	46.00	-19.77	75	100
601.5030	4.35	peak	23.19	27.54	46.00	-18.46	110	100

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Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result (dBuV/m) Peak	Ave.	Limit (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
1409.9630	42.17	---	-8.29	33.88	---	74.00	54.00	-40.12	220	100
1879.9500	42.15	---	-5.25	36.90	---	74.00	54.00	-37.10	150	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.

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:

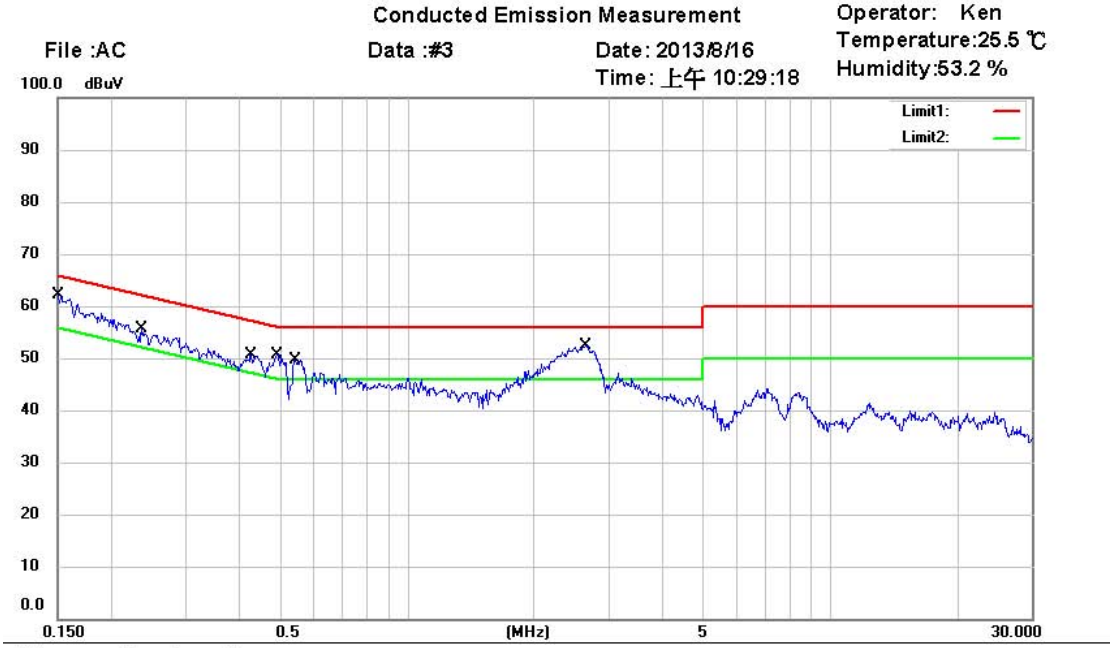
Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 044, ETSTW-RE 064

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.

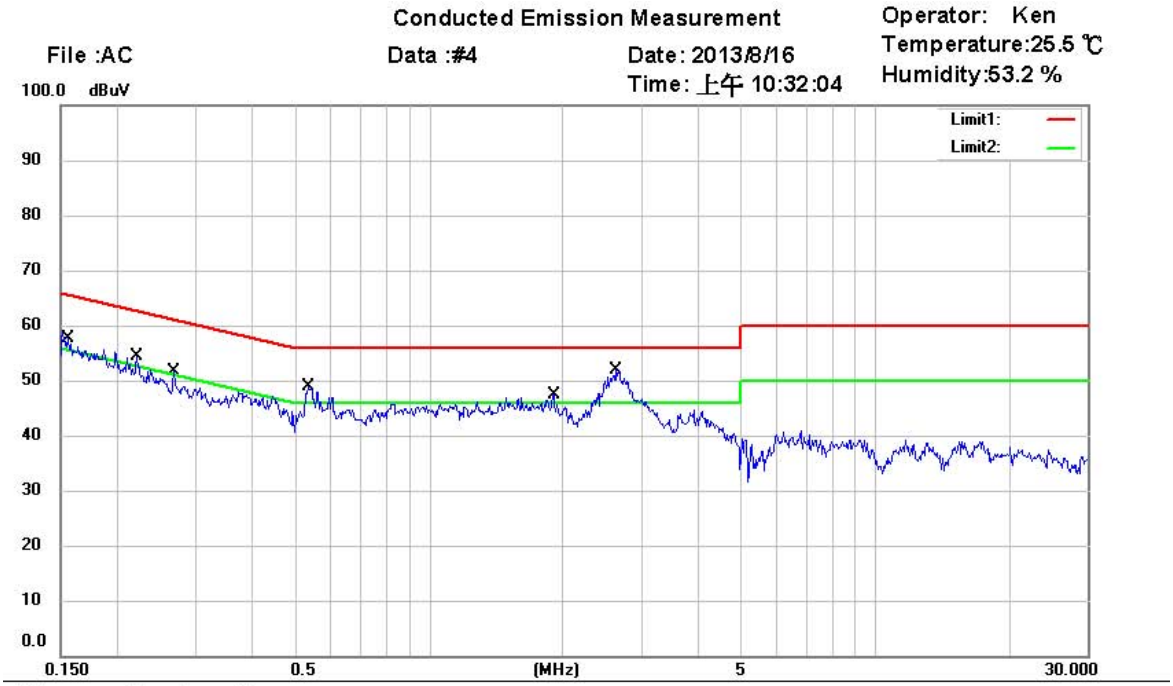
This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: N
EUT : W6M21307-13386
Power : 120VAC
M/N: SR-2
Test Mode :
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1502	45.05	QP	10.12	55.17	65.99	-10.82	
	0.1502	25.66	AVG	10.12	35.78	55.99	-20.21	
	0.2356	36.12	QP	10.11	46.23	62.25	-16.02	
	0.2356	18.24	AVG	10.11	28.35	52.25	-23.90	
	0.4261	34.04	QP	10.11	44.15	57.33	-13.18	
	0.4261	19.52	AVG	10.11	29.63	47.33	-17.70	
	0.4911	31.08	QP	10.12	41.20	56.15	-14.95	
	0.4911	17.93	AVG	10.12	28.05	46.15	-18.10	
*	0.5427	36.75	QP	10.12	46.87	56.00	-9.13	
	0.5427	26.59	AVG	10.12	36.71	46.00	-9.29	
	2.6488	35.97	QP	10.22	46.19	56.00	-9.81	
	2.6488	24.50	AVG	10.22	34.72	46.00	-11.28	

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: L1
EUT : W6M21307-13386
Power : 120VAC
M/N: SR-2
Test Mode :
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1551	40.53	QP	10.12	50.65	65.72	-15.07	
	0.1551	21.79	AVG	10.12	31.91	55.72	-23.81	
	0.2216	35.70	QP	10.09	45.79	62.76	-16.97	
	0.2216	18.48	AVG	10.09	28.57	52.76	-24.19	
	0.2683	31.45	QP	10.10	41.55	61.17	-19.62	
	0.2683	14.67	AVG	10.10	24.77	51.17	-26.40	
*	0.5360	34.11	QP	10.12	44.23	56.00	-11.77	
	0.5360	19.20	AVG	10.12	29.32	46.00	-16.68	
	1.8995	28.87	QP	10.18	39.05	56.00	-16.95	
	1.8995	12.55	AVG	10.18	22.73	46.00	-23.27	
	2.6105	31.10	QP	10.23	41.33	56.00	-14.67	
	2.6105	19.48	AVG	10.23	29.71	46.00	-16.29	

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. Measurement uncertainty = ±1.60 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
6. 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, ETSTW-RE 045

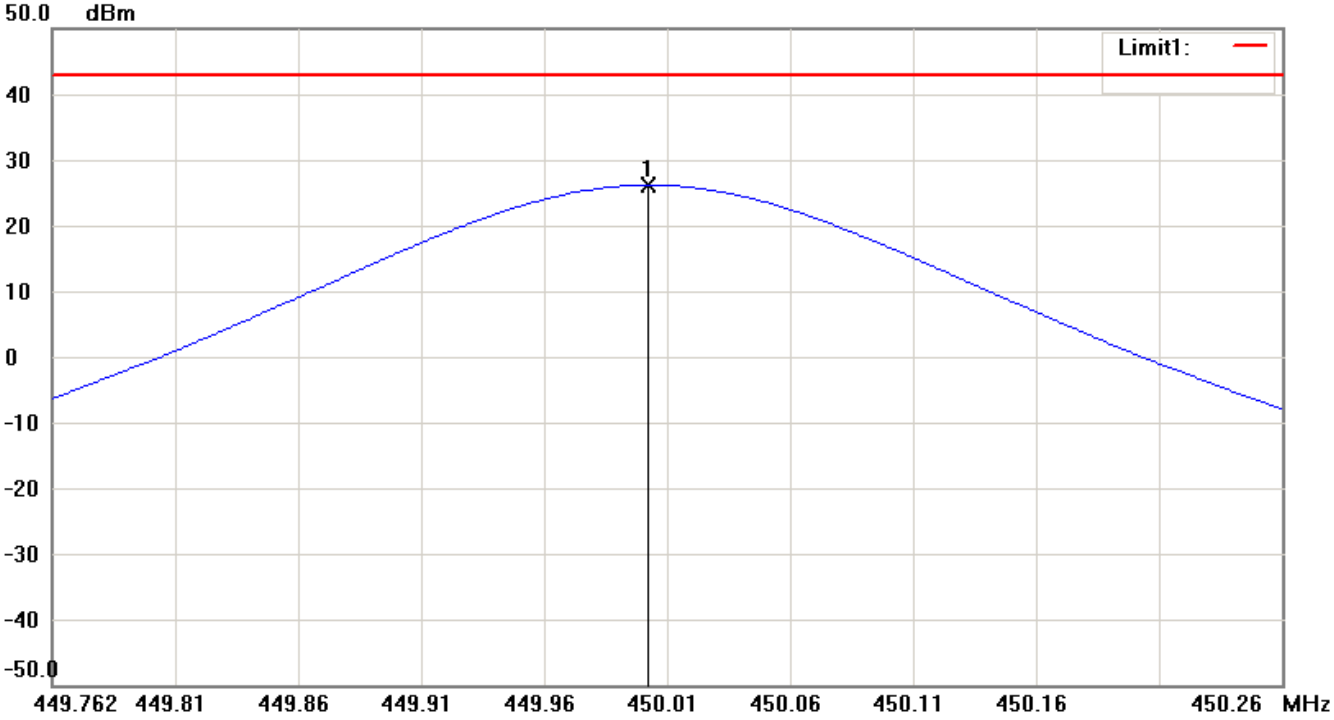
Appendix

Measurement diagrams

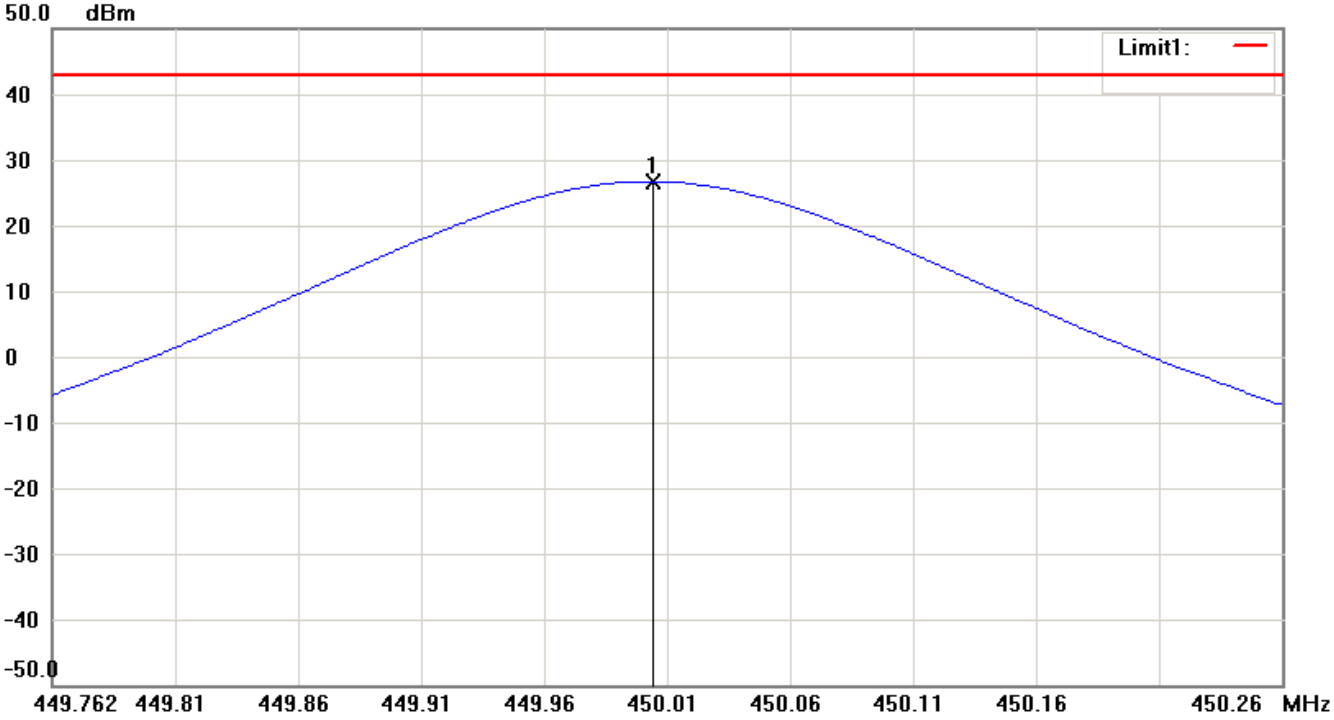
1. Radiated Power
2. Radiated Spurious Emission

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

Radiated Power
450.0125 MHz
Antenna Polarization H



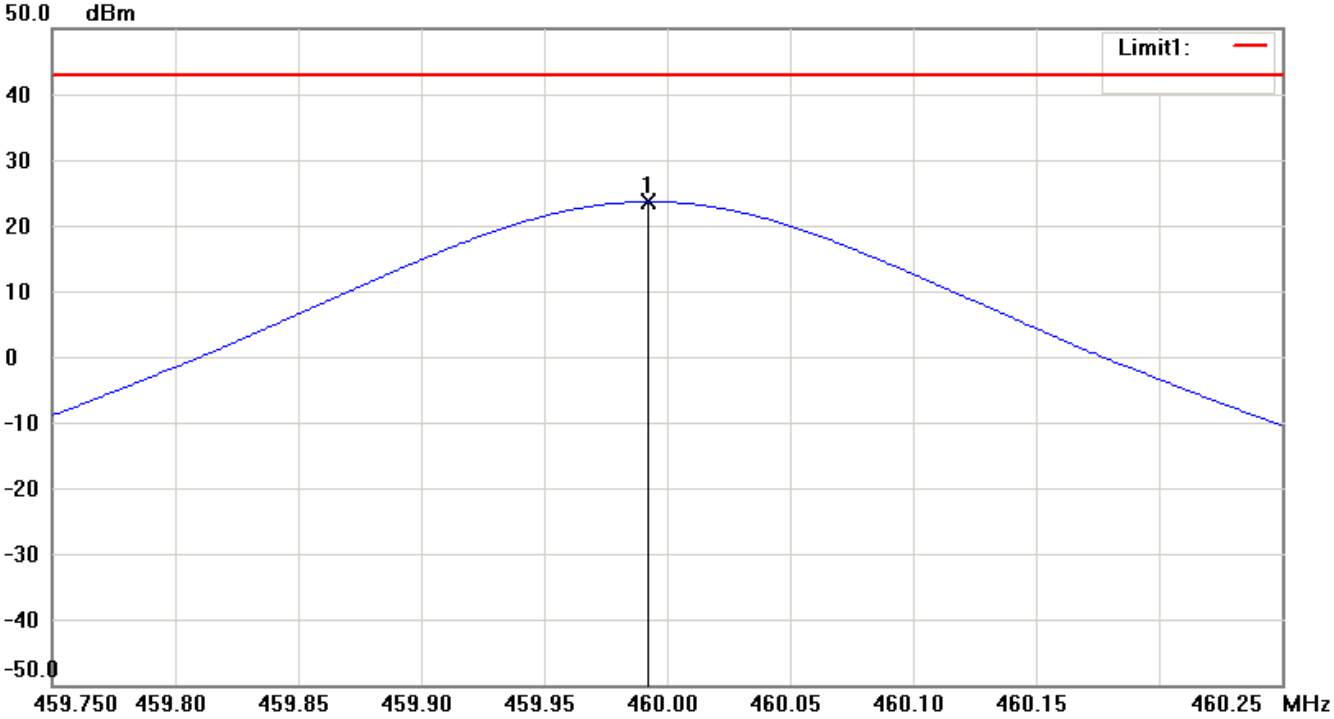
Antenna Polarization V



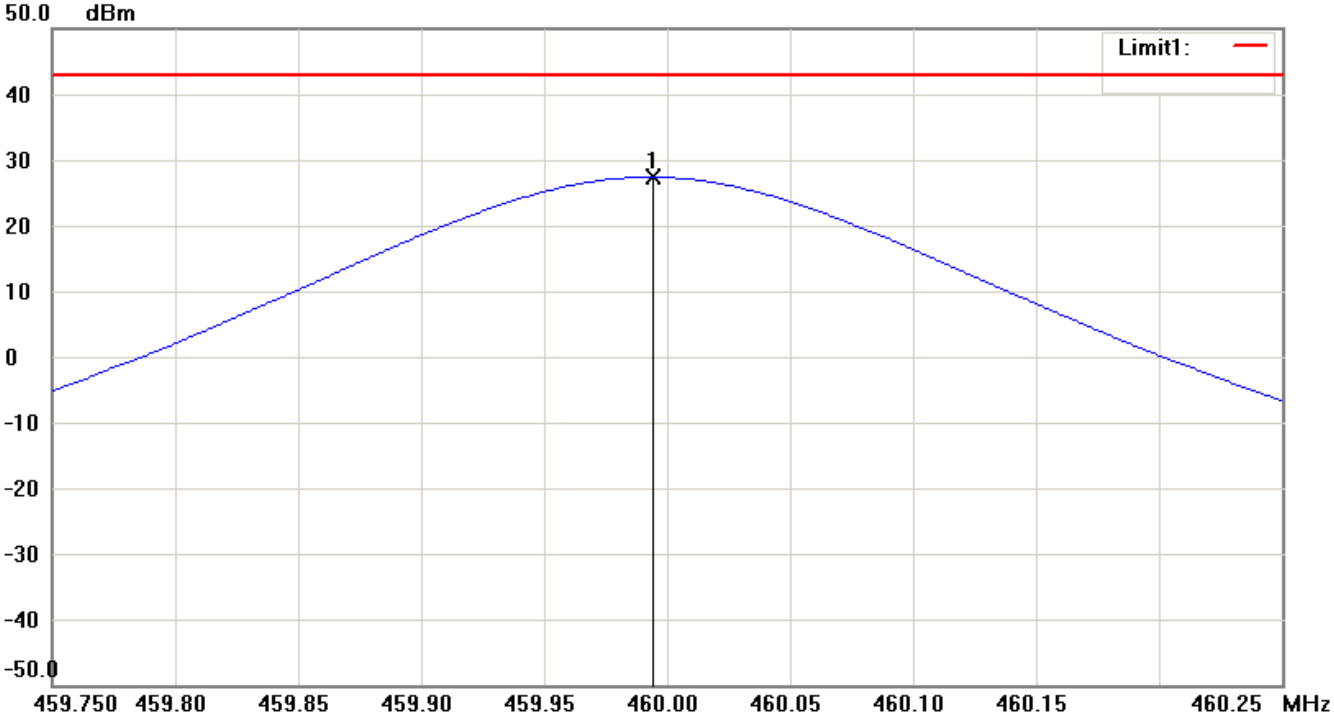
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

460 MHz

Antenna Polarization H



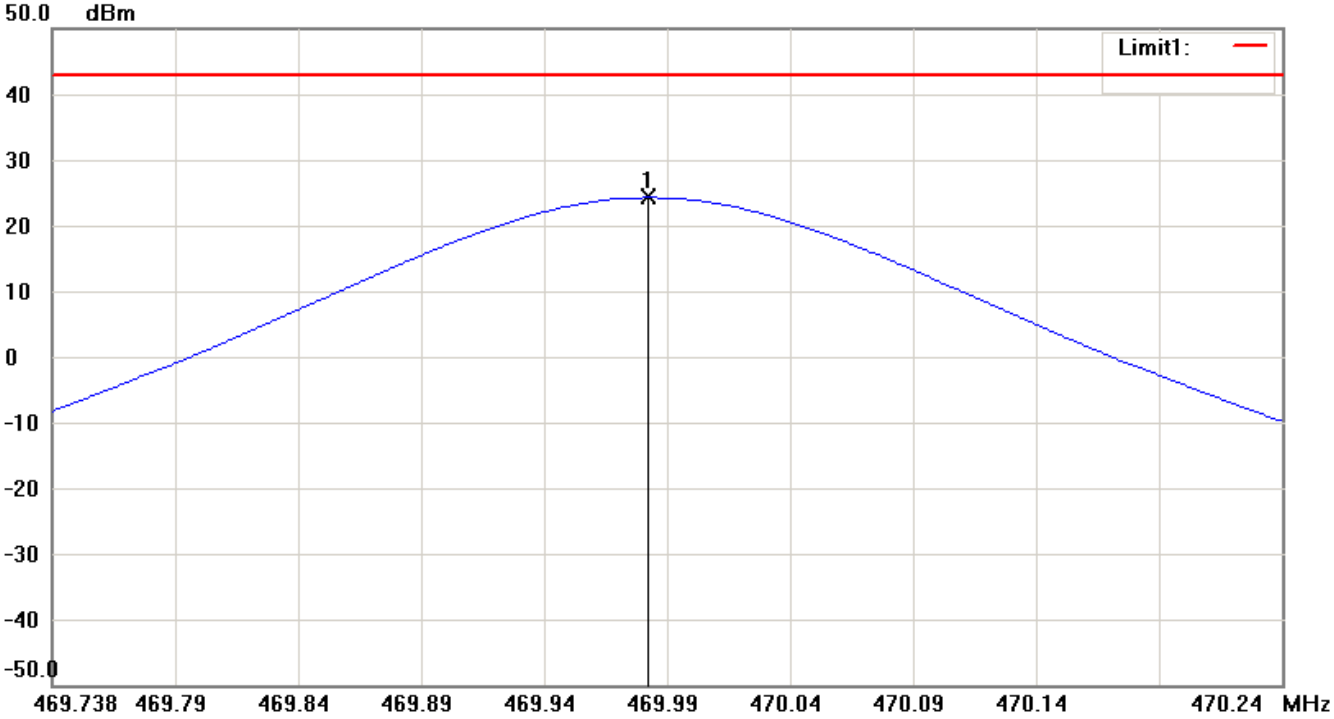
Antenna Polarization V



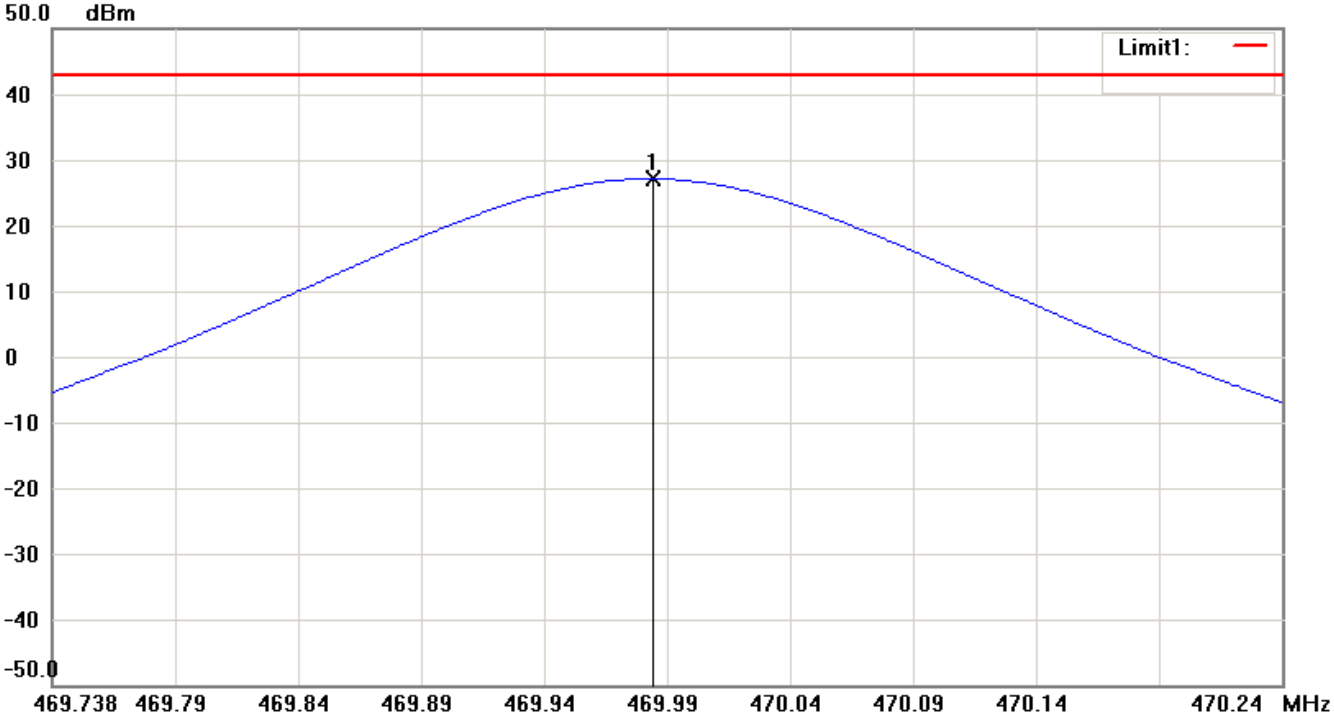
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

469.9875 MHz

Antenna Polarization H

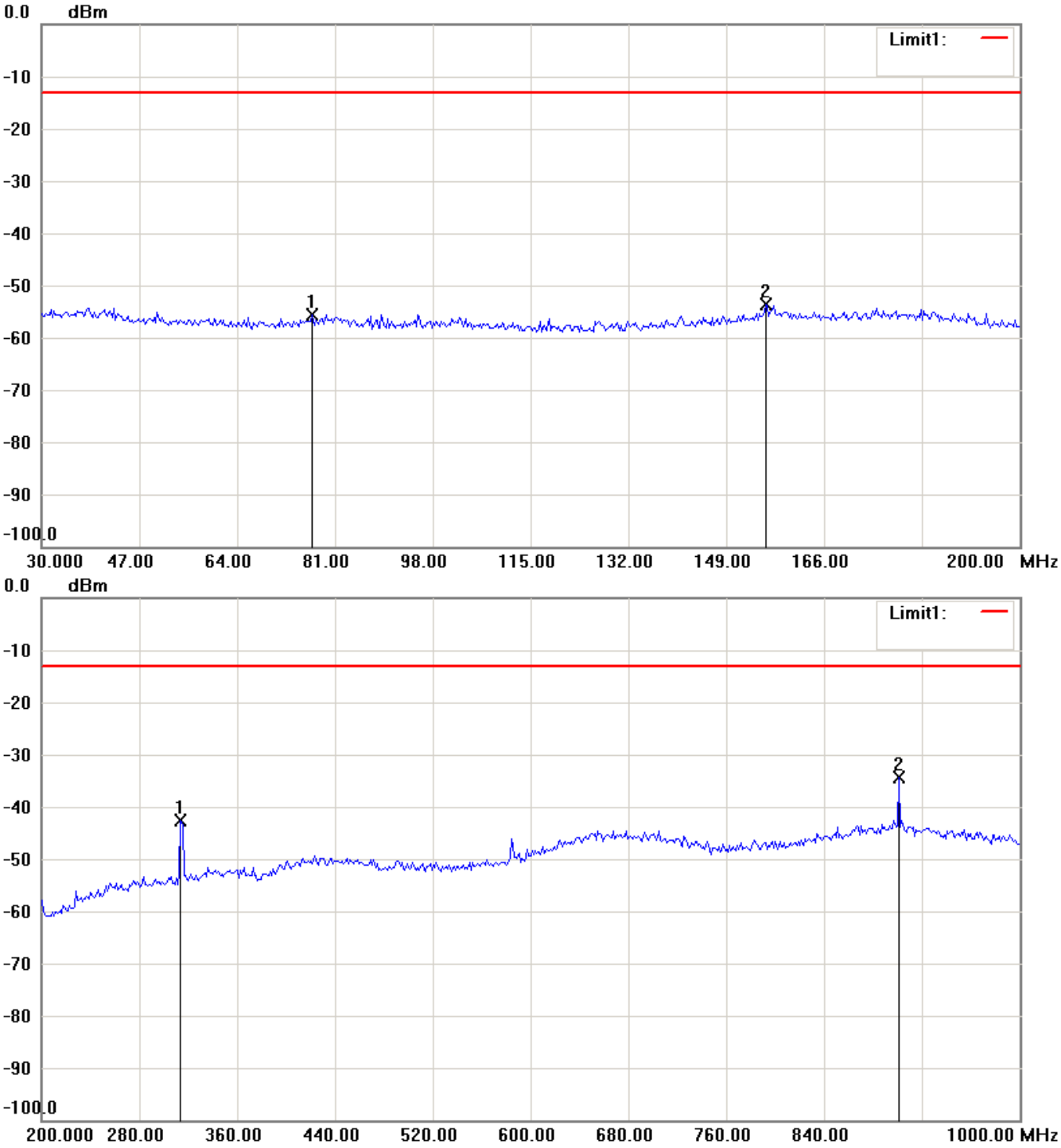


Antenna Polarization V



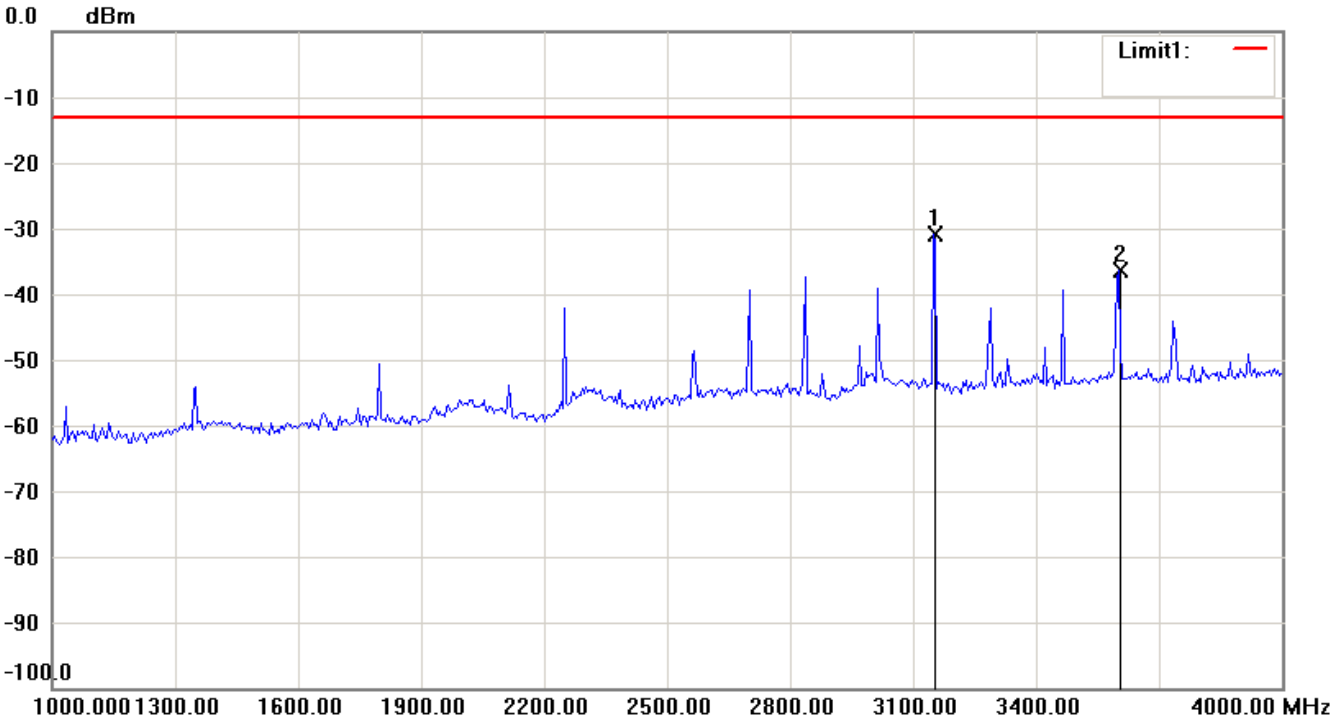
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

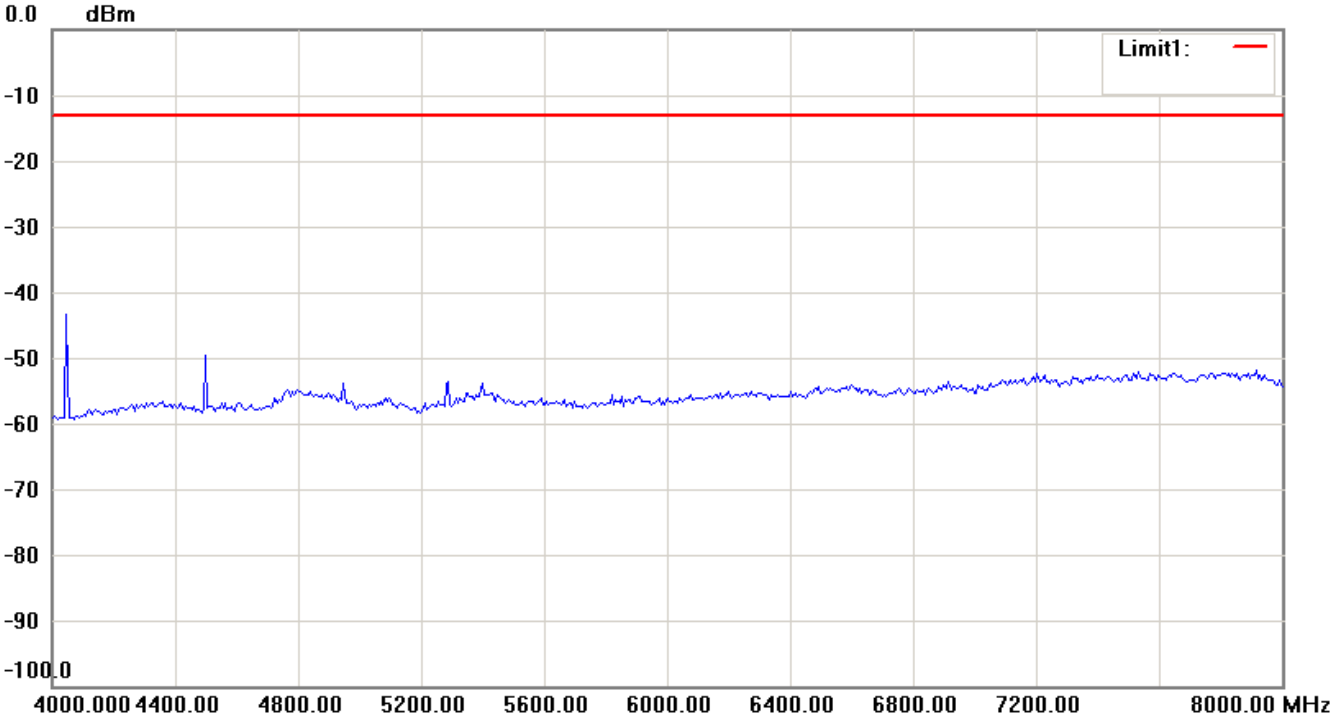
Radiated Spurious Emission_Transmitter
TX 450.0125 MHz
Antenna Polarization H



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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

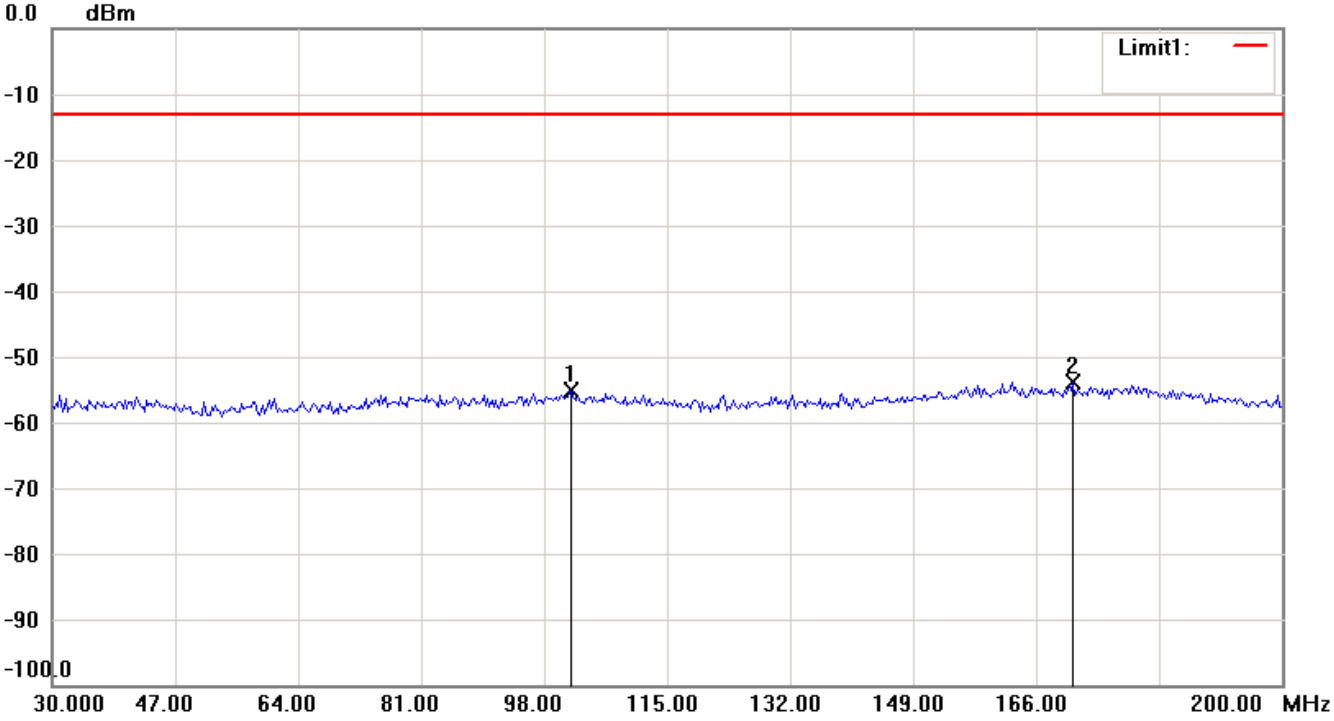


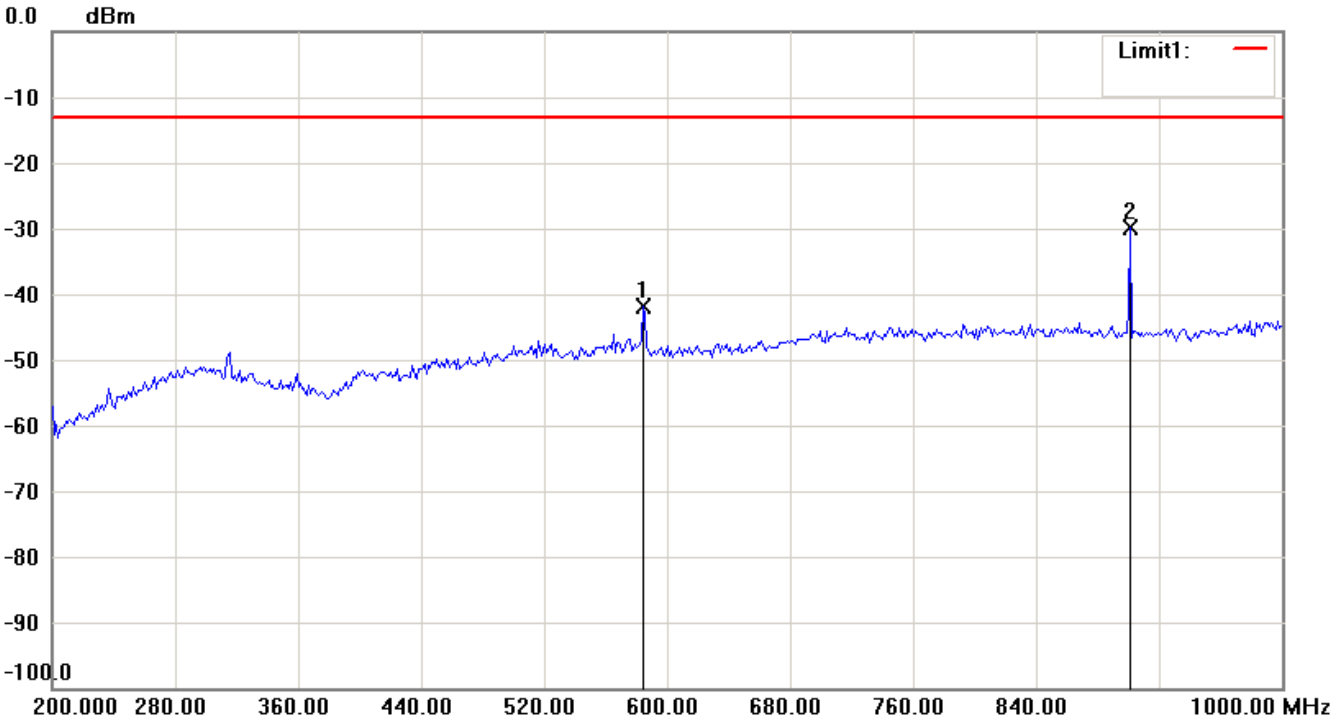


Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

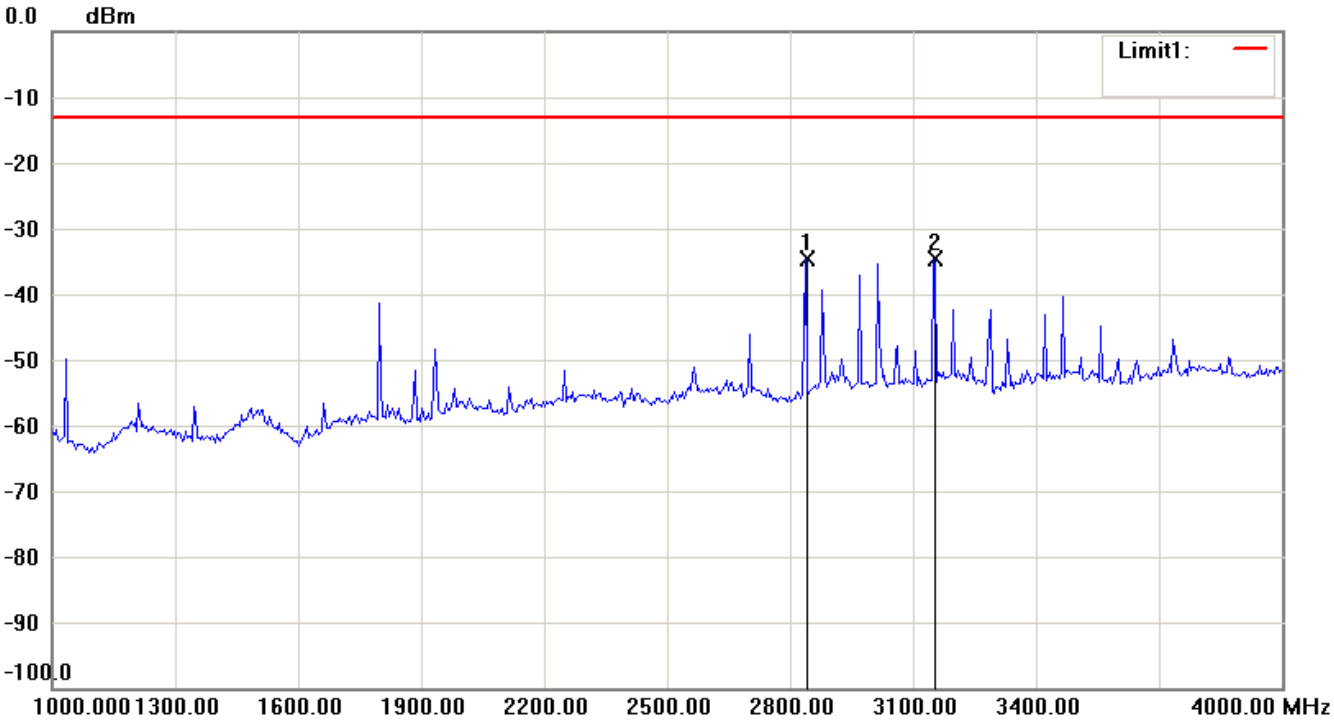
Antenna Polarization V

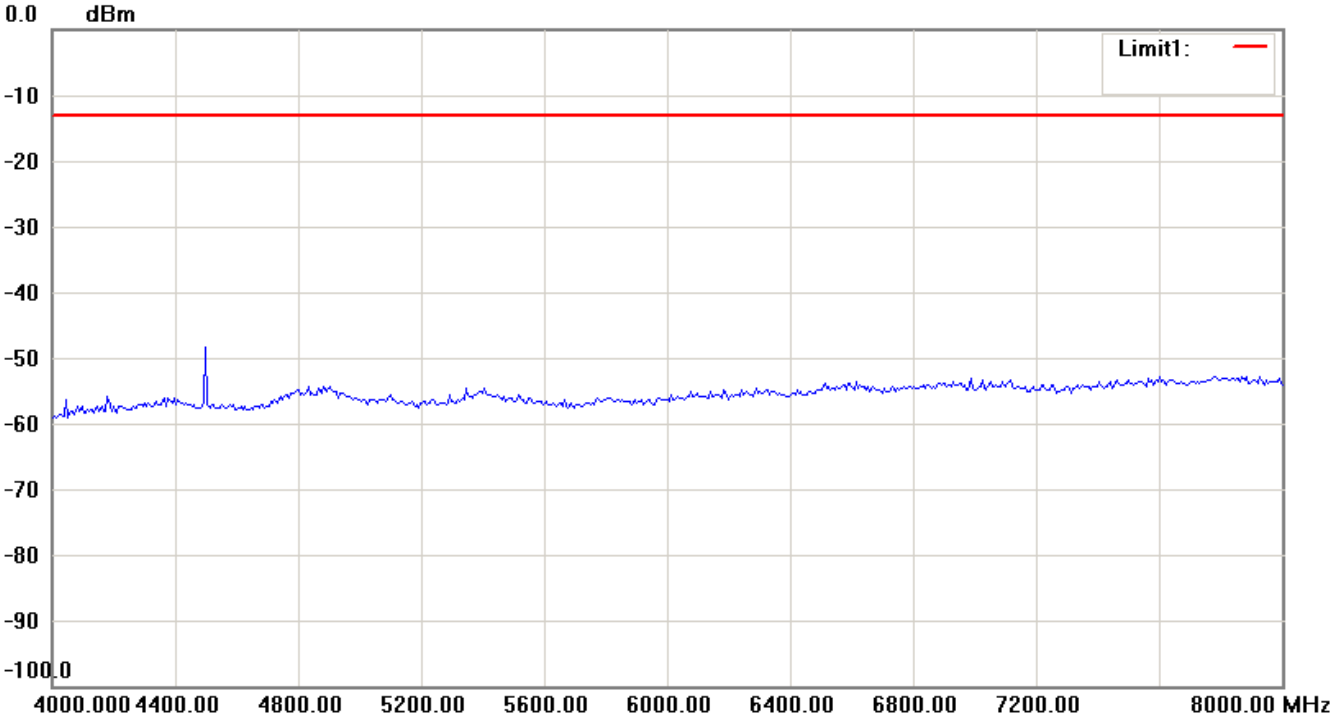




Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



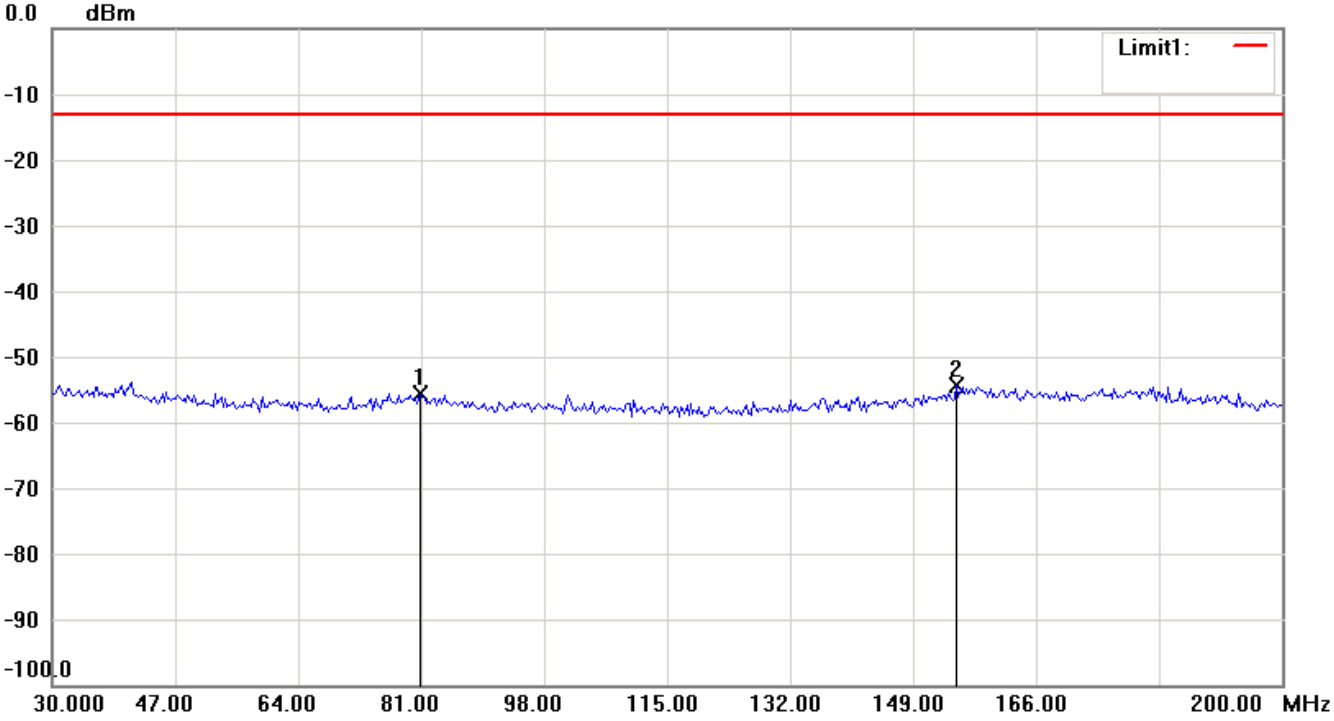


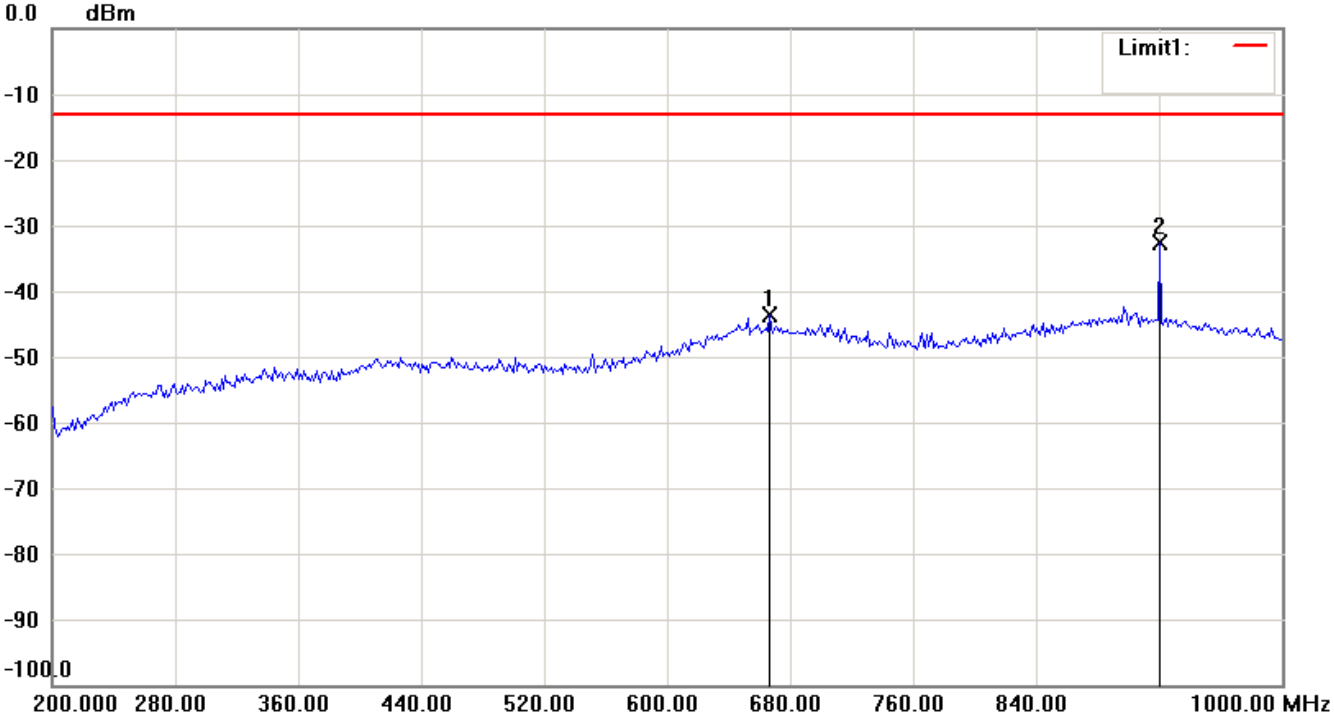
Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

TX 460 MHz

Antenna Polarization H

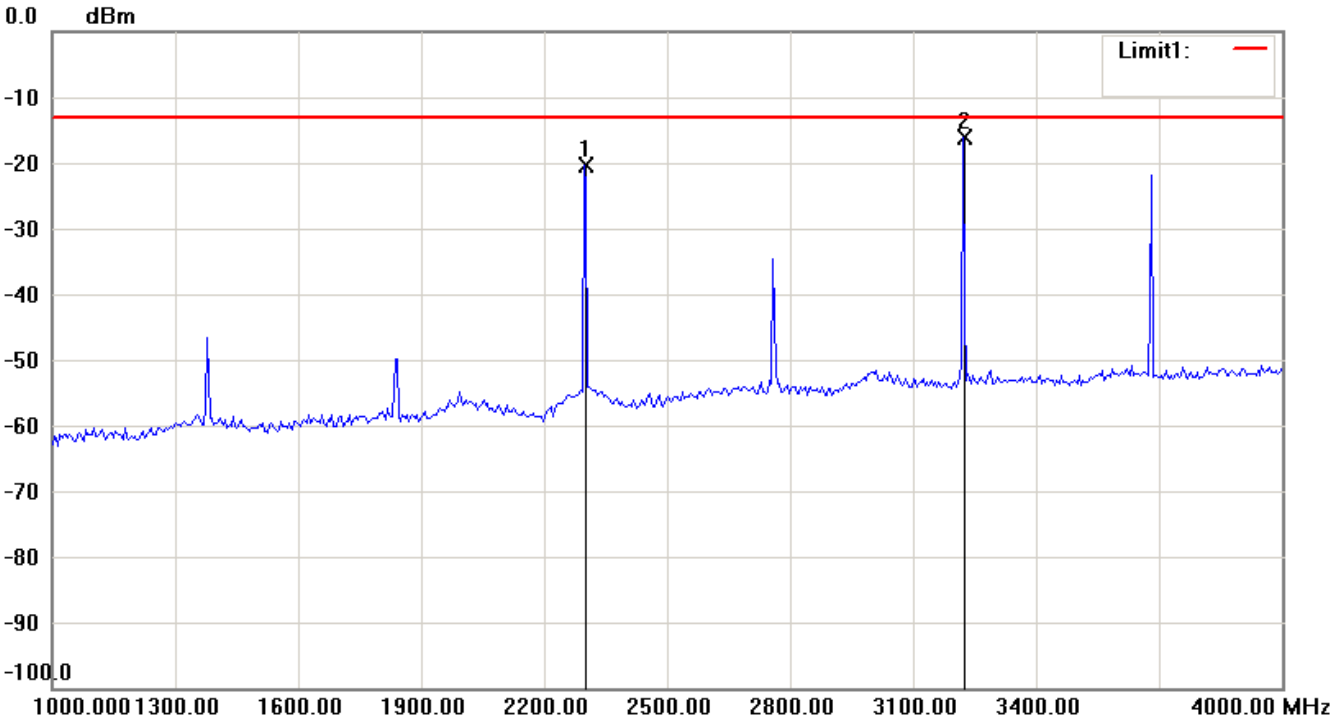


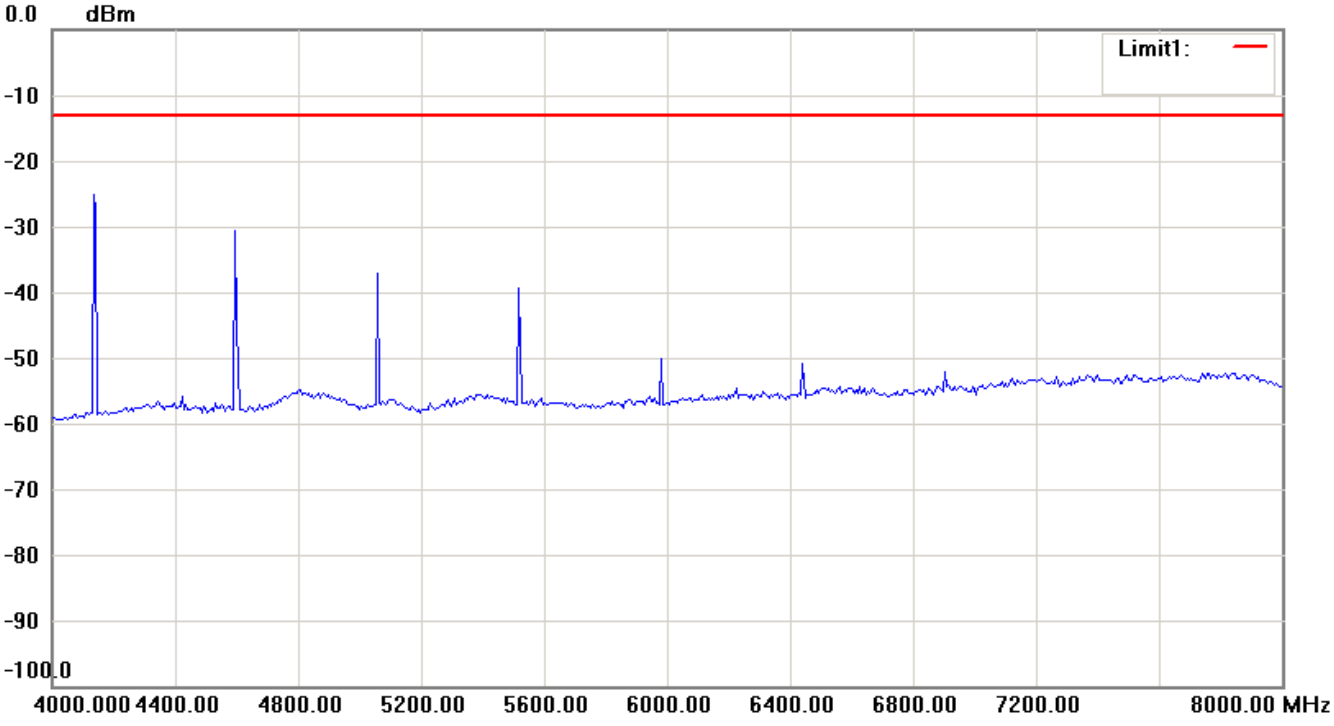


Note:

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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

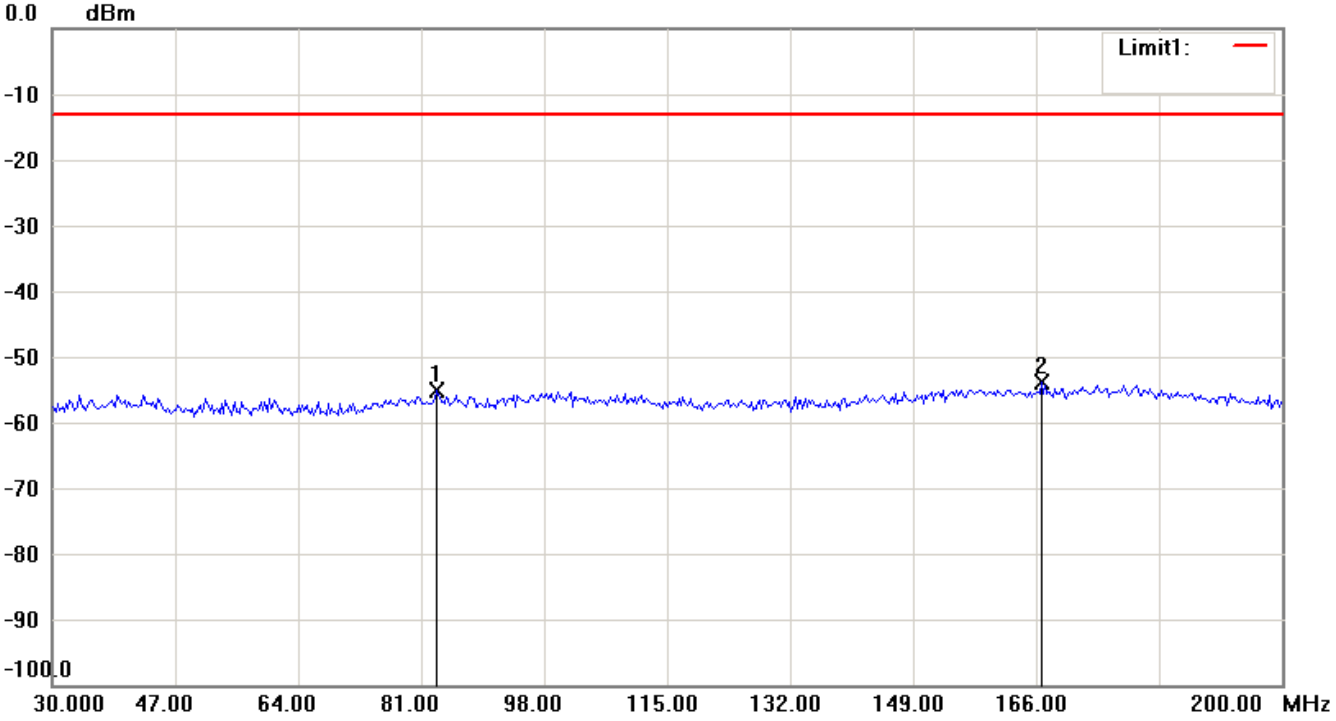


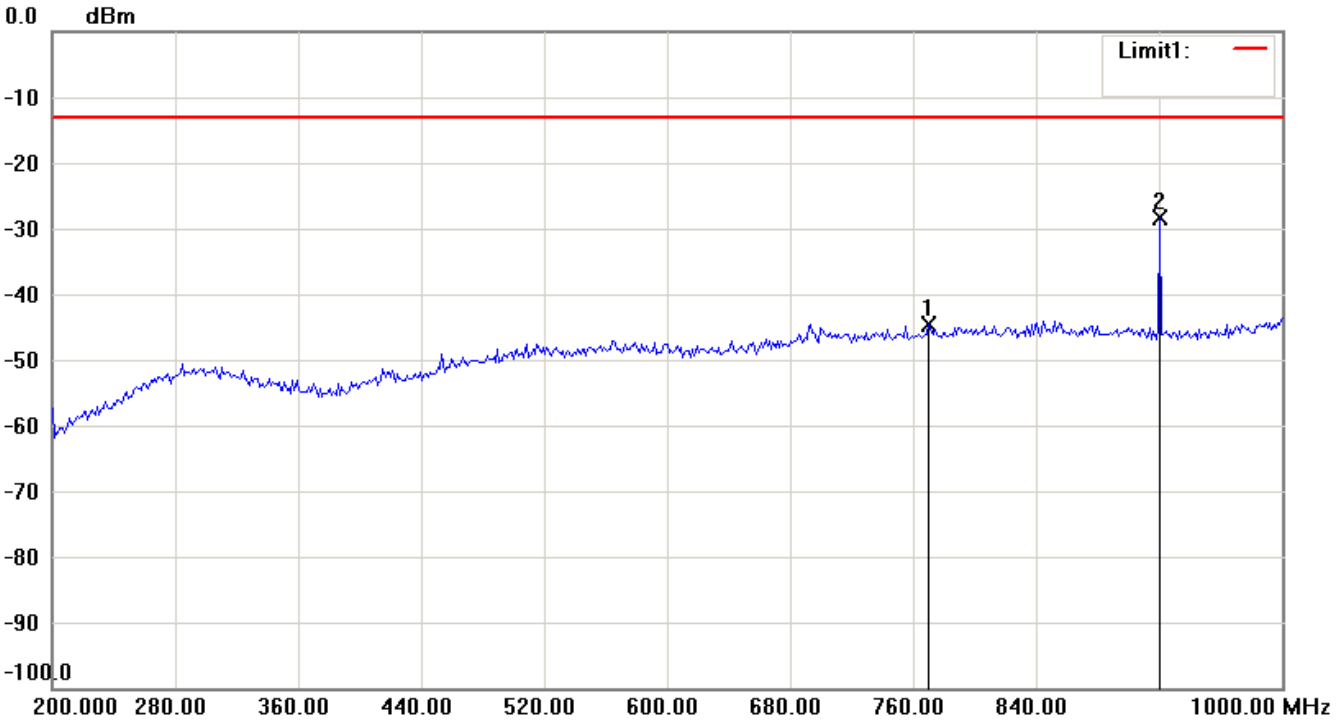


Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

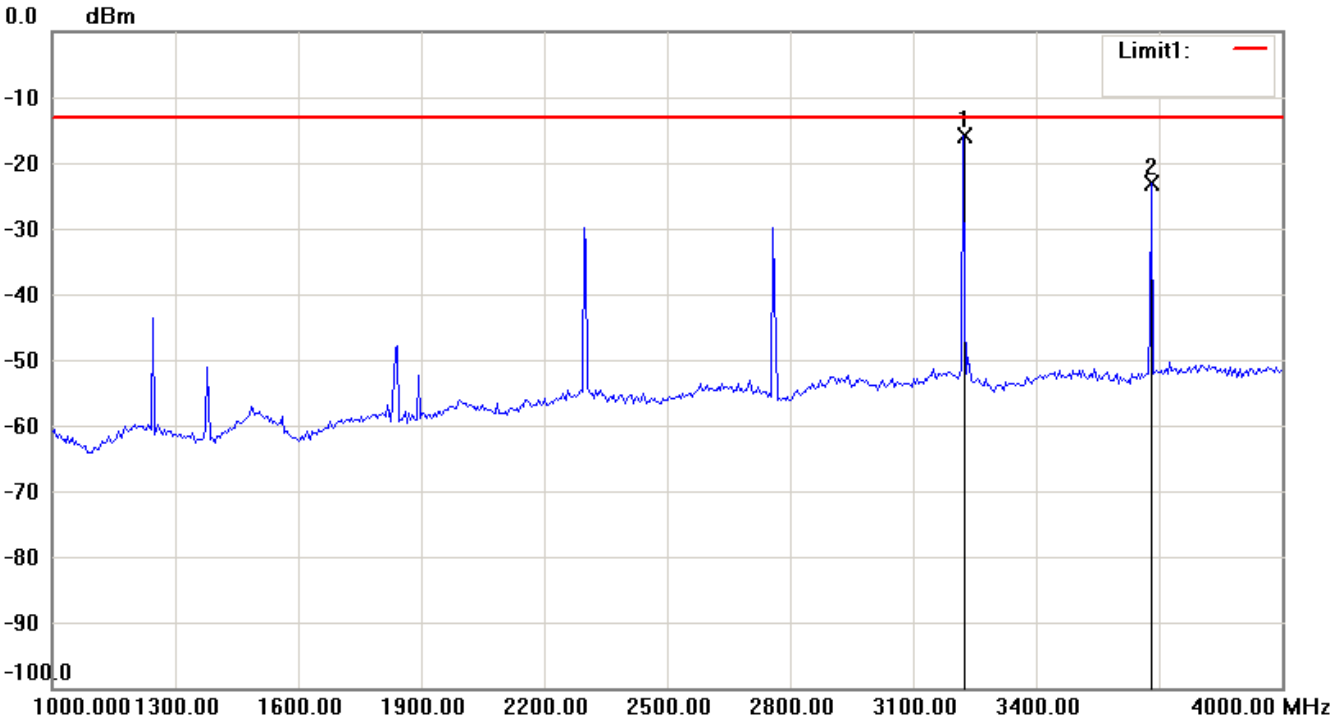
Antenna Polarization V

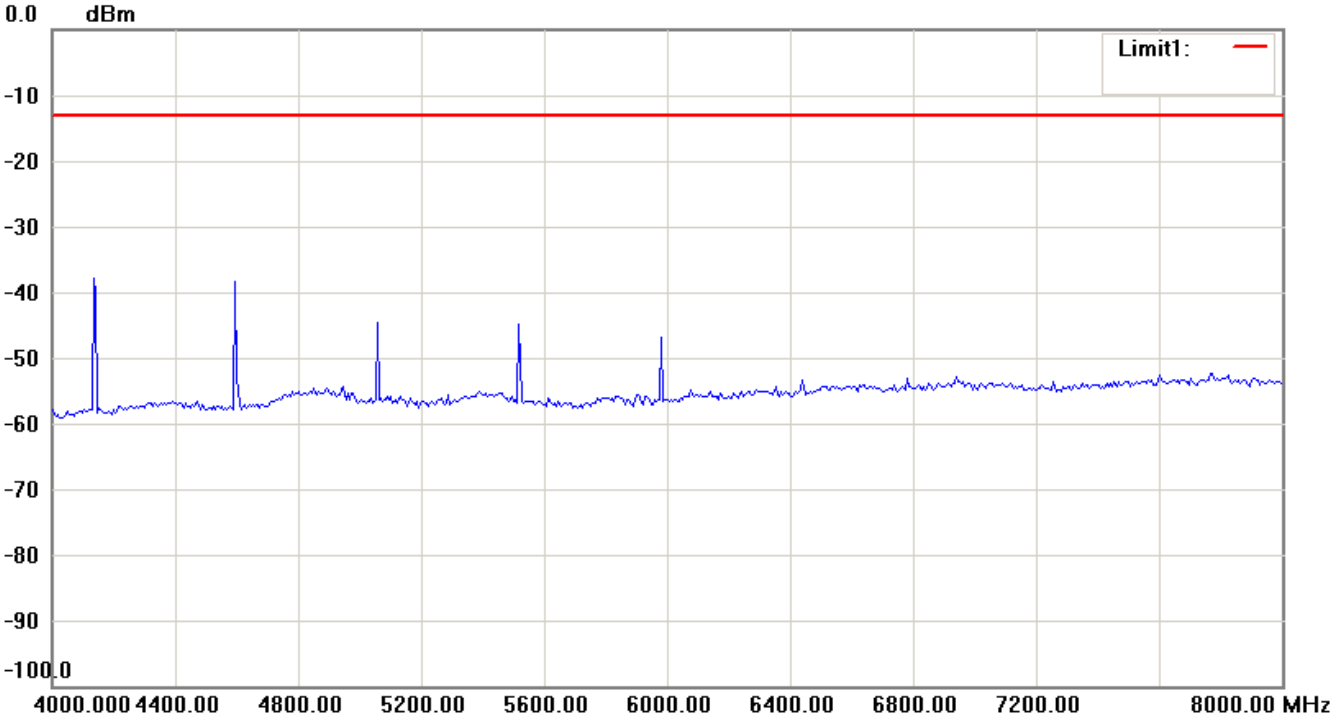




Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

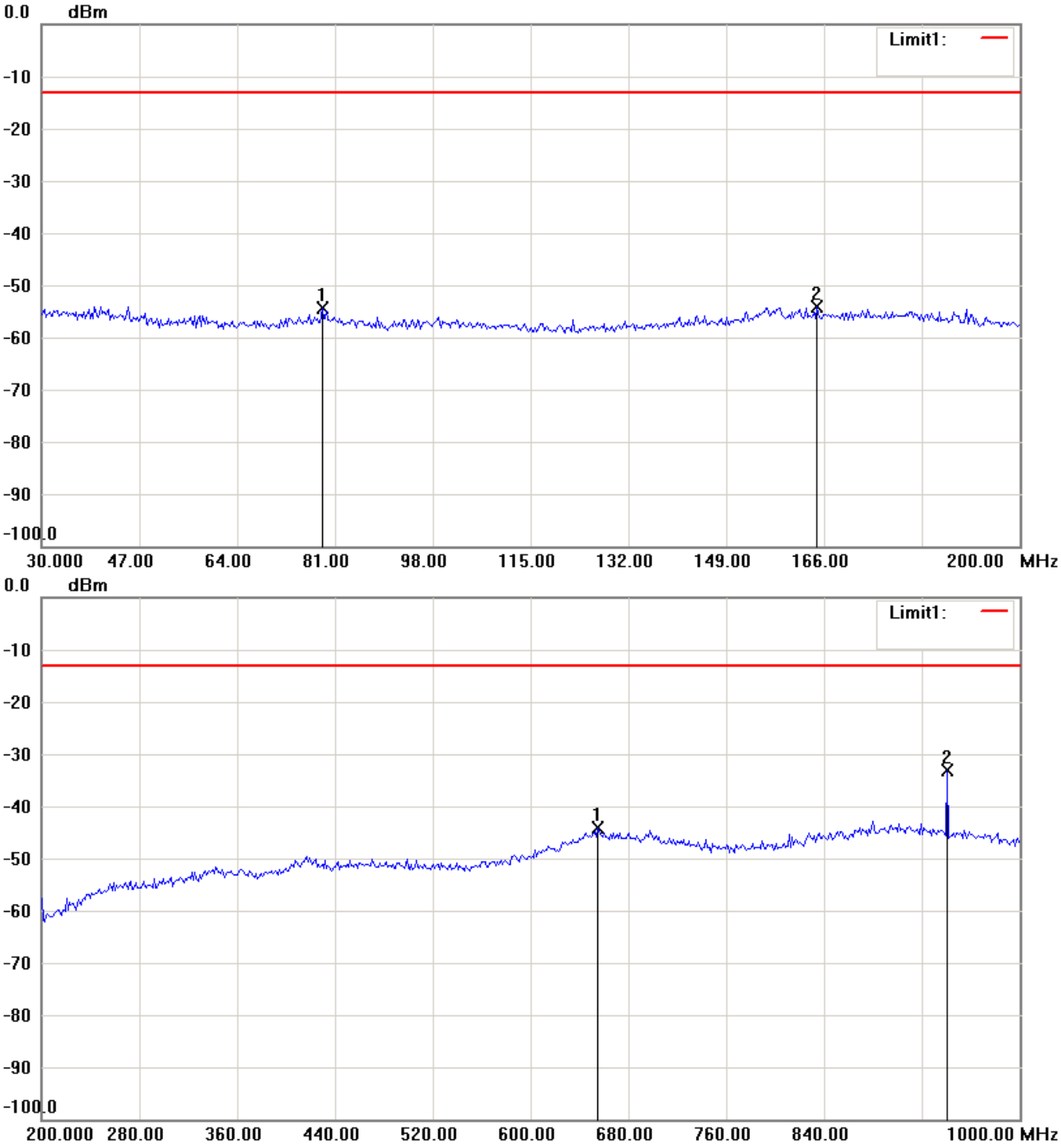




Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to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

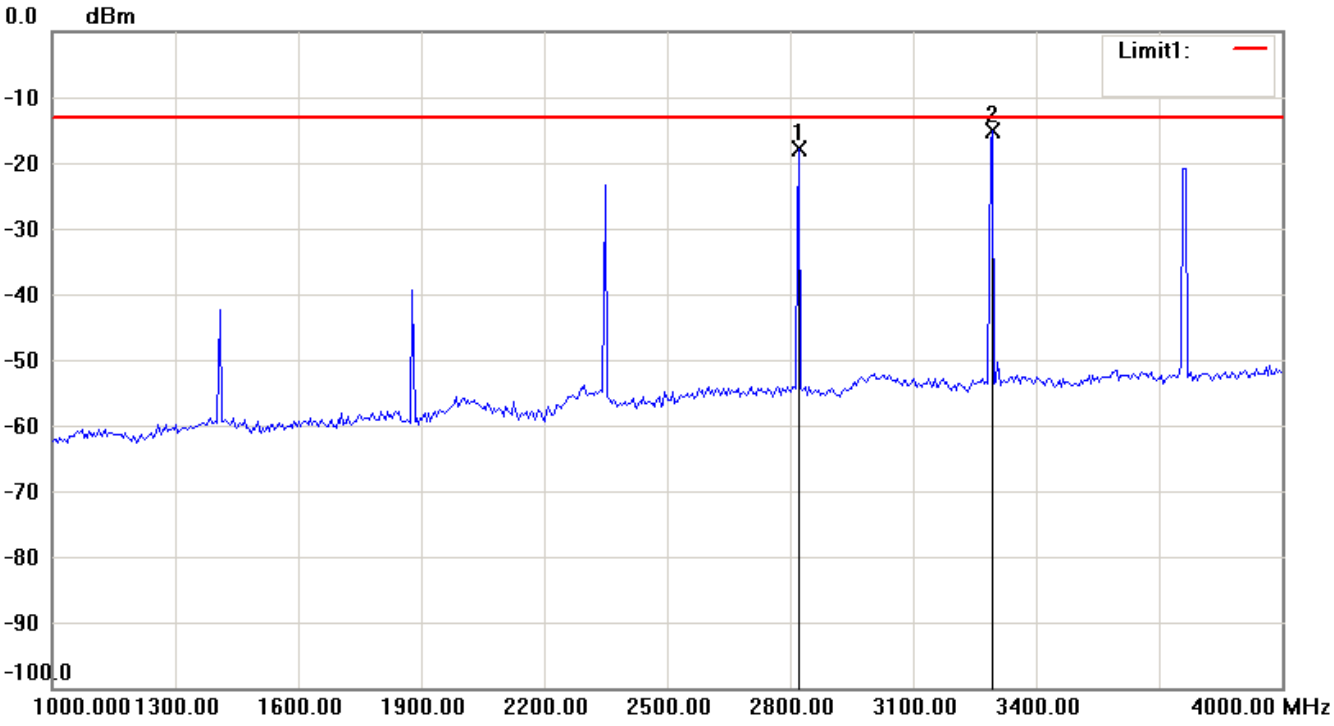
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

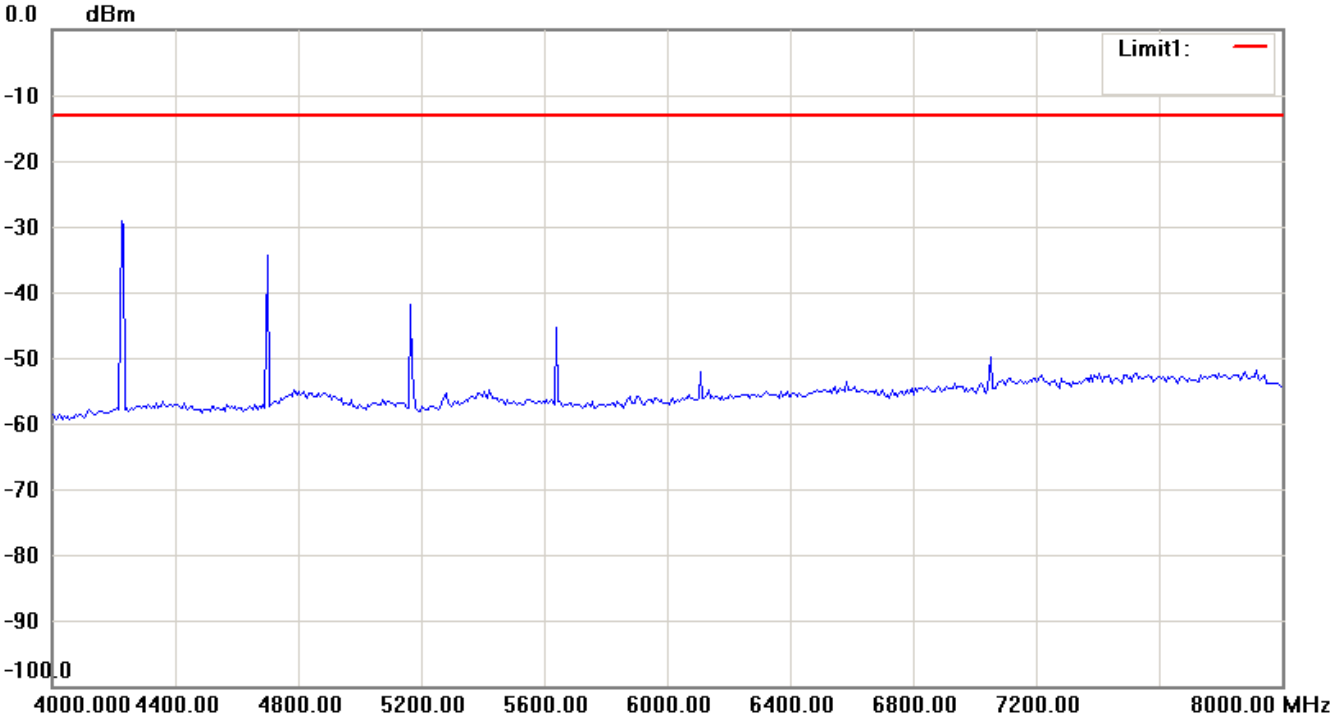
TX 469.9875 MHz
Antenna Polarization H



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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

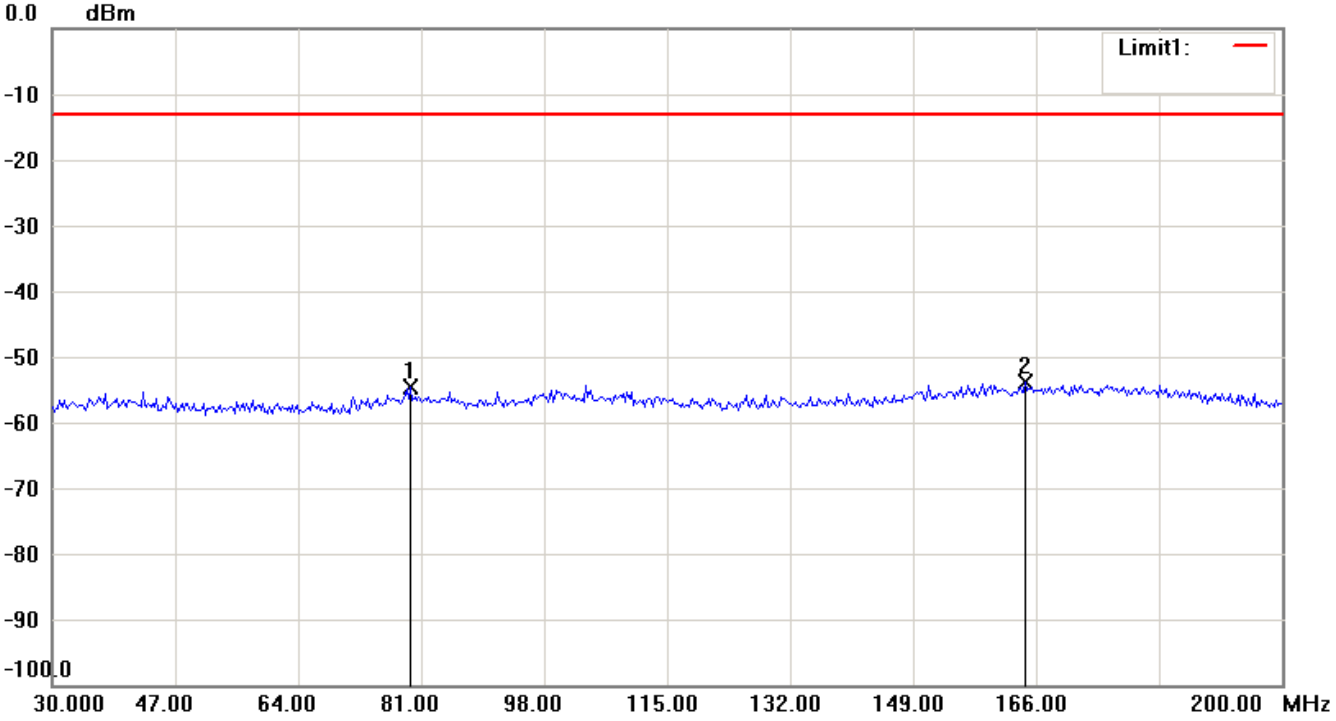


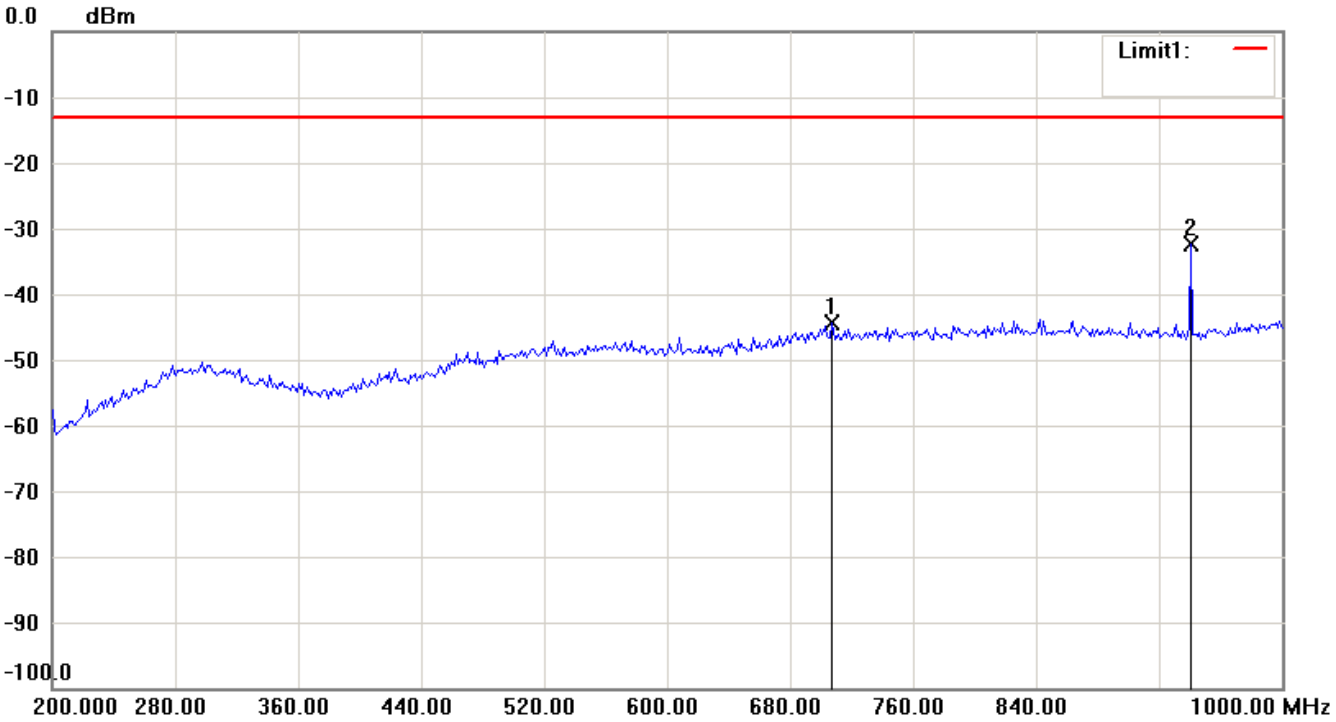


Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

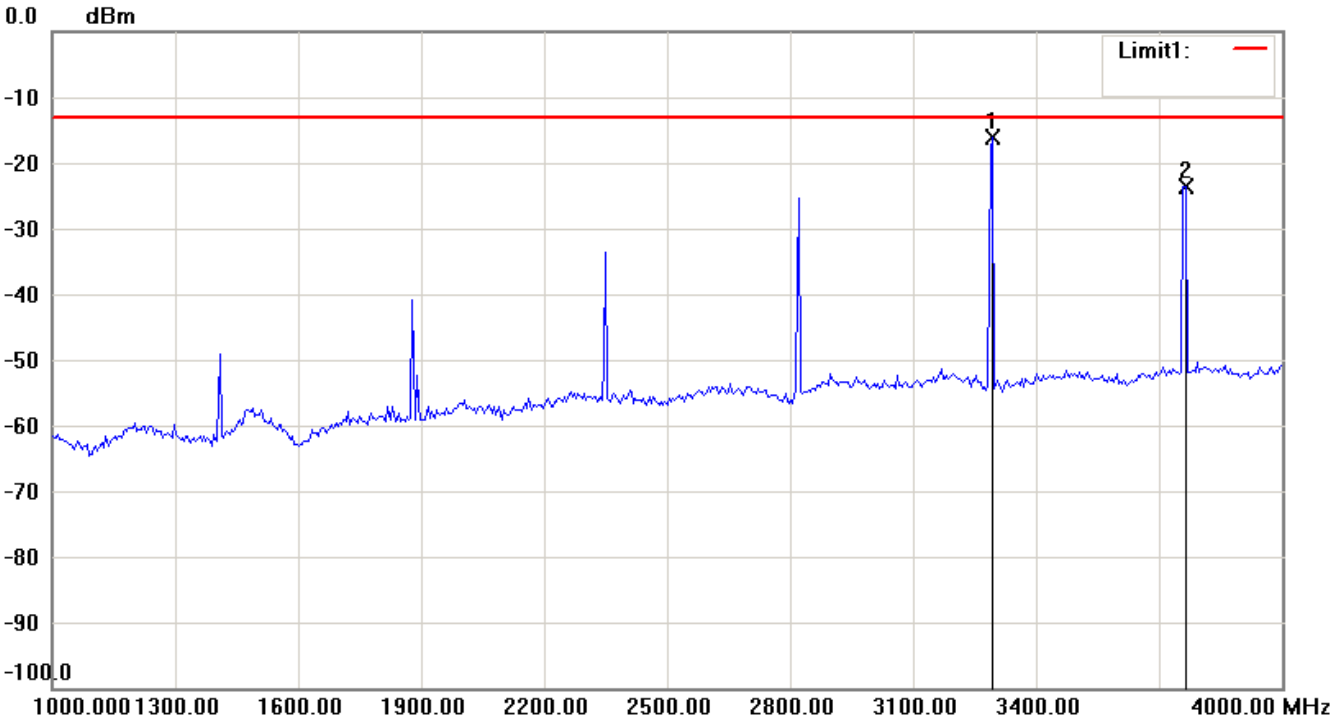
Antenna Polarization V

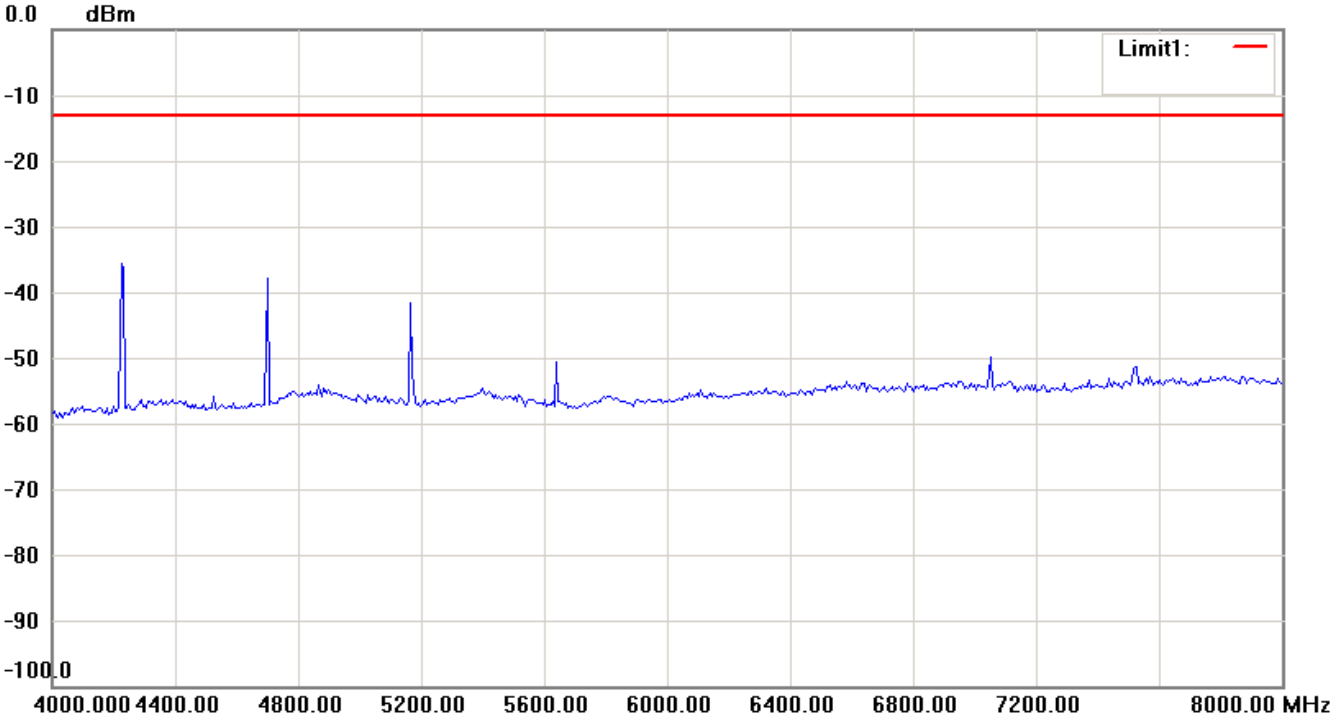




Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

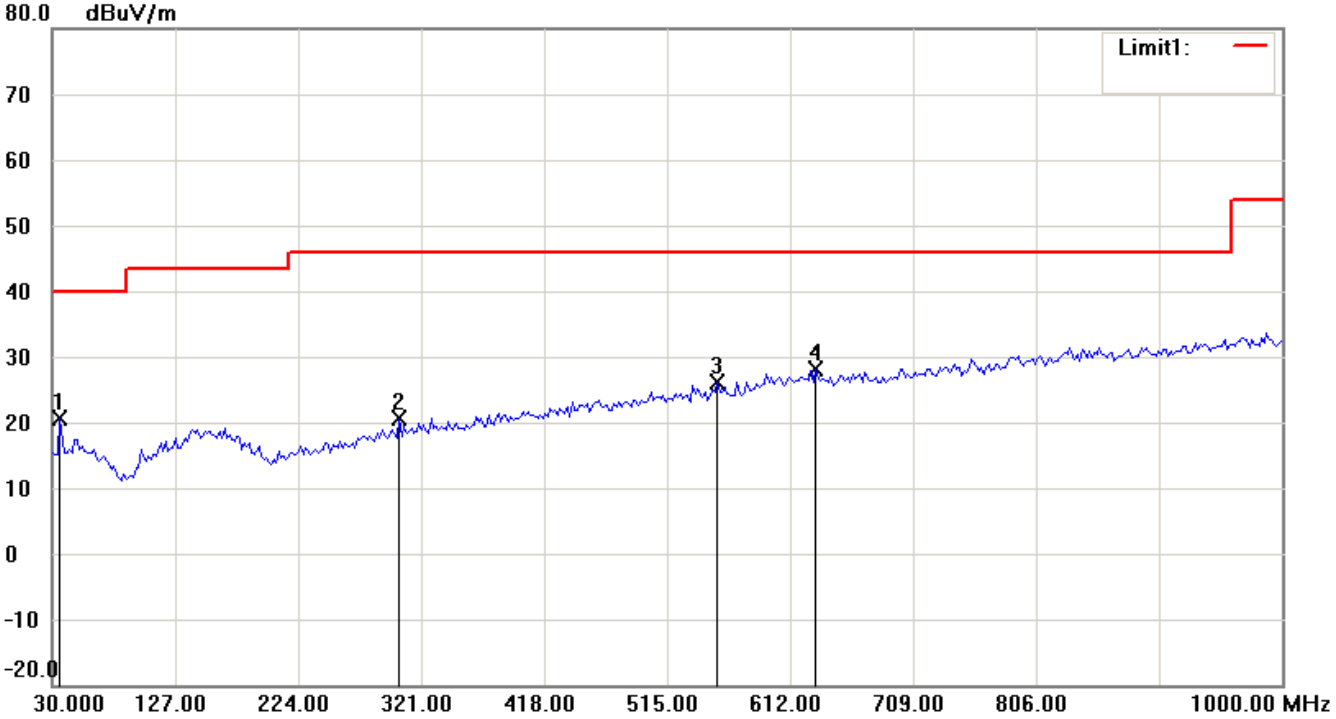


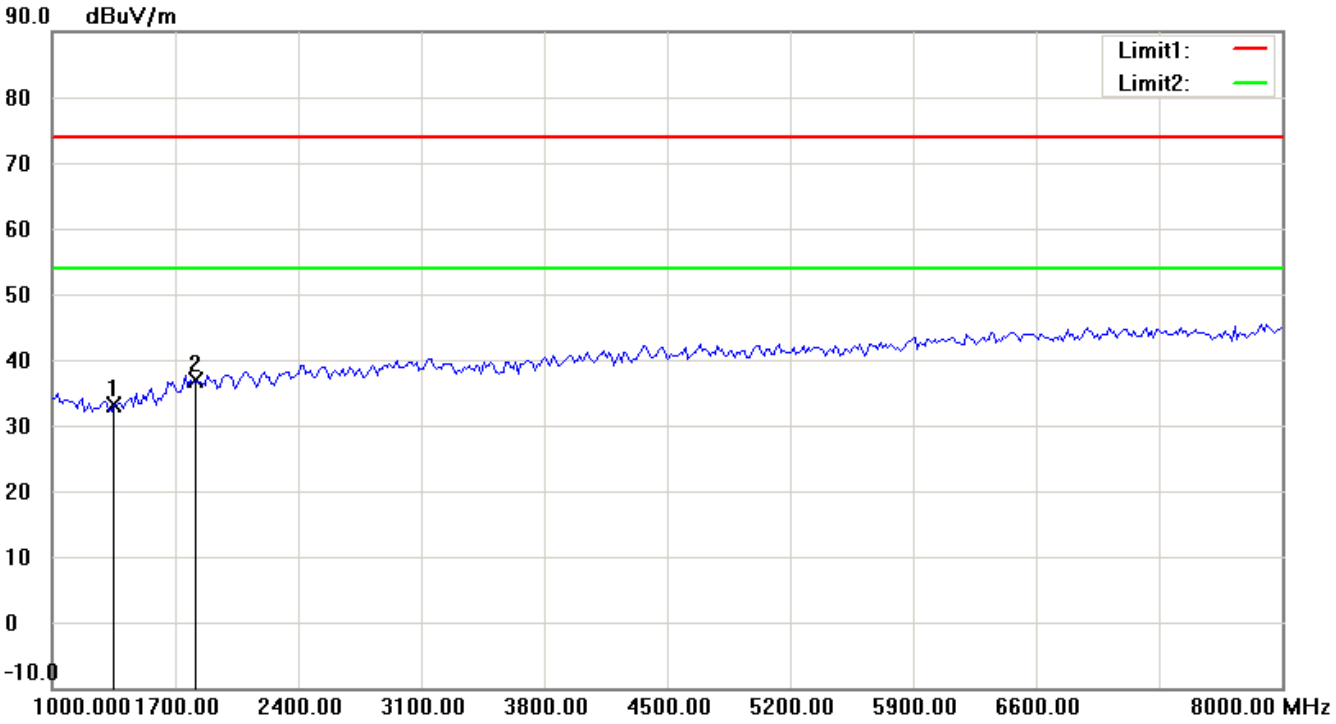


Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

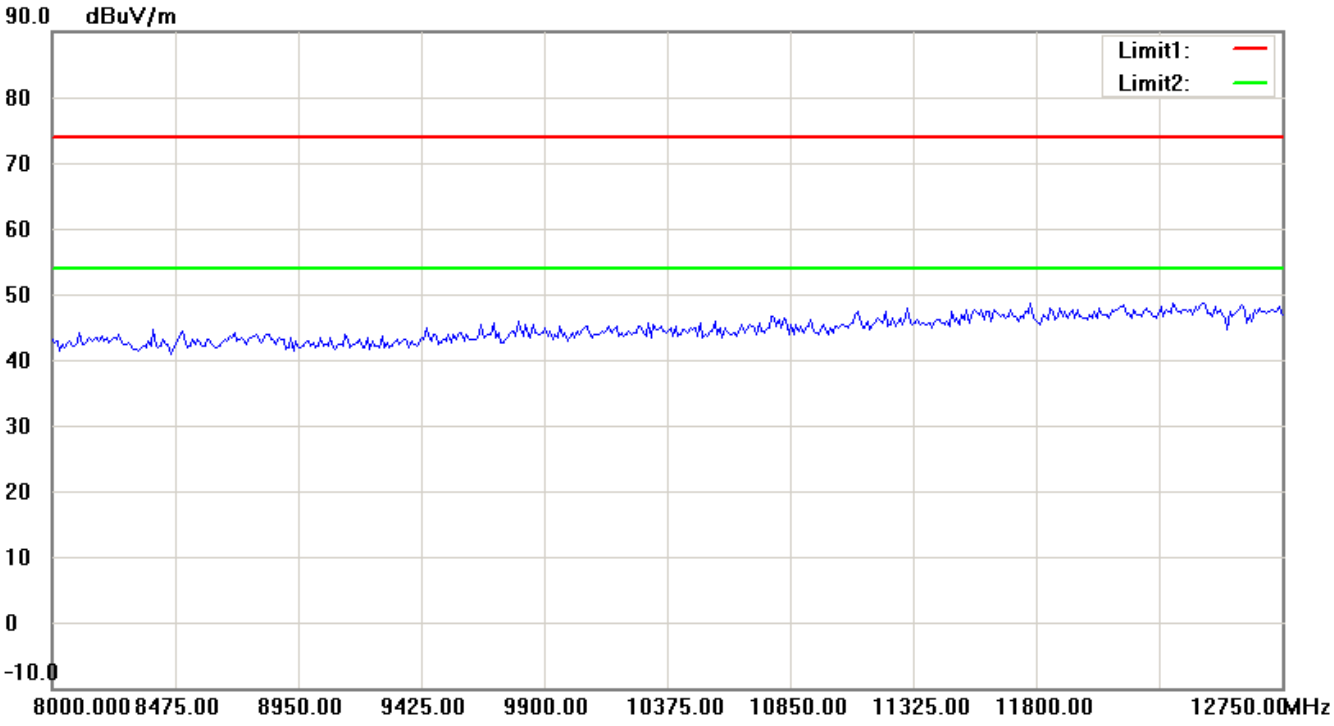
Radiated Spurious Emission_Receiver
RX 450.0125MHz
Antenna Polarization H

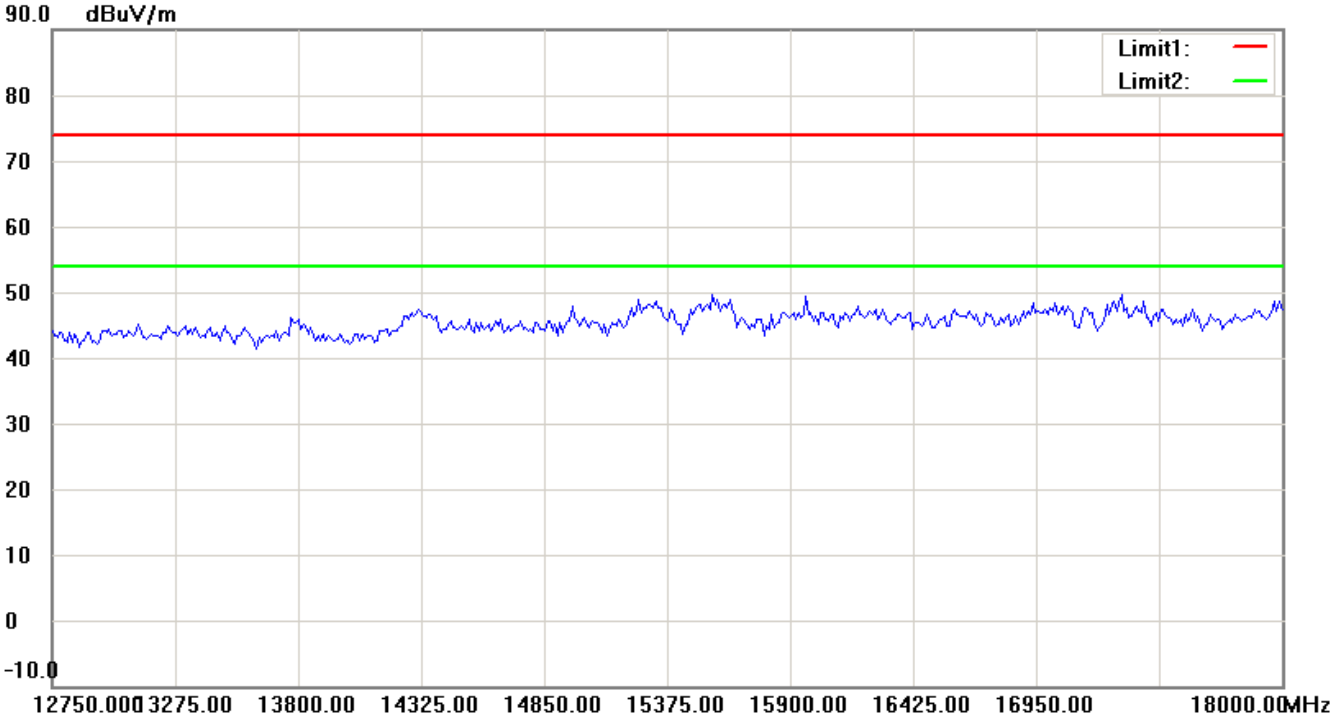




Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but 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.

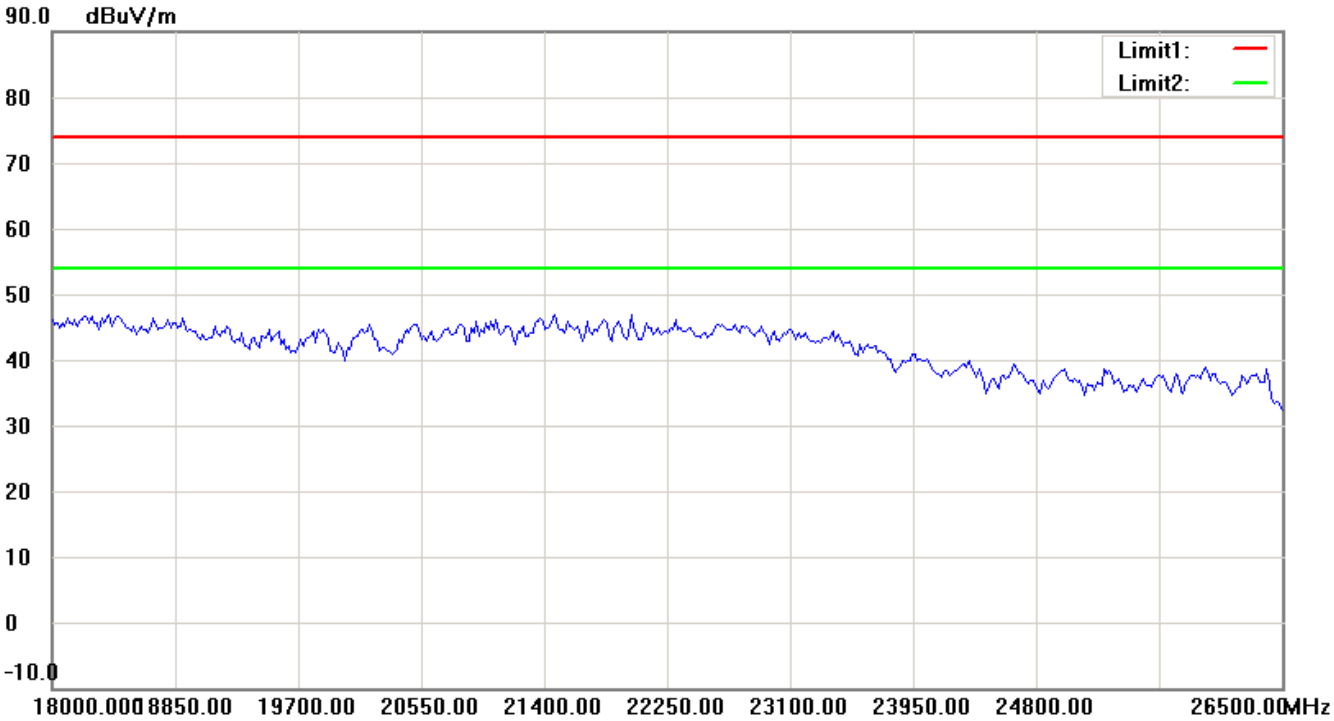
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



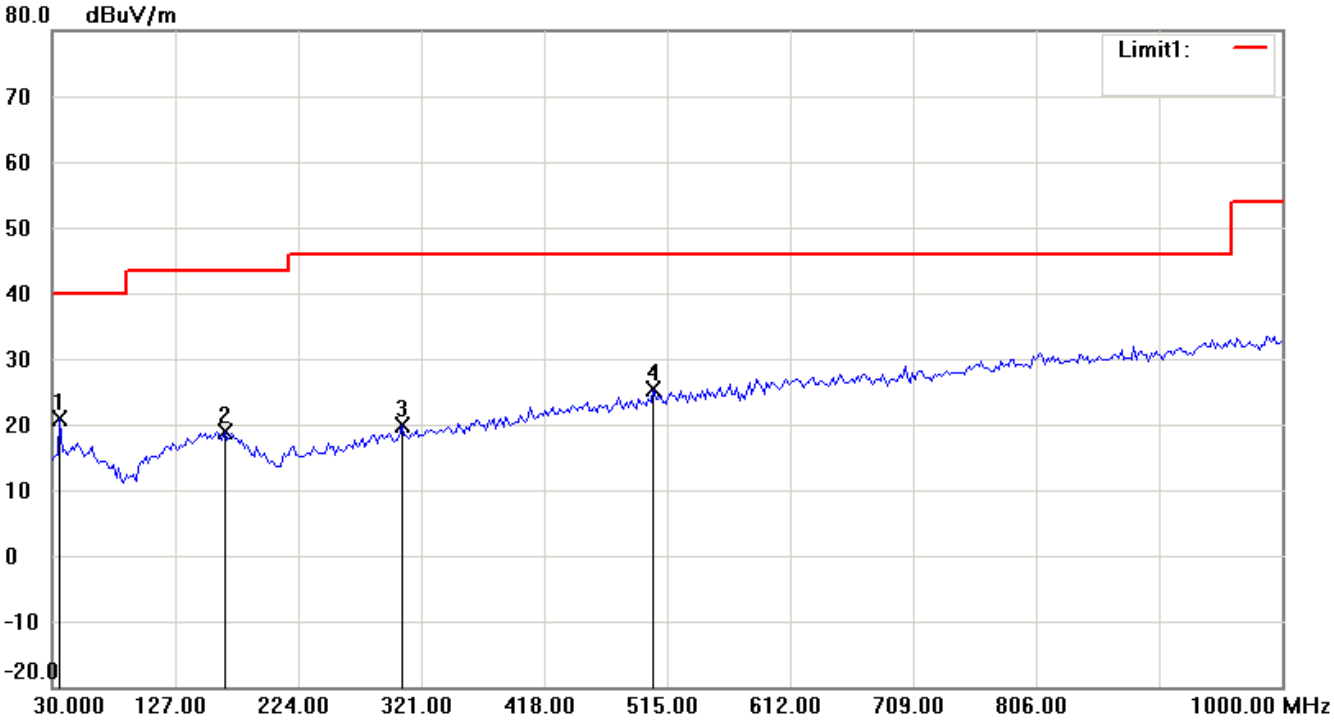


Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but 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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



Antenna Polarization V



Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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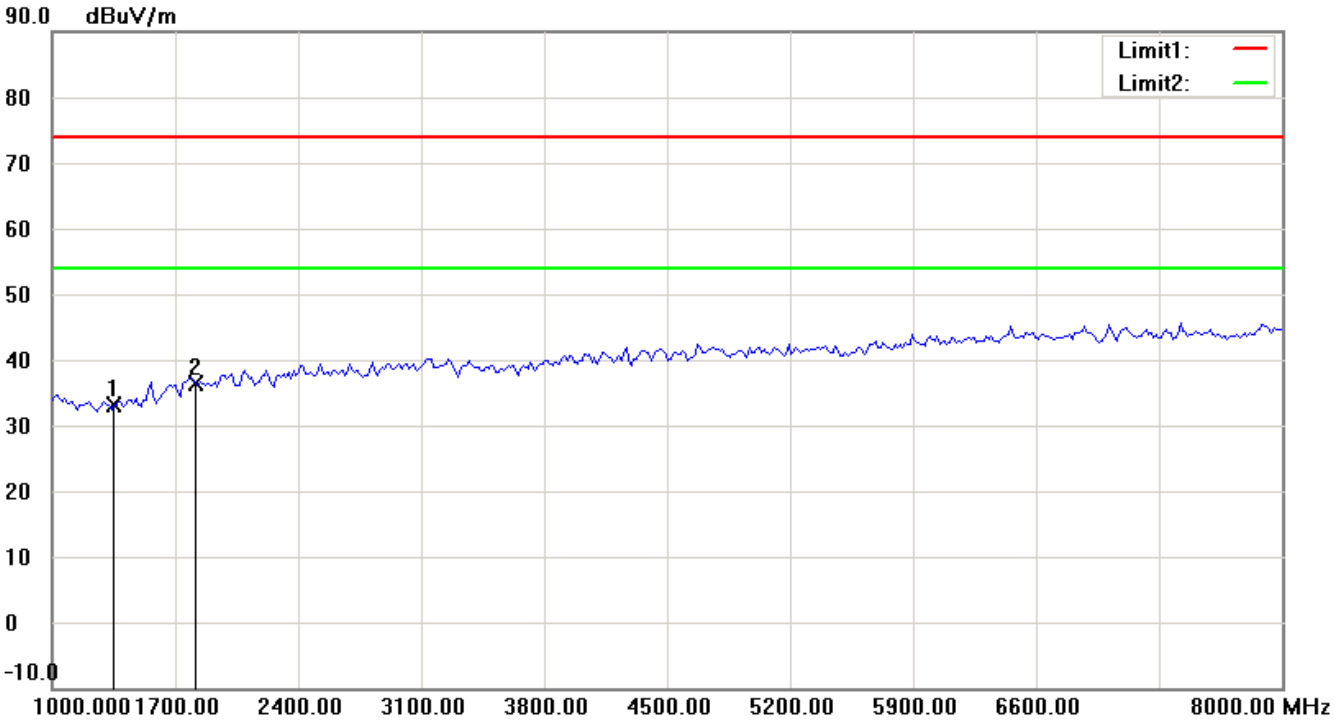
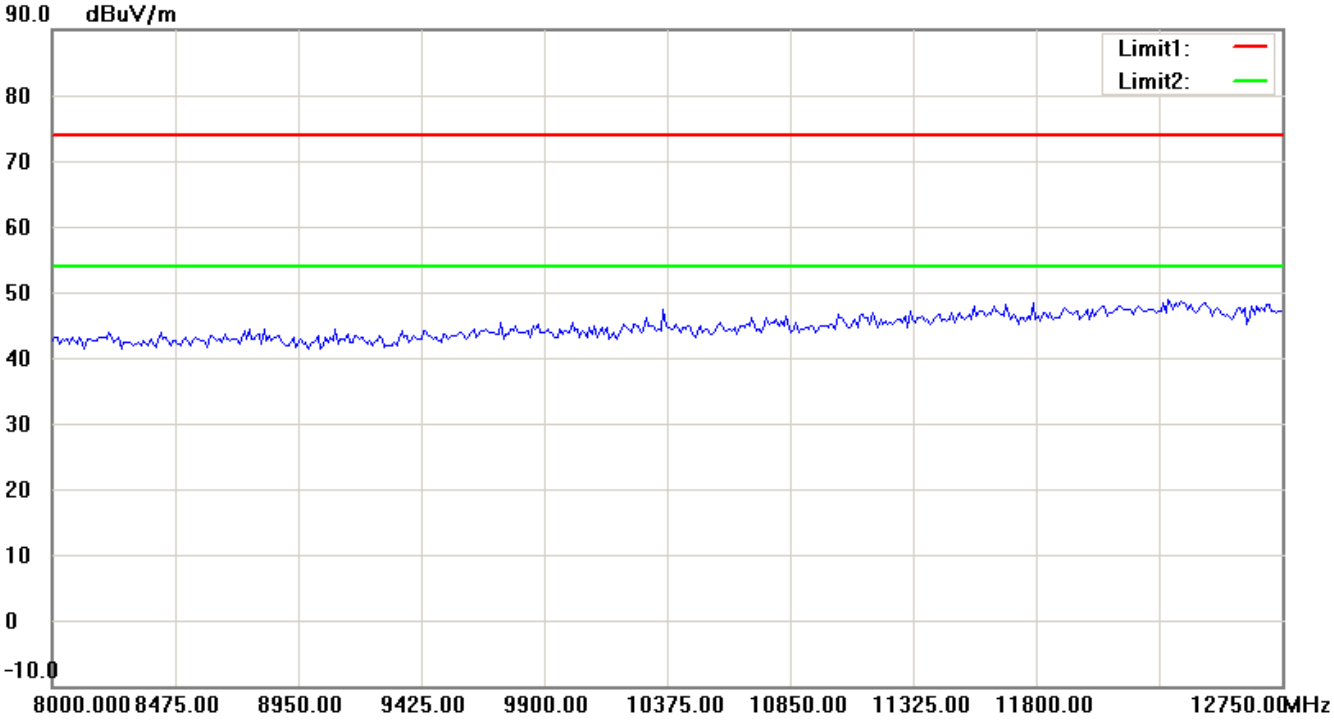
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2





Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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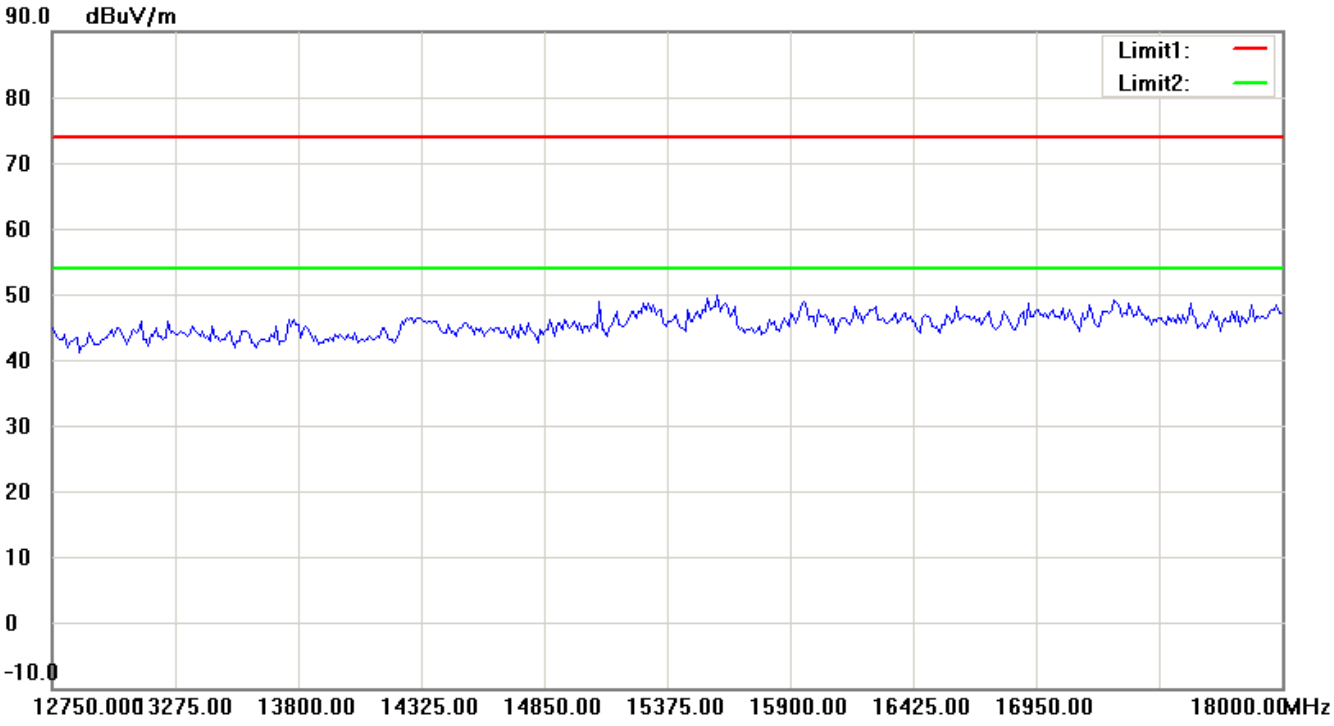
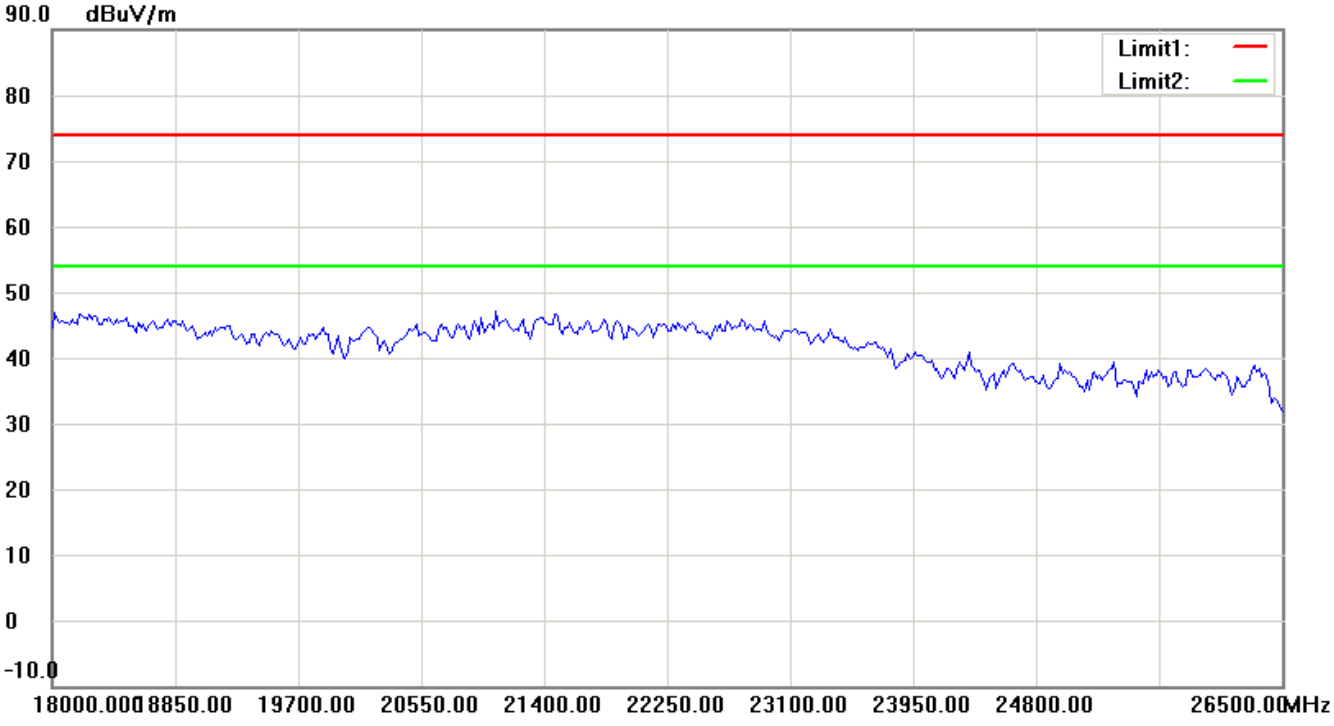
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2





Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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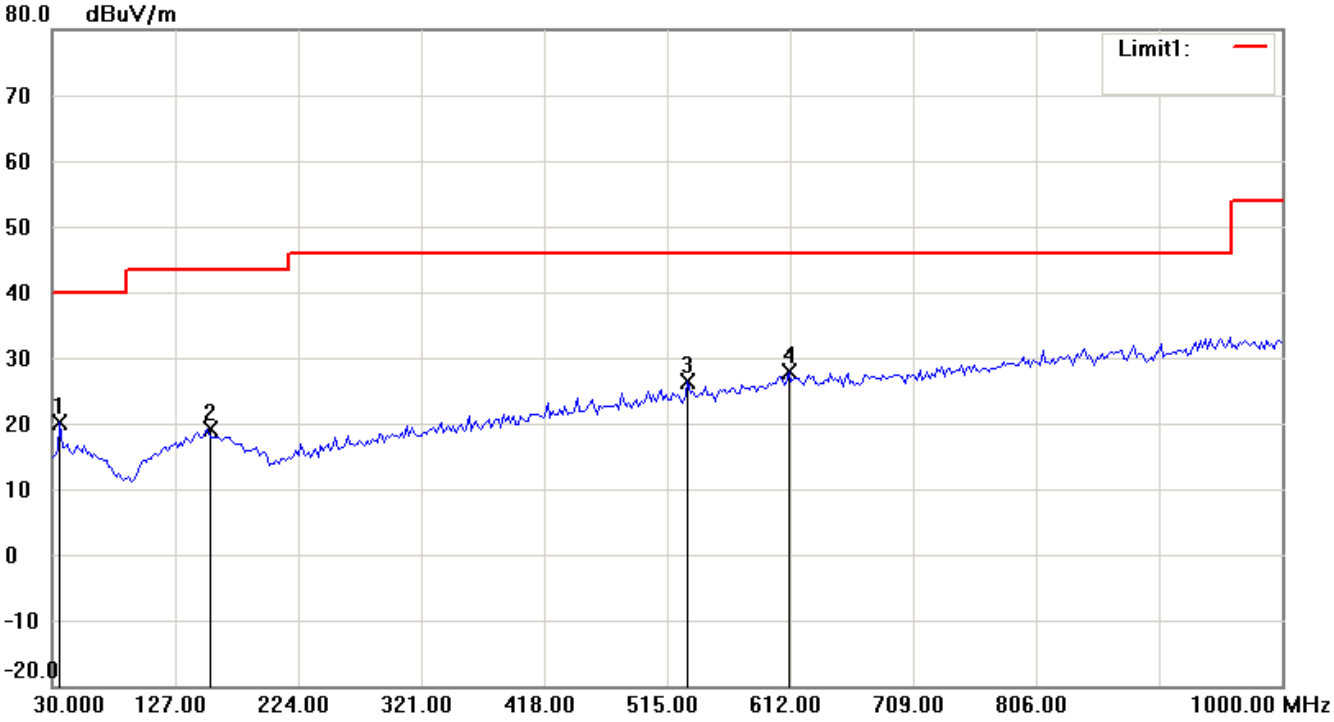
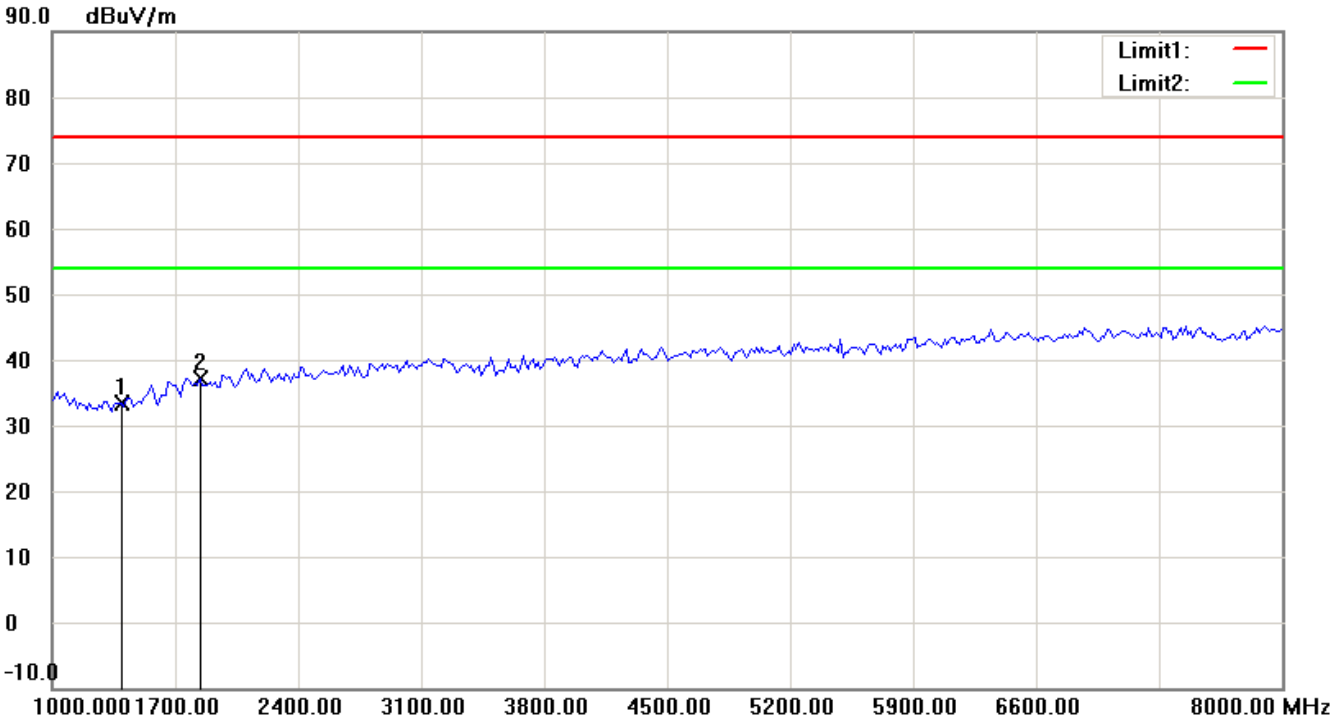
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

RX 460MHz
Antenna Polarization H





Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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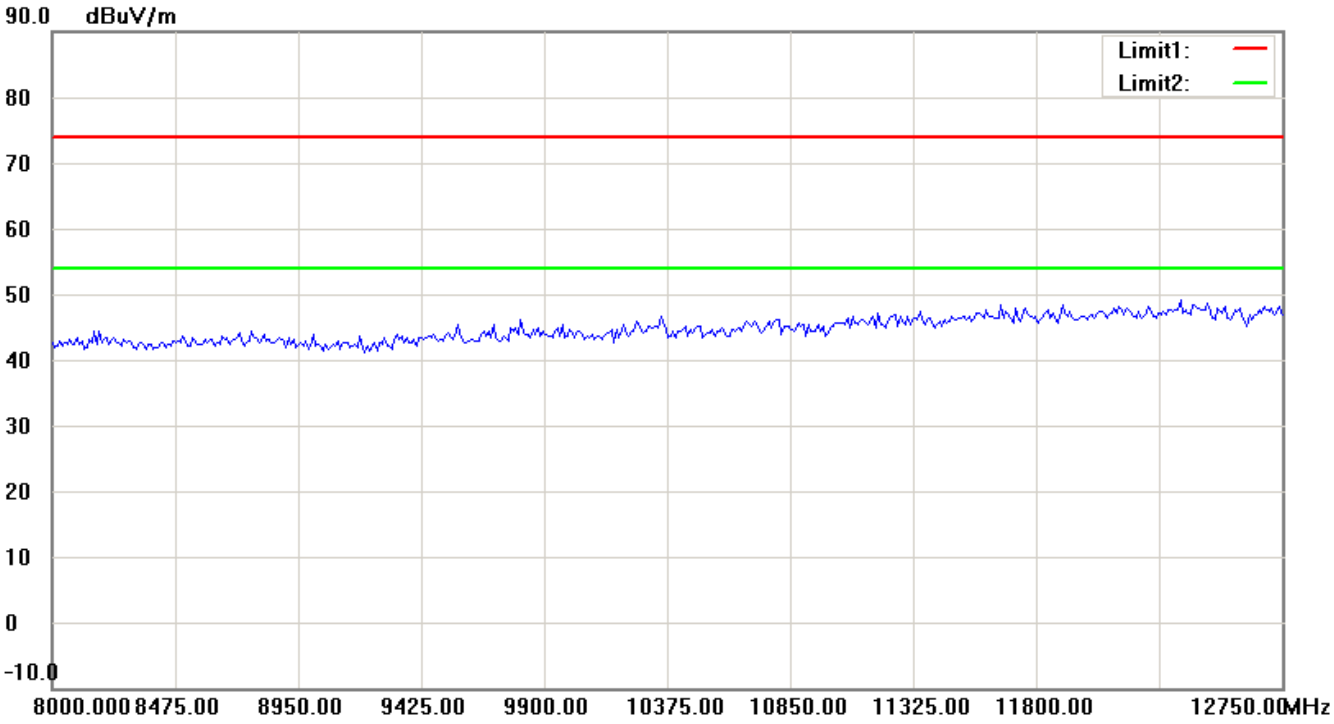

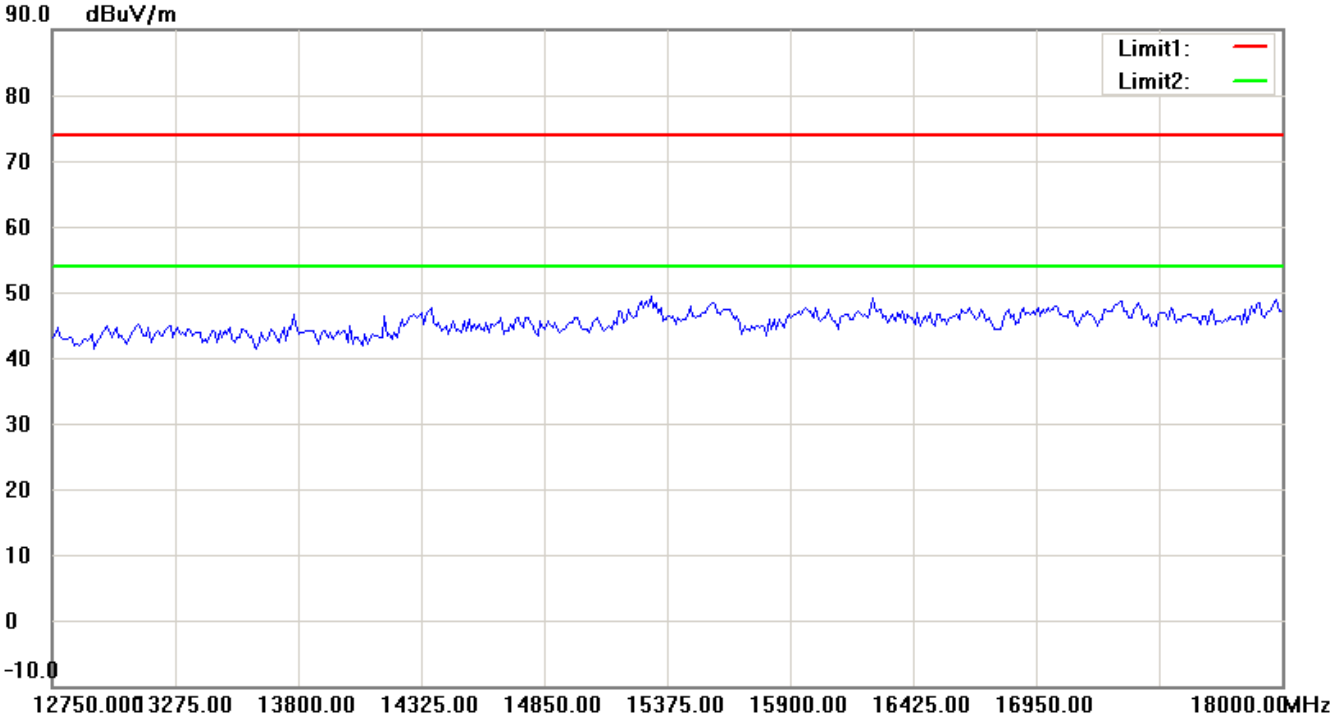

Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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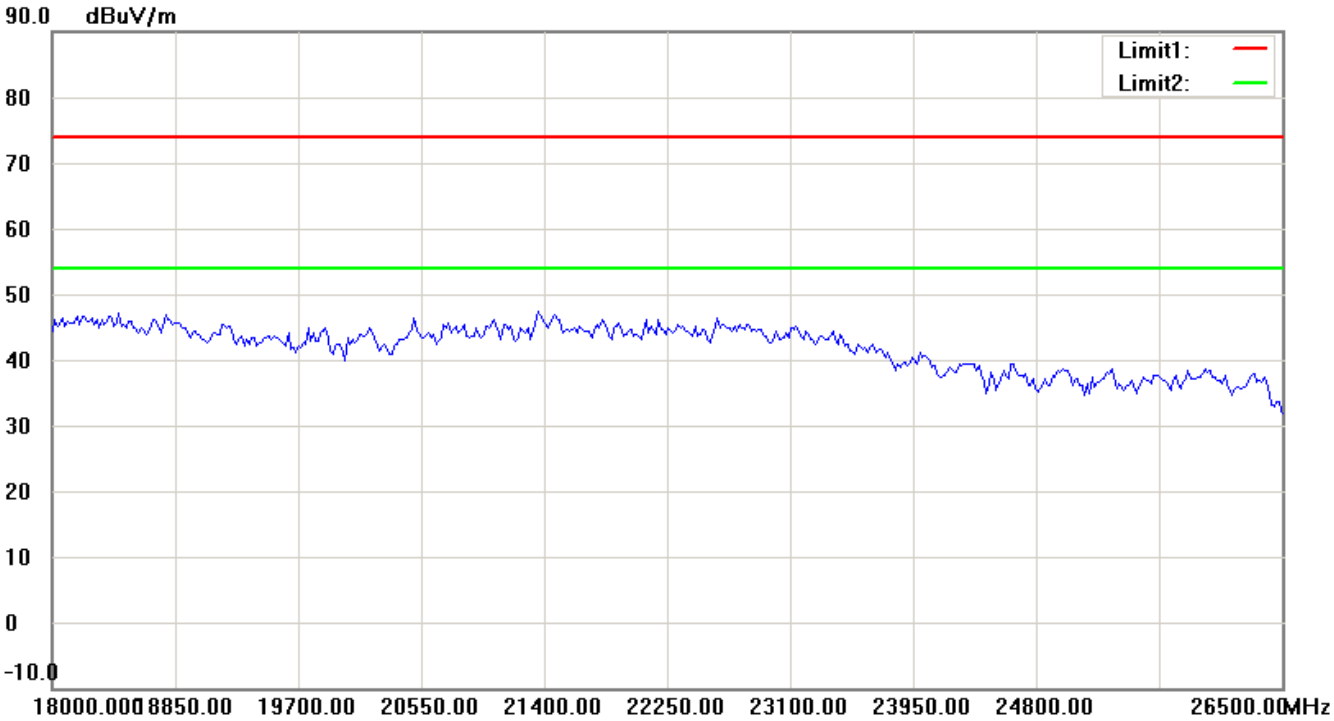
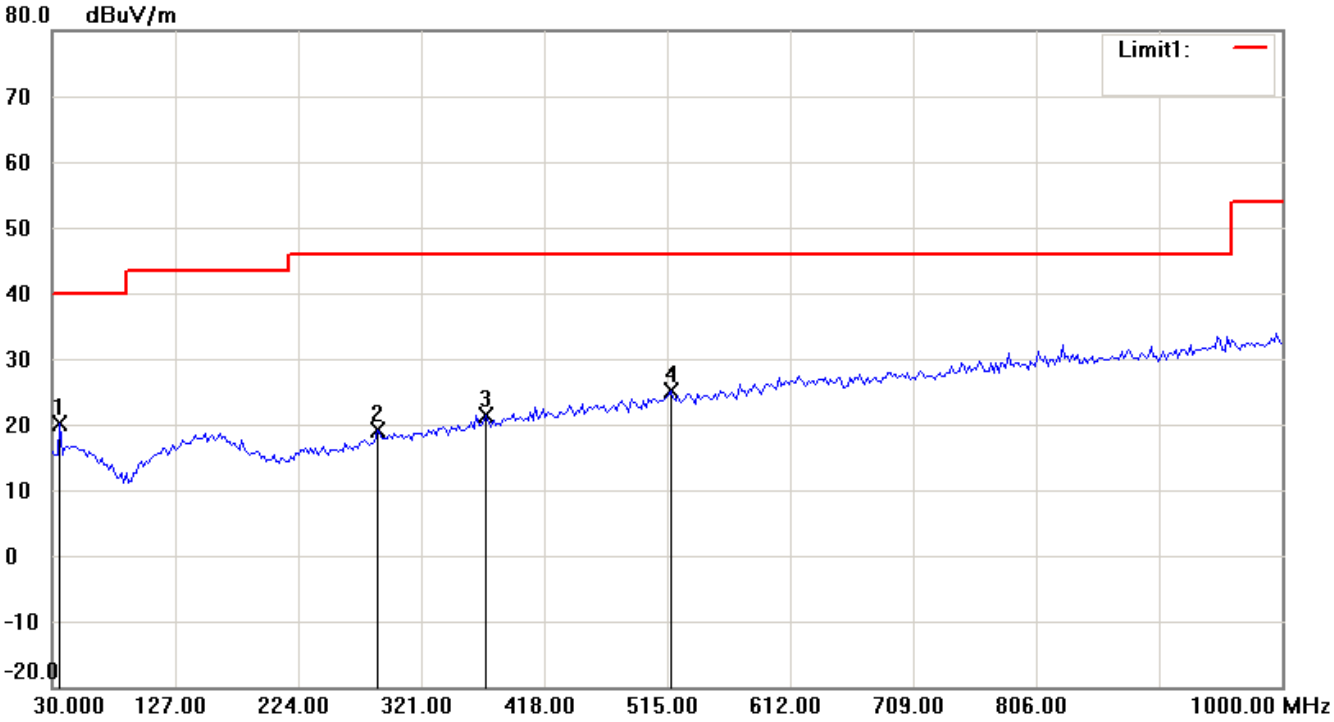
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2



Antenna Polarization V



Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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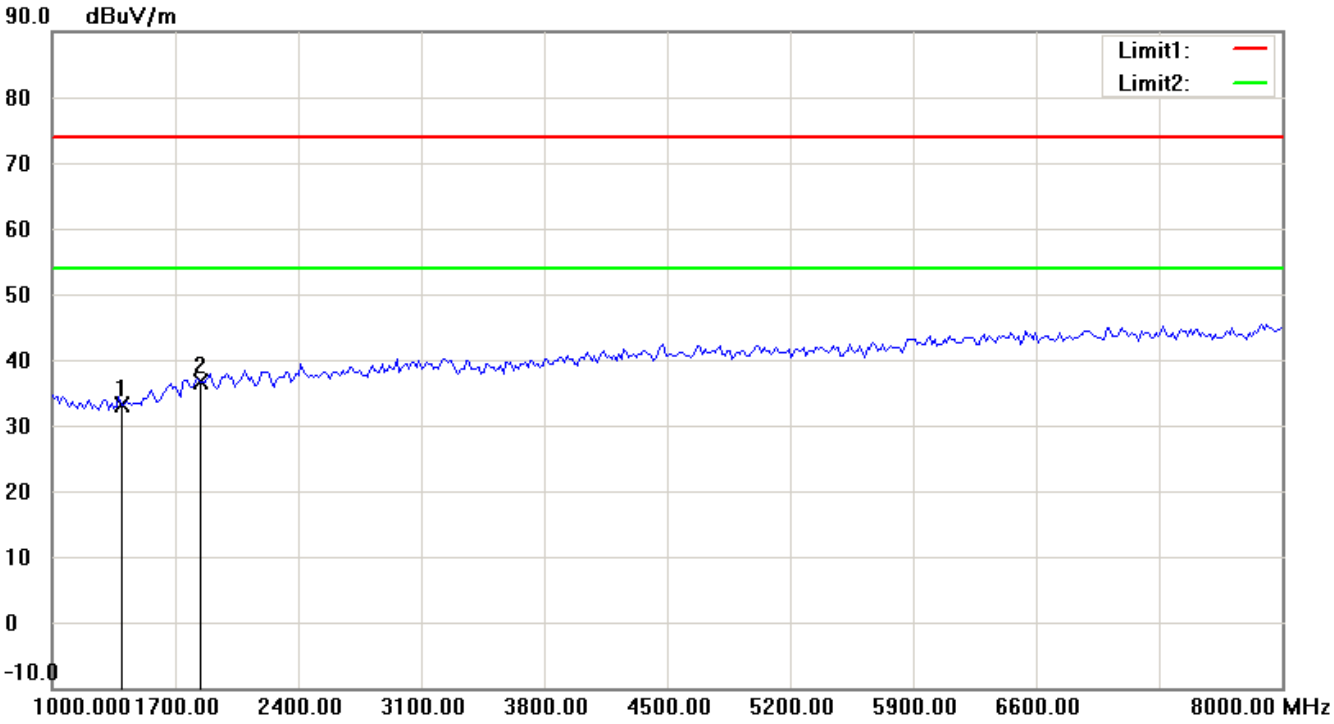

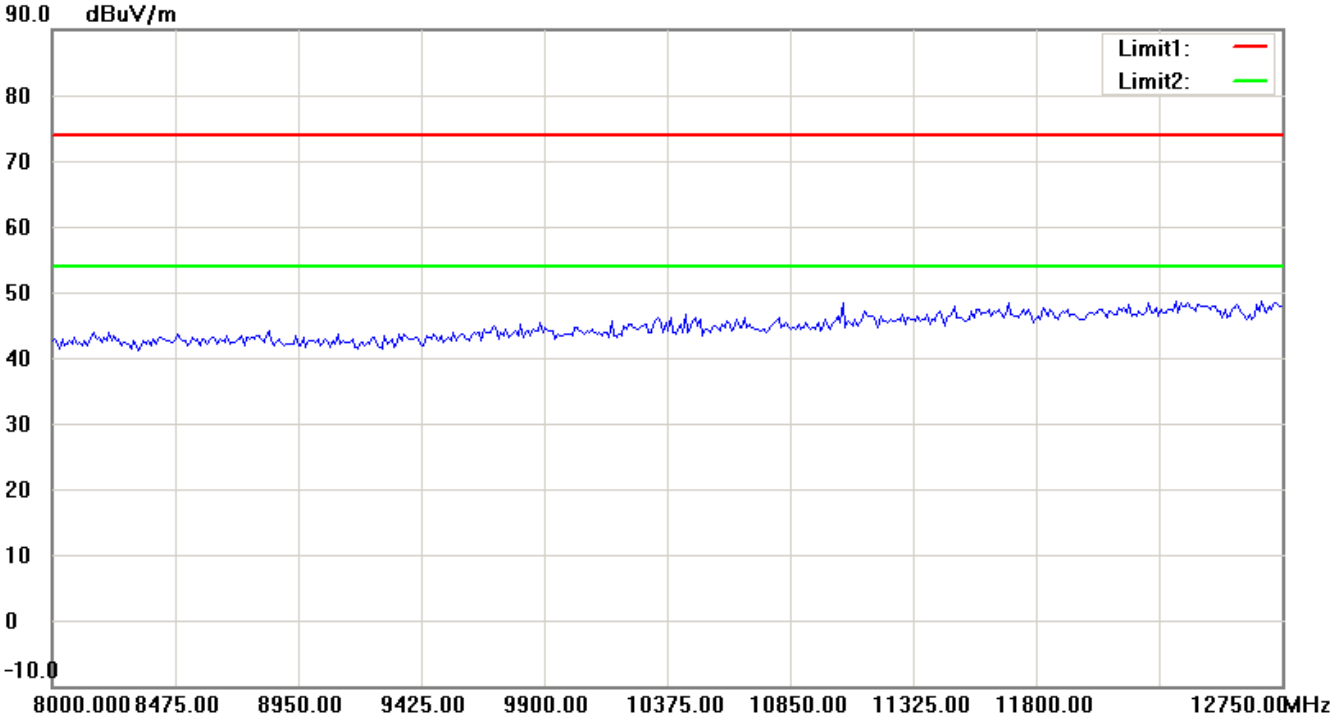

Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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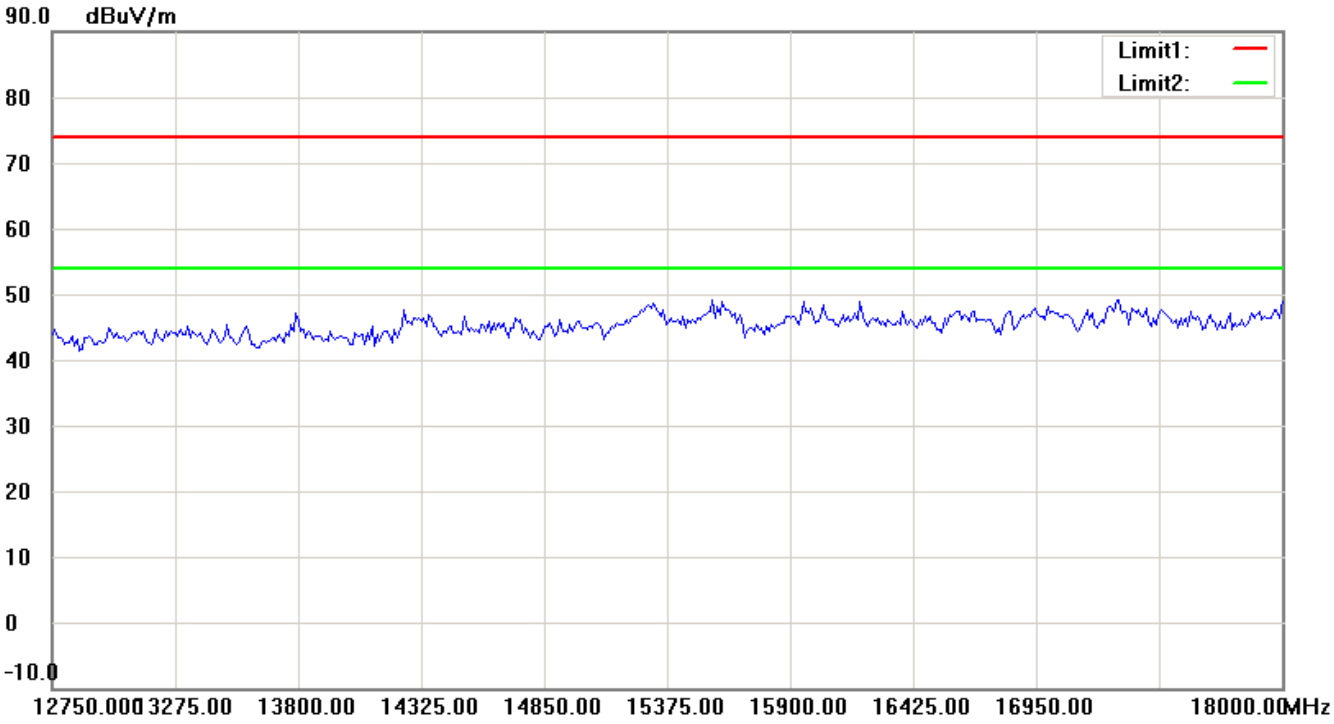

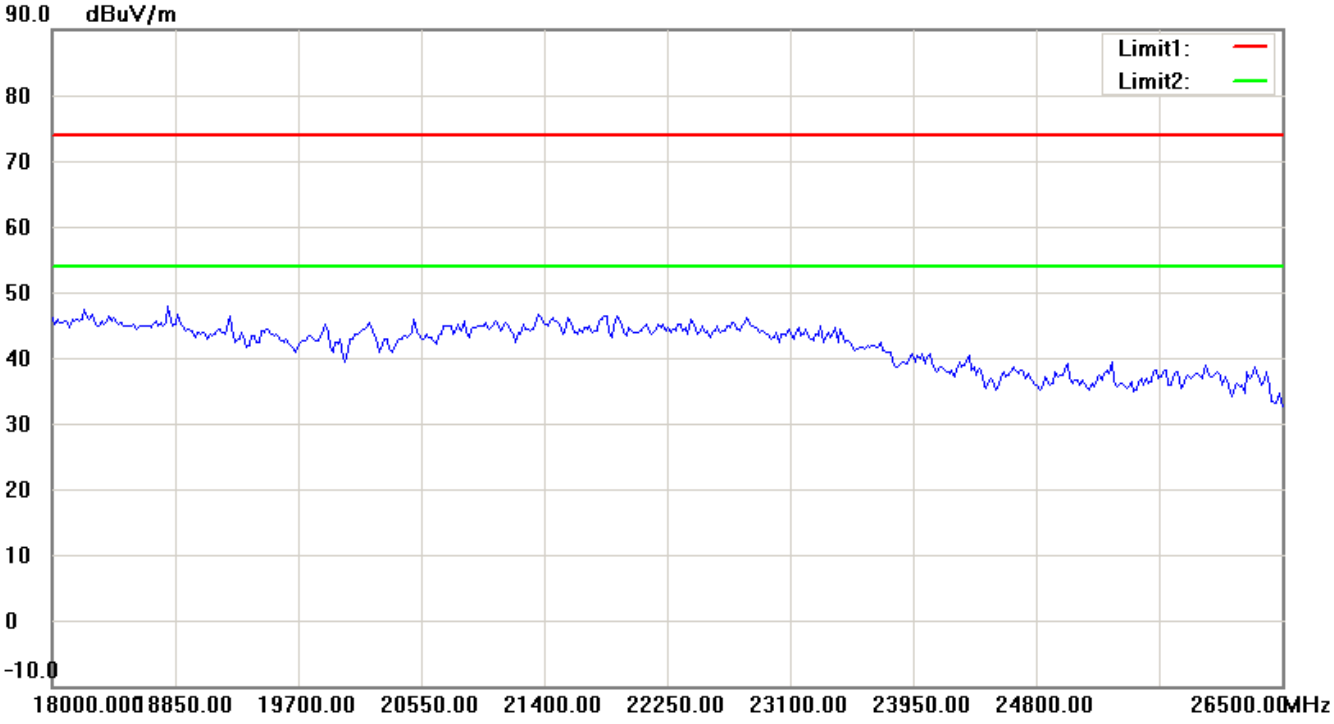

Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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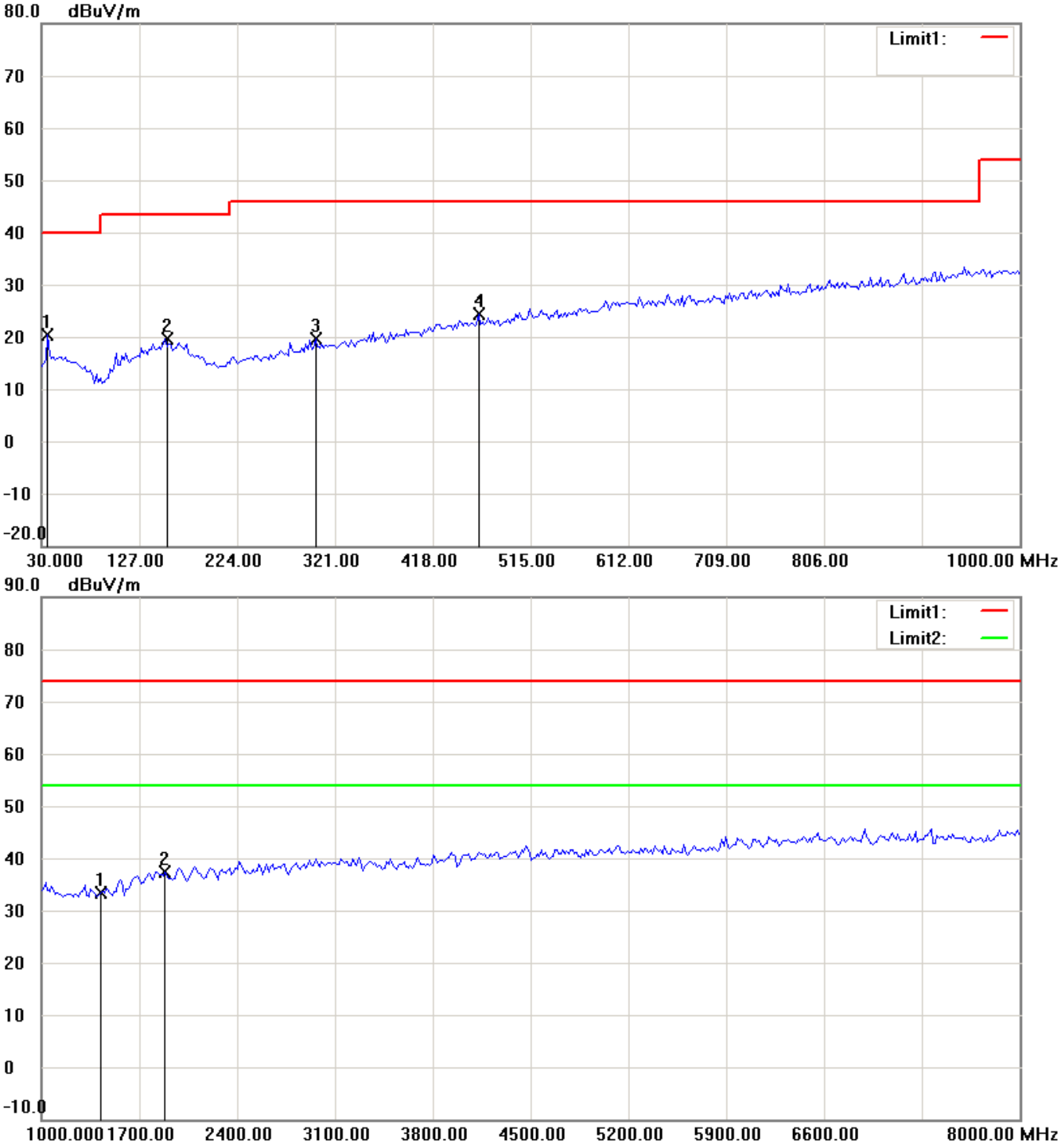
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

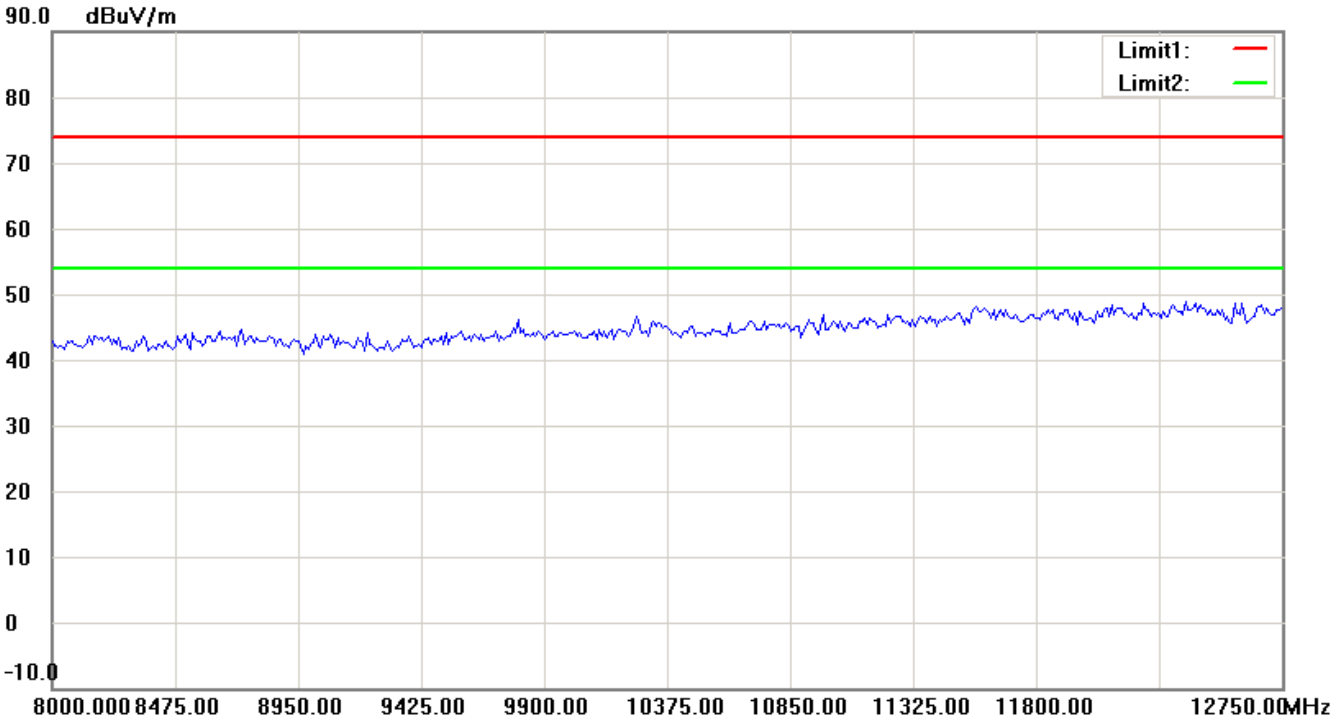
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

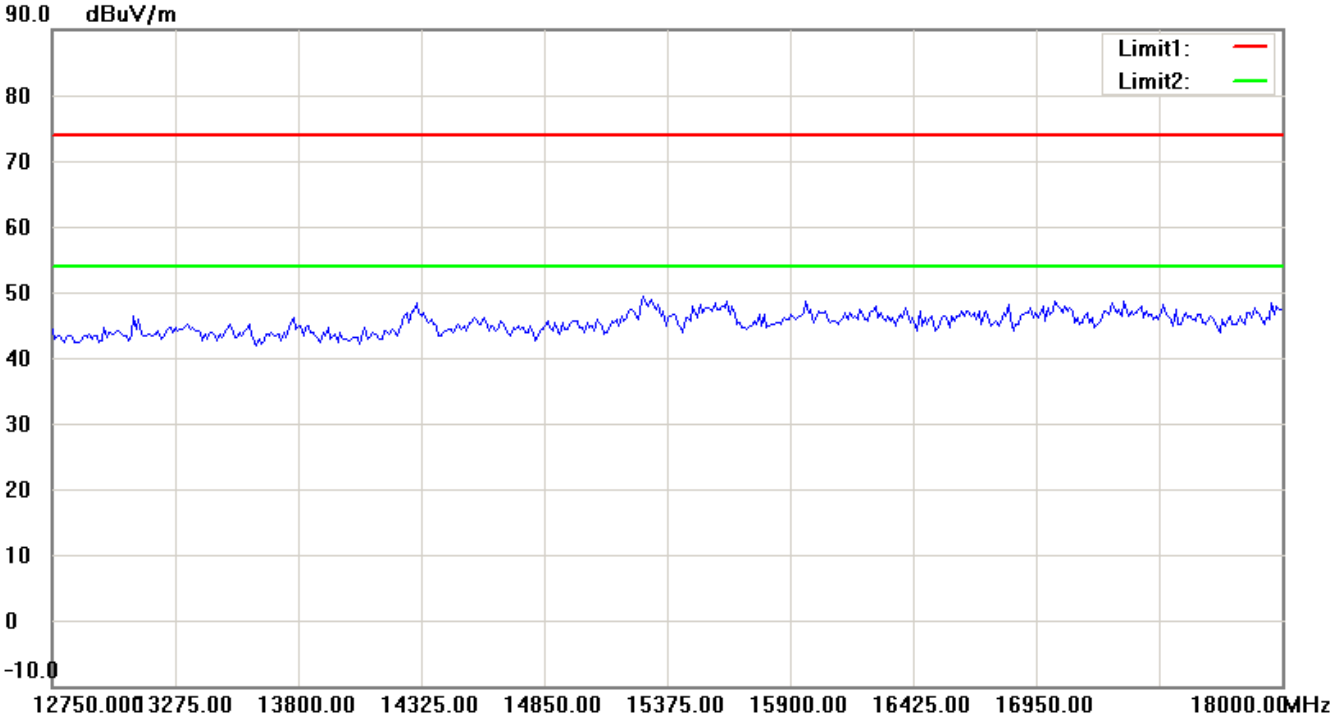
RX 469.9875MHz
Antenna Polarization H



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: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2





Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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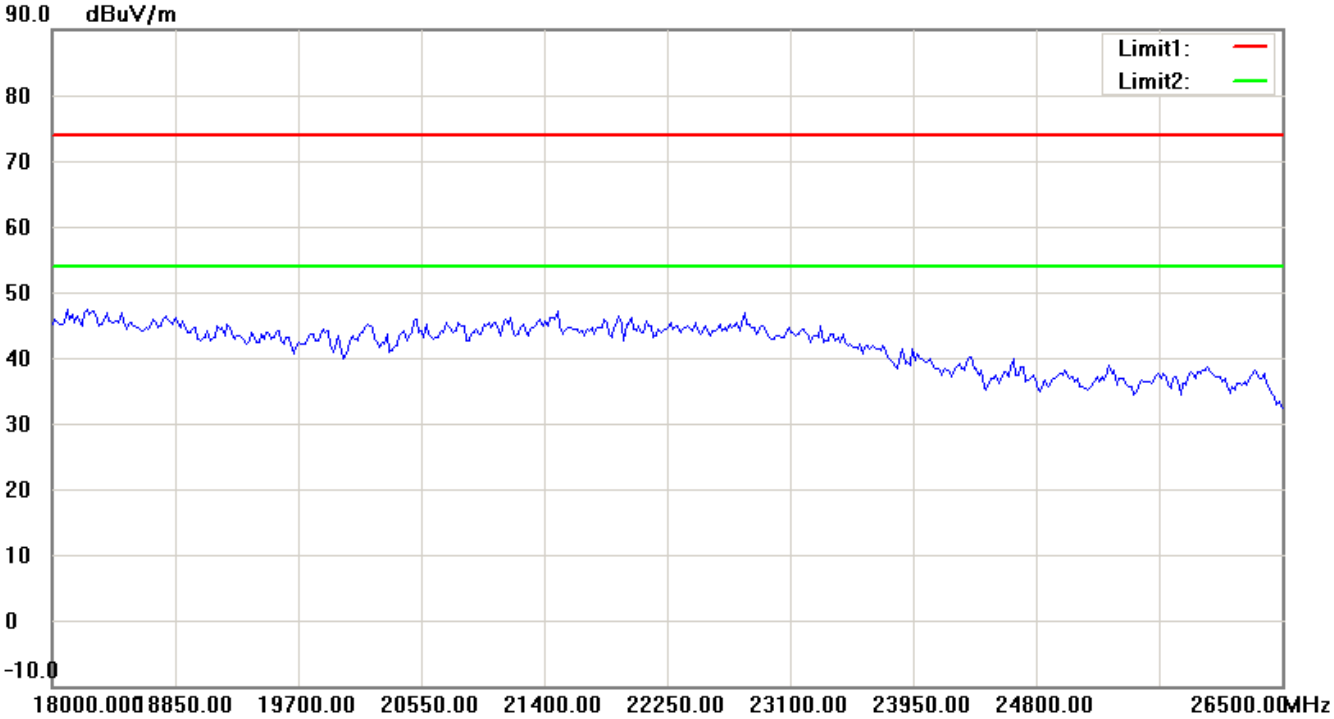
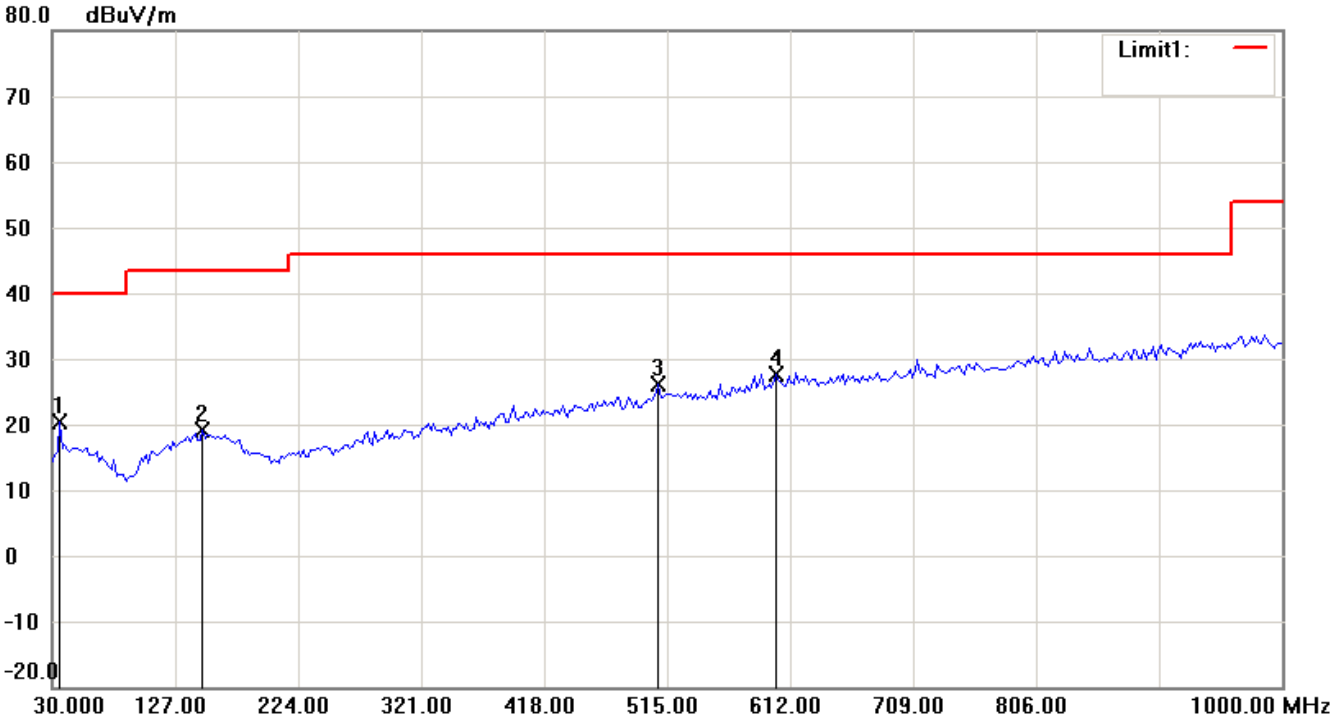
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2

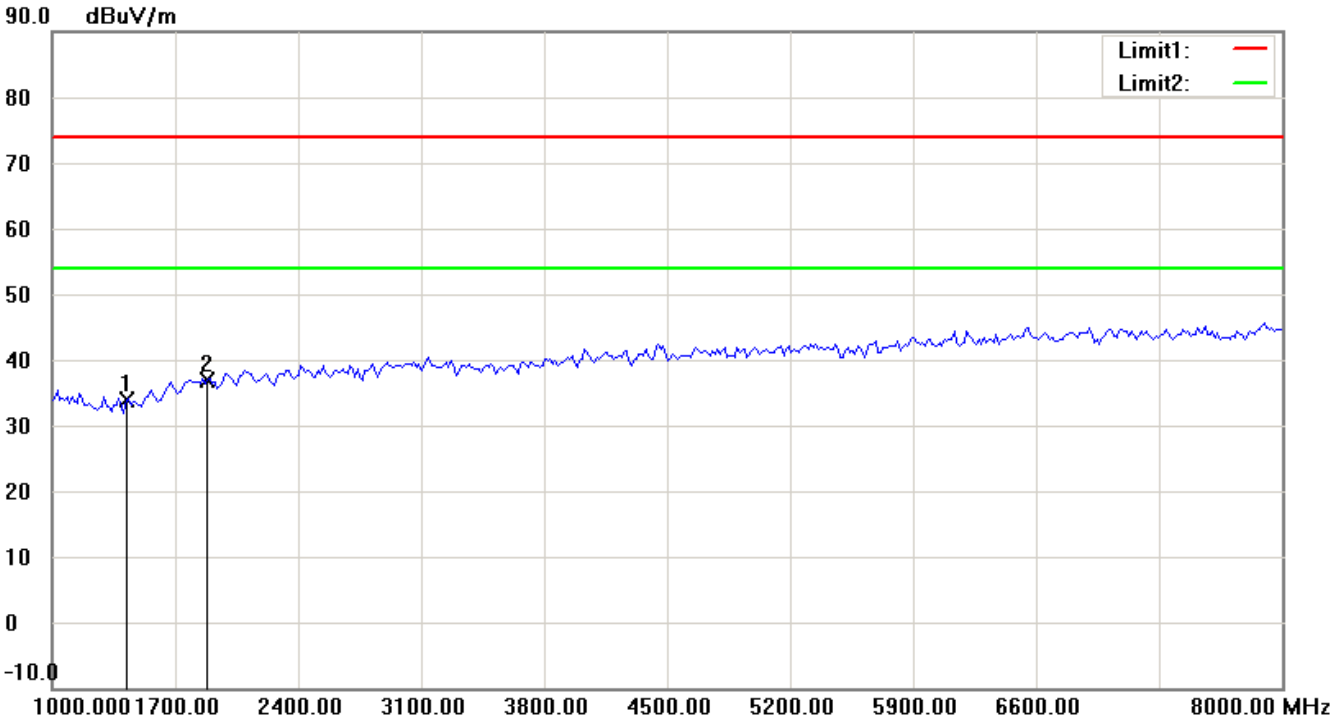


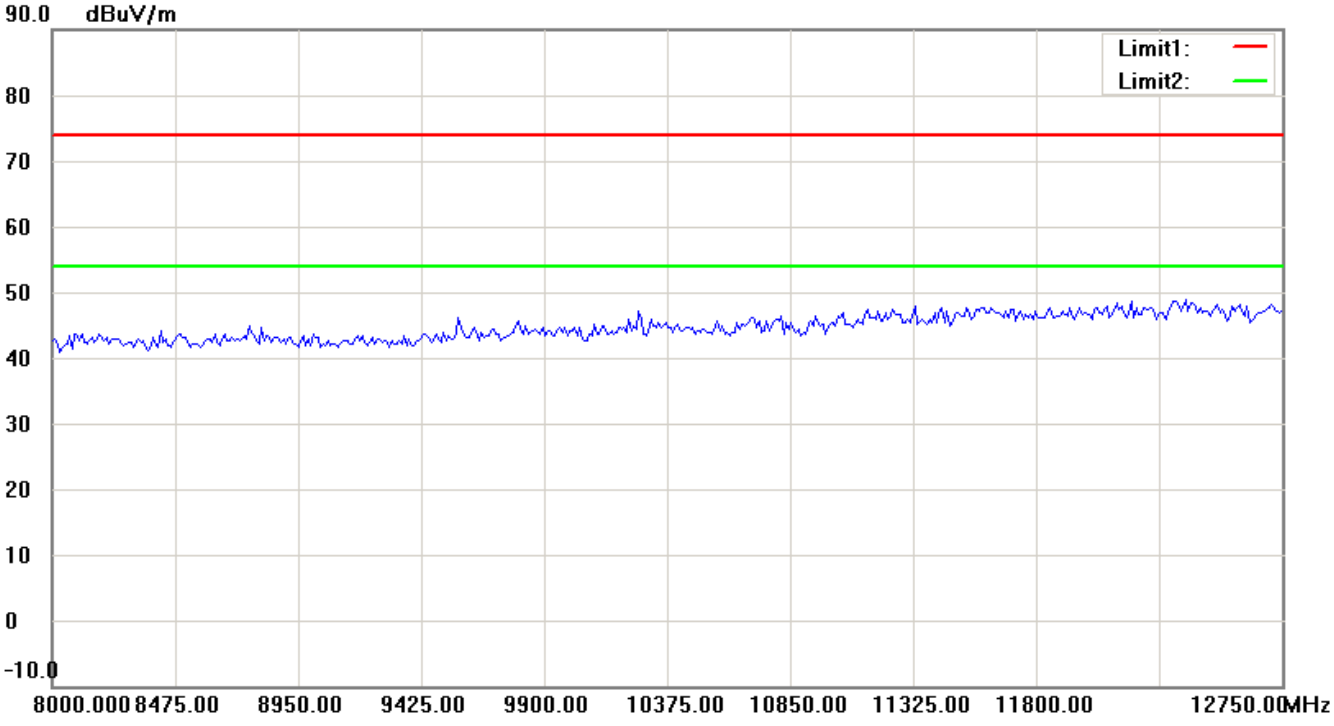
Antenna Polarization V



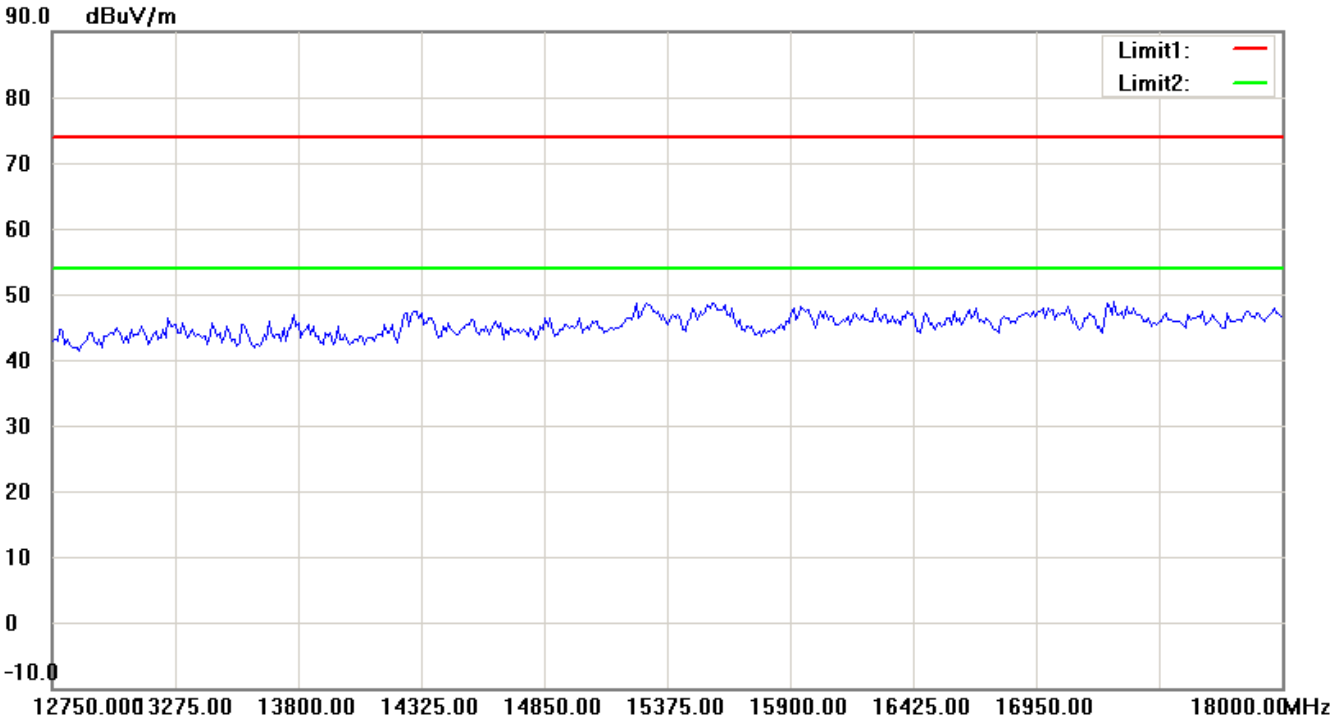
Up Line: Peak Limit Line; Down Line: Ave Limit Line
Note:
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but 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.

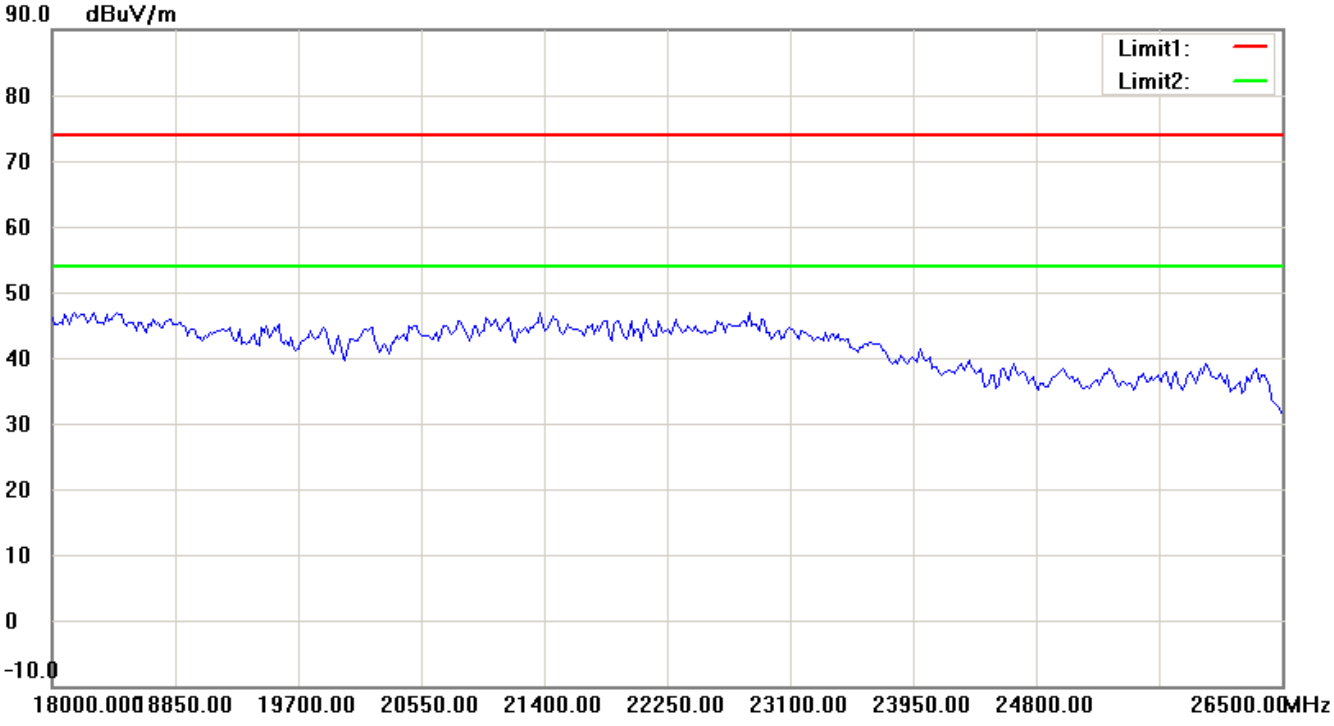
Registration number: W6M21307-13386-C-1
FCC ID: 2AAT7-SR-2





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.
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