FCC PART 22/24 TEST REPORT

for

MoniVox Smart Device

Model No.: MVX400

FCC ID: 2ABGRMVX400

of

Applicant: **MoniVox do Brasil Ltda.**
Address: **Avenida das Nacoes Unidas, 17891- 13 Andar-Vila Almeida CEP Sao Paulo-SP 04795-100 Brazil**

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

Testing Laboratory
1477

Report No.: W6M21309-13566-P-2224

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

Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

Certification of Test Report

Applicant : MoniVox do Brasil Ltda.
Avenida das Nacoes Unidas, 17891-13 Andar-Vila Almeida CEP 04795-100-Sao Paulo-SP Brazil

Manufacturer : AOPEN Incorporated
5F., No.15, Ln. 128, Sinhu 1st Rd., Neihu District, Taipei City 114, Taiwan (R.O.C.)

Tested Equipment :

Type Description	: MoniVox Smart Device
Model Number	: MVX400
Brand Name	: MoniVox
Operation Frequency	: 824.2-848.8MHz / 1850.2 - 1909.8 MHz
RF Output Power	: 1) Band 850 MHz : 22.98 dBm (ERP) 2) Band 1900 MHz : 21.64 dBm (EIRP)
Power Supply	: Adaptor (I/P: AC 100-240 V / 50-60 Hz / 0.8 A, O/P: 12 Vdc / 2 A)

Regulation Applied : 47CFR Part 22 (2011-10) and Part 24 (2011-10)

Test Method : 47CFR Part 2 (2011), TIA/EIA-603C (2004) and ANSI C63.4 (2003)

I HEREBY CERTIFY THAT: The test results written in this report were derived conscientiously in accordance with the requirements and procedures of 47CFR Part 2(2011), TIA/EIA-603C (2004), and it was found that the device described above is in compliance with the applicable limits specified in 47CFR Part 22/24.

Note:

1. The result of this test report is valid only in connection to the sample has been tested at the laboratory of Worldwide Testing Services (Taiwan) Co. Ltd.
2. This test report shall always be duplicated in full pages unless the written approval of the testing laboratory is obtained.

Test Engineer:

Date	WTS-Lab.	Name	Signature
December 30, 2013		Rick Chen	Rick Chen

Technical responsibility for area of testing:

Date	WTS	Name	Signature
December 30, 2013		Kevin Wang	Kevin Wang

TABLE OF CONTENTS

1. Summary

1.1 Description of tested equipment

This equipment under tested, MVX400, is a MoniVox Smart Device with built-in GSM 850/PCS 1900 MHz.

The operation frequency bands and rated RF output power are listed as follows:

824.2-848.8MHz (Cellular, Part 22), 22.98 dBm / 0.1986 W (ERP)
1850.2-1909.8MHz (Cellular, Part 24), 21.64 dBm / 0.1459 W (EIRP)

This test report only contains test requirements specified in 47CFR Part 22 and Part 24 for GSM function, for other functions; please refer to separate test report with respect to the relevant test standard and specification.

1.2 Date of testing processing

Test sample received: November 15, 2013

Test finished: December 27, 2013

Other Information: None

1.3 Modification Information

No modification was made during the all test items been performed.

1.4 Test standards

Technical standard: **FCC Part 2(2011), TIA/EIA-603C (2004), ANSI C63.4(2003) 47CFR Part 22 (2011-10), and Part 24 (2011-10)**

Deviation from test standard: None

1.5 Summary of test result

Band: 850 MHz

Section in this Report	Test Item	FCC relevant Section	Verdict
3.2	RF Power Output (Effective radiated power)	2.1046(a), 22.913(a)	Pass
4.2	Modulation characteristics	2.1047	Not Required
5.2	Occupied bandwidth	2.1049(h)	Pass
6.2	Spurious emissions at antenna terminals	22.917(a), 2.1051	Pass
7.2	Field strength of spurious radiation	22.917(a), 2.1053	Pass
7.5	Band Edge emissions	22.917(a)	Pass
8.2	Frequency stability	2.1055 22.355	Pass

Band: 1900 MHz

Section in this Report	Test Item	FCC Relevant Section	Verdict
3.2	RF Power Output (Equivalent isotropically radiated power)	2.1046(a), 24.232	Pass
4.2	Modulation characteristics	2.1047	Not Required
5.2	Occupied bandwidth	2.1049(h) 24.238(b)	Pass
6.2	Spurious emissions at antenna terminals	24.238(a), 2.1051	Pass
7.2	Field strength of spurious radiation	24.238(a), 2.1053	Pass
7.5	Band Edge emissions	24.238(b)	Pass
8.2	Frequency stability	2.1055 24.235	Pass

2. General Information

2.1 Testing laboratory

2.1.1 Location

OATS
No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)
Company
Worldwide Testing Services (Taiwan) Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

2.1.2 Details of accreditation status

Accredited testing laboratory
A2LA-registration number: 2732.01
FCC filed test laboratory Reg. No. 930600
Industry Canada filed test laboratory Reg. No. IC 5679A-1

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

Name:	**./.**
Accredited number:	**./.**
Street:	**./.**
Town:	**./.**
Country:	**./.**
Telephone:	**./.**
Fax:	**./.**

2.2 Details of approval holder

Name:	MoniVox do Brasil Ltda
Street:	Avenida das Nacoes Unidas, 17891-13 Andar-Vila Almeida CEP
Town:	04795-100-Sao Paulo-SP
Country:	Brazil
Telephone:	+55(11) 3466-5444
Fax:	+55(11) 3466-5444

Manufacturer: (if different from applicant)

Name:	AOPEN Incorporated
Street:	5F., No.15, Ln. 128, Sinhu 1st Rd., Neihu District,
Town:	Taipei City 114,
Country:	Taiwan (R.O.C.)

2.3 Description of Tested System

The EUT was tested alone without the Accessories or Peripherals.

Equipment	Model No.	Series No.	Software	Cable information	Note
No accessories were used with this EUT.					

Frequencies Selected to be investigated:

Band: 850 MHz
Low Frequency (ch 128): 824.2 MHz
Mid Frequency (ch 188): 836.2 MHz
High Frequency (ch 251): 848.8 MHz

Band: 1900 MHz
Low Frequency (ch 512): 1850.2 MHz
Mid Frequency (ch 661): 1880.0 MHz
High Frequency (ch 810): 1909.8 MHz

Antenna Type: Dipole Antenna

Antenna Gain: 3.0 dBi

Power supply: Adaptor (I/P: AC 100-240 V / 50-60 Hz / 0.8 A,
O/P: 12 Vdc / 2 A)

2.4 Test environment

Temperature:	27 ^{o}C
Relative humidity content:	54 %
Air pressure:	86-103 Kpa

2.5 General Test Requirement

Radiated Emission: 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.

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.

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

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.

2.6 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	2013/9/2	2014/9/1
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
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-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2013/10/28	2014/10/27
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2013/9/2	2014/9/1
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2013/9/2	2014/9/1
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	2013/10/15	2014/10/14
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	2013/11/27	2014/11/26
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	2013/10/7	2014/10/6
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2013/10/11	2014/10/10
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	2013/12/04	2014/12/03
ETSTW-RE 111	TRILOG Super Broadband test Antenna	VULB 9160	9160-3309	Schwarz beck	2013/12/12	2014/12/11
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-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2013/10/7	2014/10/6
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	2013/9/18	2014/9/17
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	2013/10/11	2014/10/10
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2013/10/11	2014/10/10
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	2013/11/27	2014/11/26
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2013/11/27	2014/11/26
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2013/11/27	2014/11/26
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	

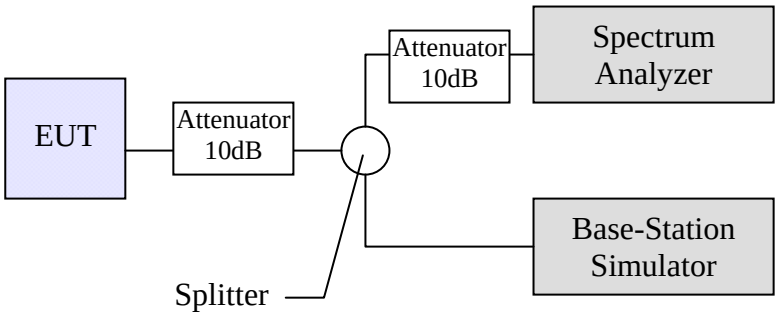
3. RF Power Output

3.1 Test procedure

3.1.1 Conducted Method

Per 47CFR Part 2.1046, the RF power output shall be measured at the RF output terminals and following procedure is employed:

The transmitter output was connected as the following figure:



The whole connection system is calibrated with a standard signal generator. Power on and make a link form simulator to EUT and then set the EUT to maximum output power.
Measure the RF power with the spectrum analyzer in accordance the following settings:

RBW: 300 kHz for Frequency below 1GHz and 1MHz for Frequency equal to and above 1GHz.
VBW: 300 kHz for Frequency below 1GHz and 1MHz for Frequency equal to and above 1GHz.
Span: 2MHz
Sweep: 3s

The power output at the transmitter antenna terminal is then determined by assign the value of the corrected factor to the spectrum analyzer reading.

Tests were performed at three frequencies (low, middle and high channels) and operation mode selected.

3.1.2 Radiated Method

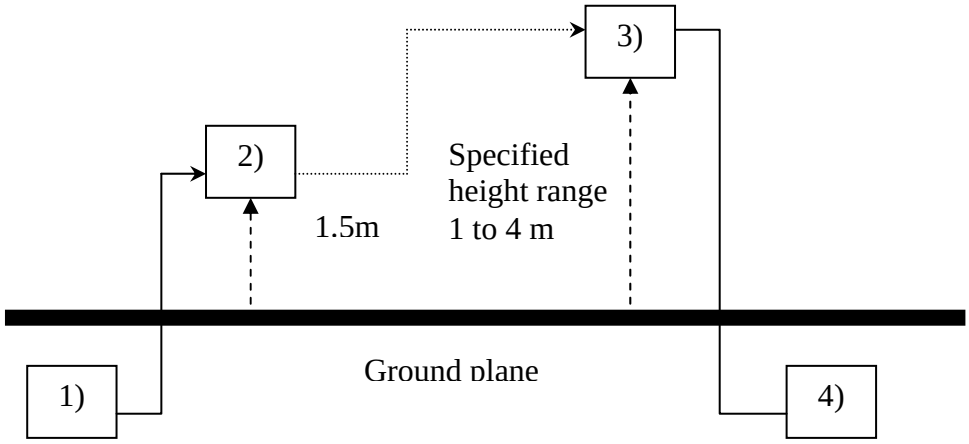
If the conducted measurement is not practical due to the integral antenna, the radiated measurement will be performed in accordance the following procedure:

The EUT was positioned on a non-conductive turntable, 0.8m above the ground on an open test site.
The radiated emission at the fundamental frequency was measured at 3m 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.

Substitution RF power Measurement at WTS Taiwan
General:

The applied substitution method follows ANSI/TIA/EIA-603,ANSI/TIA/EIA-102.CAAA or the appropriate ETSI rules respectively.
The actual signal generated by the EUT can be determined by means of a substitution measurement in which a known signal source replaces the device to be measured.



1) Signal generator;
2) Substitution antenna;
3) Test antenna;
4) Spectrum analyzer or selective voltmeter.

The substitution antenna replaces the transmitter antenna at the same position and in vertical polarization. The frequency of the signal generator shall be adjusted to the measurement frequency.
The test antenna shall be raised or lowered, if necessary, to ensure that the maximum signal is still received. The input signal to the substitution antenna shall be adjusted in level until an equal or a known related level to that detected from the transmitter is obtained in the measurement receiver.
If a fully anechoic chamber is used as test site in order to provide free space conditions there is no need to change the height of the antenna.
The measurement will be repeated in horizontal position.
Calibration:
In order to make this kind of measurement more effective and to avoid subjective measurement faults ETS has installed automatic computer controlled measurement procedures.
With the above described substitution method a test site is calibrated over the full frequency range which is used in suitable frequency steps. For a certain power level on the substitution antenna the received power over the whole frequency range is documented. All necessary antenna gains, cable losses, filter losses and amplifications of preamplifiers are taken in

consideration. The summary of this calibration measurement performs a transducer factor that is related to the considered test site and a certain measurement distance. Differences of the radiated power levels of different test samples are determined by internal attenuation of measurement receiver. The proper function of such test site will be maintained by short term plausibility checks and periodical re-calibration.

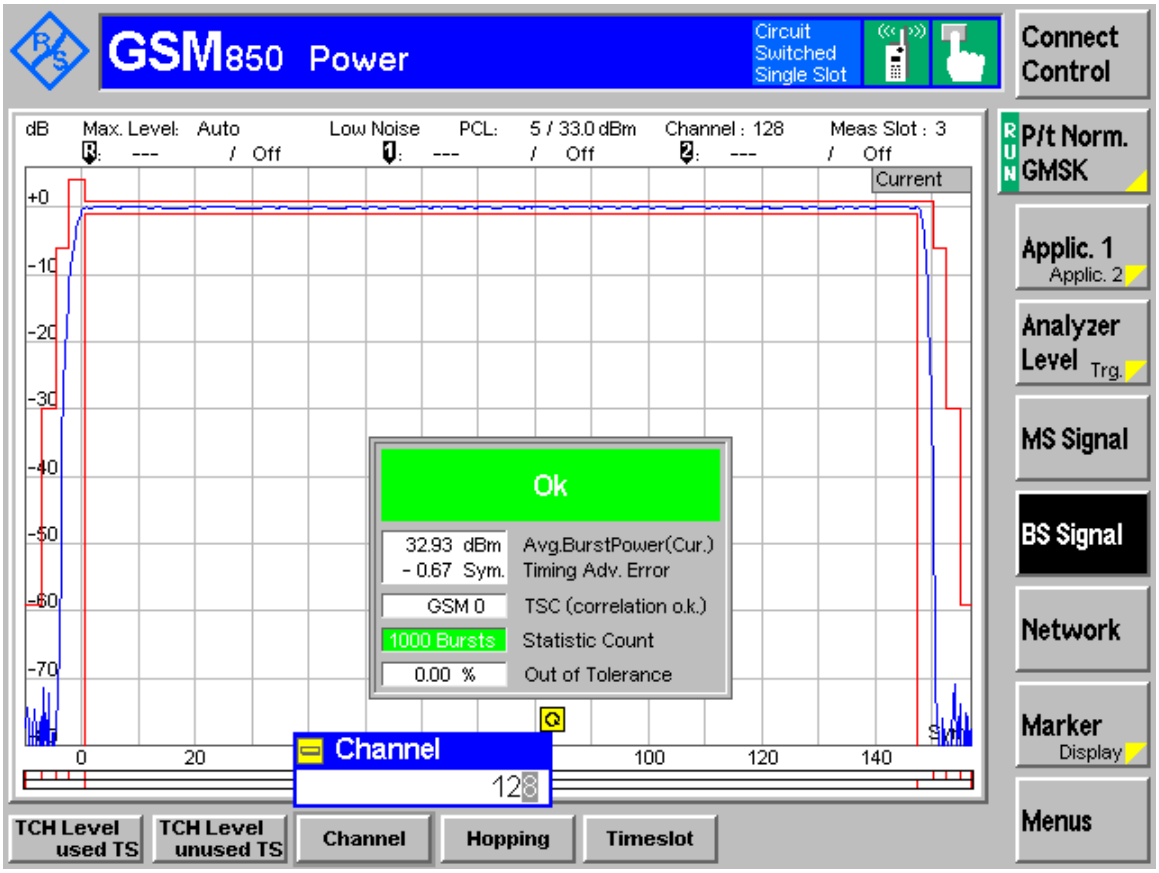
Testing:
The test sample will be putted on the table at the defined position and the radiated power will be receiver and documented by the measurement receiver.
On test sites with ground plane the measurement antenna will be lowered and raised to maximum values at significant frequencies.
For peak power measurements the sample is turned by the turntable over 360 degree in order to find the direction with the maximum radiation or to document the max reading with the MAXHOLD function during the rotation.

3.2 Test Results

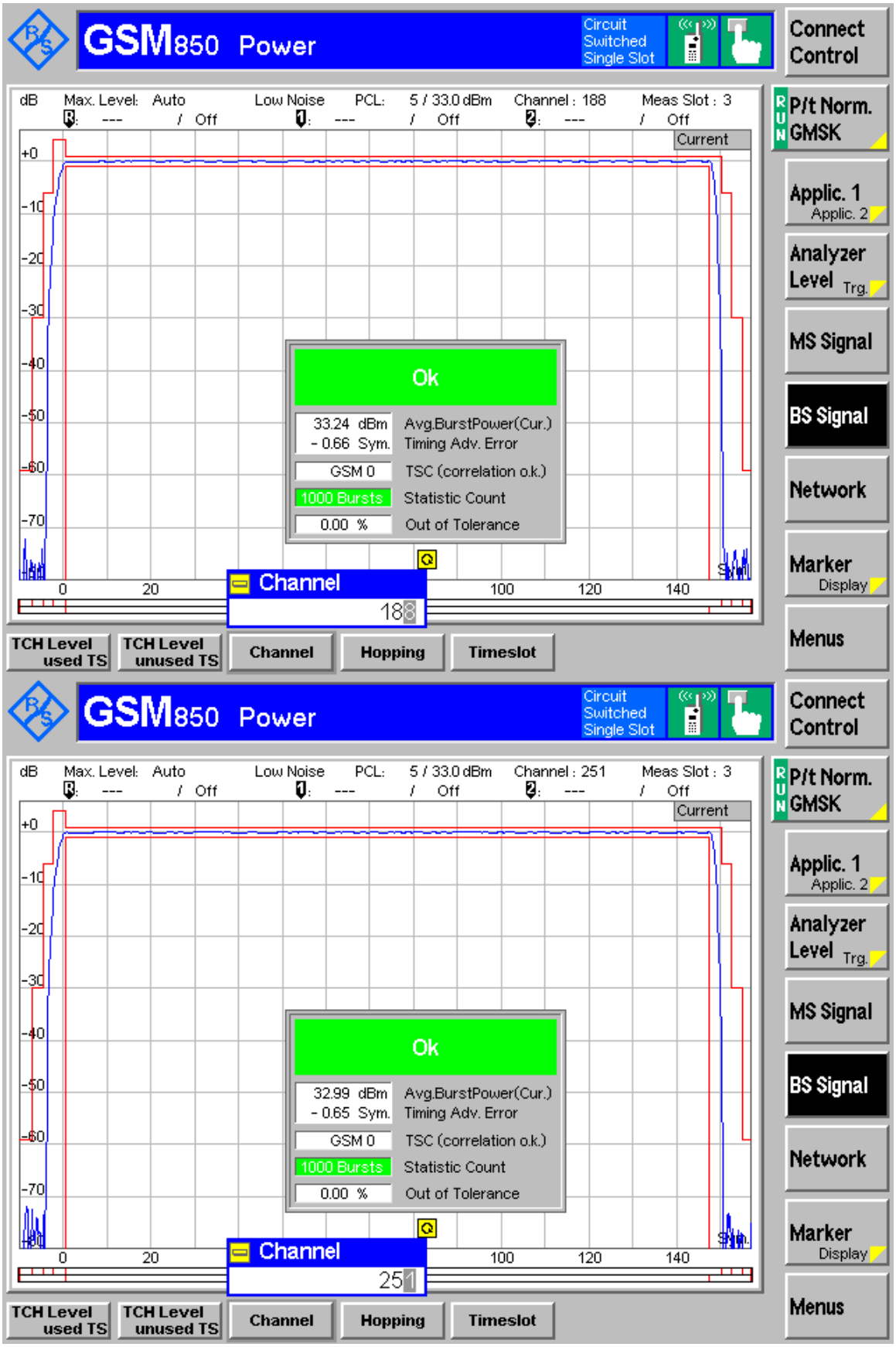
☑ Conducted Measurement
☐ Radiated Measurement

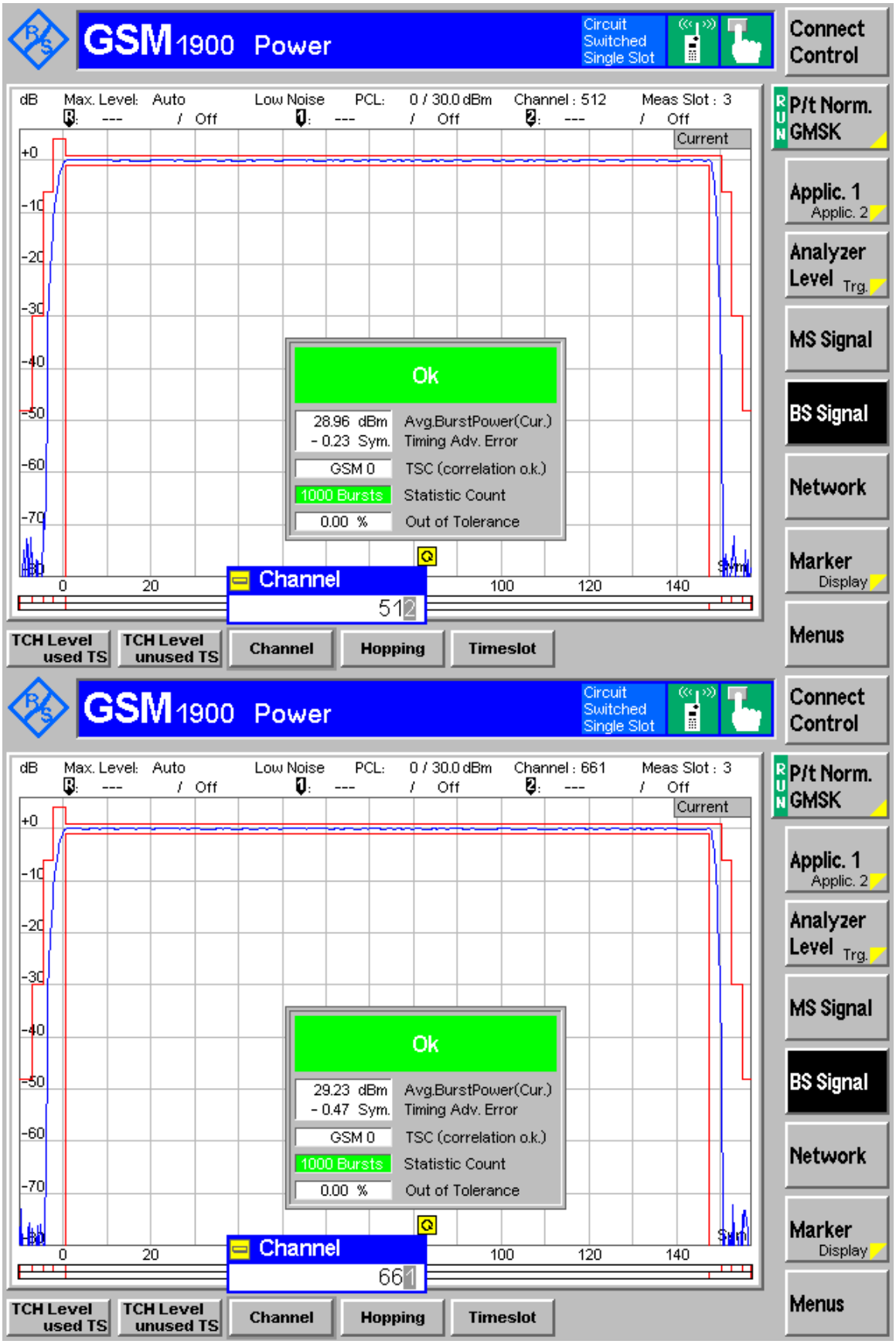
Band 850 MHz & 1900MHz

108 V



Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400




GSM 1900 Power
Circuit Switched Single Slot
Connect Control
dB Max. Level: Auto Low Noise PCL: 0 / 30.0 dBm Channel : 512 Meas Slot : 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
Trg.
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
28.96 dBm
Avg.BurstPower(Cur.)
- 0.23 Sym.
Timing Adv. Error
GSM 0
TSC (correlation o.k.)
1000 Bursts
Statistic Count
0.00 %
Out of Tolerance
Channel
512
TCH Level used TS
TCH Level unused TS
Channel
Hopping
Timeslot
GSM 1900 Power
Circuit Switched Single Slot
Connect Control
dB Max. Level: Auto Low Noise PCL: 0 / 30.0 dBm Channel : 661 Meas Slot : 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
Trg.
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
29.23 dBm
Avg.BurstPower(Cur.)
- 0.47 Sym.
Timing Adv. Error
GSM 0
TSC (correlation o.k.)
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Statistic Count
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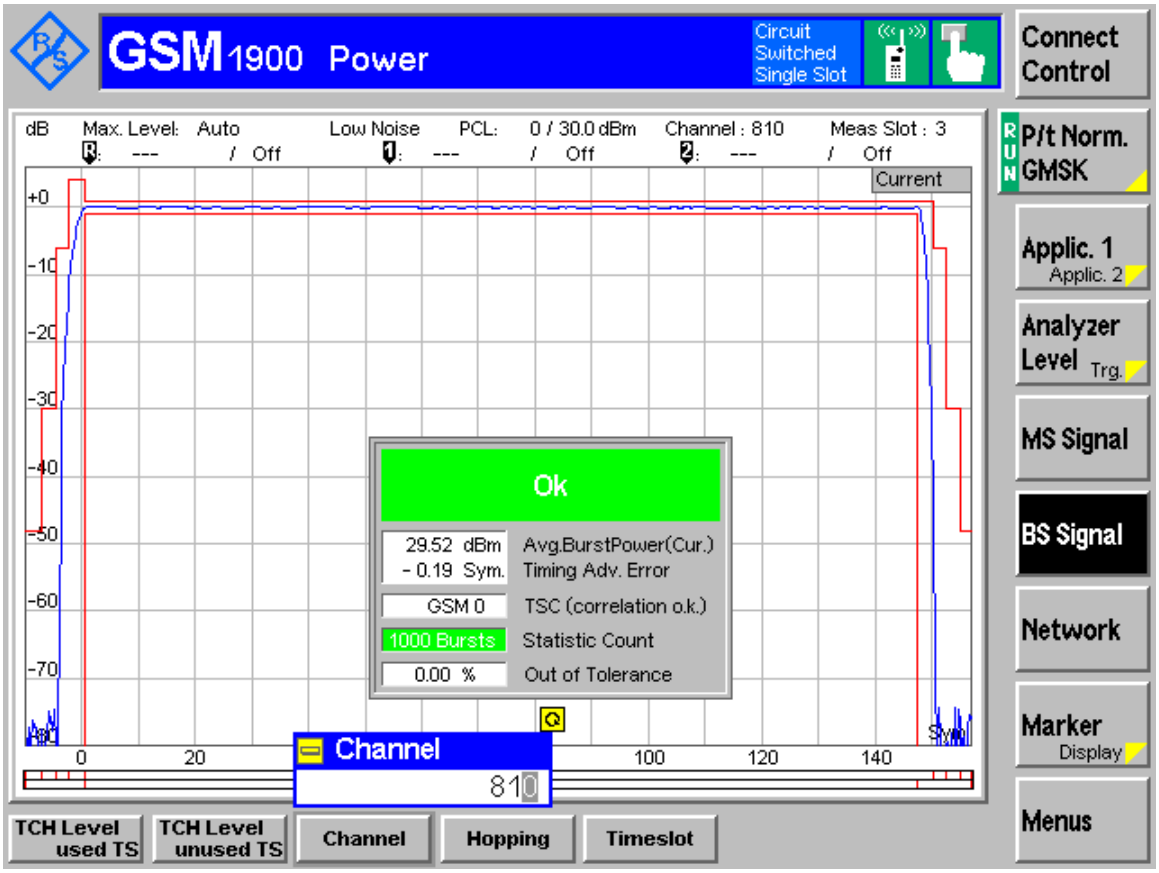
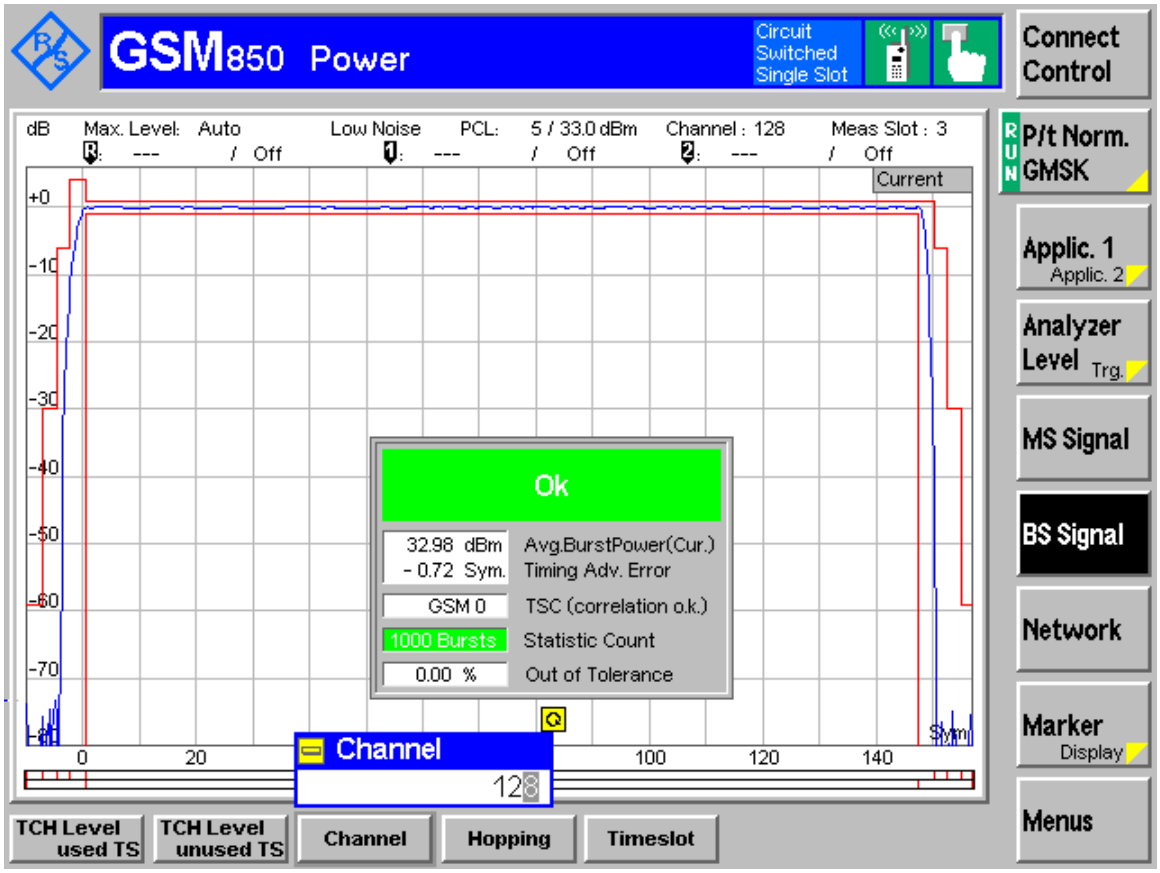
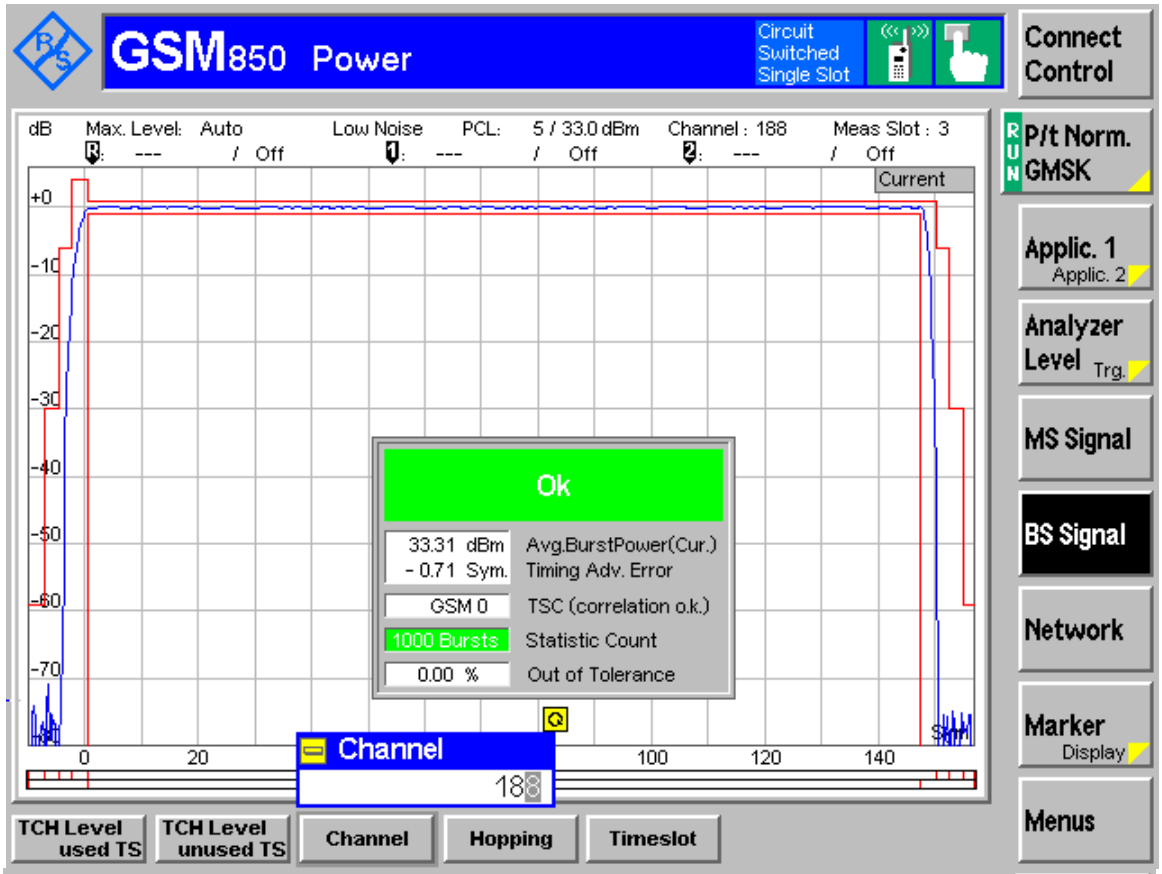
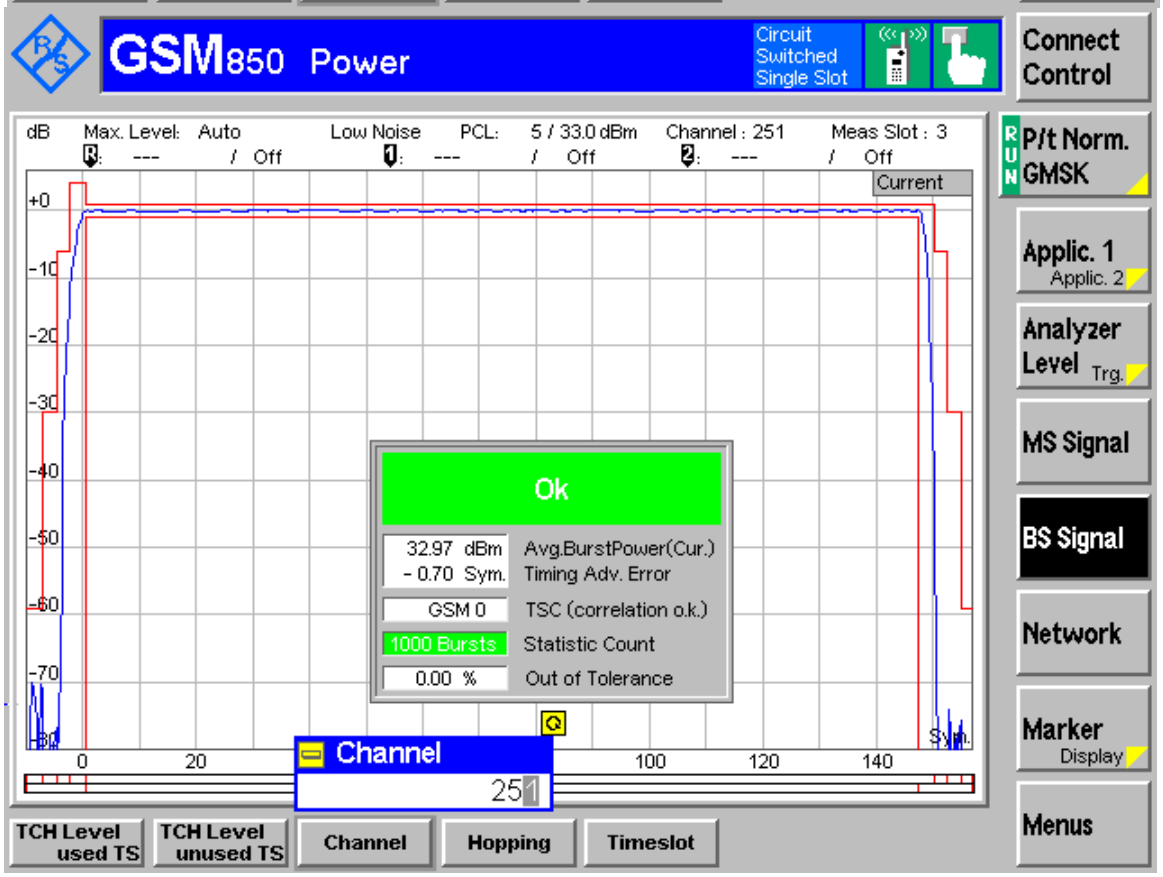
Out of Tolerance
Channel
661
TCH Level used TS
TCH Level unused TS
Channel
Hopping
Timeslot


GSM1900 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 0 / 30.0 dBm
Channel : 810
Meas Slot : 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
Trg.
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
29.52 dBm
Avg.BurstPower(Cur.)
- 0.19 Sym.
Timing Adv. Error
GSM 0
TSC (correlation o.k.)
1000 Bursts
Statistic Count
0.00 %
Out of Tolerance
Channel
810
TCH Level used TS
TCH Level unused TS
Channel
Hopping
Timeslot

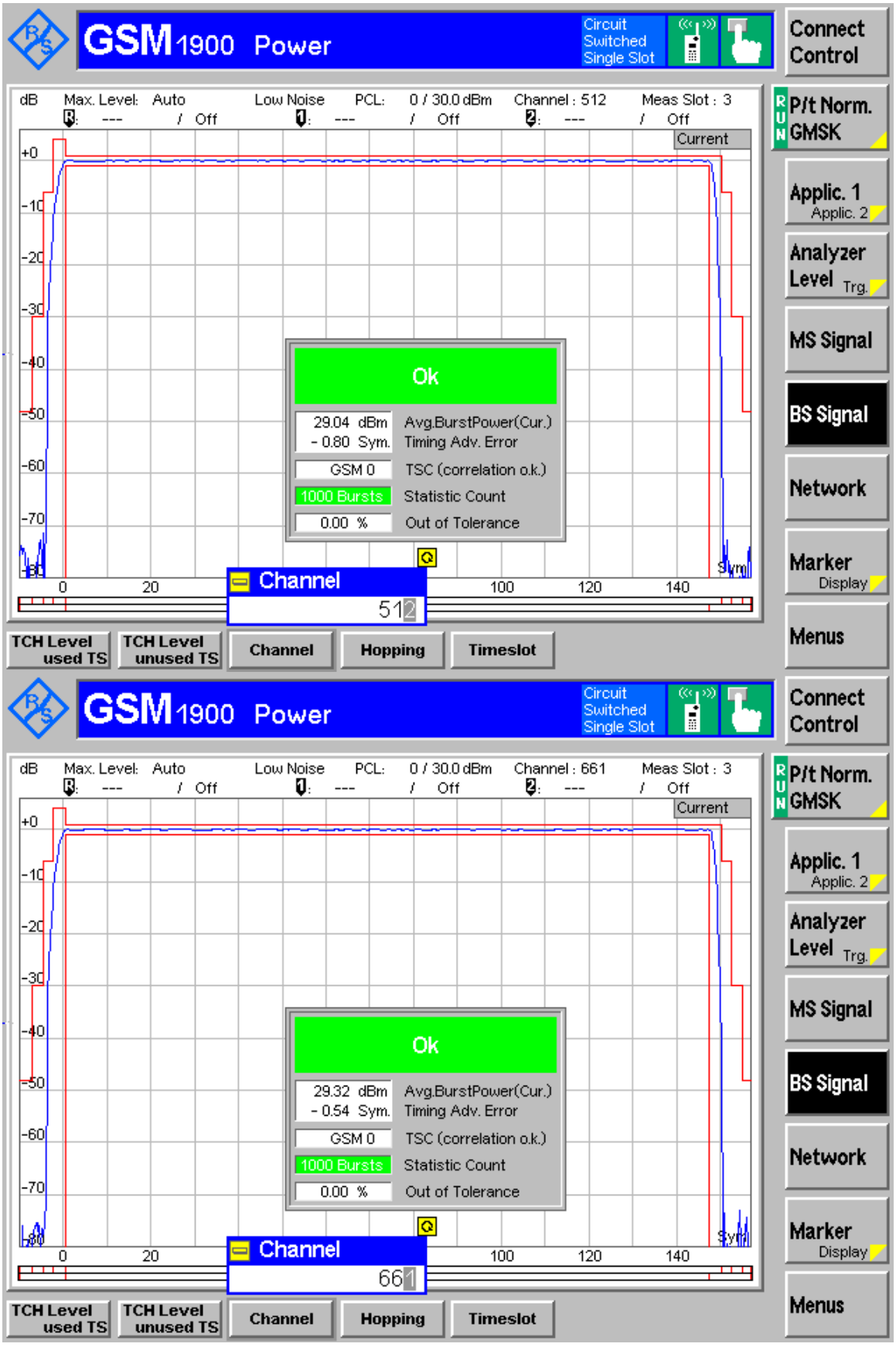
132 V


GSM850 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 5 / 33.0 dBm
Channel : 128
Meas Slot : 3
Current
P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level
Trg.
MS Signal
BS Signal
Network
Marker
Display
Menus
Ok
32.98 dBm
Avg.BurstPower(Cur.)
- 0.72 Sym.
Timing Adv. Error
GSM 0
TSC (correlation o.k.)
1000 Bursts
Statistic Count
0.00 %
Out of Tolerance
Channel
128
TCH Level used TS
TCH Level unused TS
Channel
Hopping
Timeslot

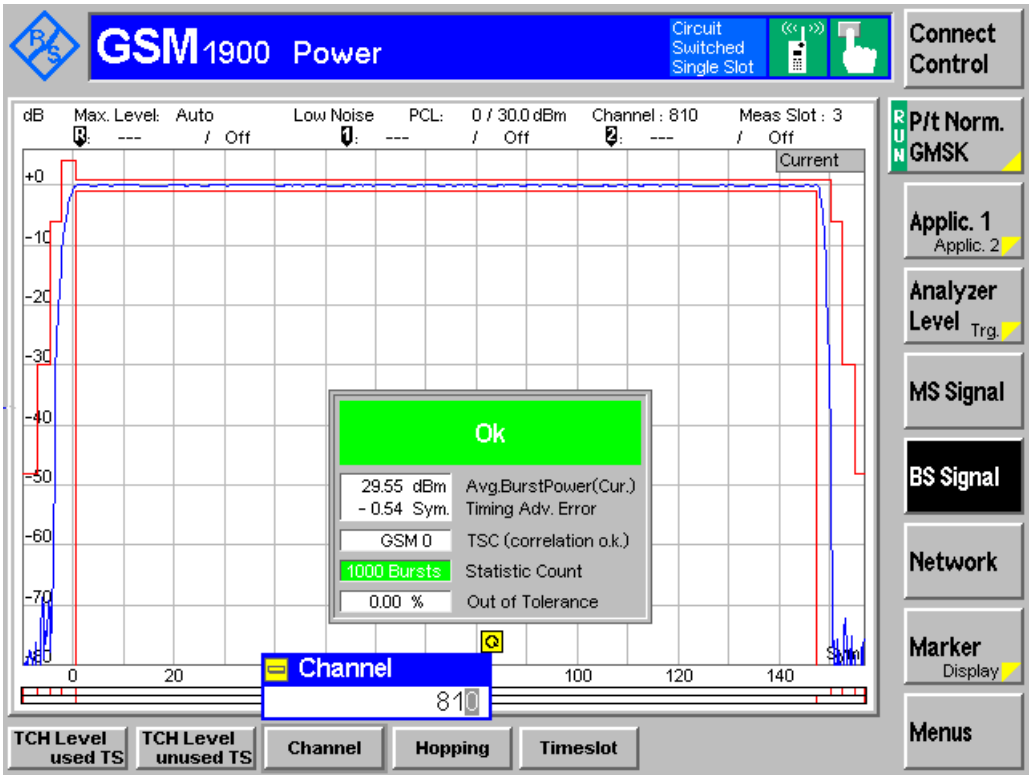

GSM850 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 5 / 33.0 dBm
Channel : 188
Meas Slot : 3
Current
+0
-10
-20
-30
-40
-50
-60
-70
0
20
100
120
140
Ok
33.31 dBm
Avg.BurstPower(Cur.)
- 0.71 Sym.
Timing Adv. Error
GSM 0
TSC (correlation o.k.)
1000 Bursts
Statistic Count
0.00 %
Out of Tolerance
Channel
188
RUN P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level Trg.
MS Signal
BS Signal
Network
Marker Display
Menus
TCH Level used TS
TCH Level unused TS
Channel
Hopping
Timeslot


GSM850 Power
Circuit Switched Single Slot
Connect Control
dB
Max. Level: Auto
Low Noise
PCL: 5 / 33.0 dBm
Channel : 251
Meas Slot : 3
Current
+0
-10
-20
-30
-40
-50
-60
-70
0
20
100
120
140
Ok
32.97 dBm
Avg.BurstPower(Cur.)
- 0.70 Sym.
Timing Adv. Error
GSM 0
TSC (correlation o.k.)
1000 Bursts
Statistic Count
0.00 %
Out of Tolerance
Channel
251
RUN P/t Norm. GMSK
Applic. 1
Applic. 2
Analyzer Level Trg.
MS Signal
BS Signal
Network
Marker Display
Menus
TCH Level used TS
TCH Level unused TS
Channel
Hopping
Timeslot

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



☐ Conducted Measurement
☑ Radiated Measurement

Band 850 MHz & 1900 MHz
108 V

Frequency (MHz)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Result
824.2511	22.78	24.93	38.45	Pass
836.2511	22.98	25.13	38.45	Pass
848.8471	21.54	23.69	38.45	Pass
1850.1270	19.14	21.29	33	Pass
1879.9270	18.41	20.56	33	Pass
1909.8630	15.43	17.58	33	Pass

132 V

Frequency (MHz)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Result
824.2551	22.68	24.83	38.45	Pass
836.1188	22.97	25.12	38.45	Pass
848.8571	21.48	23.63	38.45	Pass
1850.1290	19.31	21.64	33	Pass
1880.0610	18.45	20.60	33	Pass
1909.7290	15.42	17.57	33	Pass

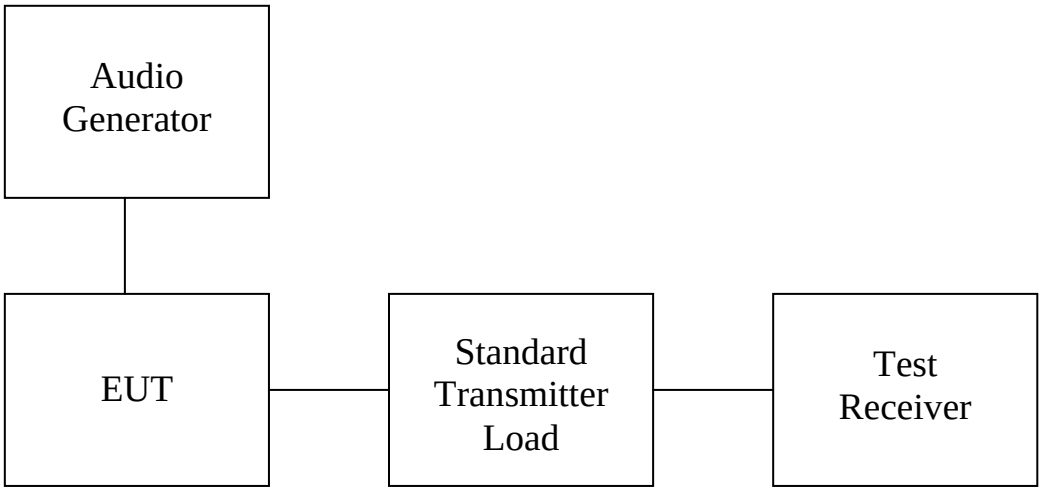
Test equipment: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 111, ETSTW-GSM 002
Note: Please refer to appendix for plot data.

4. Modulation Characteristics

4.1 Test procedure

☐ A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.
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.

☐ Equipment which employs modulation Limiting: A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The audio signal generator is connected to the audio input of the EUT with its full rating. The modulation limiting is measured at certain modulation frequencies from 100Hz to 15kHz.



4.2 Test Results

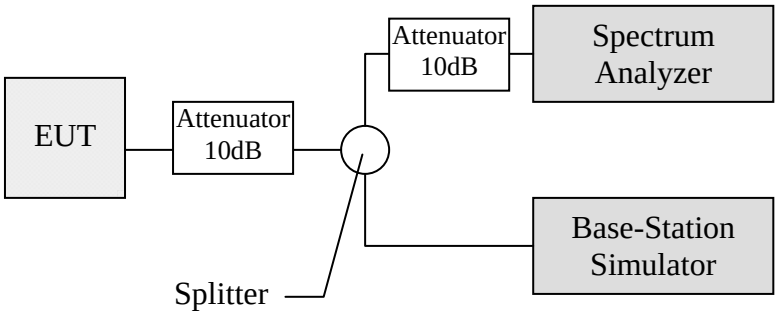
For digital modulation employed, this test item is not applicable.

5. Occupied Bandwidth

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power. Near the carrier an Emission Mask is defined by the standard.

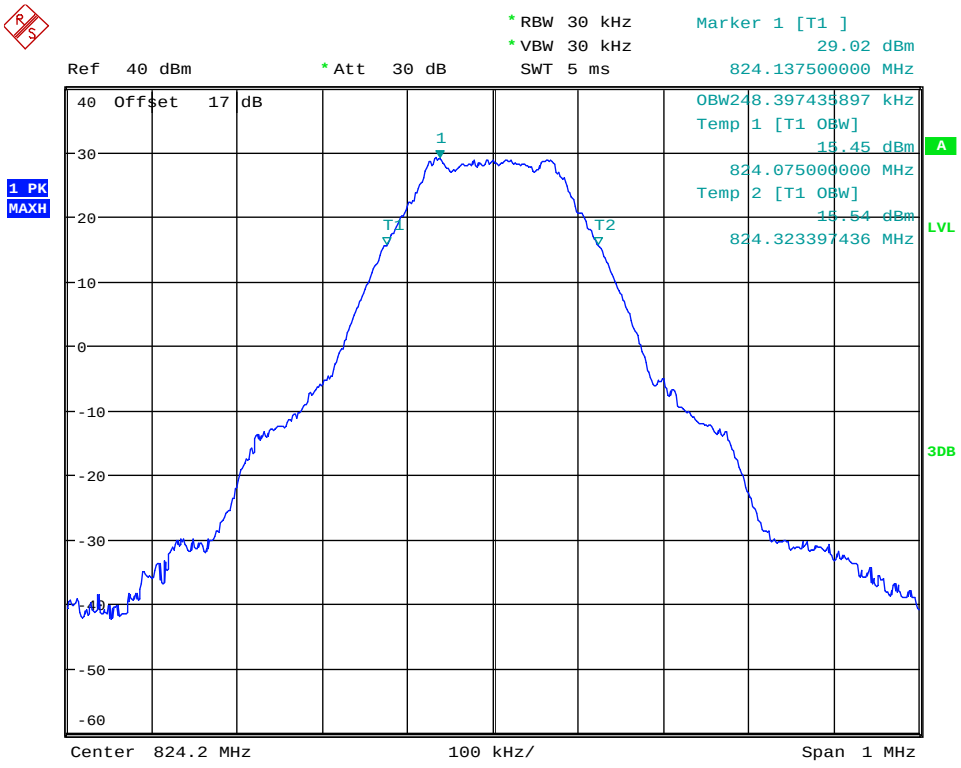
5.1 Test procedure

The RF output of the transceiver was connected as the following figure.
Occupied Bandwidth was measured with a occupied bandwidth function of the analyzer at 99% power was occupied. Then set the spectrum analyzer to cover the upper and lower band edges to measure emission mask.



5.2 Test Results

Occupied Channel Bandwidth



OCCUPIED BANDWIDTH GSM850 CH128
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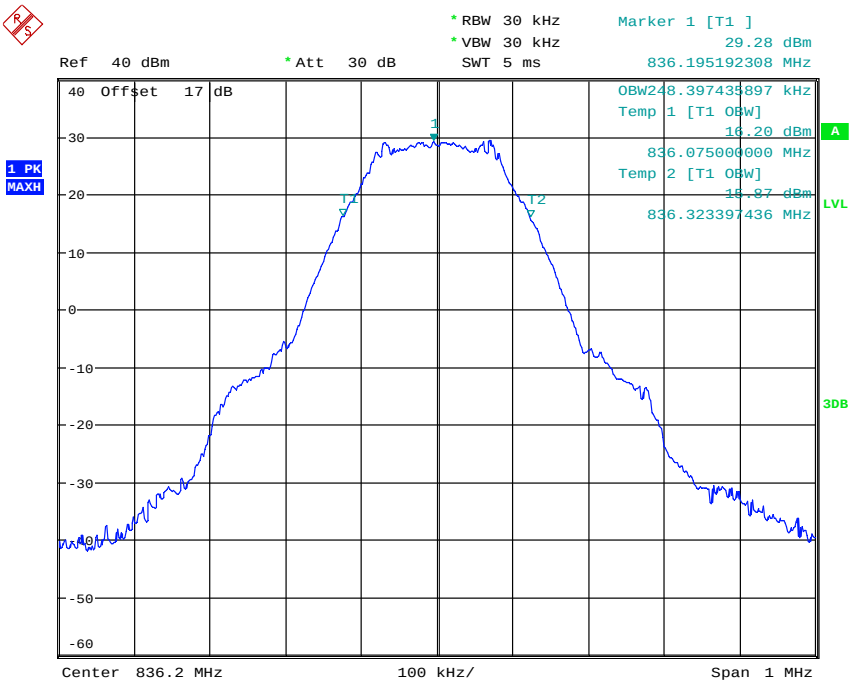
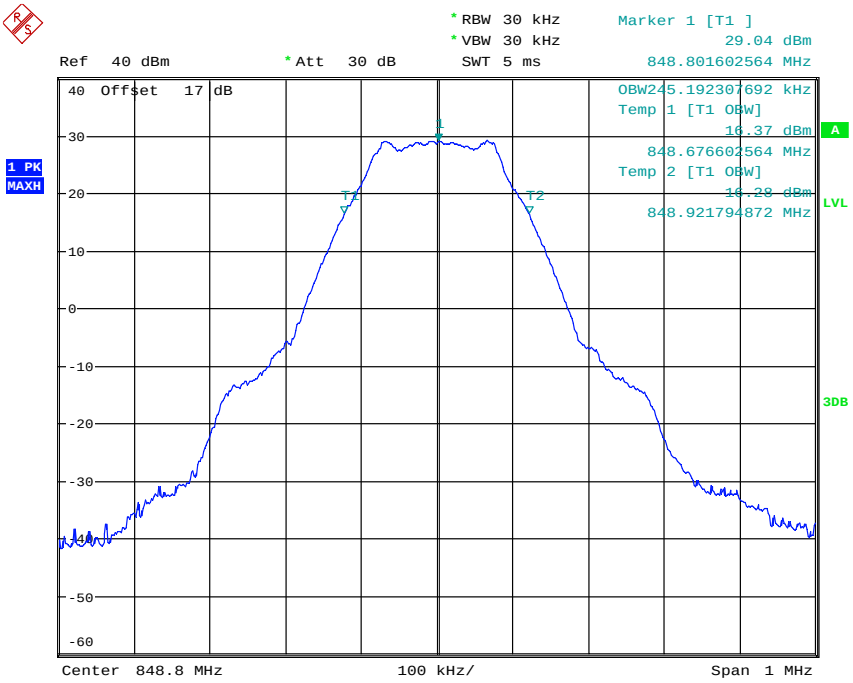


OCCUPIED BANDWIDTH GSM850 CH188

Date: 22.NOV.2013 13:20:21



OCCUPIED BANDWIDTH GSM850 CH251

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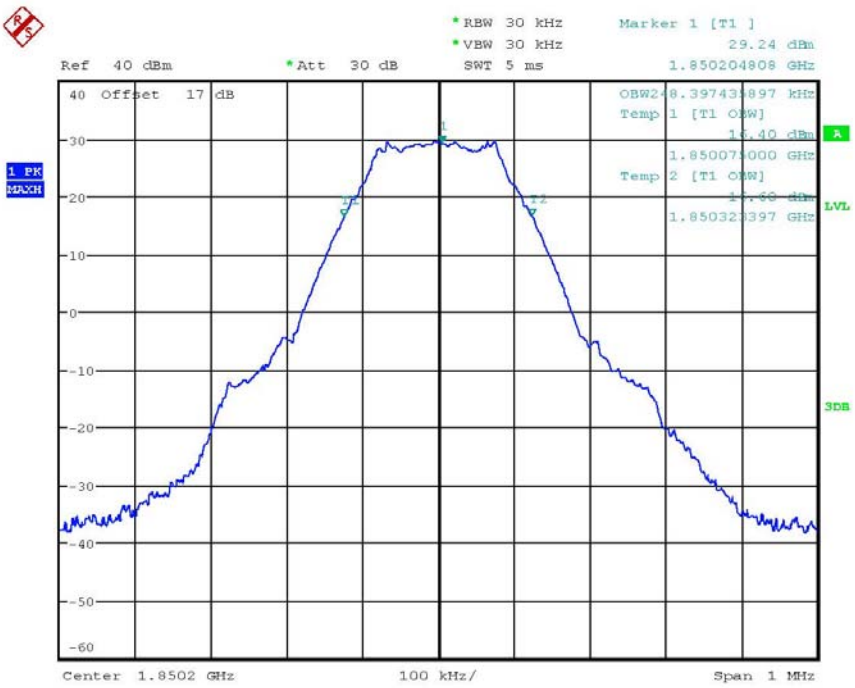
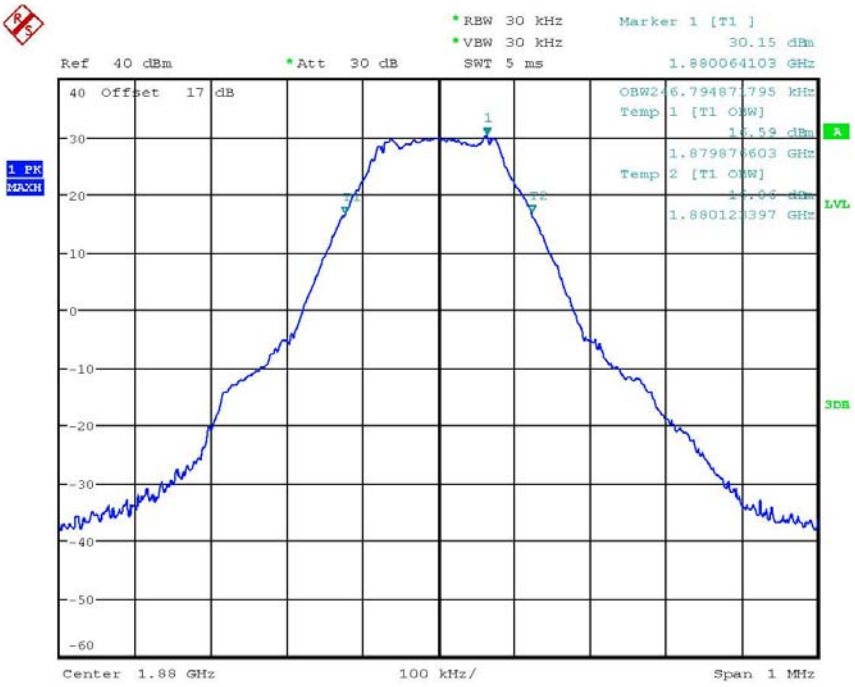


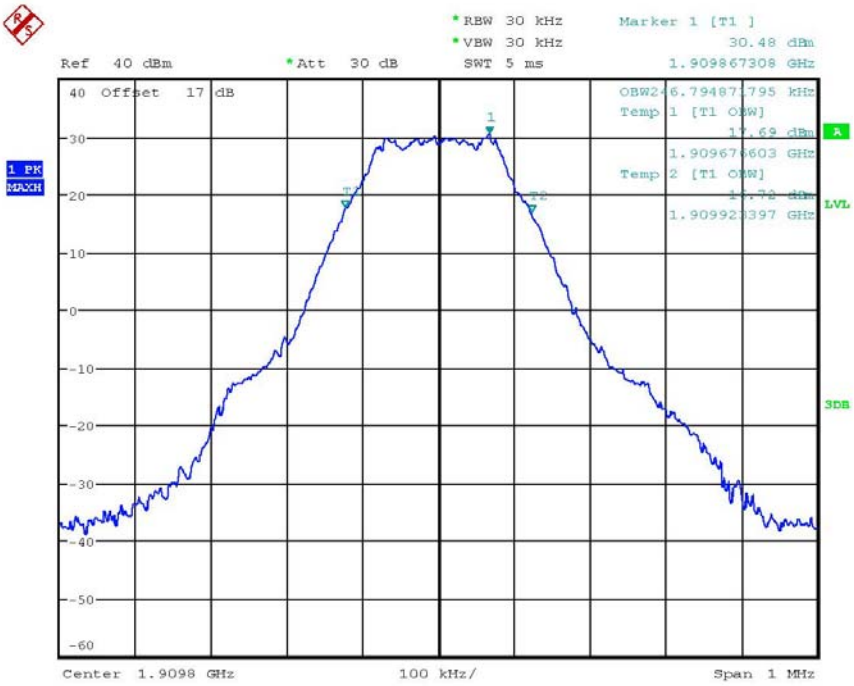
OCCUPIED BANDWIDTH PCS1900 CH512

Date: 22.NOV.2013 14:19:51



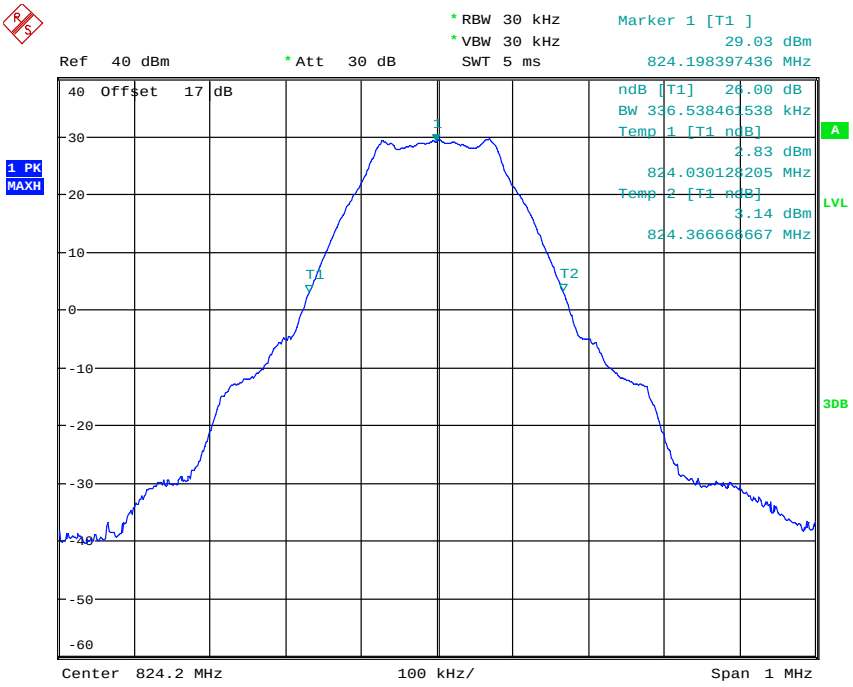
OCCUPIED BANDWIDTH PCS1900 CH661

Date: 22.NOV.2013 14:21:19

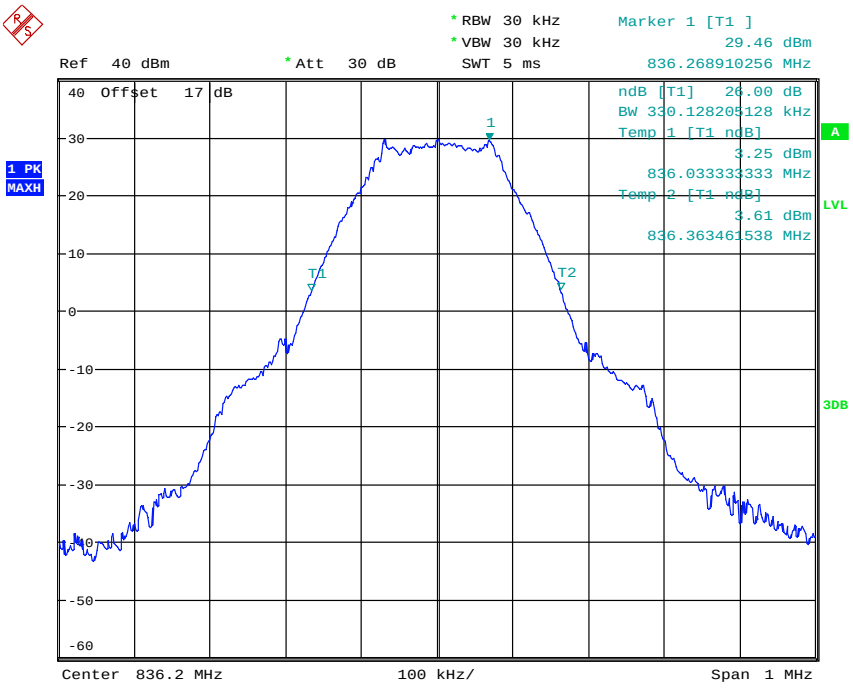


OCCUPIED BANDWIDTH PCS1900 CH810
Date: 22.NOV.2013 14:22:07

26dB Channel Bandwidth



26DB BANDWIDTH GSM850 CH128
Date: 22.NOV.2013 13:15:00



26DB BANDWIDTH GSM850 CH188

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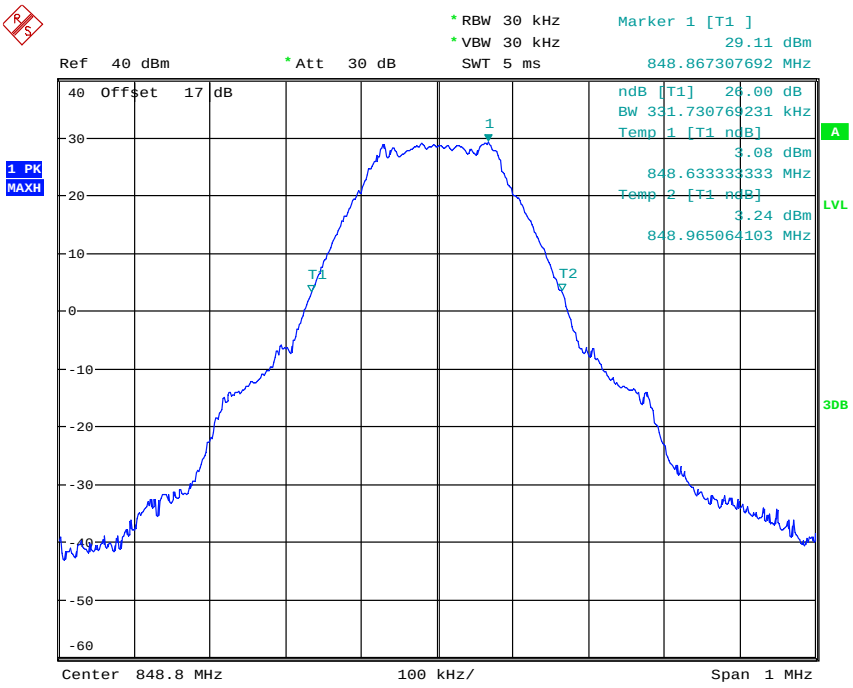

26DB BANDWIDTH GSM850 CH251

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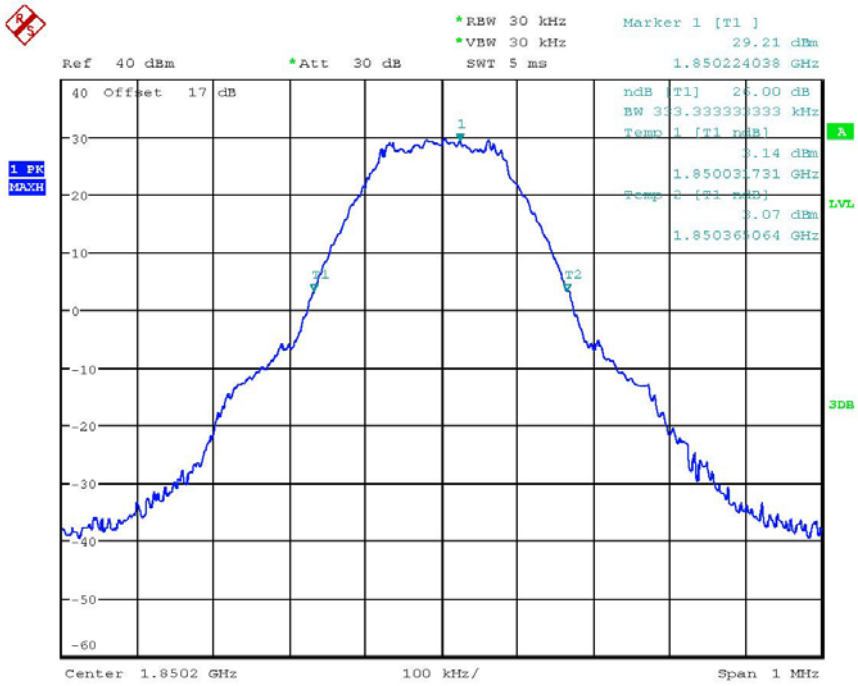

26DB BANDWIDTH PCS1900 CH512

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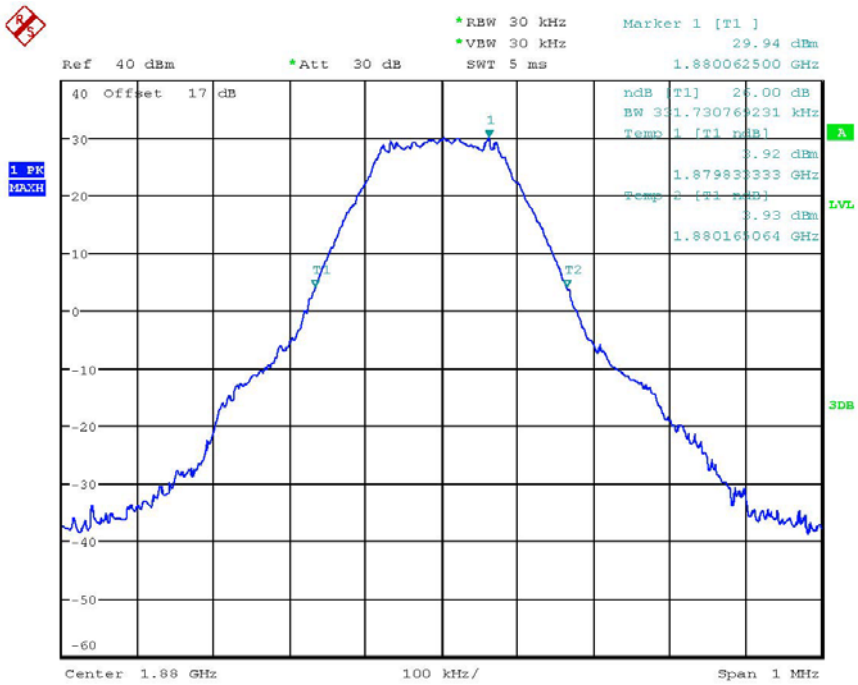
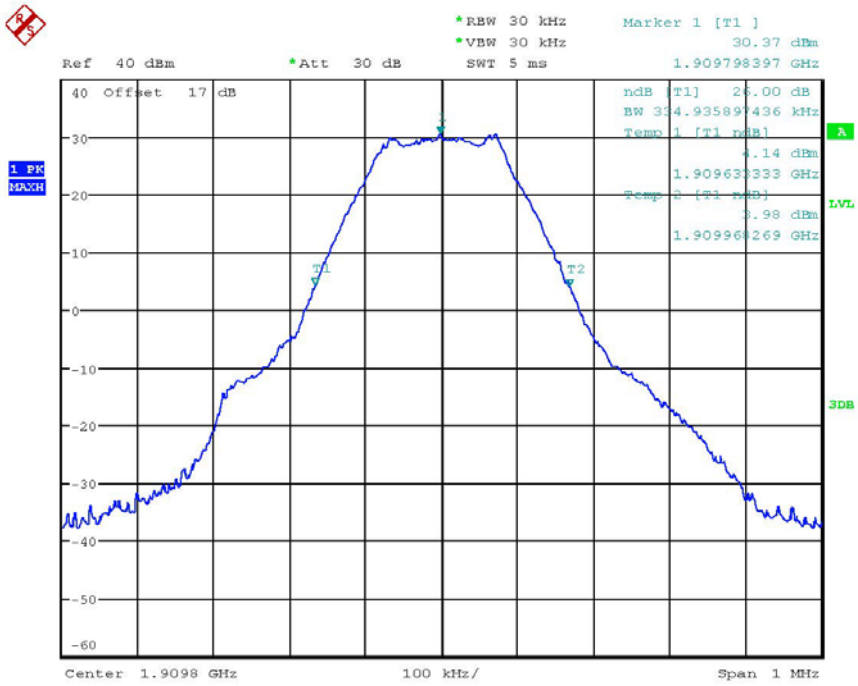


26DB BANDWIDTH PCS1900 CH661

Date: 22.NOV.2013 14:17:50

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



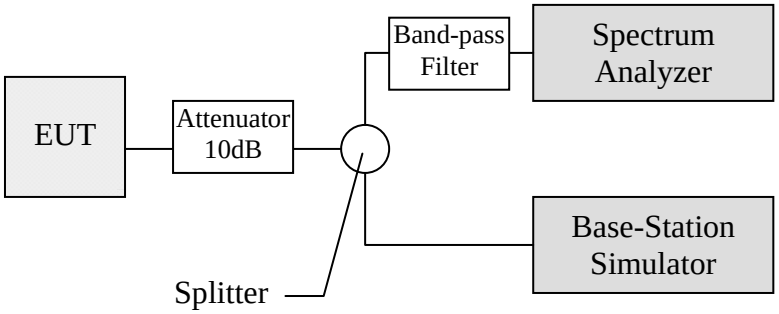
26DB BANDWIDTH PCS1900 CH810
Date: 22.NOV.2013 14:17:01

Test equipment: ETSTW-RE 055, ETSTW-GSM 002

6. Spurious Emissions at Antenna Terminals

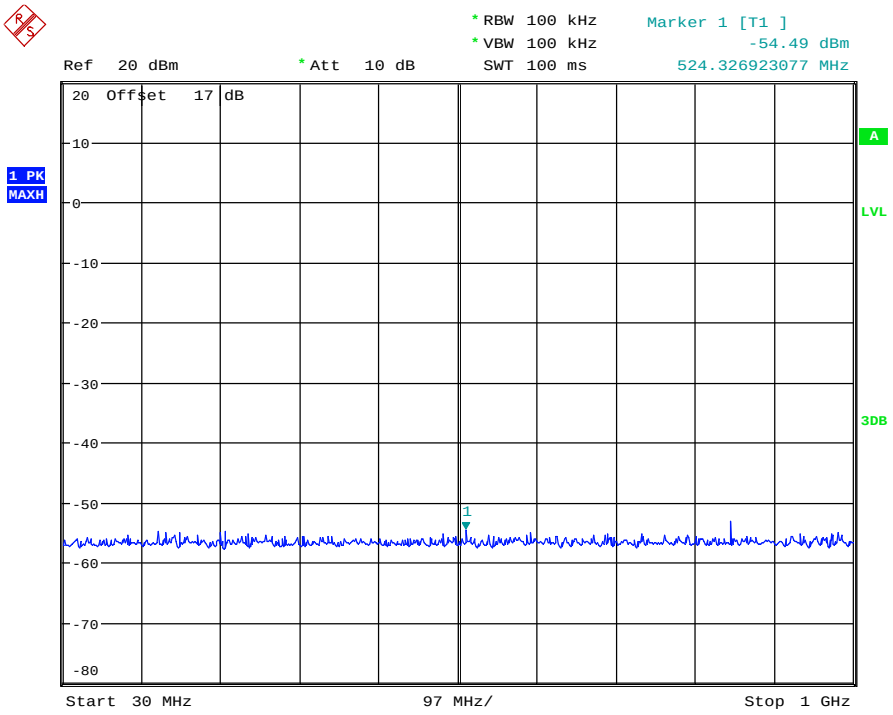
6.1 Test procedure

This transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer via a three-port splitter. Please refer to the following figure. Transmitter output was derived with the spectrum analyzer in dBm.
The Spurious Emissions at Antenna Terminals was measured by the spectrum analyzer with a suitable notch filter and/or Band-pass filter.
Tests were performed with an unmodulated carrier at three frequencies (low, middle and high channels) and on all power levels , which can be set-up on the transmitters.



6.2 Test Results

CH128



CONDUCTED SPURIOUS EMISSION GSM850 CH128
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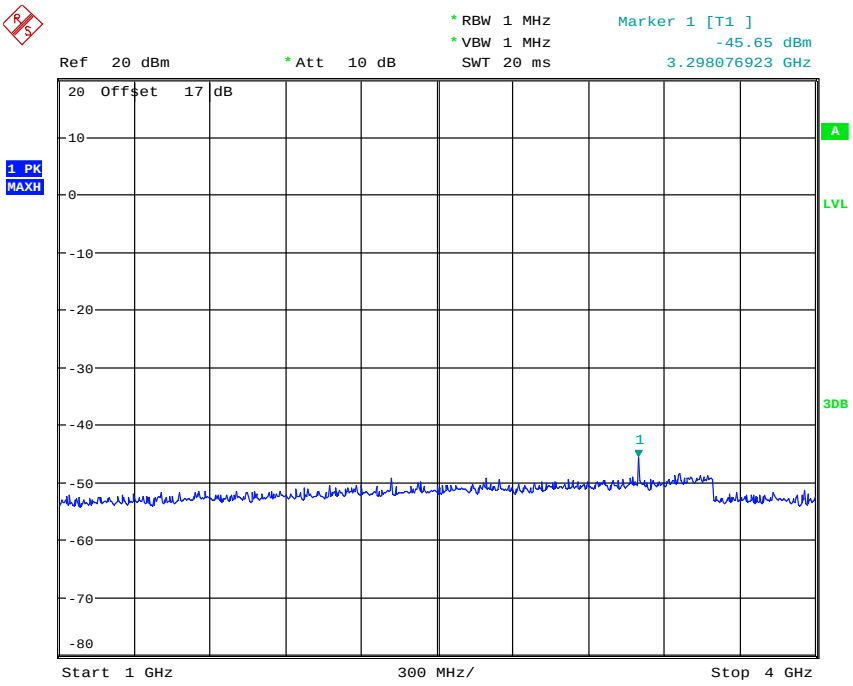

CONDUCTED SPURIOUS EMISSION GSM850 CH128
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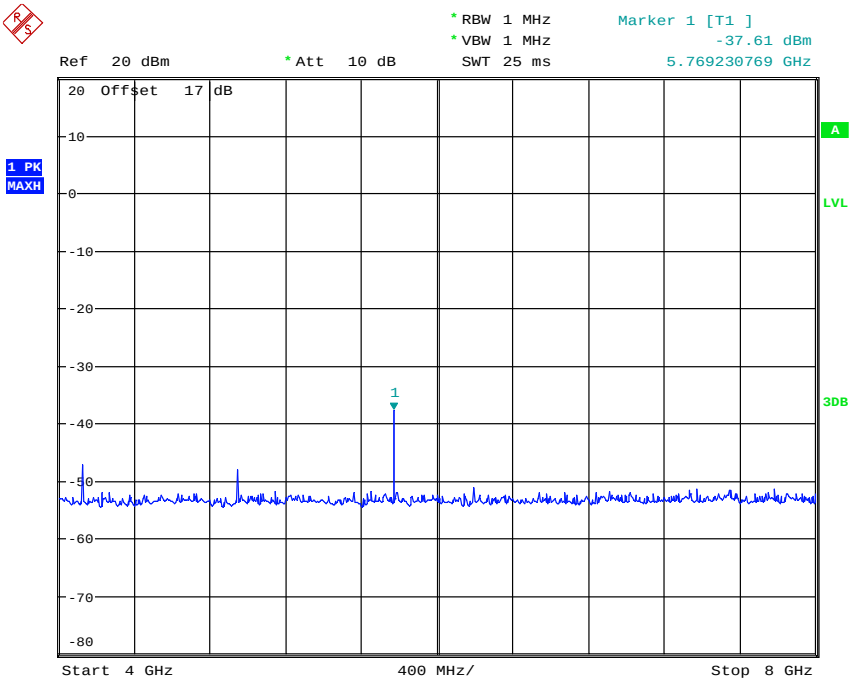

CONDUCTED SPURIOUS EMISSION GSM850 CH128
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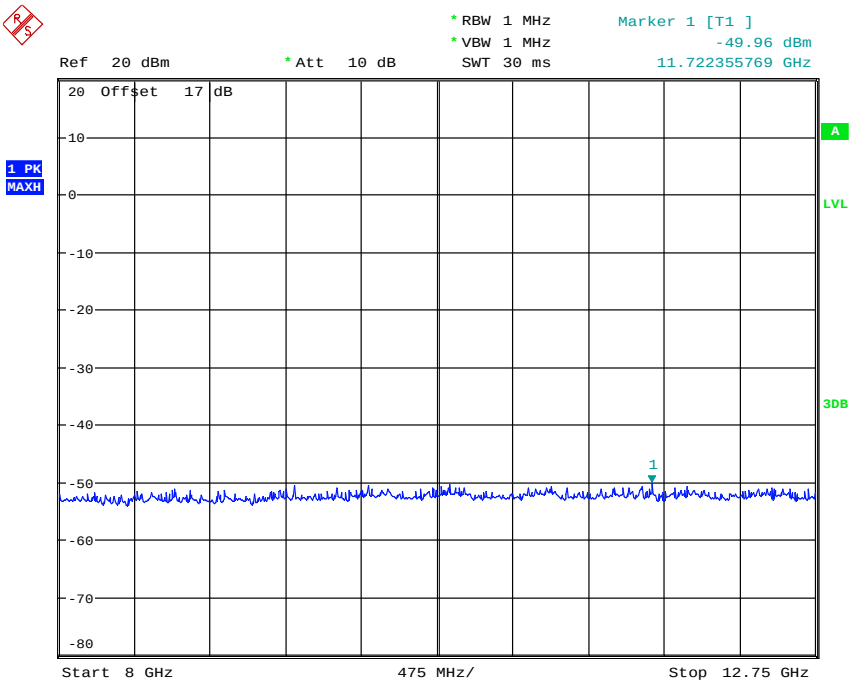

CONDUCTED SPURIOUS EMISSION GSM850 CH128
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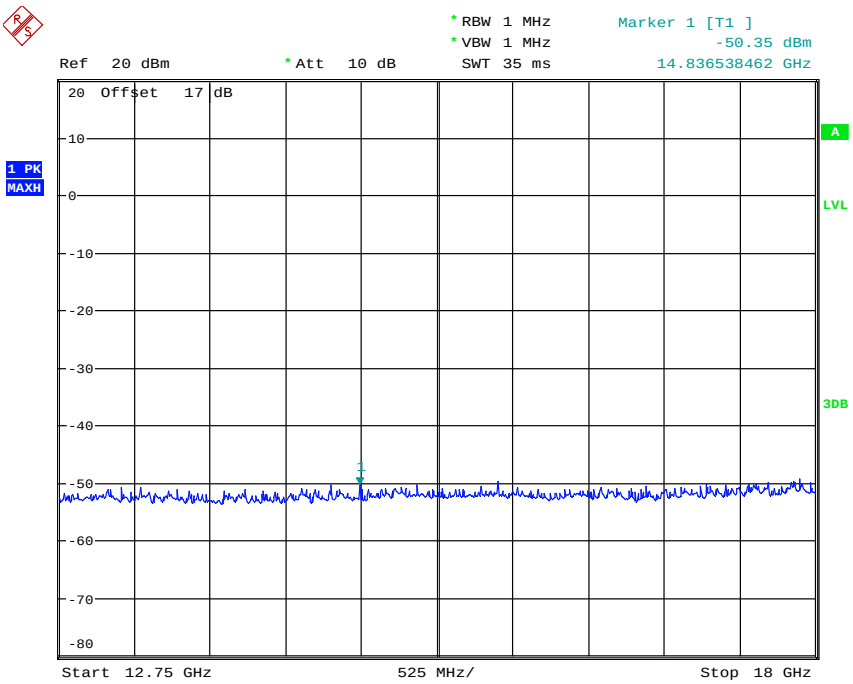
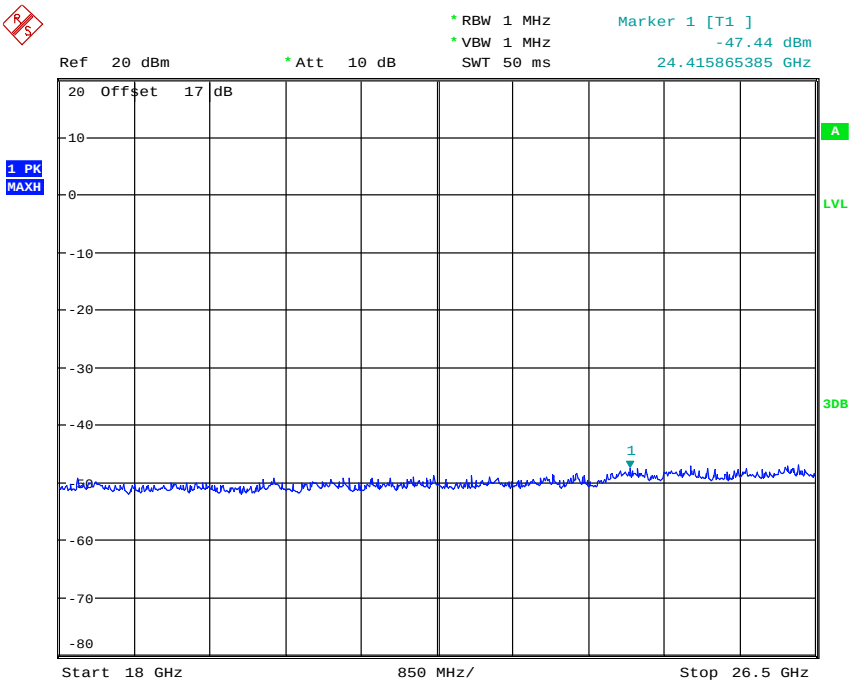


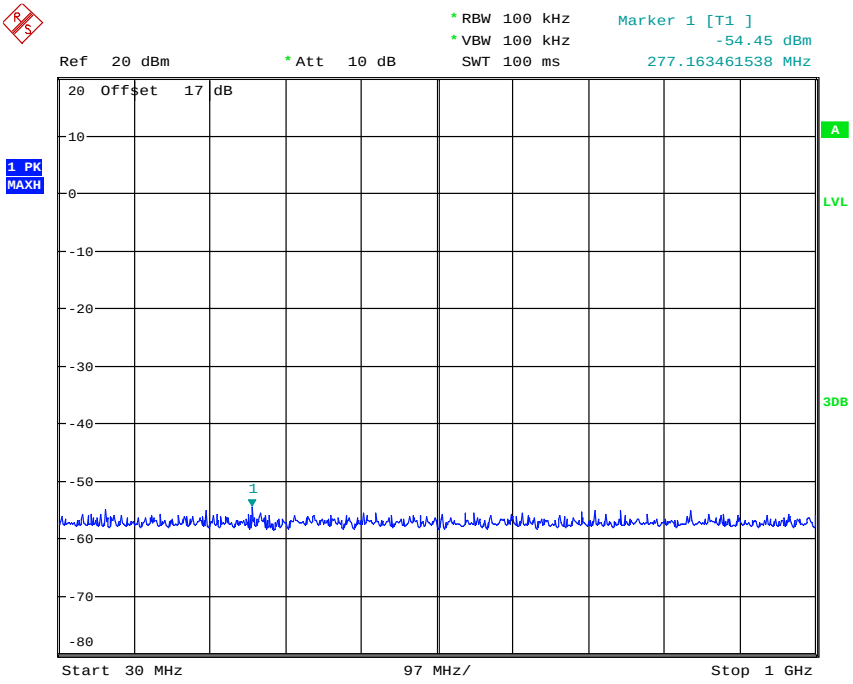
CONDUCTED SPURIOUS EMISSION GSM850 CH128
Date: 22.NOV.2013 13:48:12

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



CONDUCTED SPURIOUS EMISSION GSM850 CH128
Date: 22.NOV.2013 13:47:48

CH188



CONDUCTED SPURIOUS EMISSION GSM850 CH188
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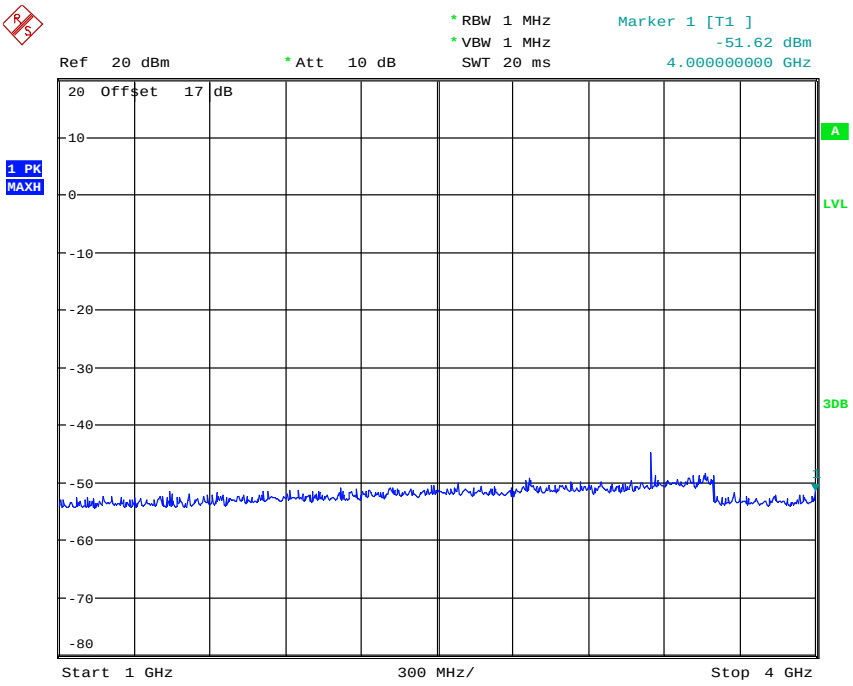

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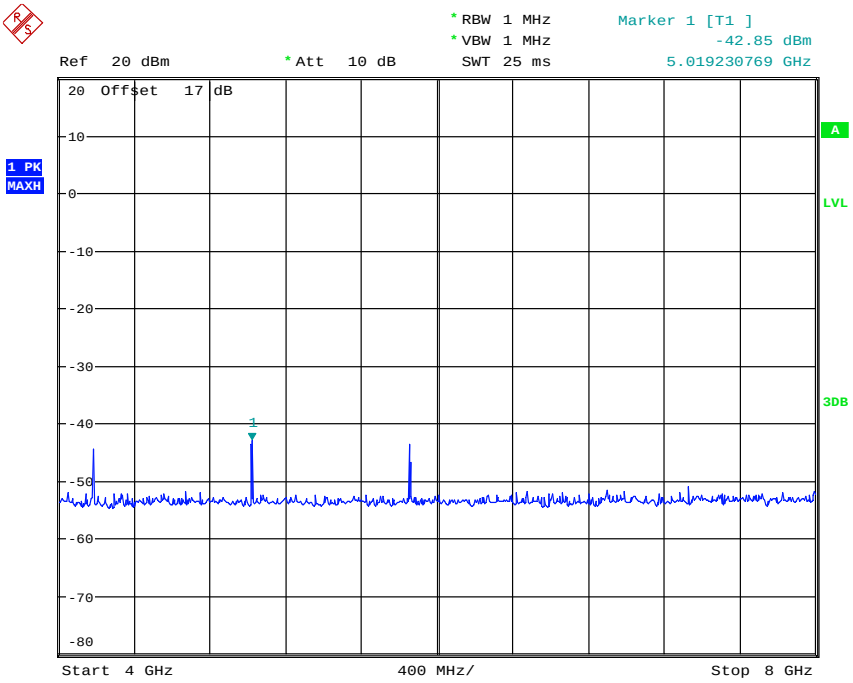

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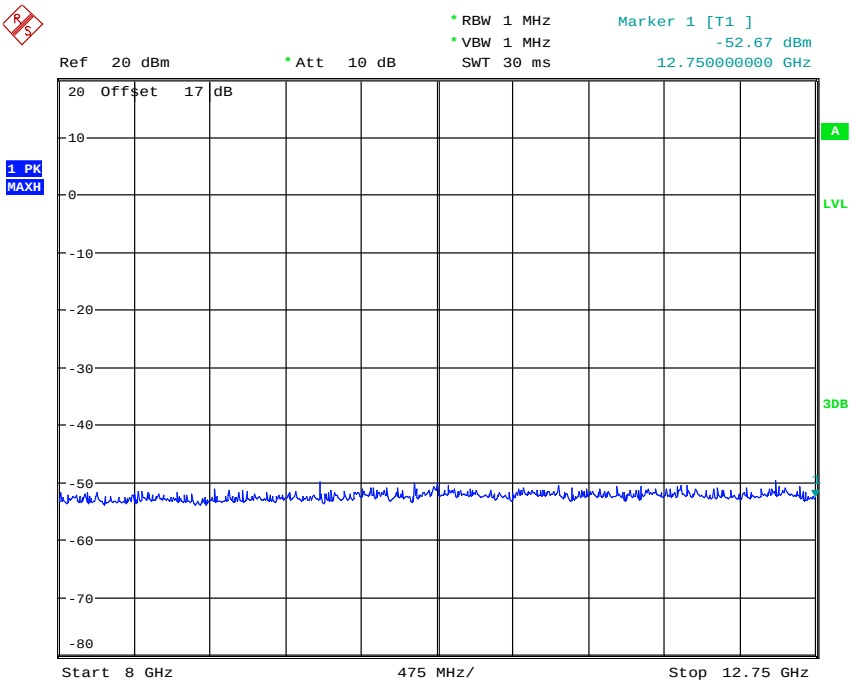
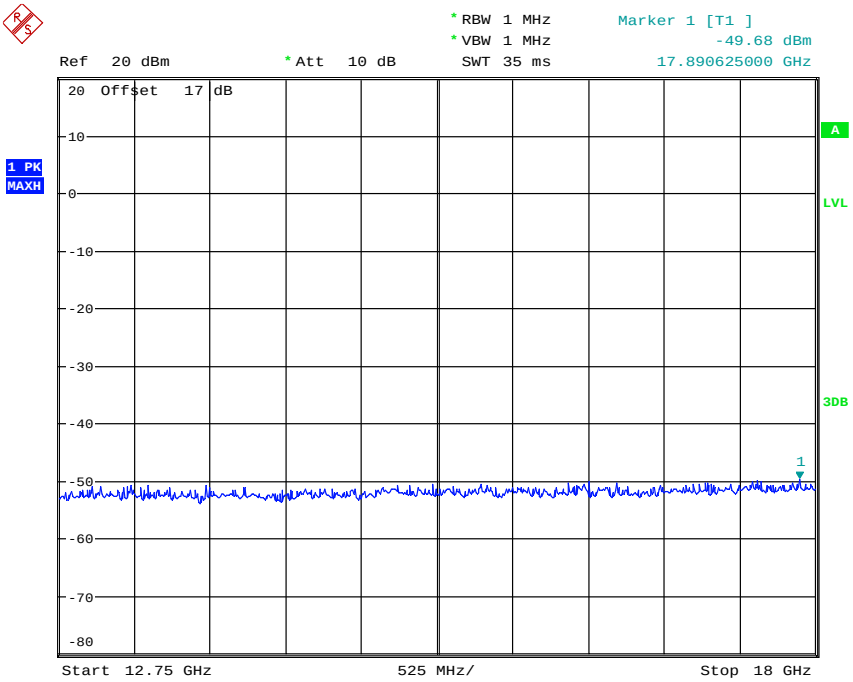


CONDUCTED SPURIOUS EMISSION GSM850 CH188

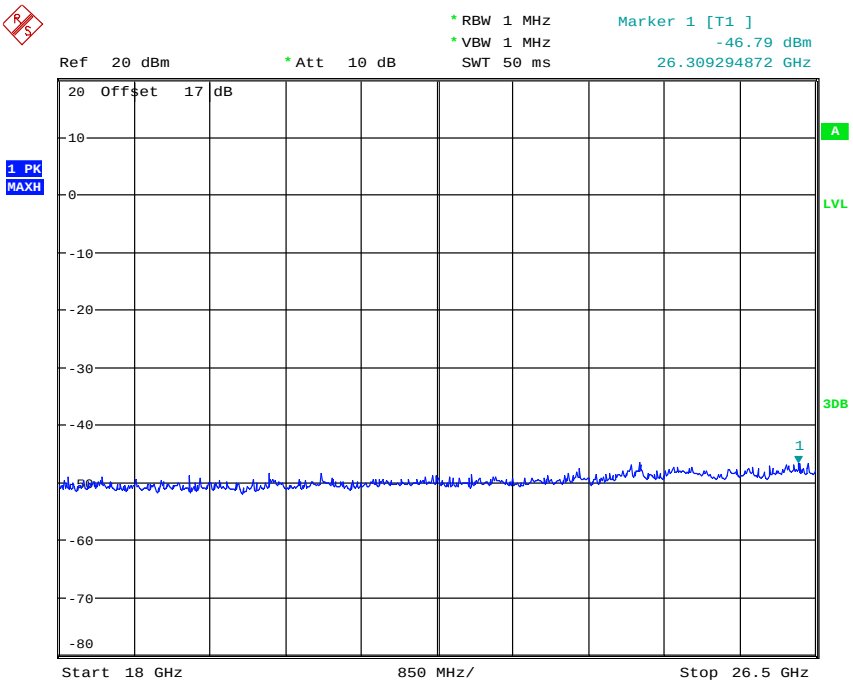
Date: 22.NOV.2013 13:50:42



CONDUCTED SPURIOUS EMISSION GSM850 CH188

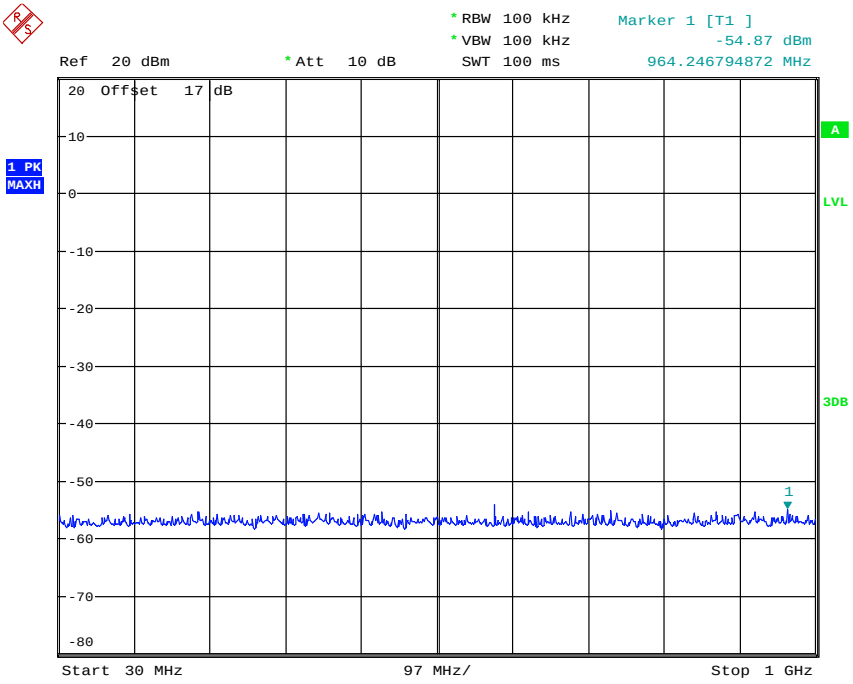
Date: 22.NOV.2013 13:50:17

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



CONDUCTED SPURIOUS EMISSION GSM850 CH188
Date: 22.NOV.2013 13:49:50

CH251



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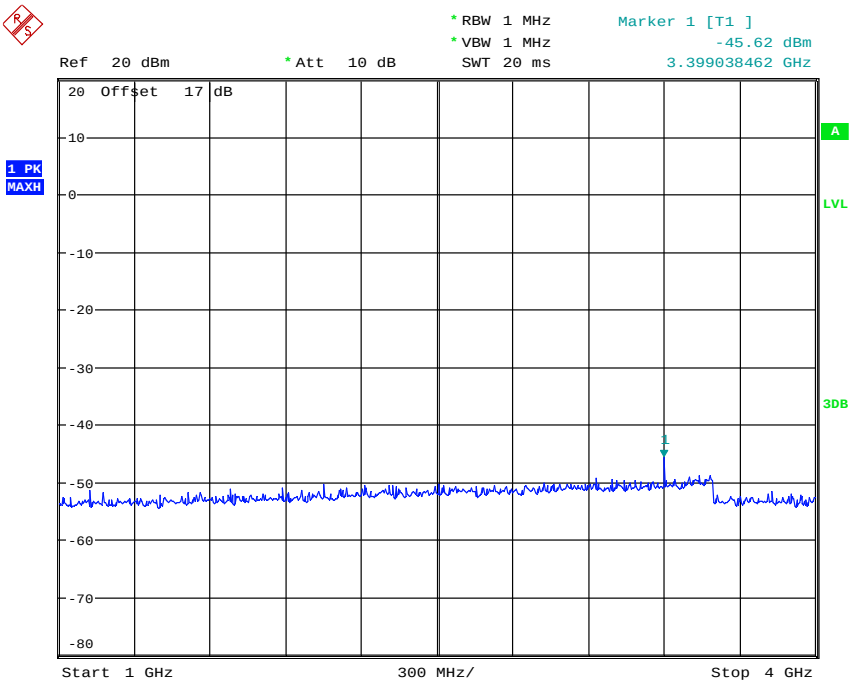

CONDUCTED SPURIOUS EMISSION GSM850 CH251

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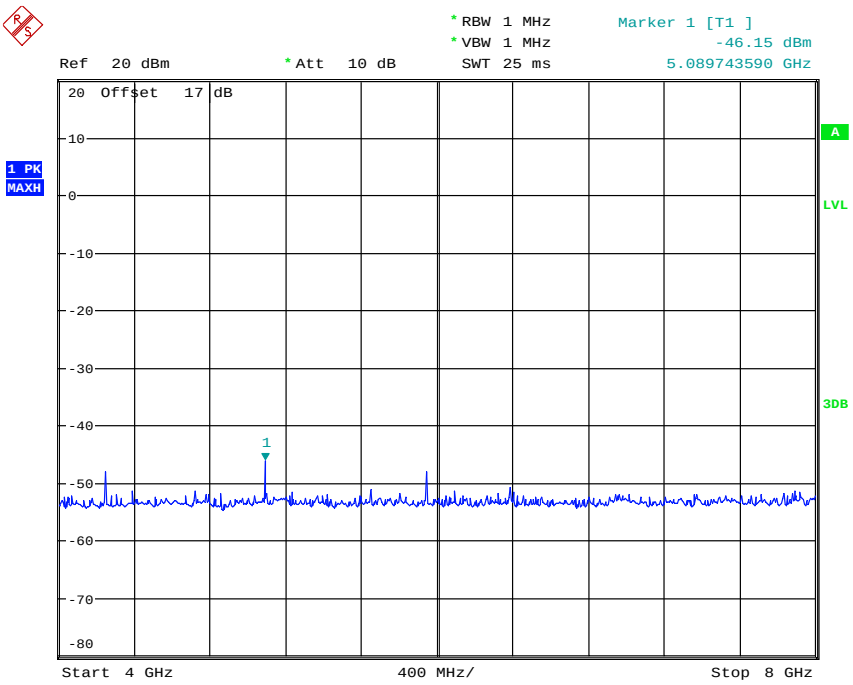

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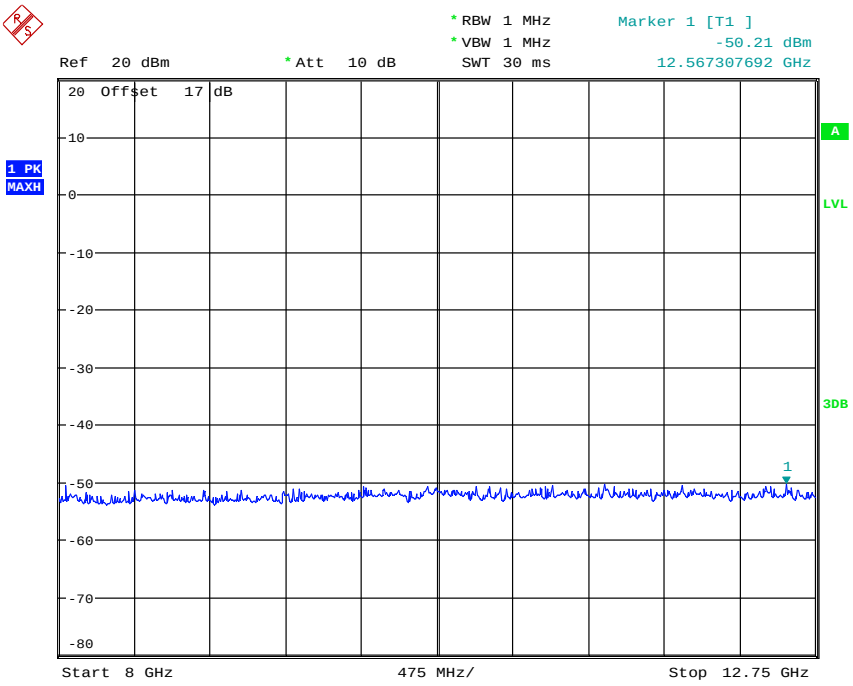

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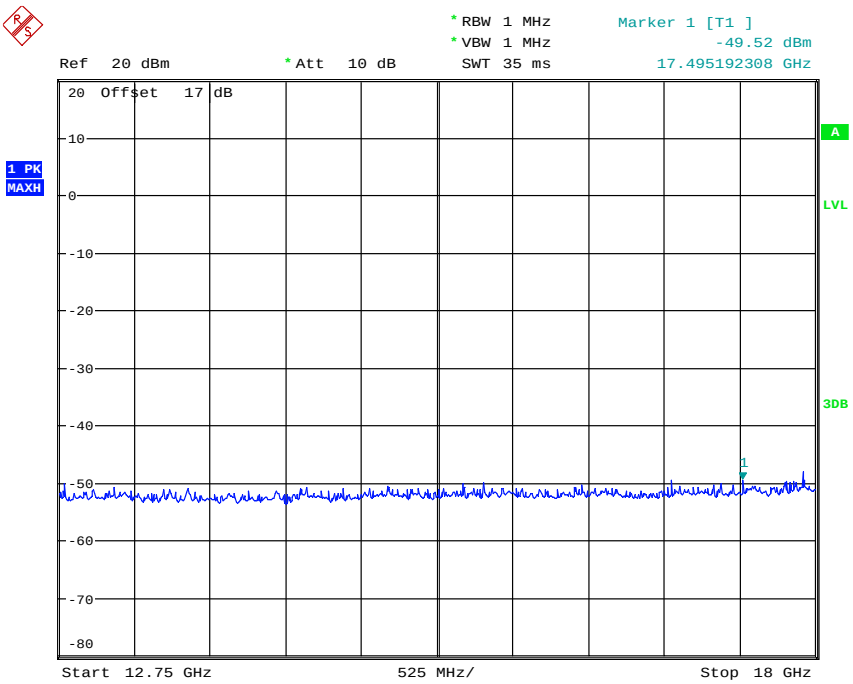
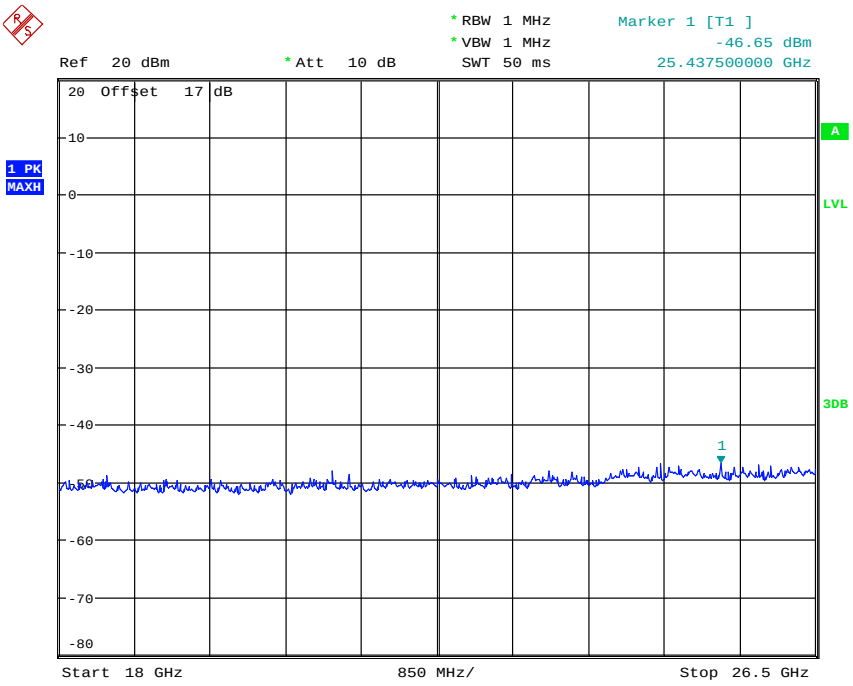


CONDUCTED SPURIOUS EMISSION GSM850 CH251

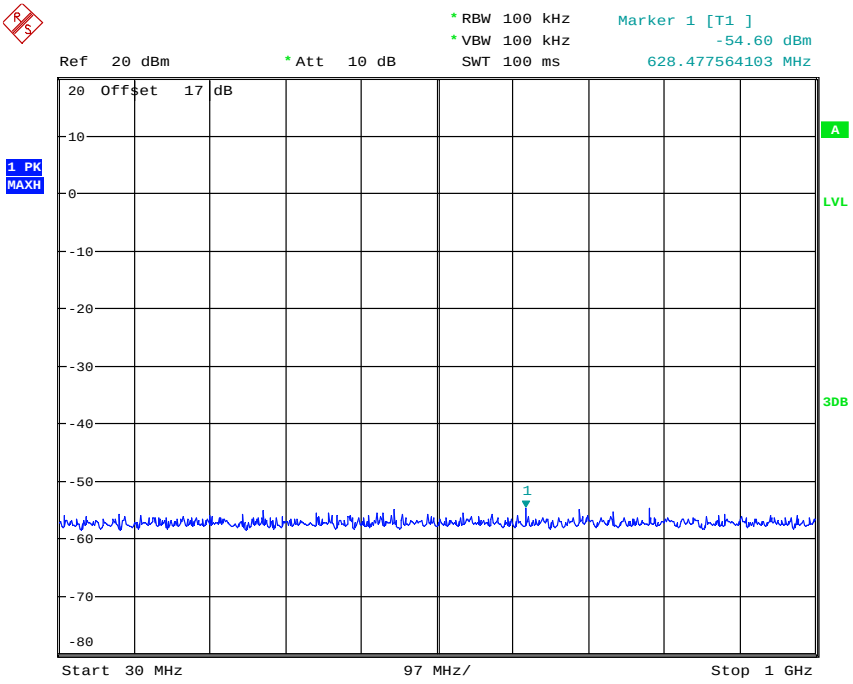
Date: 22.NOV.2013 13:54:44

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



CONDUCTED SPURIOUS EMISSION GSM850 CH251
Date: 22.NOV.2013 13:55:12

850 Band Idle



CONDUCTED SPURIOUS EMISSION GSM850 IDLE
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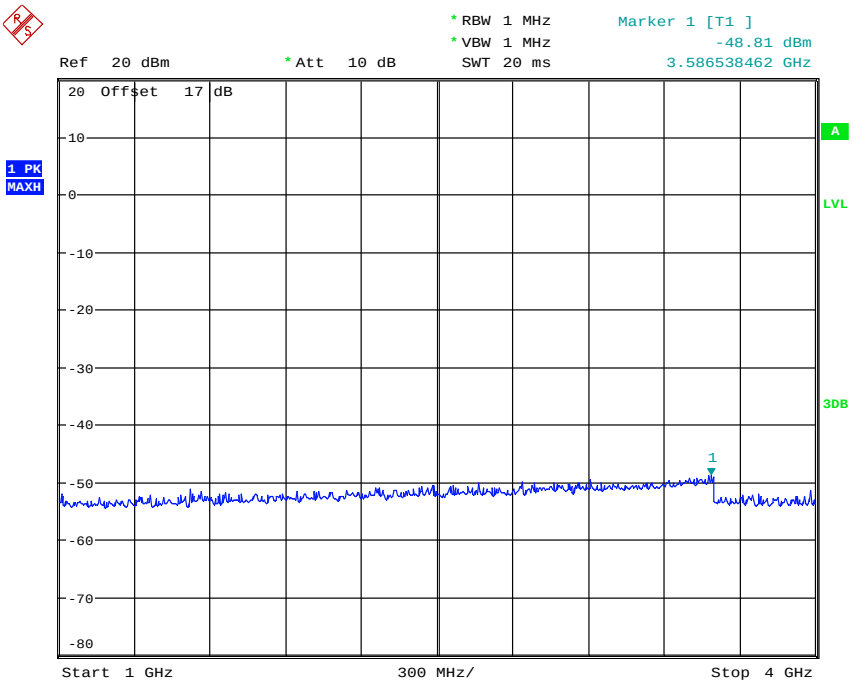

CONDUCTED SPURIOUS EMISSION GSM850 IDLE
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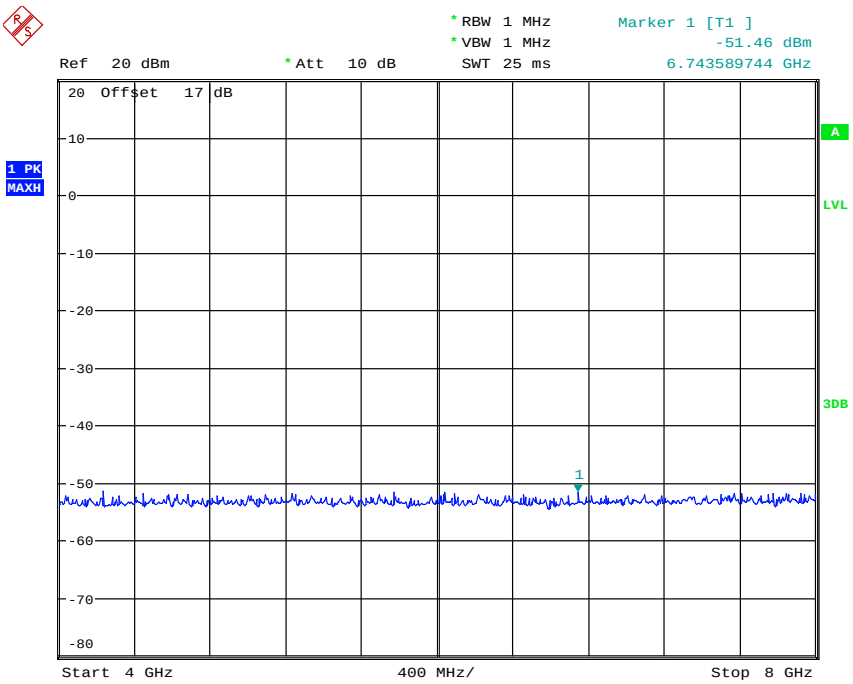
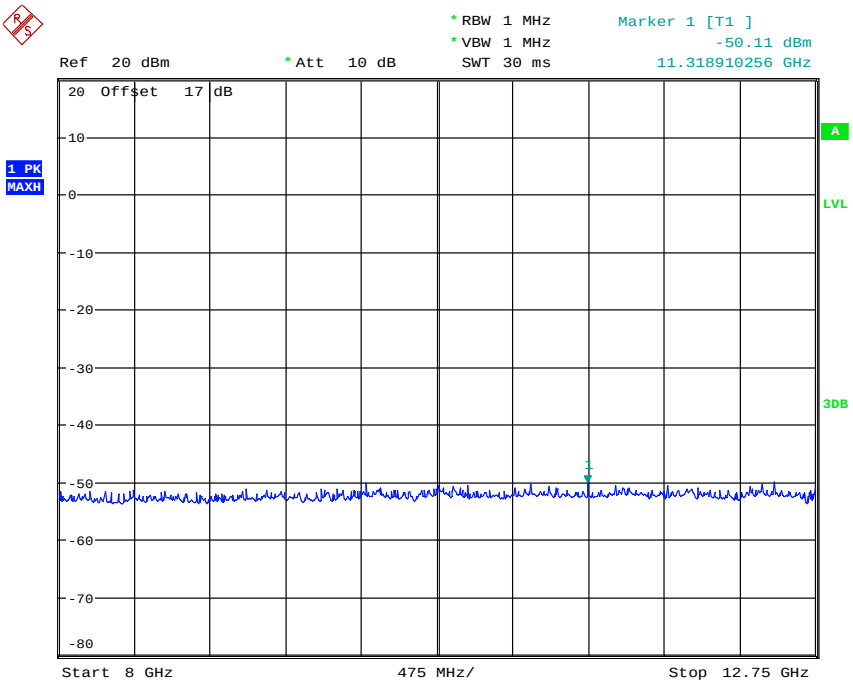


CONDUCTED SPURIOUS EMISSION GSM850 IDLE
Date: 22.NOV.2013 13:57:32



CONDUCTED SPURIOUS EMISSION GSM850 IDLE
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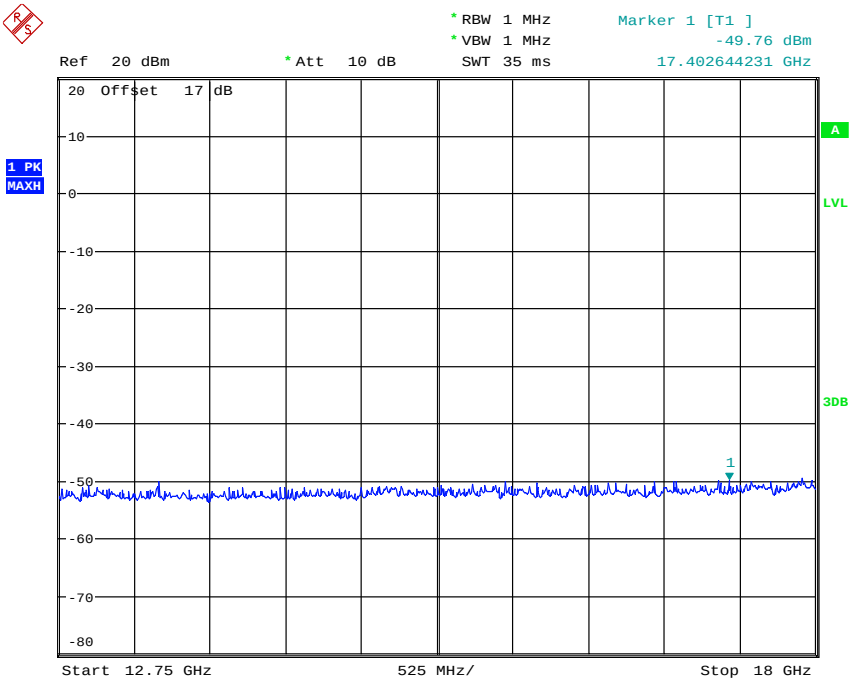

CONDUCTED SPURIOUS EMISSION GSM850 IDLE
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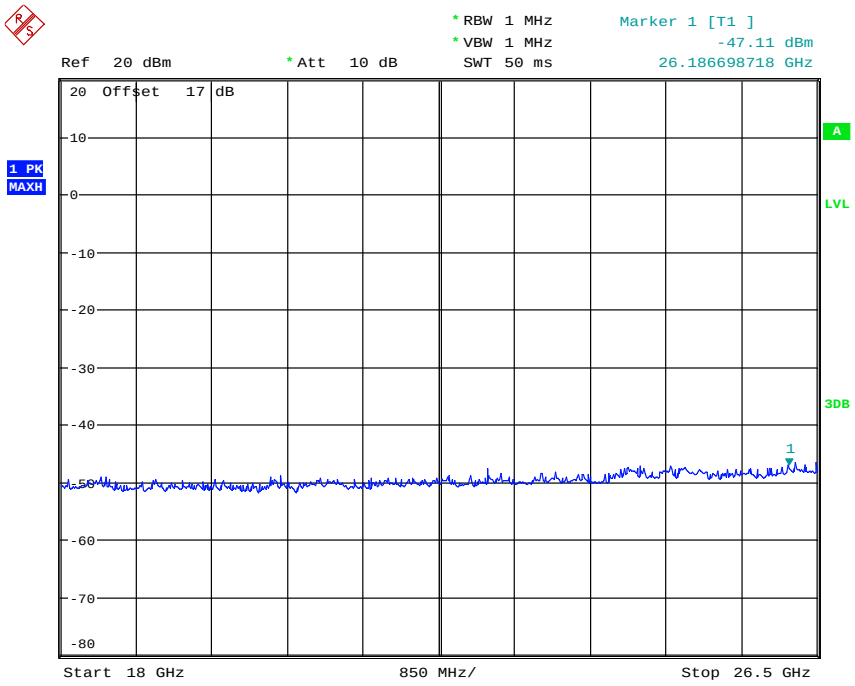
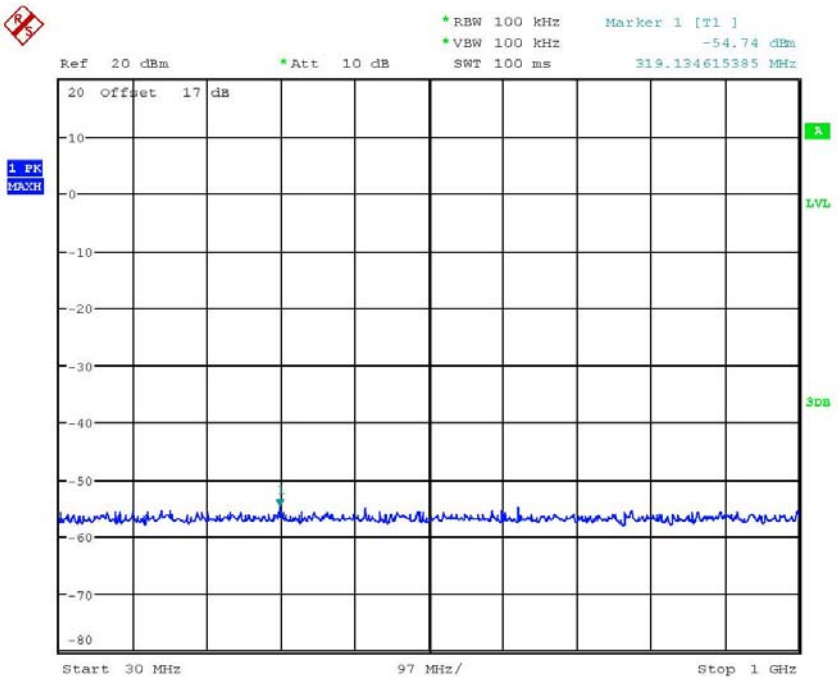


CONDUCTED SPURIOUS EMISSION GSM850 IDLE
Date: 22.NOV.2013 13:56:10

CH512



CONDUCTED SPURIOUS EMISSION PCS1900 CH512
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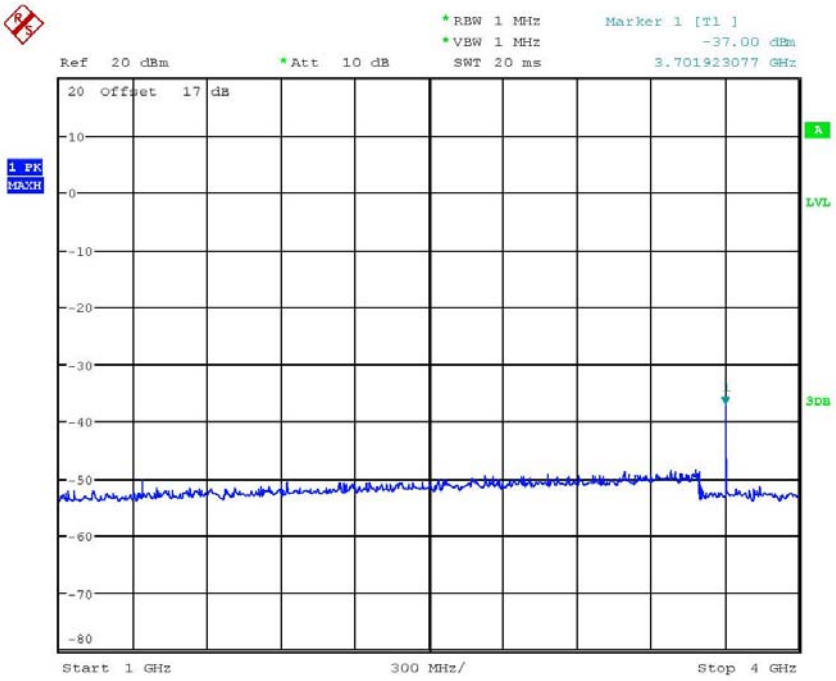
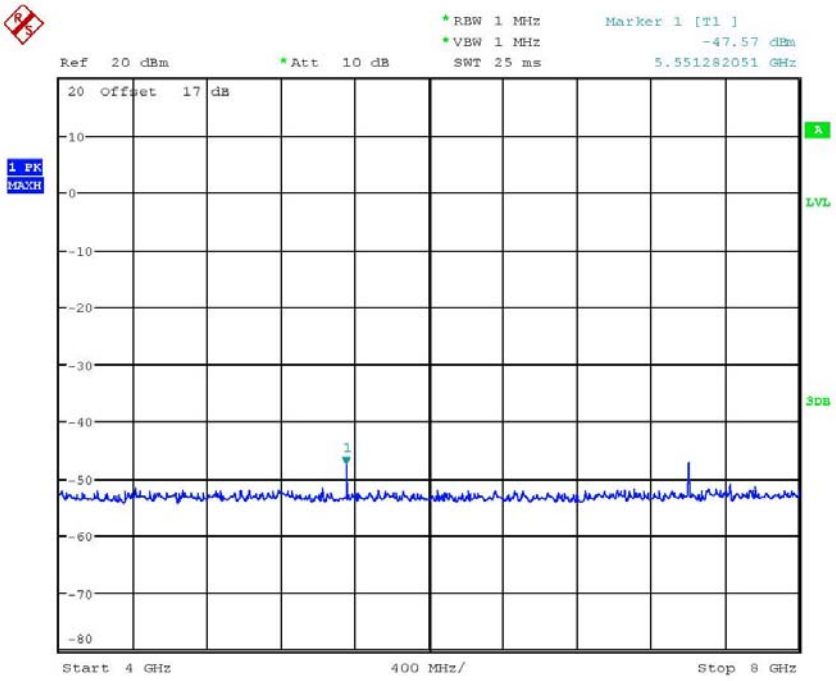


CONDUCTED SPURIOUS EMISSION PCS1900 CH512
Date: 22.NOV.2013 14:03:35



CONDUCTED SPURIOUS EMISSION PCS1900 CH512
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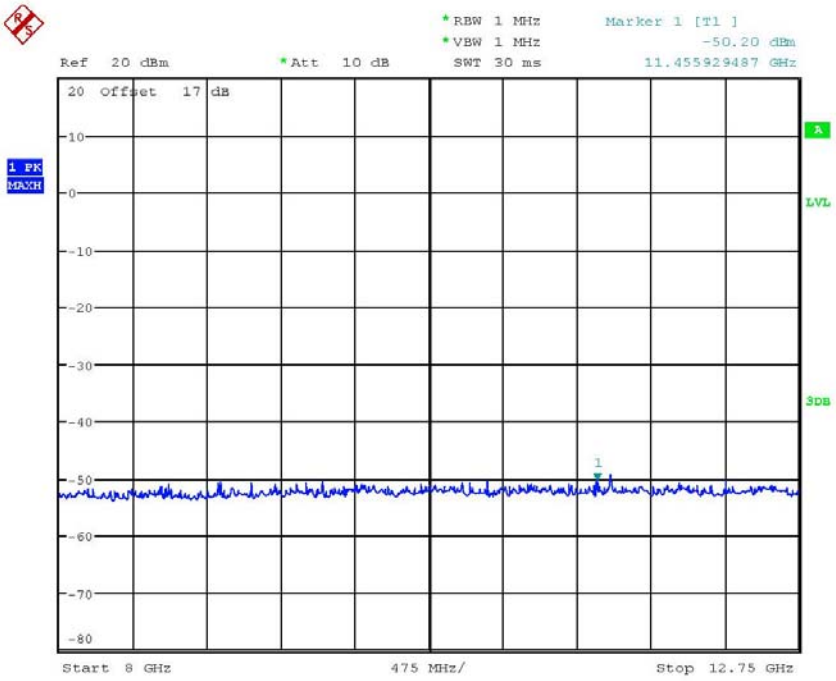

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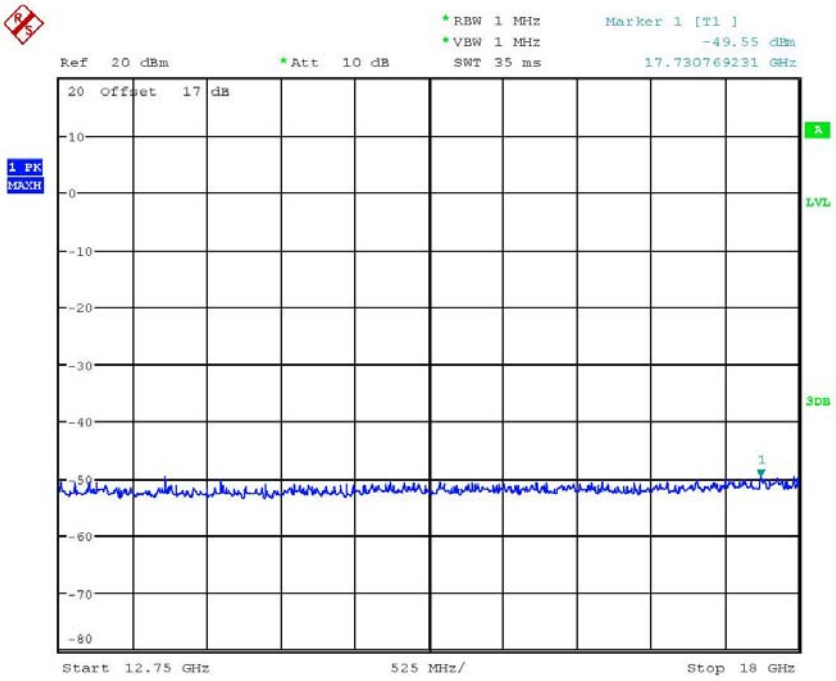

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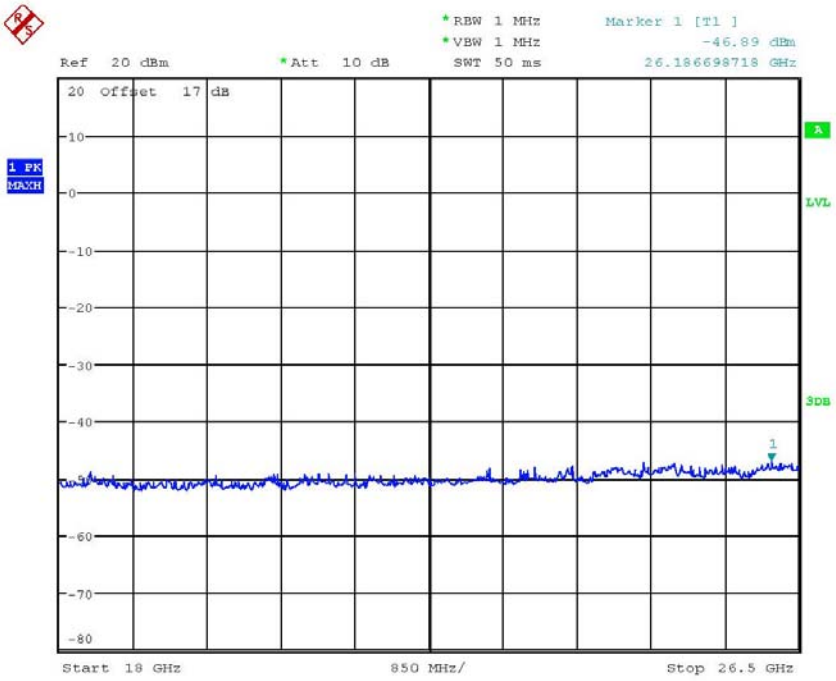
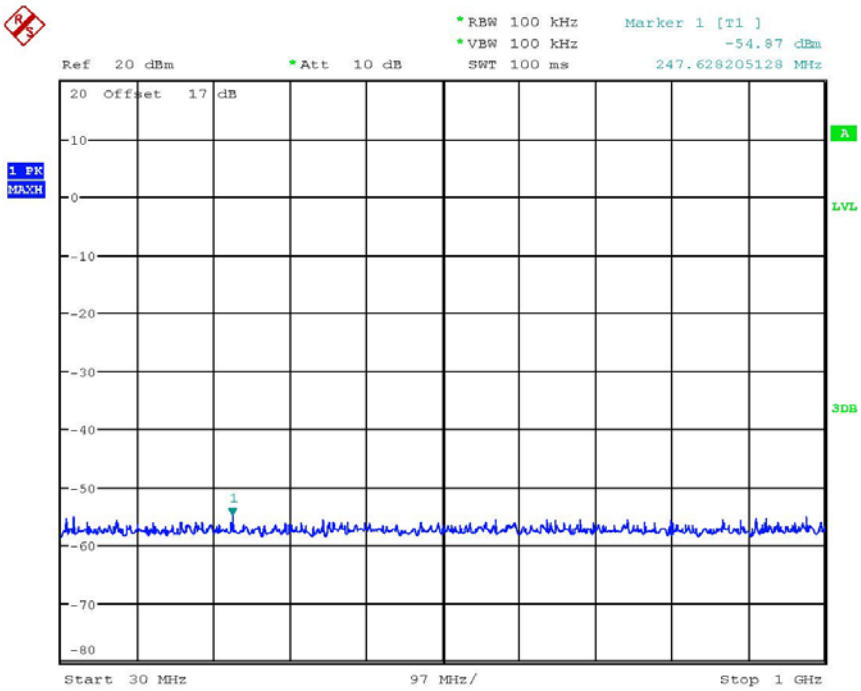
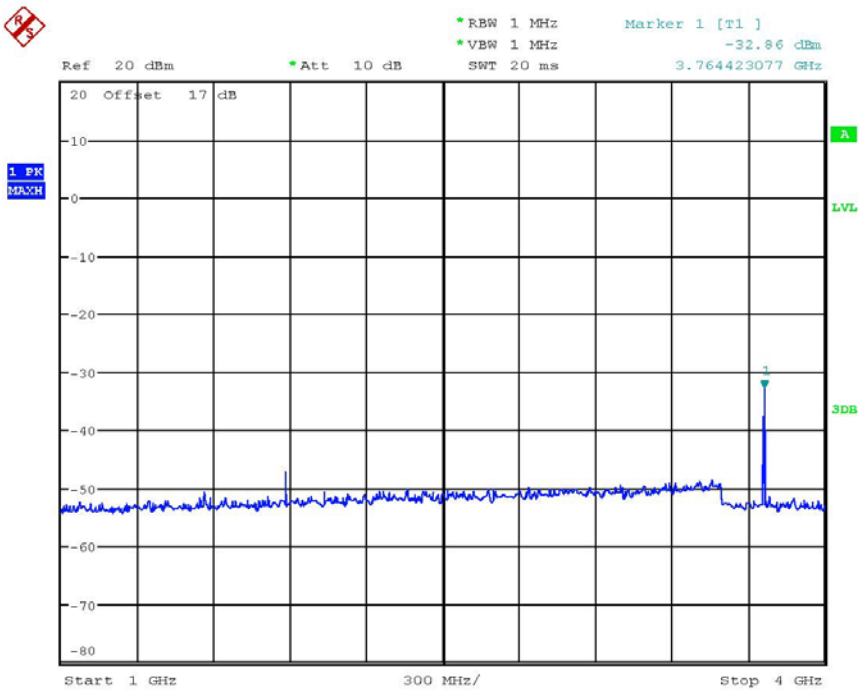


CONDUCTED SPURIOUS EMISSION PCS1900 CH512
Date: 22.NOV.2013 14:05:19

CH661



CONDUCTED SPURIOUS EMISSION PCS1900 CH661
Date: 22.NOV.2013 14:08:10



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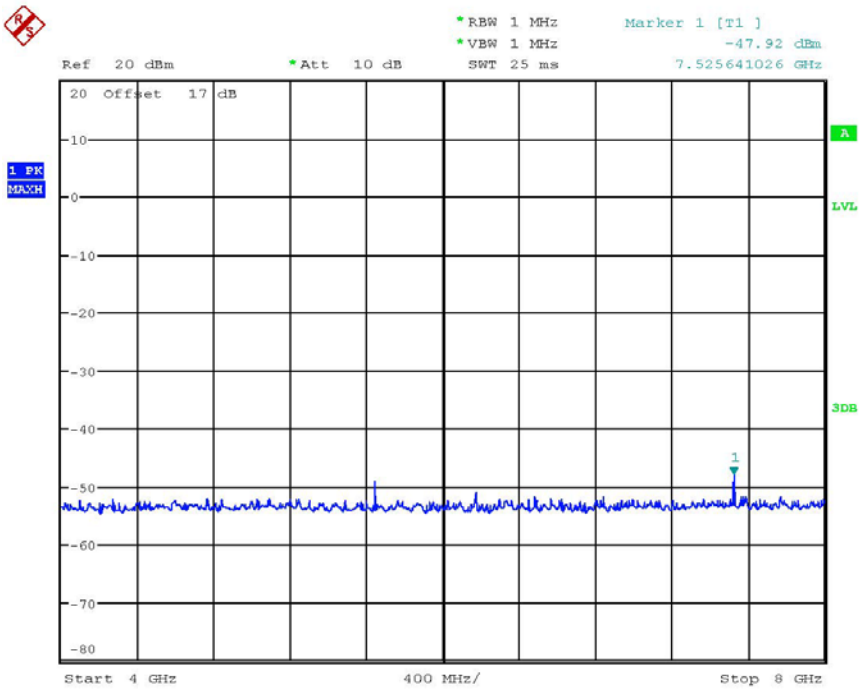

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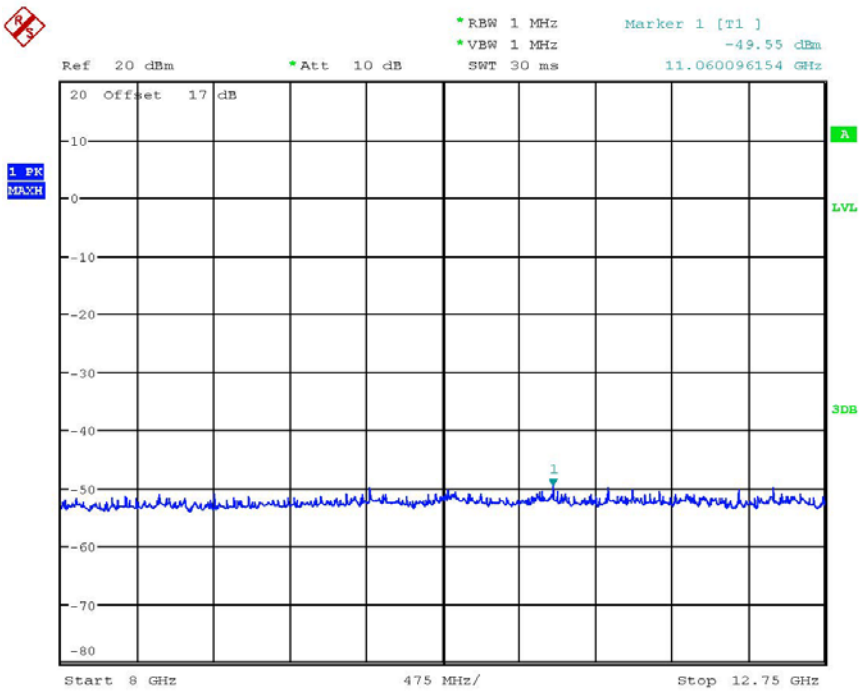
Date: 22.NOV.2013 14:07:16



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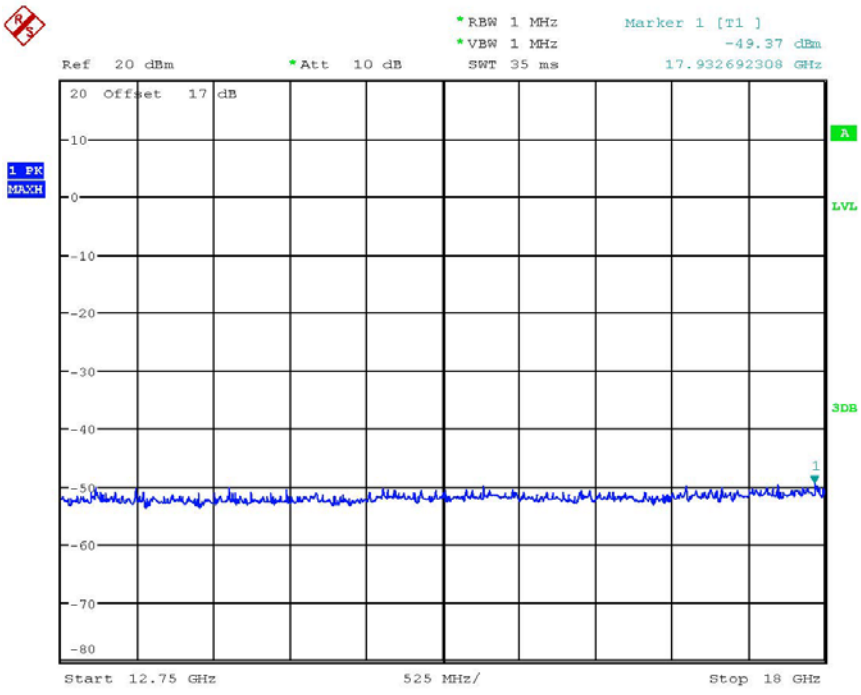
Date: 22.NOV.2013 14:06:54



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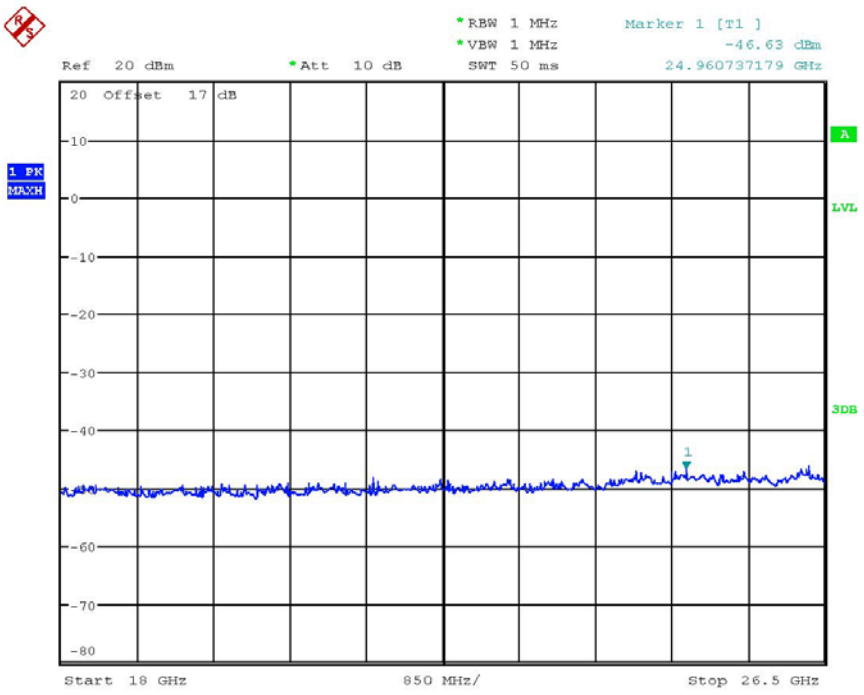
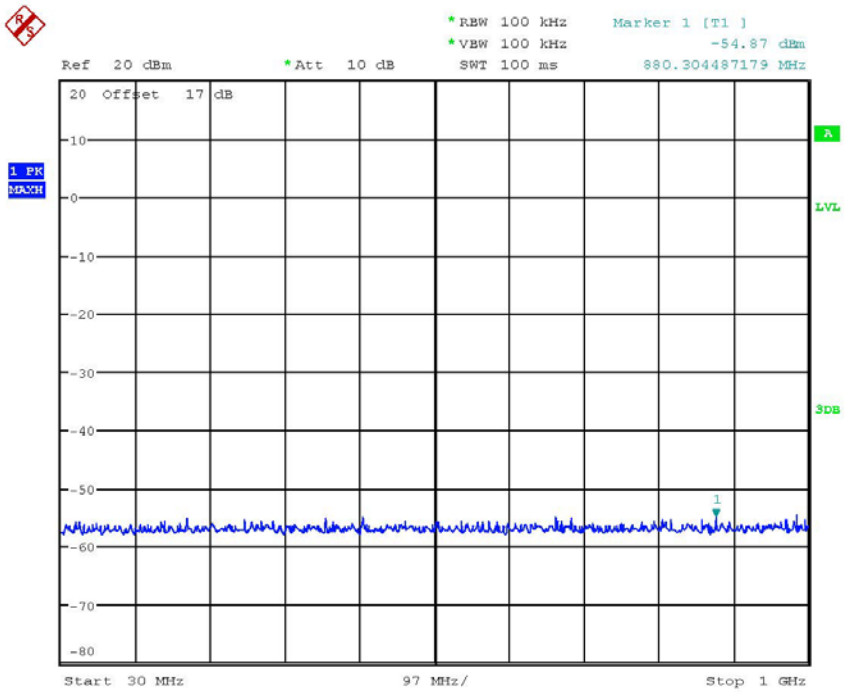


CONDUCTED SPURIOUS EMISSION PCS1900 CH661
Date: 22.NOV.2013 14:06:07

CH810



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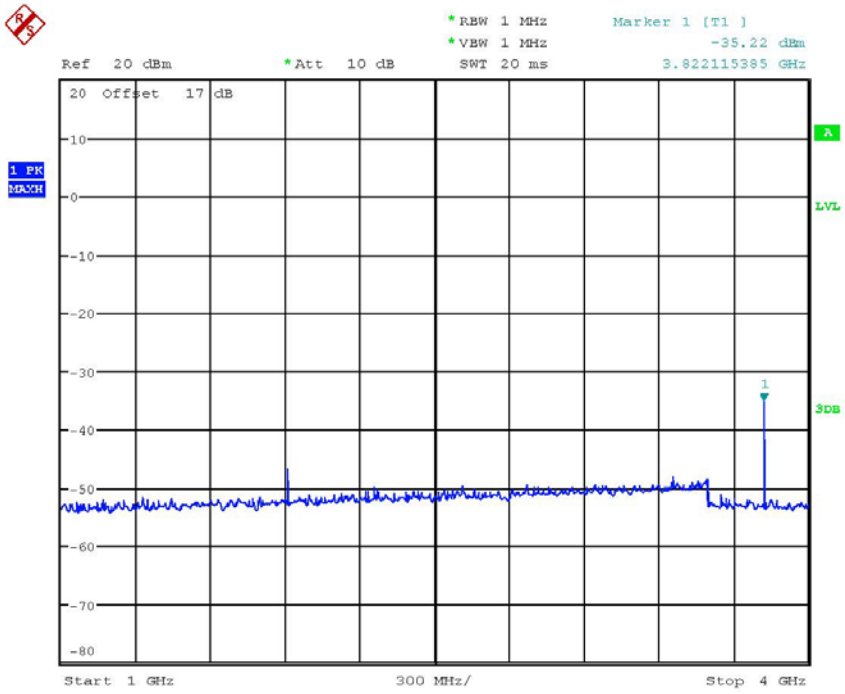
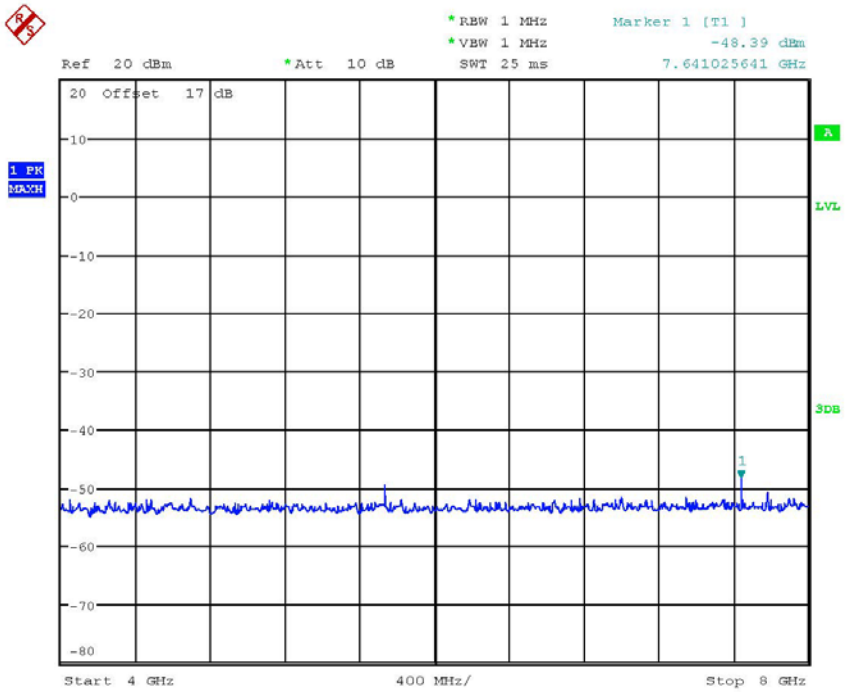


CONDUCTED SPURIOUS EMISSION PCS1900 CH810
Date: 22.NOV.2013 14:10:57



CONDUCTED SPURIOUS EMISSION PCS1900 CH810
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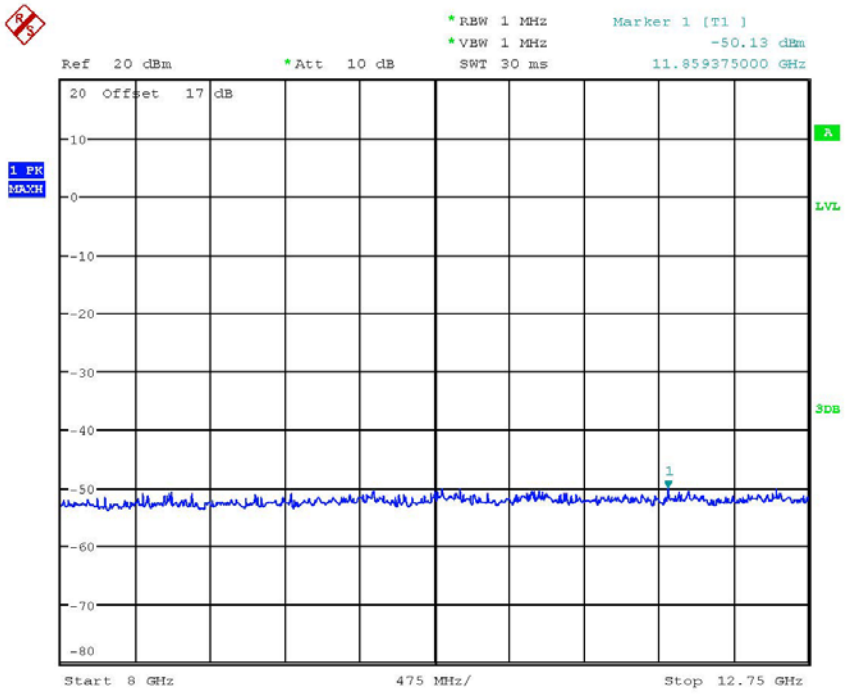
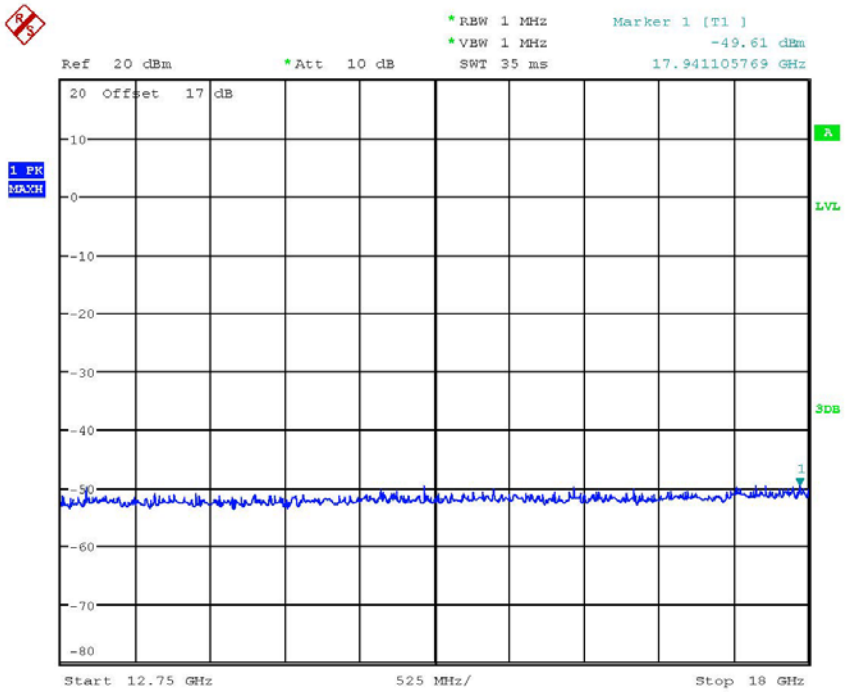
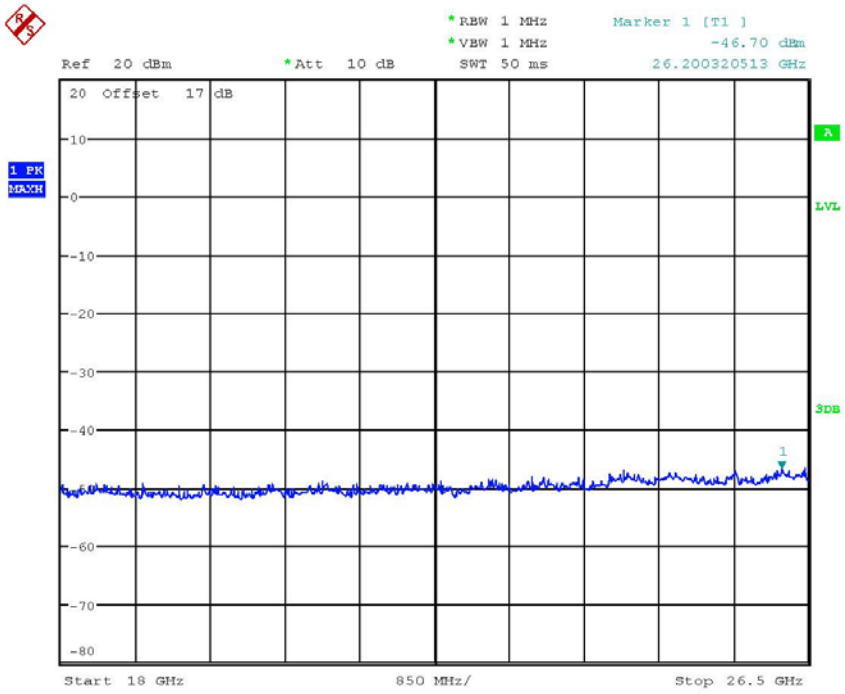


CONDUCTED SPURIOUS EMISSION PCS1900 CH810
Date: 22.NOV.2013 14:10:29

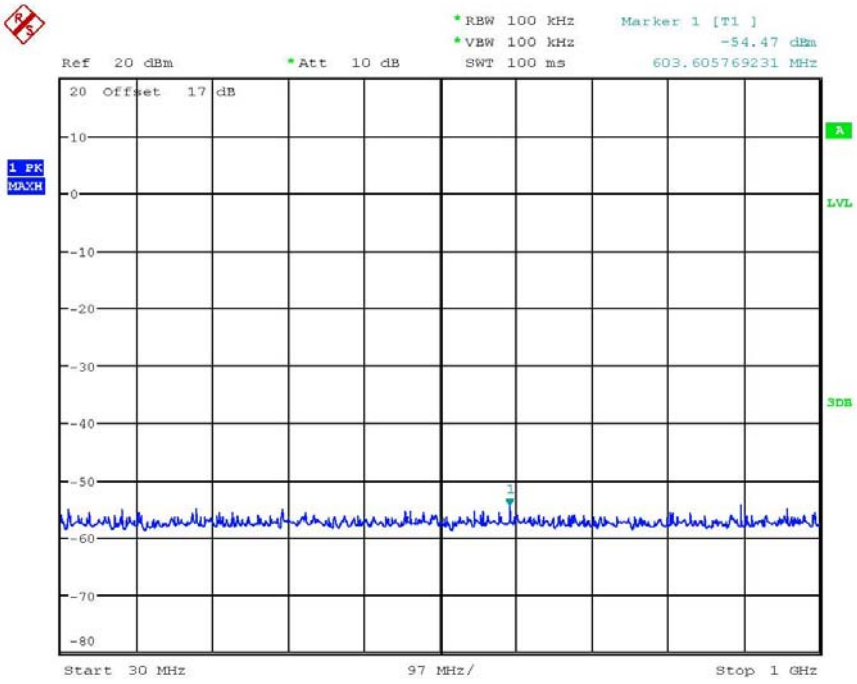


CONDUCTED SPURIOUS EMISSION PCS1900 CH810
Date: 22.NOV.2013 14:11:41



CONDUCTED SPURIOUS EMISSION PCS1900 CH810
Date: 22.NOV.2013 14:12:12

1900 Band Idle



CONDUCTED SPURIOUS EMISSION PCS1900 IDLE
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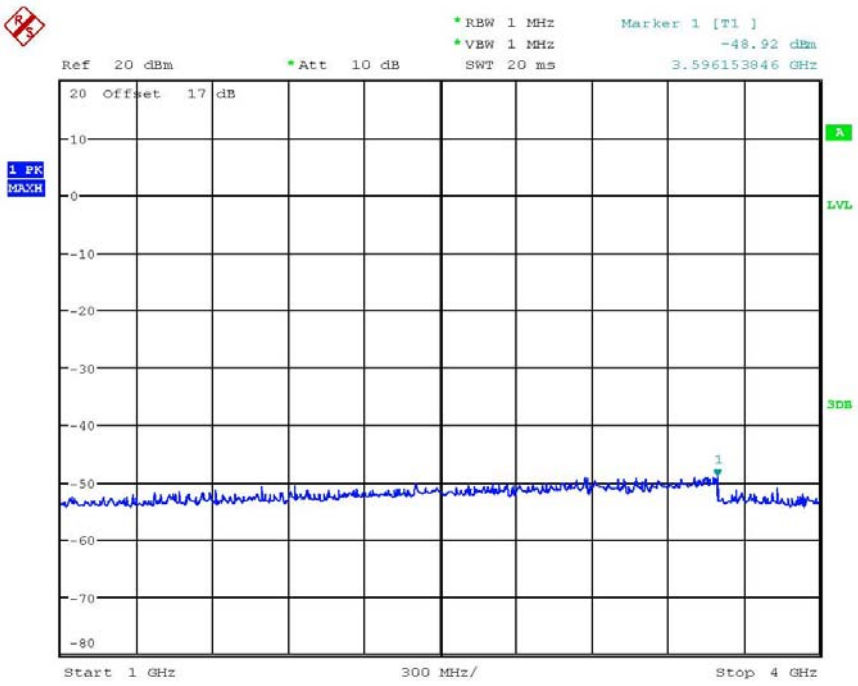

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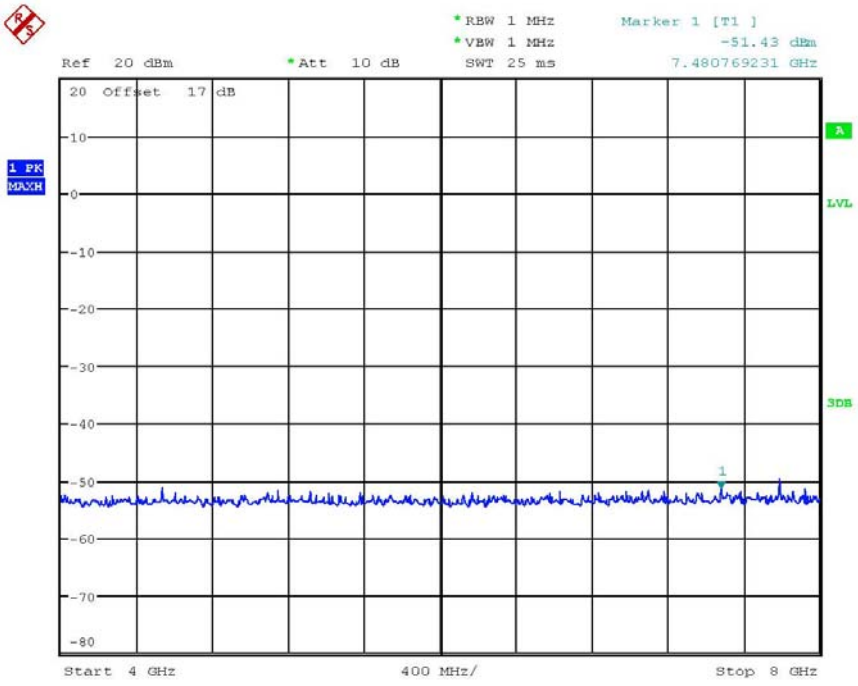

CONDUCTED SPURIOUS EMISSION PCS1900 IDLE
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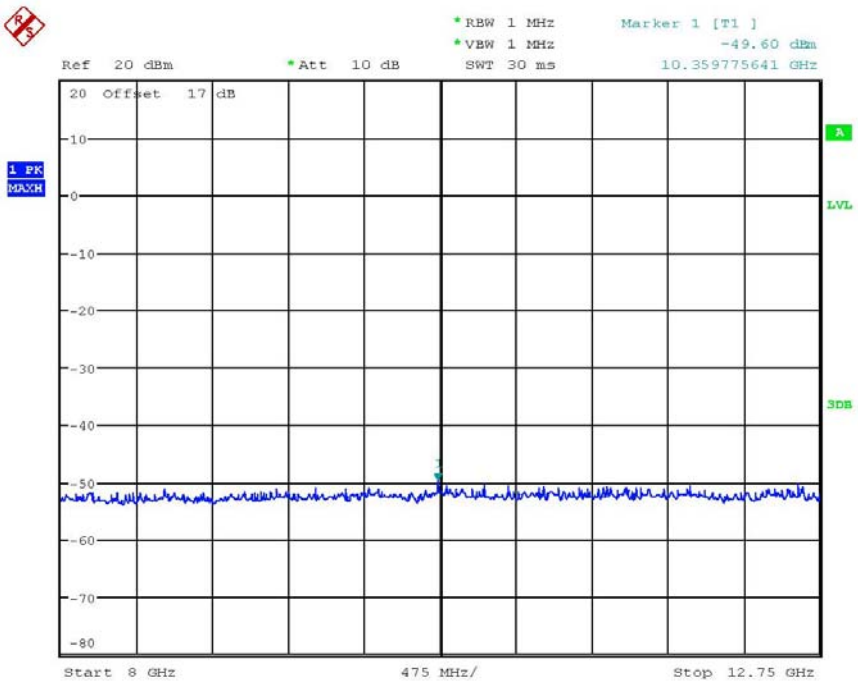

CONDUCTED SPURIOUS EMISSION PCS1900 IDLE
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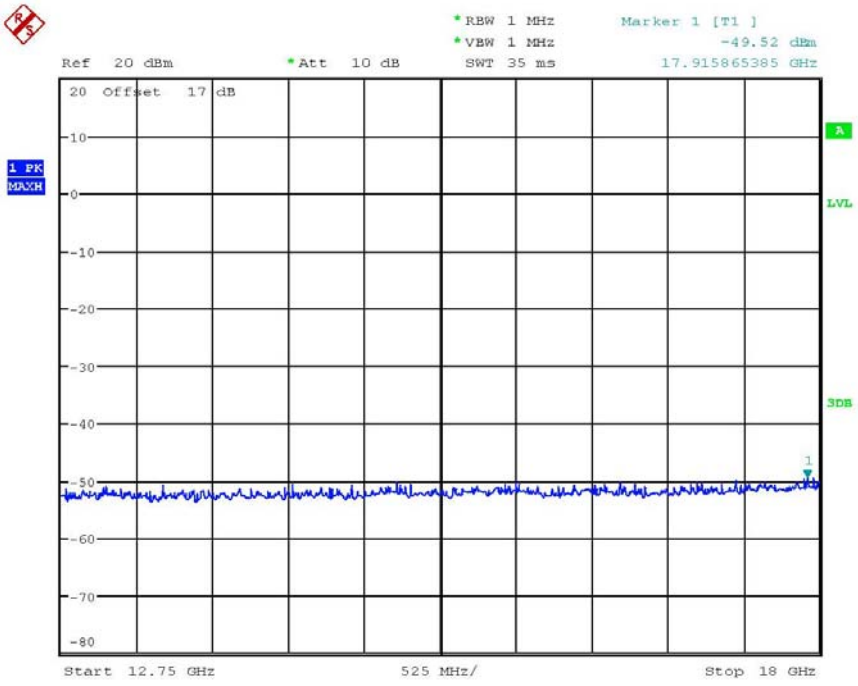

CONDUCTED SPURIOUS EMISSION PCS1900 IDLE
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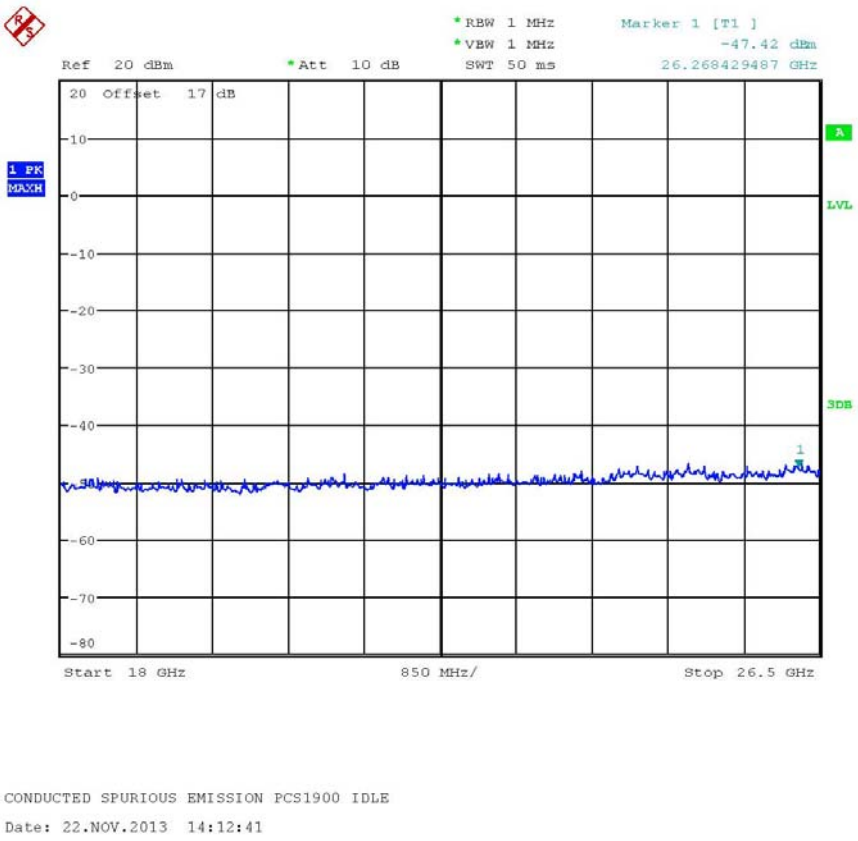


Test equipment: ETSTW-RE 055, ETSTW-GSM 002

6.3 Explanation of test result

All factors like cable loss and 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.

6.4 Calculation of Limit for Spurious at Antenna Terminals

Compliance with § 22.917(a) requires that any emission be attenuated below the transmitter power at least 43 + 10 log P (P = transmitter power in Watts).
Limit for Spurious Emissions at Antenna Terminals: L=P-A=-13dBm

7. Field Strength of Spurious Radiation

7.1 Test procedure

The test procedure for filed strength measurement is same as radiated power except for a notch filter or band pass filter is used to avoid the influence of fundamental to the pre-amplifier.
The measurements below 1GHz were performed with a measurement bandwidth of 100kHz, above 1GHz with a bandwidth of 1 MHz.

7.2 Test Results

The measurements of the spurious emission are at the upper, center and lower channel.

CH128_AC 108V

Model: MVX400 Date: 2013/11/28~2013/12/26
Mode: Active ch128 Temperature: 24 °C Engineer: Rick
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
115.8518	-82.38	20.39	-61.99	-13.00	-48.99	140	150
169.3387	-81.72	22.65	-59.07	-13.00	-46.07	240	150
268.9380	-48.23	-12.37	-60.60	-13.00	-47.60	240	150
644.0882	-68.92	-3.14	-72.06	-13.00	-59.06	100	150
1649.2990	-53.28	0.85	-52.43	-13.00	-39.43	280	150
2472.9460	-51.15	4.27	-46.88	-13.00	-33.88	100	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
115.1704	-78.55	21.50	-57.05	-13.00	-44.05	150	150
173.4270	-83.35	23.21	-60.14	-13.00	-47.14	210	150
273.7475	-51.10	-10.80	-61.90	-13.00	-48.90	160	150
700.2004	-70.30	-3.51	-73.81	-13.00	-60.81	100	150
1649.2990	-43.79	-0.86	-44.65	-13.00	-31.65	250	150
2472.9460	-46.01	4.24	-41.77	-13.00	-28.77	110	150

CH128_AC 132 V

Mode: Active ch128
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
112.1043	-82.13	20.59	-61.54	-13.00	-48.54	140	150
168.9980	-81.32	22.64	-58.68	-13.00	-45.68	270	150
267.3347	-47.46	-12.40	-59.86	-13.00	-46.86	260	150
637.6754	-68.35	-3.61	-71.96	-13.00	-58.96	10	150
2472.9460	-54.10	4.27	-49.83	-13.00	-36.83	120	150
3296.5930	-57.12	7.46	-49.66	-13.00	-36.66	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
115.1704	-78.30	21.50	-56.80	-13.00	-43.80	150	150
171.7235	-82.75	23.19	-59.56	-13.00	-46.56	220	150
270.5411	-51.38	-11.05	-62.43	-13.00	-49.43	100	150
700.2004	-68.63	-3.51	-72.14	-13.00	-59.14	230	150
1643.2860	-44.18	-1.05	-45.23	-13.00	-32.23	110	150
2472.9460	-41.29	4.24	-37.05	-13.00	-24.05	280	150

CH188_AC 108V

Mode: Active ch188

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
114.8297	-83.91	20.45	-63.46	-13.00	-50.46	100	150
193.1864	-84.93	21.61	-63.32	-13.00	-50.32	120	150
214.4290	-44.67	-15.64	-60.31	-13.00	-47.31	100	150
626.4530	-67.67	-4.43	-72.10	-13.00	-59.10	200	150
1673.3470	-55.17	0.93	-54.24	-13.00	-41.24	280	150
2509.0180	-51.77	4.60	-47.17	-13.00	-34.17	120	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
116.1924	-82.56	21.44	-61.12	-13.00	-48.12	150	150
174.1082	-83.55	23.21	-60.34	-13.00	-47.34	200	150
270.5411	-51.77	-11.05	-62.82	-13.00	-49.82	90	150
503.0061	-62.33	-7.21	-69.54	-13.00	-56.54	210	150
1997.9960	-55.47	3.36	-52.11	-13.00	-39.11	100	150
2509.0180	-51.15	4.36	-46.79	-13.00	-33.79	270	150

CH188_ AC 132V

Mode: Active ch188

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
112.7856	-81.07	20.56	-60.51	-13.00	-47.51	120	150
173.4270	-82.39	22.74	-59.65	-13.00	-46.65	150	150
268.9380	-47.73	-12.37	-60.10	-13.00	-47.10	100	150
624.8497	-67.61	-4.55	-72.16	-13.00	-59.16	280	150
2509.0180	-56.57	4.60	-51.97	-13.00	-38.97	50	150
3344.6890	-56.76	7.58	-49.18	-13.00	-36.18	220	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
112.7856	-82.95	21.64	-61.31	-13.00	-48.31	100	150
170.7014	-83.02	23.19	-59.83	-13.00	-46.83	90	150
233.6674	-49.08	-14.00	-63.08	-13.00	-50.08	160	150
504.6093	-61.28	-7.14	-68.42	-13.00	-55.42	130	150
1673.3470	-52.82	-0.10	-52.92	-13.00	-39.92	100	150
2509.0180	-50.60	4.36	-46.24	-13.00	-33.24	320	150

CH251_AC 108V

Mode: Active ch 251

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.4670	-79.63	20.52	-59.11	-13.00	-46.11	180	150
164.5692	-81.52	22.54	-58.98	-13.00	-45.98	240	150
267.3347	-46.71	-12.40	-59.11	-13.00	-46.11	150	150
655.3106	-69.73	-2.65	-72.38	-13.00	-59.38	100	150
1697.3950	-52.50	1.01	-51.49	-13.00	-38.49	250	150
2545.0900	-51.03	5.09	-45.94	-13.00	-32.94	100	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
115.1704	-79.09	21.50	-57.59	-13.00	-44.59	130	150
170.3607	-83.90	23.18	-60.72	-13.00	-47.72	180	150
272.1444	-49.44	-10.92	-60.36	-13.00	-47.36	120	150
770.7415	-68.83	-3.43	-72.26	-13.00	-59.26	200	150
1697.3950	-43.38	0.67	-42.71	-13.00	-29.71	40	150
2545.0900	-49.77	5.10	-44.67	-13.00	-31.67	250	150

CH251_AC 132V

Mode: Active ch251

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
42.2645	-87.15	22.65	-64.50	-13.00	-51.50	100	150
140.3808	-86.34	21.09	-65.25	-13.00	-52.25	240	150
268.9380	-46.72	-12.37	-59.09	-13.00	-46.09	140	150
644.0882	-69.06	-3.14	-72.20	-13.00	-59.20	280	150
1697.3950	-51.98	1.01	-50.97	-13.00	-37.97	70	150
2545.0900	-50.90	5.09	-45.81	-13.00	-32.81	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
64.7496	-77.56	20.58	-56.98	-13.00	-43.98	160	150
113.8077	-78.00	21.58	-56.42	-13.00	-43.42	120	150
249.6995	-48.65	-12.73	-61.38	-13.00	-48.38	100	150
496.5932	-61.58	-7.52	-69.10	-13.00	-56.10	280	150
1697.3950	-44.13	0.67	-43.46	-13.00	-30.46	110	150
2545.0900	-51.52	5.10	-46.42	-13.00	-33.42	280	150

850 Band Idle Mode_AC 108V

Mode: Idle

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.7554	18.54	peak	12.37	30.91	43.50	-12.59	305	100
224.3888	24.63	peak	13.68	38.31	46.00	-7.69	140	100
300.2004	26.53	peak	15.91	42.44	46.00	-3.56	220	100
799.7795	12.87	peak	25.98	38.85	46.00	-7.15	85	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4142.2840	43.01	---	-0.42	42.59	---	74.00	54.00	-31.41	300	100
6456.9140	40.78	---	4.22	45.00	---	74.00	54.00	-29.00	225	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	24.28	peak	14.02	38.30	40.00	-1.70	255	100
111.6432	16.80	peak	12.92	29.72	43.50	-13.78	175	100
300.2004	18.63	peak	15.91	34.54	46.00	-11.46	200	100
801.7233	12.42	peak	26.01	38.43	46.00	-7.57	40	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
5138.2770	42.85	---	1.62	44.47	---	74.00	54.00	-29.53	155	100
6877.7560	40.08	---	5.35	45.43	---	74.00	54.00	-28.57	70	100

850 Band Idle Mode_AC 132V

Mode: Idle

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
111.6432	18.56	peak	12.92	31.48	43.50	-12.02	280	100
220.5010	25.80	peak	13.60	39.40	46.00	-6.60	200	100
300.2004	27.28	peak	15.91	43.19	46.00	-2.81	115	100
801.7233	13.34	peak	26.01	39.35	46.00	-6.65	25	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4464.9300	42.84	---	0.03	42.87	---	74.00	54.00	-31.13	95	100
6905.8110	40.50	---	5.46	45.96	---	74.00	54.00	-28.04	305	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	24.50	peak	14.02	38.52	40.00	-1.48	35	100
113.5872	17.91	peak	13.06	30.97	43.50	-12.53	100	100
300.2004	17.83	peak	15.91	33.74	46.00	-12.26	190	100
801.7234	11.42	peak	26.01	37.43	46.00	-8.57	220	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4478.9580	42.85	---	0.10	42.95	---	74.00	54.00	-31.05	255	100
6653.3060	41.20	---	4.72	45.92	---	74.00	54.00	-28.08	160	100

CH512_AC 108V

Mode: Active ch 512

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
114.4890	-83.31	22.61	-60.70	-13.00	-47.70	120	150
170.3607	-83.44	24.82	-58.62	-13.00	-45.62	150	150
328.2565	-65.24	-8.80	-74.04	-13.00	-61.04	120	150
801.2024	-66.63	-2.34	-68.97	-13.00	-55.97	300	150
3603.2060	-61.47	11.02	-50.45	-13.00	-37.45	210	150
5547.0940	-65.86	12.34	-53.52	-13.00	-40.52	80	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
72.2446	-82.57	22.99	-59.58	-13.00	-46.58	120	150
116.1924	-81.70	23.59	-58.11	-13.00	-45.11	240	150
299.3987	-66.92	-7.46	-74.38	-13.00	-61.38	100	150
801.2024	-71.63	-1.02	-72.65	-13.00	-59.65	270	150
3705.4110	-56.95	11.22	-45.73	-13.00	-32.73	300	150
5547.0940	-67.03	12.59	-54.44	-13.00	-41.44	110	150

CH512_AC 132V

Mode: Active ch 512

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.4670	-85.03	22.67	-62.36	-13.00	-49.36	300	150
173.4270	-85.11	24.89	-60.22	-13.00	-47.22	100	150
313.8277	-62.68	-9.36	-72.04	-13.00	-59.04	200	150
799.5992	-66.43	-2.38	-68.81	-13.00	-55.81	130	150
3705.4110	-61.62	10.77	-50.85	-13.00	-37.85	200	150
5547.0940	-66.46	12.34	-54.12	-13.00	-41.12	100	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
116.1924	-80.08	23.59	-56.49	-13.00	-43.49	140	150
167.9760	-85.02	25.31	-59.71	-13.00	-46.71	170	150
299.3987	-66.80	-7.46	-74.26	-13.00	-61.26	200	150
801.2024	-74.82	-1.02	-75.84	-13.00	-62.84	110	150
3705.4110	-56.93	11.22	-45.71	-13.00	-32.71	250	150
5803.6070	-67.65	13.24	-54.41	-13.00	-41.41	100	150

CH661_AC 108V

Mode: Active ch 661

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
139.3587	-86.58	23.18	-63.40	-13.00	-50.40	190	150
191.1423	-84.27	23.96	-60.31	-13.00	-47.31	320	150
313.8277	-62.73	-9.36	-72.09	-13.00	-59.09	140	150
799.5992	-66.13	-2.38	-68.51	-13.00	-55.51	300	150
3759.5190	-61.25	11.09	-50.16	-13.00	-37.16	120	150
5386.7740	-67.89	12.59	-55.30	-13.00	-42.30	200	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
114.4890	-79.36	23.69	-55.67	-13.00	-42.67	150	150
167.2946	-85.02	25.31	-59.71	-13.00	-46.71	100	150
249.6994	-62.94	-10.58	-73.52	-13.00	-60.52	140	150
799.5992	-66.71	-1.03	-67.74	-13.00	-54.74	270	150
3759.5190	-54.90	11.78	-43.12	-13.00	-30.12	230	150
4392.7860	-65.00	10.07	-54.93	-13.00	-41.93	100	150

CH661_AC 132V

Mode: Active ch 661

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.1263	-83.40	22.69	-60.71	-13.00	-47.71	120	150
171.0421	-83.76	24.83	-58.93	-13.00	-45.93	240	150
315.4310	-62.88	-9.28	-72.16	-13.00	-59.16	250	150
799.5992	-66.20	-2.38	-68.58	-13.00	-55.58	170	150
3597.1940	-61.29	10.98	-50.31	-13.00	-37.31	200	150
5402.8060	-68.15	12.78	-55.37	-13.00	-42.37	250	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
71.9040	-76.01	22.94	-53.07	-13.00	-40.07	180	150
167.6353	-84.65	25.31	-59.34	-13.00	-46.34	210	150
301.0020	-66.50	-7.47	-73.97	-13.00	-60.97	200	150
799.5992	-67.63	-1.03	-68.66	-13.00	-55.66	170	150
3765.5310	-54.51	11.85	-42.66	-13.00	-29.66	200	150
5643.2870	-66.08	12.14	-53.94	-13.00	-40.94	60	150

CH810_AC 108V

Mode: Active ch 810

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.4670	-84.75	22.67	-62.08	-13.00	-49.08	120	150
190.8015	-83.91	23.99	-59.92	-13.00	-46.92	20	150
313.8277	-61.72	-9.36	-71.08	-13.00	-58.08	110	150
801.2024	-65.71	-2.34	-68.05	-13.00	-55.05	210	150
3603.2060	-62.10	11.02	-51.08	-13.00	-38.08	200	150
5378.7570	-67.89	12.46	-55.43	-13.00	-42.43	250	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.8077	-80.08	23.73	-56.35	-13.00	-43.35	170	150
194.2084	-82.11	23.90	-58.21	-13.00	-45.21	240	150
323.4470	-65.54	-8.32	-73.86	-13.00	-60.86	100	150
801.2024	-66.21	-1.02	-67.23	-13.00	-54.23	250	150
3819.6390	-54.78	12.07	-42.71	-13.00	-29.71	70	150
5843.6870	-67.43	13.10	-54.33	-13.00	-41.33	200	150

CH810_AC 132V

Mode: Active ch 810

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.8077	-82.45	22.65	-59.80	-13.00	-46.80	100	150
165.2505	-83.77	24.71	-59.06	-13.00	-46.06	210	150
312.2243	-62.86	-9.43	-72.29	-13.00	-59.29	120	150
799.5992	-66.17	-2.38	-68.55	-13.00	-55.55	300	150
3603.2060	-61.74	11.02	-50.72	-13.00	-37.72	200	150
4785.5710	-66.34	11.71	-54.63	-13.00	-41.63	170	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
83.8277	-81.55	23.93	-57.62	-13.00	-44.62	180	150
113.8077	-79.60	23.73	-55.87	-13.00	-42.87	310	150
299.3987	-65.56	-7.46	-73.02	-13.00	-60.02	110	150
801.2024	-67.15	-1.02	-68.17	-13.00	-55.17	270	150
3759.5190	-54.83	11.78	-43.05	-13.00	-30.05	250	150
5410.8220	-67.83	13.10	-54.73	-13.00	-41.73	250	150

1900 Band Idle Mode_AC 108V

Mode: Idle

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
113.5871	19.10	peak	13.06	32.16	43.50	-11.34	260	100
222.4448	25.86	peak	13.64	39.50	46.00	-6.50	115	100
300.2004	26.28	peak	15.91	42.19	46.00	-3.81	70	100
801.7233	12.94	peak	26.01	38.95	46.00	-7.05	155	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4464.9300	42.69	---	0.03	42.72	---	74.00	54.00	-31.28	165	100
6877.7560	40.99	---	5.35	46.34	---	74.00	54.00	-27.66	90	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	24.08	peak	14.02	38.10	40.00	-1.90	175	100
113.5872	17.97	peak	13.06	31.03	43.50	-12.47	55	100
300.2004	18.48	peak	15.91	34.39	46.00	-11.61	130	100
799.7796	11.49	peak	25.98	37.47	46.00	-8.53	280	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4703.4070	42.98	---	0.24	43.22	---	74.00	54.00	-30.78	325	100
6456.9140	40.91	---	4.22	45.13	---	74.00	54.00	-28.87	50	100

1900 Band Idle Mode_AC 132V

Mode: Idle

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
111.6432	19.21	peak	12.92	32.13	43.50	-11.37	270	100
222.4448	23.92	peak	13.64	37.56	46.00	-8.44	165	100
300.2004	26.89	peak	15.91	42.80	46.00	-3.20	90	100
799.7795	13.53	peak	25.98	39.51	46.00	-6.49	320	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4675.3510	42.94	---	0.19	43.13	---	74.00	54.00	-30.87	40	100
6555.1100	40.79	---	4.52	45.31	---	74.00	54.00	-28.69	180	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
39.7194	24.46	peak	14.02	38.48	40.00	-1.52	150	100
222.4450	17.63	peak	13.64	31.27	46.00	-14.73	310	100
300.2004	17.92	peak	15.91	33.83	46.00	-12.17	40	100
801.7234	12.13	peak	26.01	38.14	46.00	-7.86	265	100

Frequency (MHz)	Reading (dBuV) Peak	Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Ave.	Limit @3m (dBuV/m) Peak	Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4703.4070	42.25	---	0.24	42.49	---	74.00	54.00	-31.51	125	100
6905.8110	40.25	---	5.46	45.71	---	74.00	54.00	-28.29	230	100

Note: Please refer to appendix for plot data.

7.3 Explanation of test result

Result Level = Reading Level + Corrected Factor
Corrected Factor = SG level – Received level-Cable loss + substitution antenna gain

7.4 Calculation of Limit for Field Strength of Spurious

Compliance with § 24.238(a) requires that any emission be attenuated below the transmitter power at least 43 + 10 log P (P = transmitter power in Watts).
Limit for Spurious Emissions at Antenna Terminals: L=P-A=-13dBm

Test equipment: ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 030, ETSTW-RE 111, ETSTW-GSM 002

7.5 Test result of band edge emissions

850 band

Model: MVX400 Date: 2013/11/29
Mode: 850band Ch128 Temperature: 24 °C Engineer:Rick
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
823.9950	-49.18	31.74	-17.44	-13.00	-4.44

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
823.9970	-48.88	32.60	-16.28	-13.00	-3.28

Mode: 850band Ch251
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
849.0070	-51.55	32.79	-18.76	-13.00	-5.76

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
849.0050	-50.31	32.76	-17.55	-13.00	-4.55

1900 band

Mode: 1900band Ch512
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
1849.9910	-61.40	43.90	-17.50	-13.00	-4.50

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
1849.9970	-64.38	43.86	-20.52	-13.00	-7.52

Mode: 1900band Ch810
Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
1910.0090	-69.77	44.07	-25.70	-13.00	-12.70

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)
1910.0090	-66.49	43.82	-22.67	-13.00	-9.67

Note: Please refer to appendix for plot data.

Test equipment: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 111, ETSTW-GSM 002

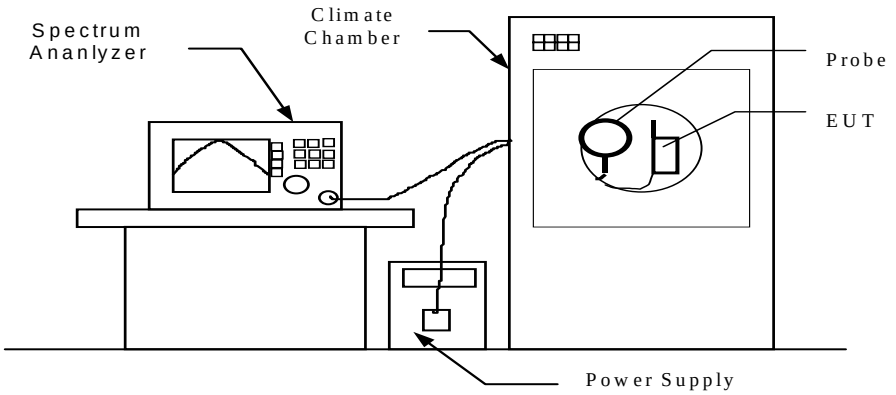
8. Frequency Stability

8.1 Test procedure

☑ The equipment under test was supplied with rated power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable, exited the chamber through an opening made for that purpose.
After the temperature stabilized the frequency output was recorded from the counter.

☐ An external variable power supply was used to supply nominal voltage and 85% to 115% of nominal voltage to the EUT under room temperature. Record the frequencies measured from the counter.

☑ End point voltage: For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer. Then record the frequencies measured from the counter.



8.2 Test Results

8.2.1 Frequency Stability vs. Temperature

CH128 824.2 MHz

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
AC 120V	-30	16.000	0.019	±2.5
	-20	15.000	0.018	
	-10	13.000	0.016	
	0	14.000	0.017	
	10	13.000	0.016	
	20	18.000	0.022	
	30	18.000	0.022	
	40	12.000	0.015	
	50	20.000	0.024	

CH188 836.2 MHz

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
AC 120V	-30	14.000	0.017	±2.5
	-20	15.000	0.018	
	-10	14.000	0.017	
	0	26.000	0.031	
	10	13.000	0.016	
	20	13.000	0.016	
	30	18.000	0.022	
	40	21.000	0.025	
	50	21.000	0.025	

CH251 848.8 MHz

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
AC 120V	-30	19.000	0.022	±2.5
	-20	25.000	0.029	
	-10	19.000	0.022	
	0	25.000	0.029	
	10	17.000	0.020	
	20	16.000	0.019	
	30	21.000	0.025	
	40	25.000	0.029	
	50	26.000	0.031	

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CH512 1850.2 MHz

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
AC 120V	-30	73.000	0.039	±2.5
	-20	73.000	0.039	
	-10	71.000	0.038	
	0	62.000	0.034	
	10	63.000	0.034	
	20	70.000	0.038	
	30	60.000	0.032	
	40	58.000	0.031	
	50	65.000	0.035	

CH661 1880.0 MHz

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
AC 120V	-30	70.000	0.037	±2.5
	-20	76.000	0.040	
	-10	69.000	0.037	
	0	68.000	0.036	
	10	65.000	0.035	
	20	66.000	0.035	
	30	63.000	0.034	
	40	62.000	0.033	
	50	62.000	0.033	

CH810 1909.8 MHz

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
AC 120V	-30	69.000	0.036	±2.5
	-20	79.000	0.041	
	-10	74.000	0.039	
	0	78.000	0.041	
	10	65.000	0.034	
	20	64.000	0.034	
	30	61.000	0.032	
	40	67.000	0.035	
	50	60.000	0.031	

8.2.2 Frequency Stability vs. Voltage

CH128

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
Normal Voltage AC 108 V	25	27.000	0.033	±2.5
End Point Voltage AC 132 V	25	18.000	0.022	±2.5

CH188

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
Normal Voltage AC 108 V	25	25.000	0.030	±2.5
End Point Voltage AC 132 V	25	26.000	0.031	±2.5

CH251

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
Normal Voltage AC 108 V	25	24.000	0.028	±2.5
End Point Voltage AC 132 V	25	25.000	0.029	±2.5

CH512

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
Normal Voltage AC 108 V	25	57.000	0.031	±2.5
End Point Voltage AC 132 V	25	77.000	0.042	±2.5

CH661

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
Normal Voltage AC 108 V	25	63.000	0.034	±2.5
End Point Voltage AC 132 V	25	75.000	0.040	±2.5

CH810

Supplied Voltage	Temperature (°C)	Frequency Drift (kHz)	Frequency Drift (ppm)	Limit (ppm)
Normal Voltage AC 108 V	25	70.000	0.037	±2.5
End Point Voltage AC 132 V	25	64.000	0.034	±2.5

Test equipment: ETSTW-CE 009, ETSTW-RE 055, ETSTW-GSM 002

9 Maximum Permissible Exposure

9.1 Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

9.2 MPE Calculation Method

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

$$E\ (V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd\ (W/m^2) = \frac{E^2}{377}$$

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

Frequency	Max output power (dBm)	/ (W)	Antenna Gain	Power Density(S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
GSM 850	33.31	2.143	3	0.8506	1.0	Complies
PCS 1900	29.55	0.902	3	0.3579	1.0	Complies

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

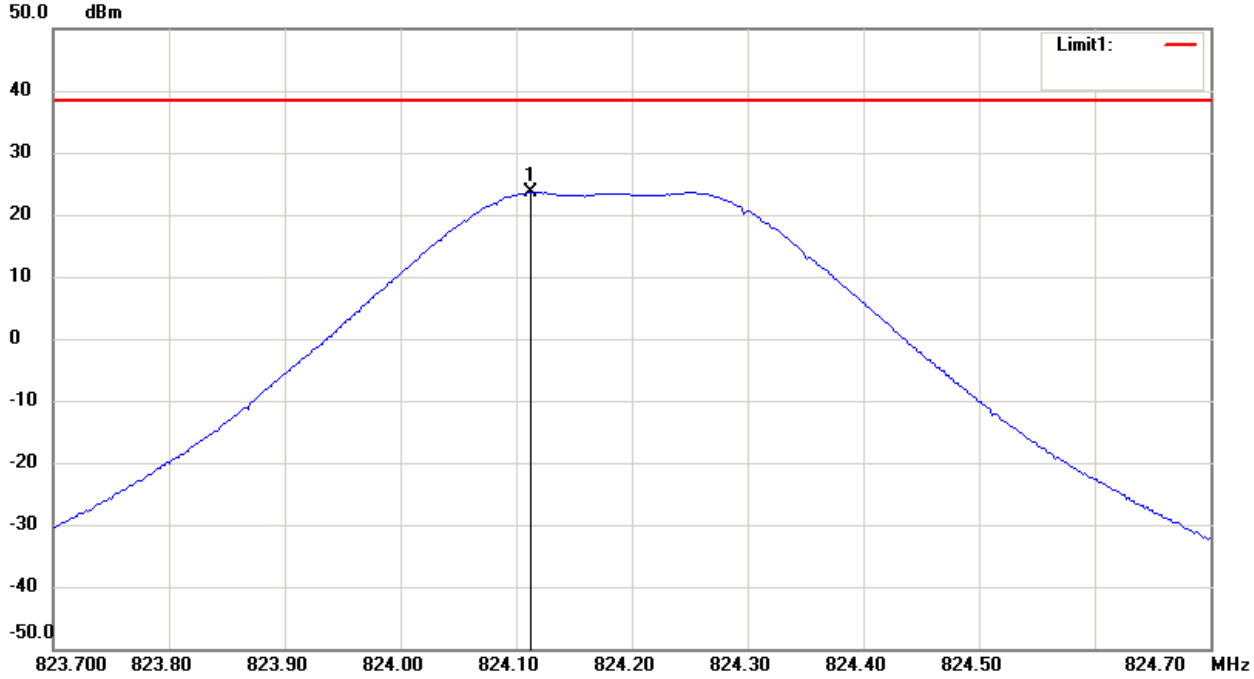
Appendix

Measurement diagrams

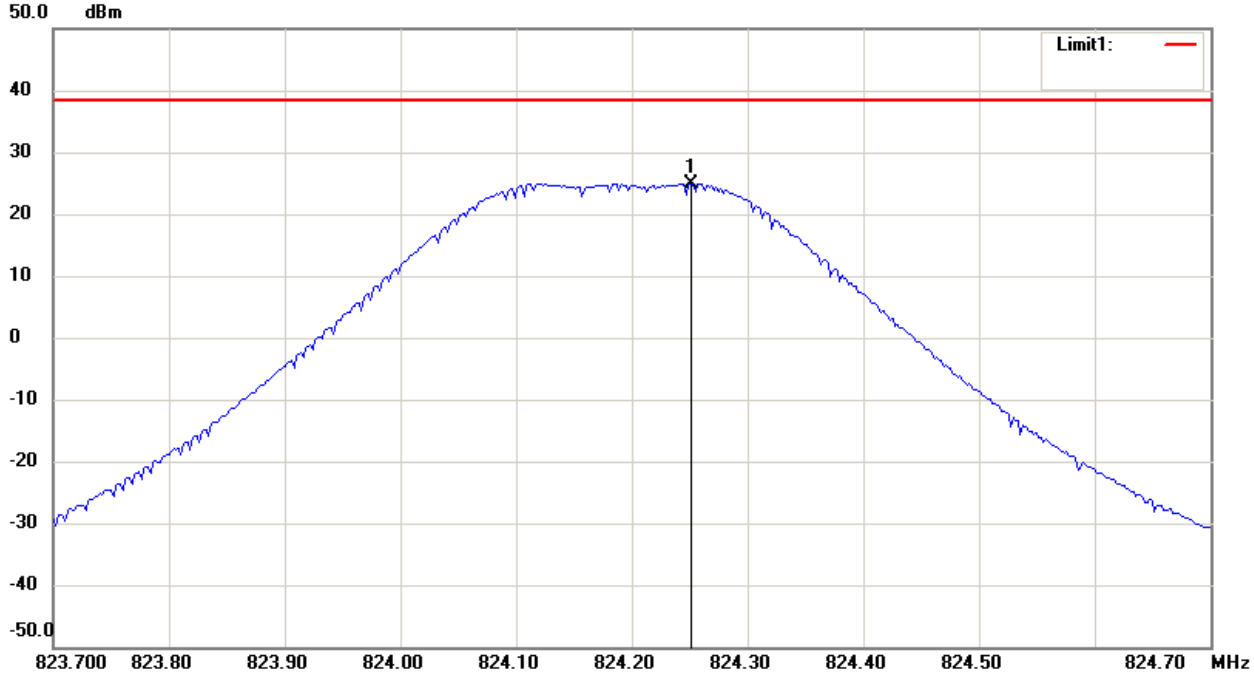
1. RF Power Output
2. Filed Strength of Spurious Emission
3. Band edge emissions

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

RF Power Output
Radiated Measurement
850 band_ CH 128_108 V
Antenna Polarization H



Antenna Polarization V



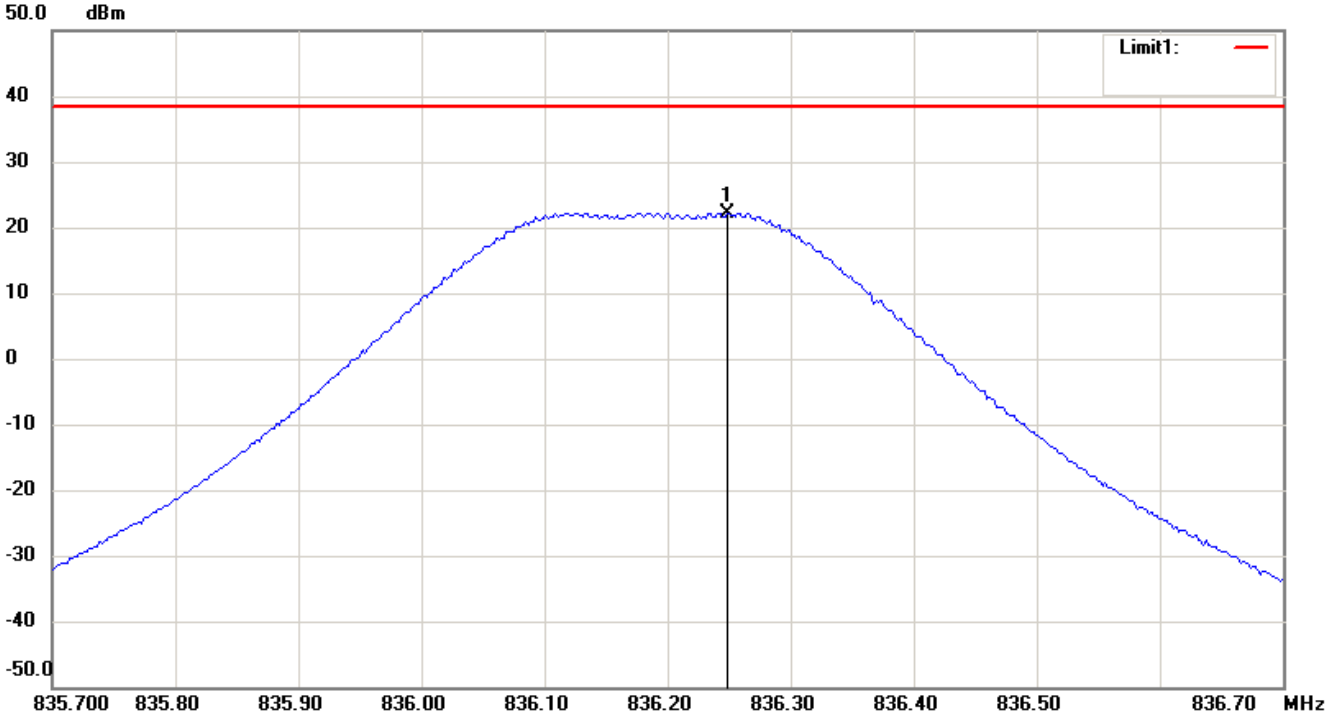
Note:

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.**

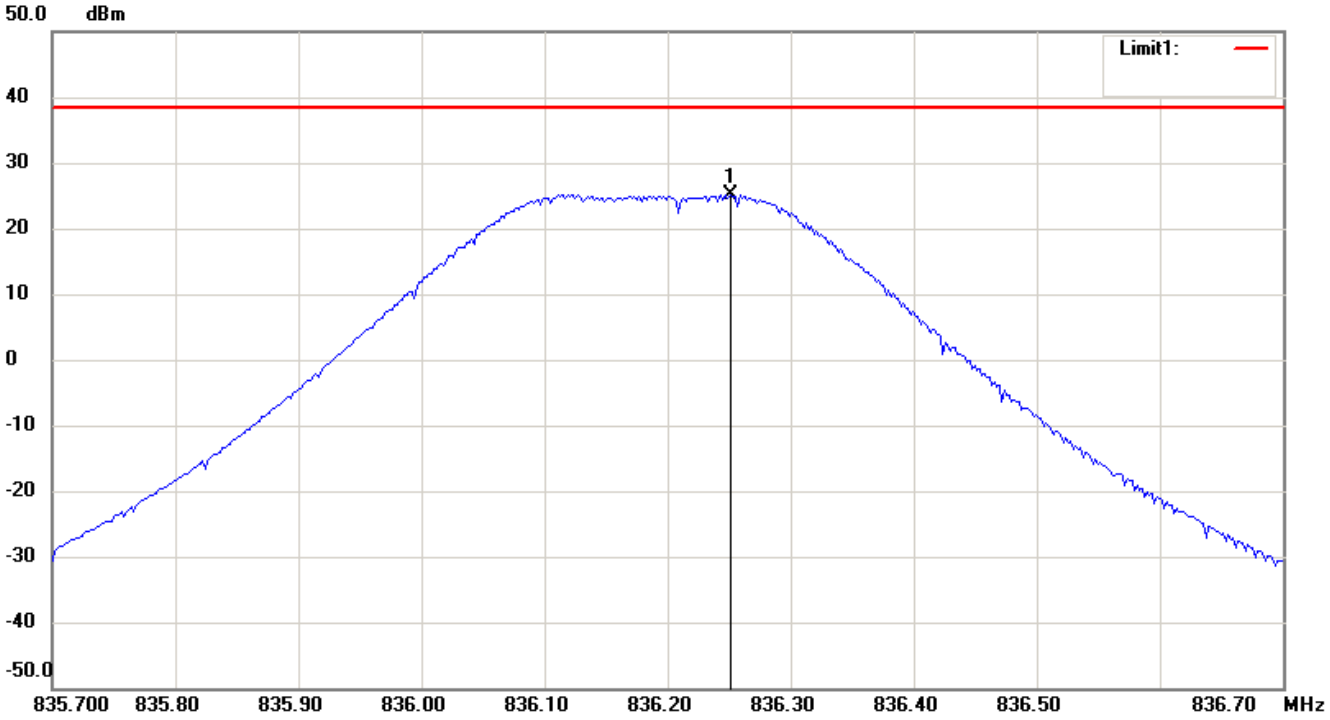
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 band_ CH 188_108 V

Antenna Polarization H



Antenna Polarization V



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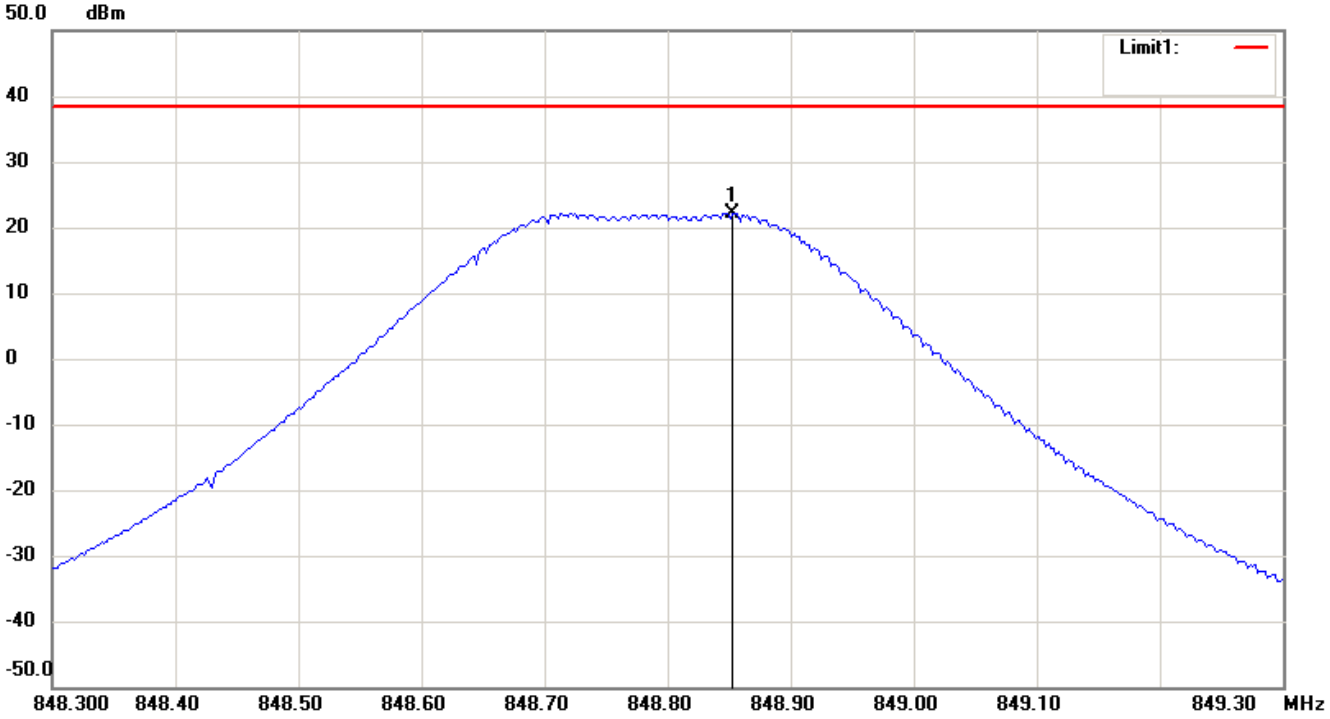
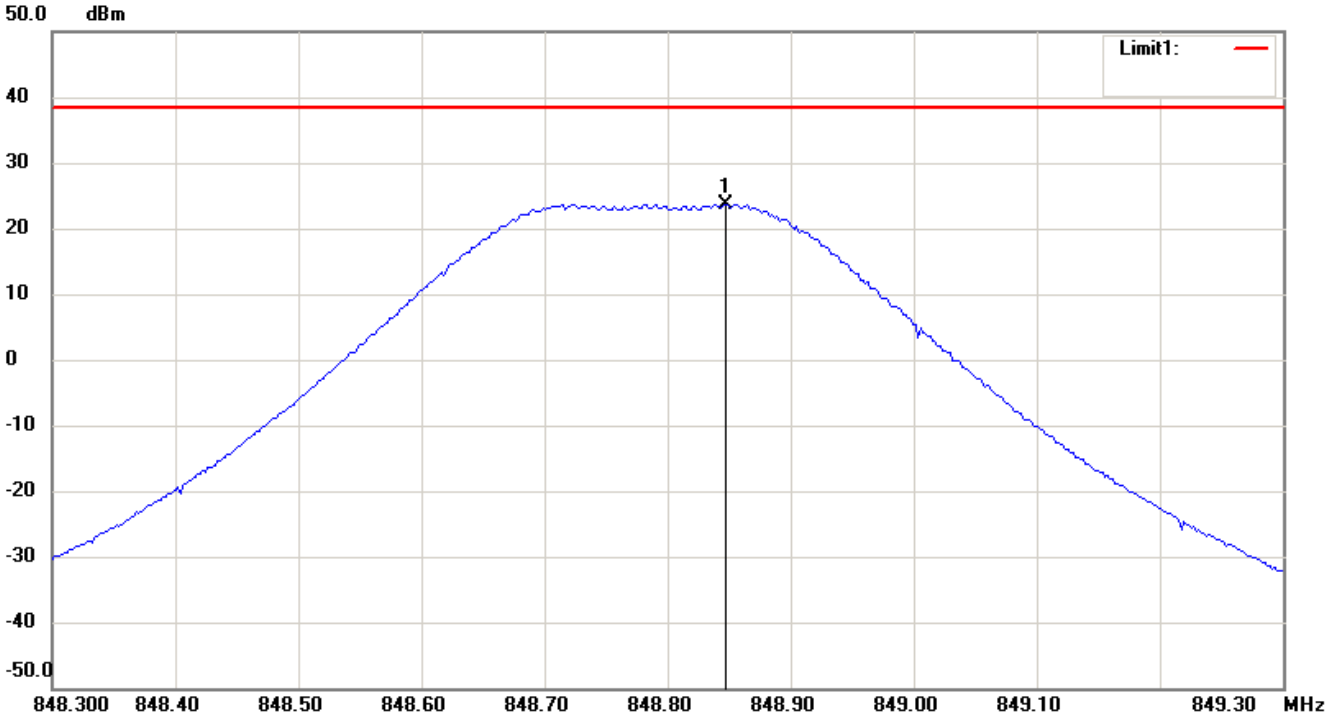
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 band_ CH 251_108 V

Antenna Polarization H



Antenna Polarization V



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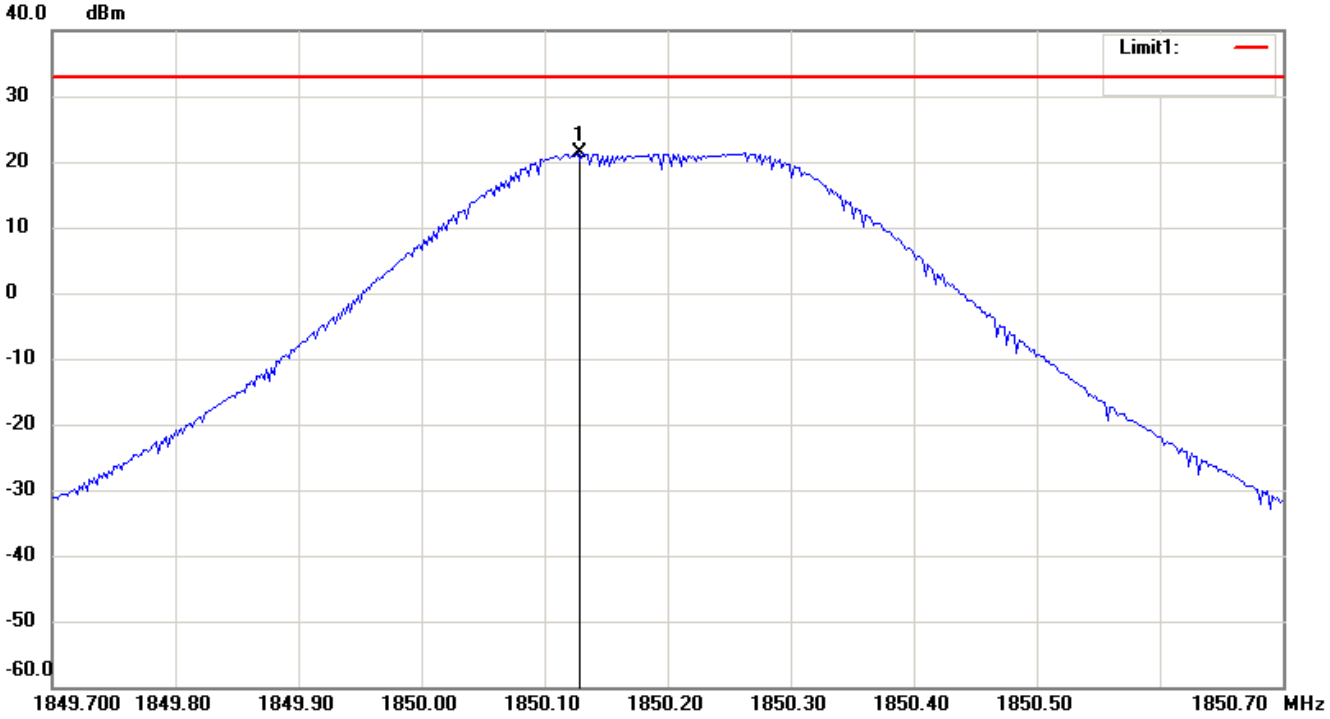
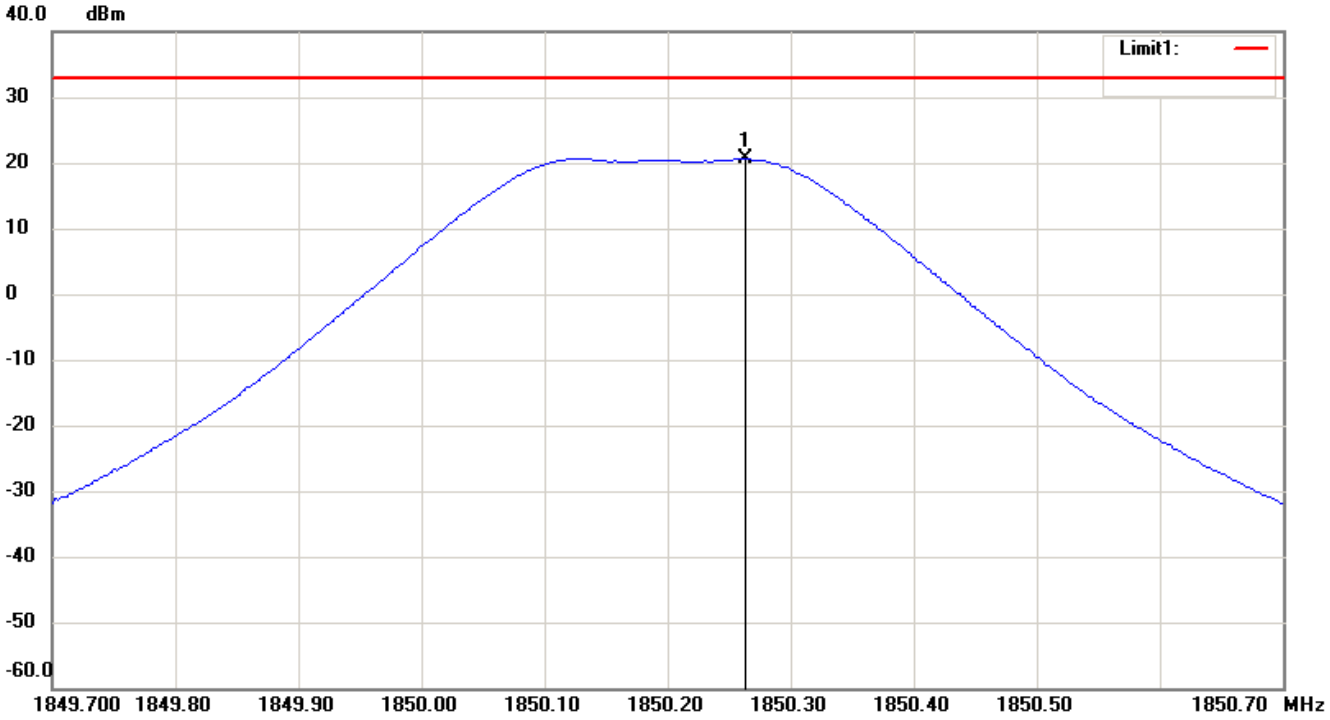
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_ CH 512_108 V

Antenna Polarization H



Antenna Polarization V



Note:

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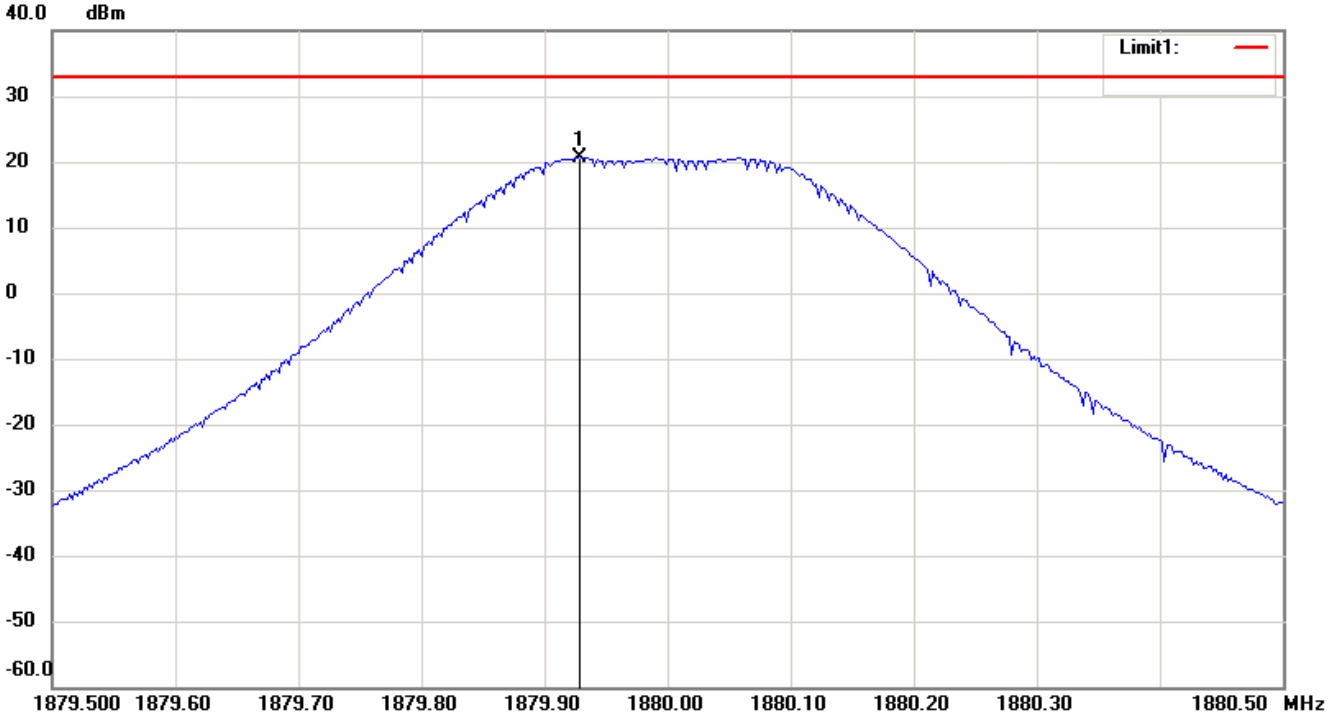
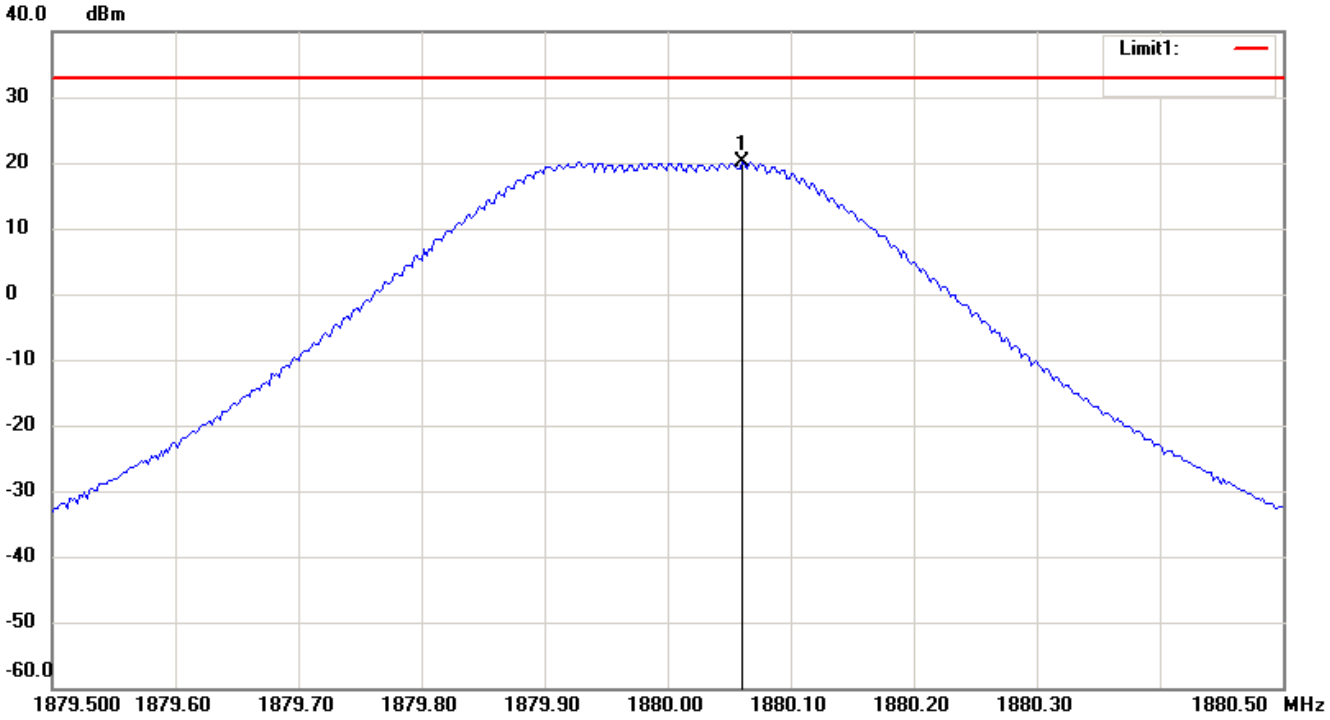
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_ CH 661_108 V

Antenna Polarization H



Antenna Polarization V



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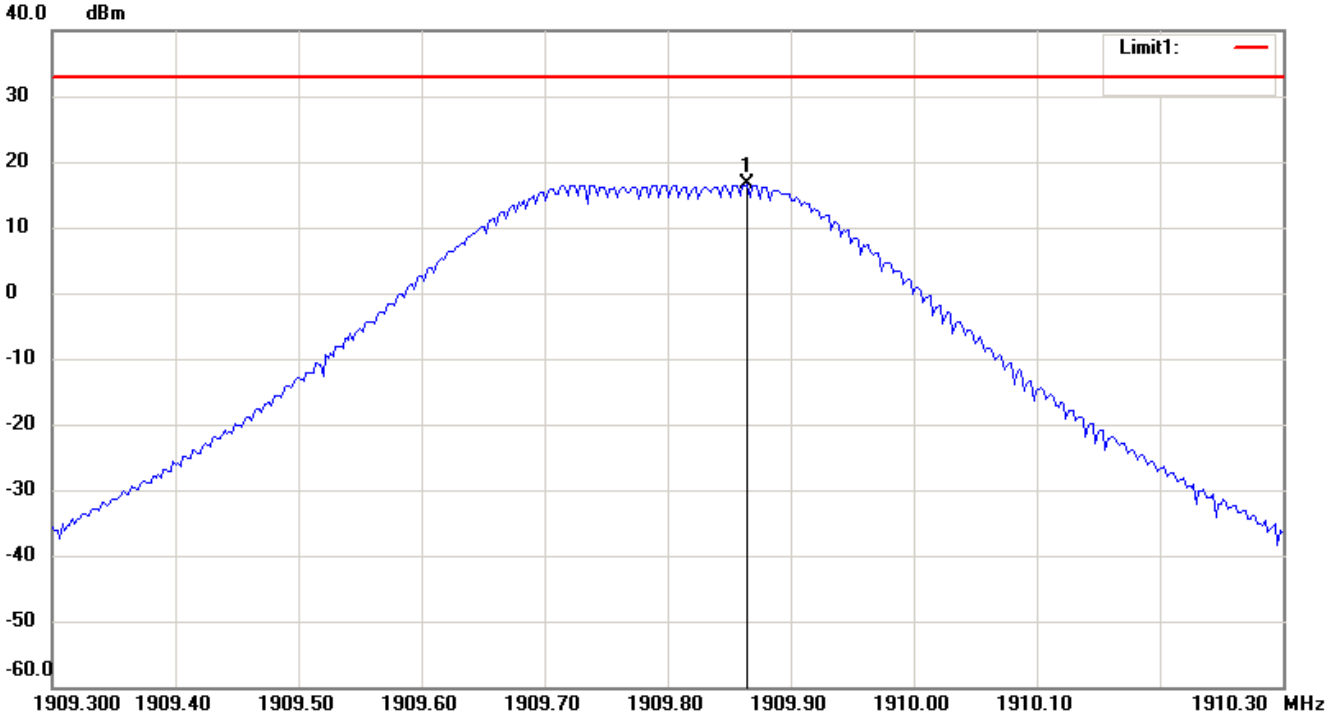
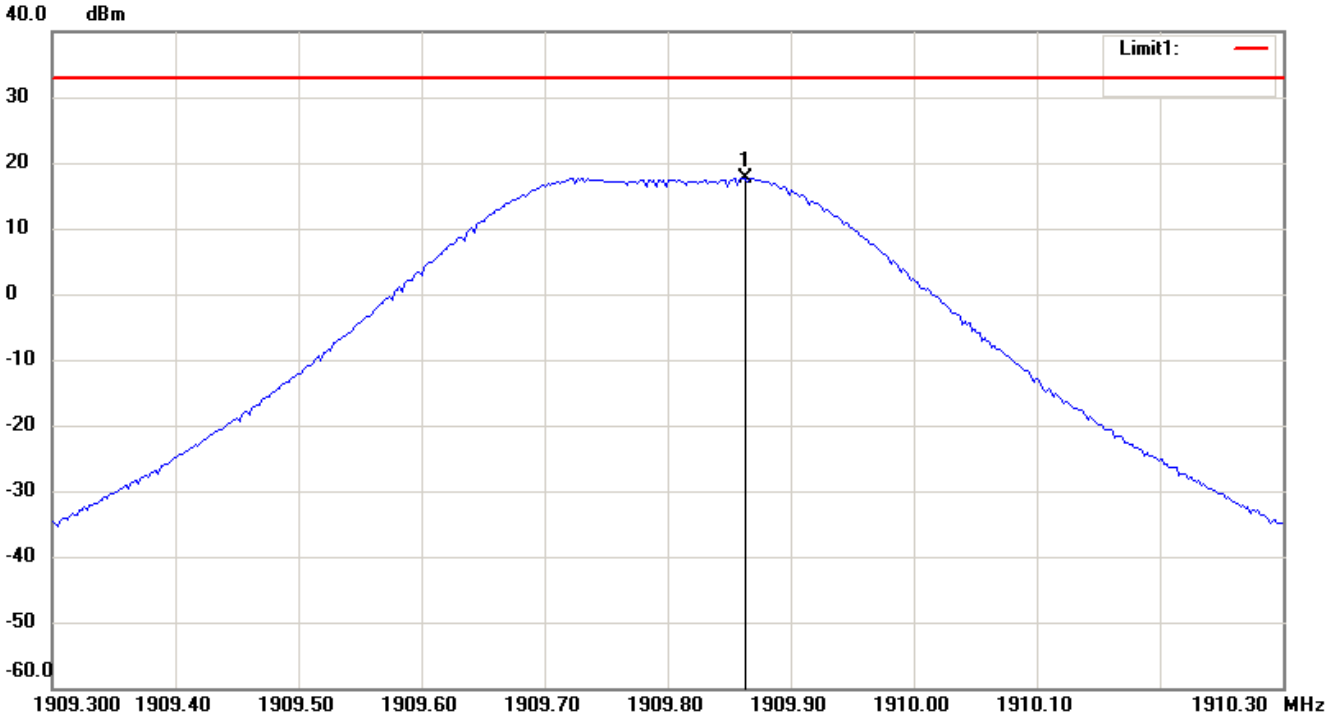
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_ CH 810_108 V

Antenna Polarization H



Antenna Polarization V



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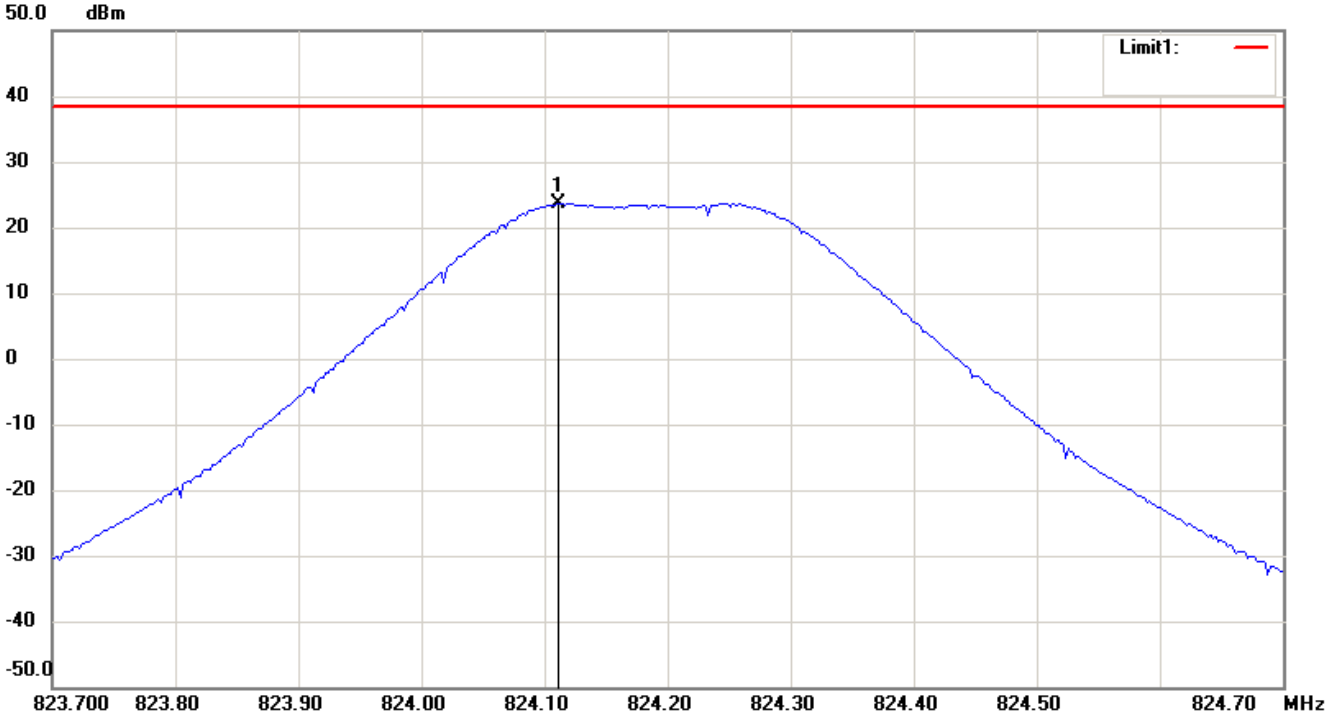
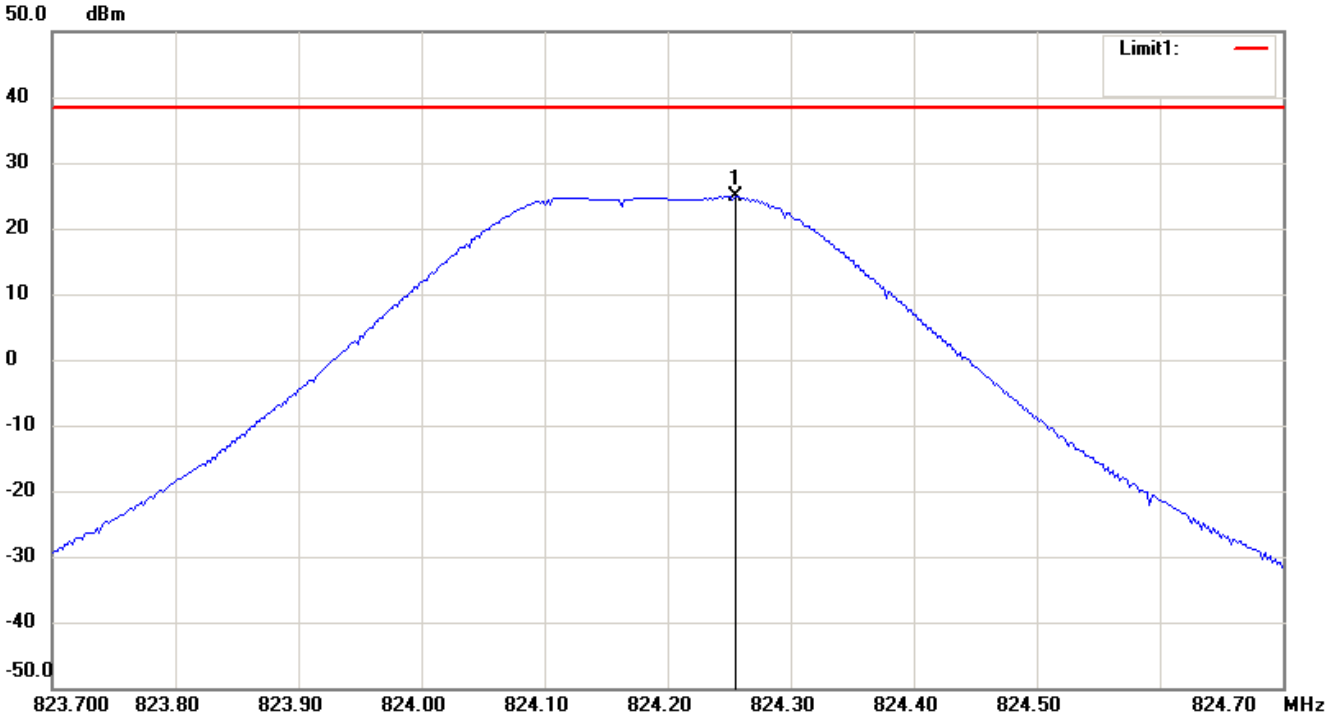
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 band_ CH 128_132 V

Antenna Polarization H



Antenna Polarization V



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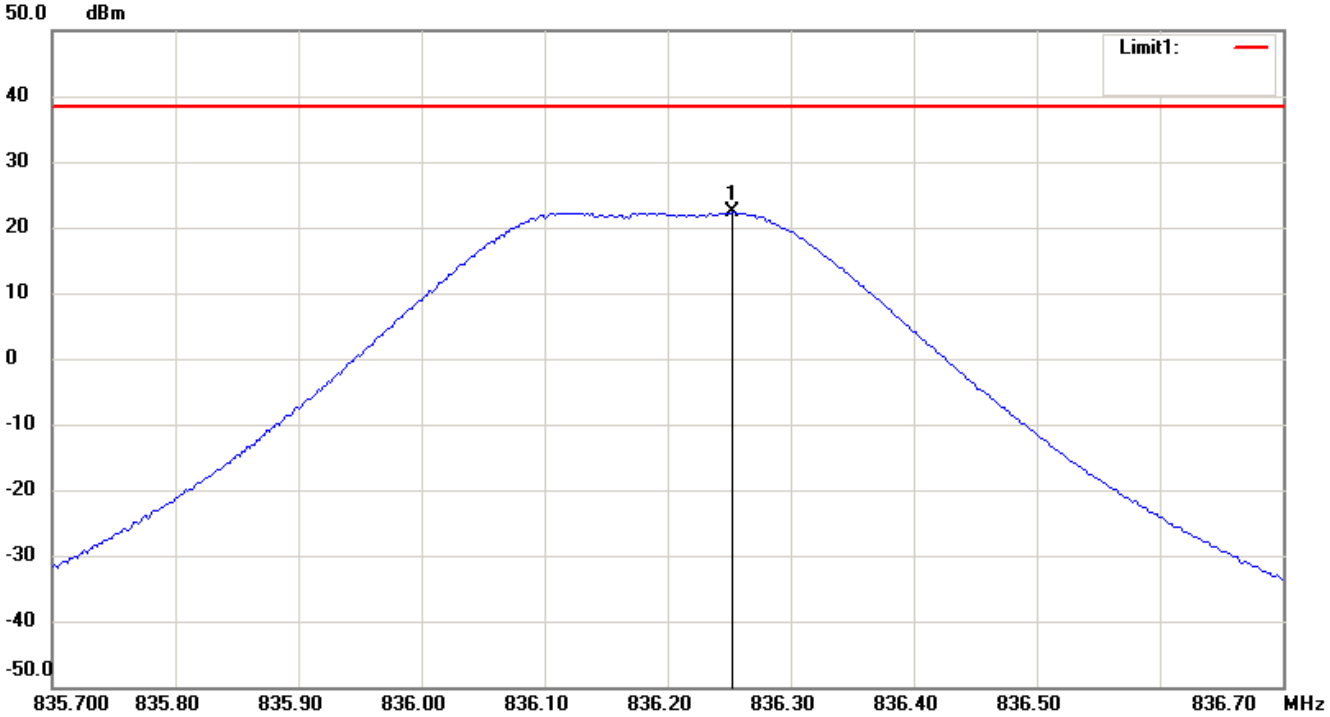
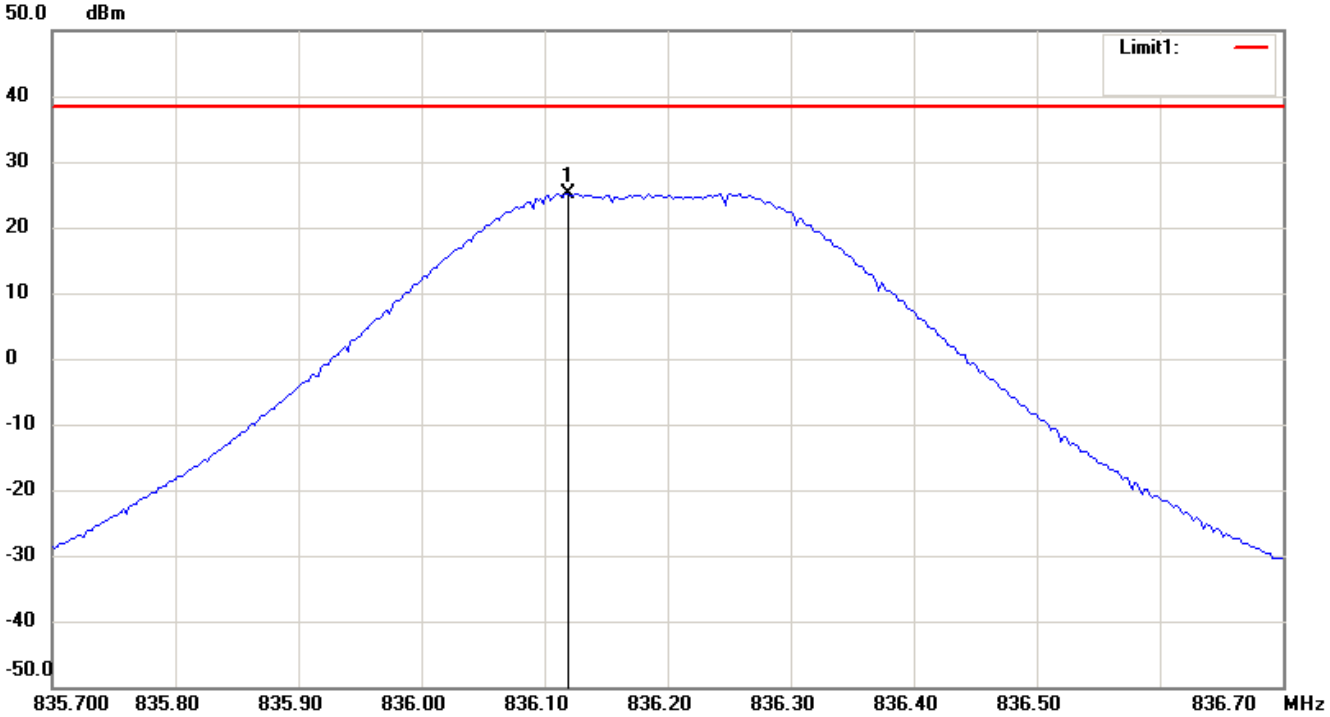
850 band_ CH 188_132 V

Antenna Polarization H



Antenna Polarization V



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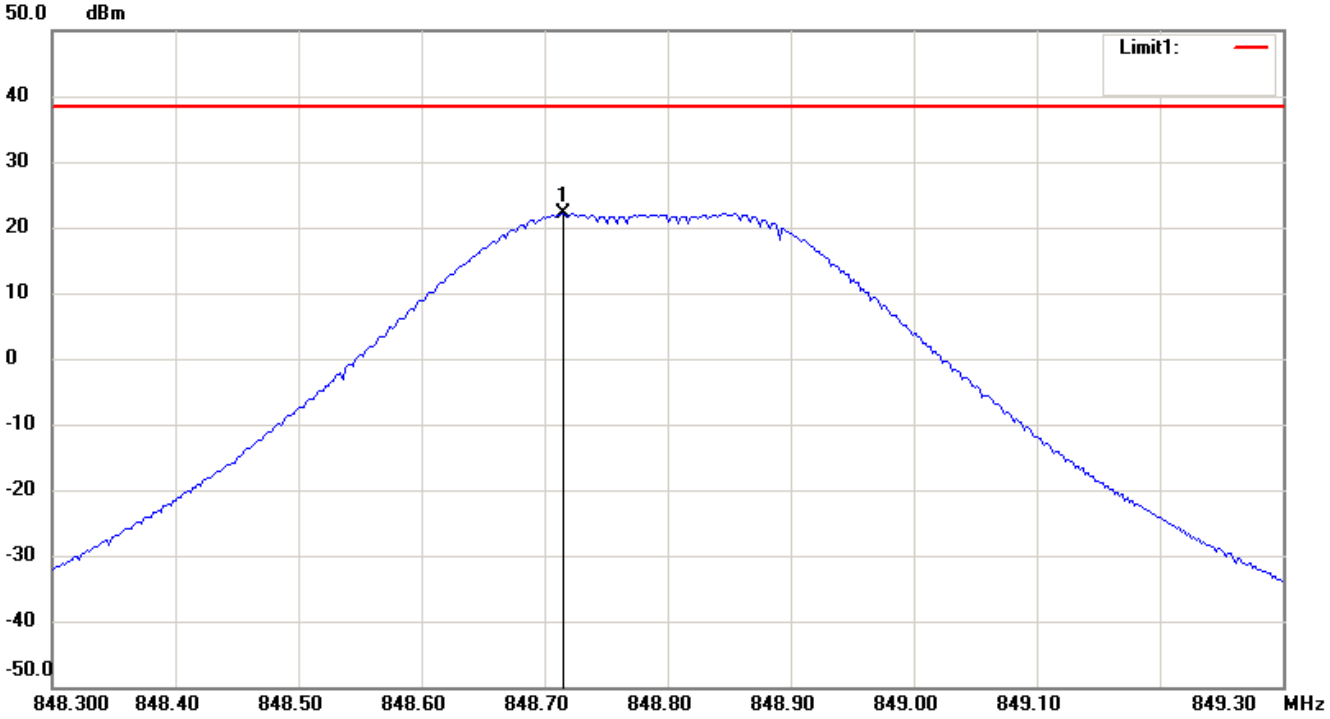
FCC ID: 2ABGRMVX400

850 band_ CH 251_132 V

Antenna Polarization H



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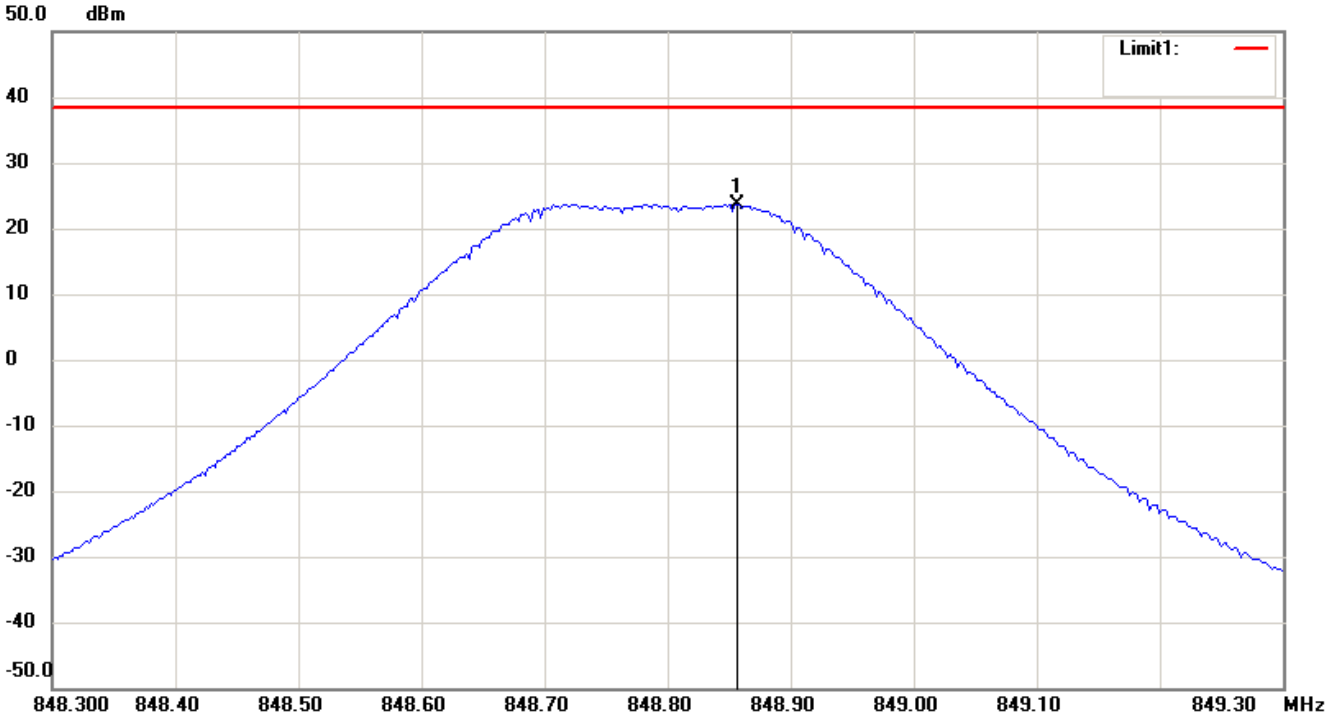

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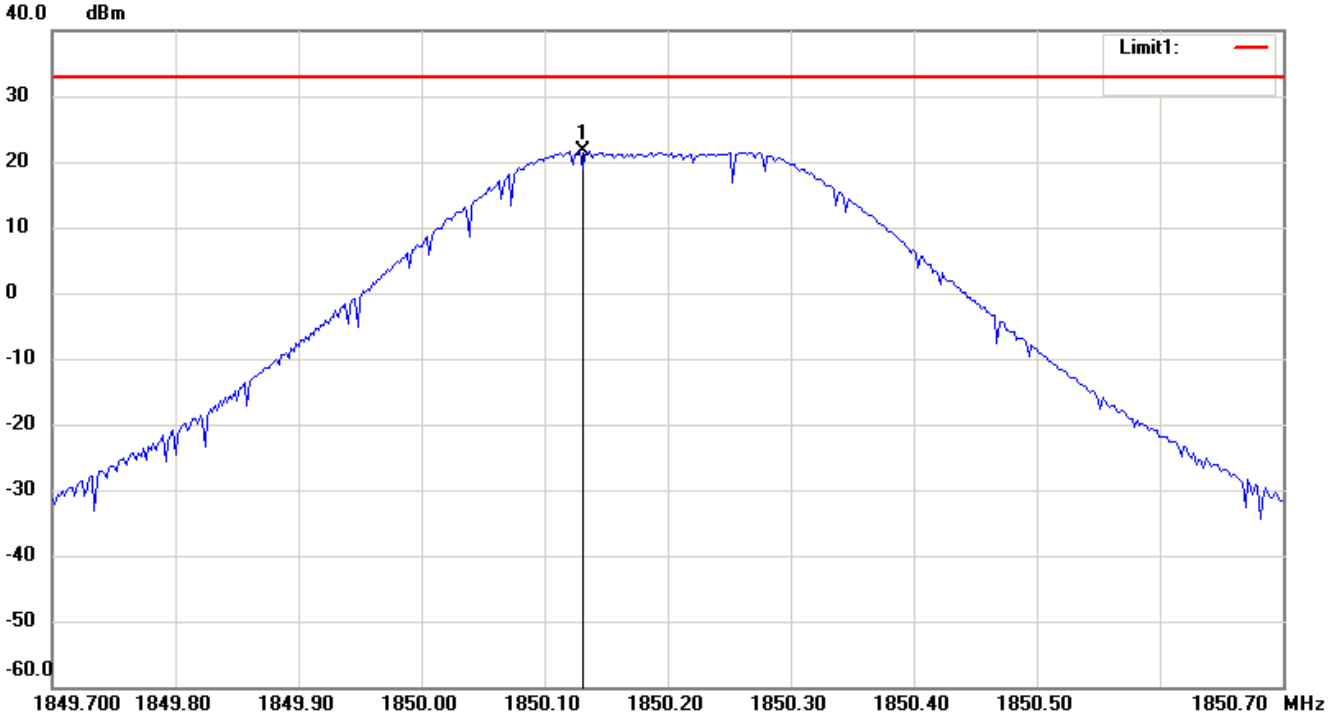
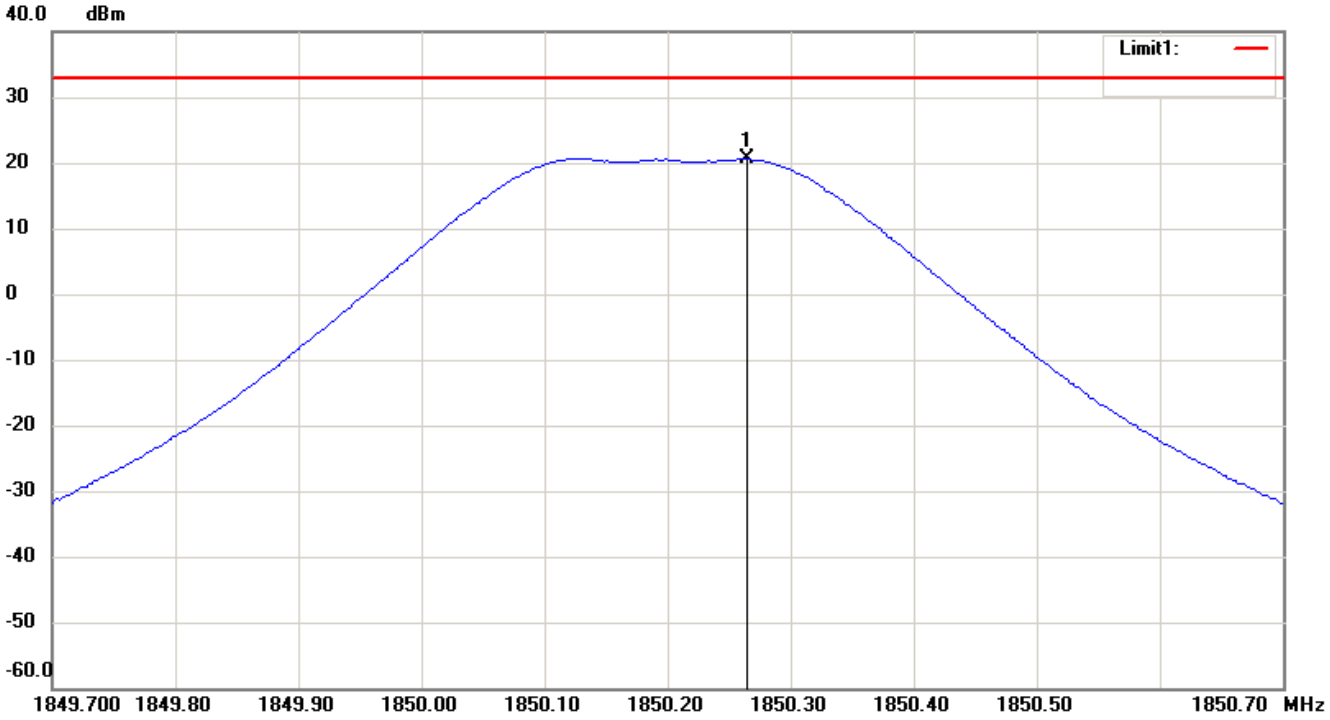
FCC ID: 2ABGRMVX400

1900 band_ CH 512_132 V

Antenna Polarization H



Antenna Polarization V



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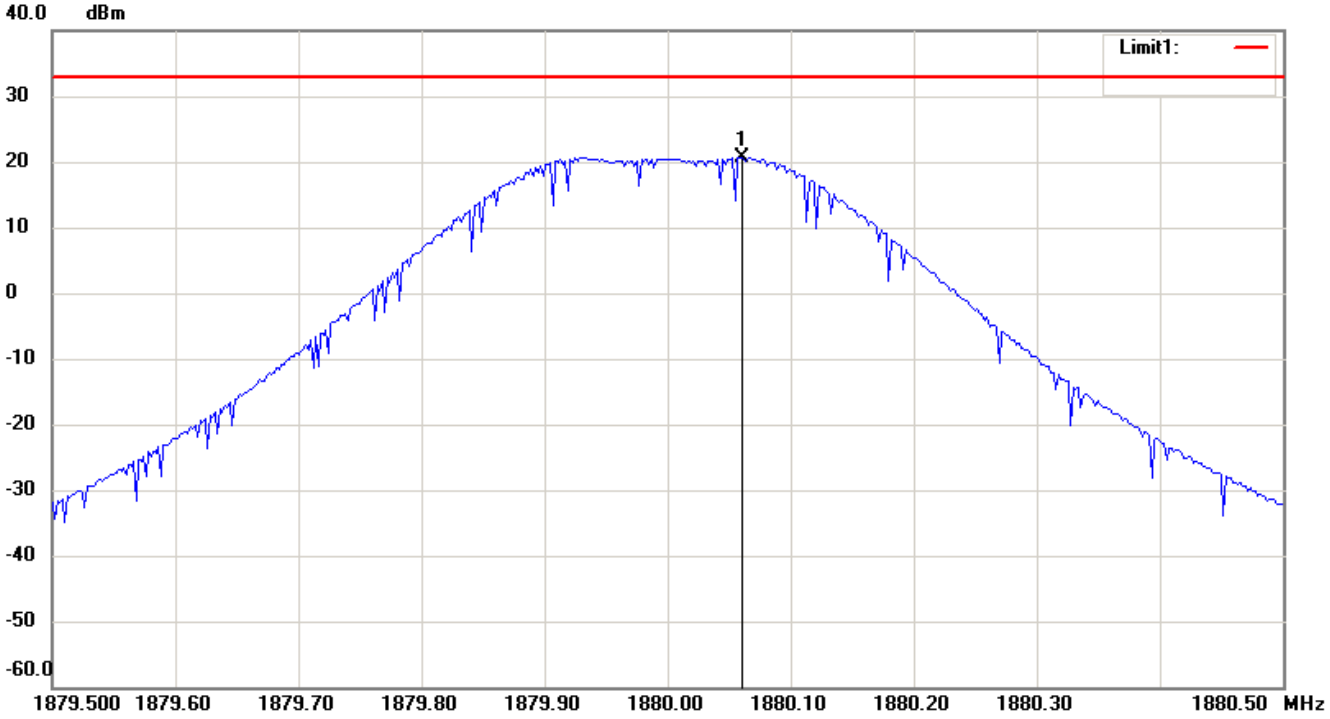
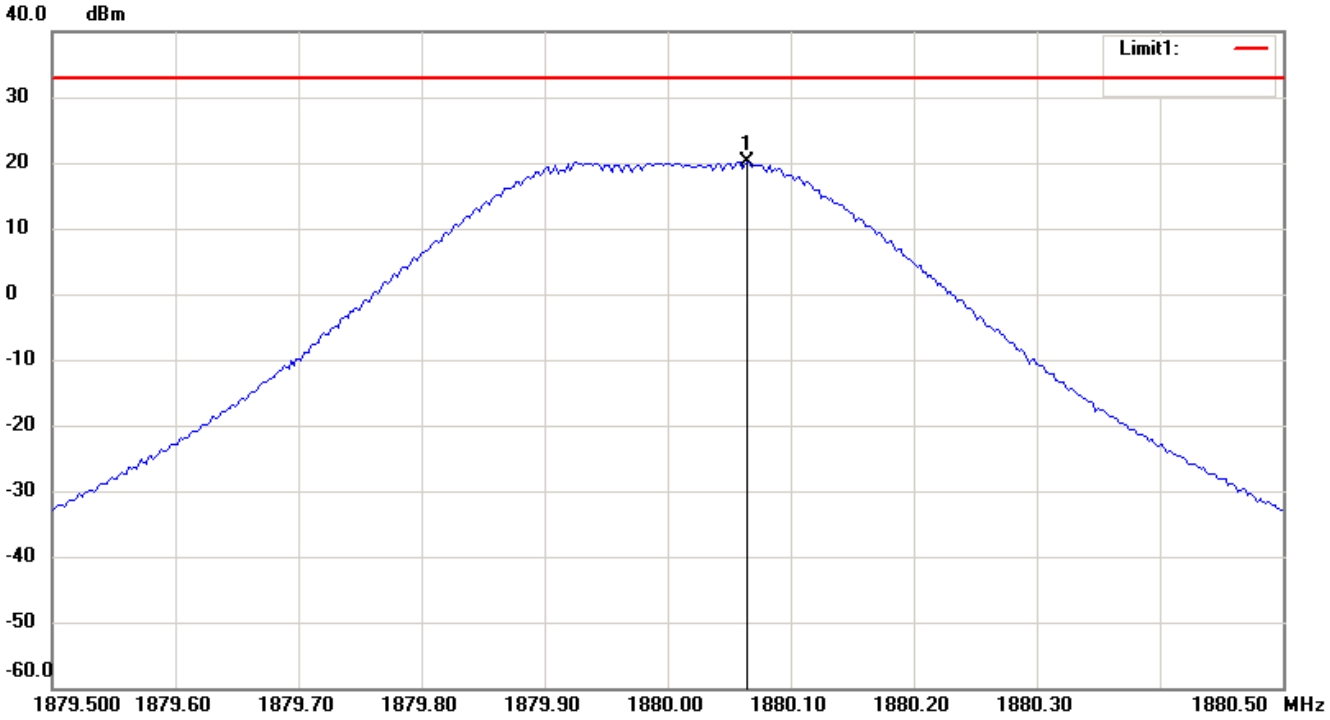
FCC ID: 2ABGRMVX400

1900 band_ CH 661_132 V

Antenna Polarization H



Antenna Polarization V



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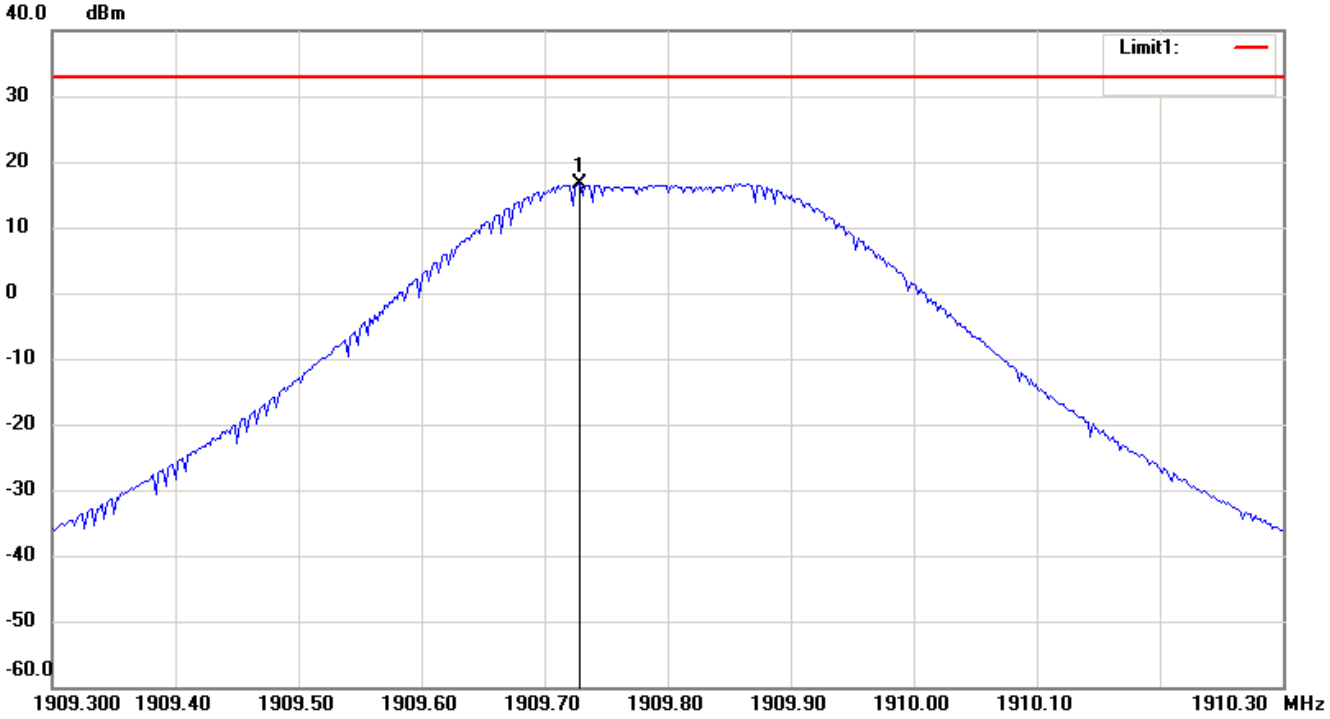
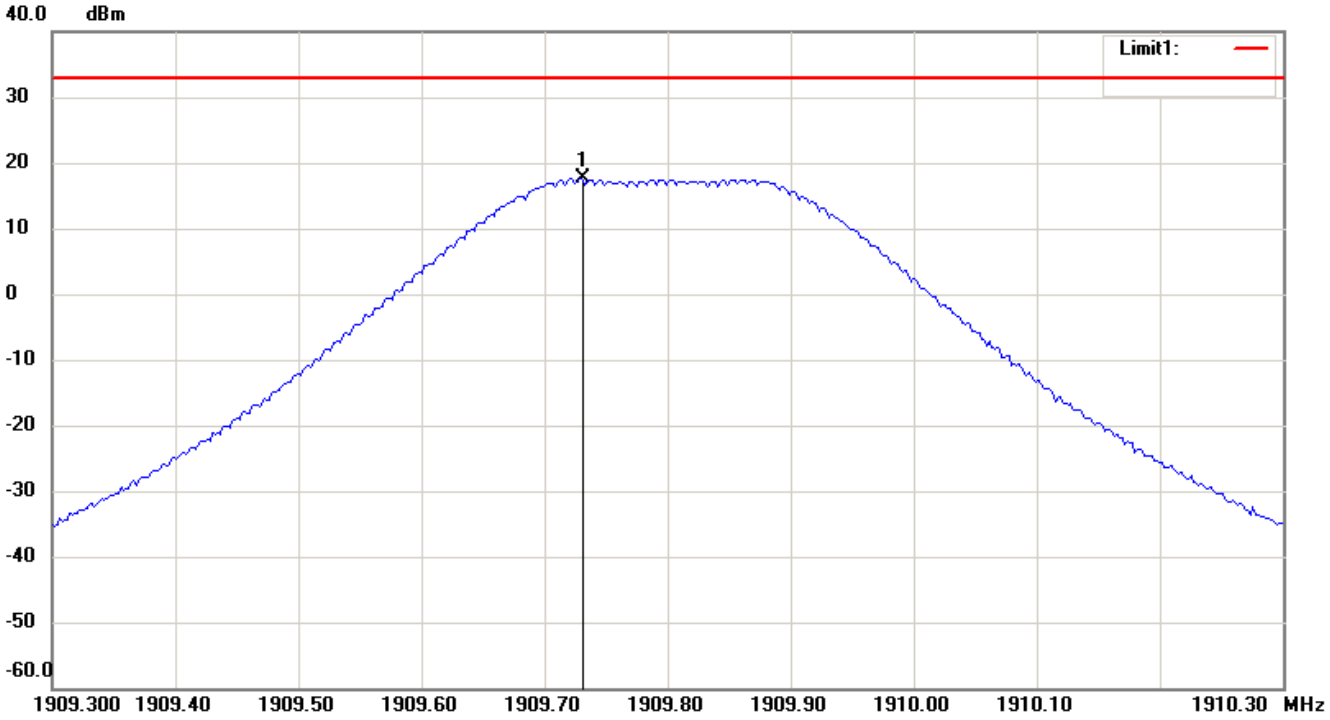
FCC ID: 2ABGRMVX400

1900 band_ CH 810_132 V

Antenna Polarization H



Antenna Polarization V



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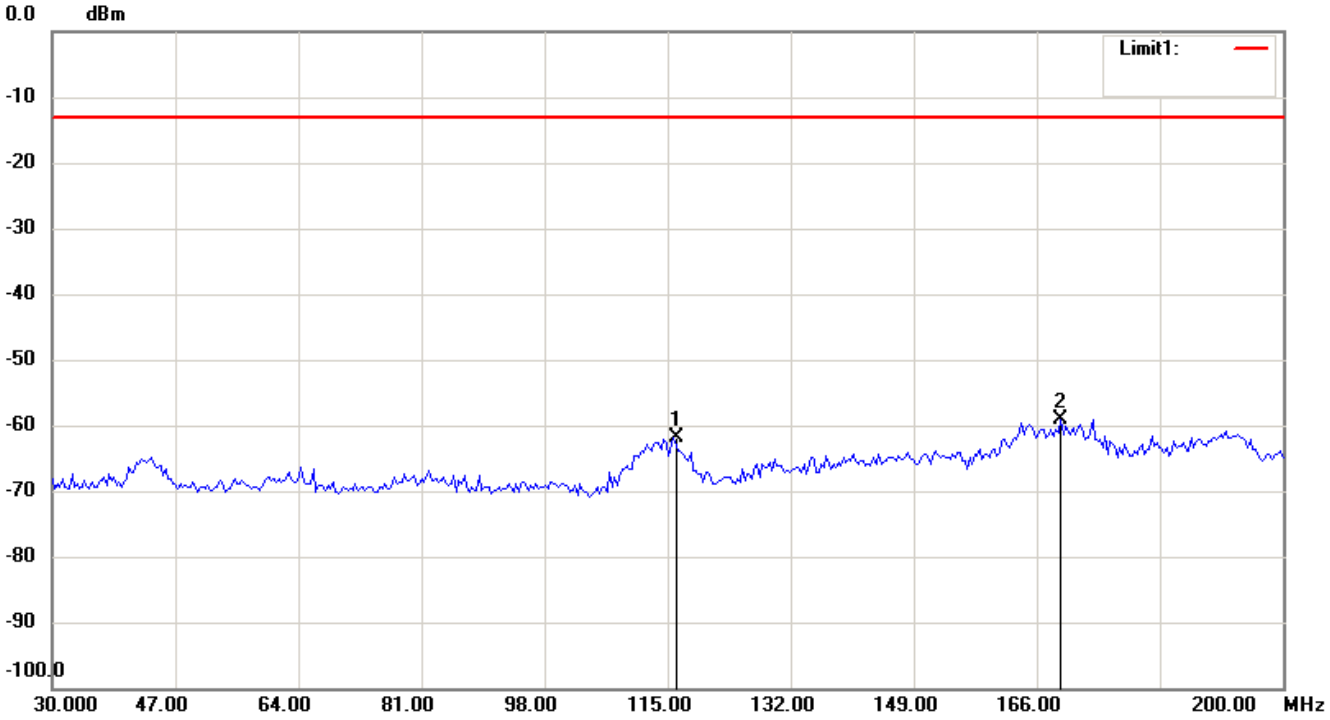
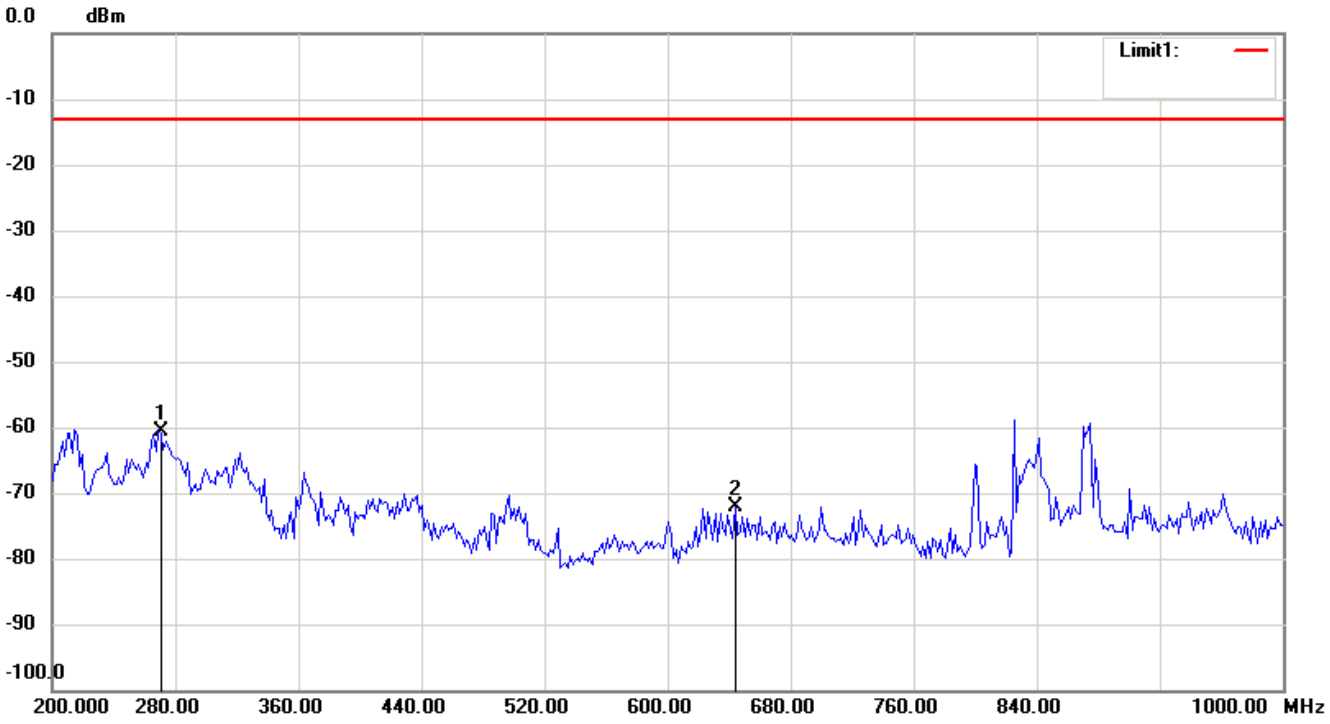
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

Filed Strength of Spurious Emission
850 band_ CH 128_108V
Antenna Polarization H





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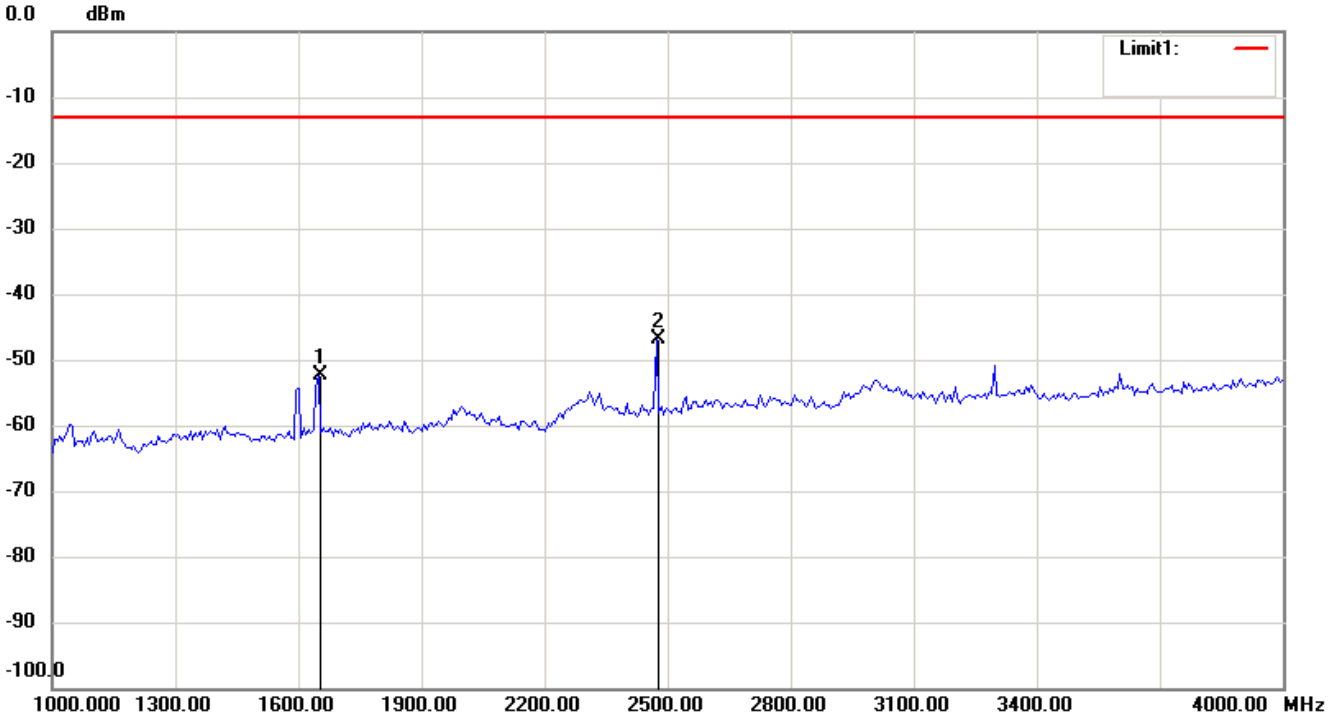

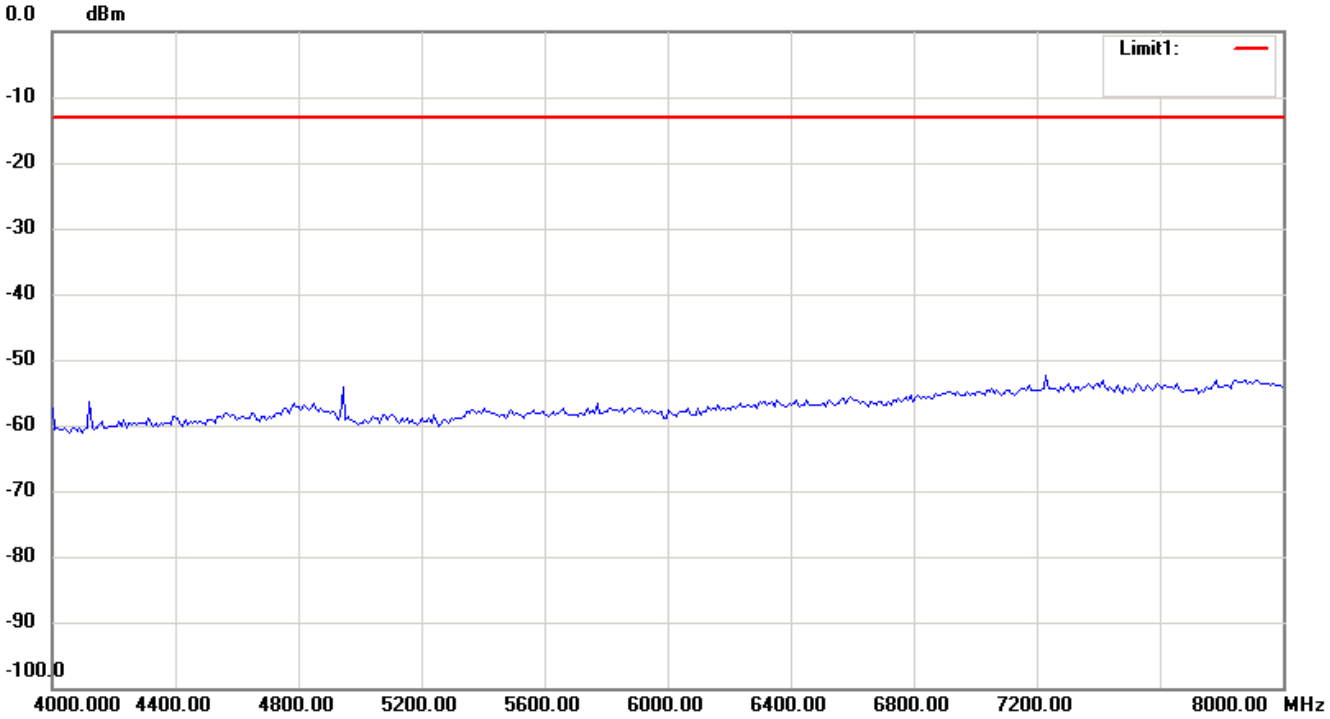

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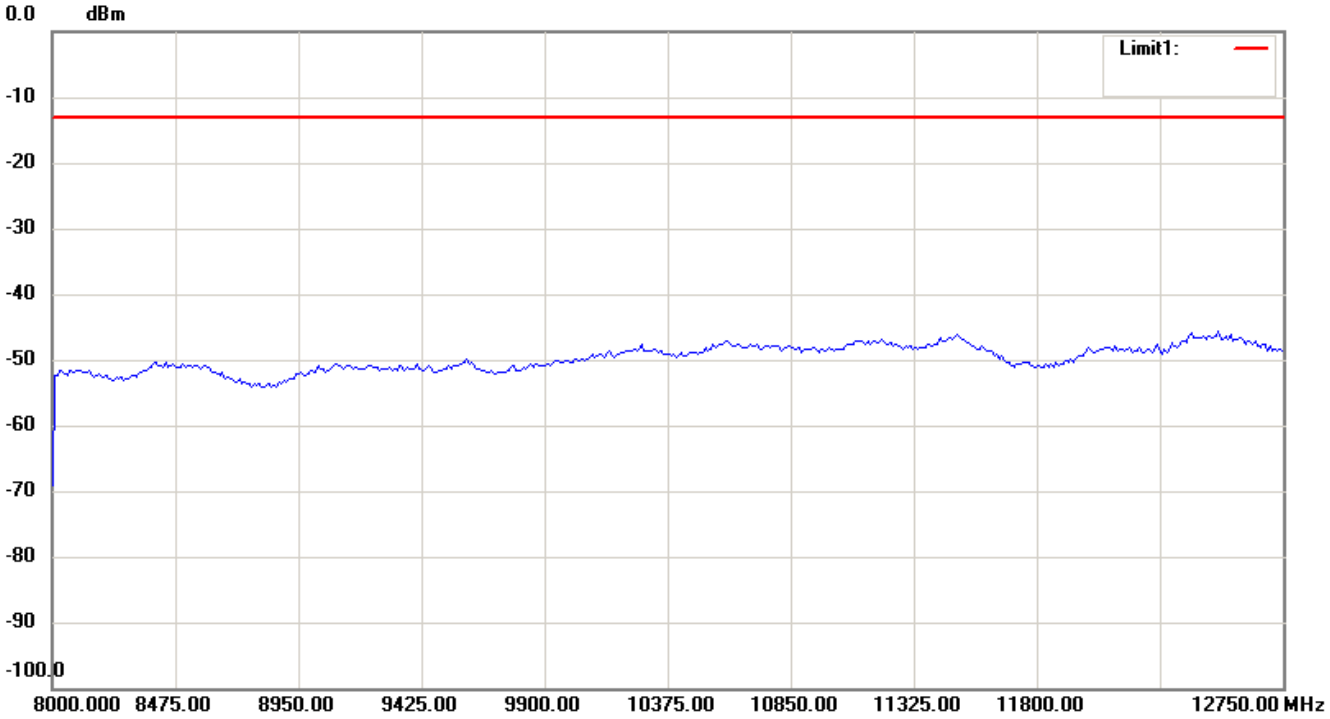
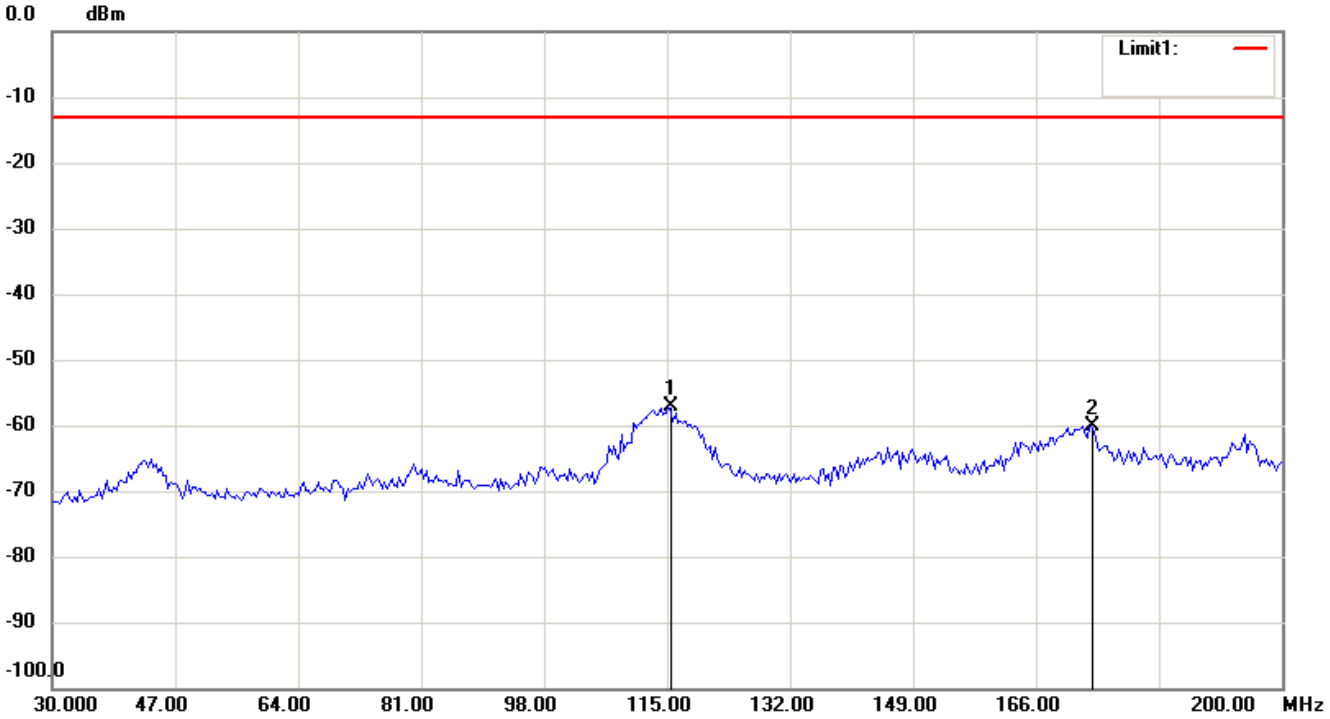


Antenna Polarization V



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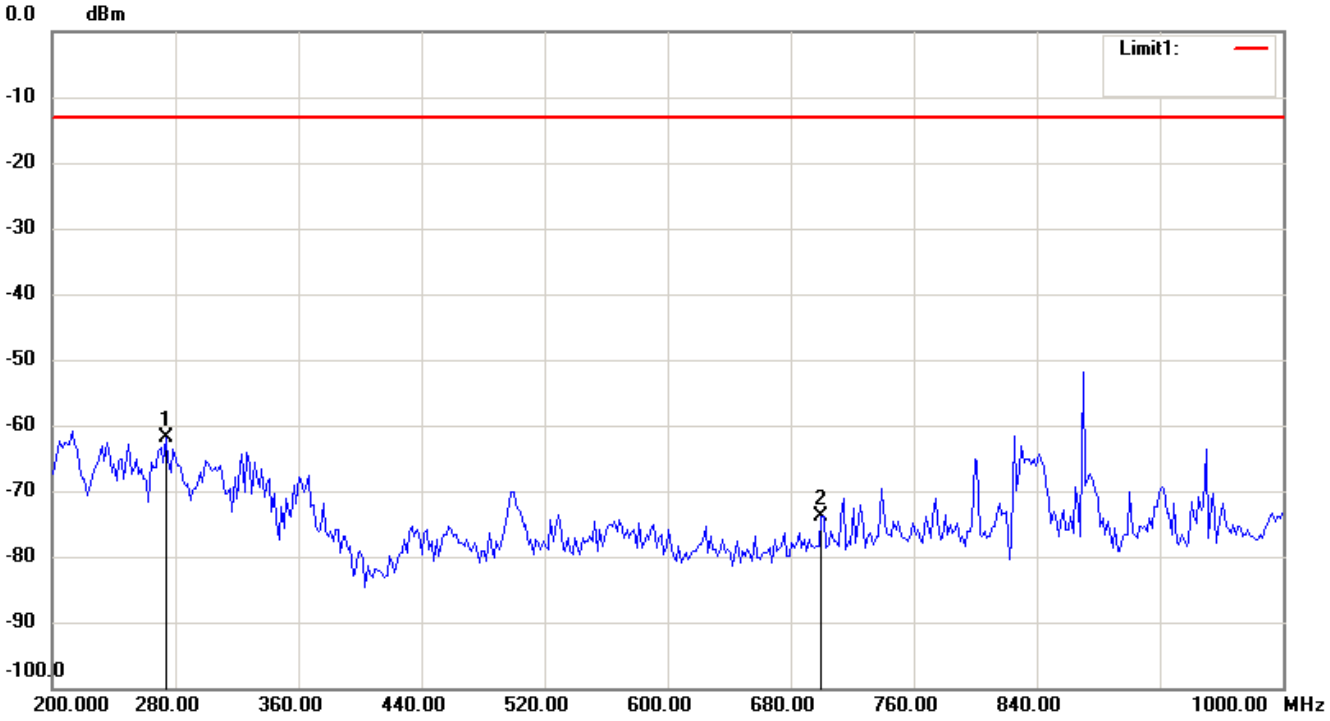

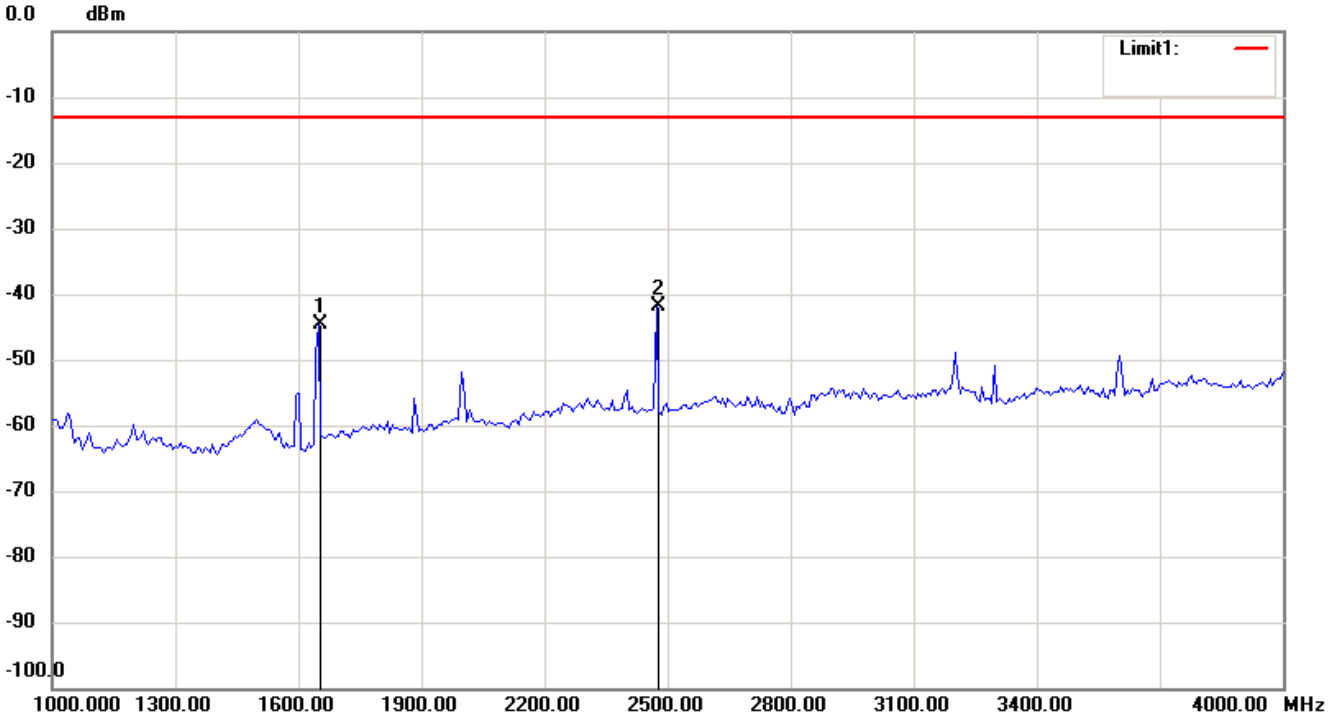

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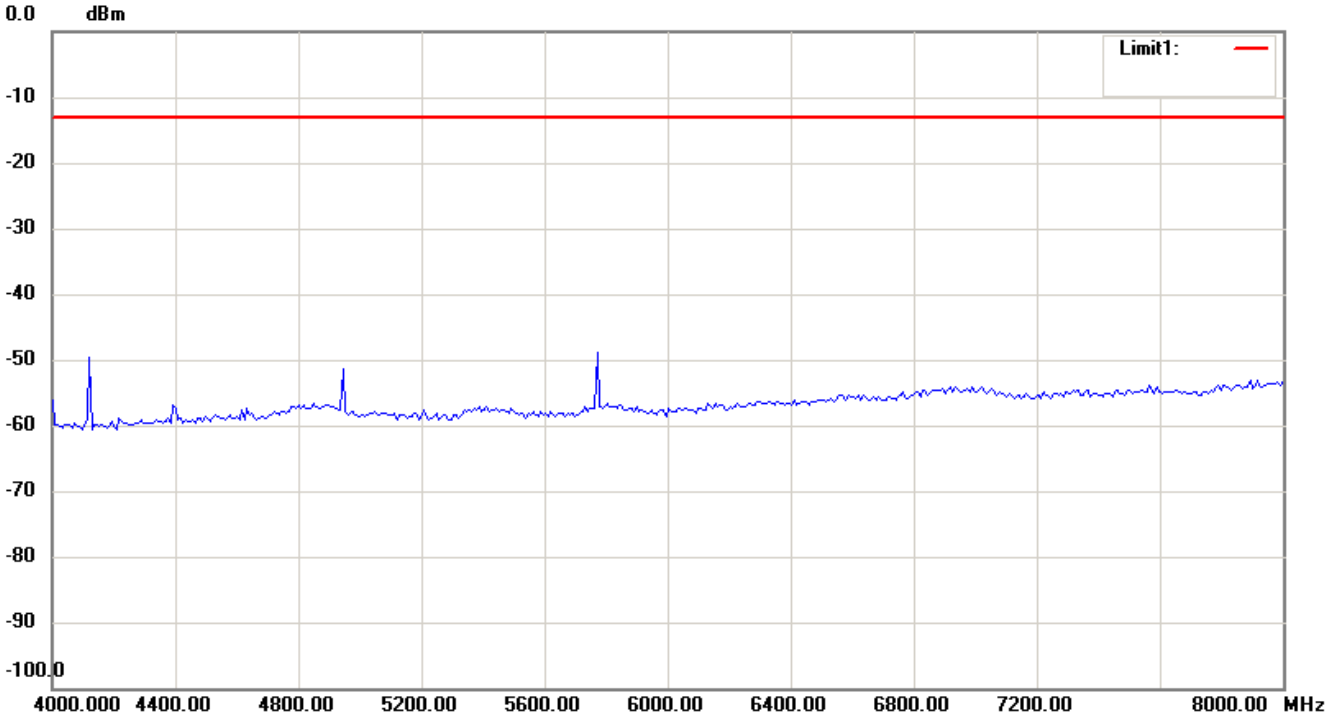

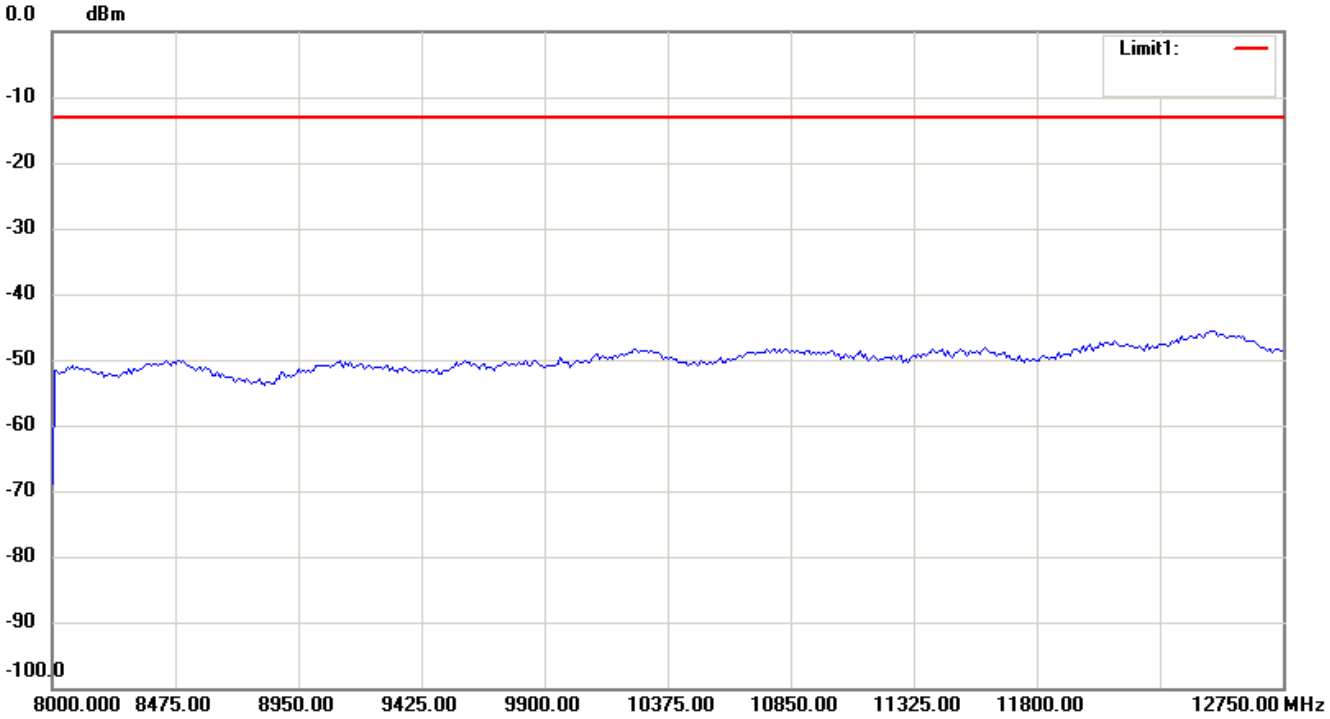

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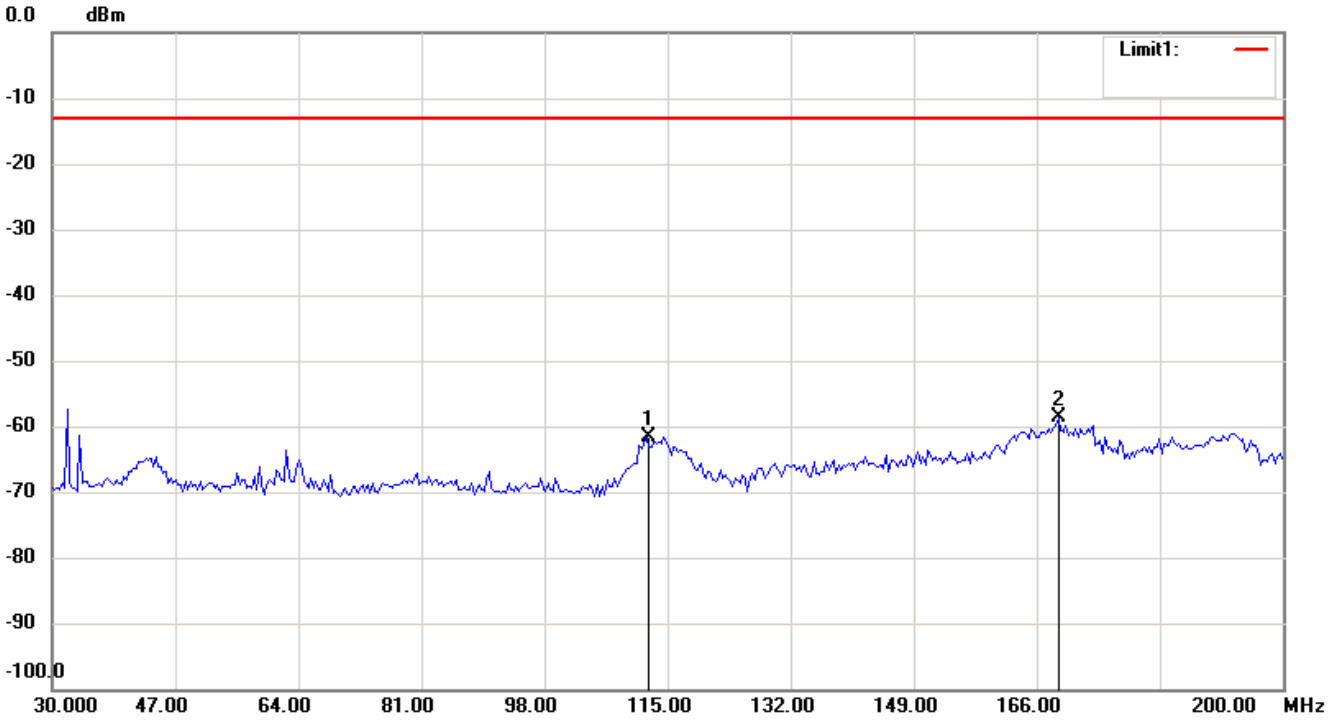
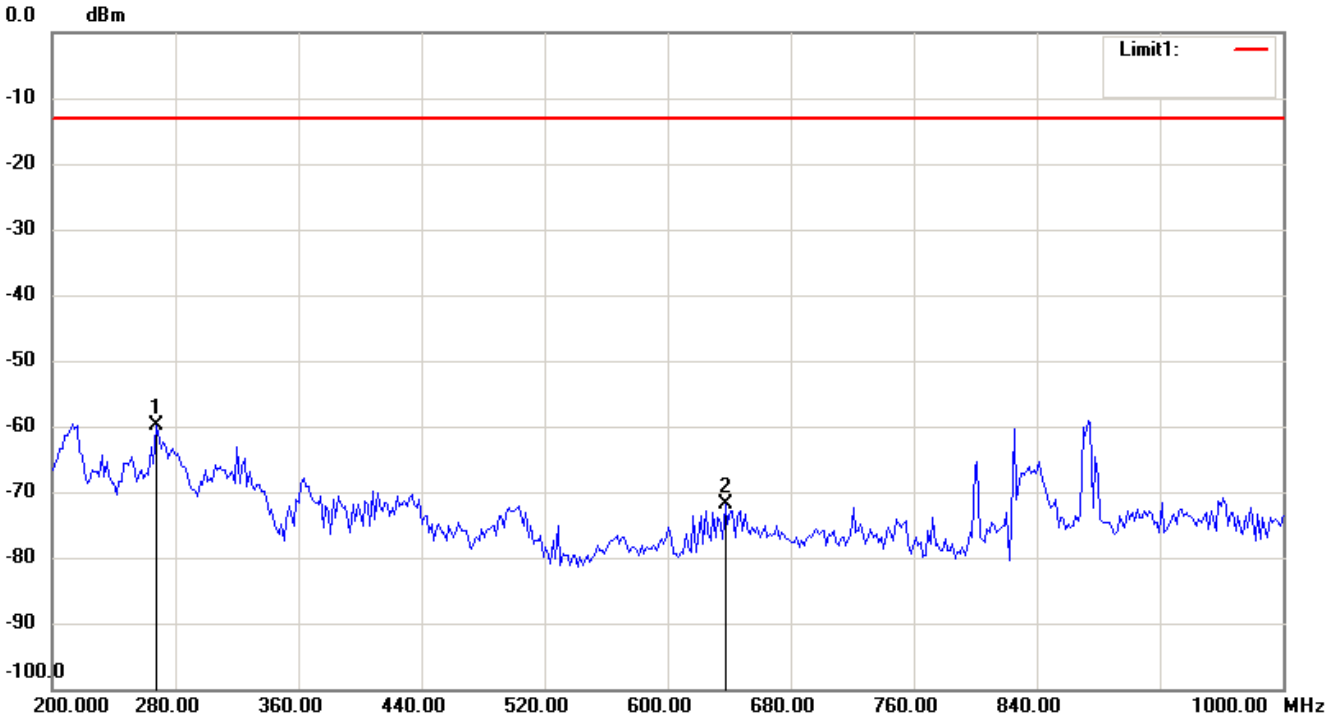
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 band_ CH 128_132 V

Antenna Polarization H





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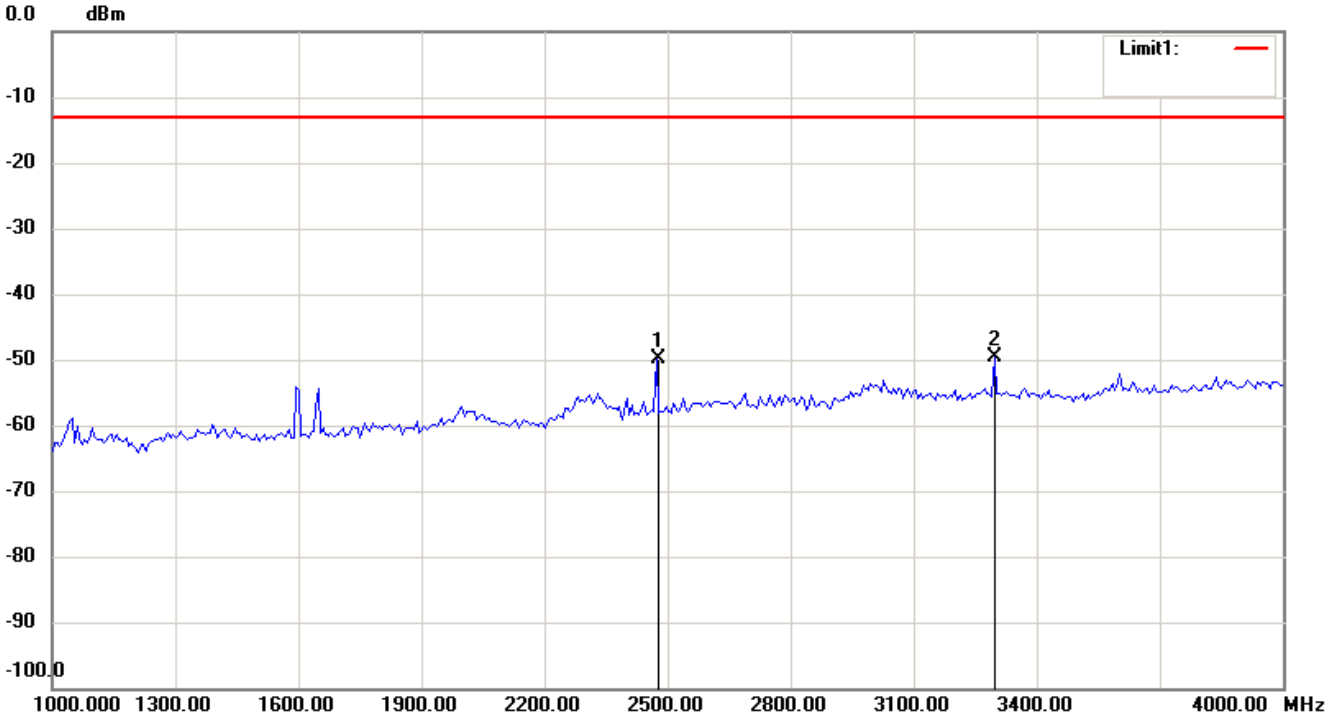

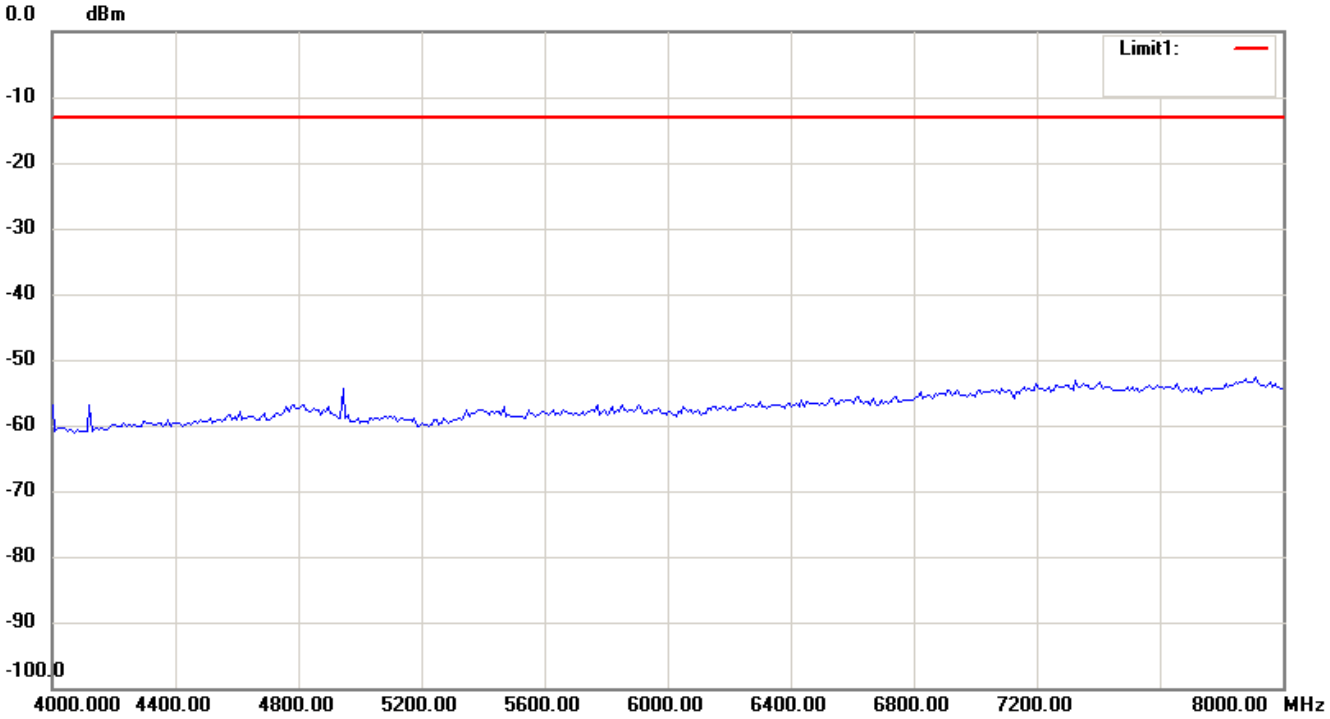

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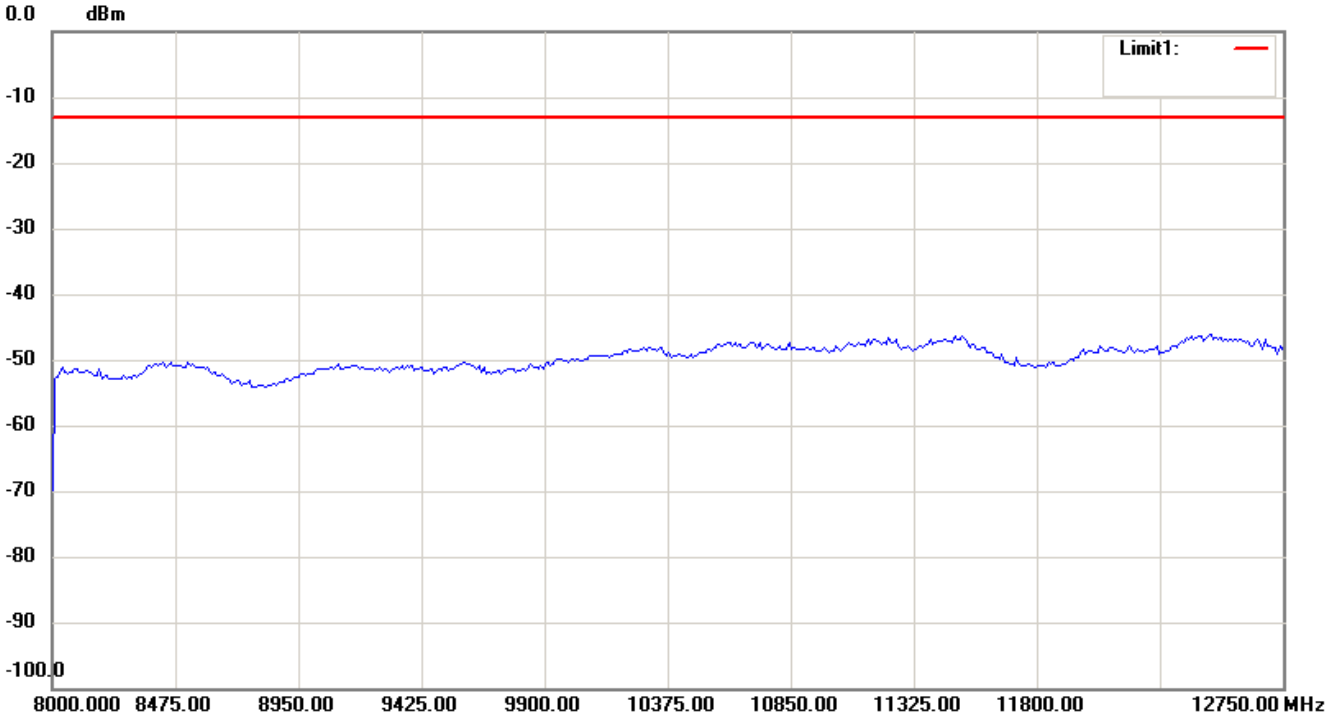
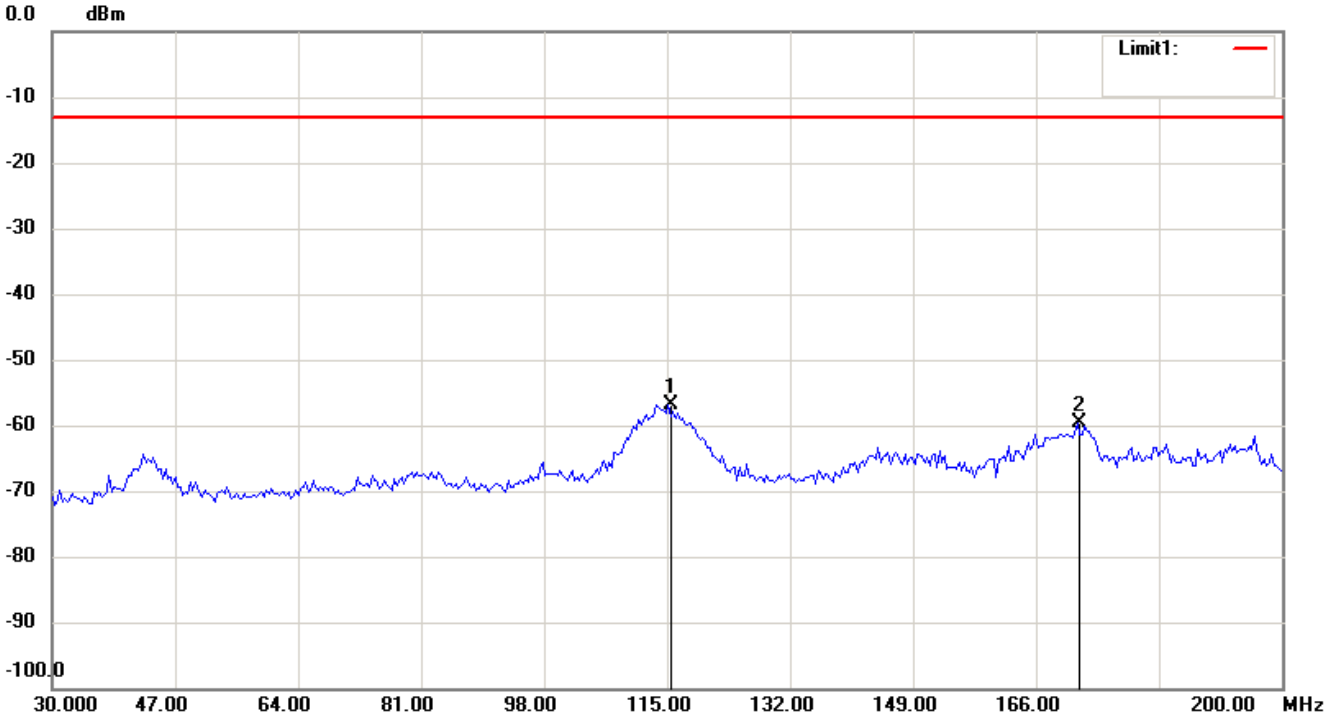


Antenna Polarization V



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.**
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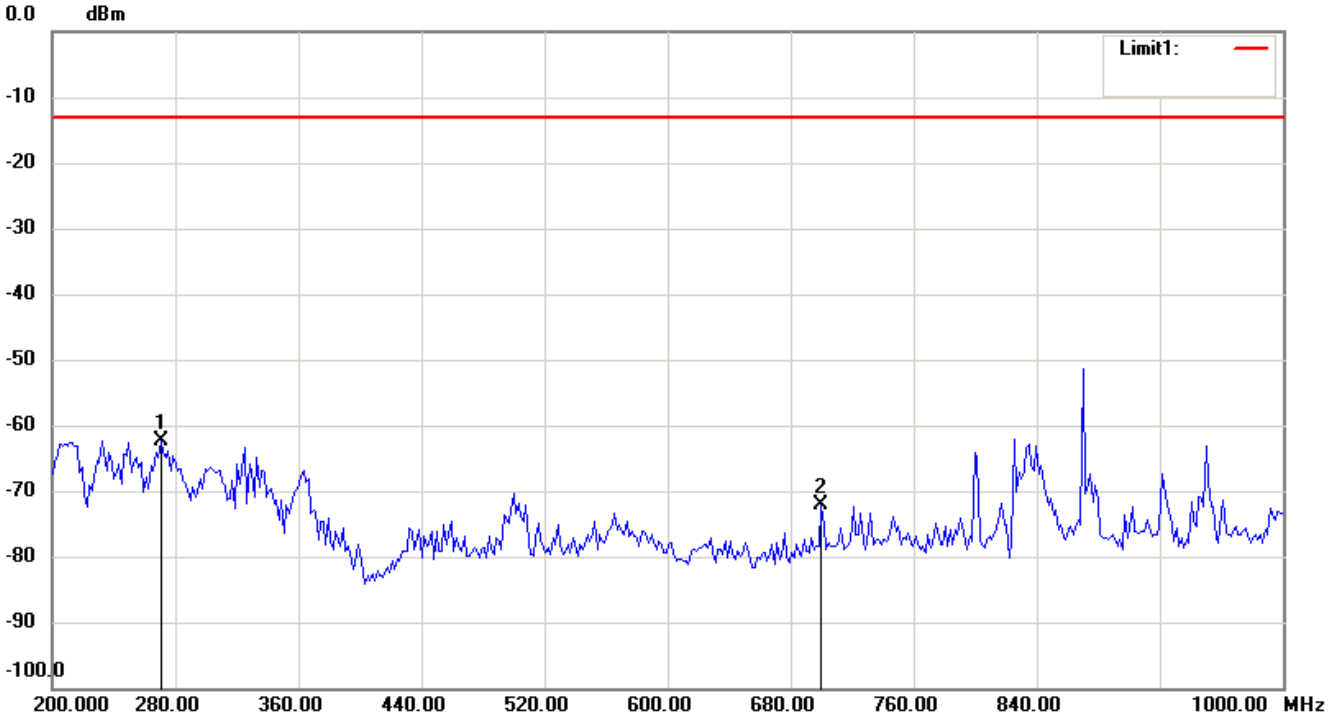

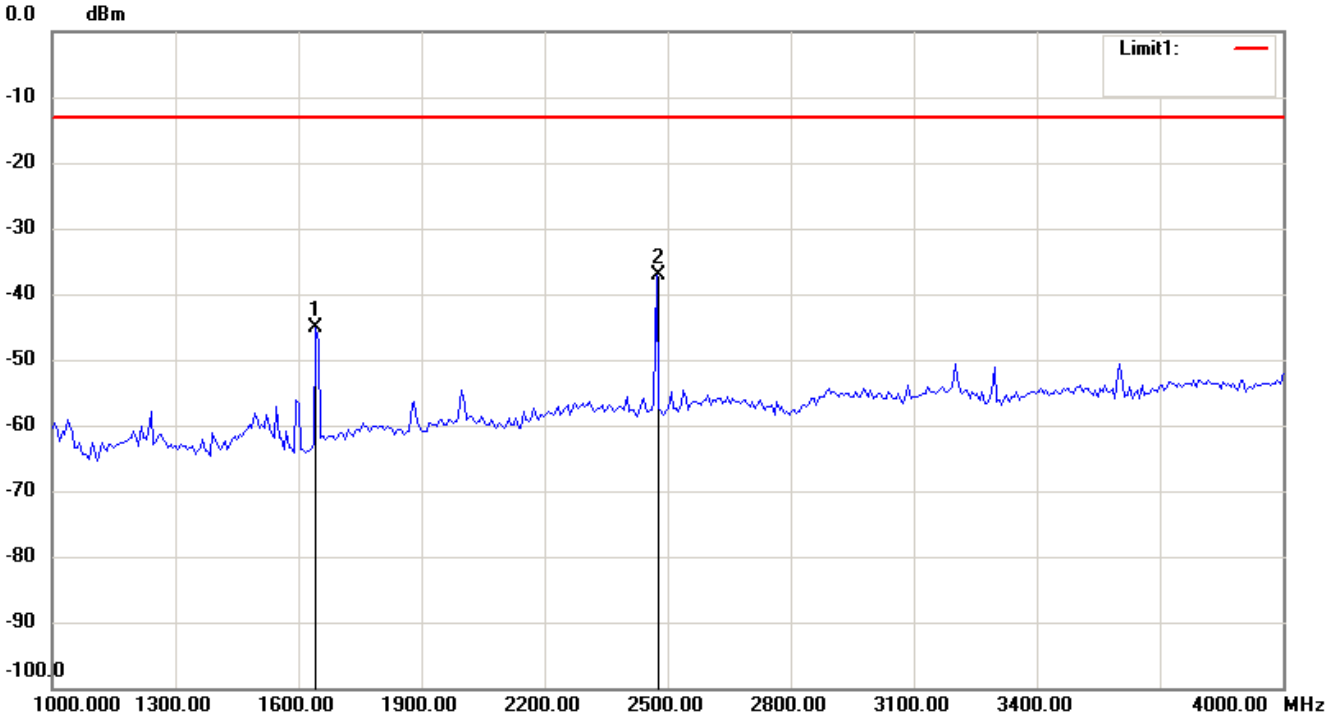

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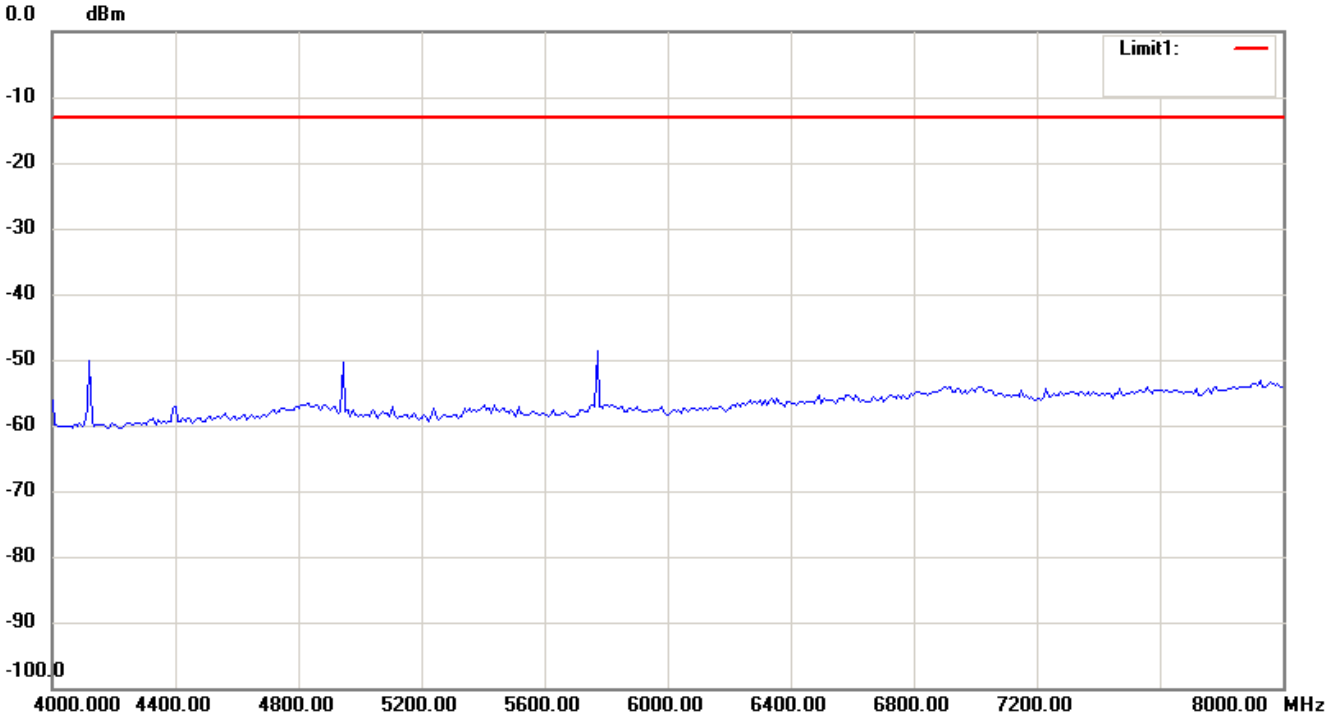

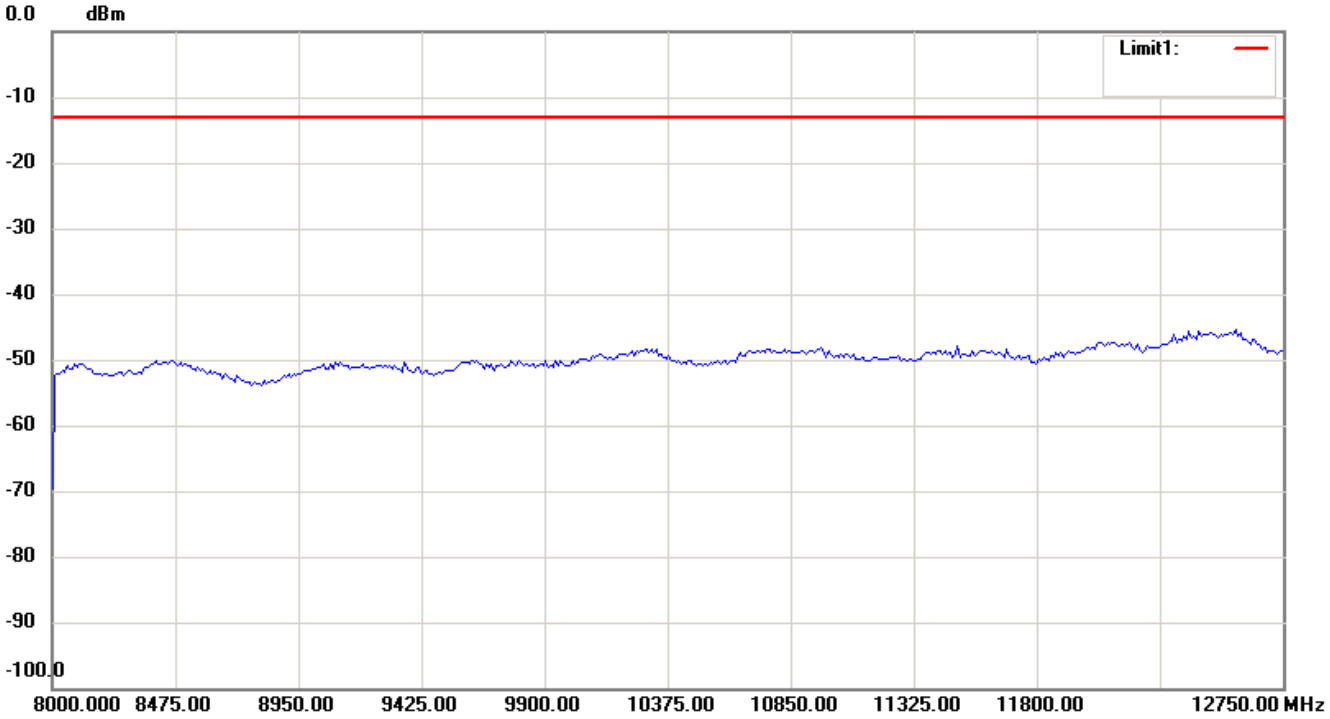

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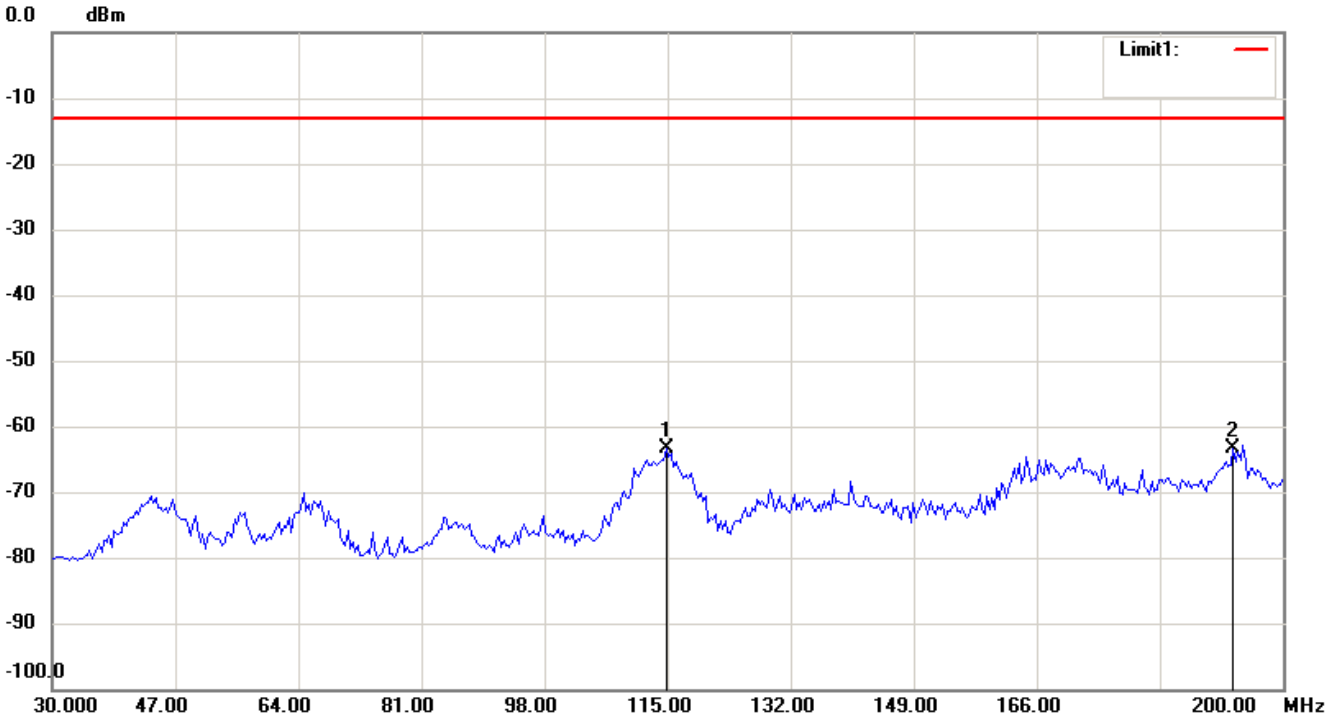
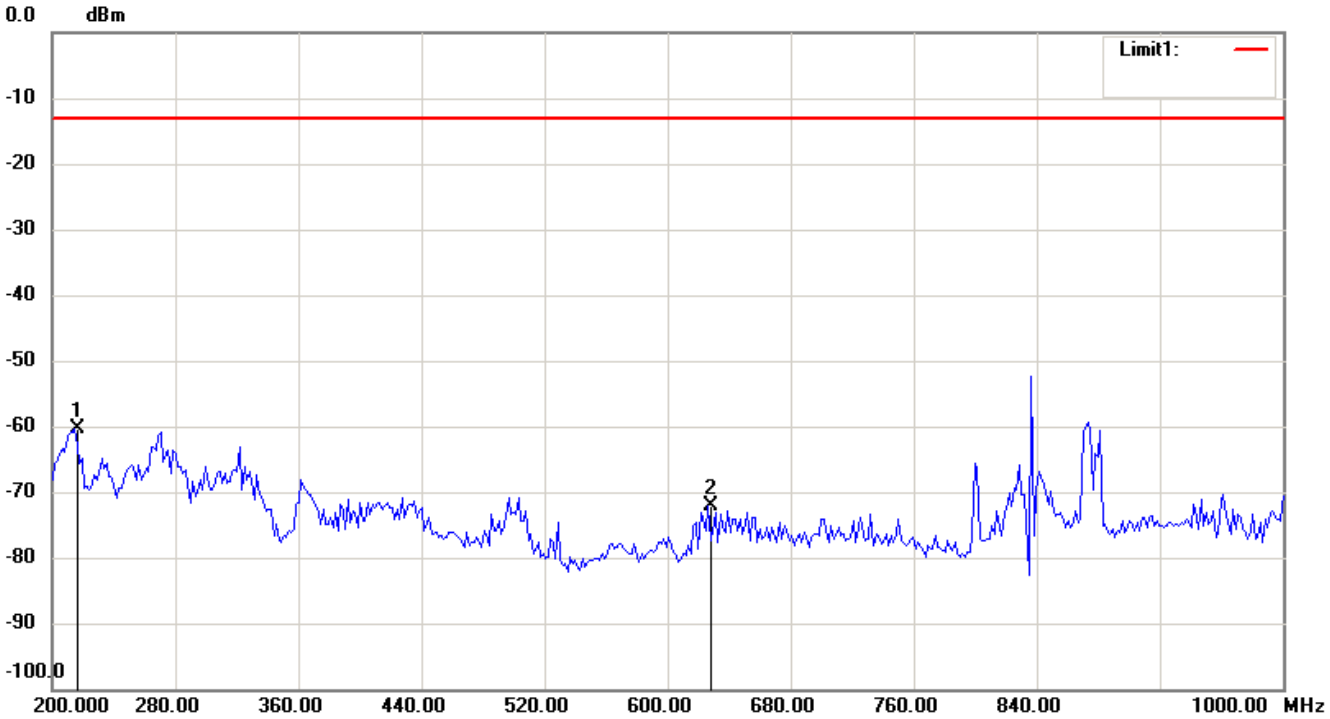
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
850 band_ CH 188_108V
Antenna Polarization H





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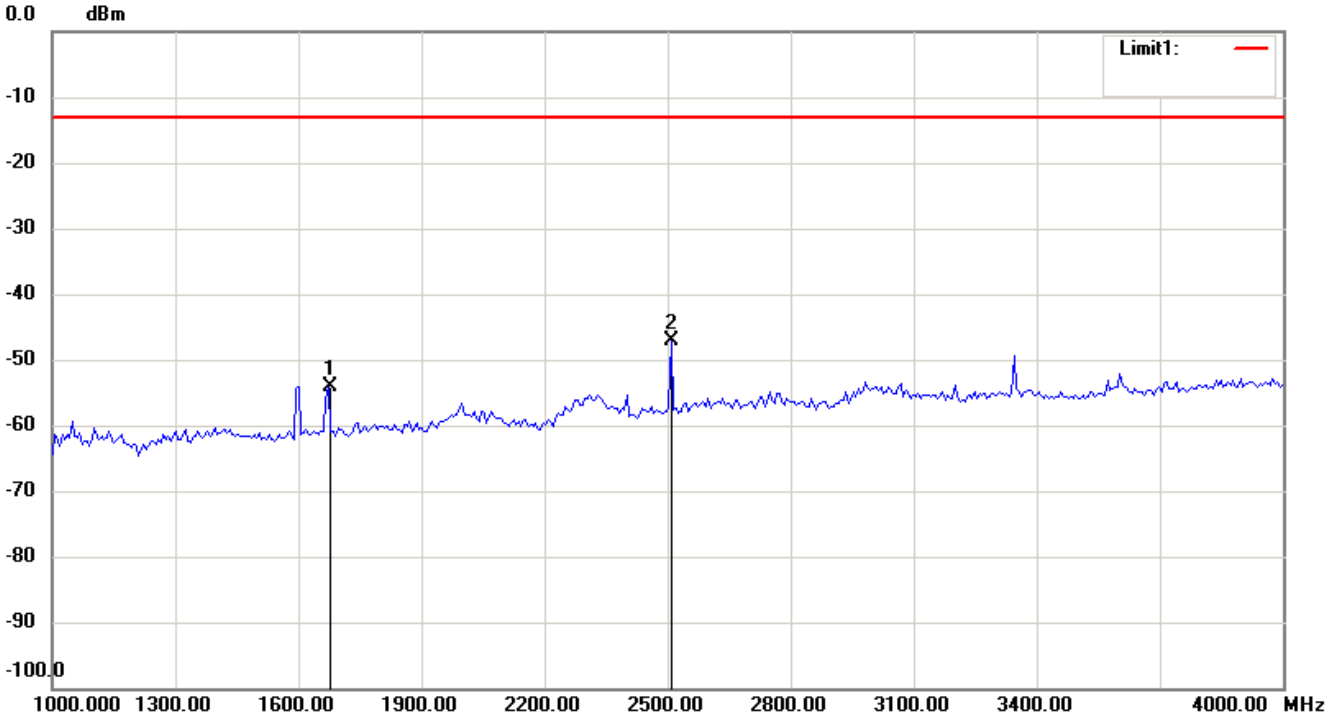
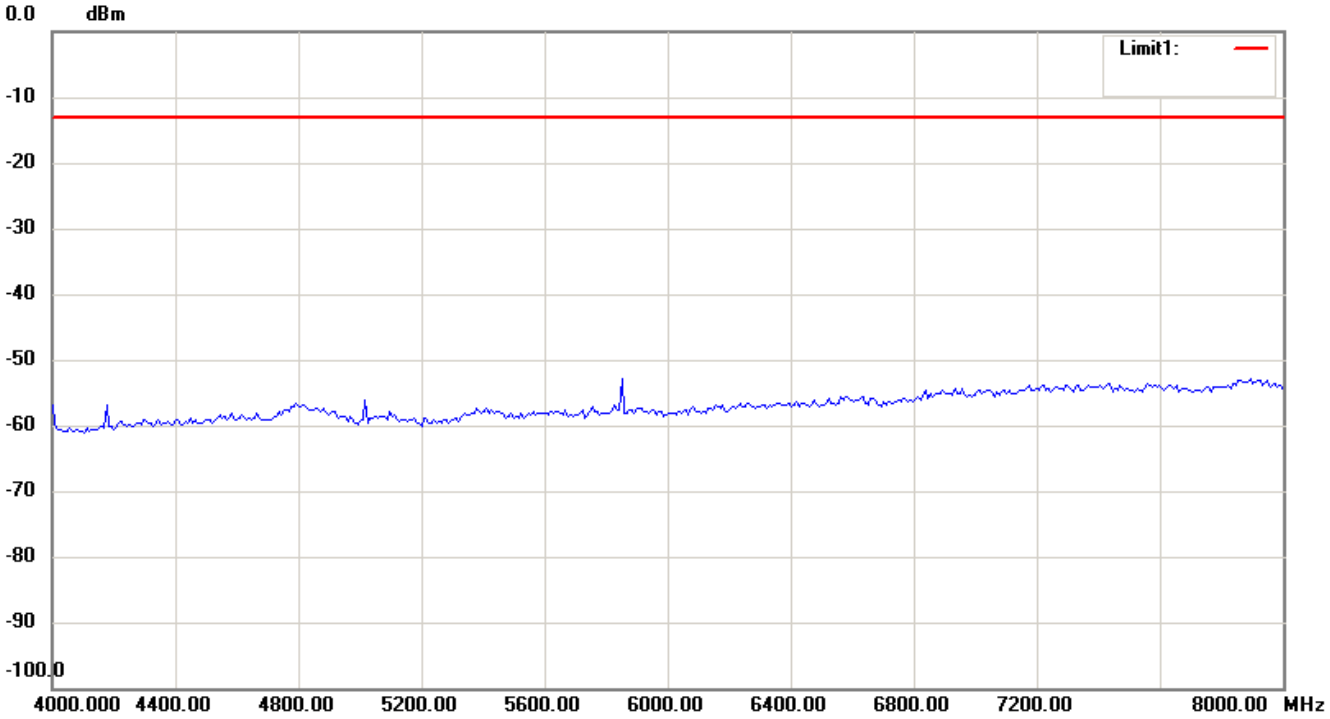
3. For corrected test results are listed in the relevant table of radiated test data of this test report.





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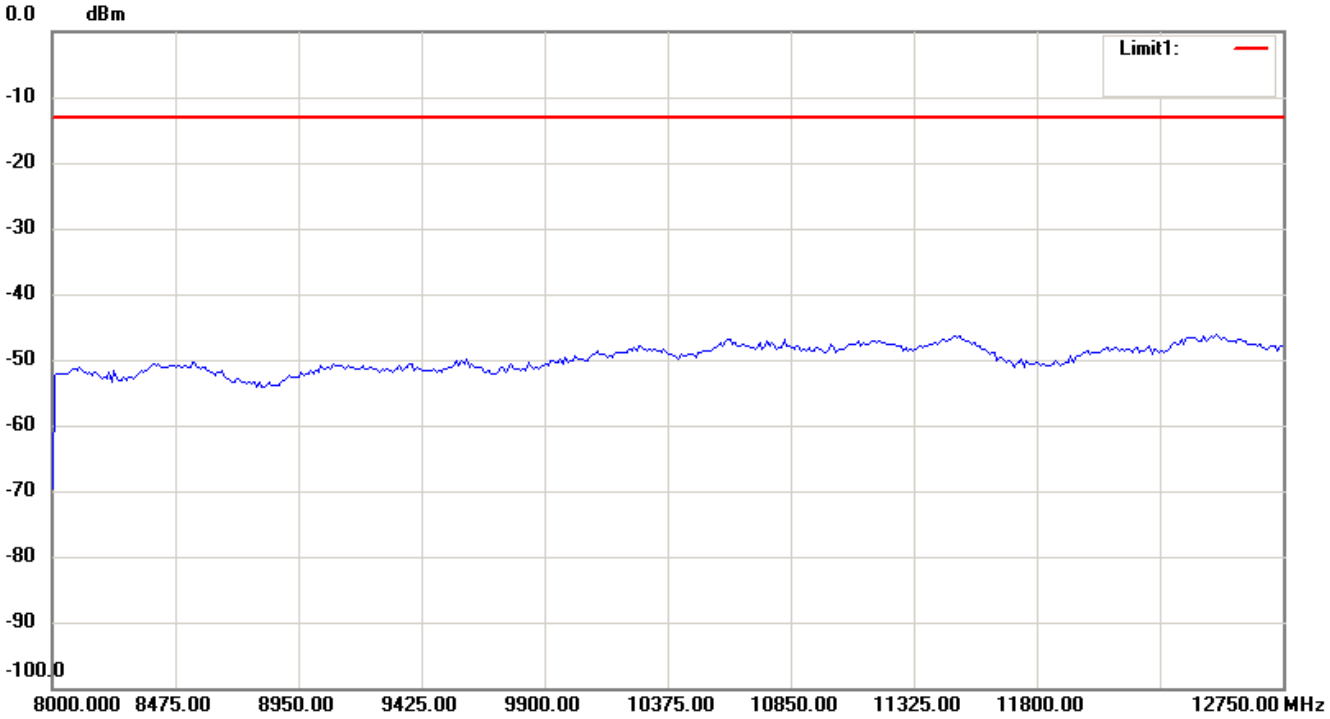
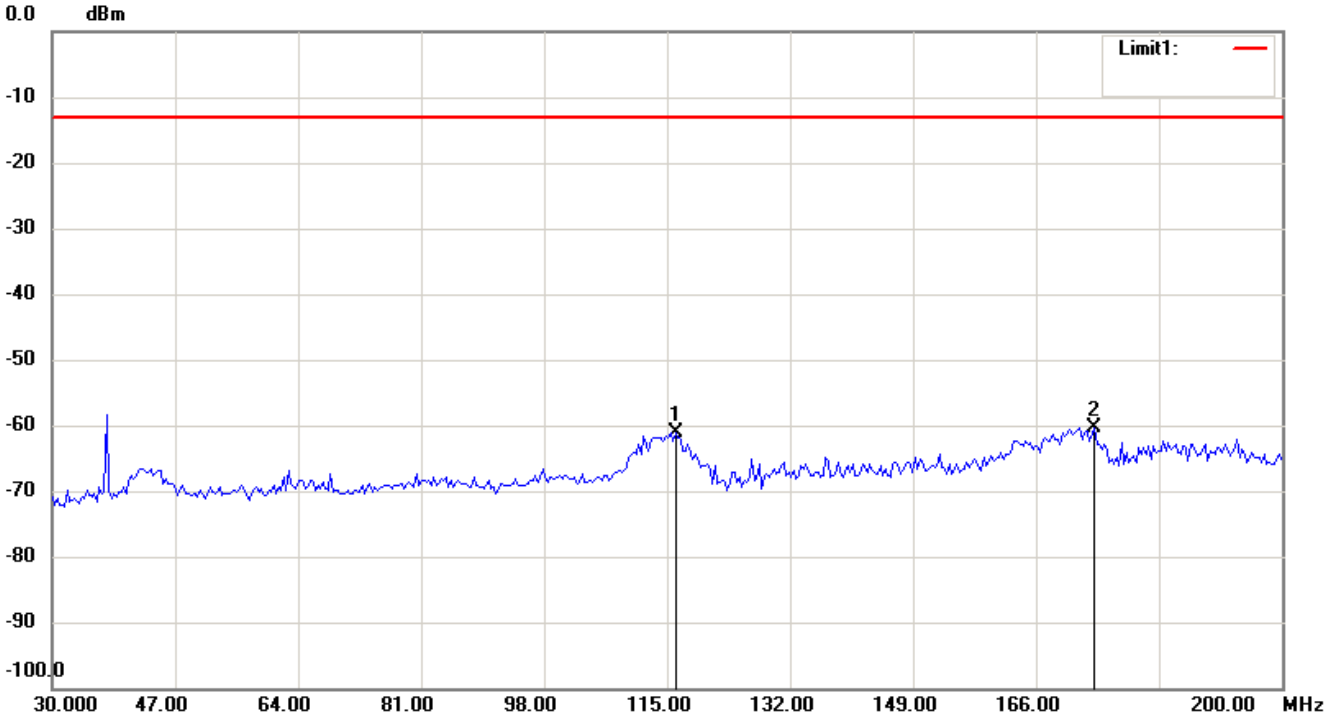


Antenna Polarization V



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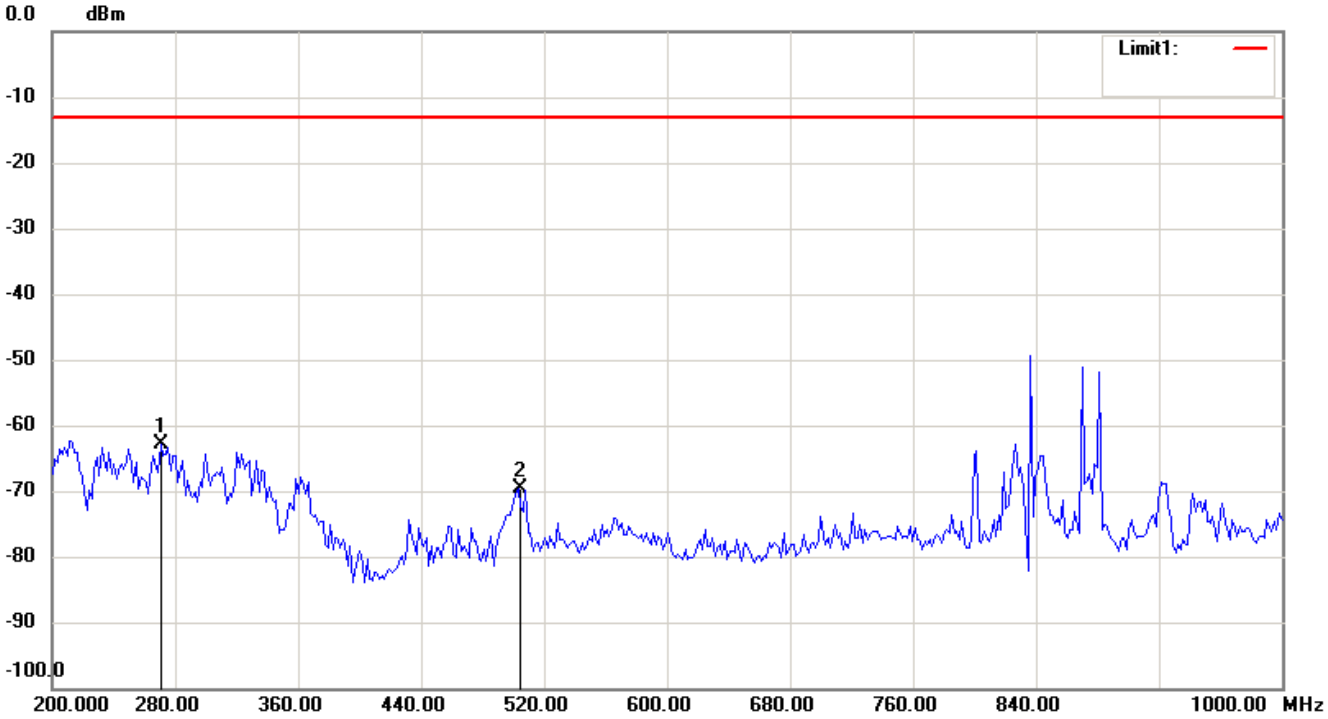

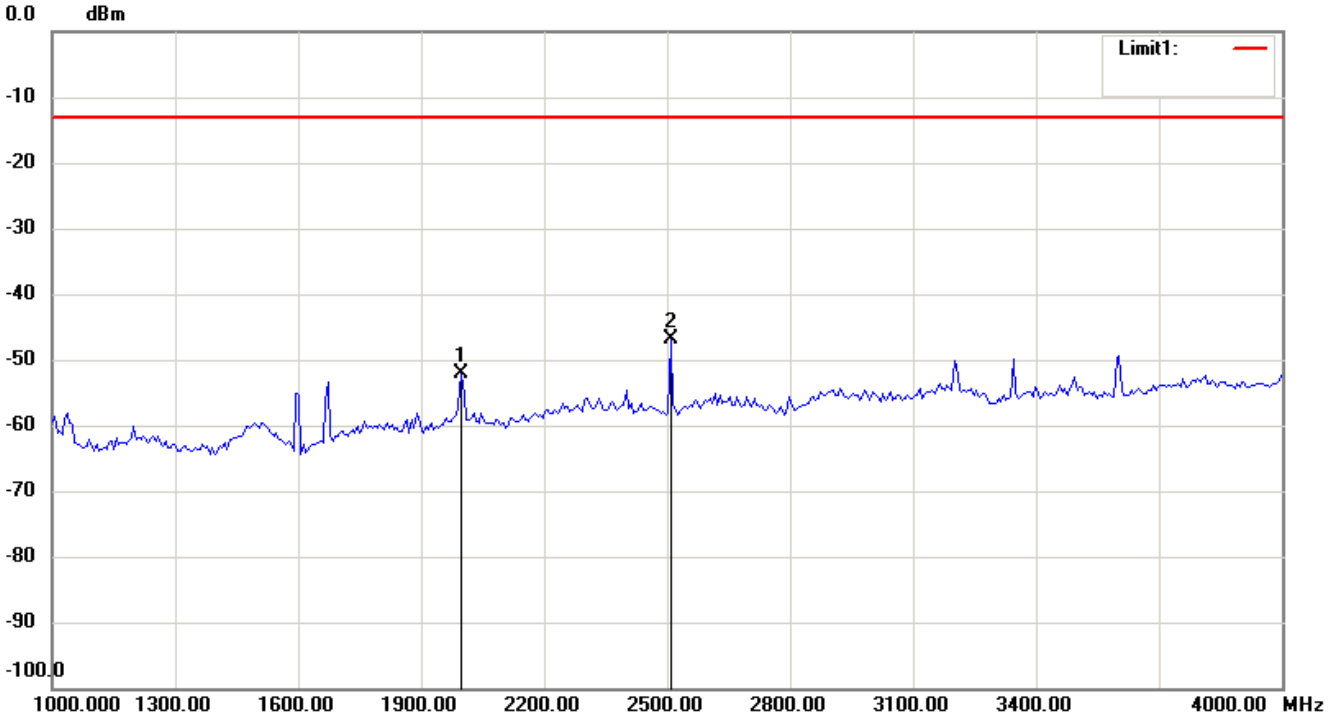

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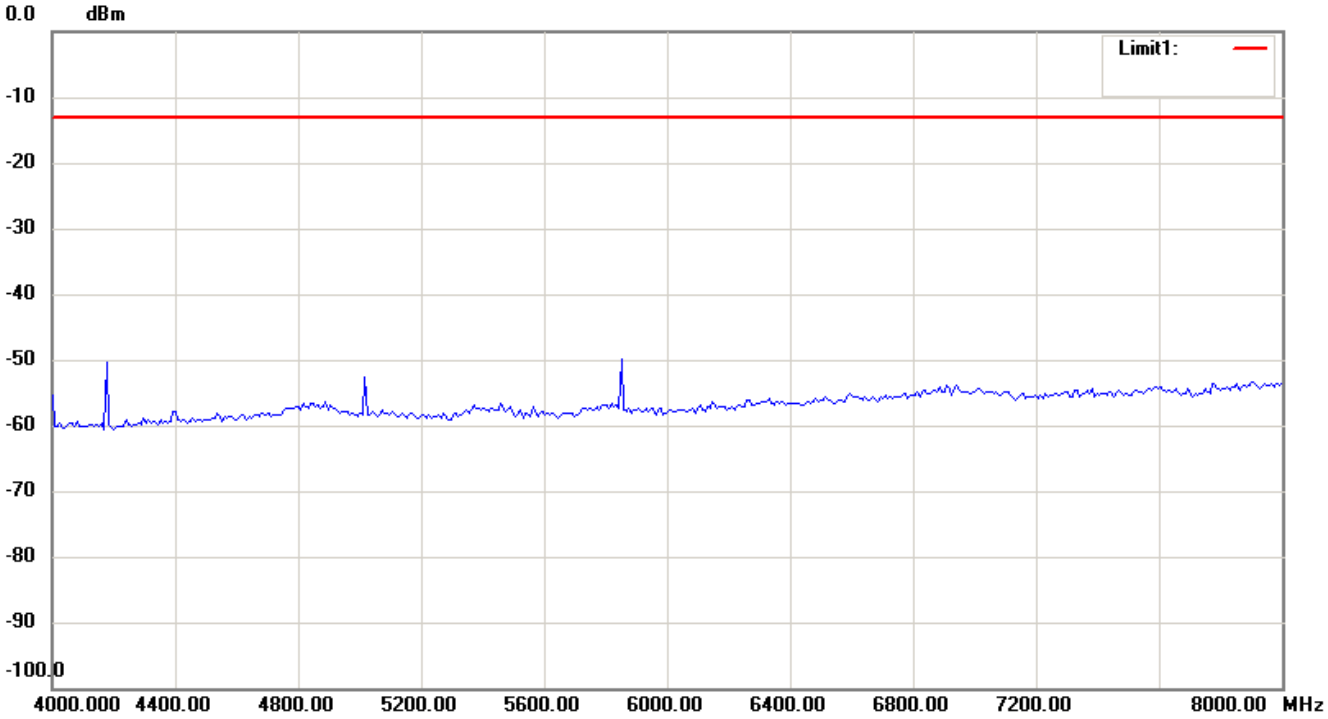

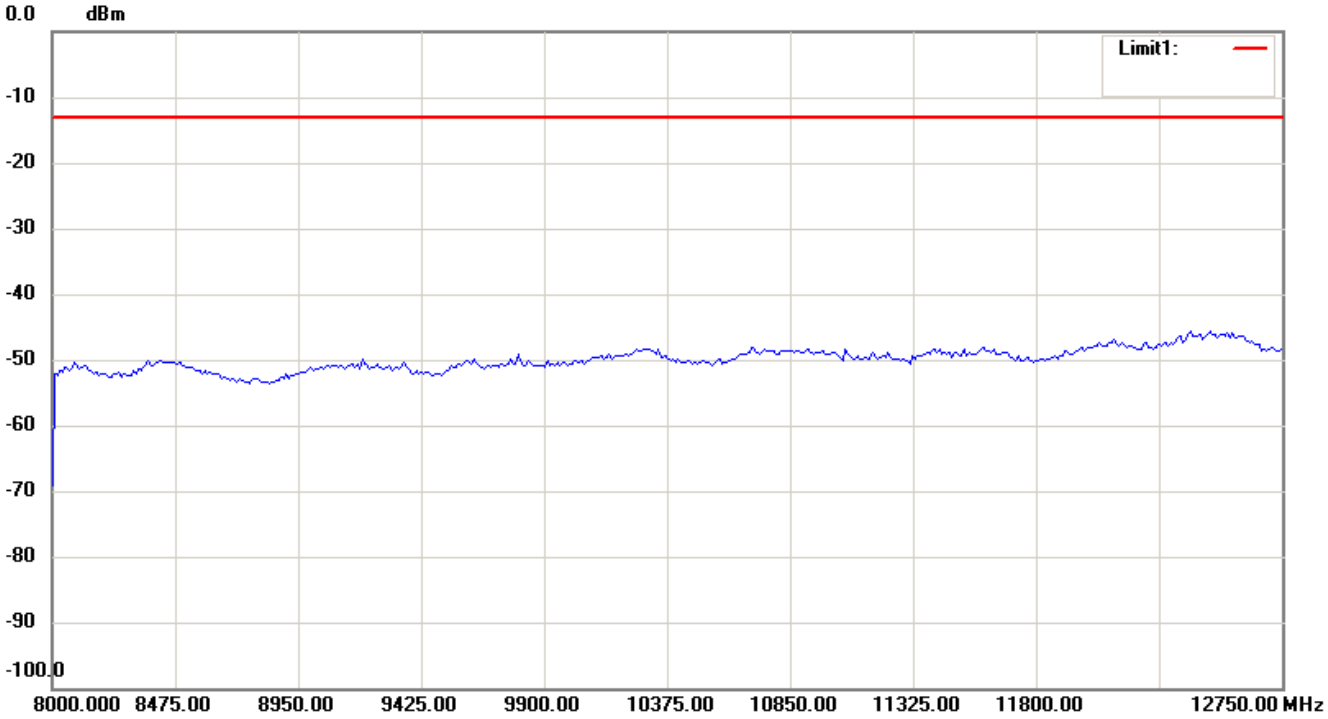

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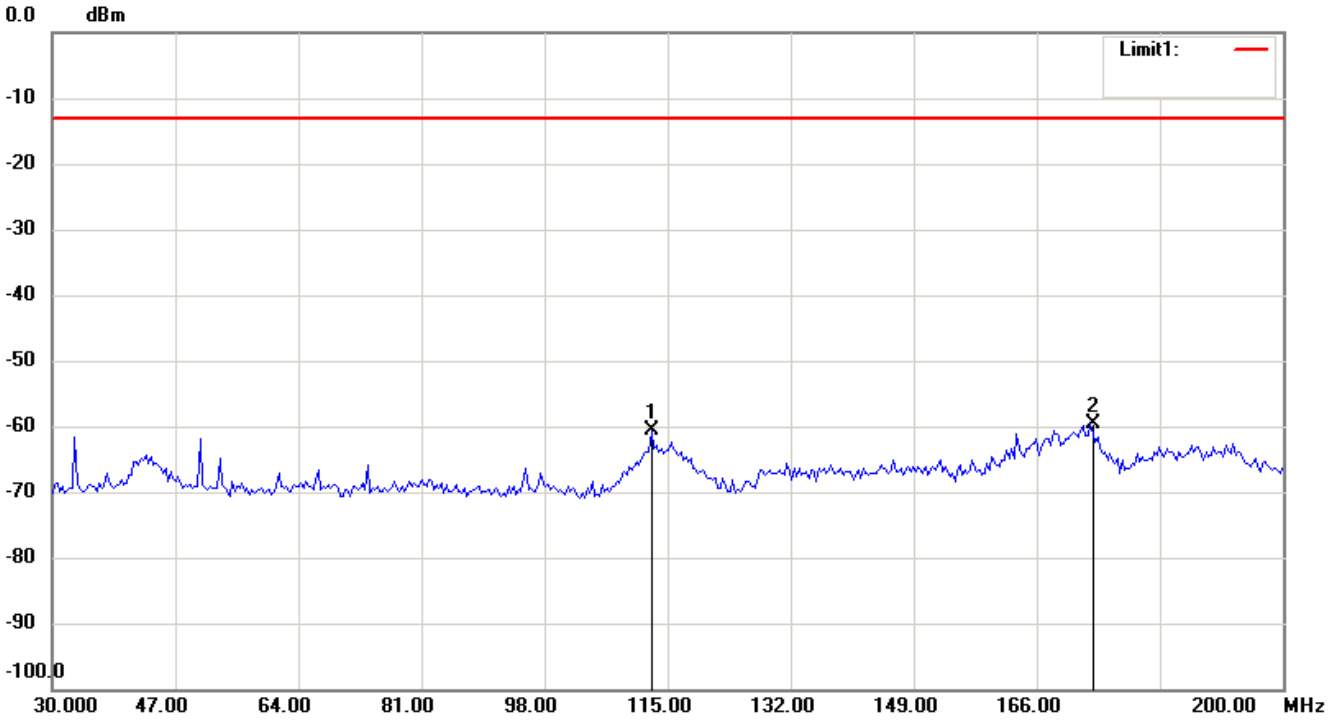
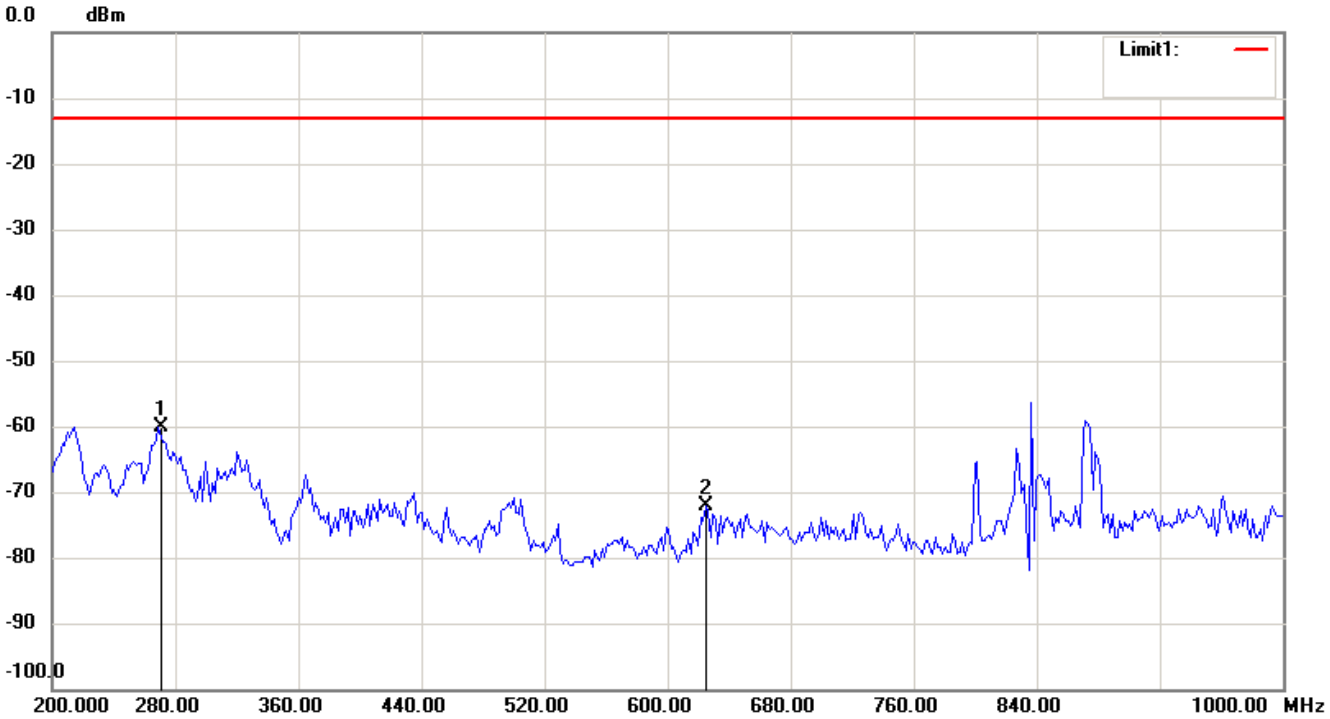
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
850 band_ CH 188_132 V
Antenna Polarization H





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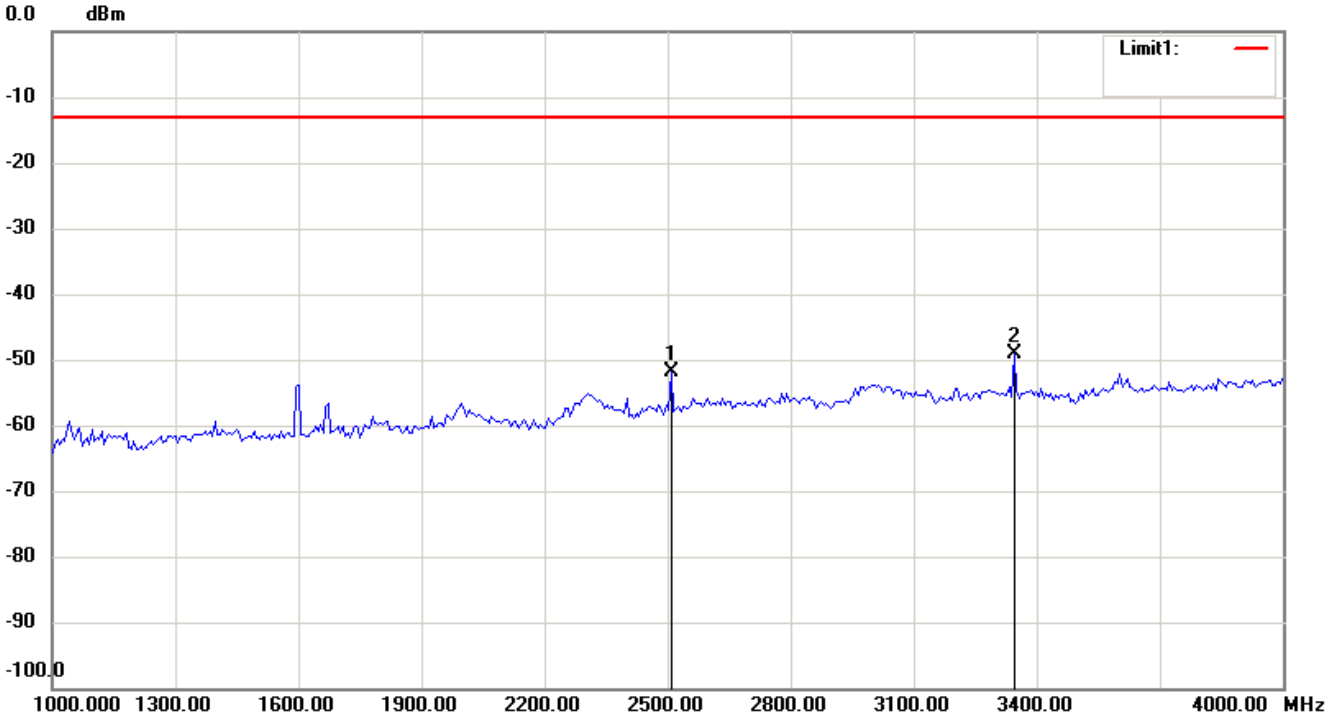

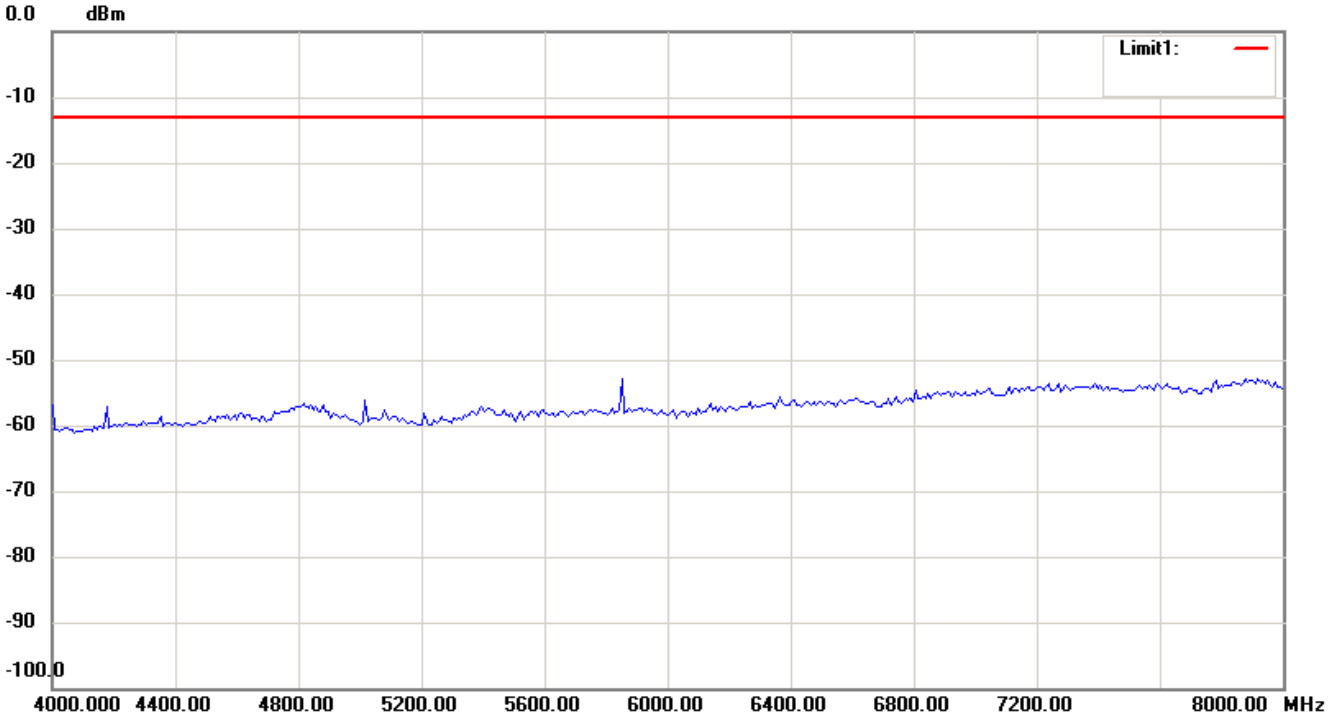

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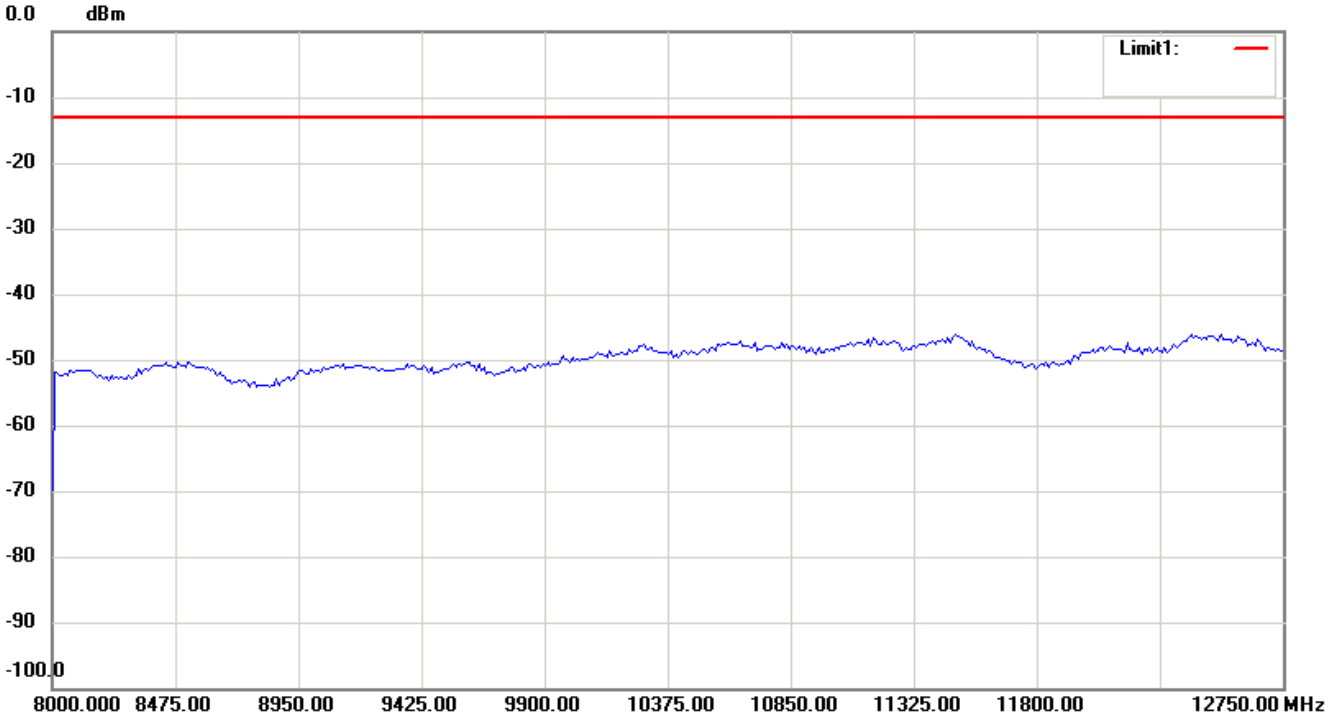
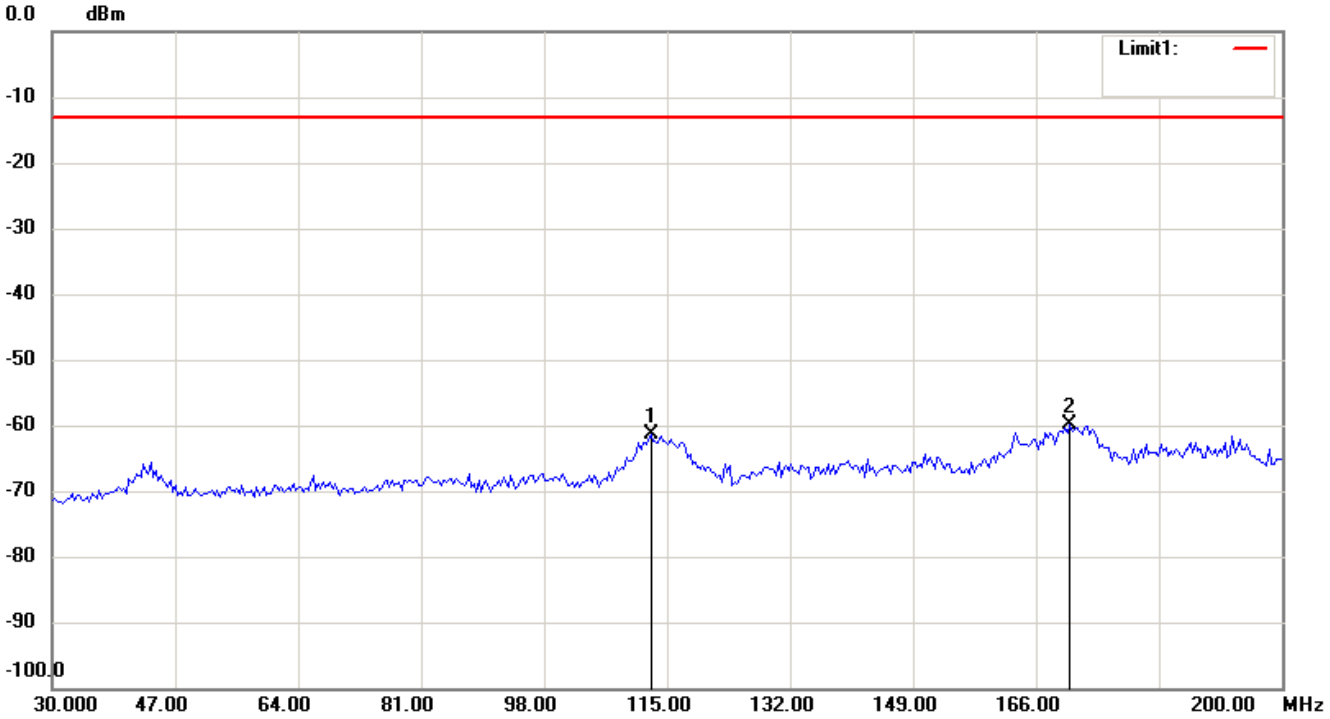


Antenna Polarization V



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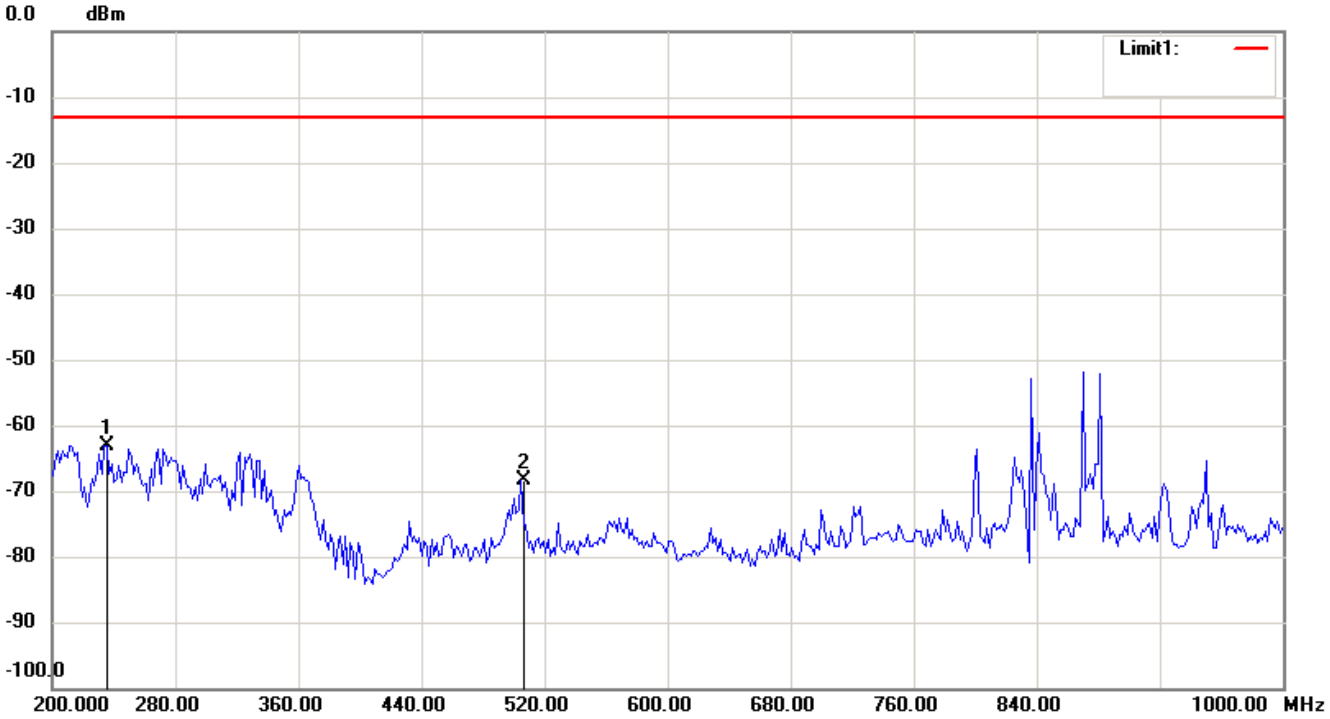

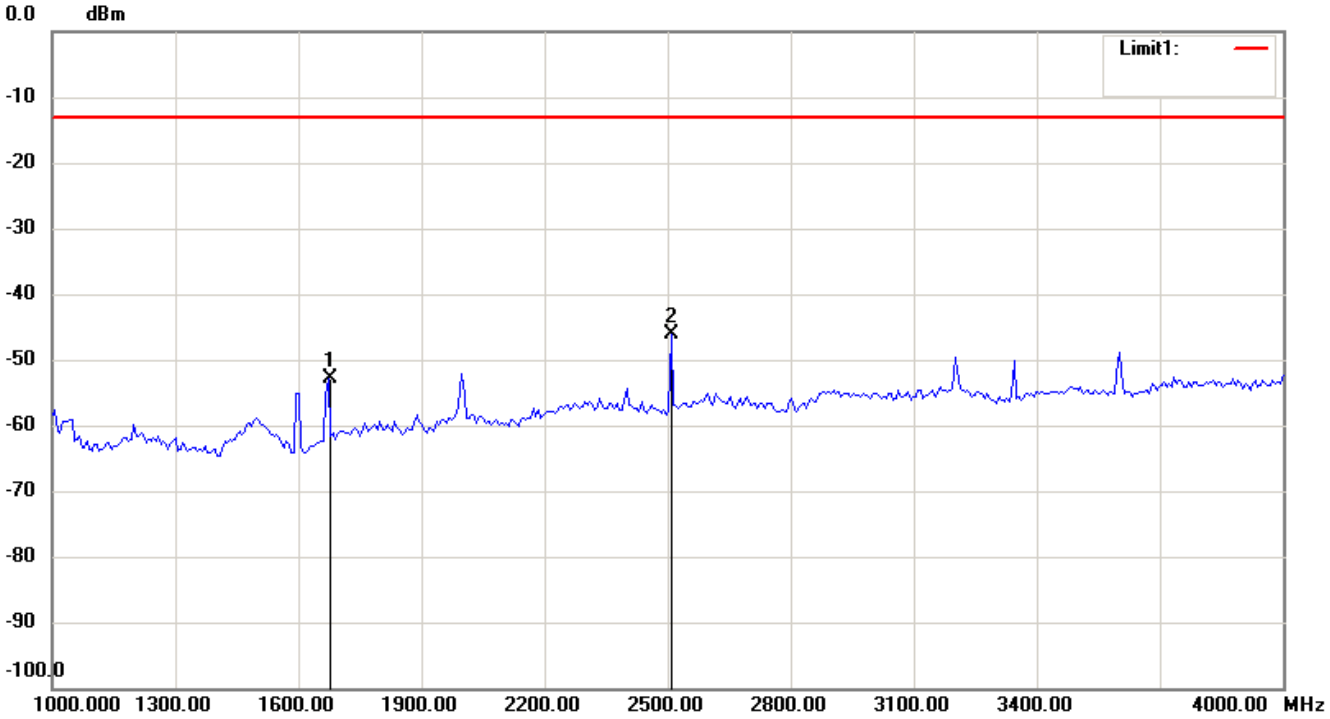

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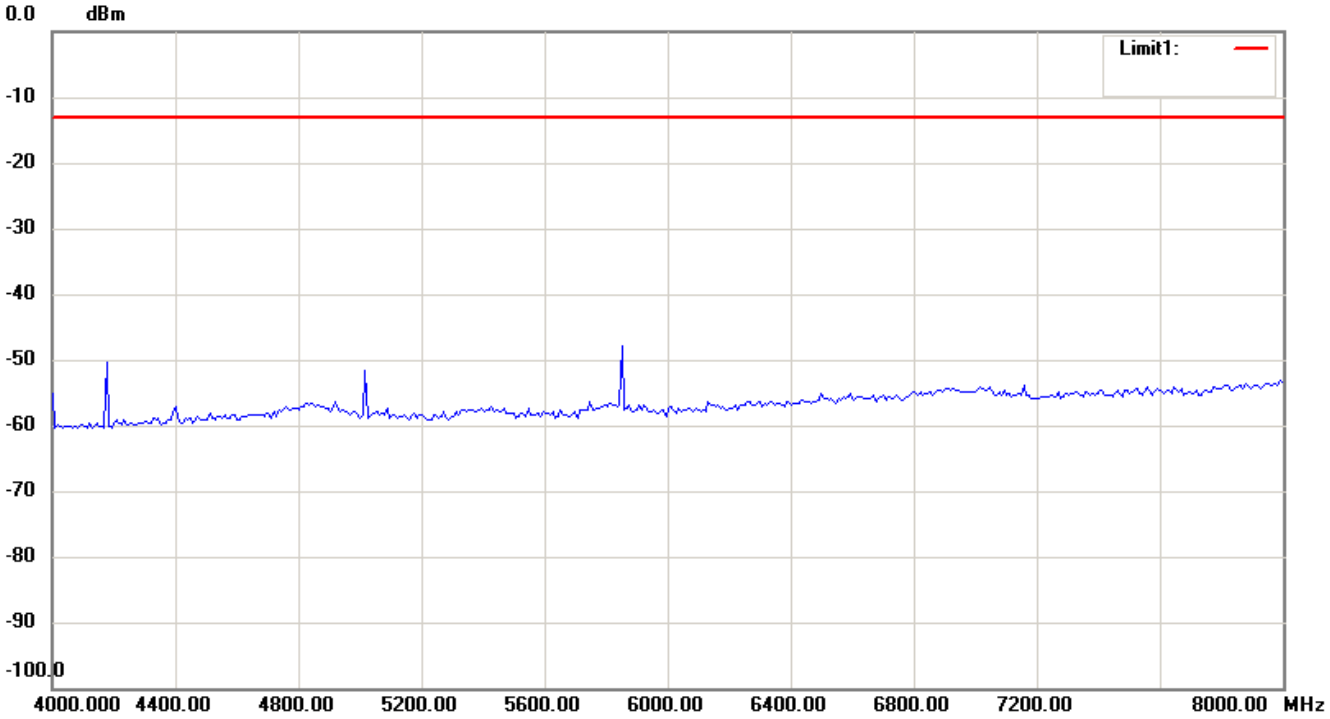

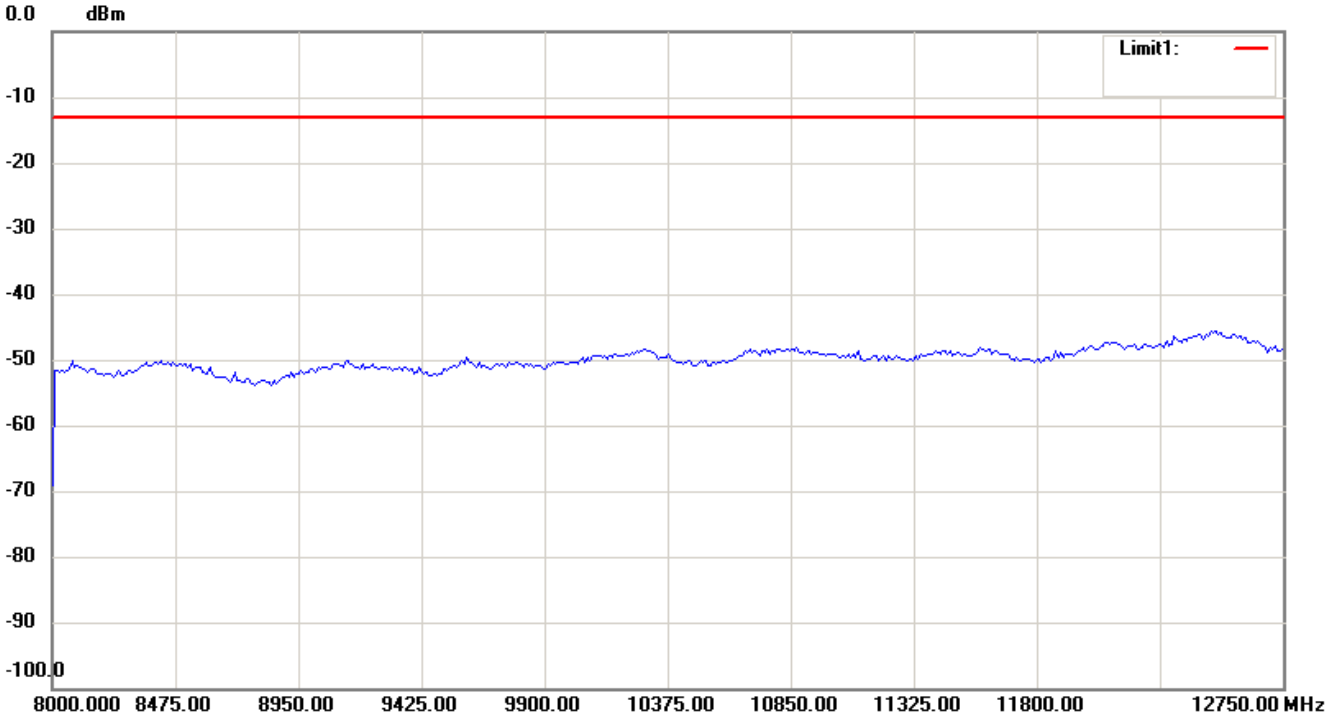

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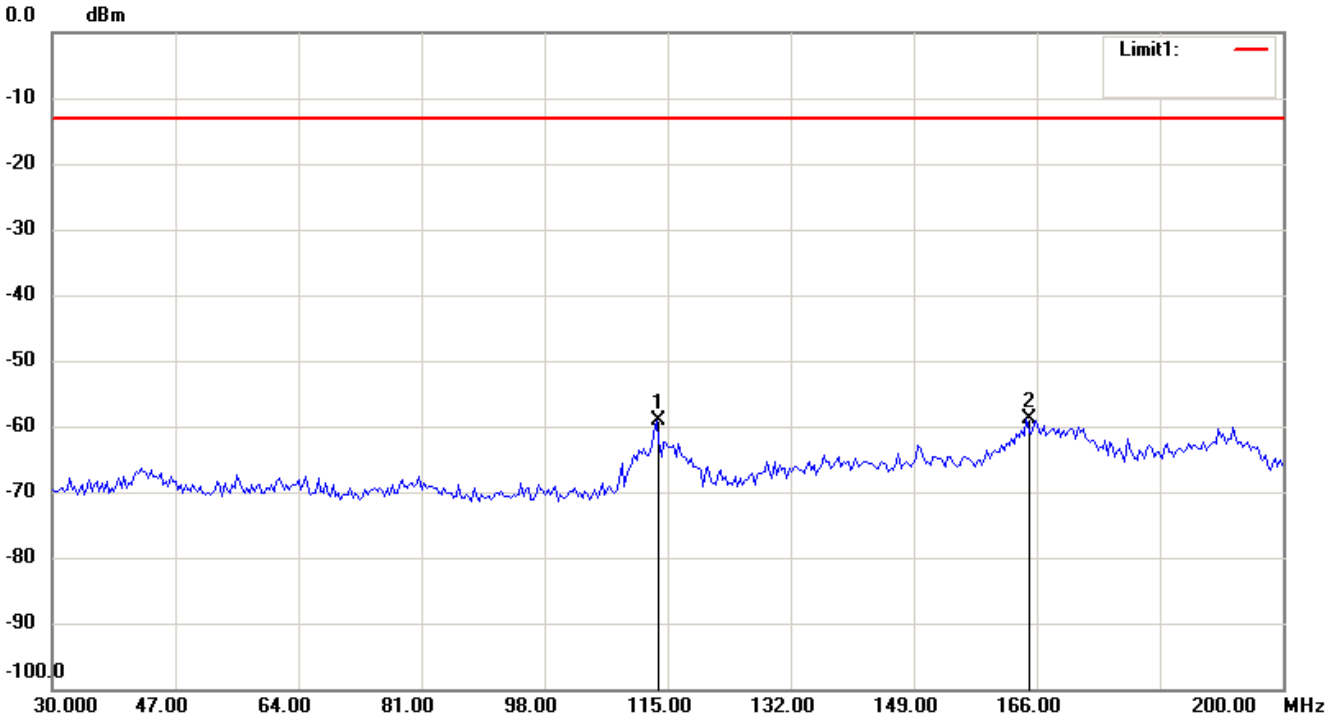
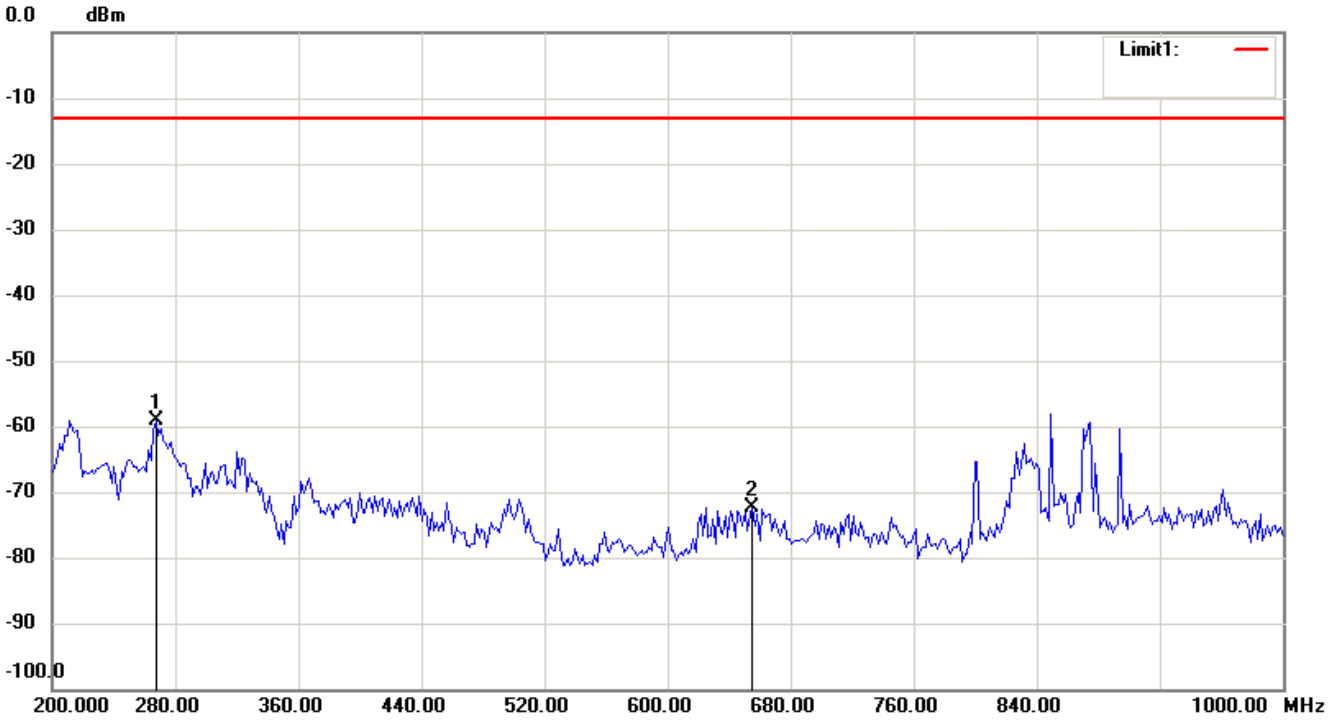
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 band_ CH 251_108V

Antenna Polarization H





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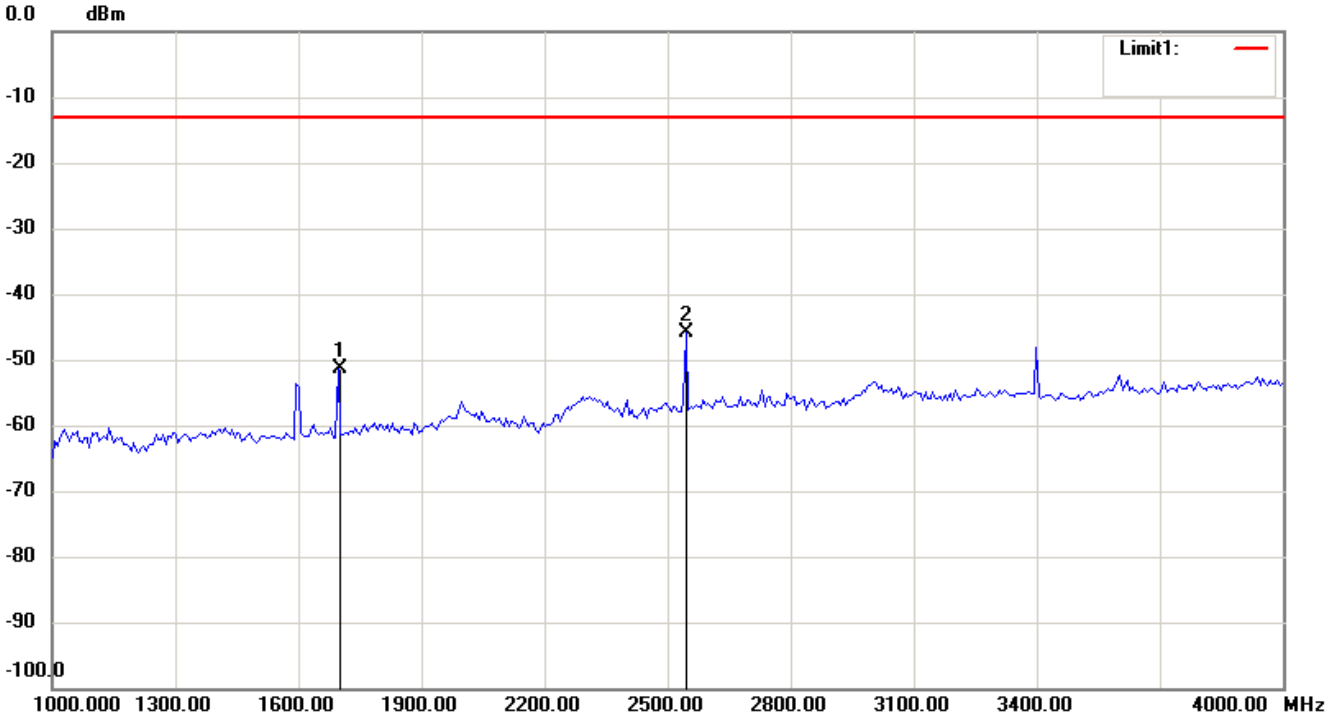

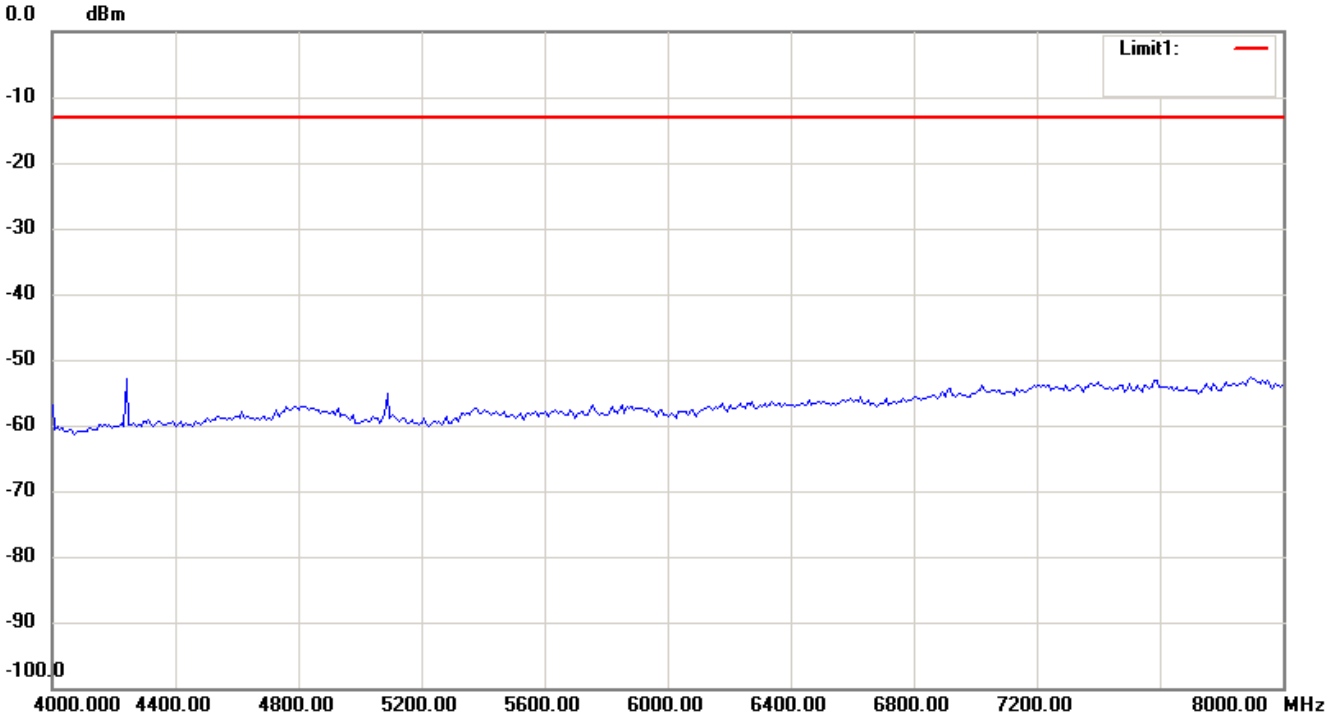

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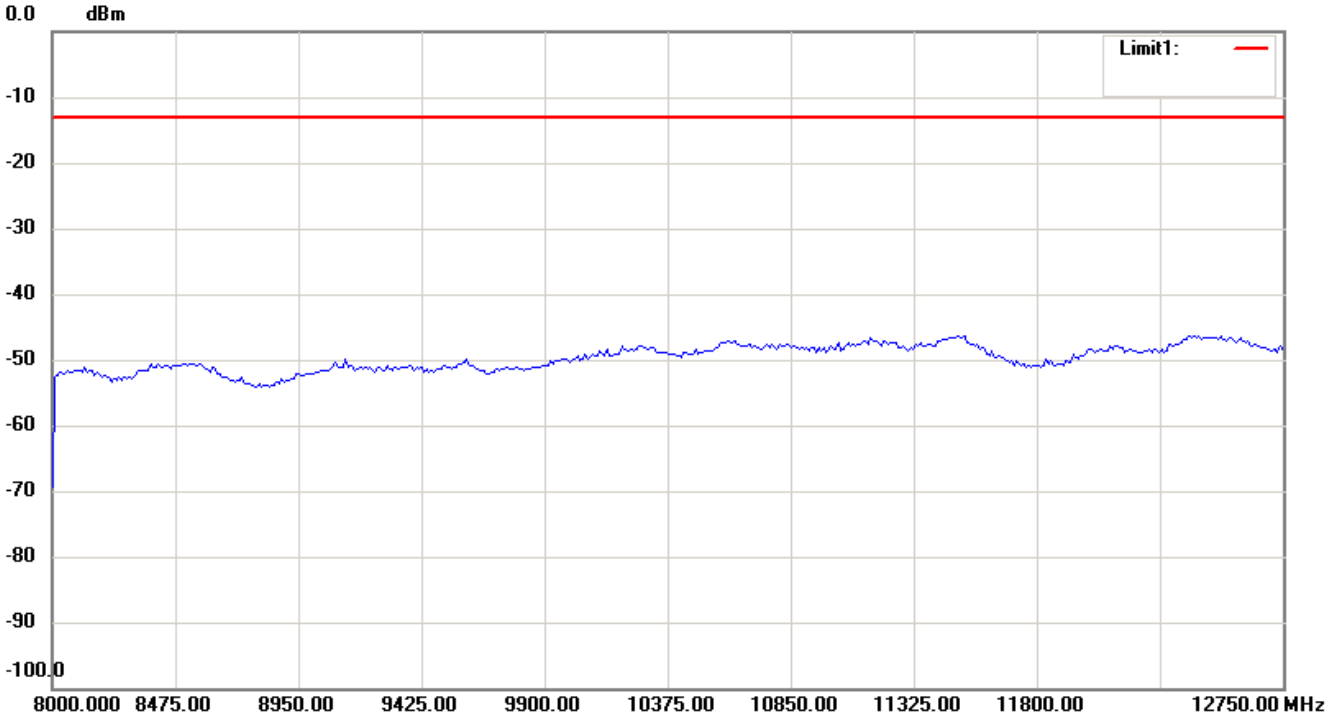
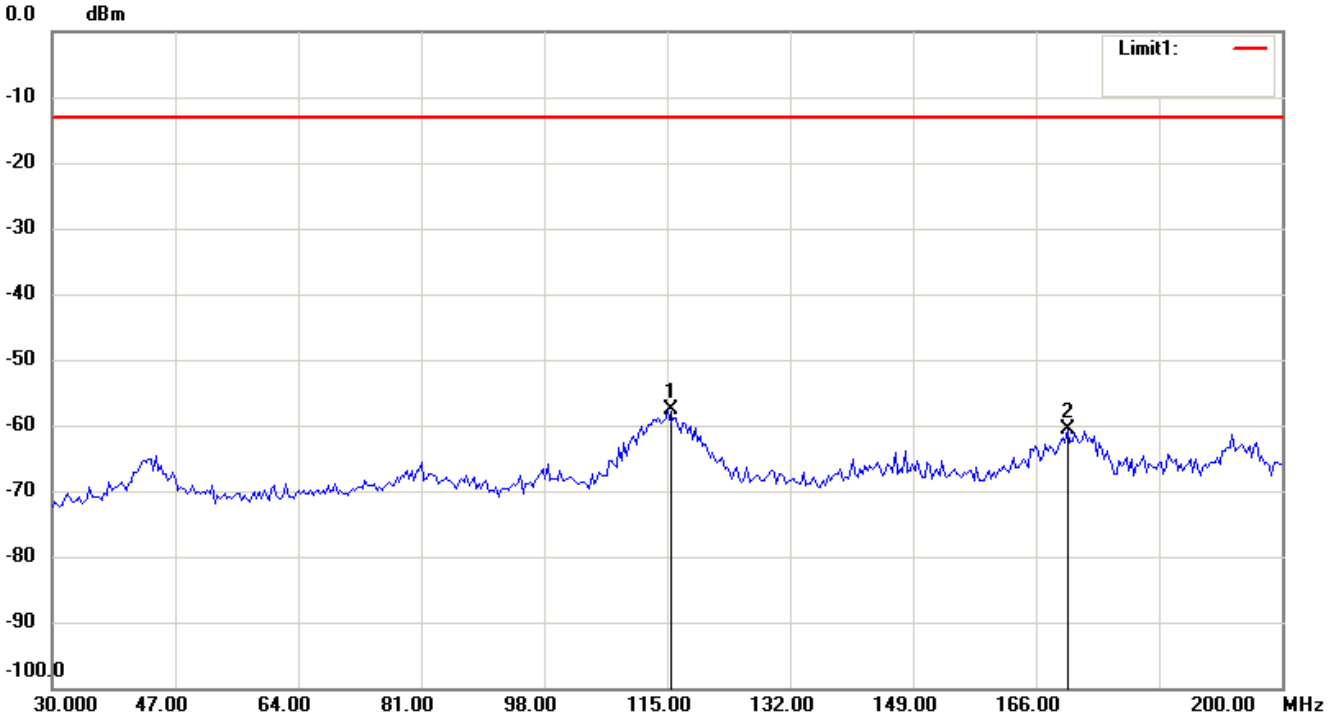


Antenna Polarization V



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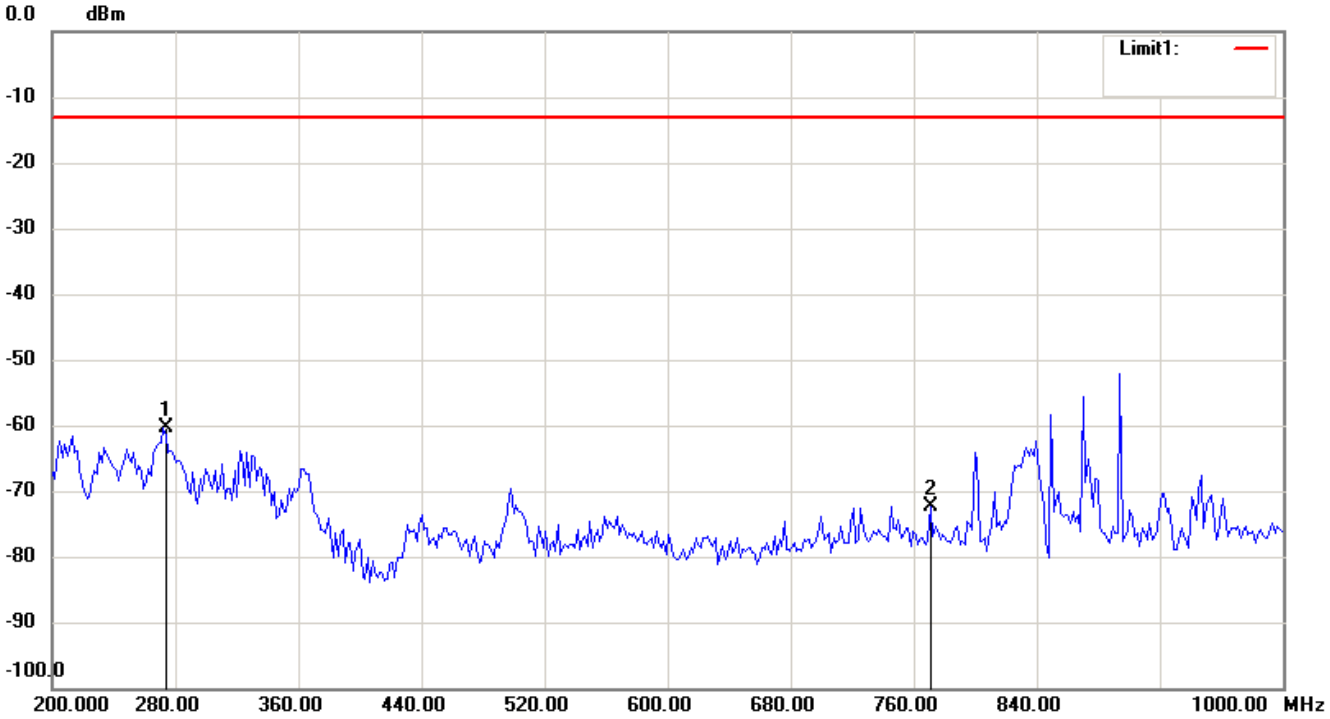

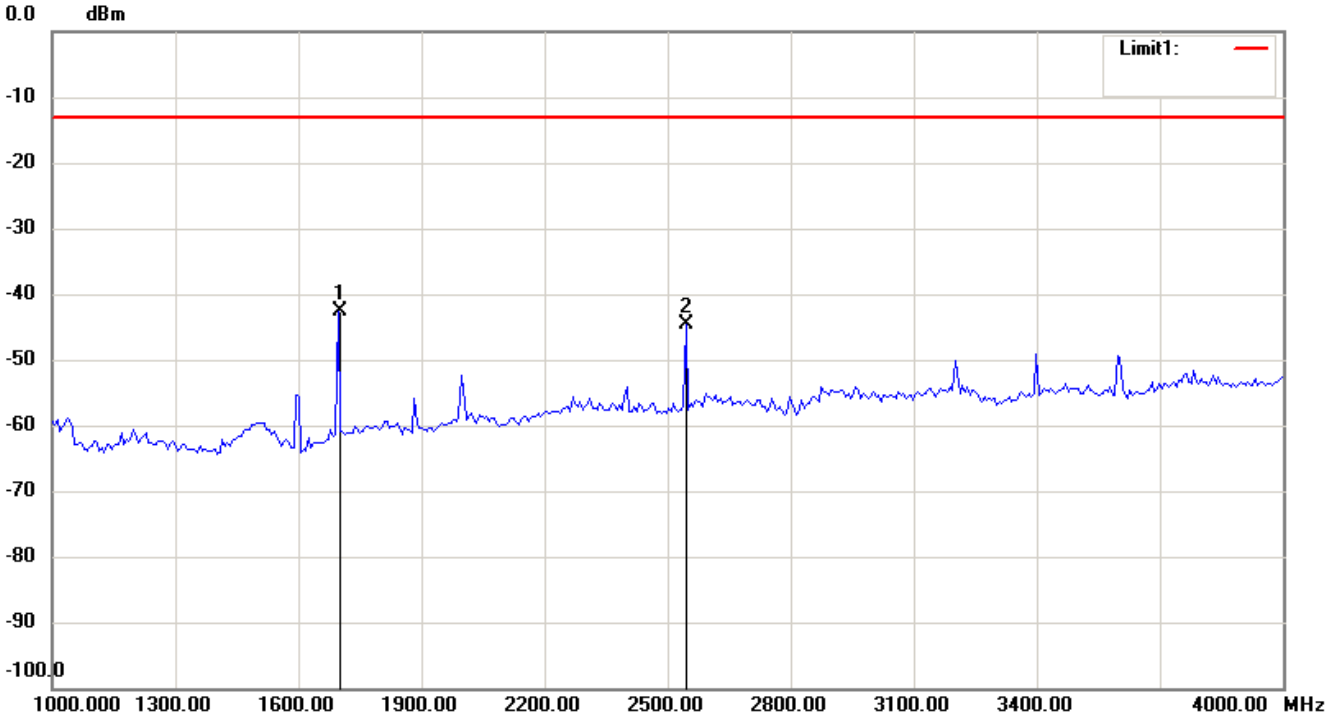

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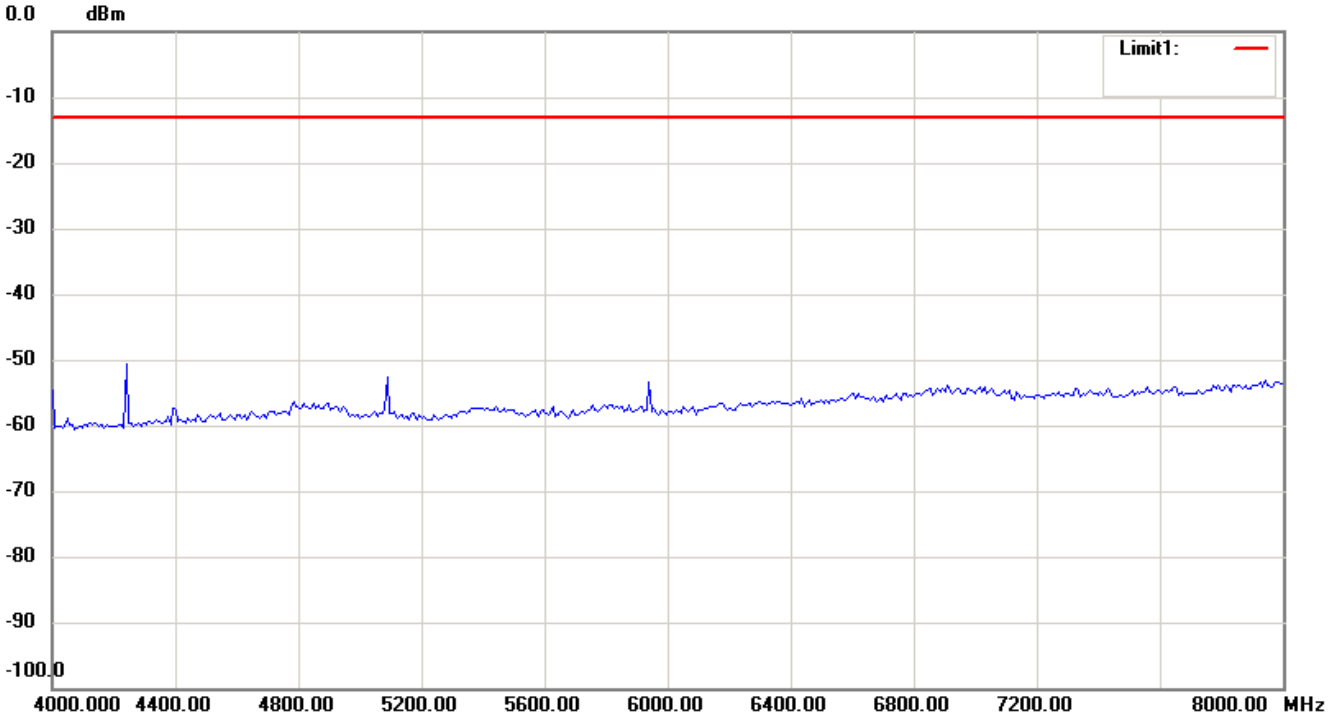

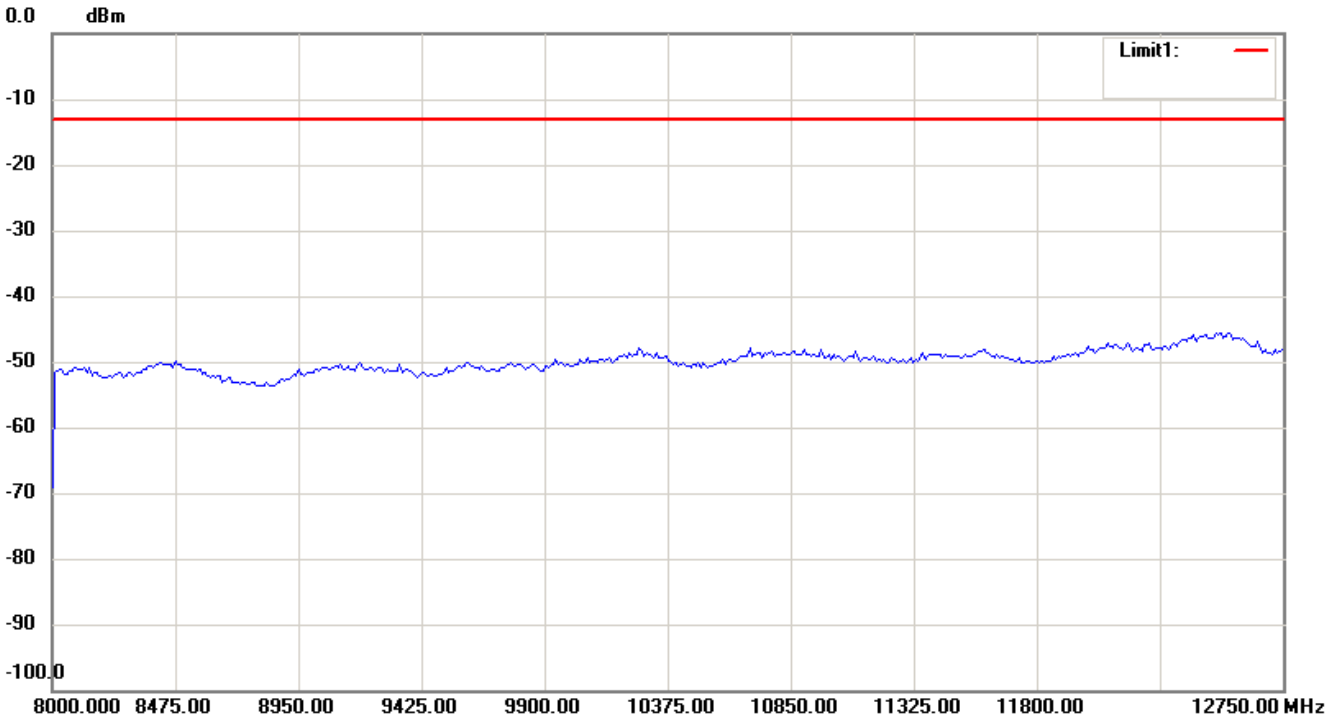

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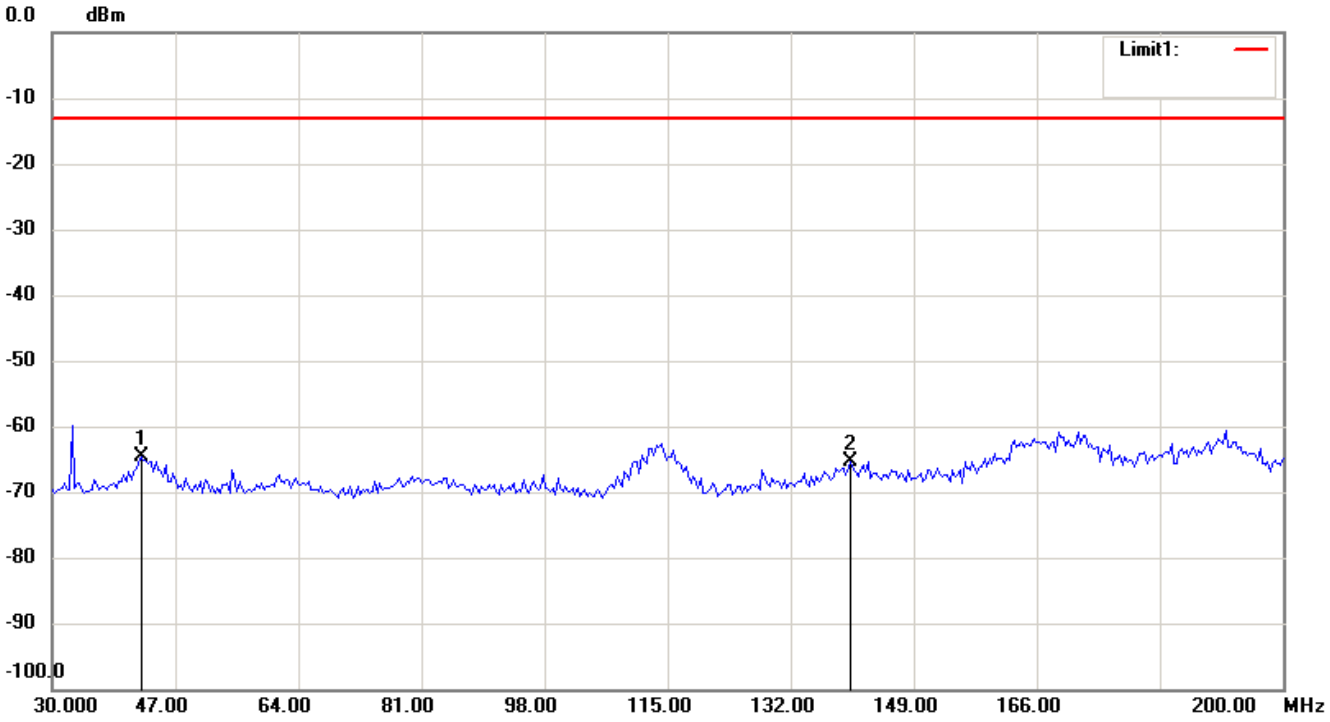
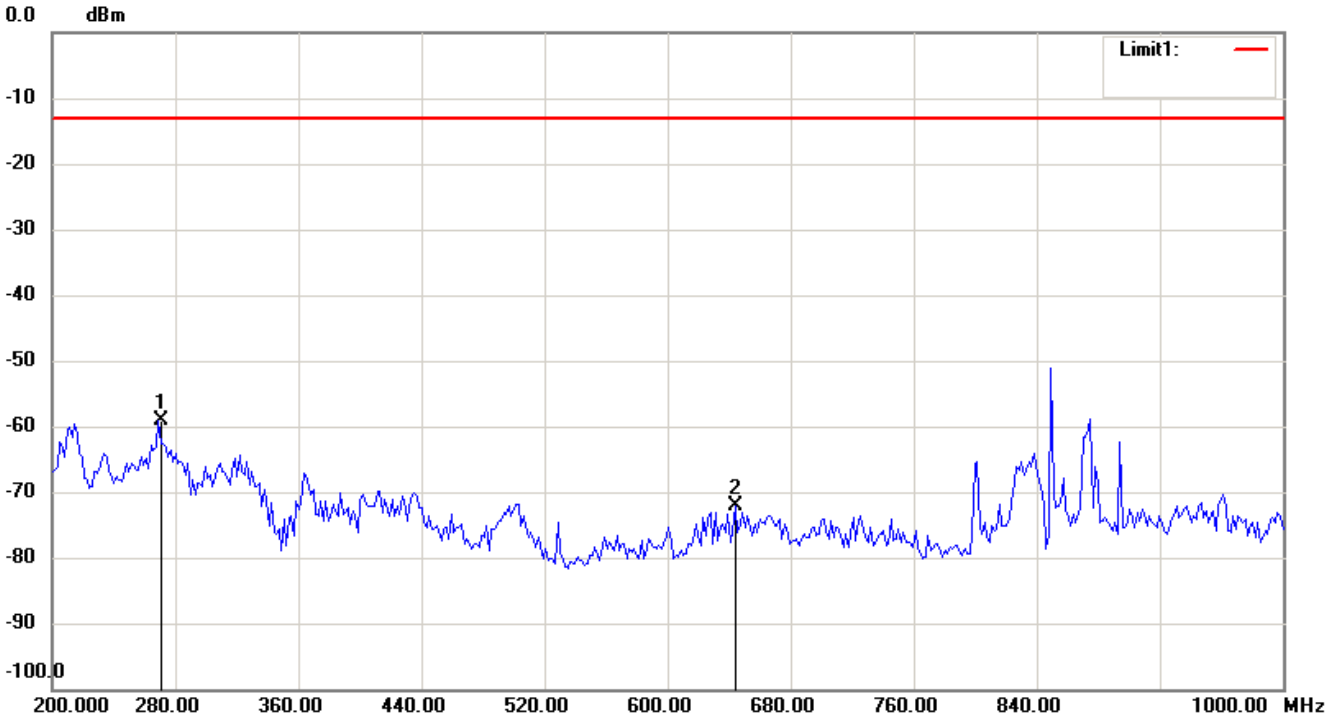
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 band_ CH 251_132 V

Antenna Polarization H





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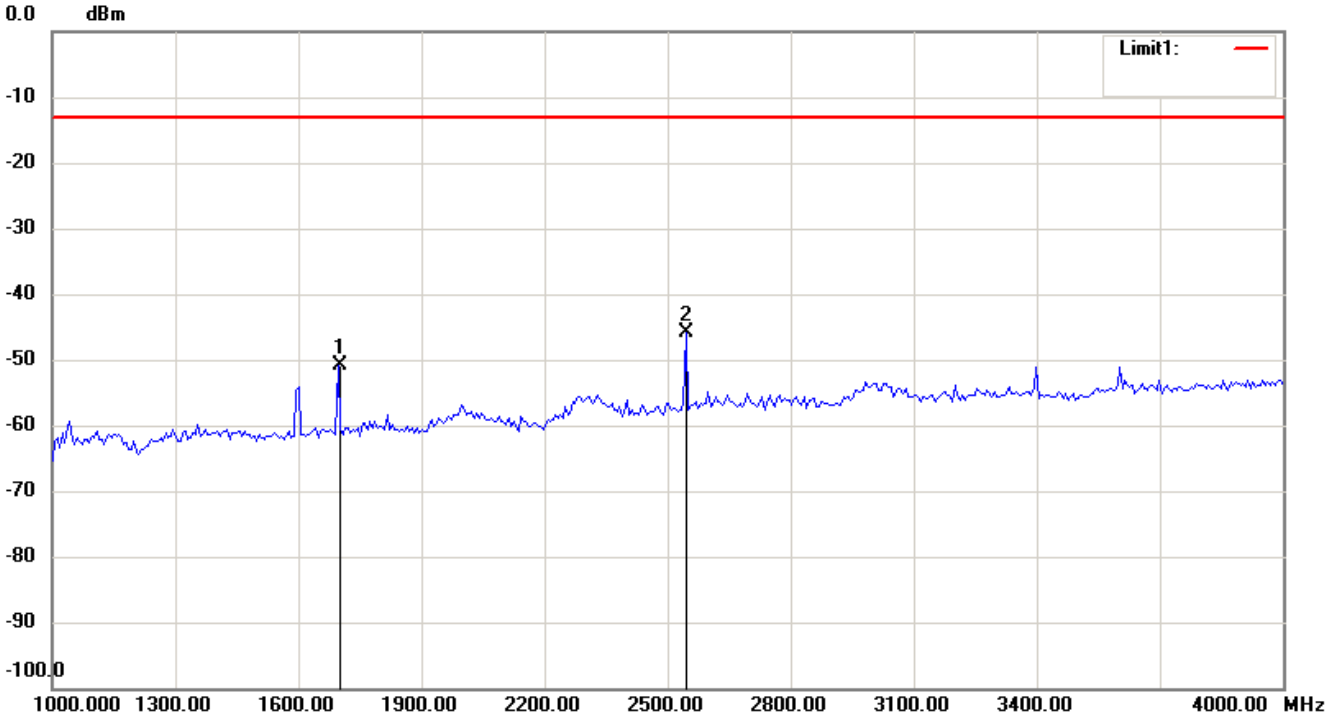

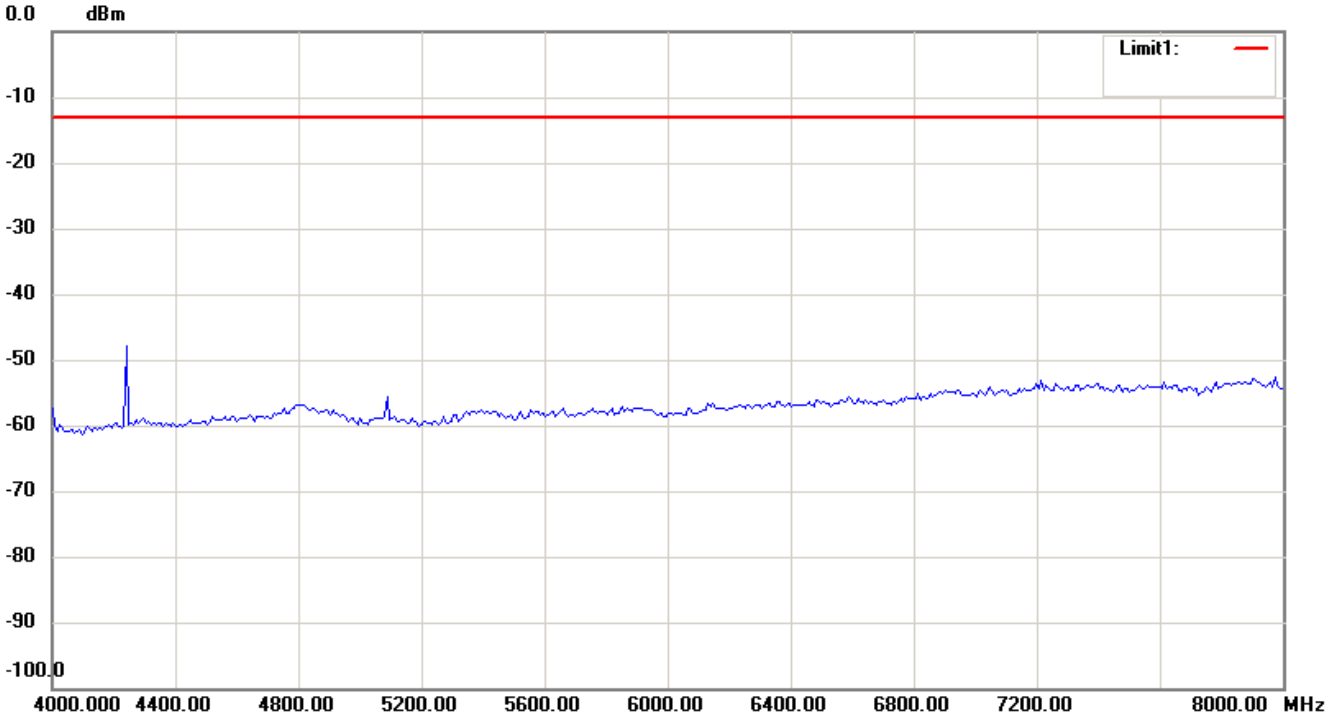

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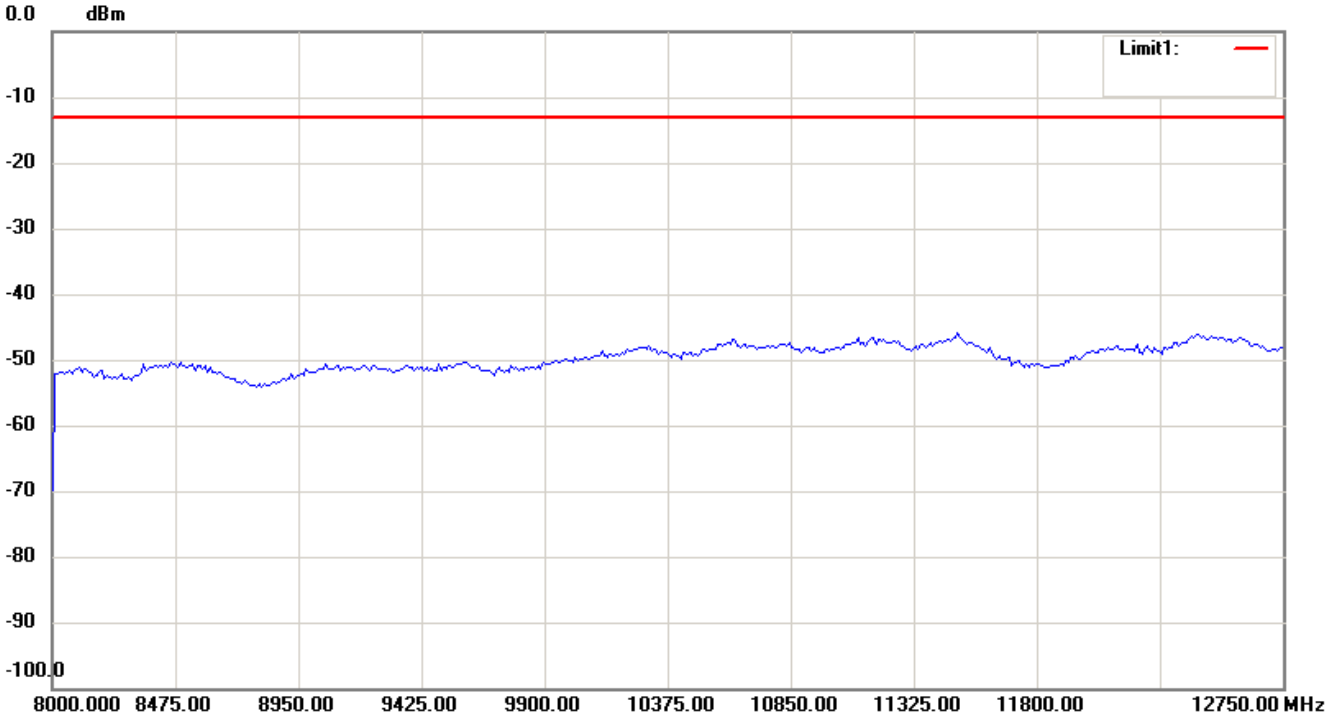
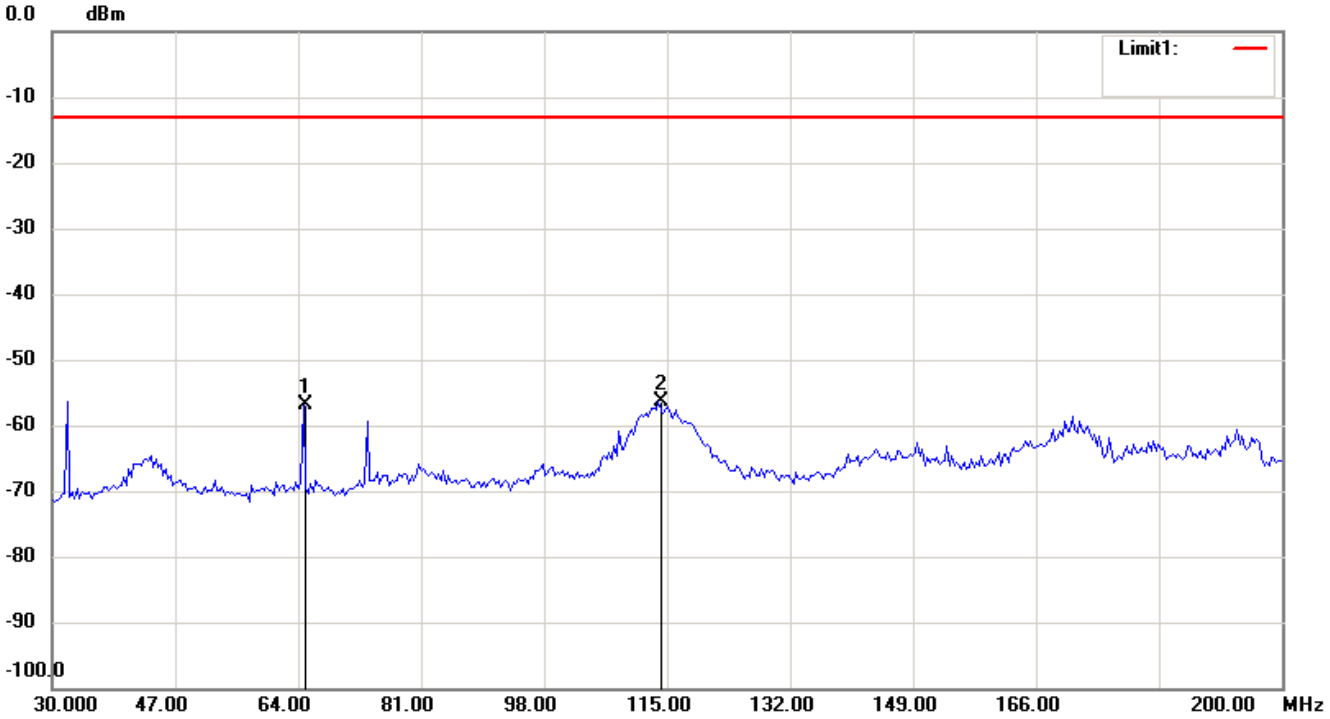


Antenna Polarization V



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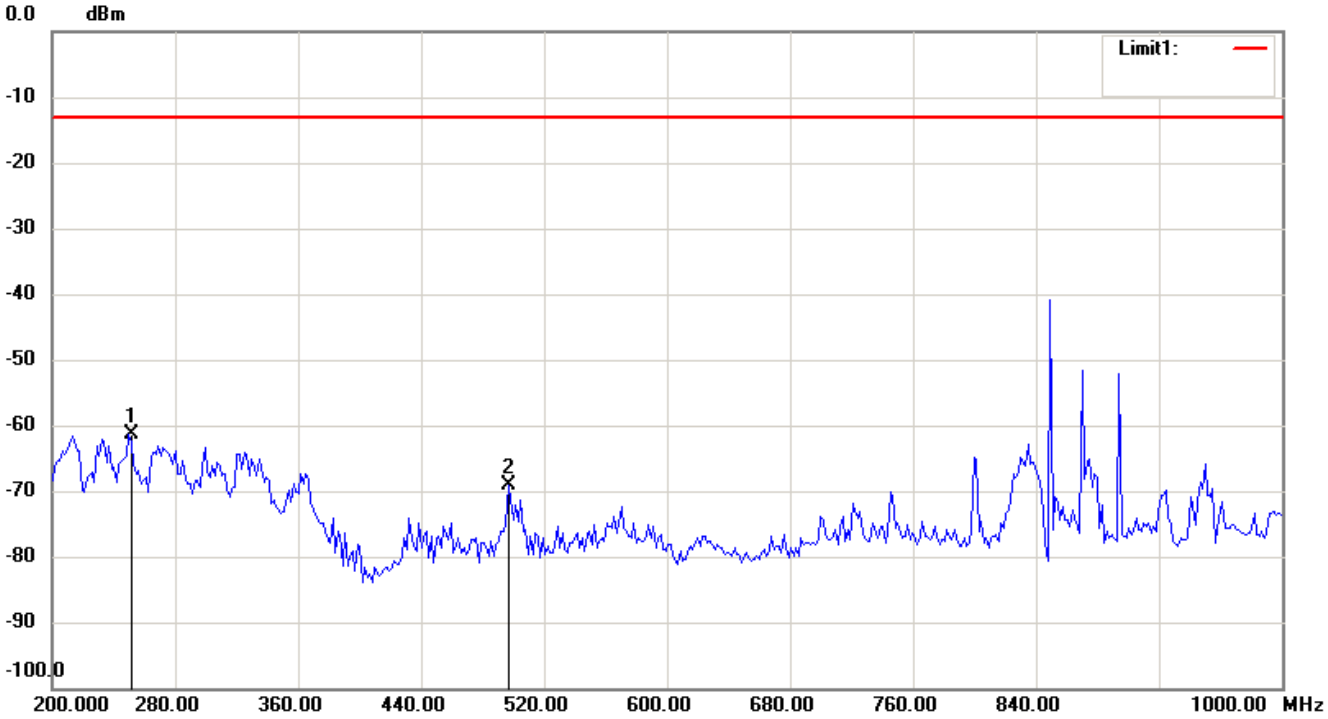

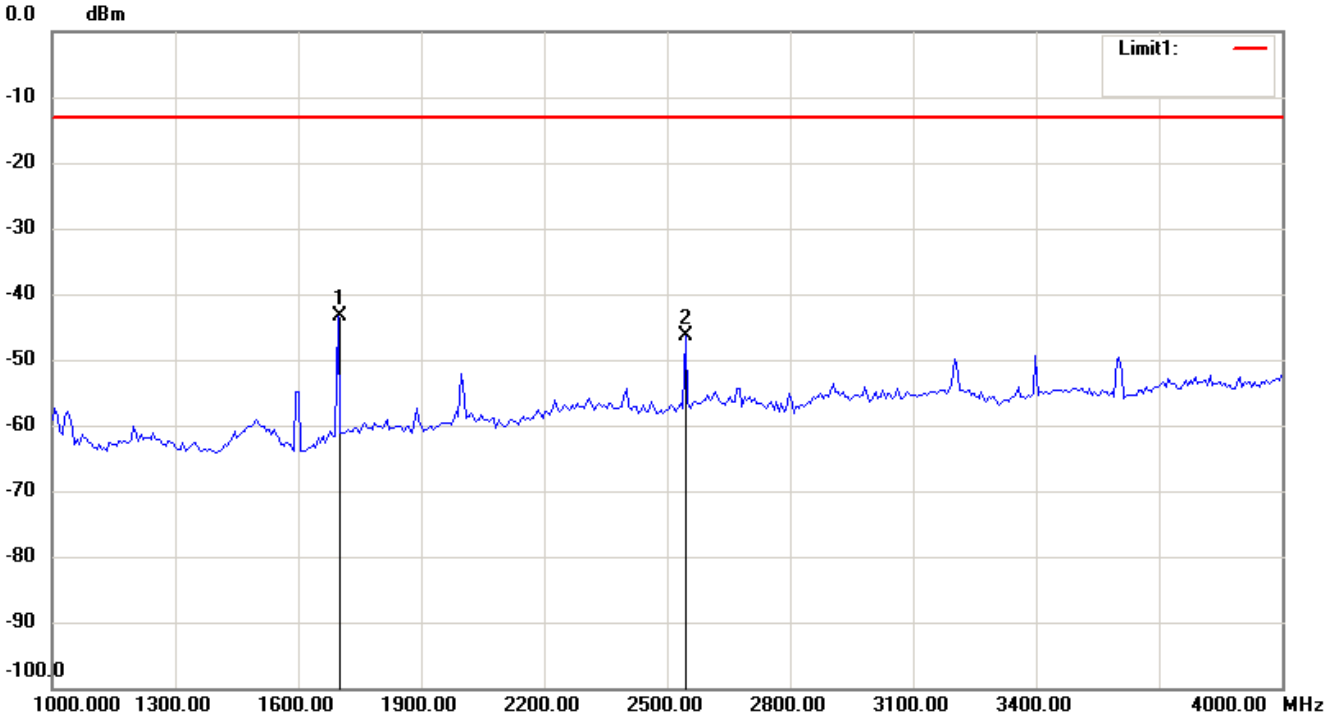

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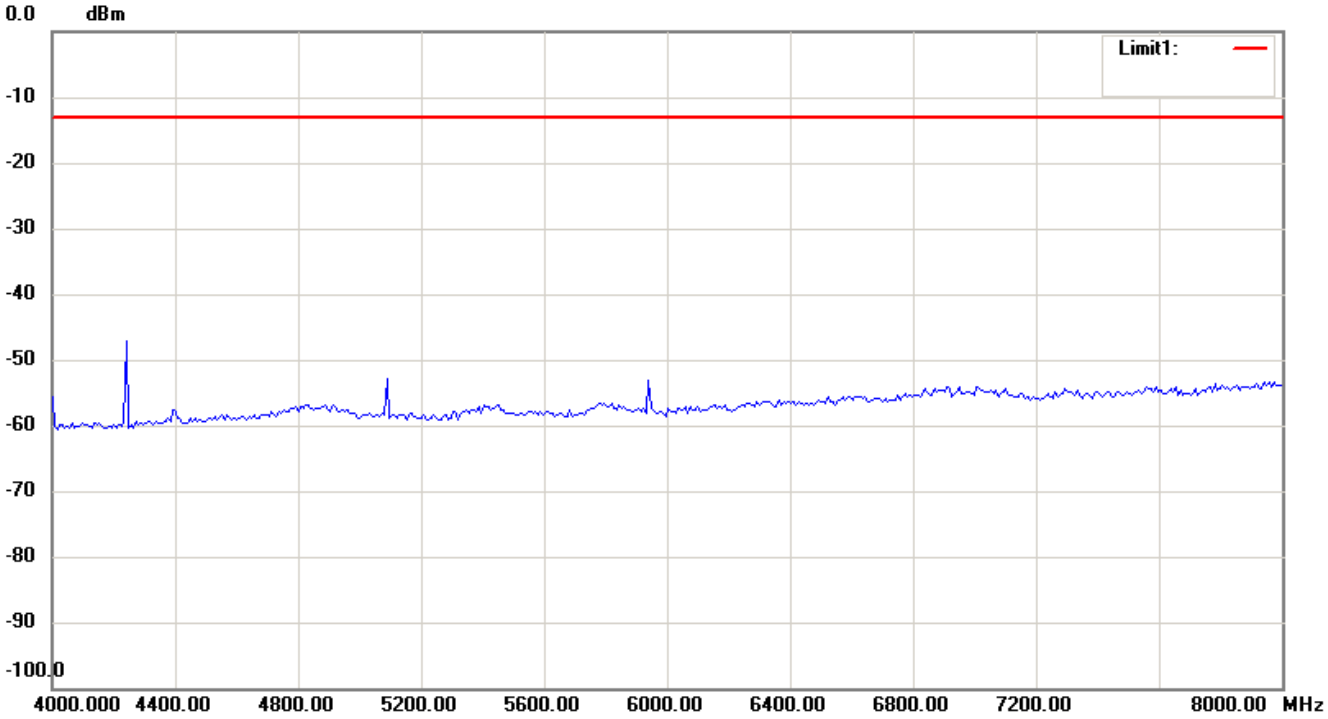
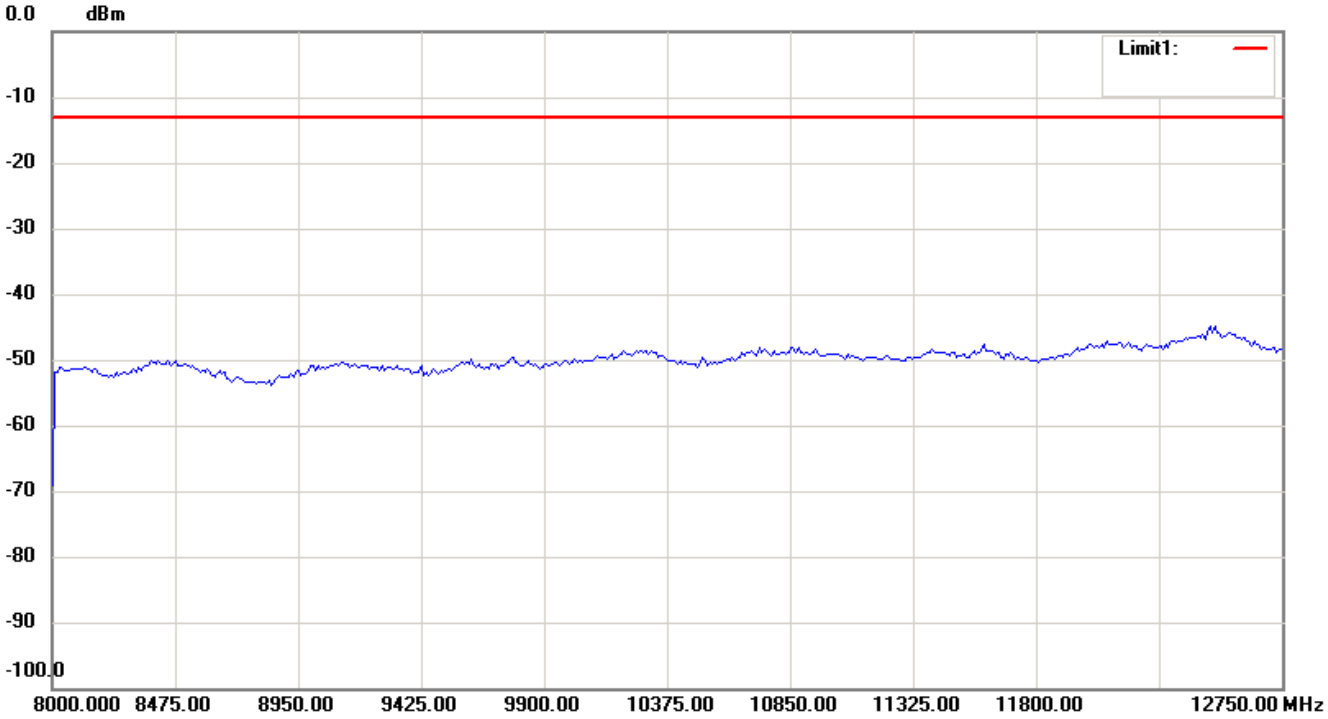
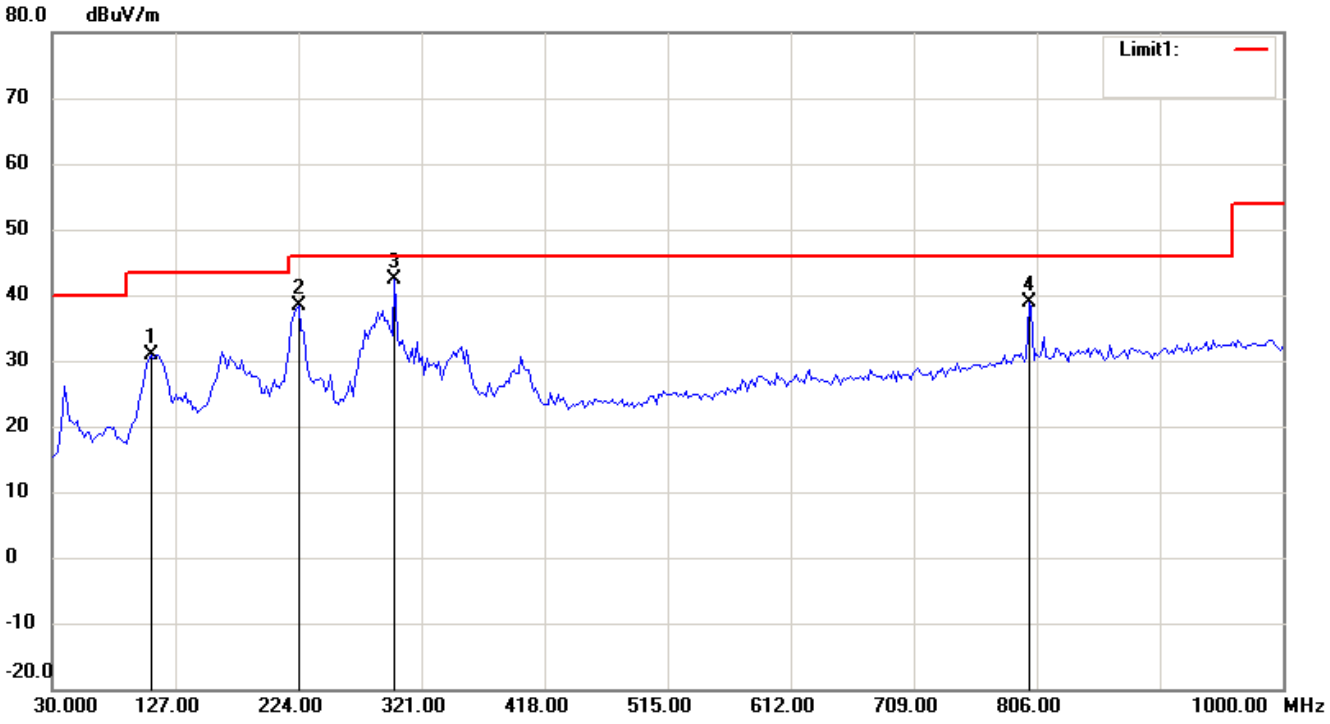
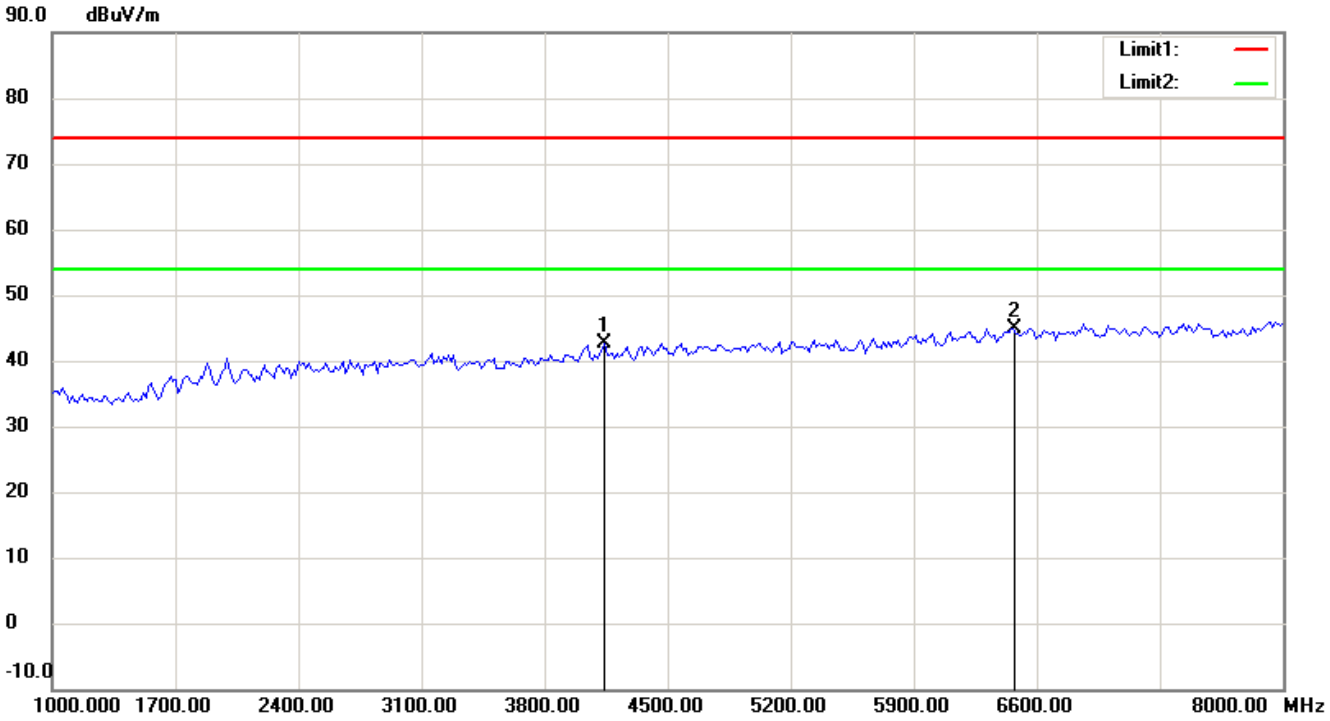




Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to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

Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
850 band_Idle Mode_108V
Antenna Polarization H





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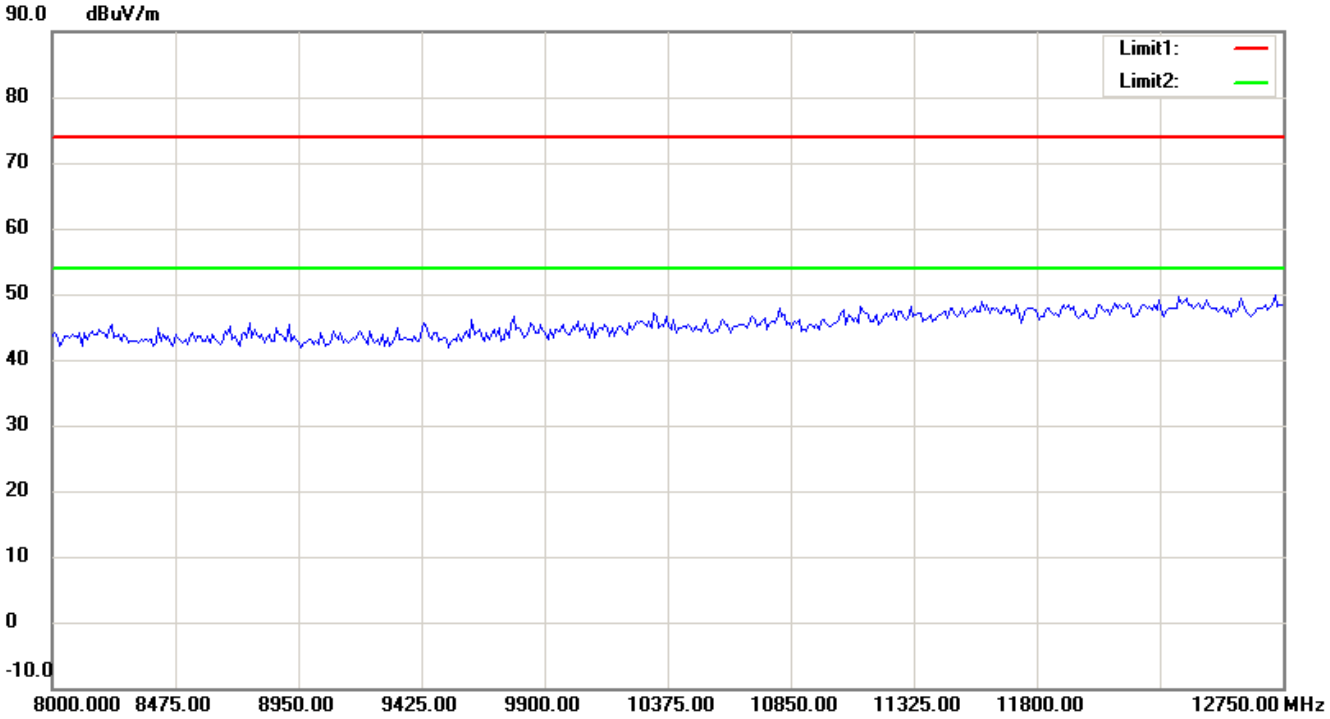

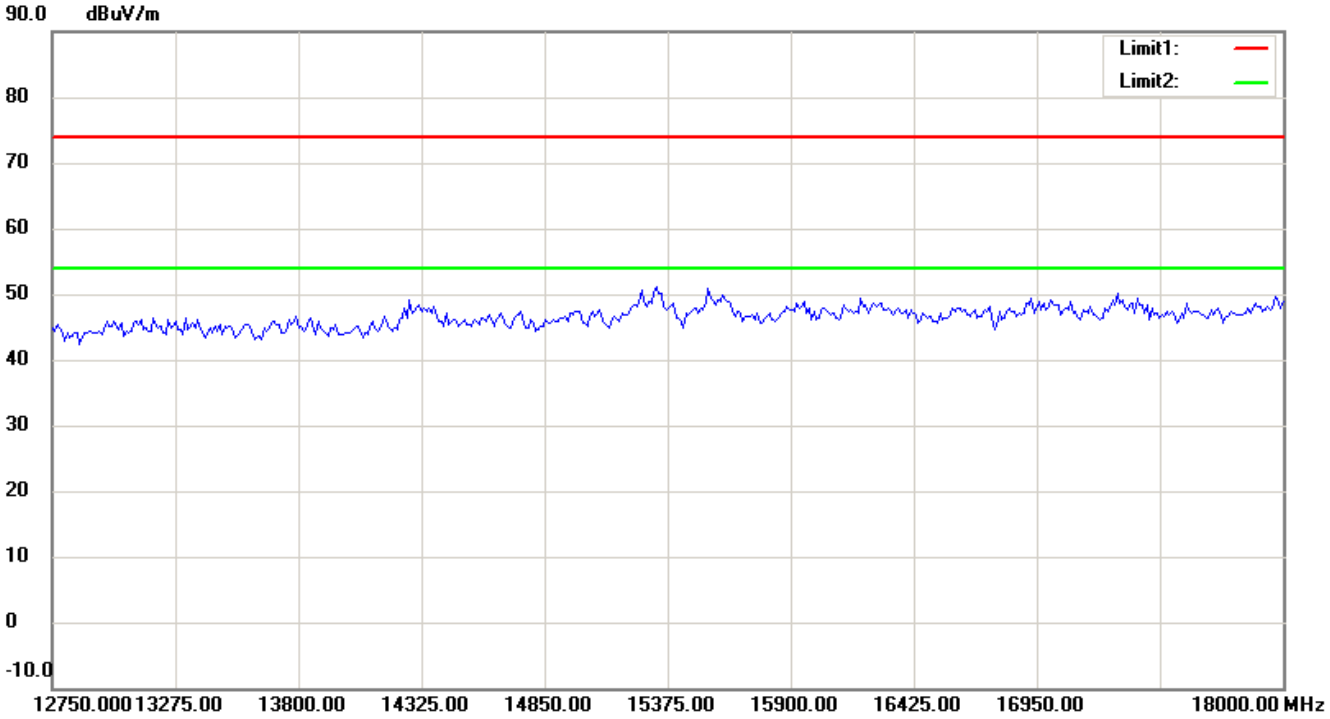

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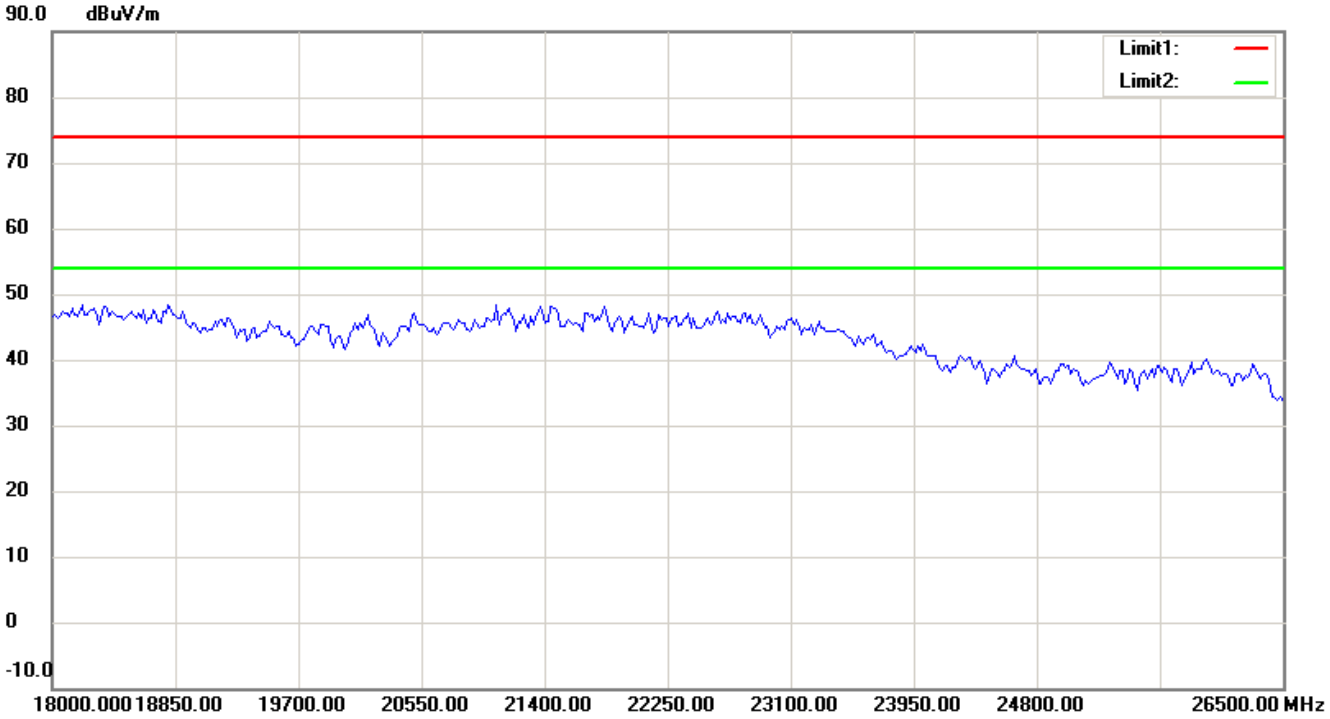
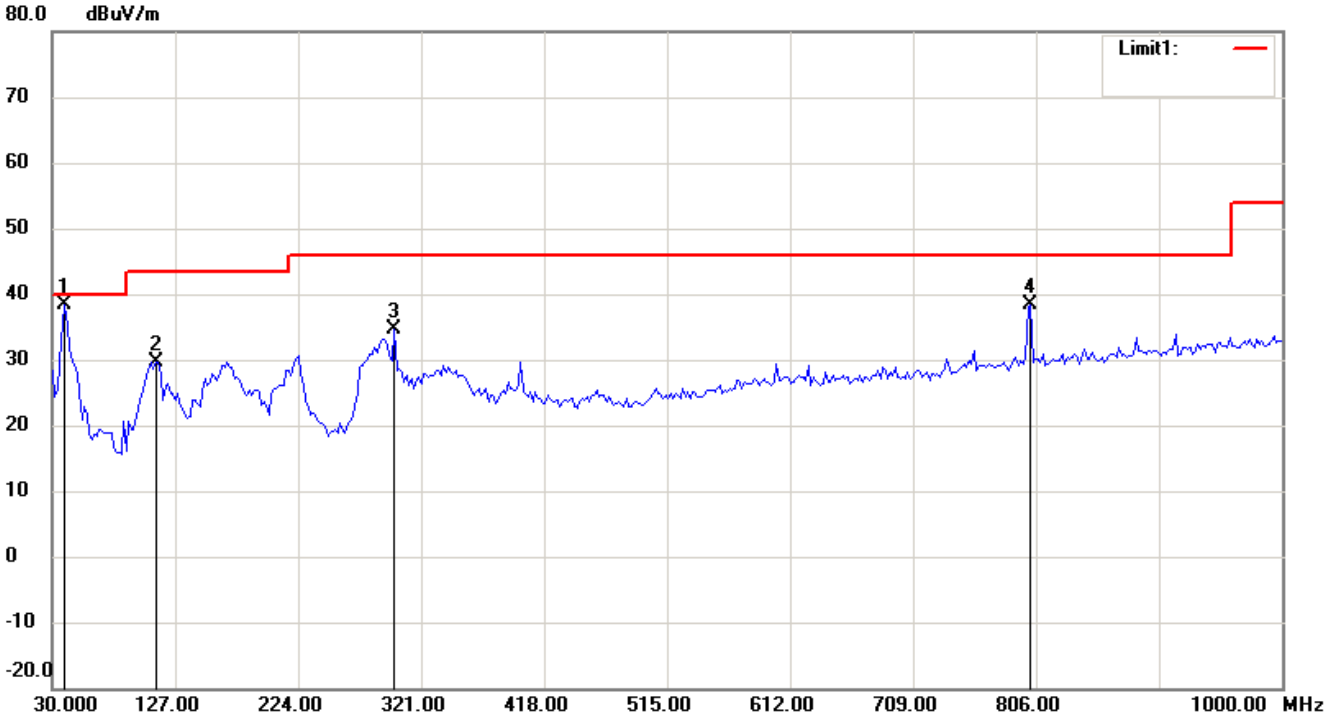


Antenna Polarization V



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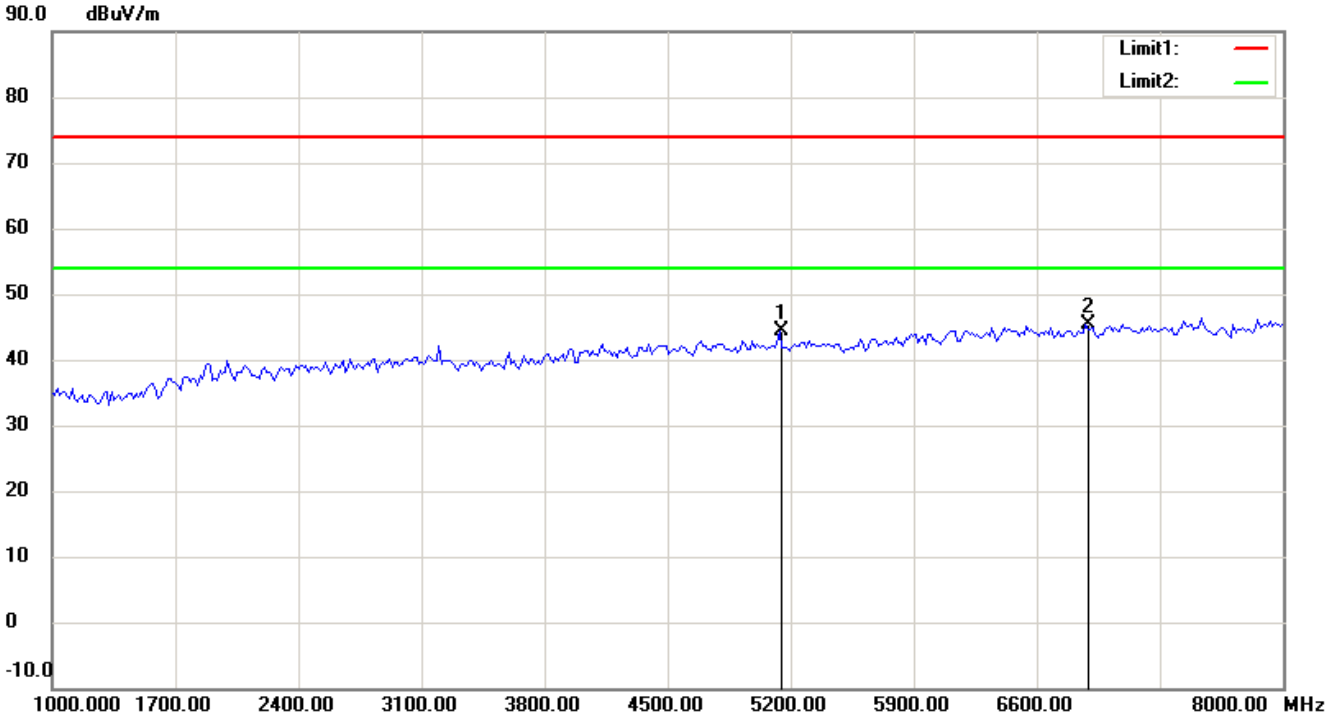

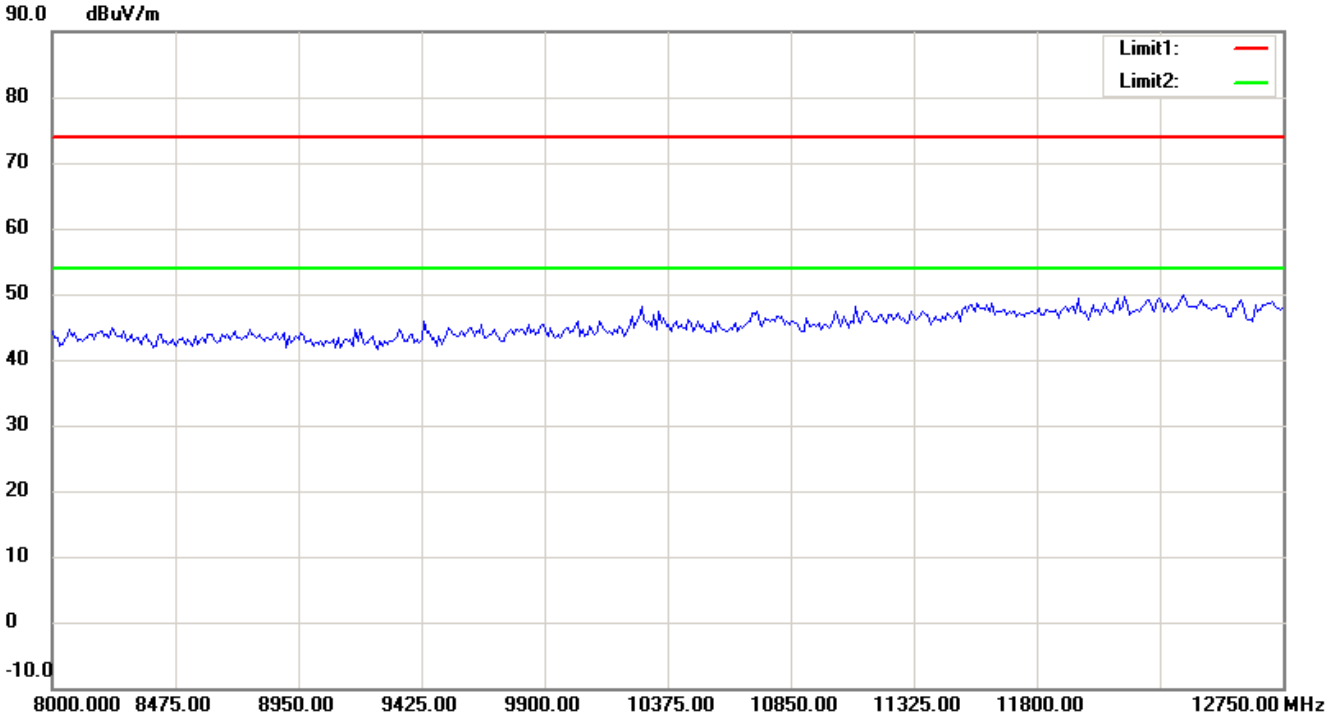

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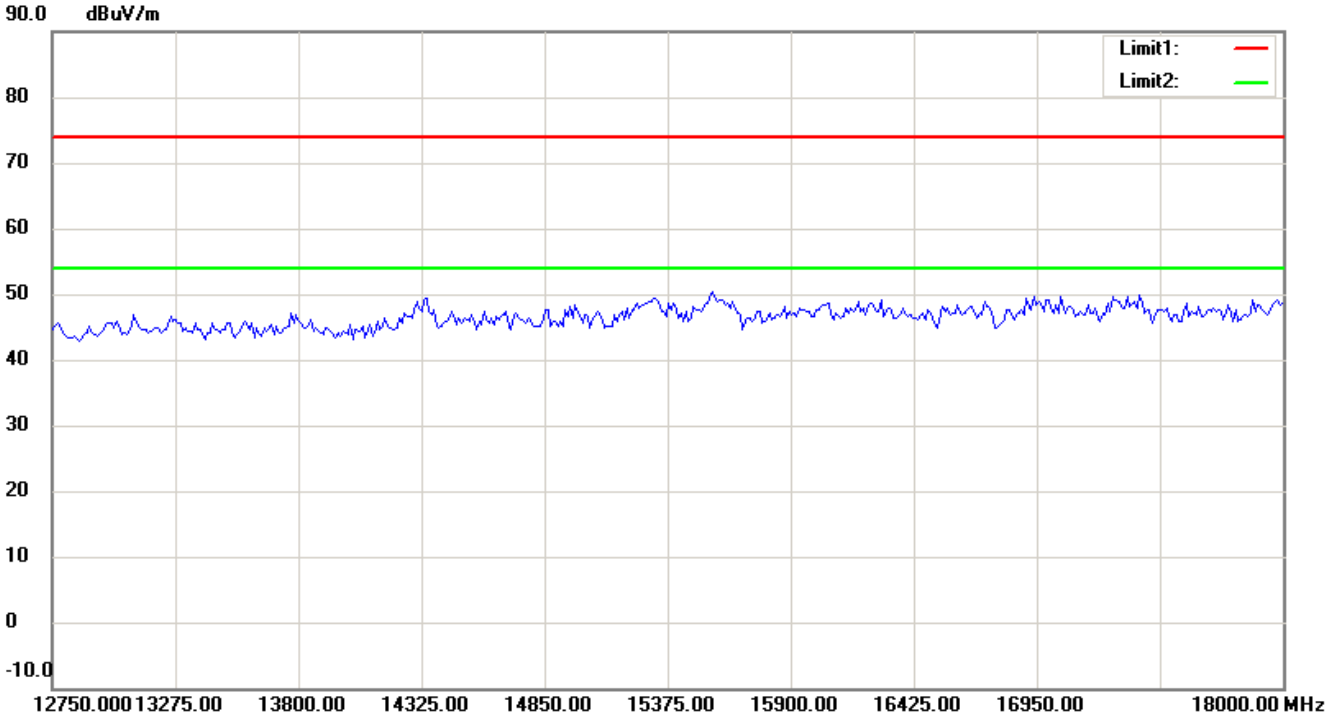

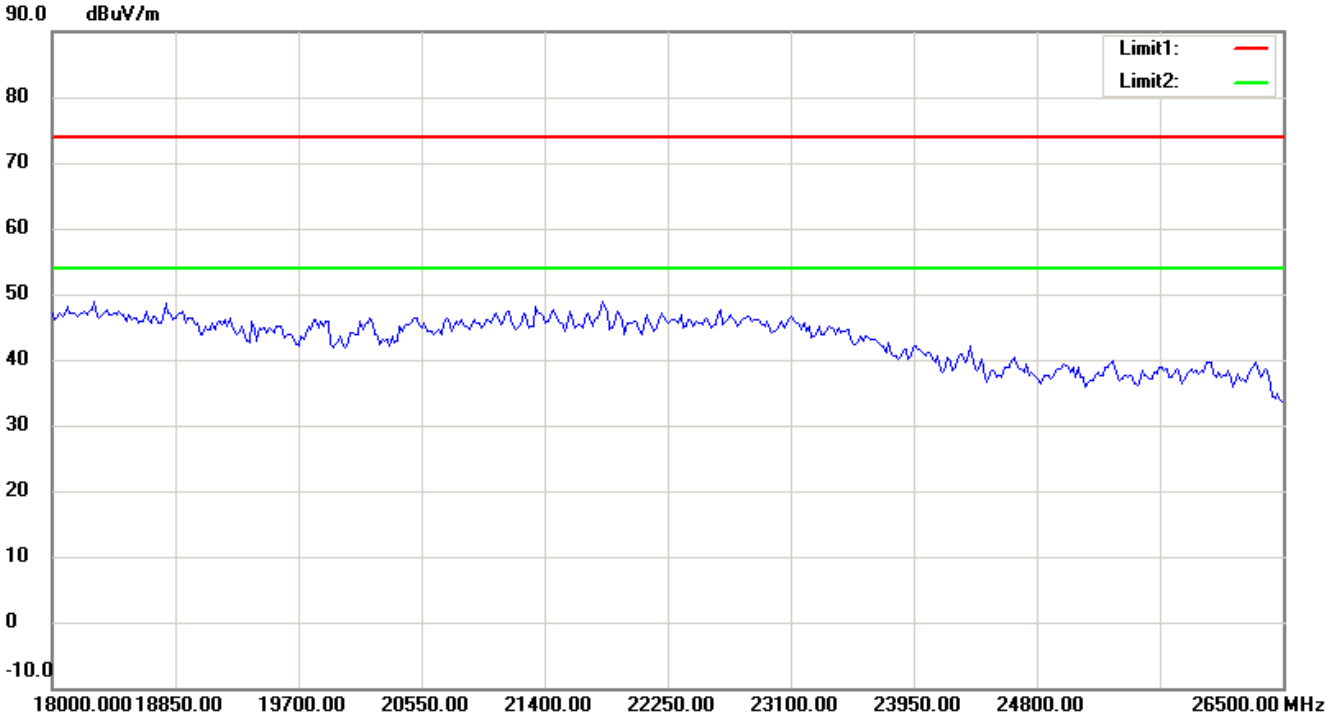

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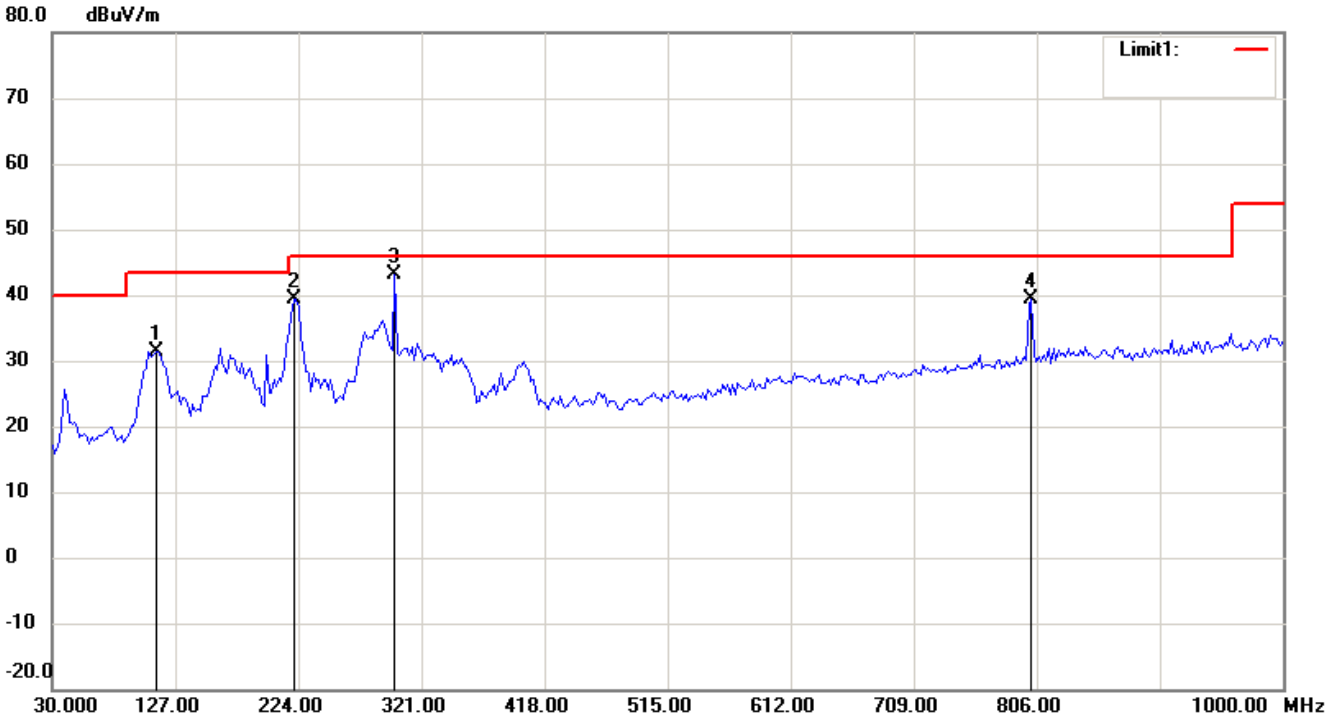
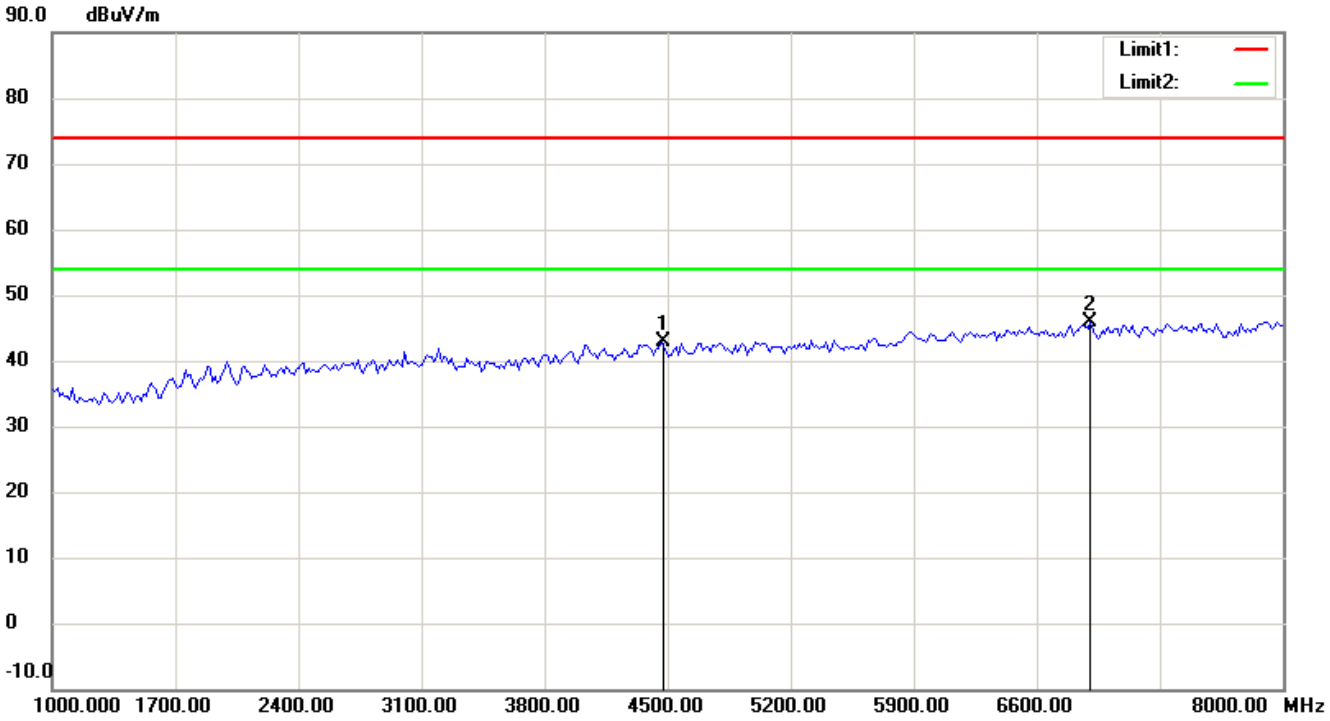
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
850 band_Idle Mode_132 V
Antenna Polarization H





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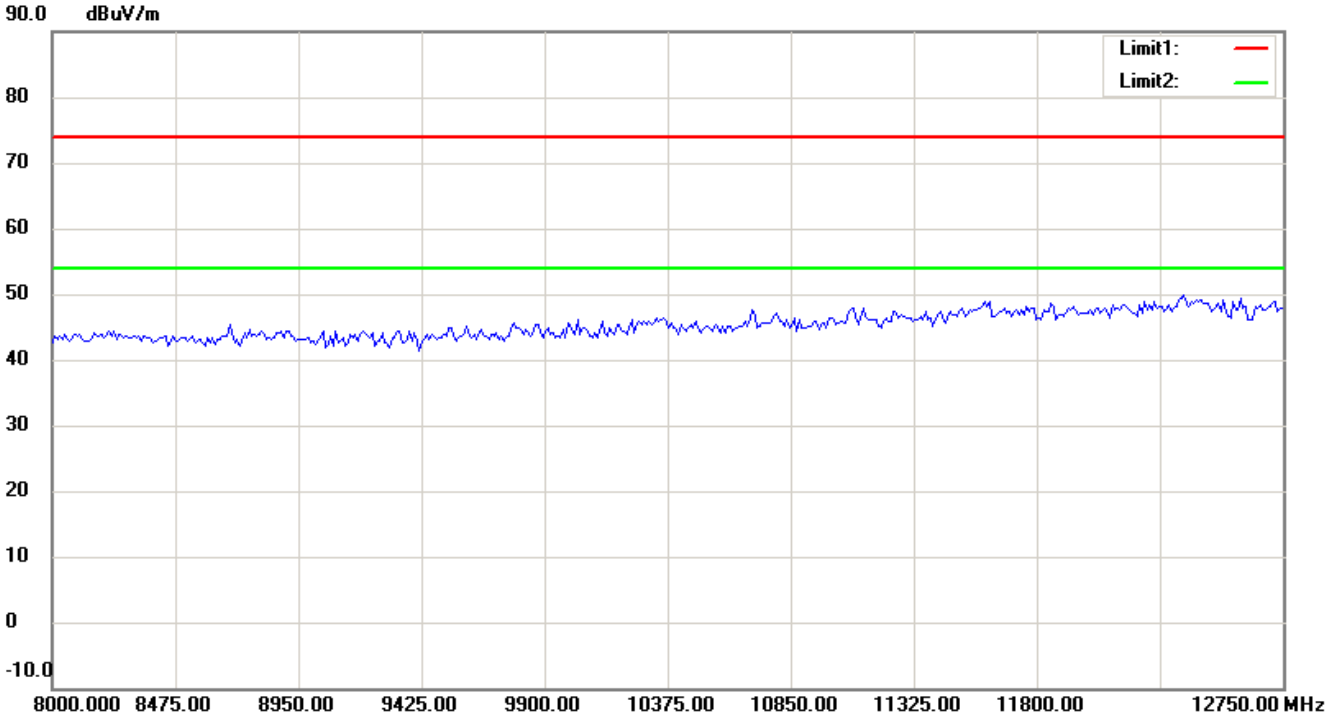

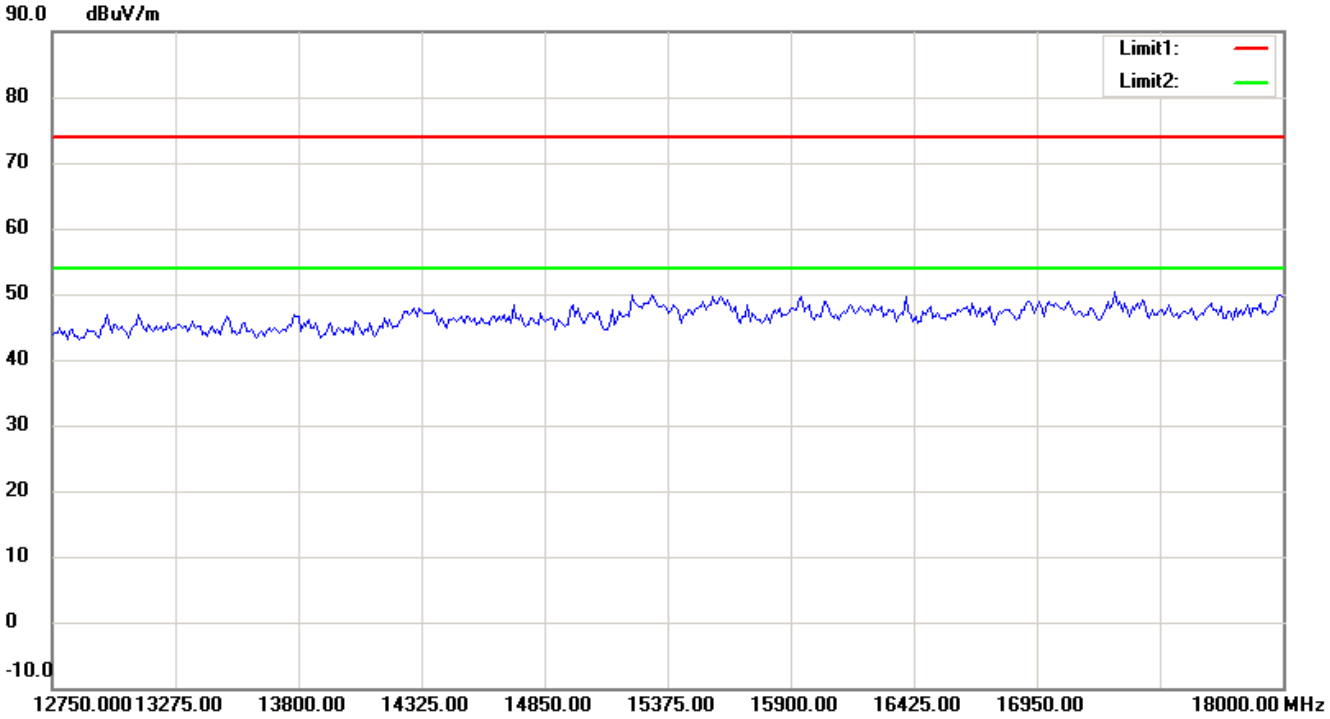

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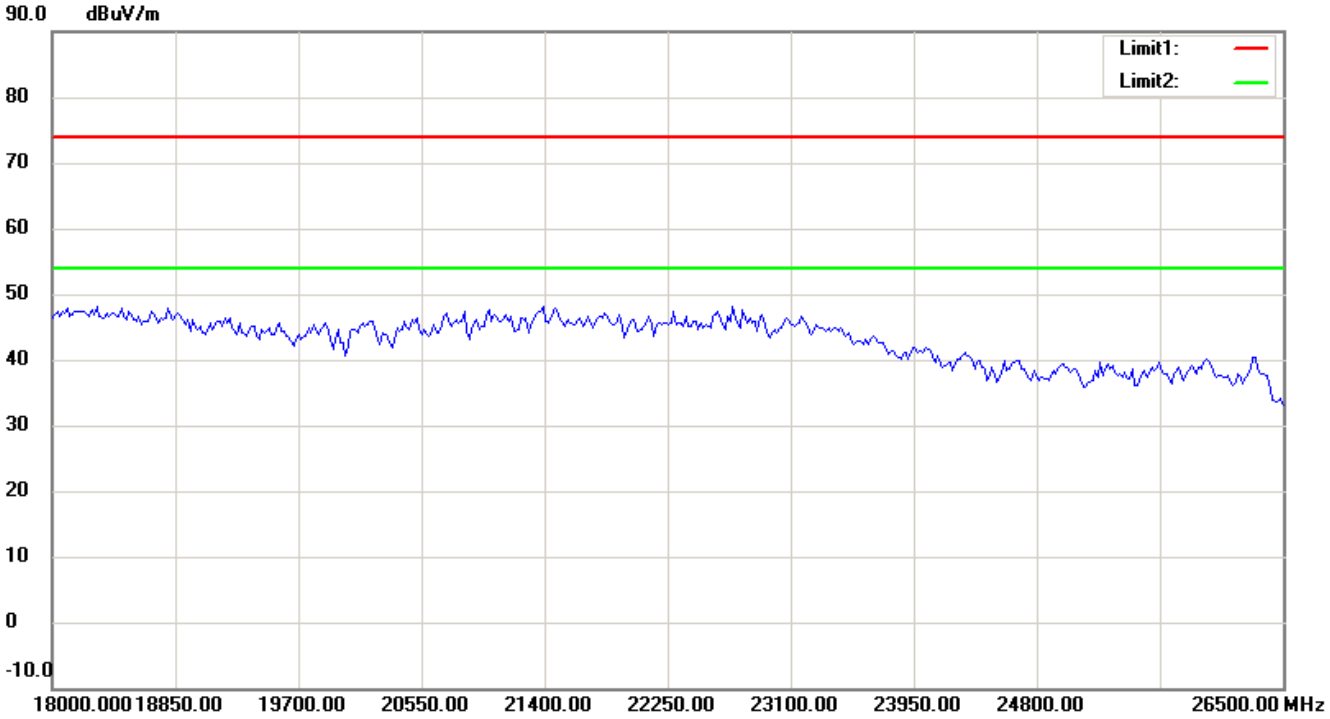
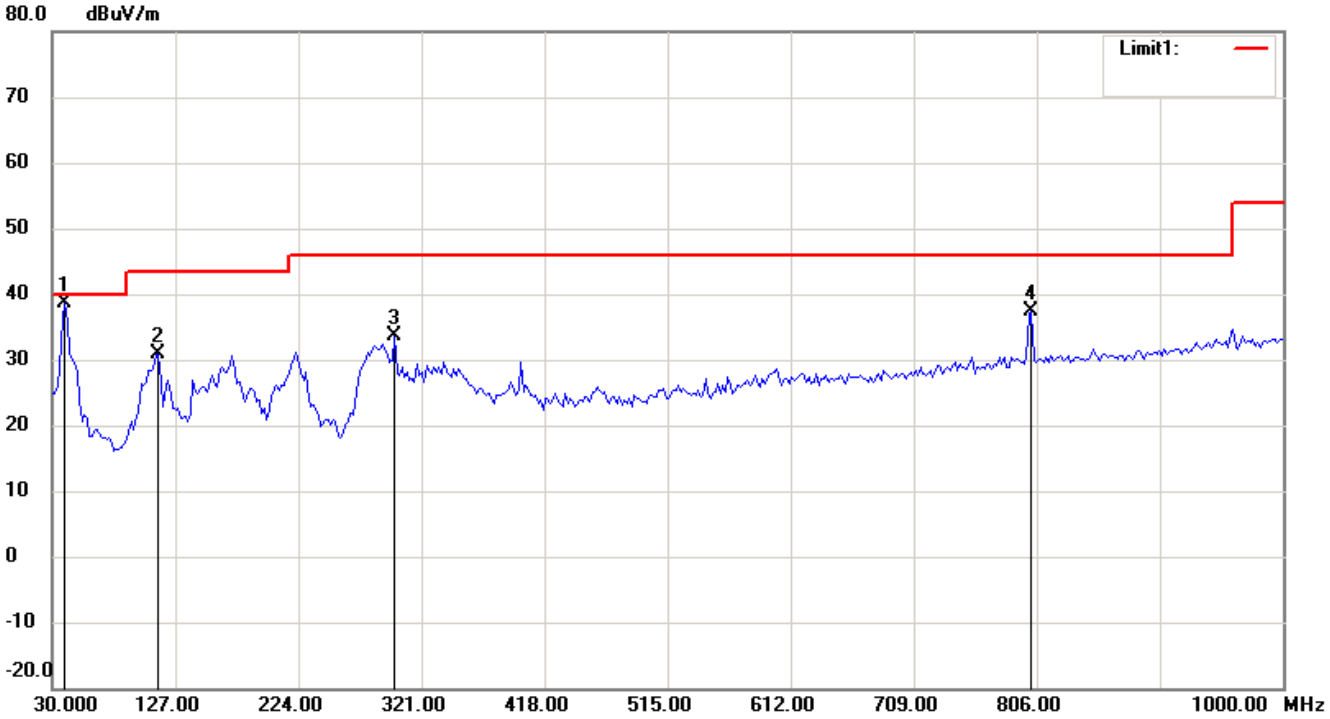


Antenna Polarization V



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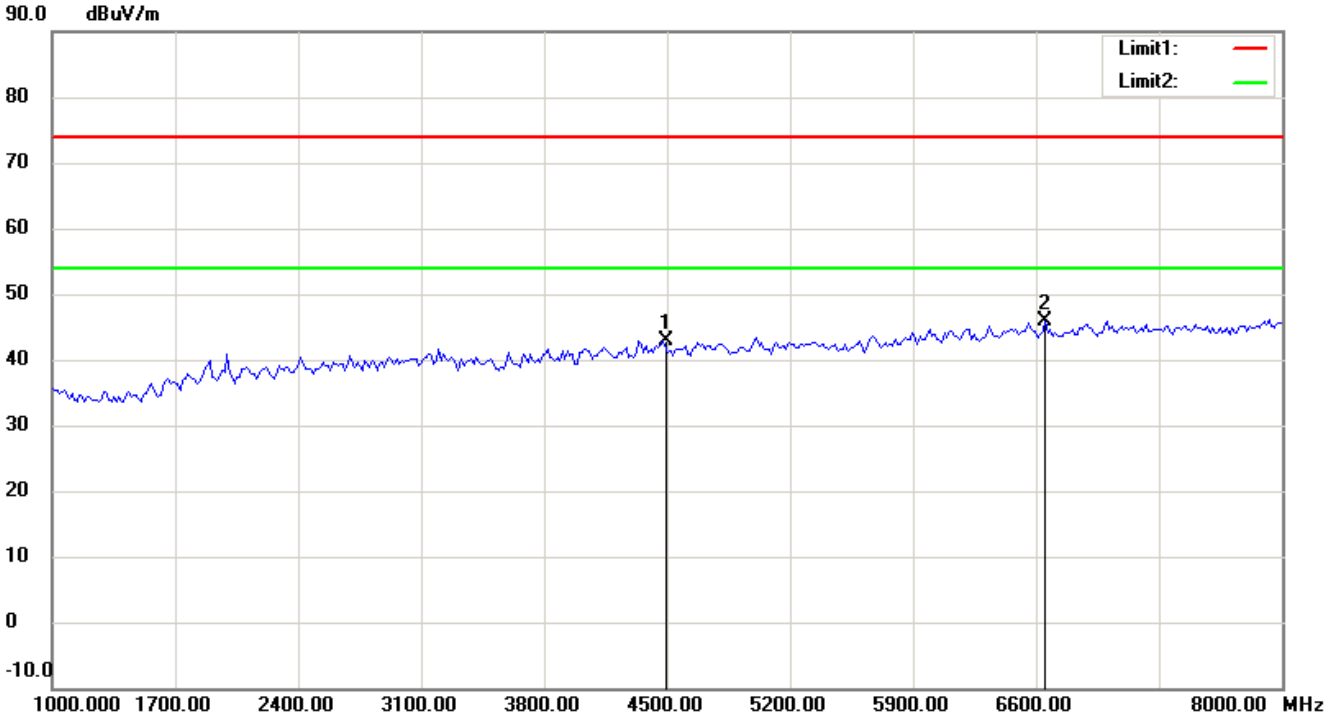

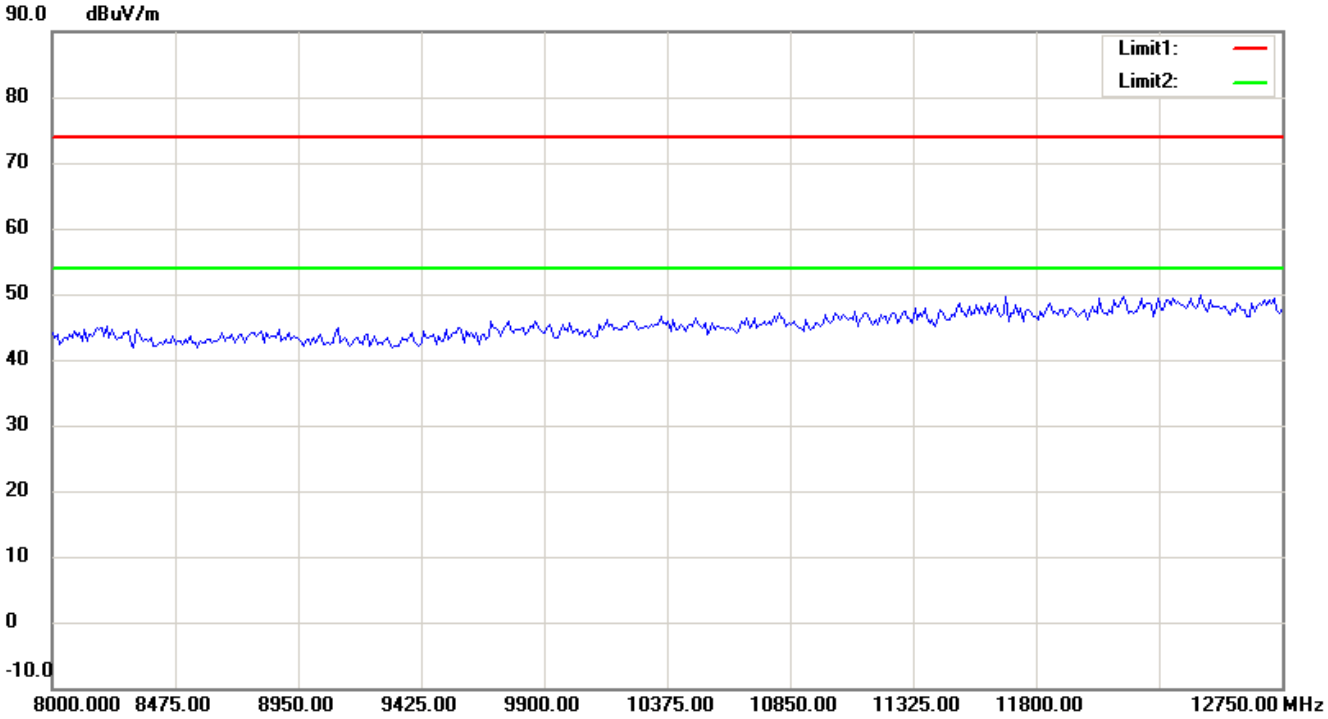

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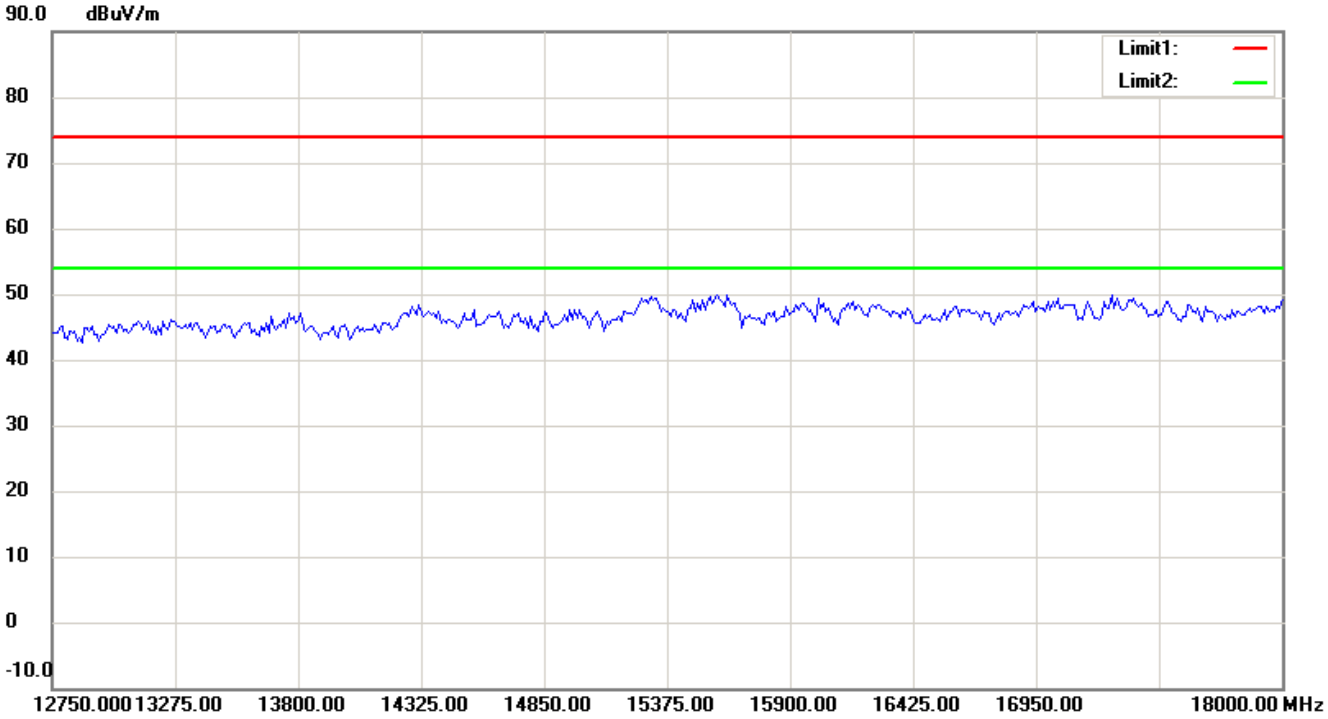

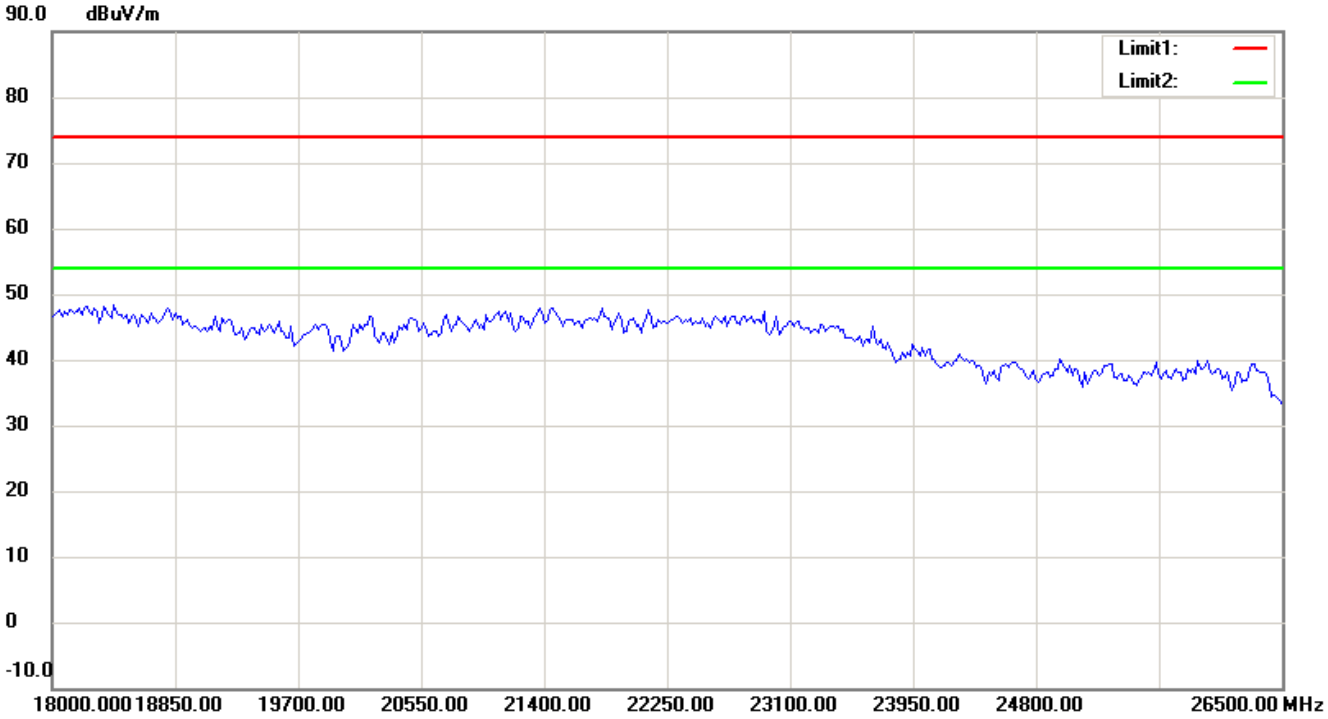

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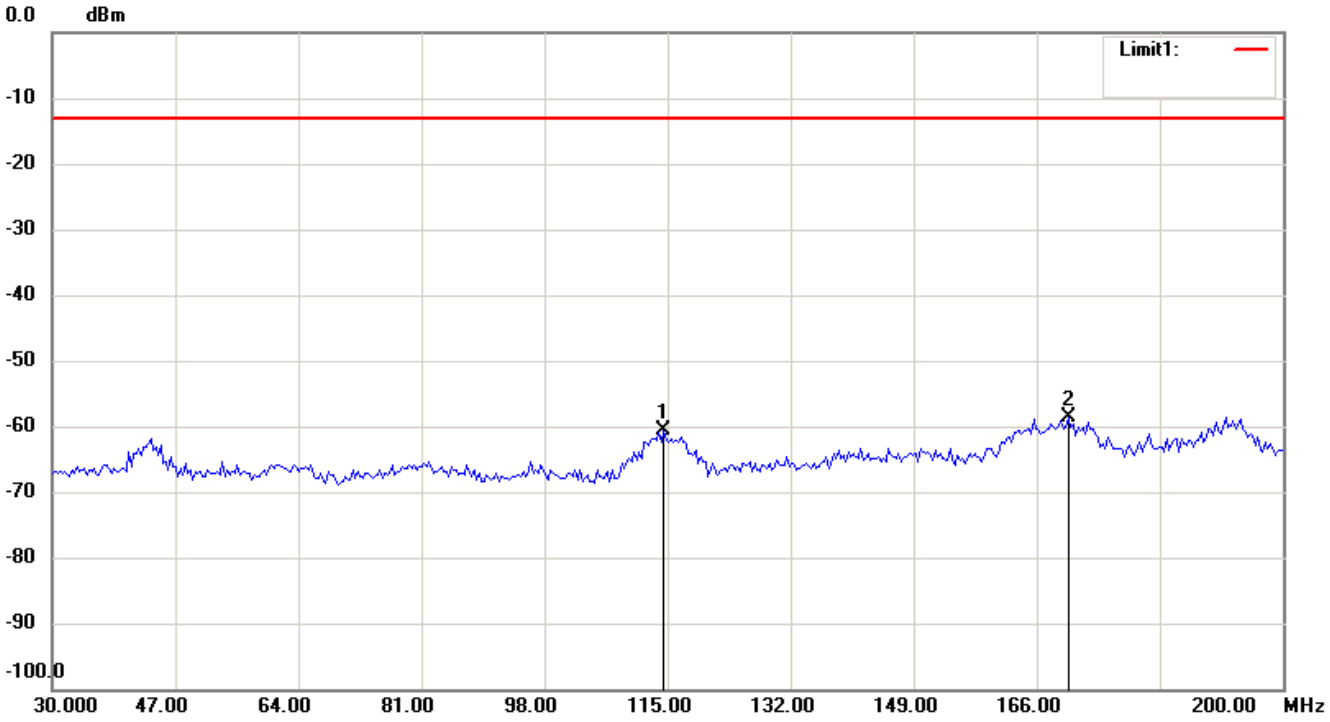
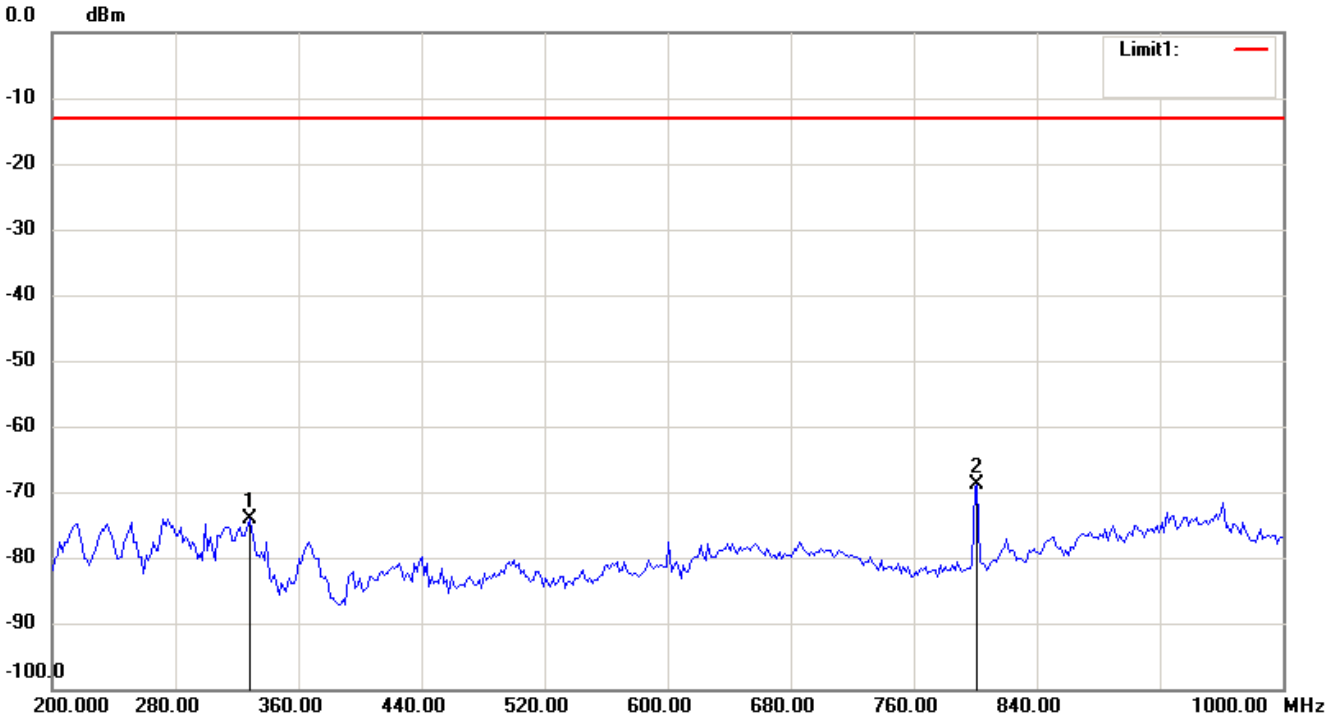
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
1900 band_CH 512_108V
Antenna Polarization H





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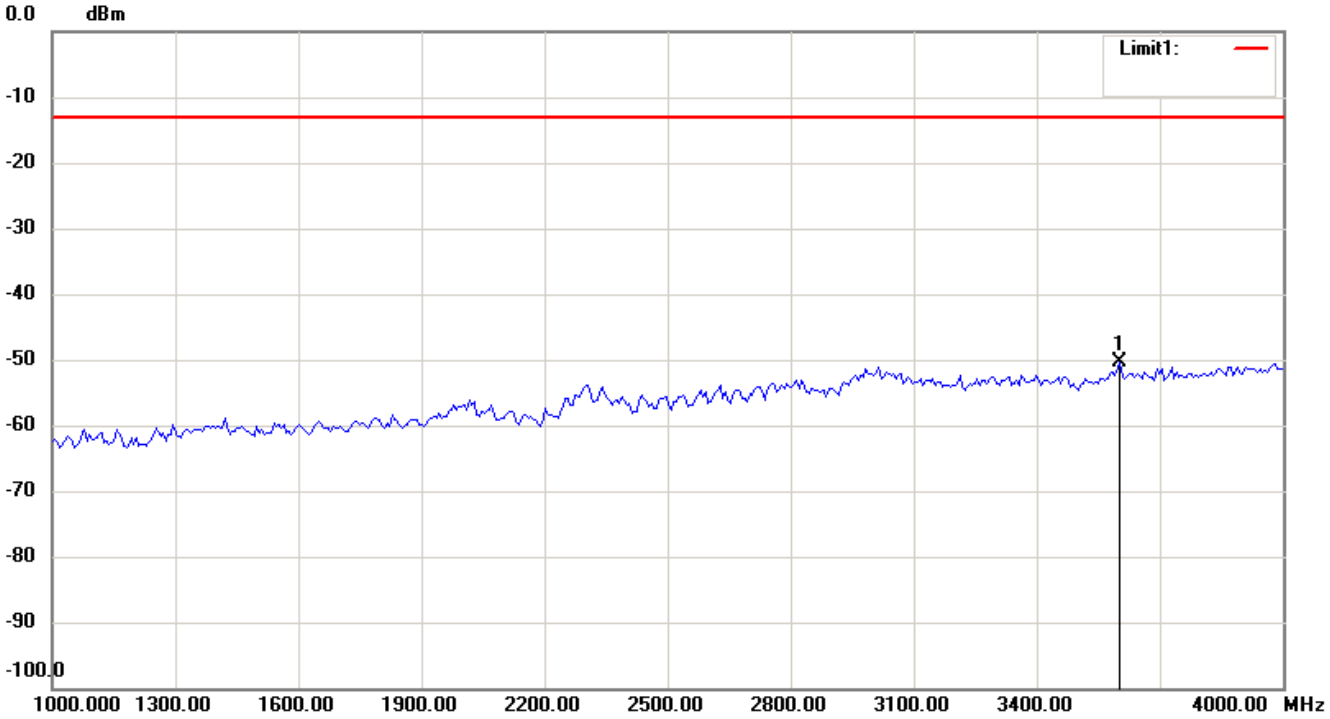

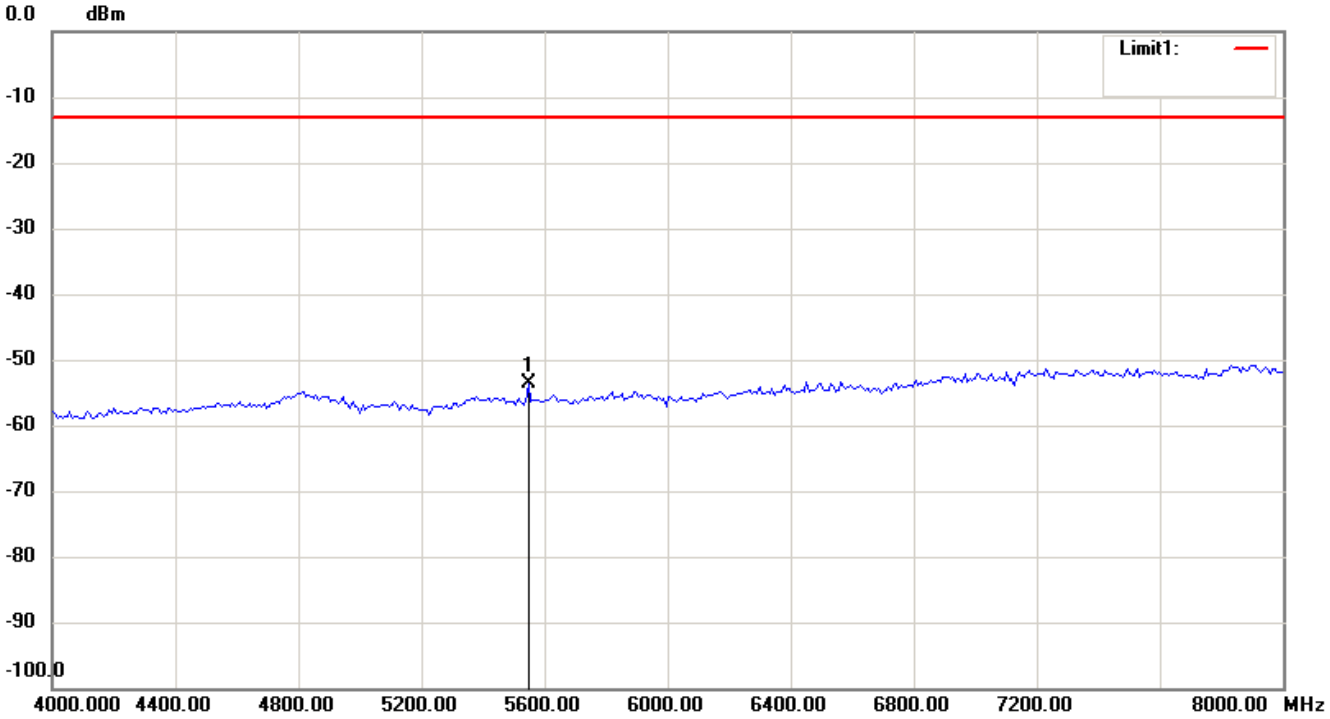

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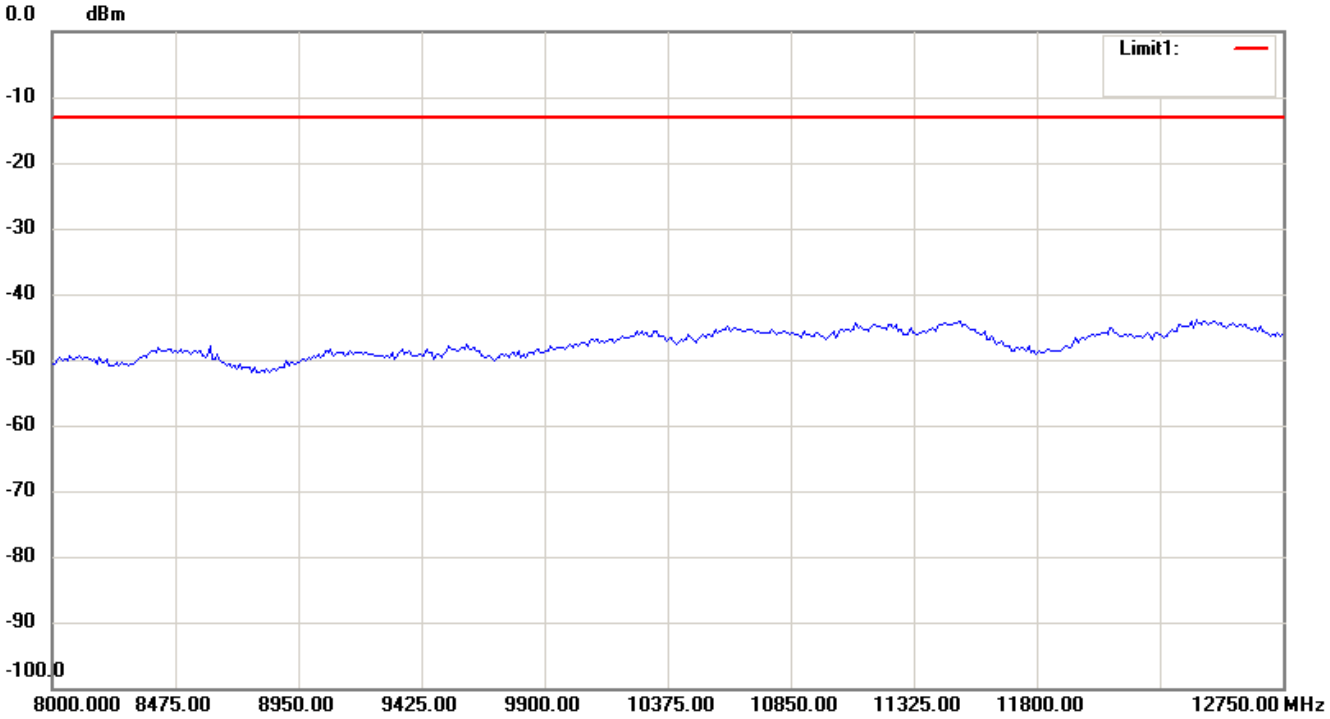

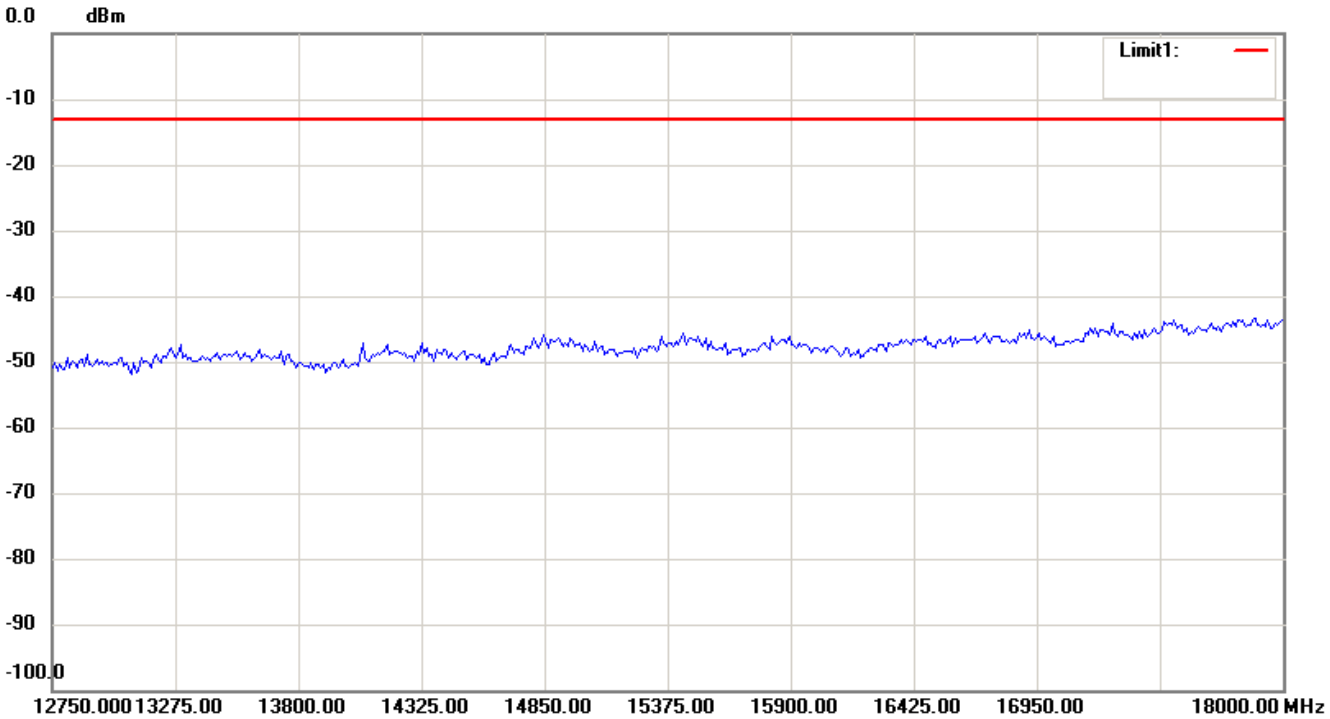

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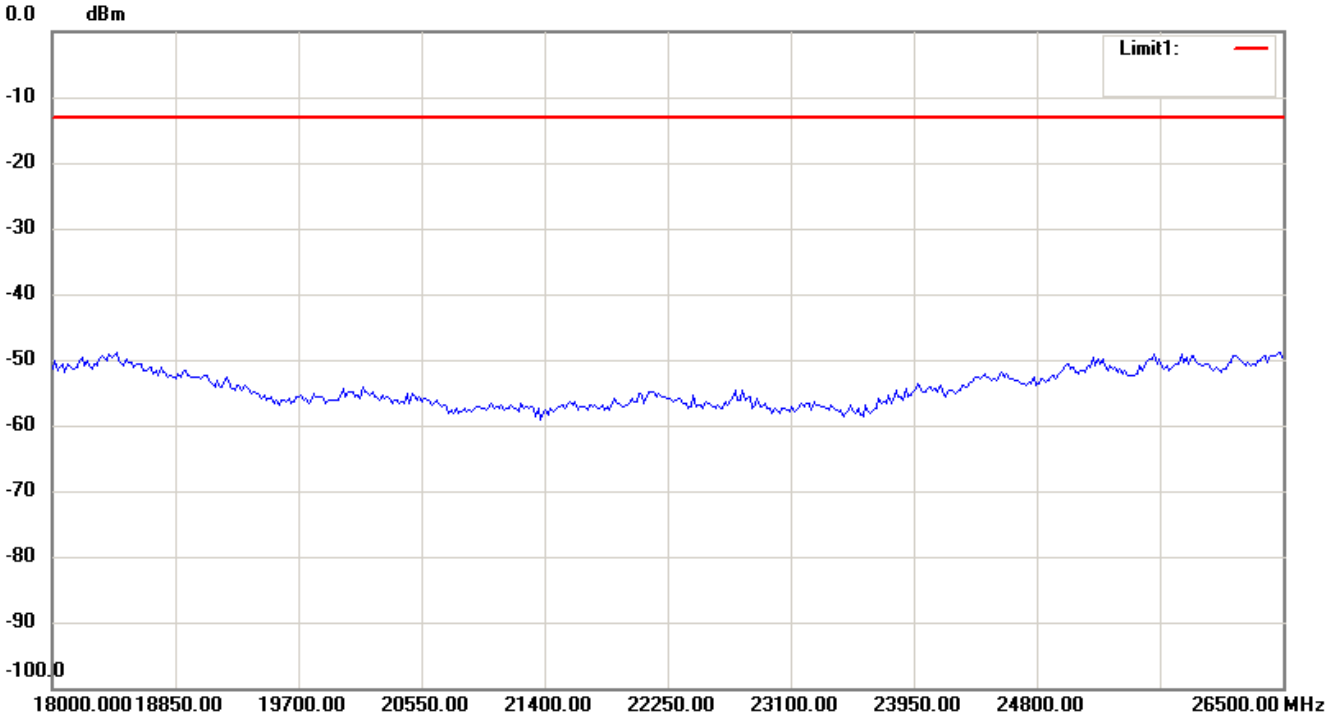
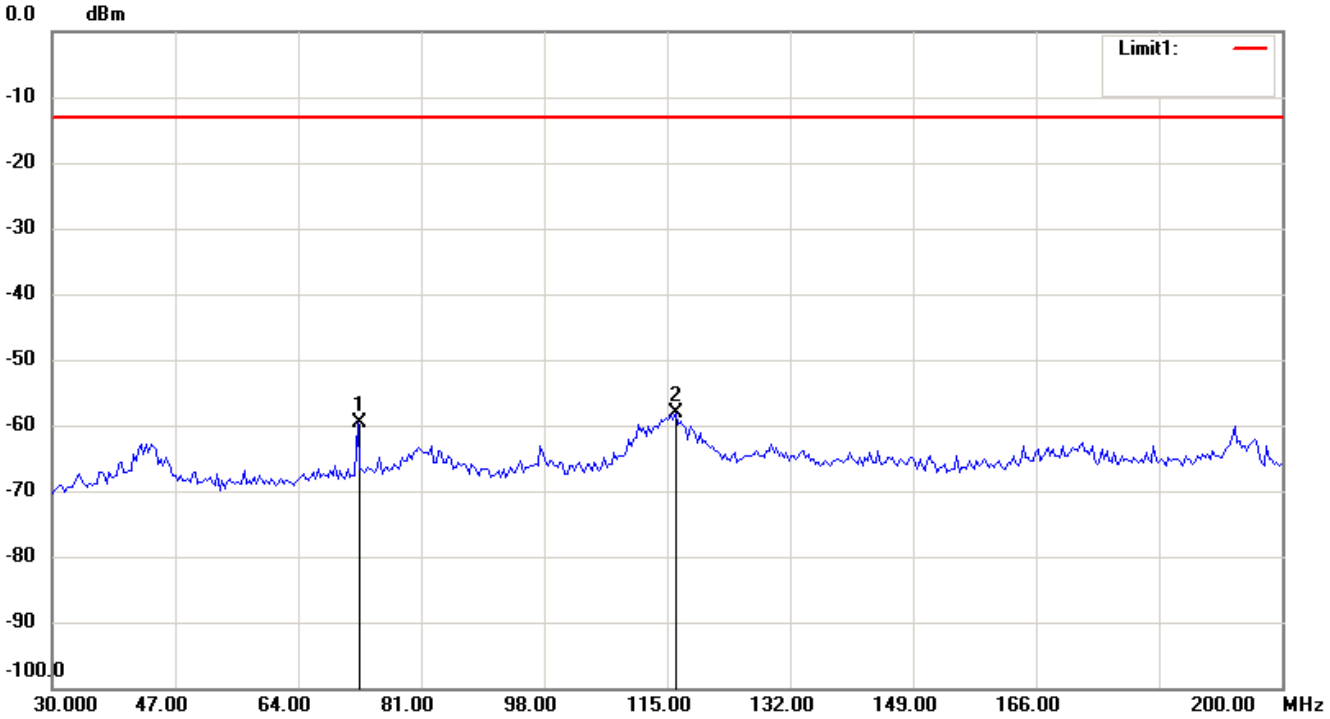


Antenna Polarization V



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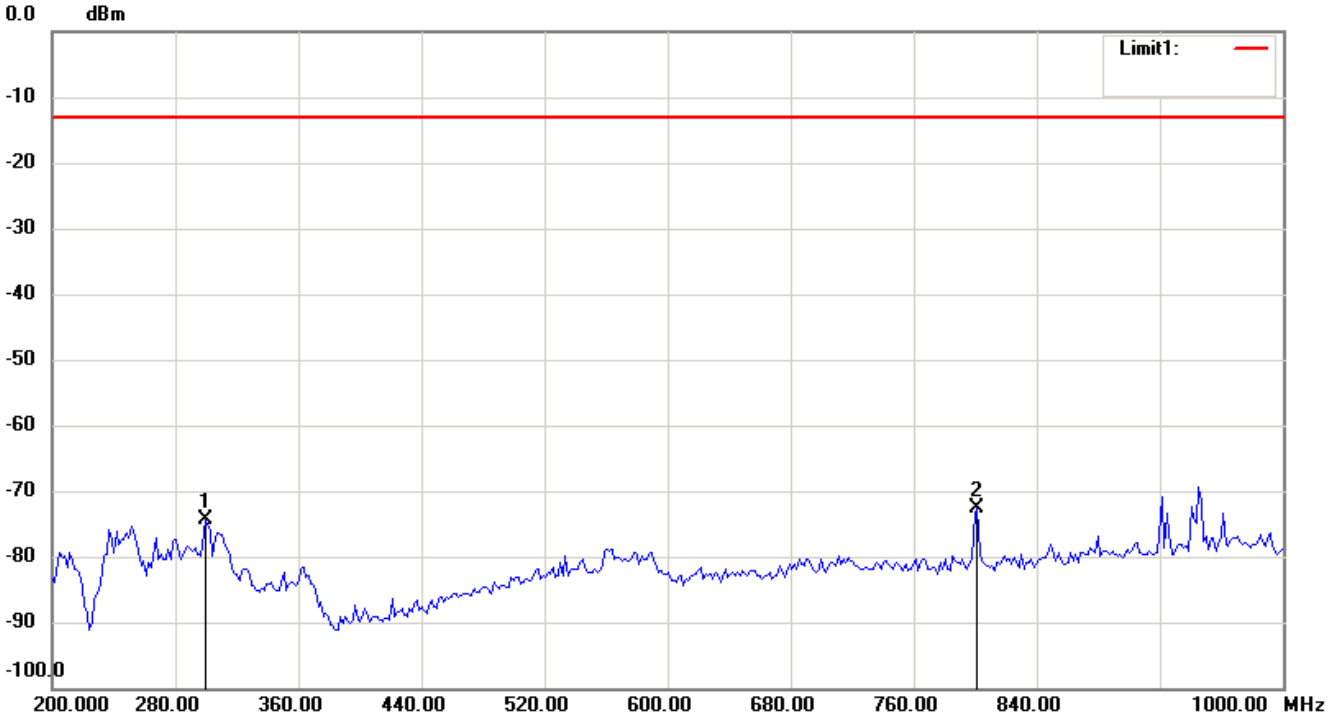

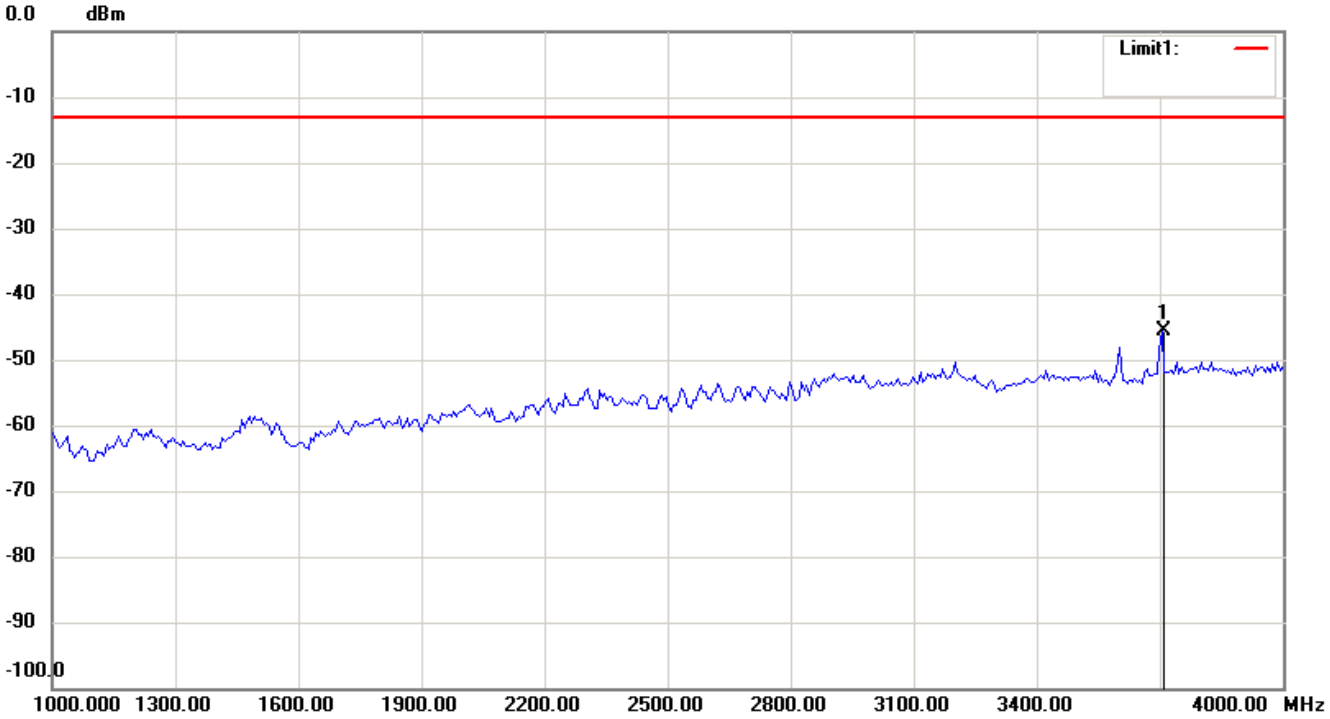

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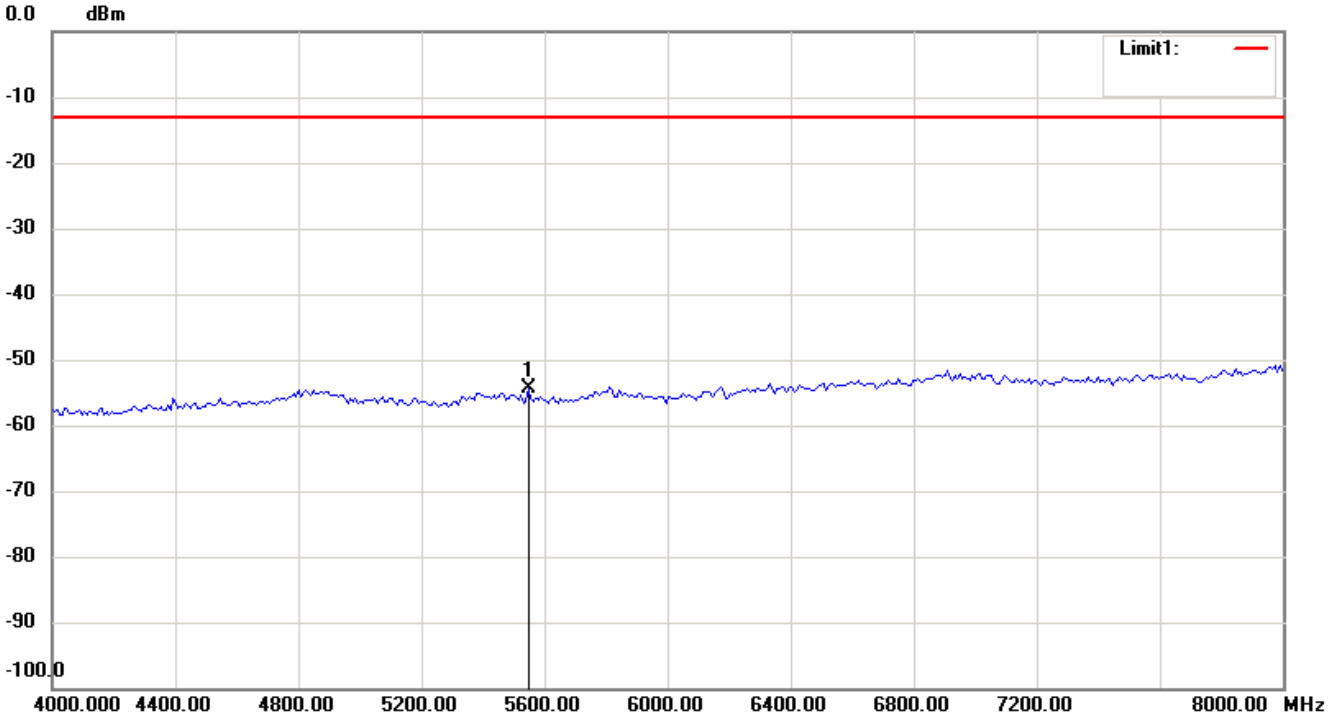

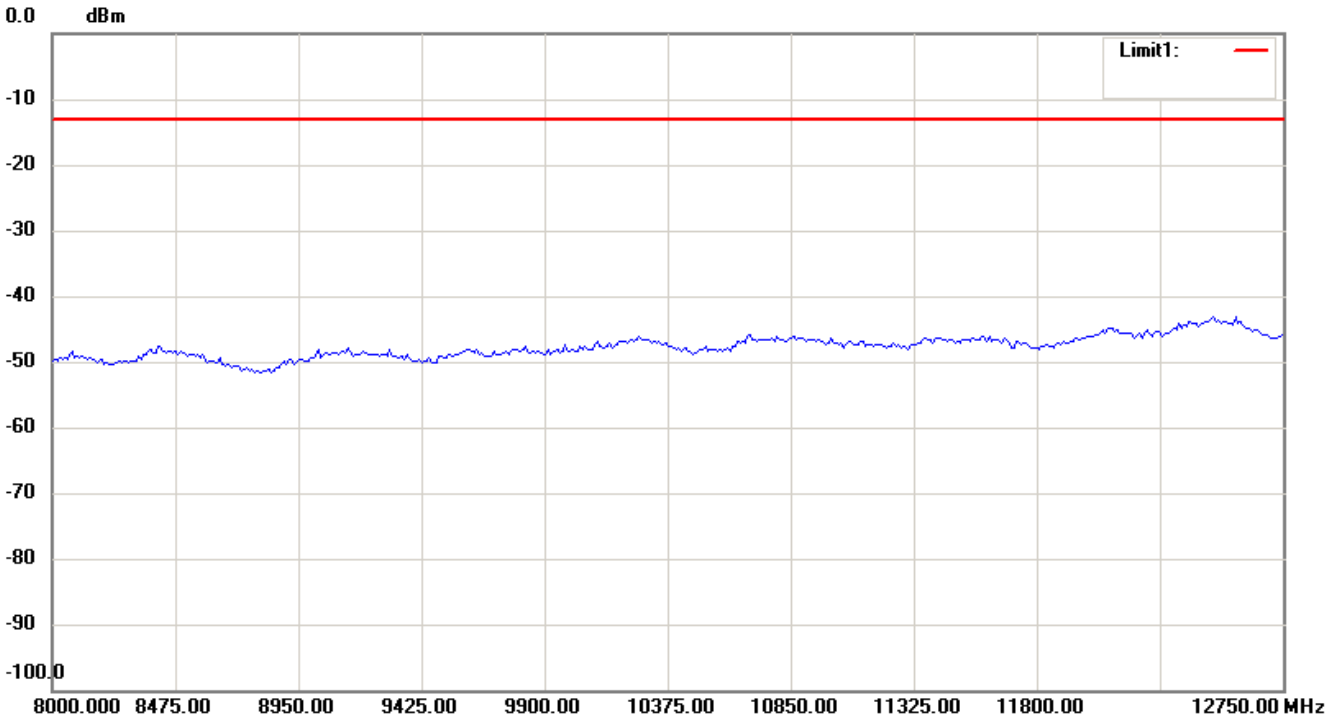

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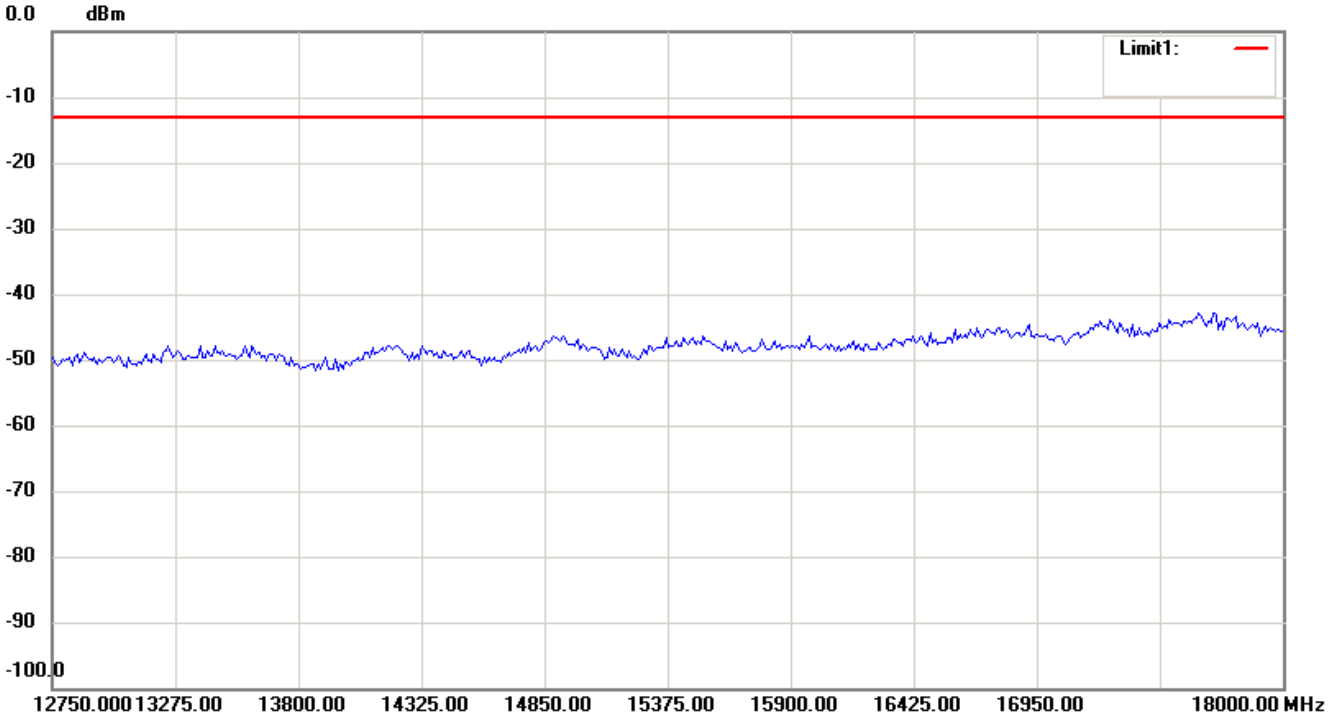

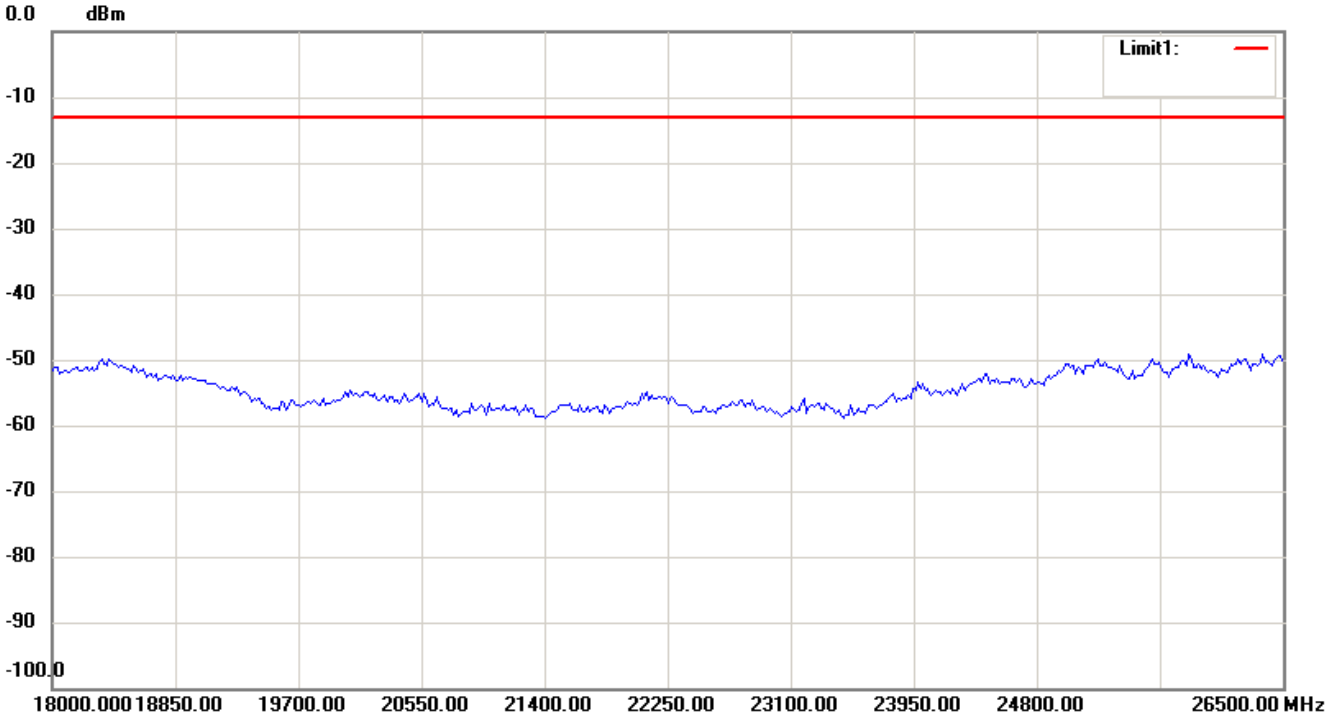

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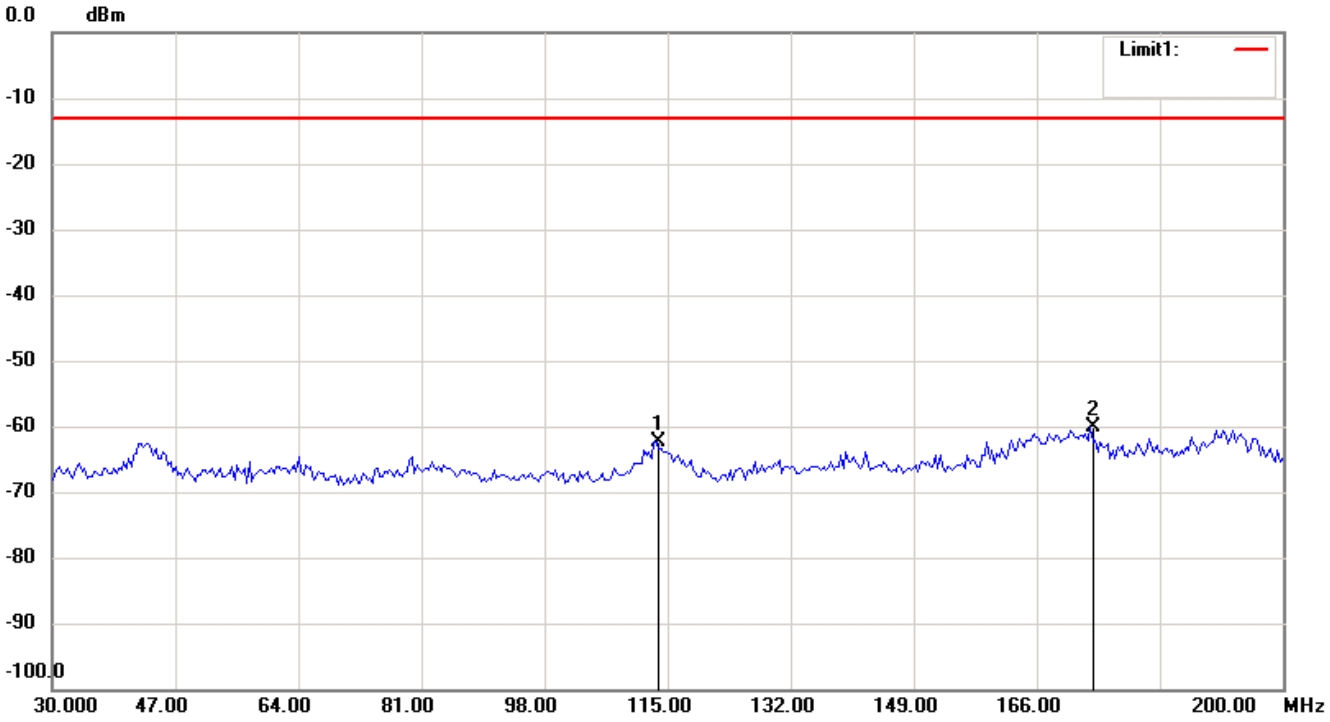
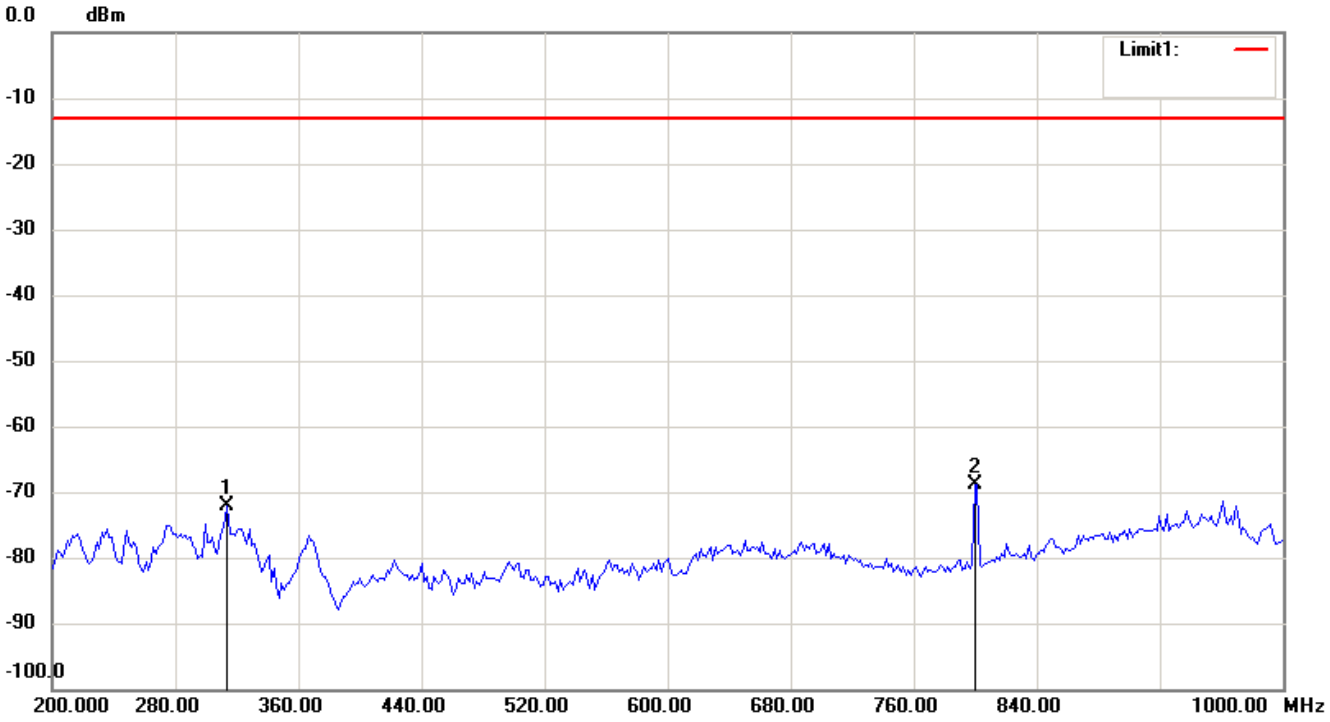
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_CH 512_132 V
Antenna Polarization H





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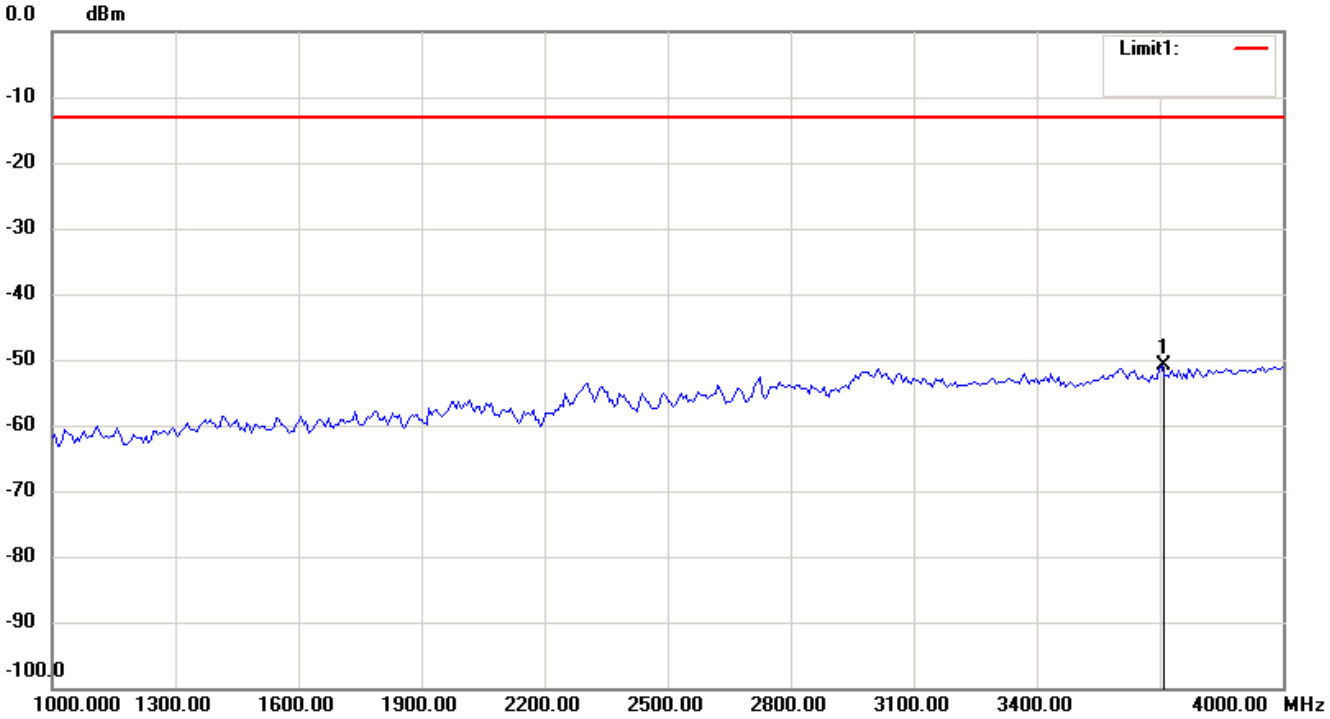

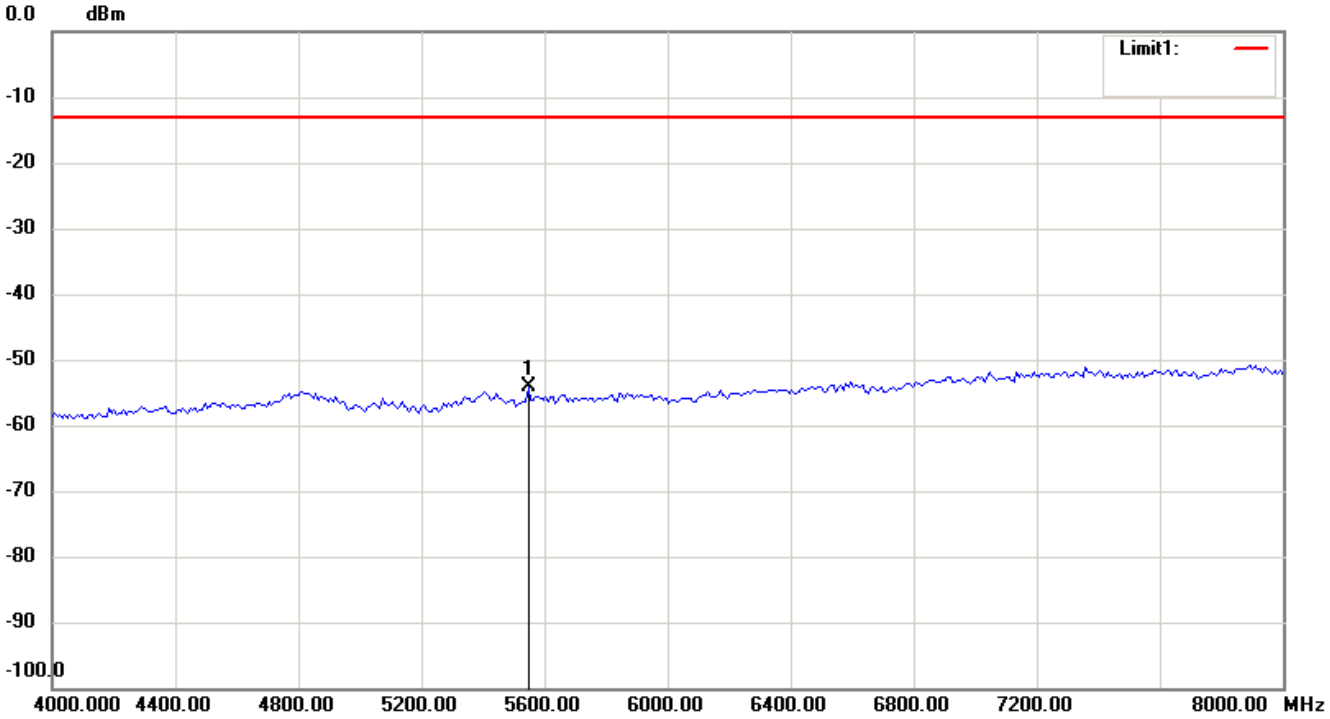

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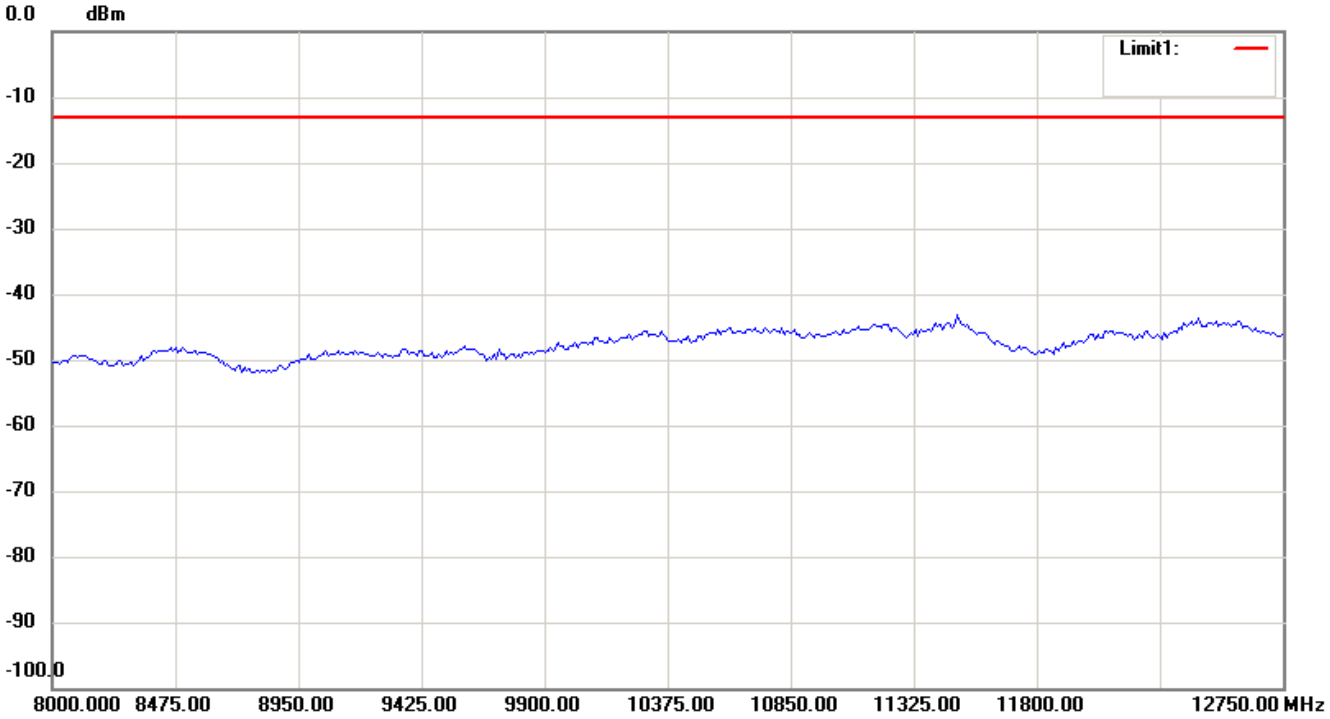

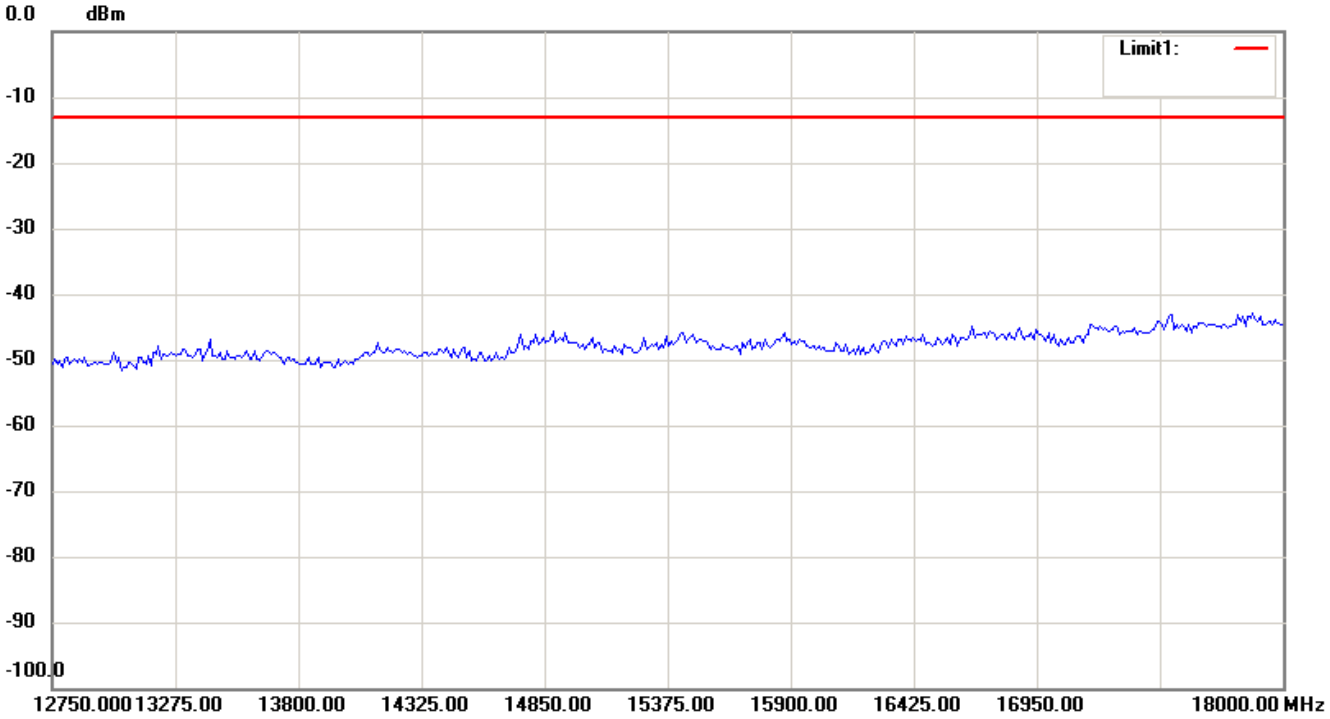

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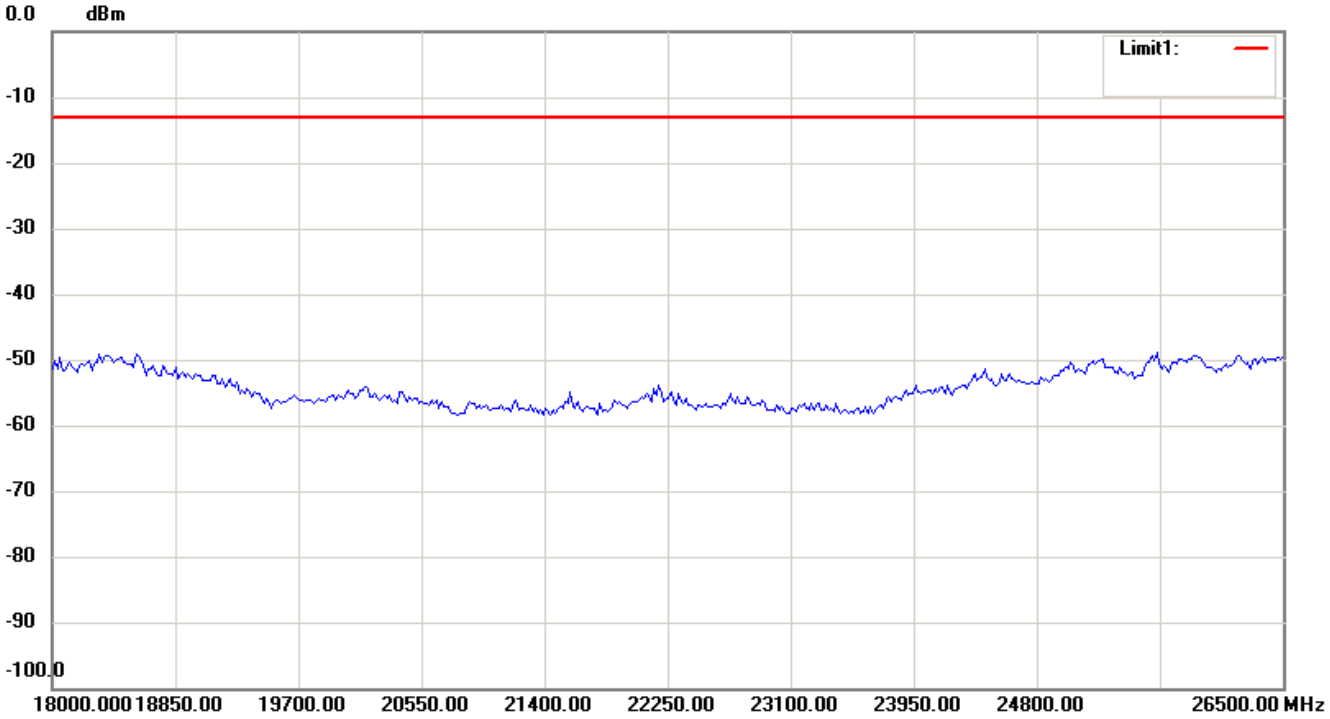
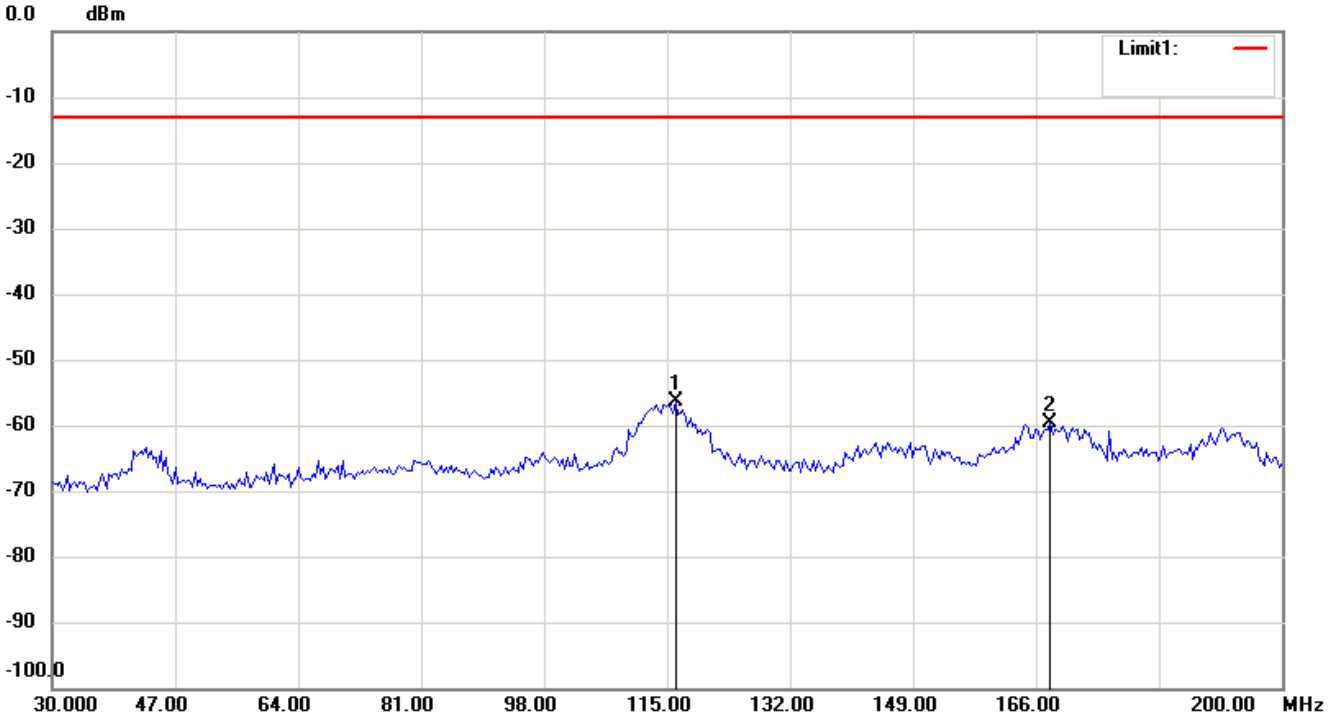
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



Antenna Polarization V



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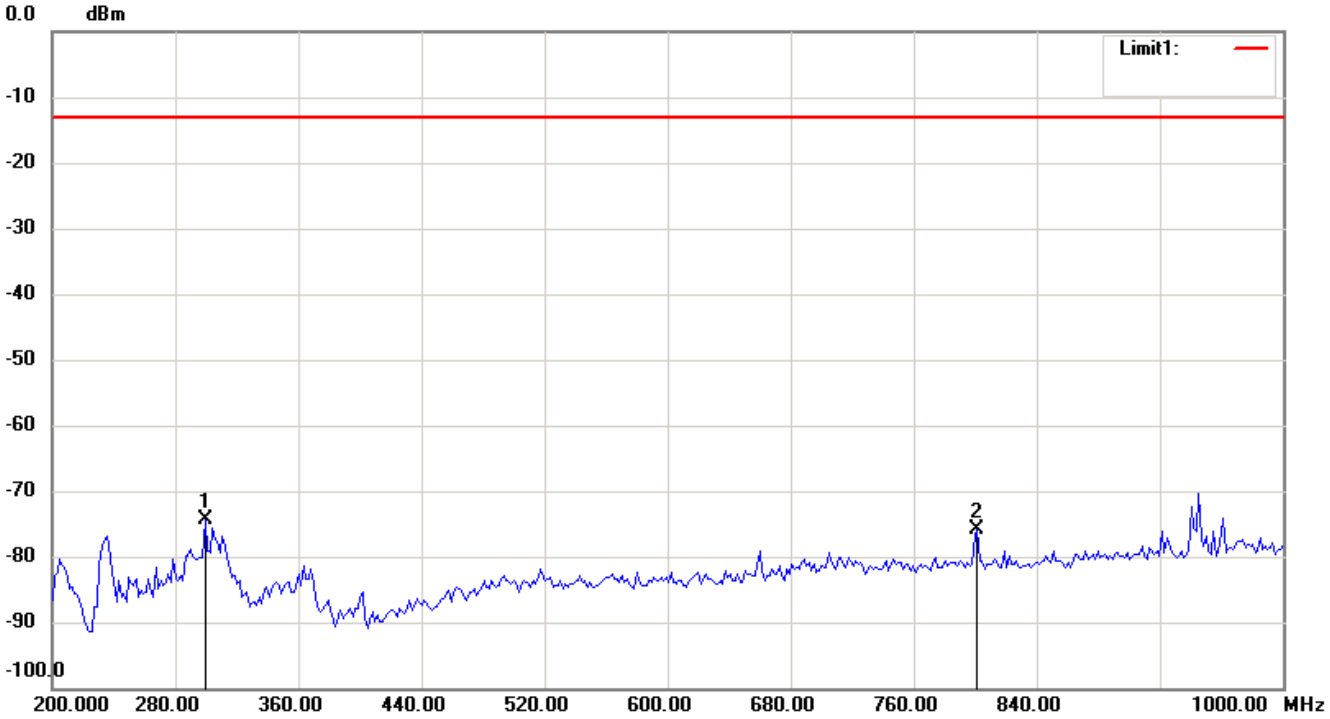

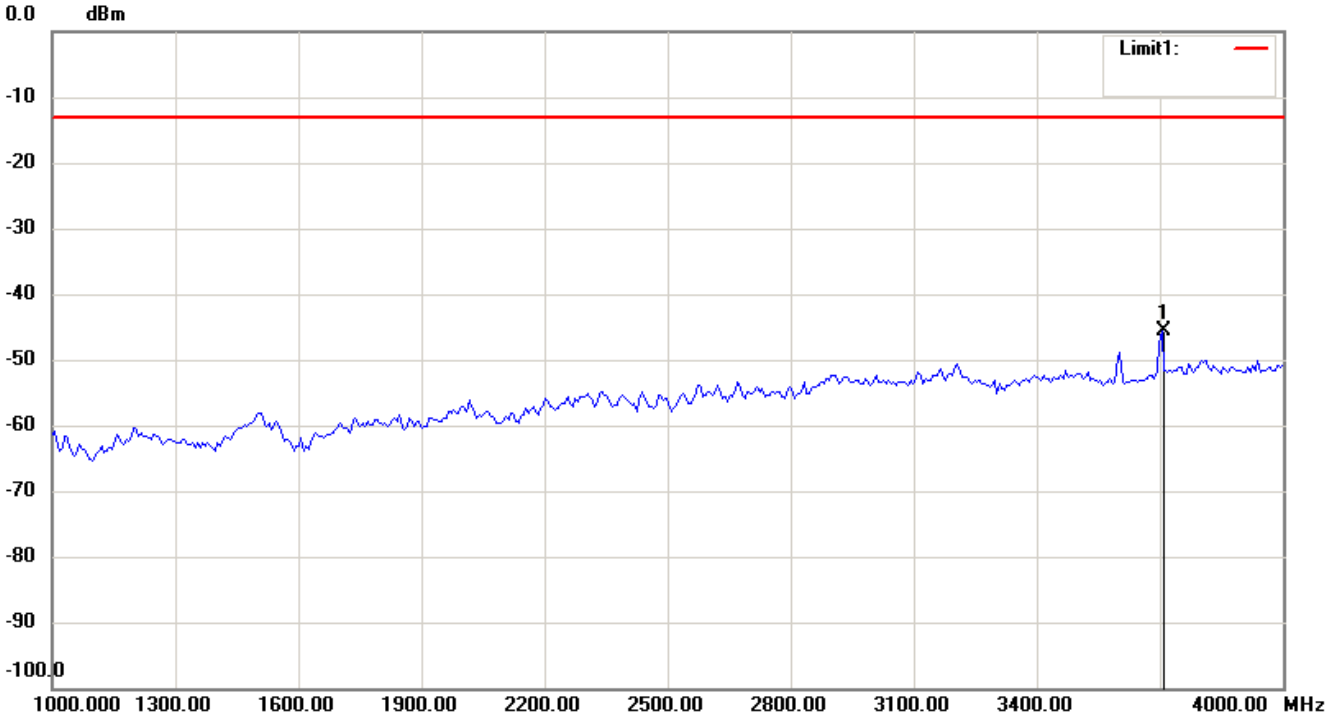

Note:
1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to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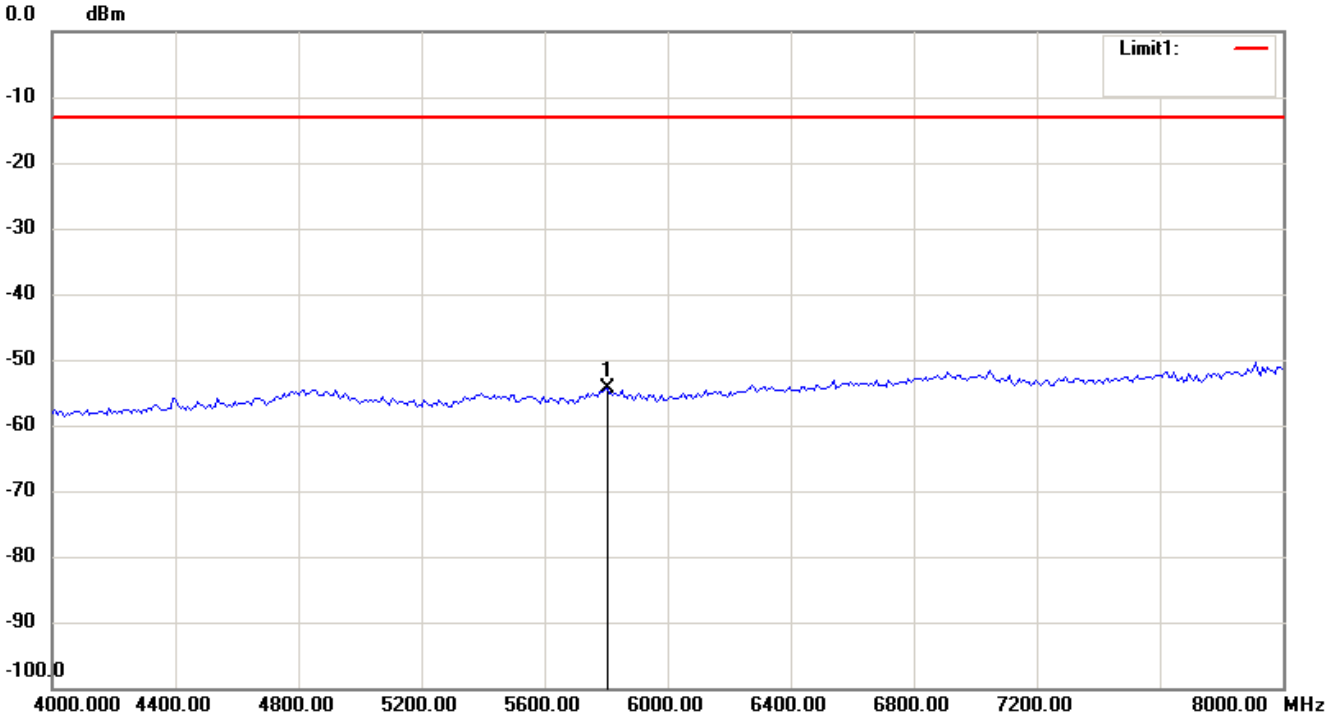

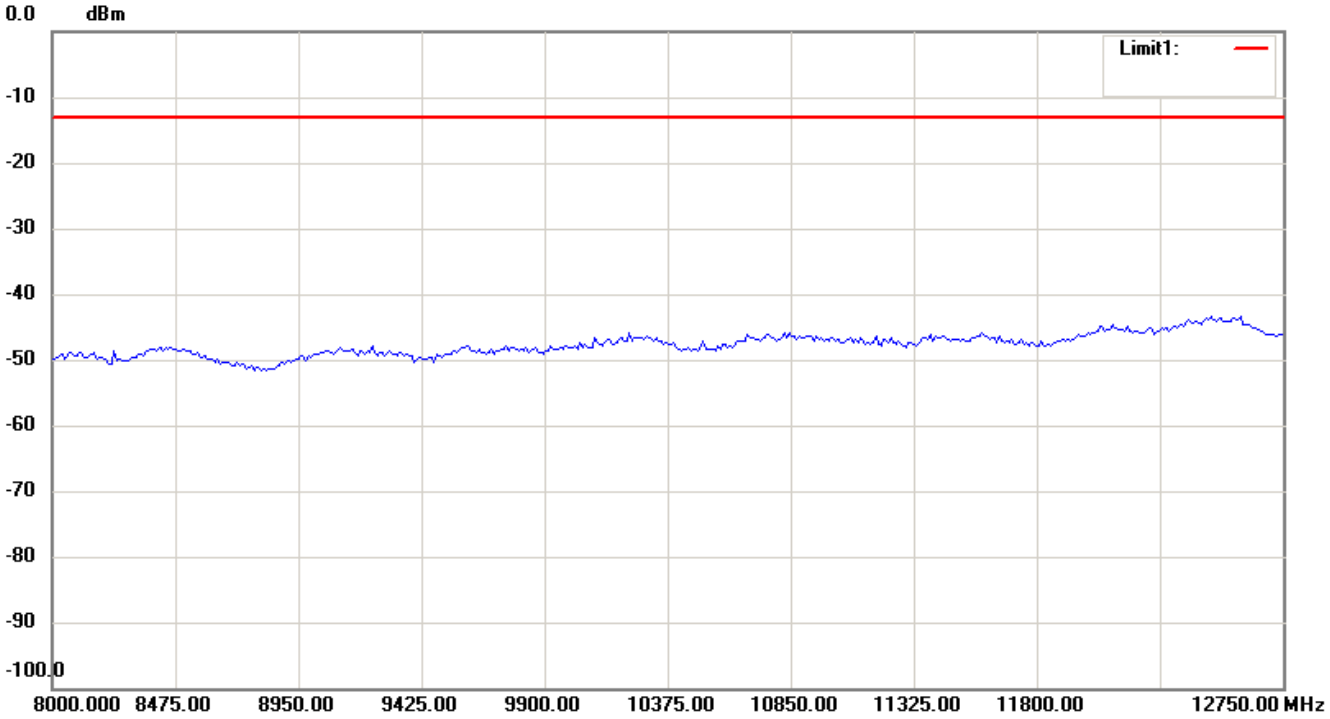

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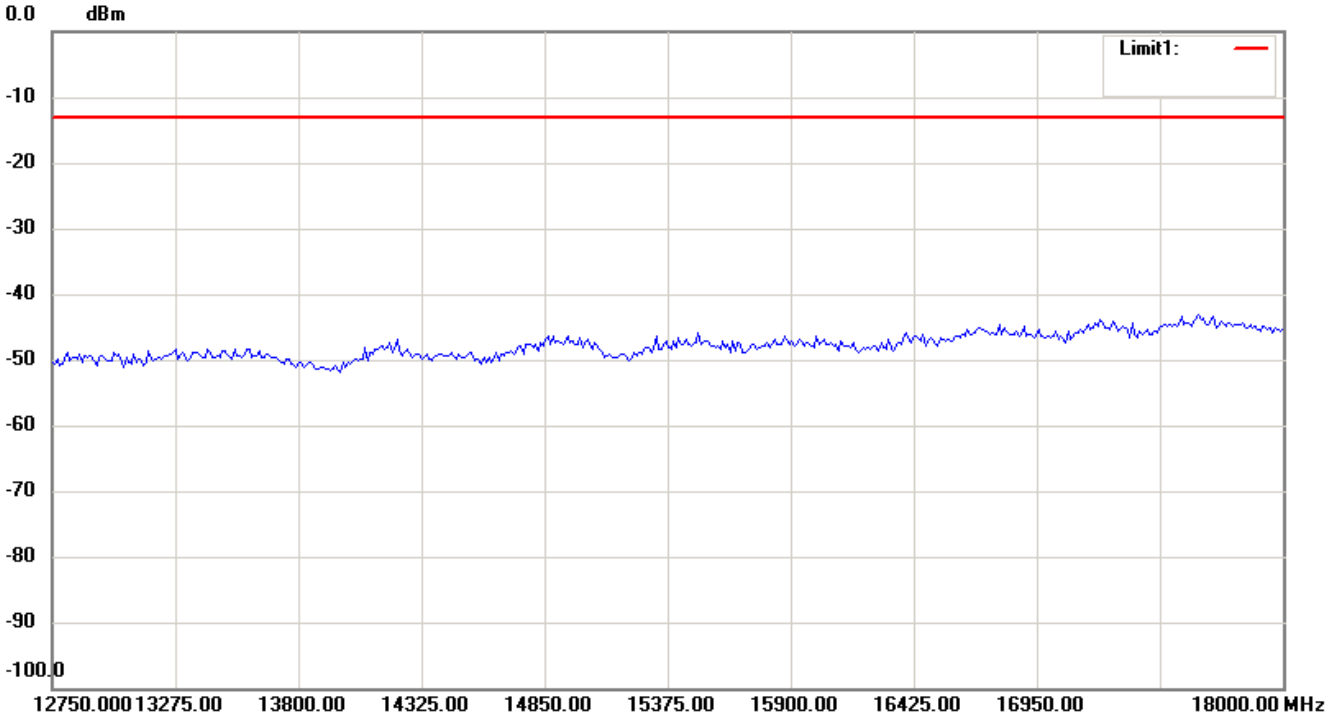

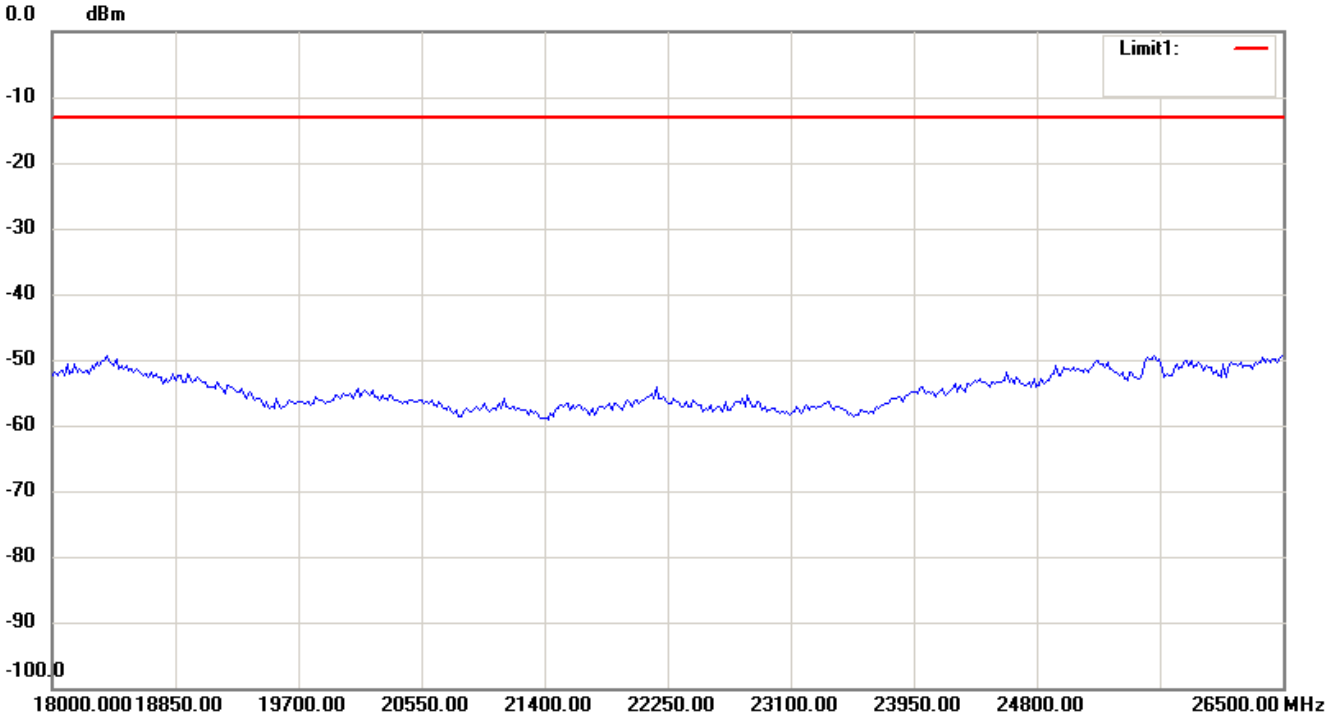

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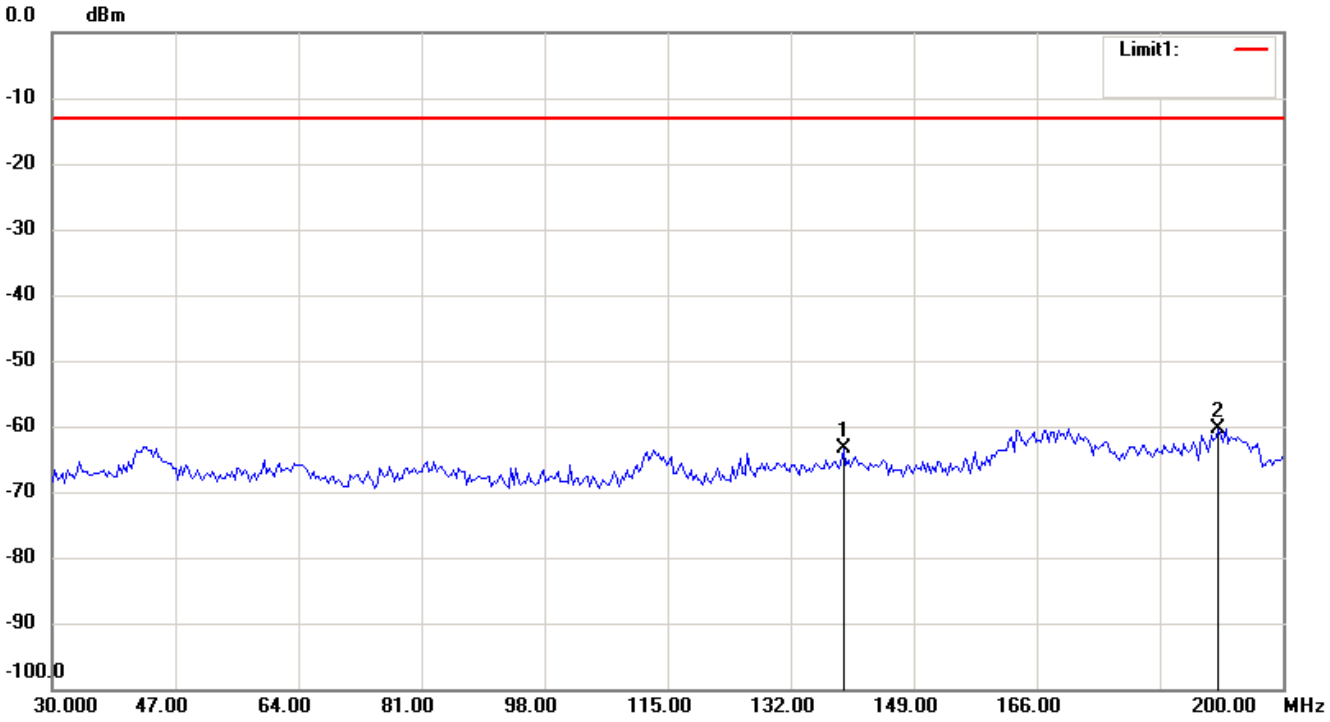
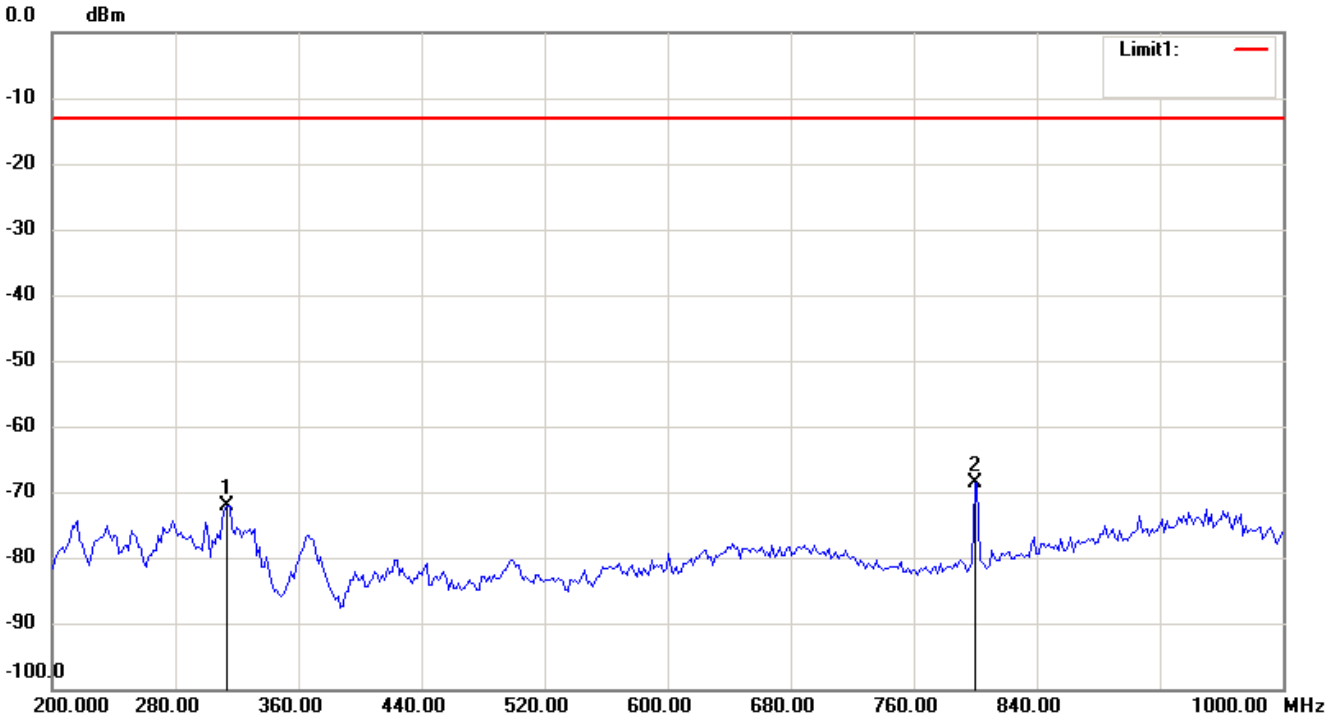
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_CH 661_108V
Antenna Polarization H





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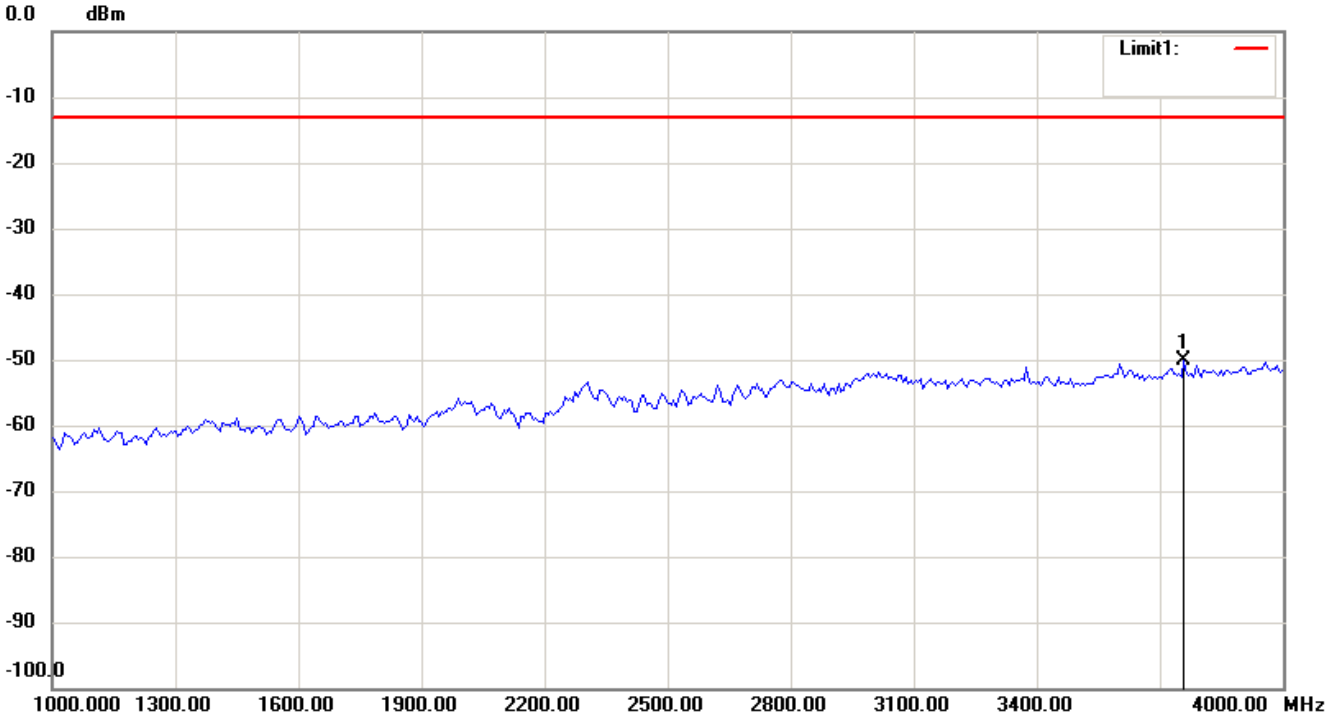

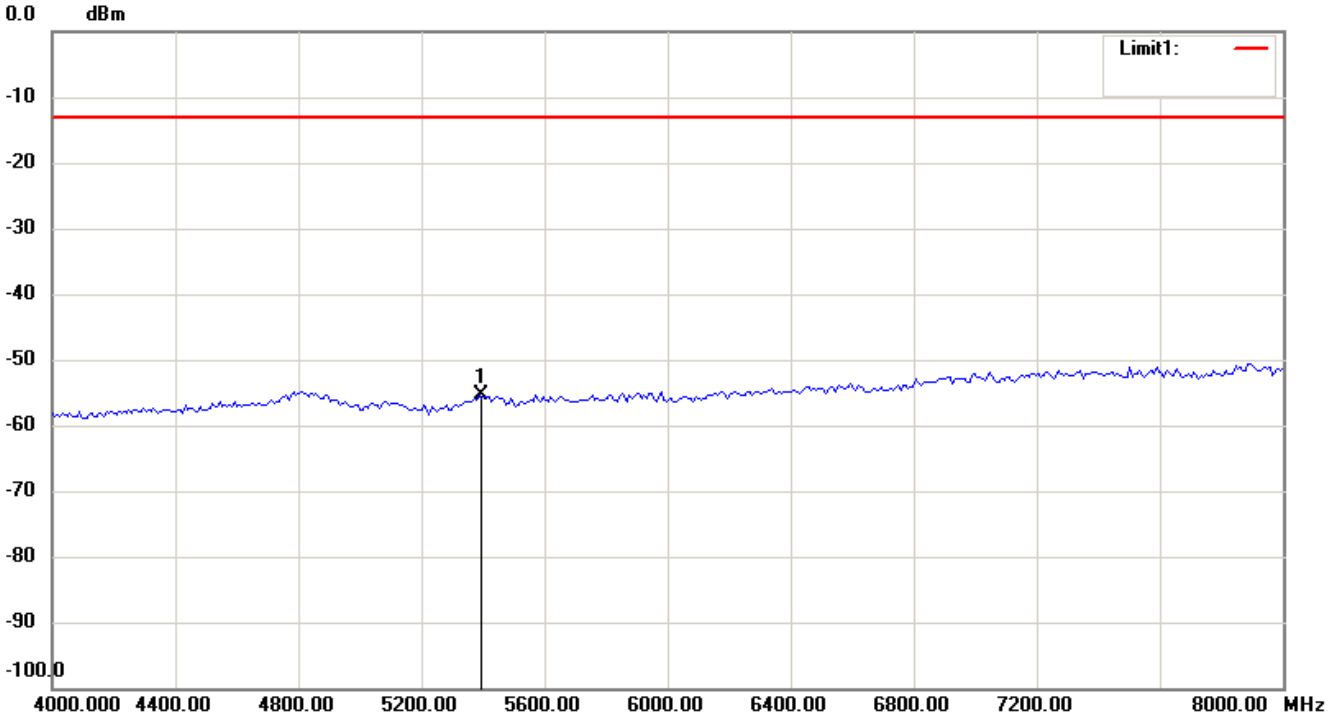

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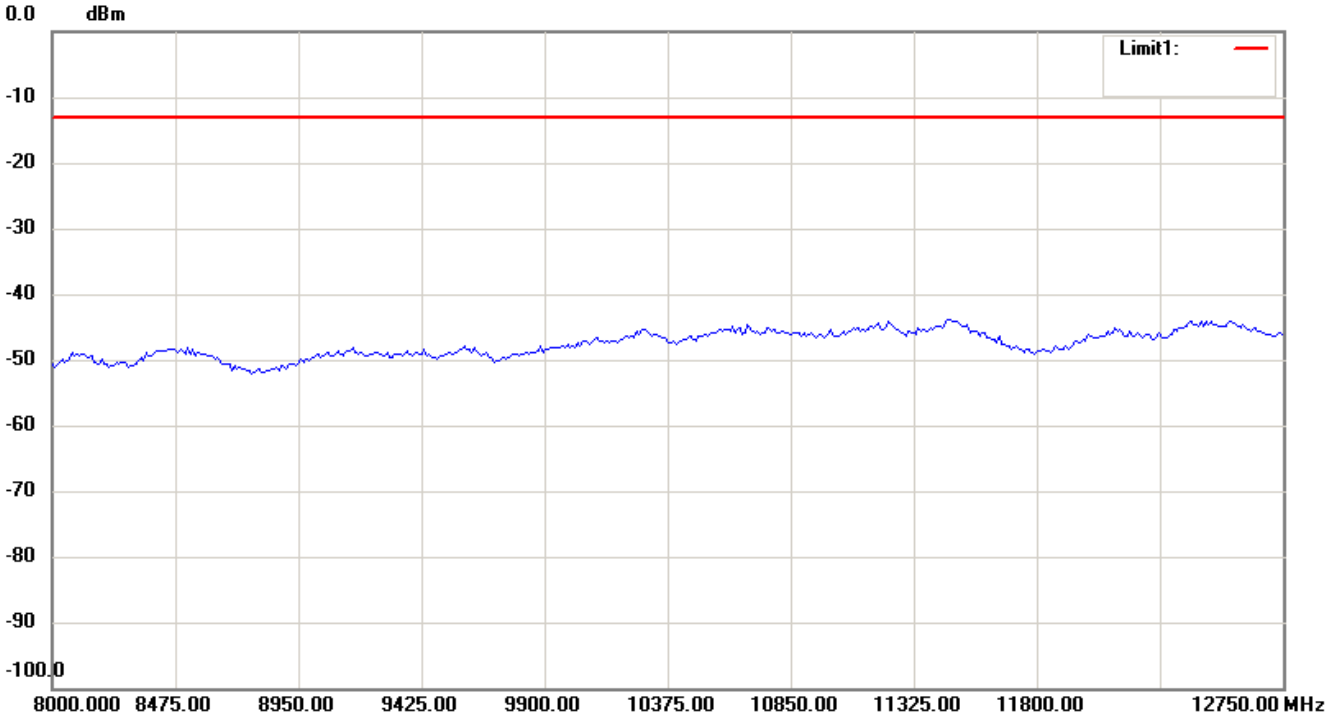

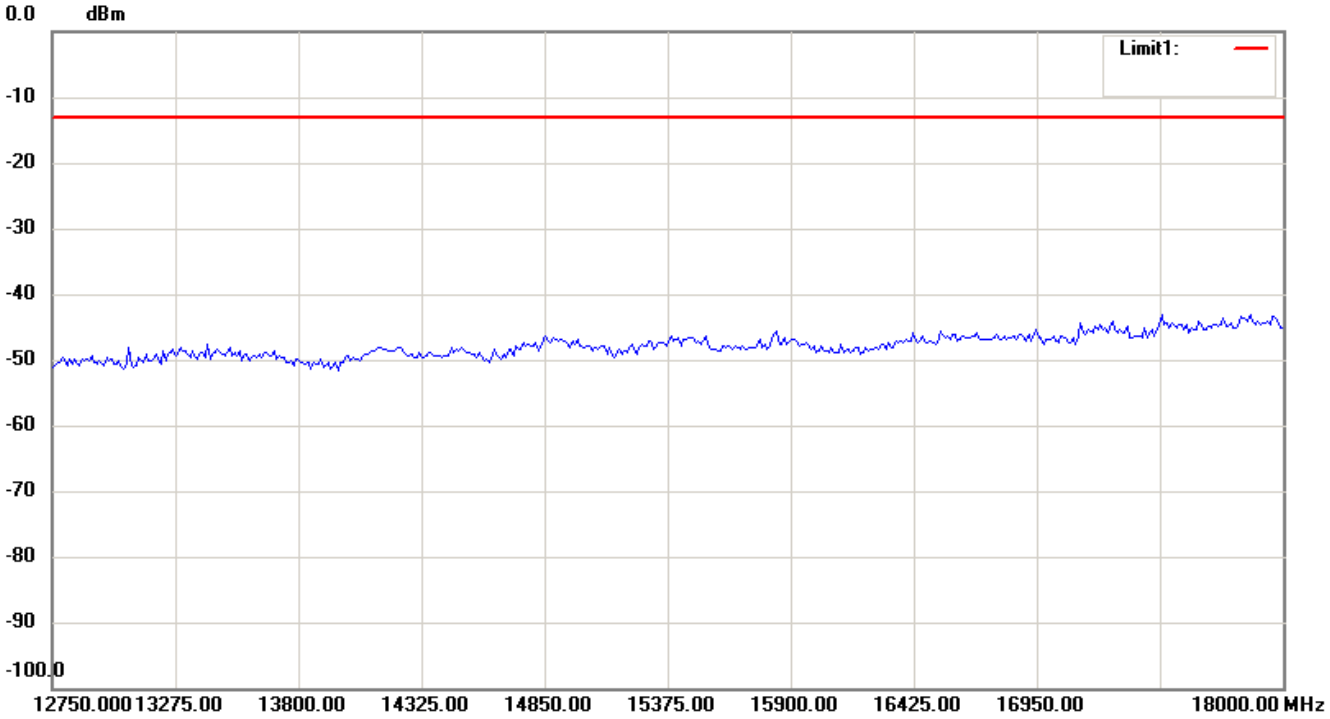

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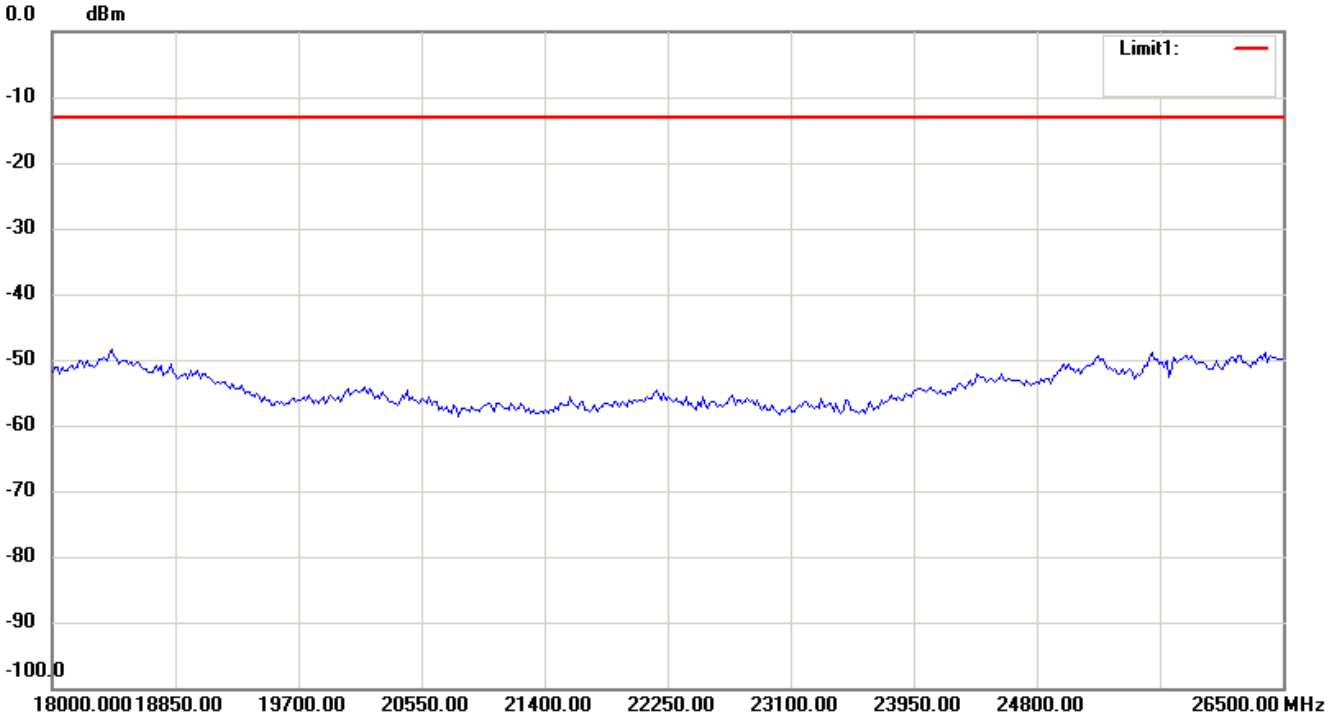
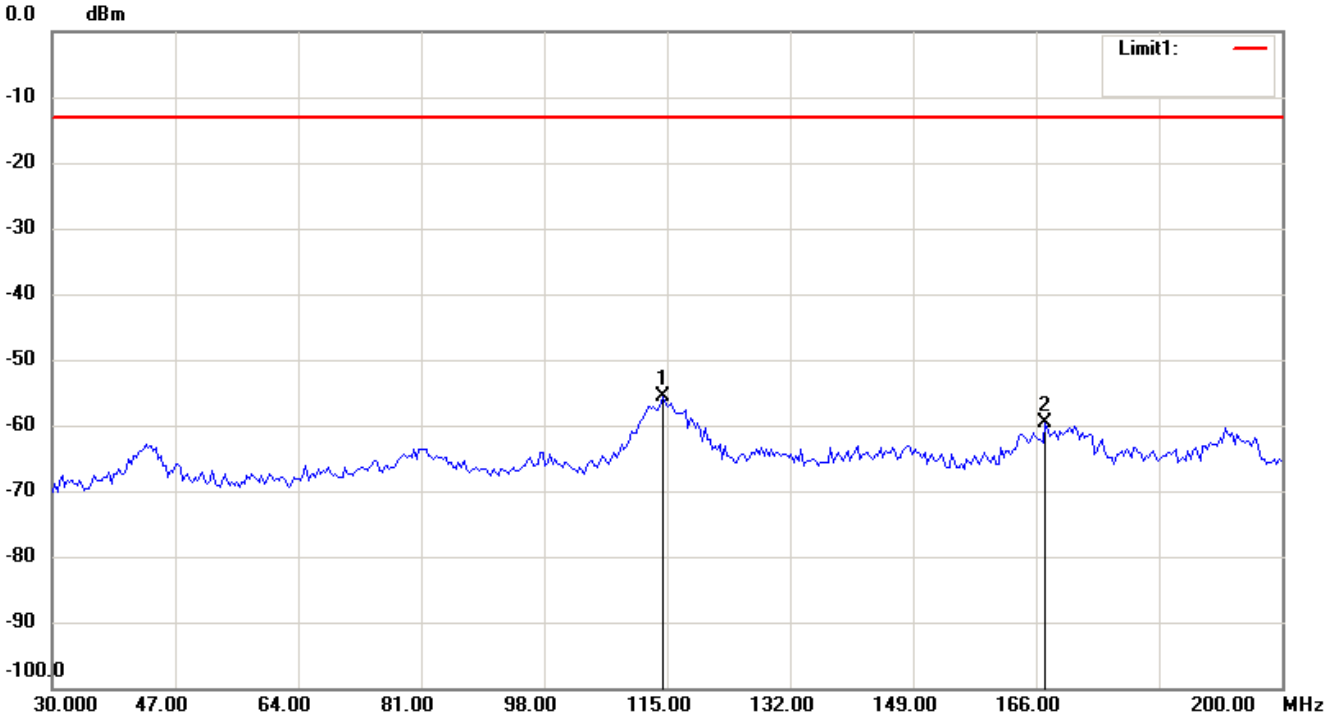
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



Antenna Polarization V



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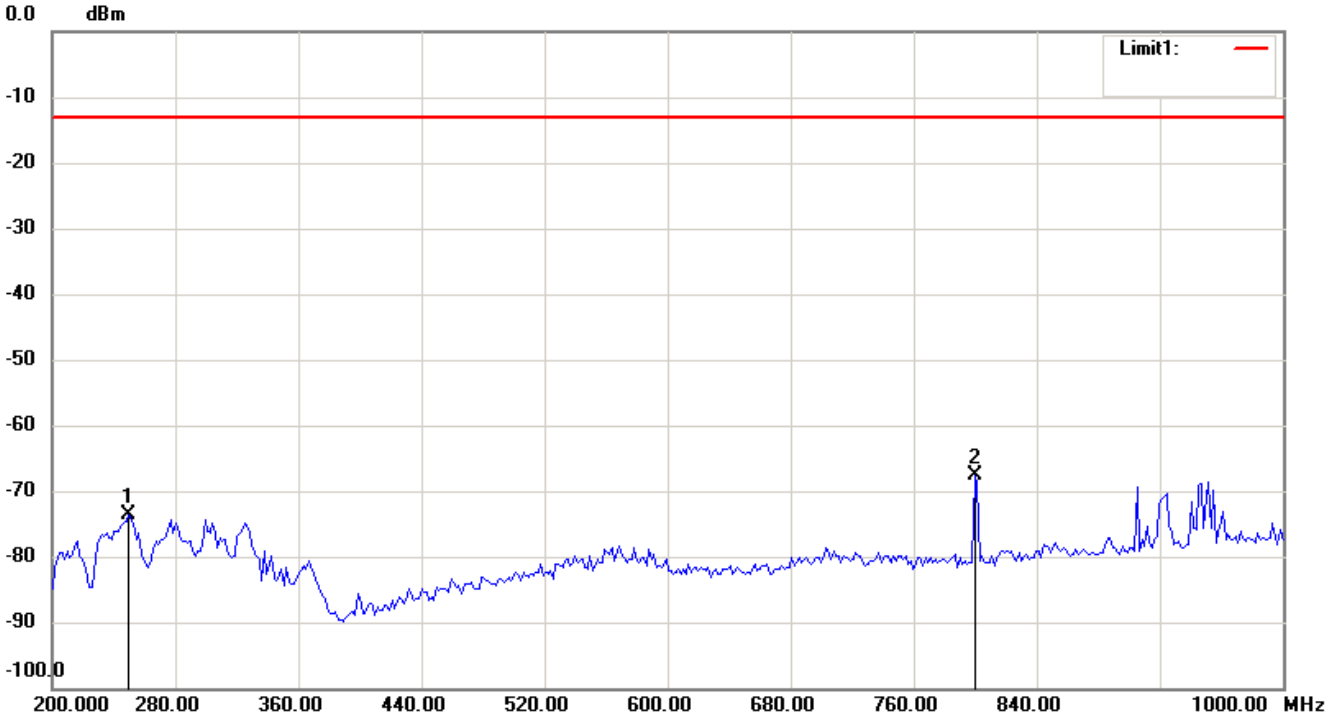

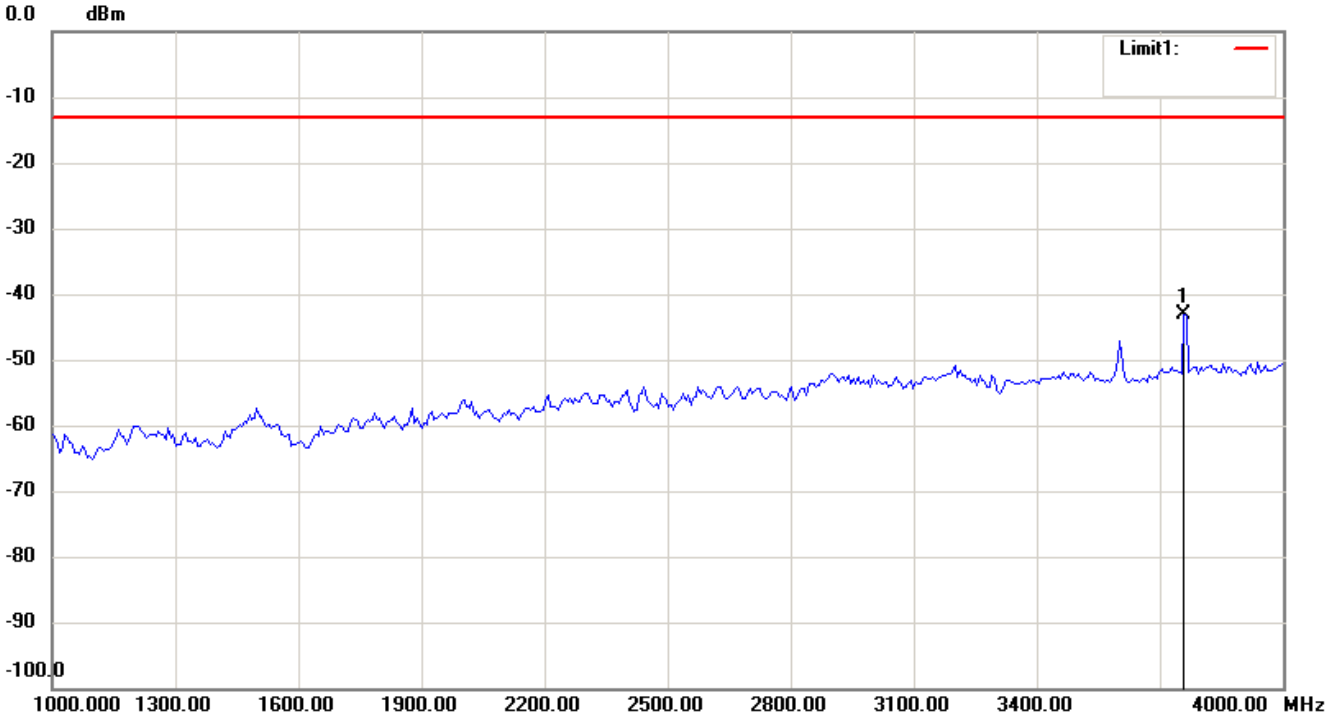

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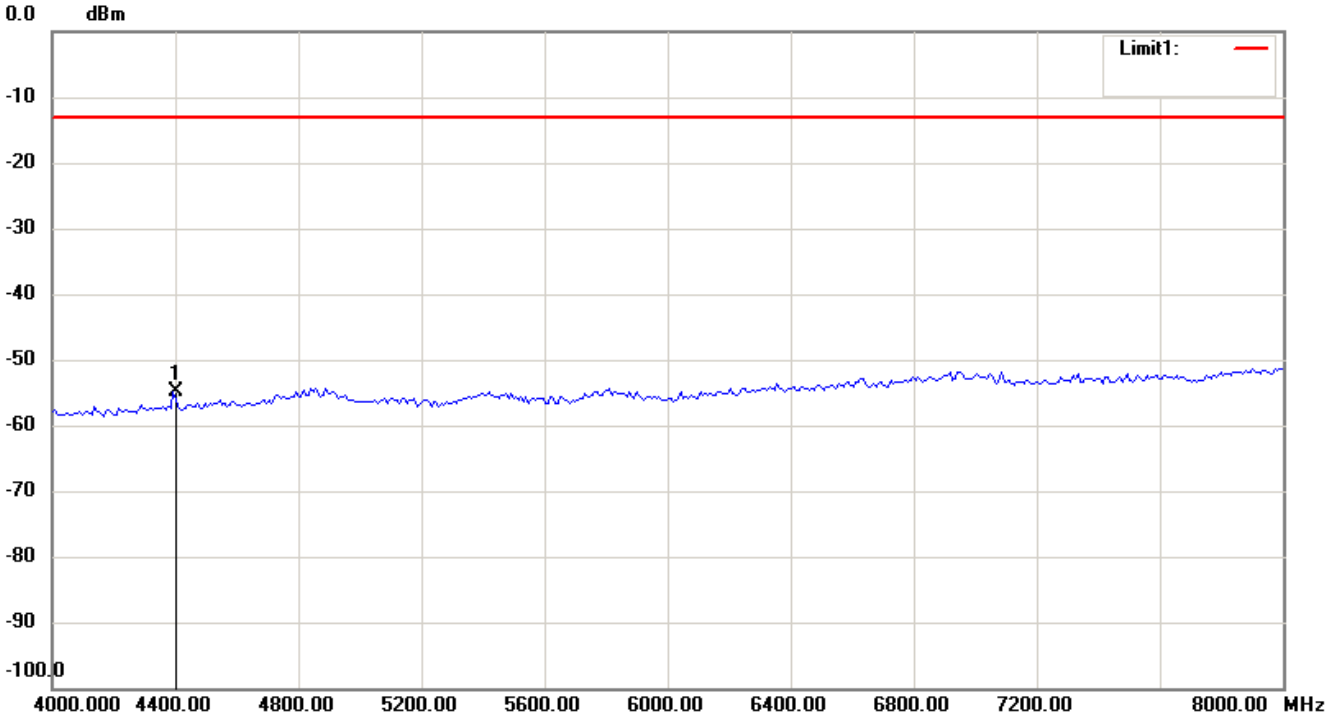

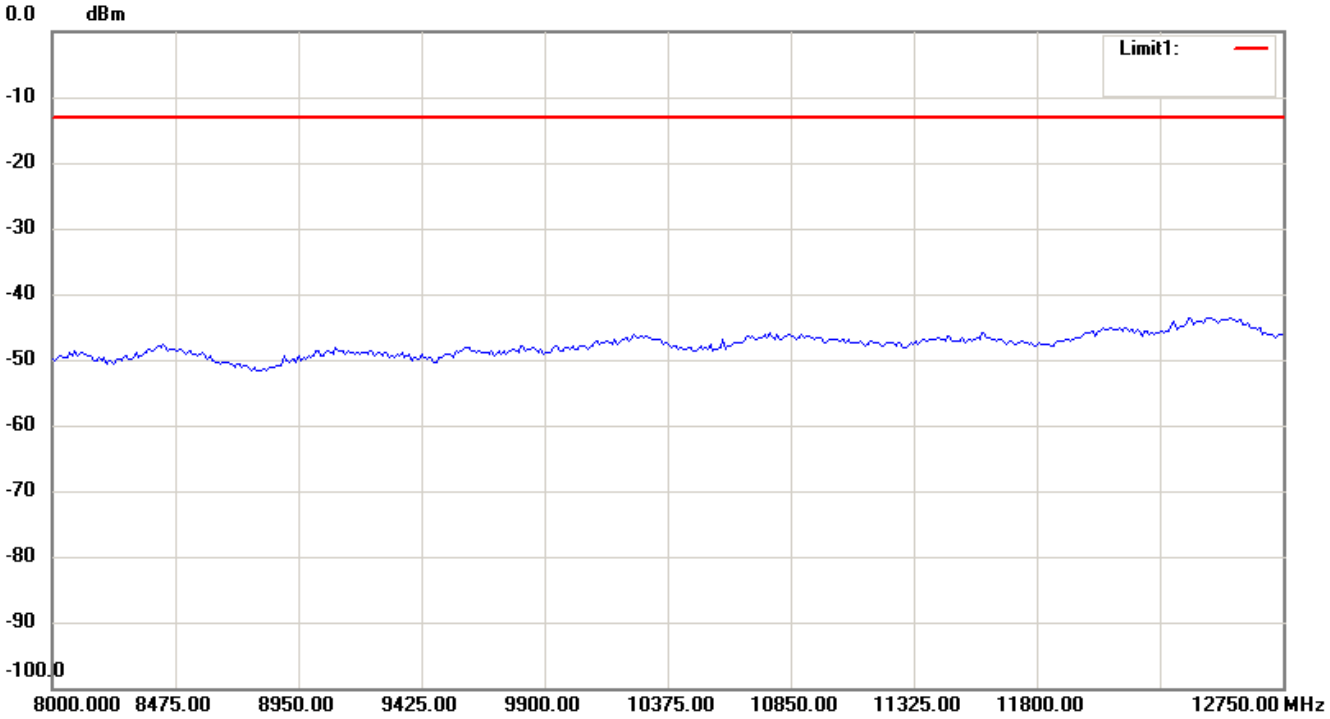

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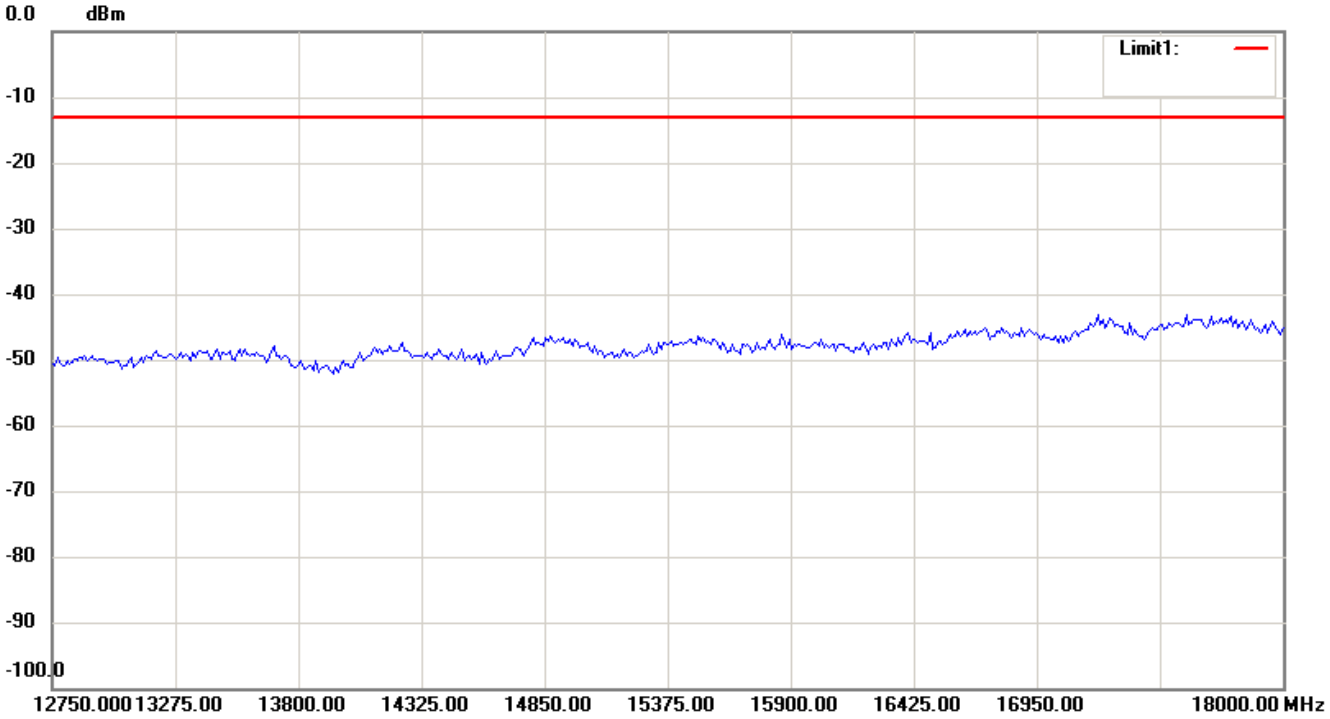

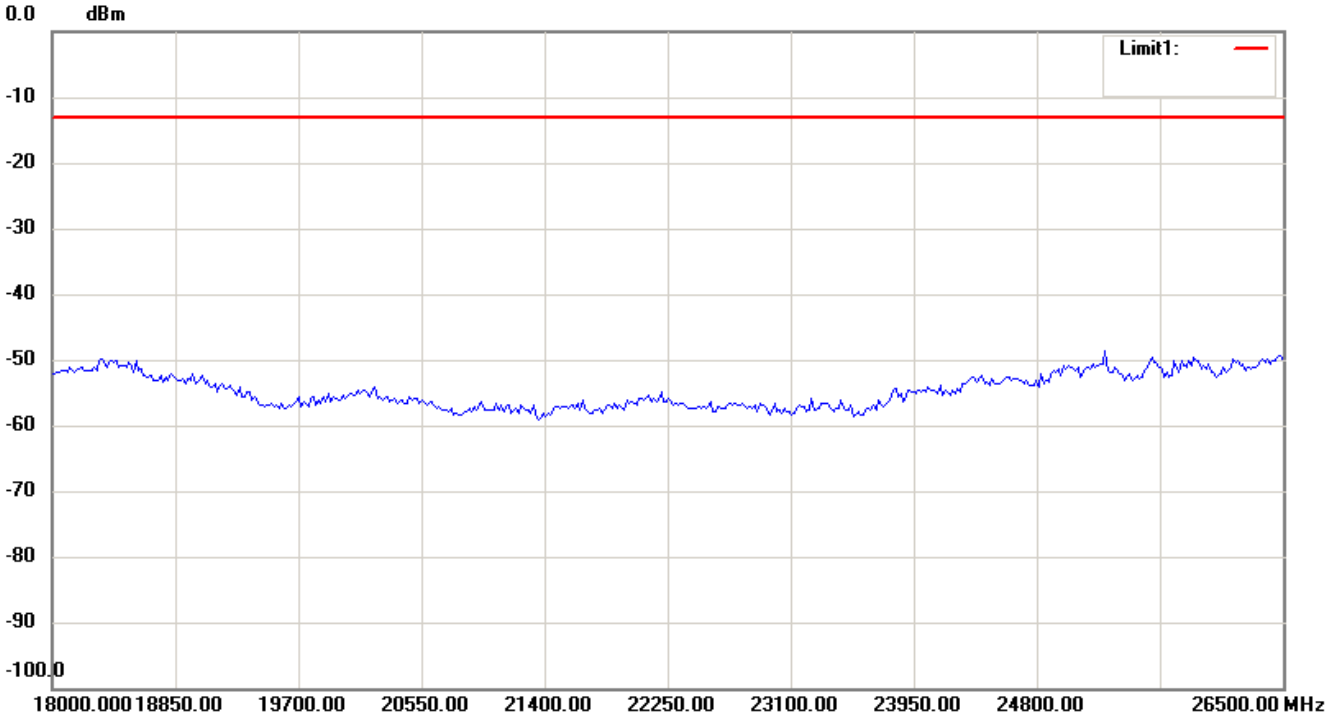

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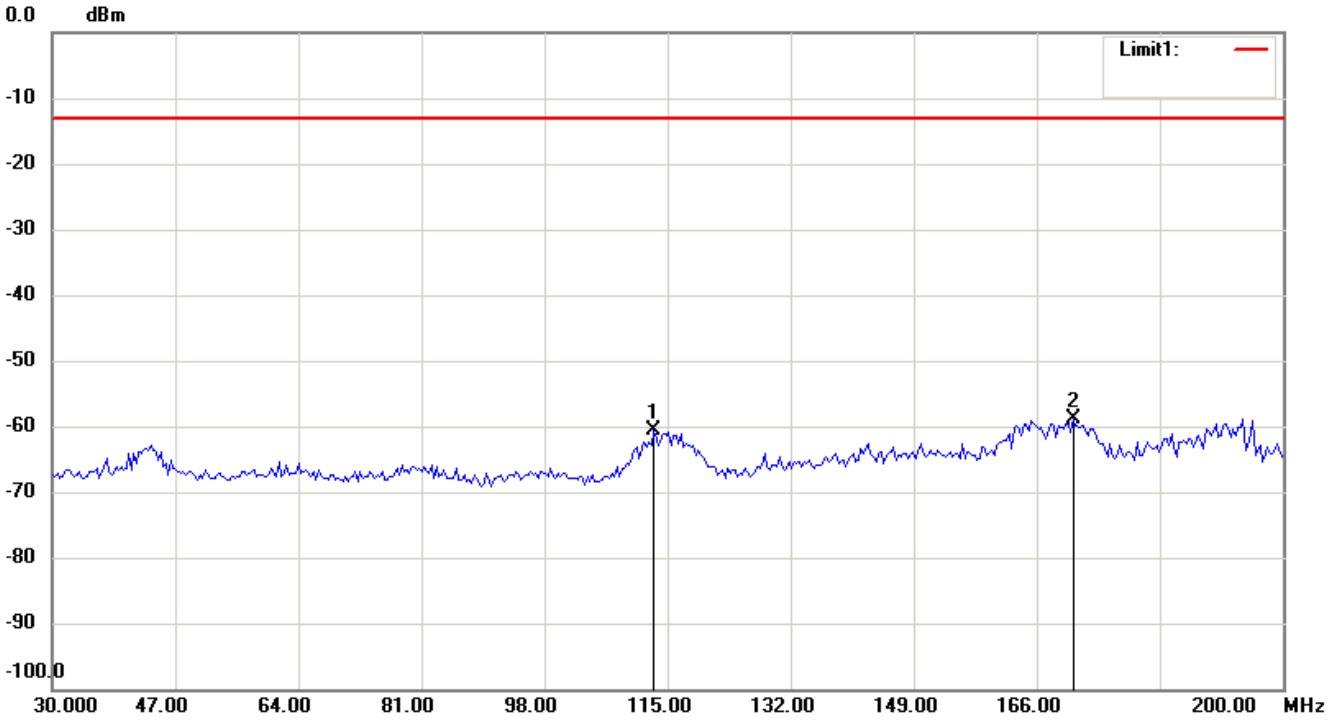
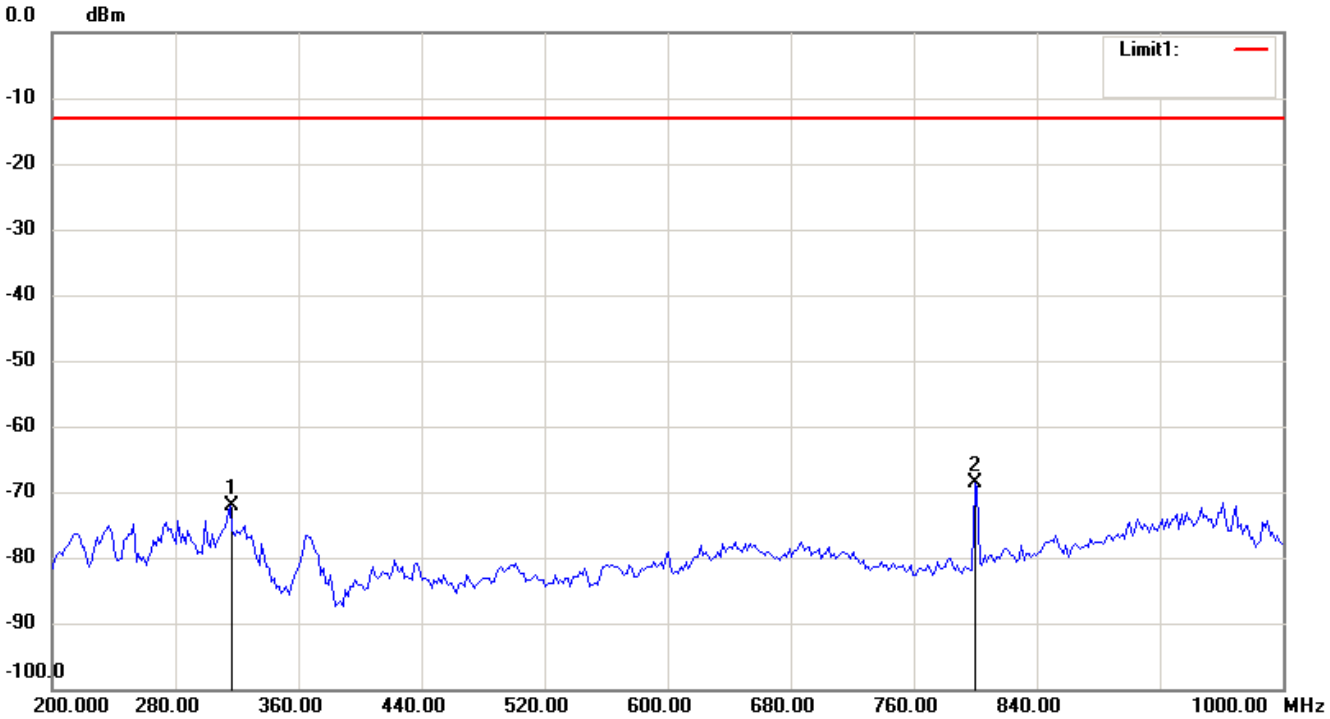
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
1900 band_CH 661_132 V
Antenna Polarization H





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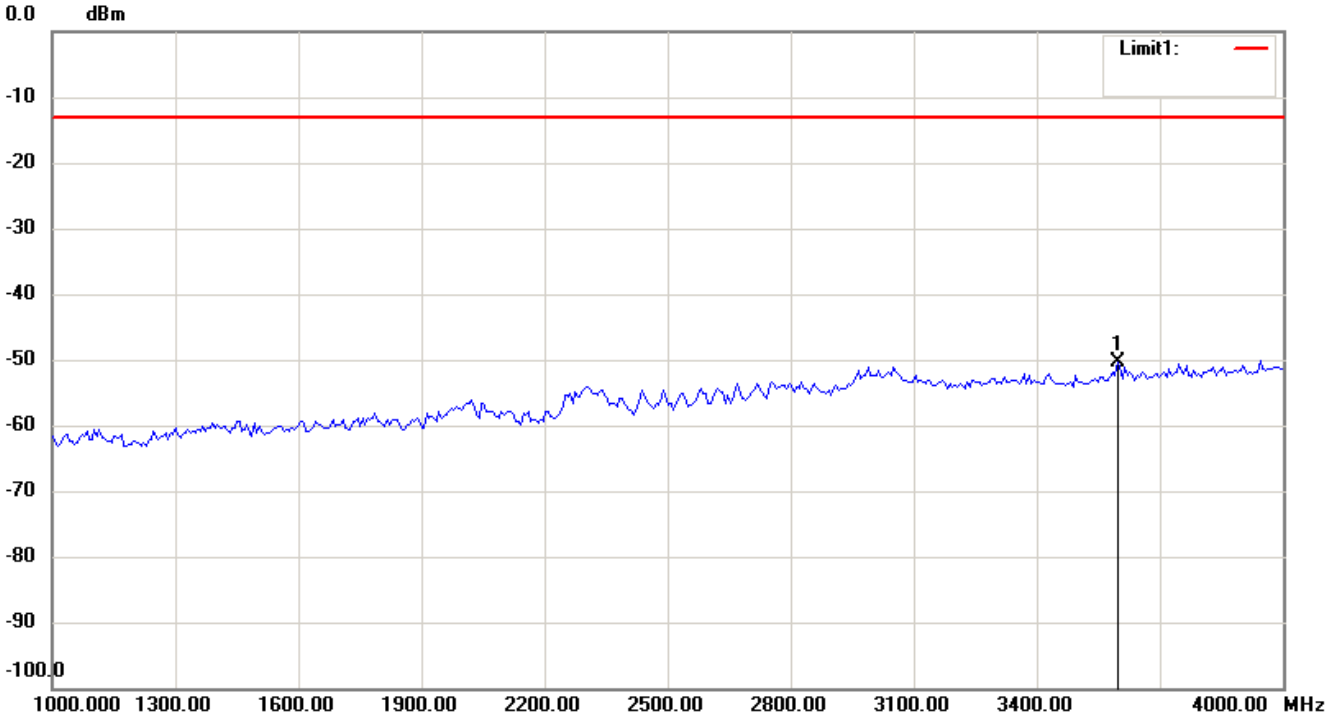

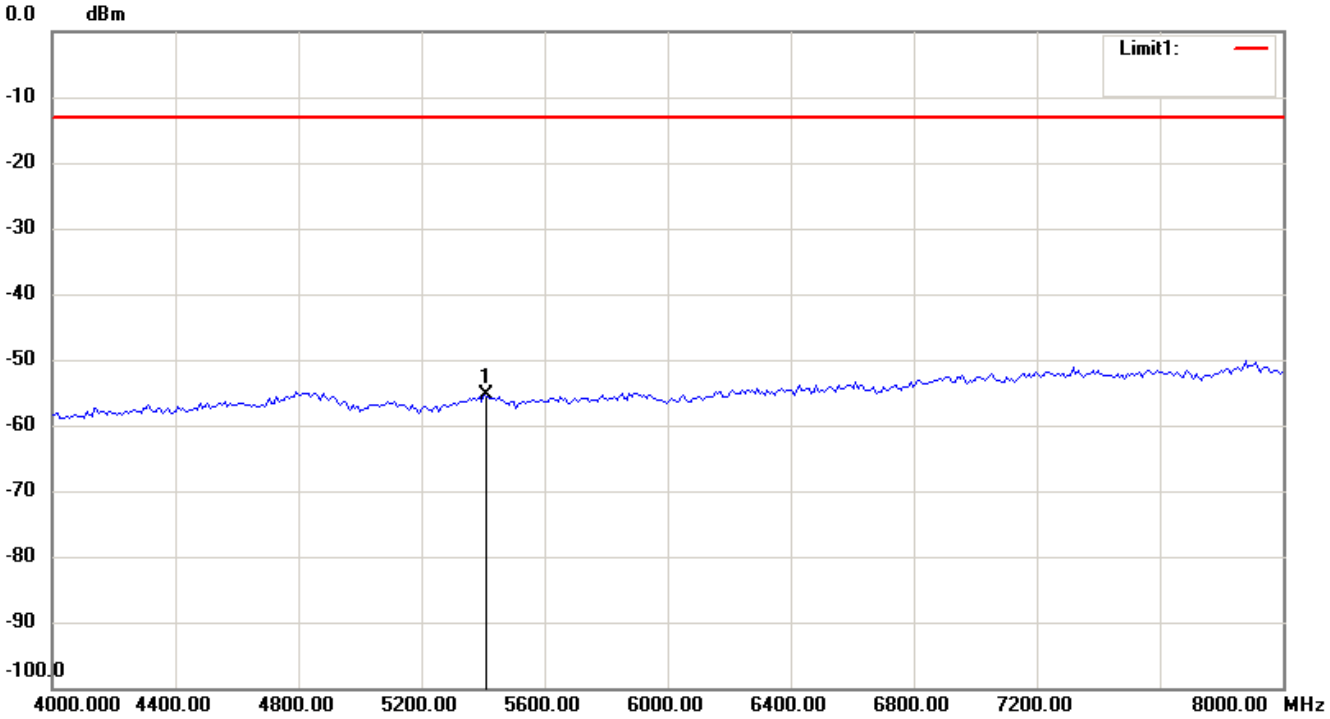

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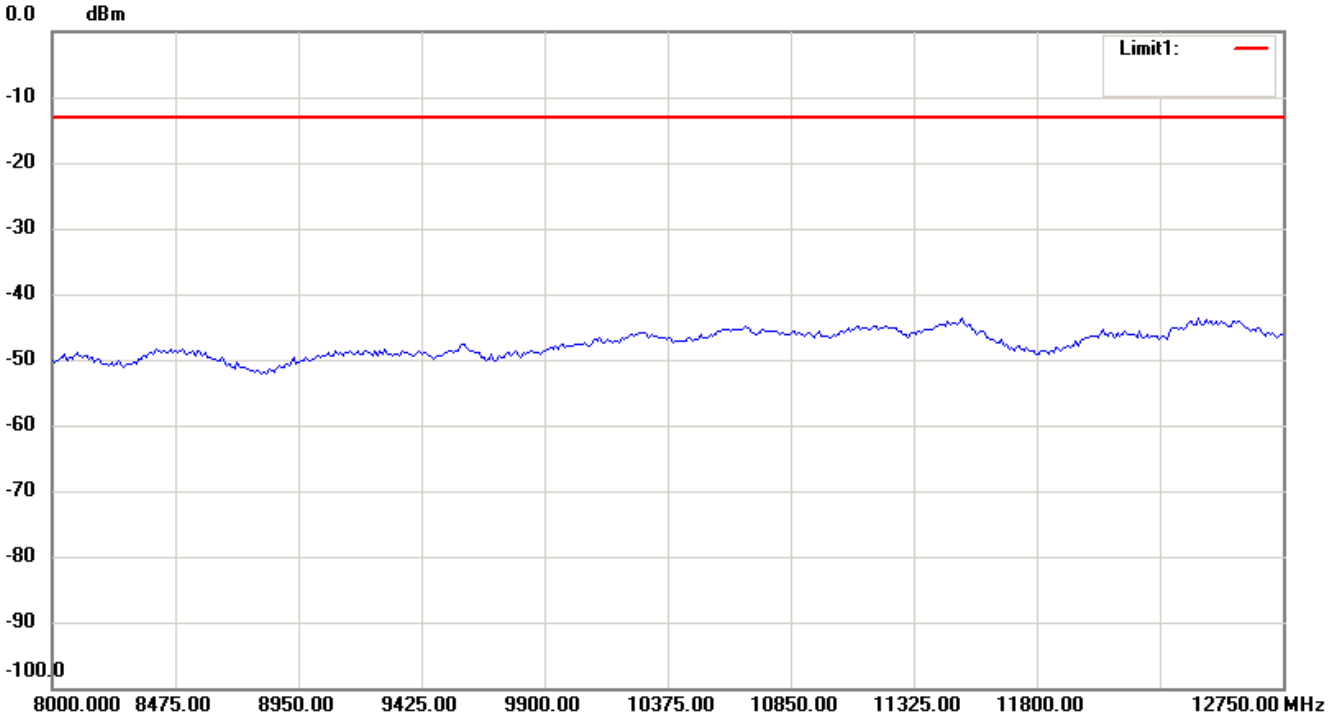

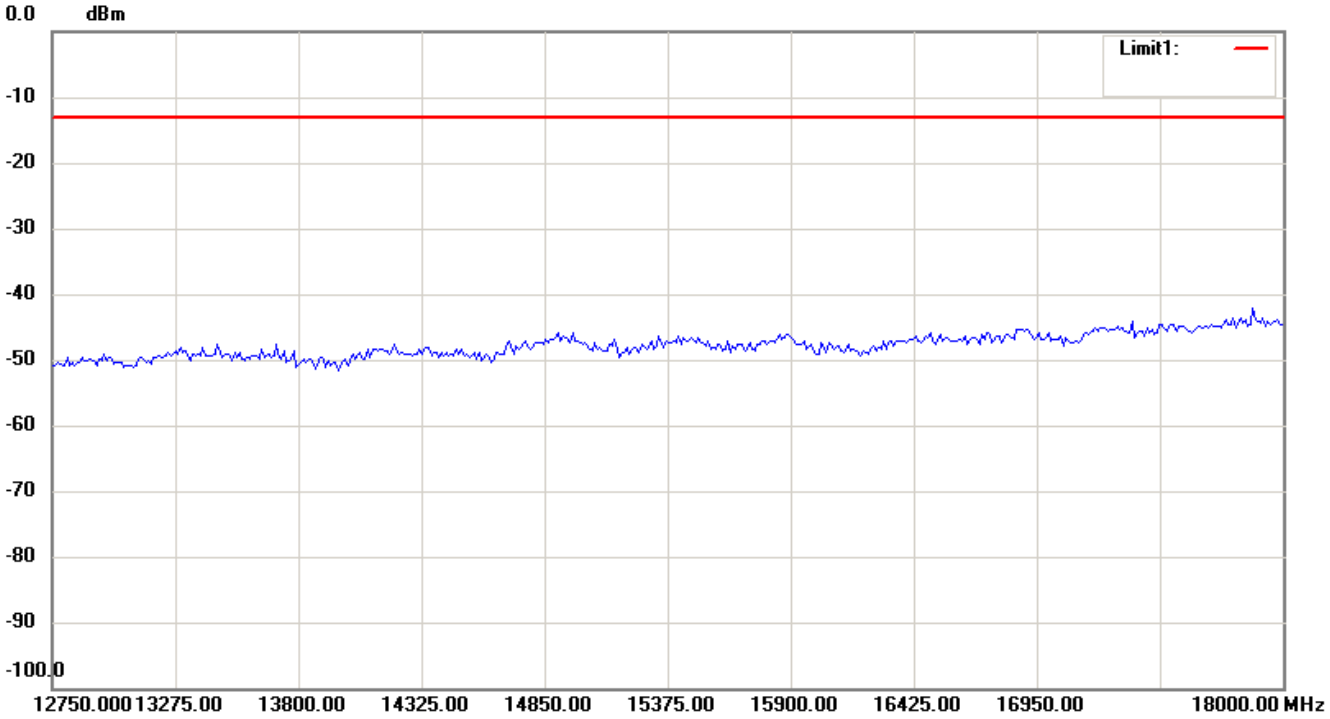

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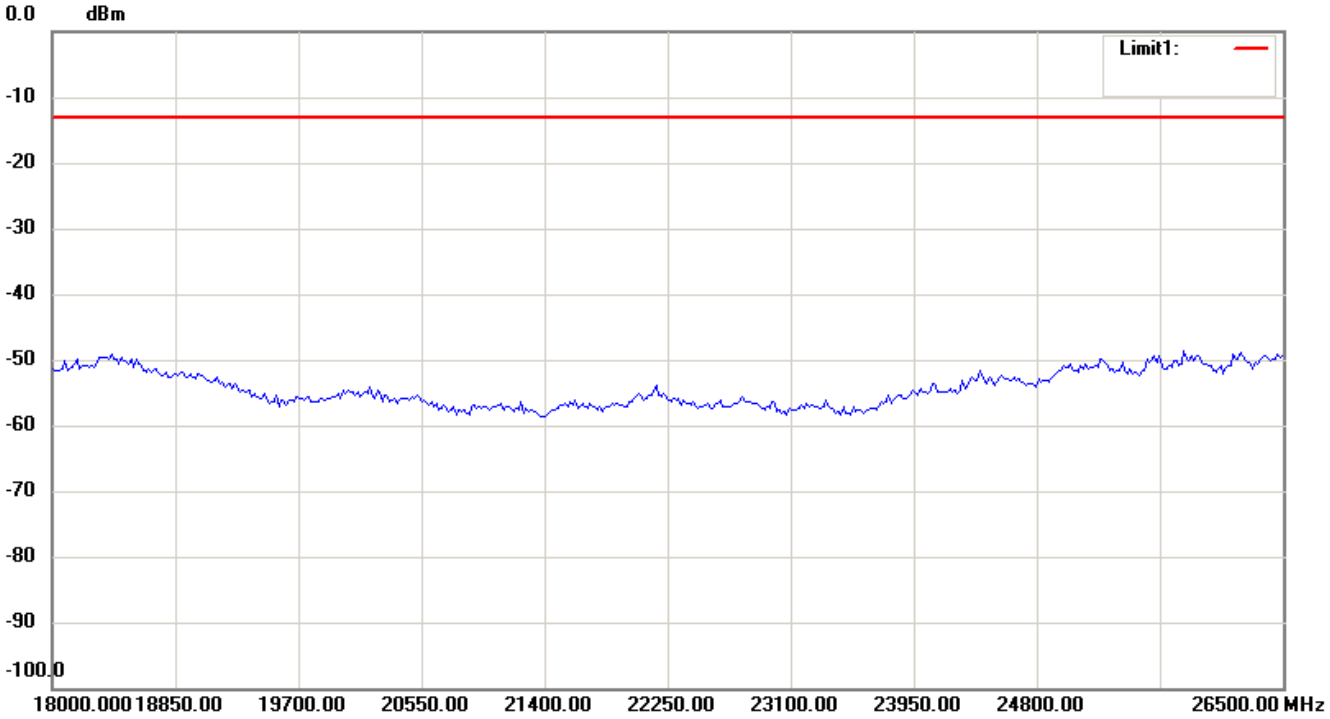
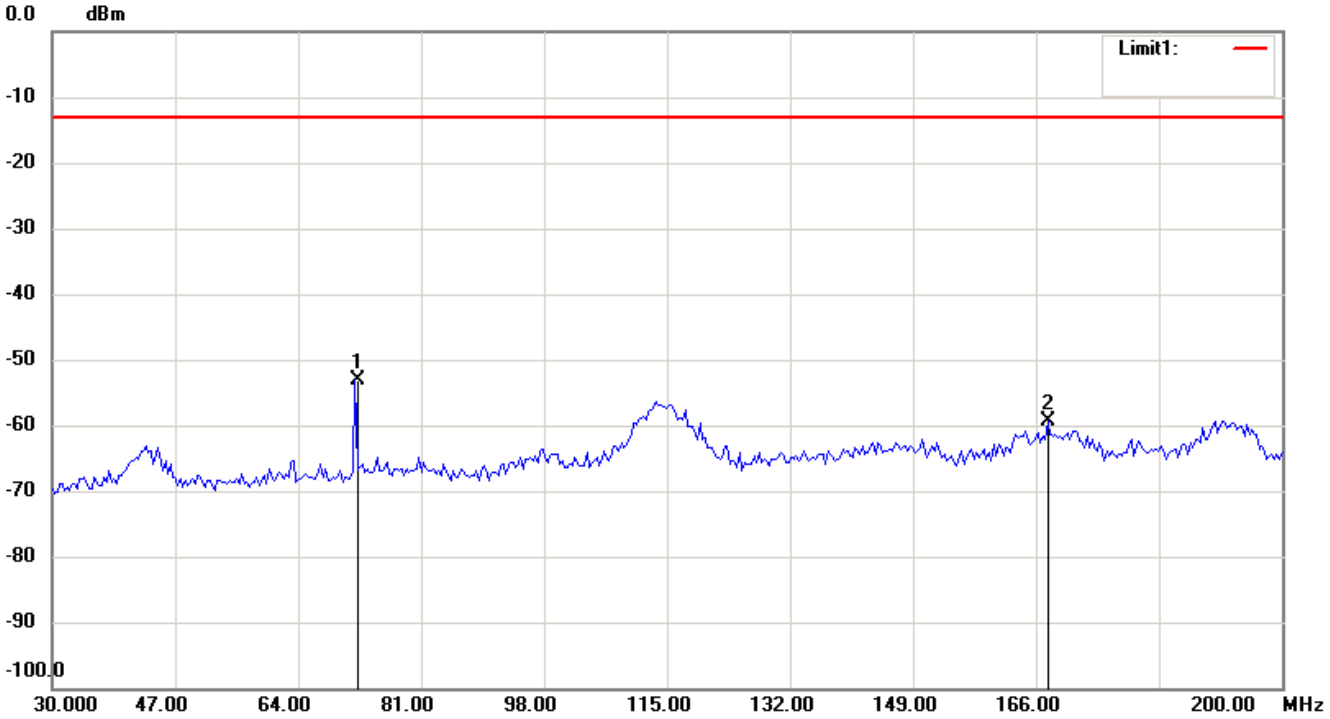
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



Antenna Polarization V



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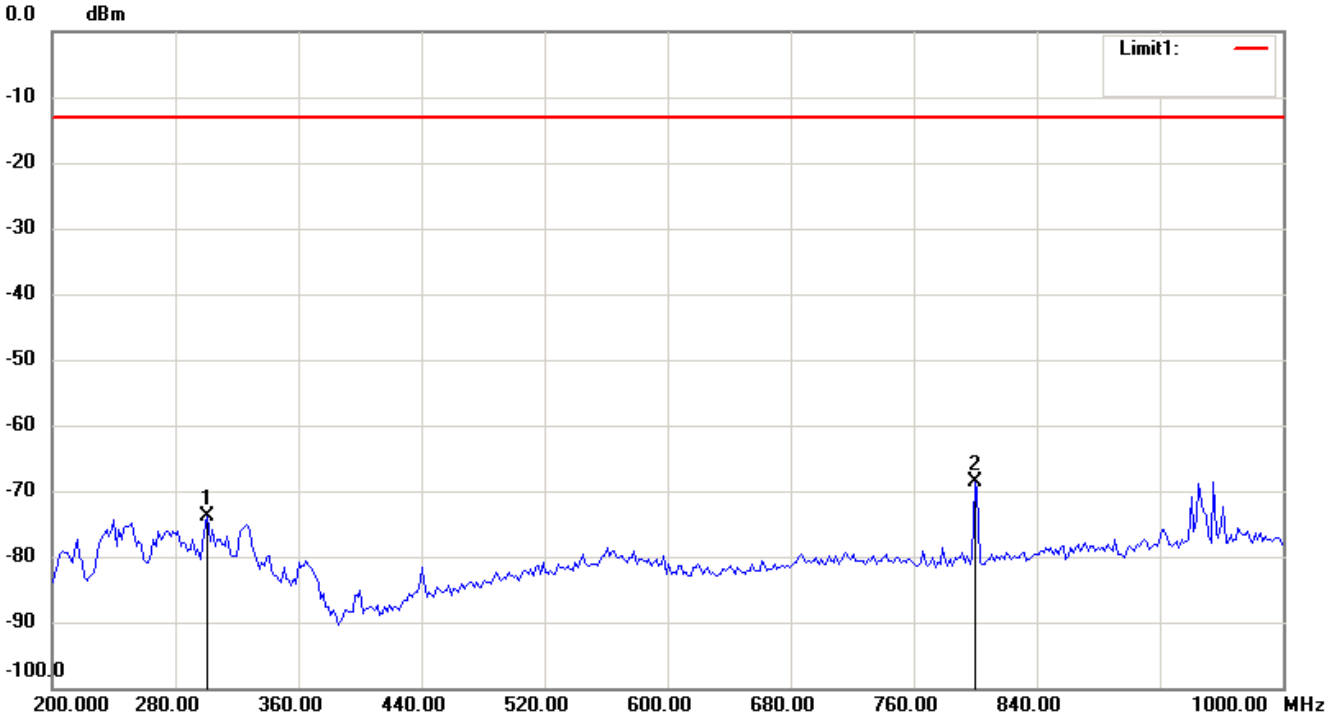

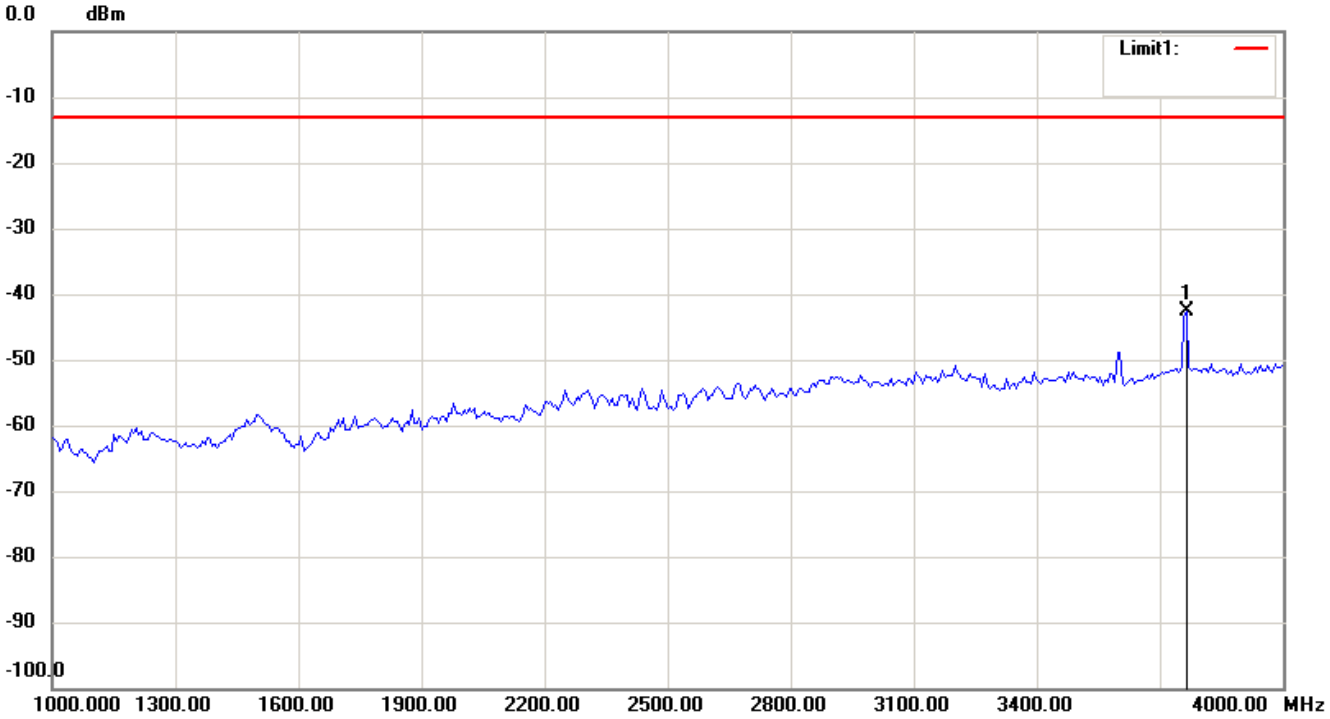

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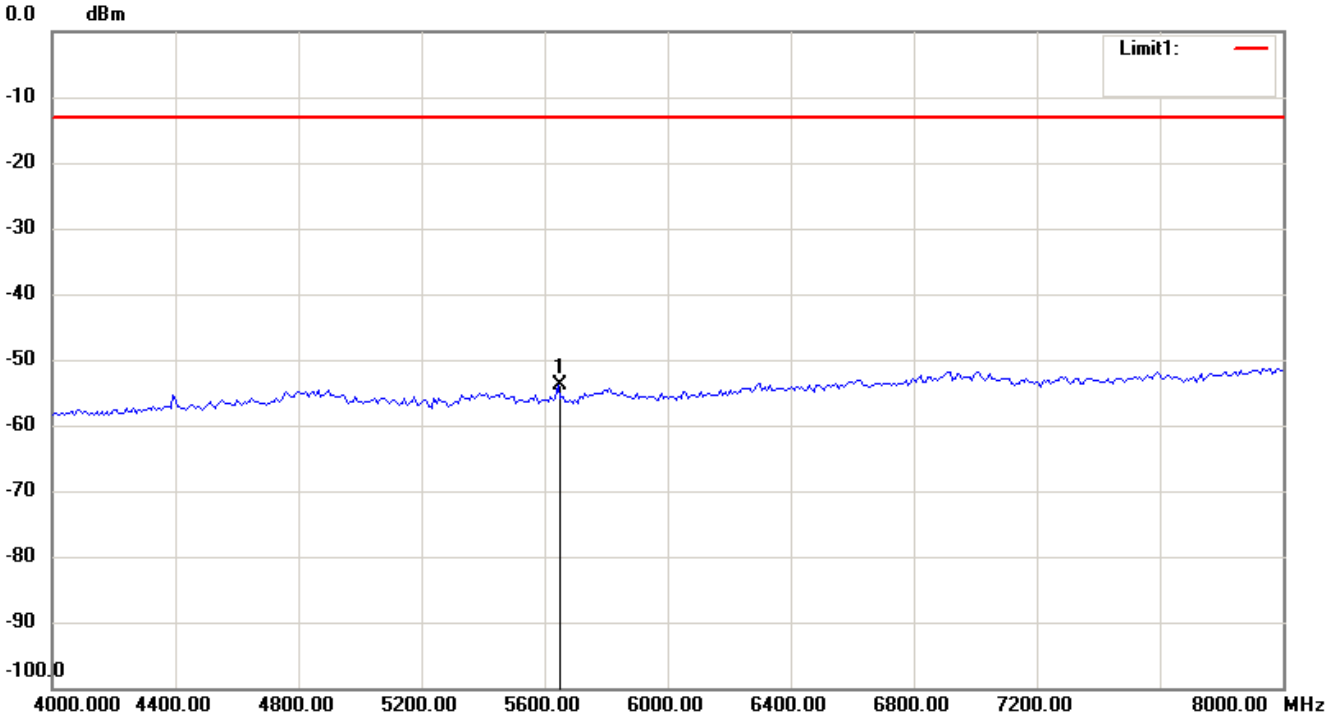

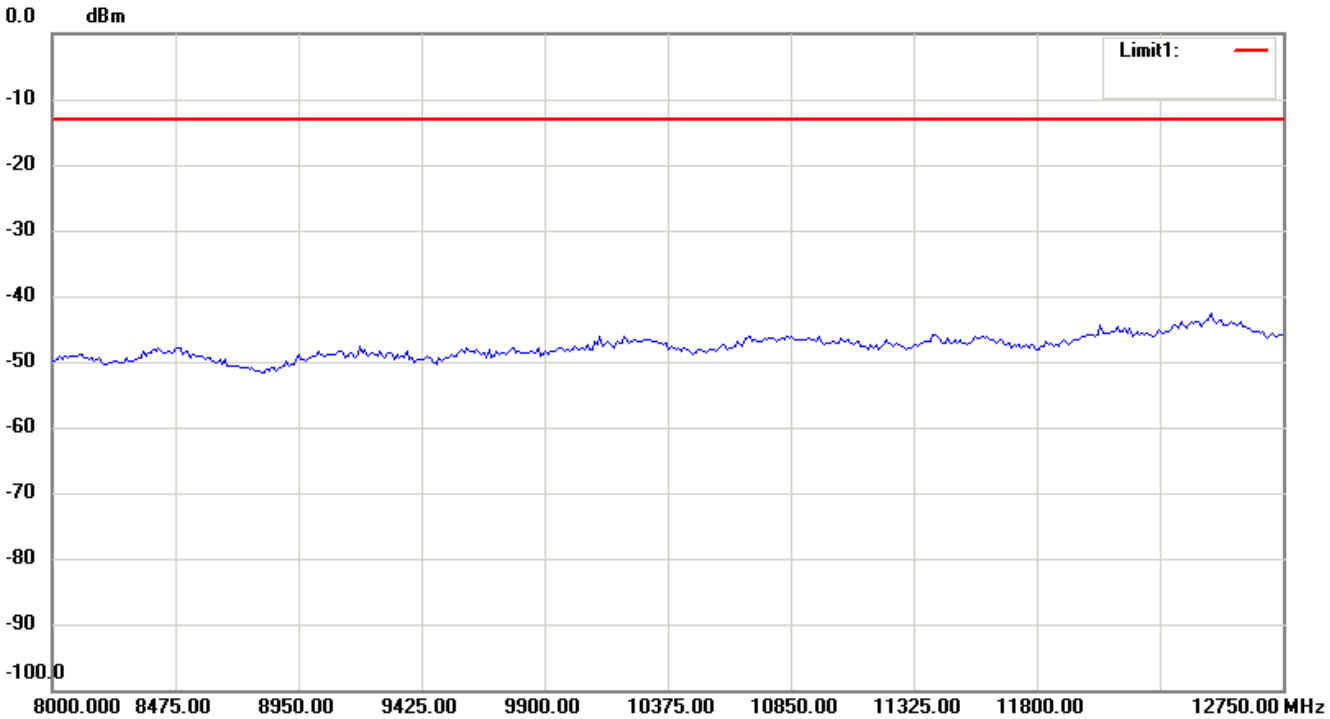

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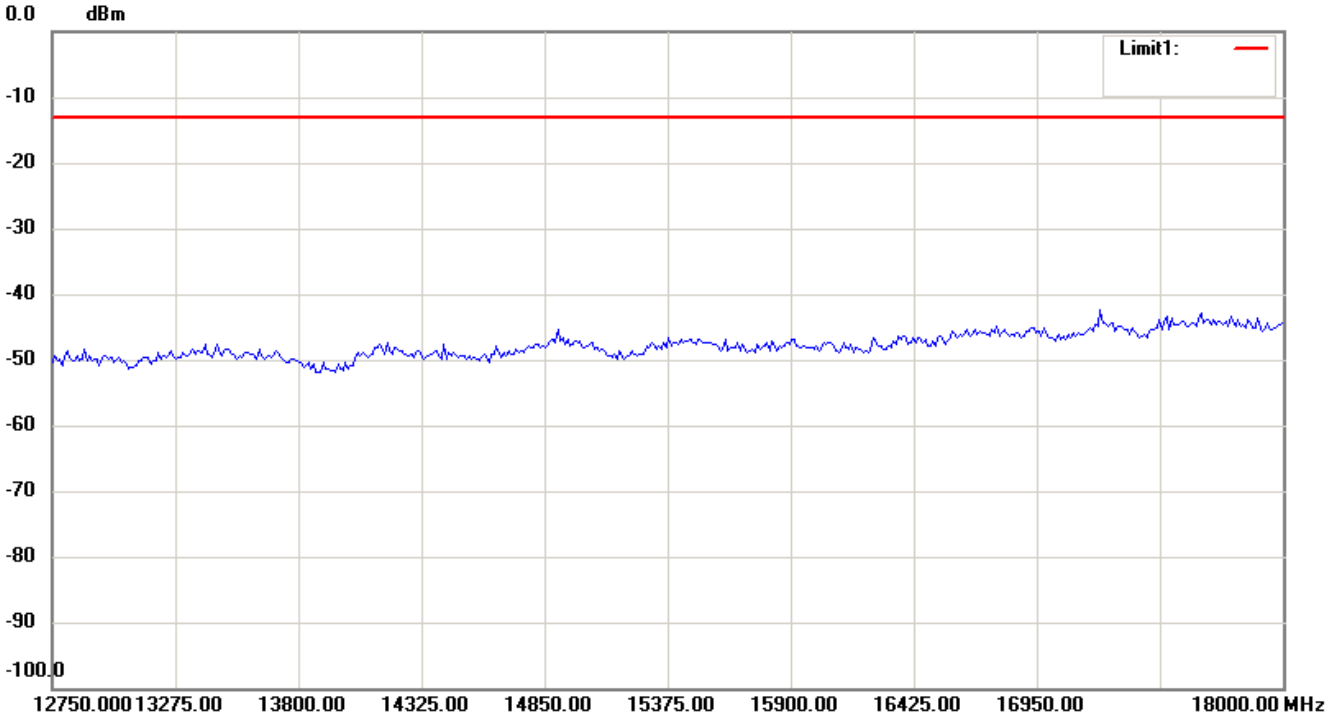

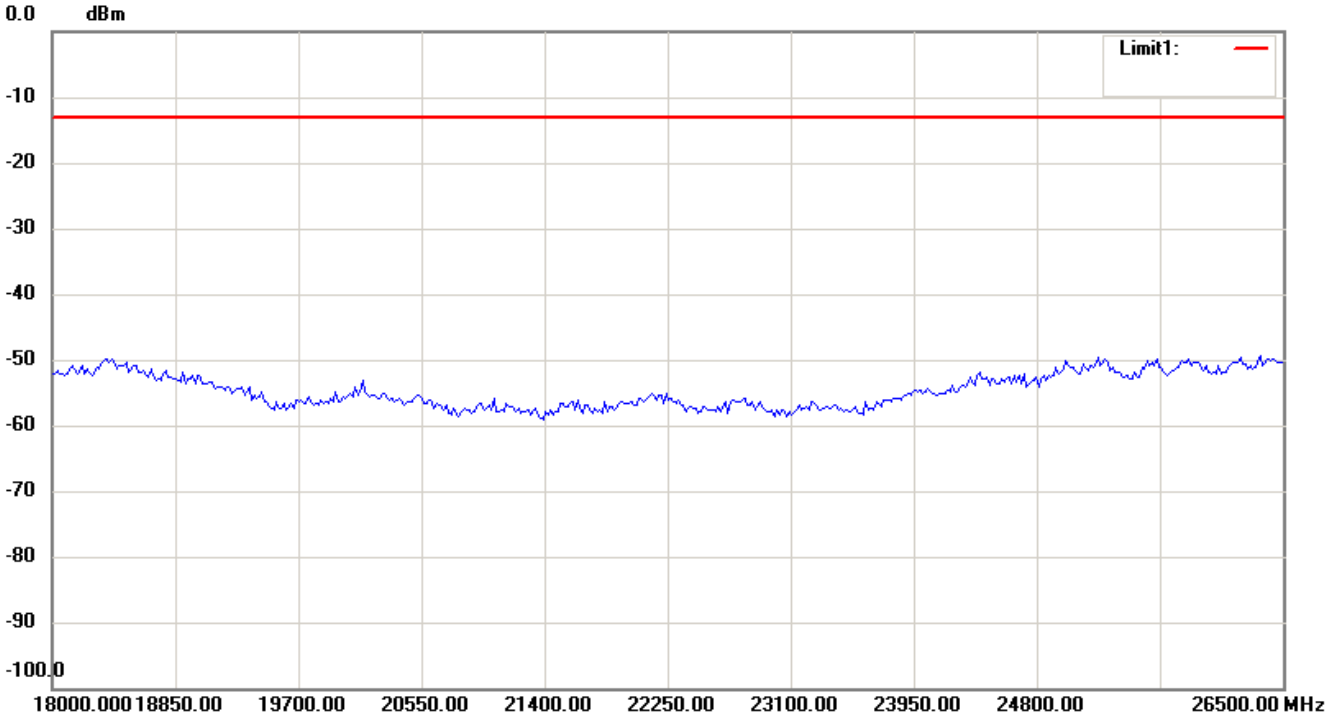

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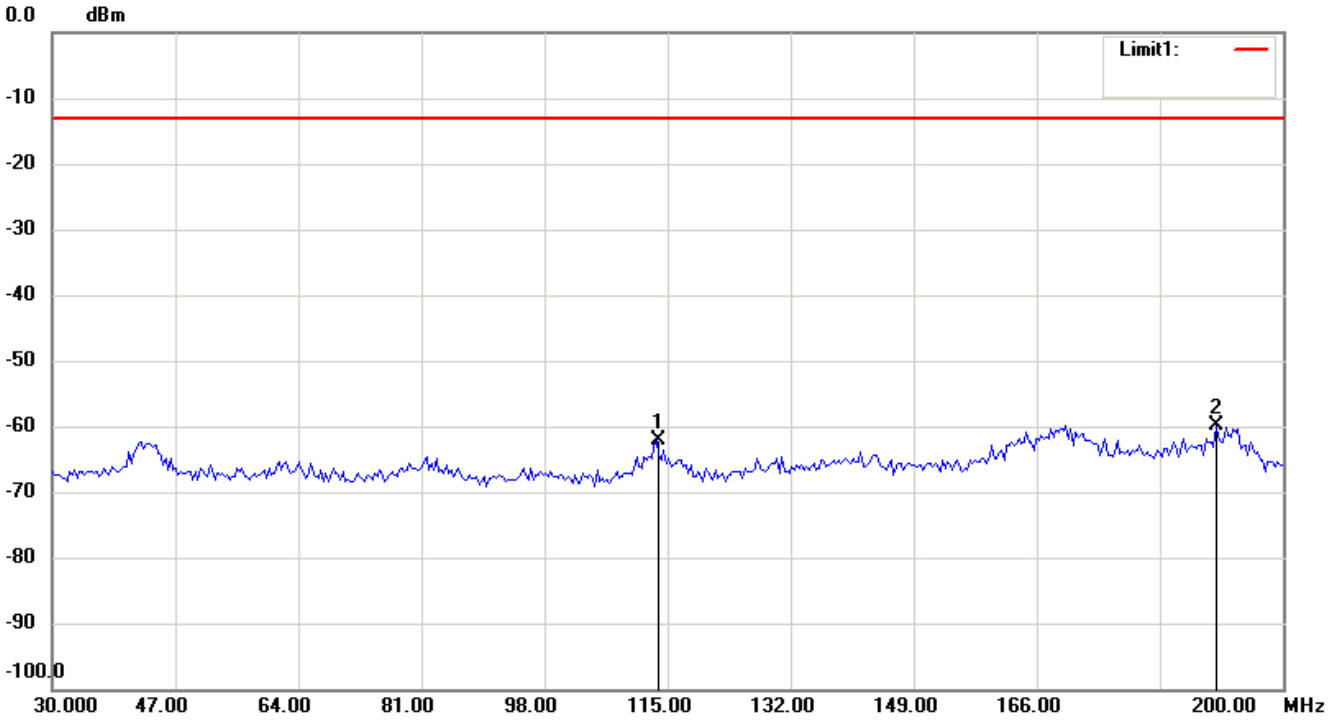
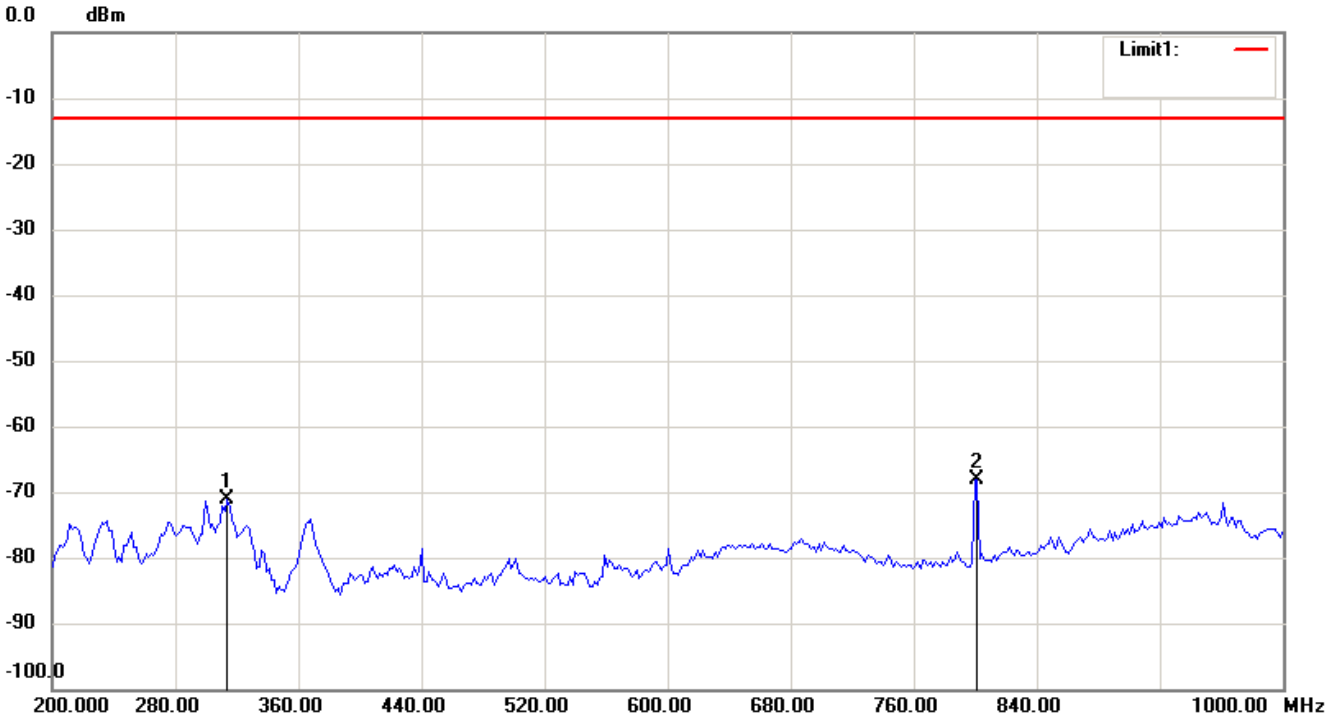
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_CH 810_108V
Antenna Polarization H





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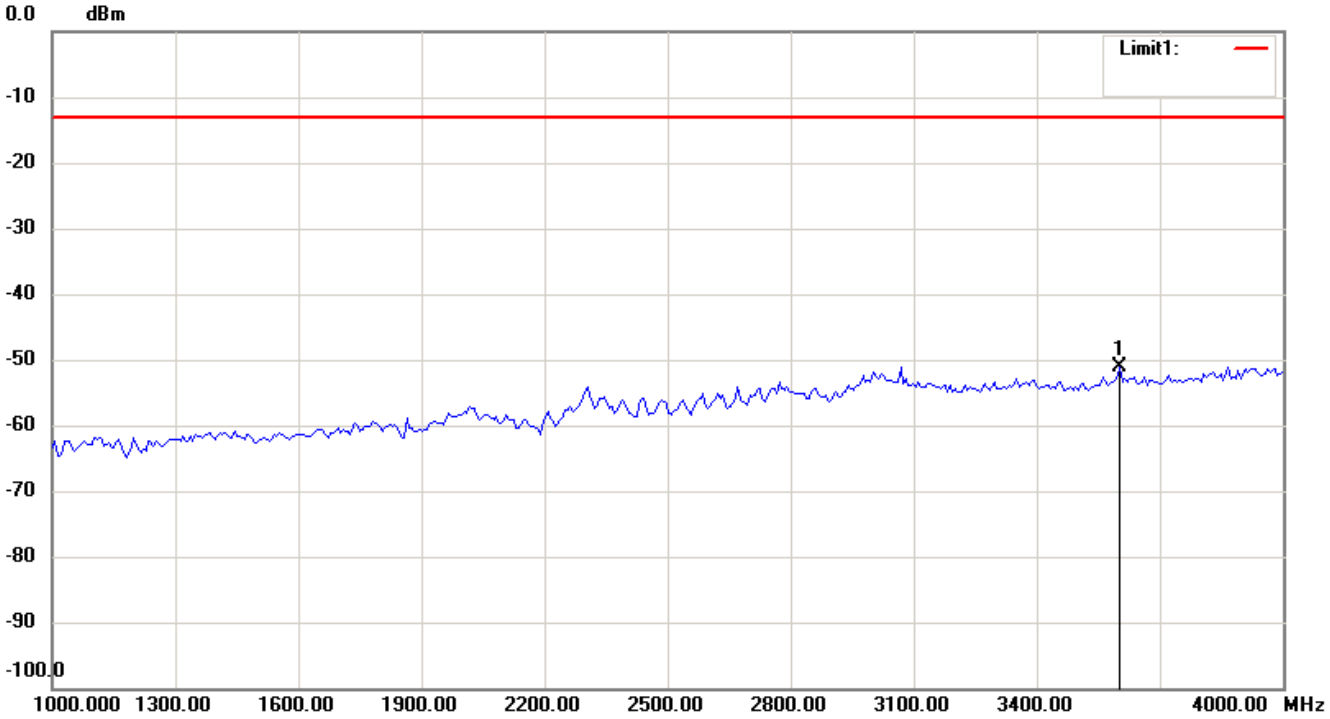

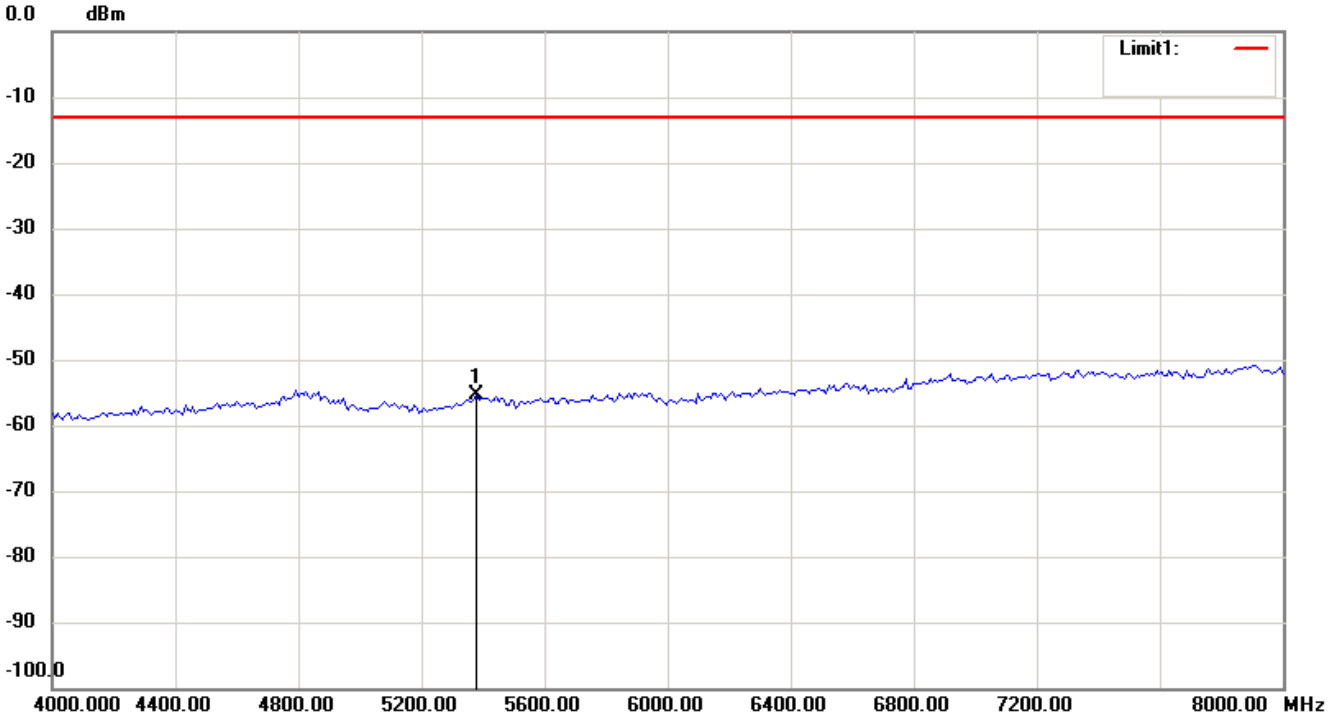

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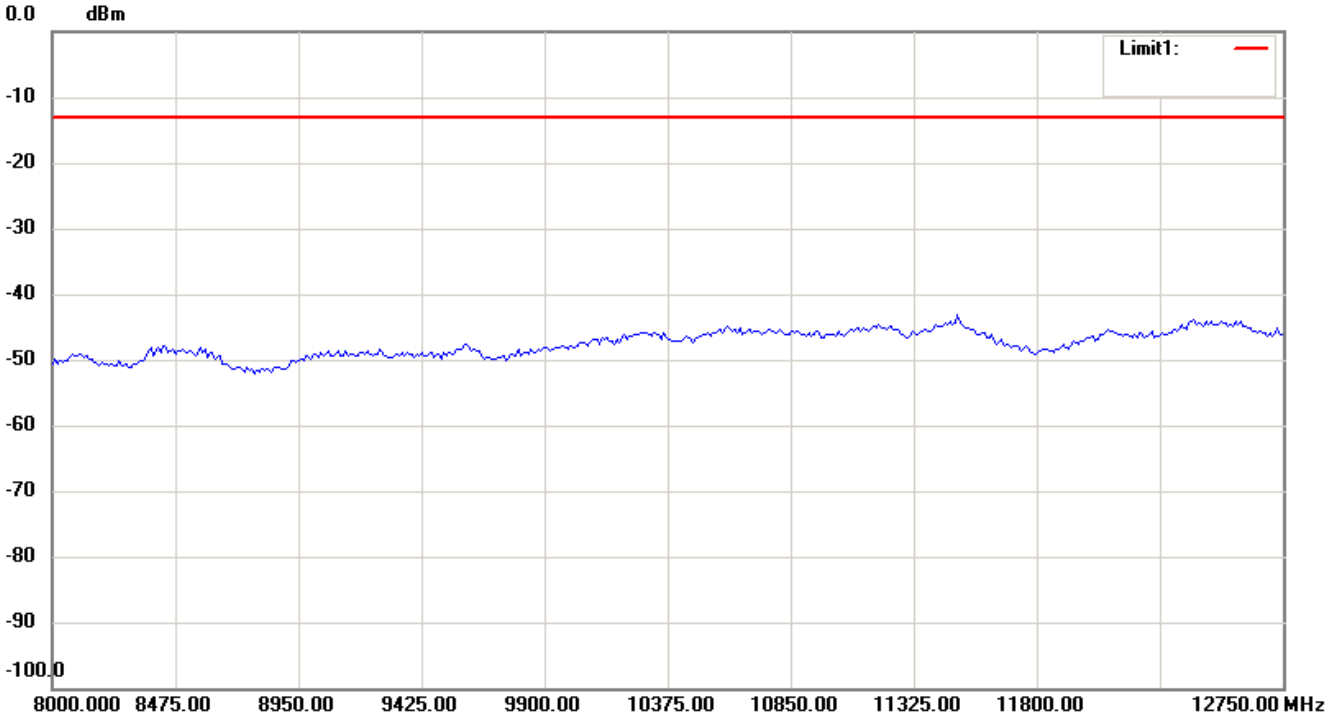

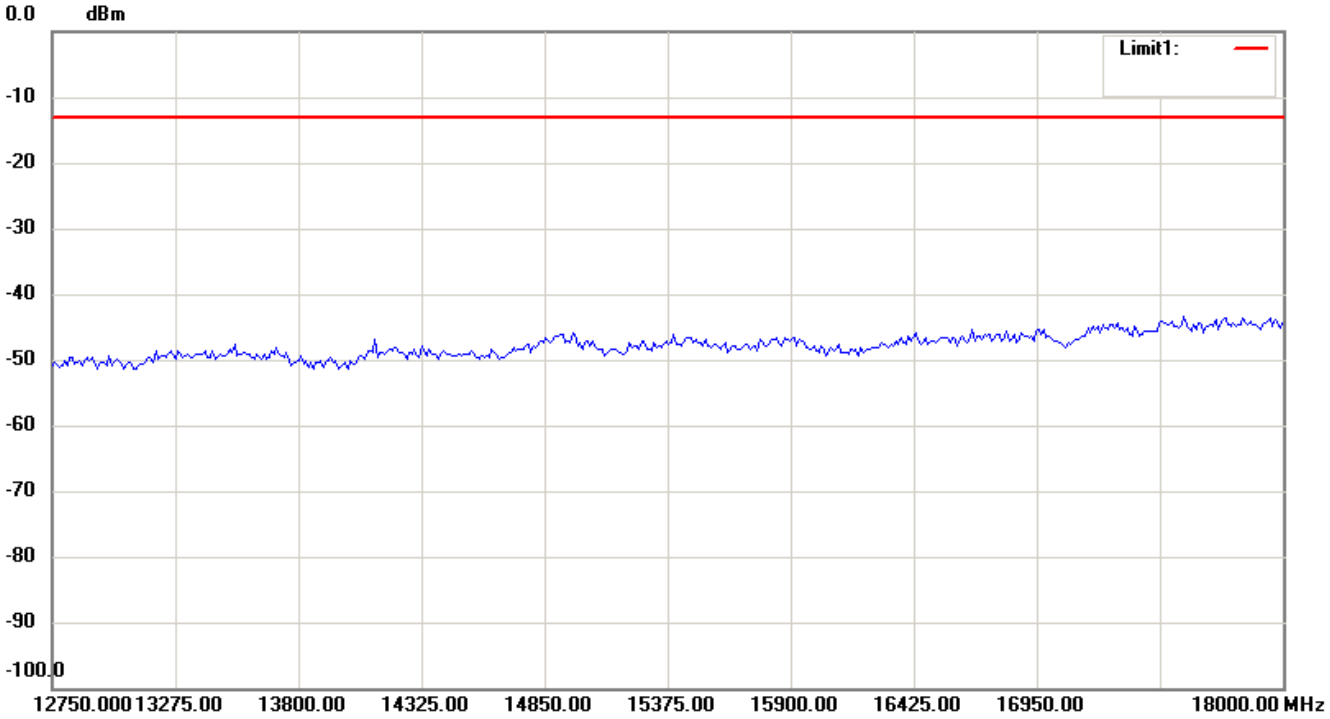

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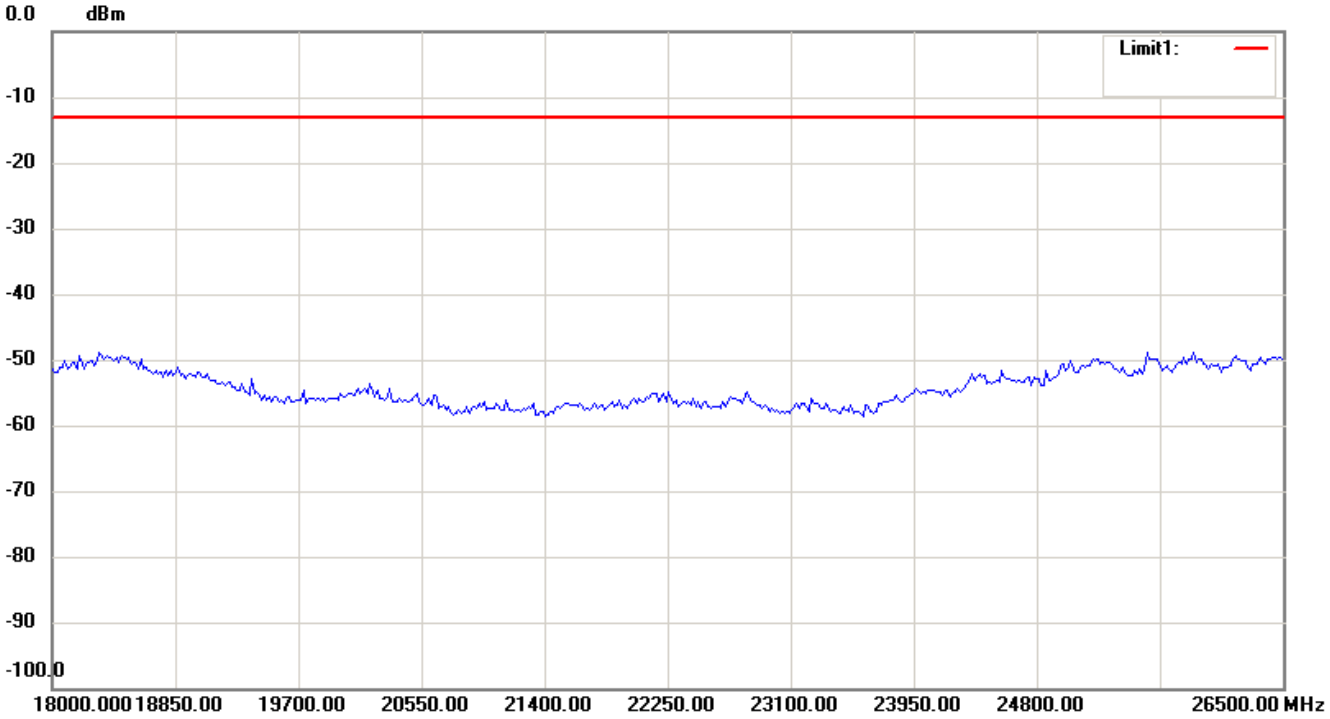
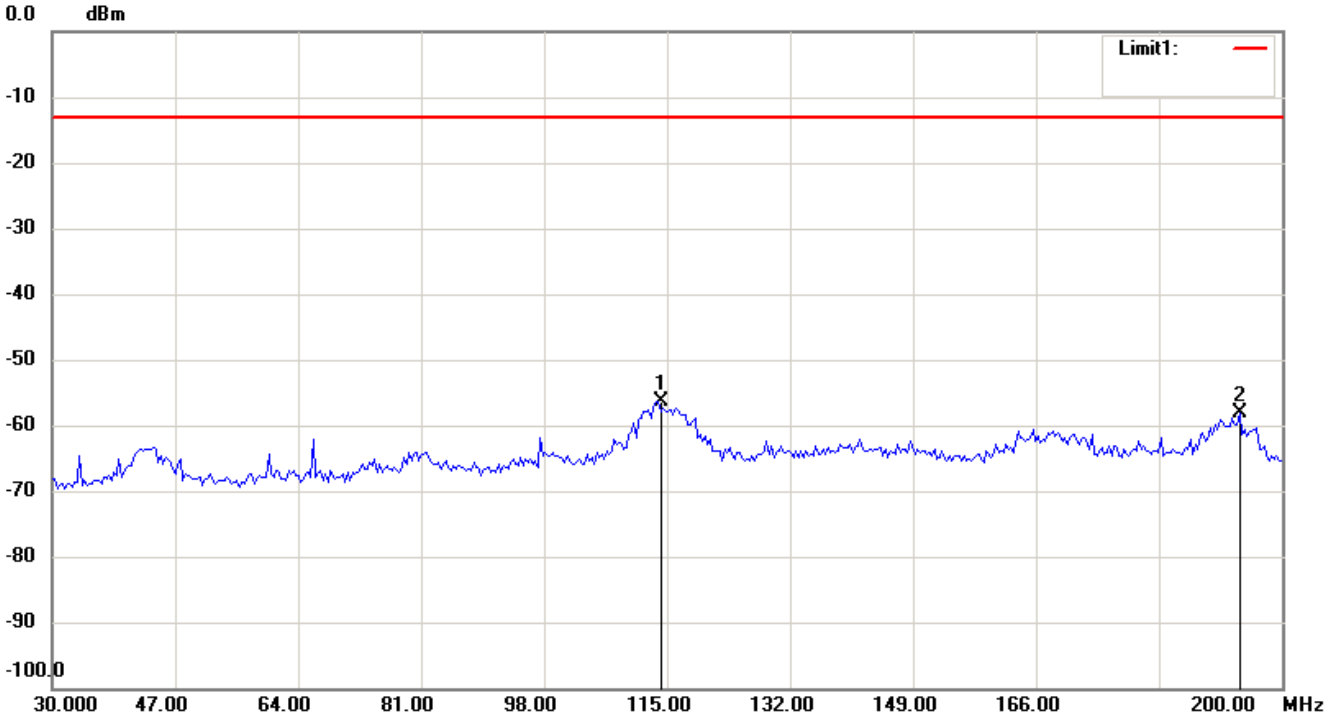


Antenna Polarization V



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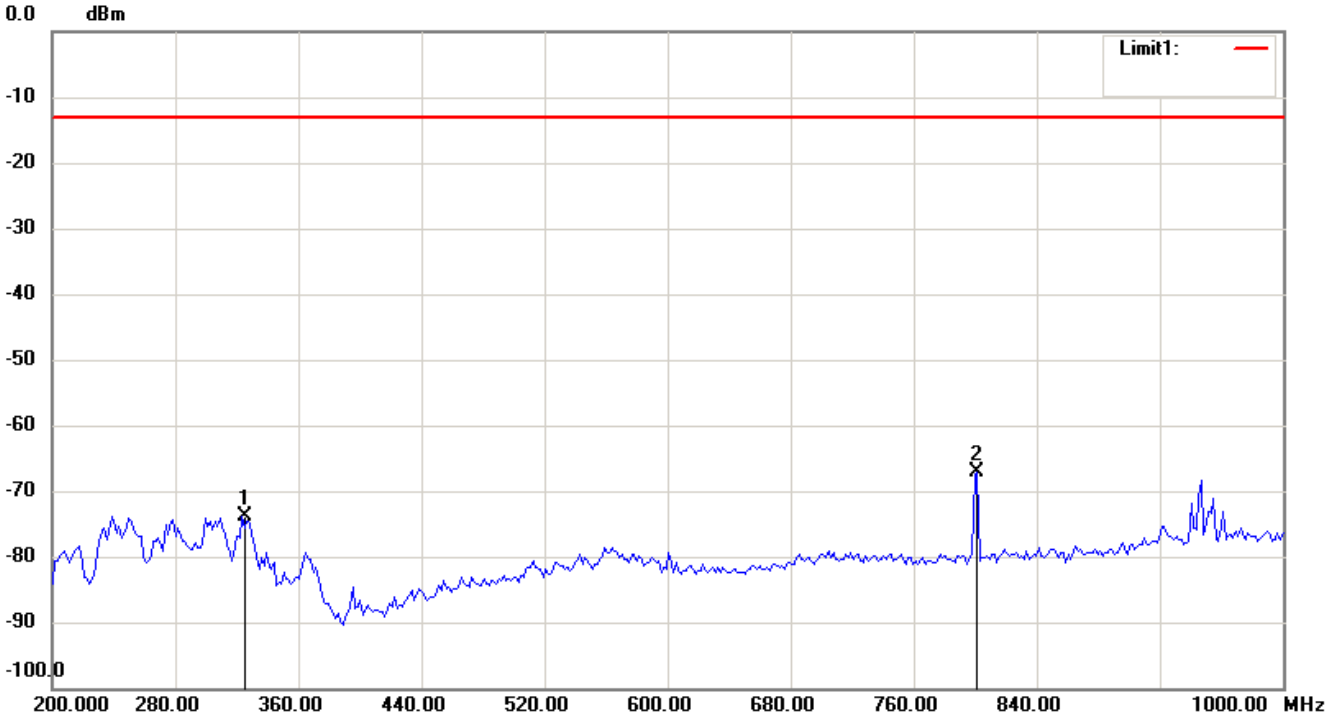

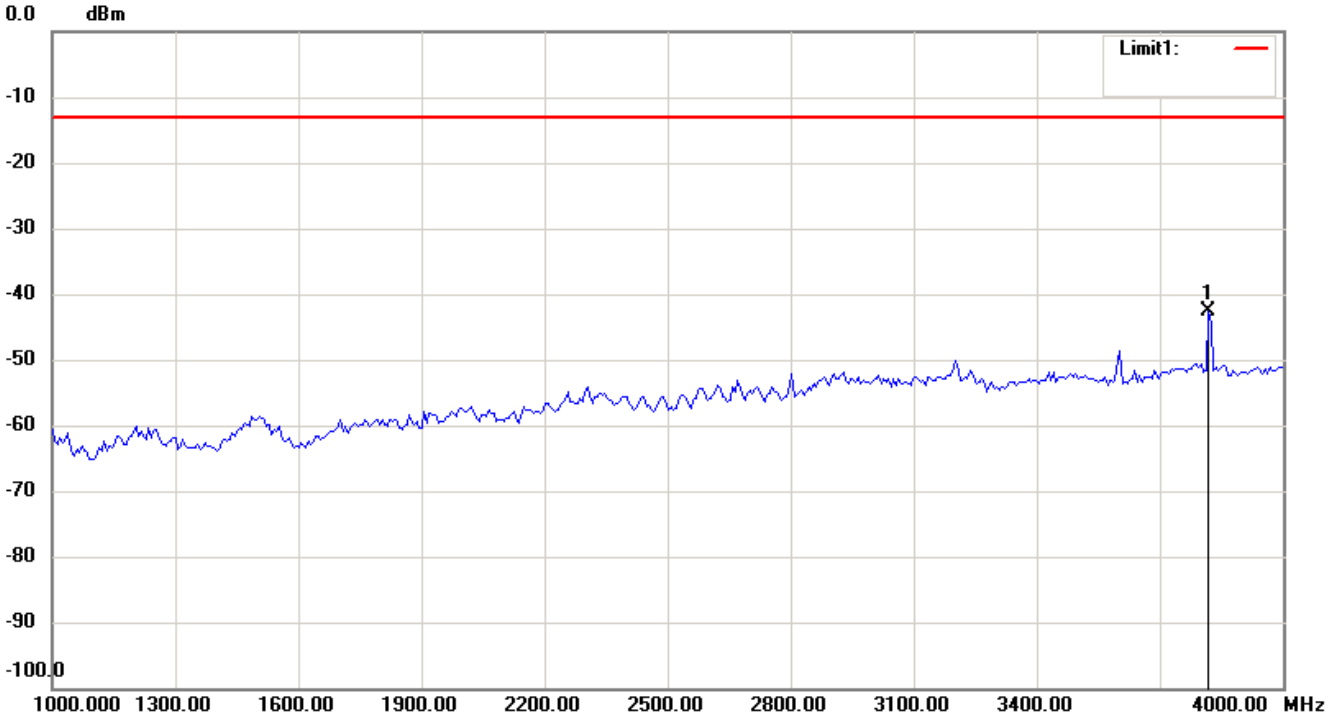

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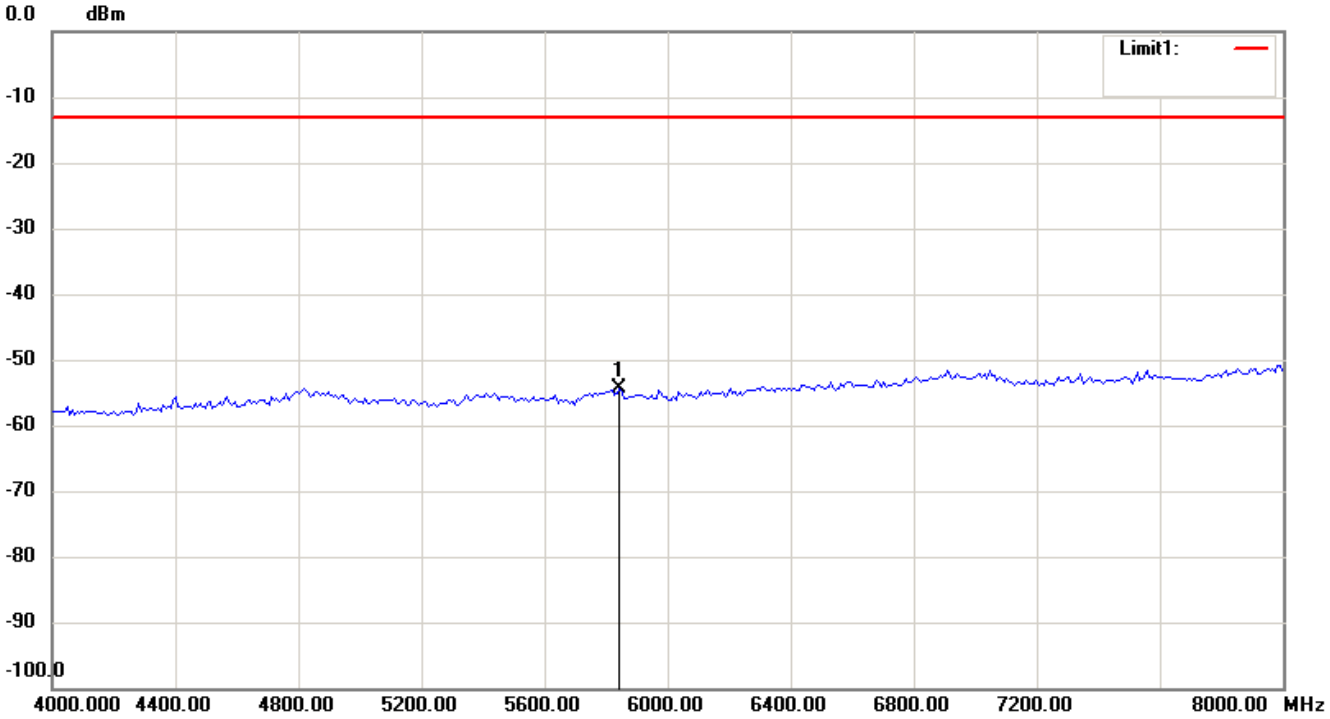

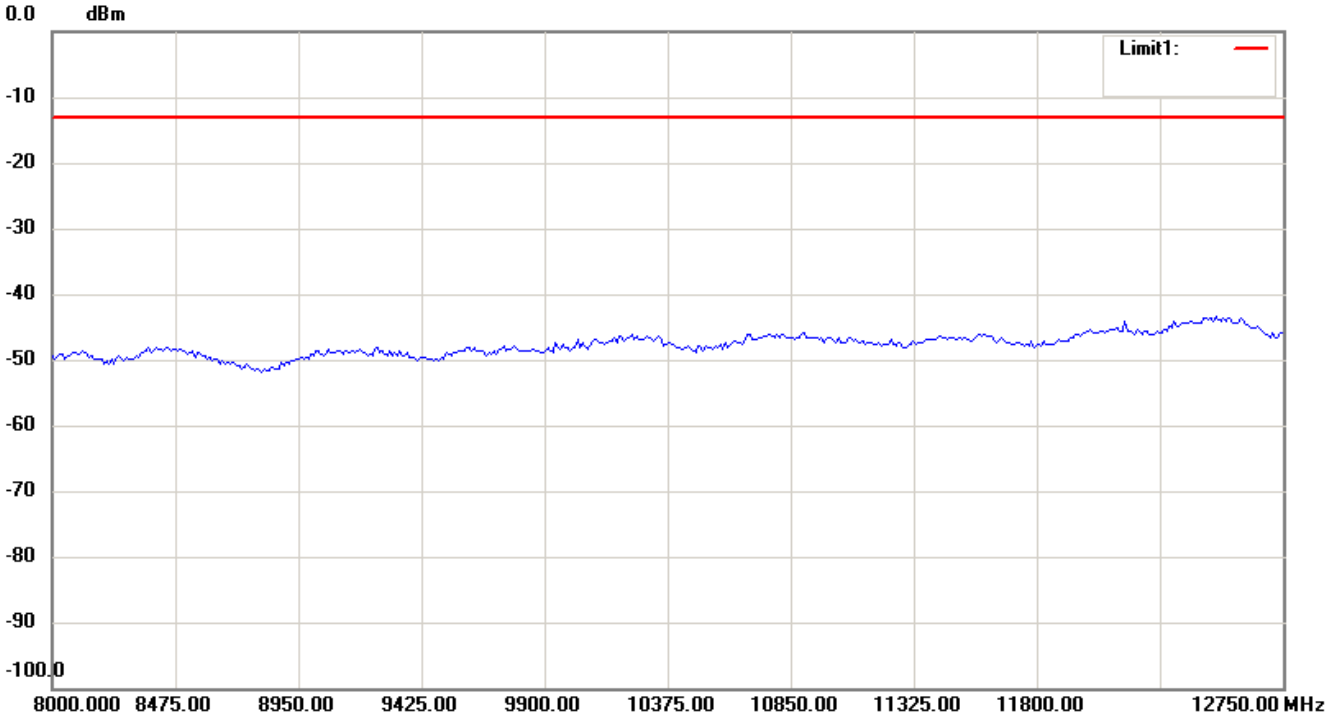

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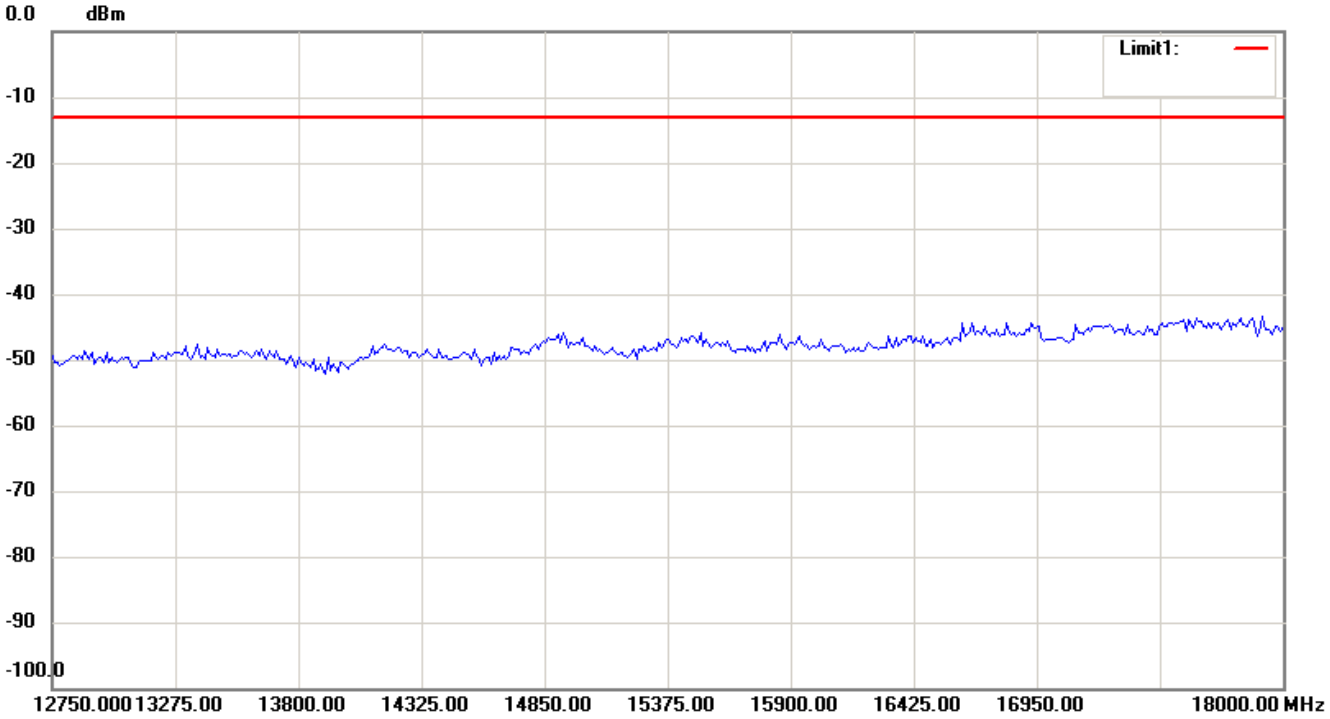
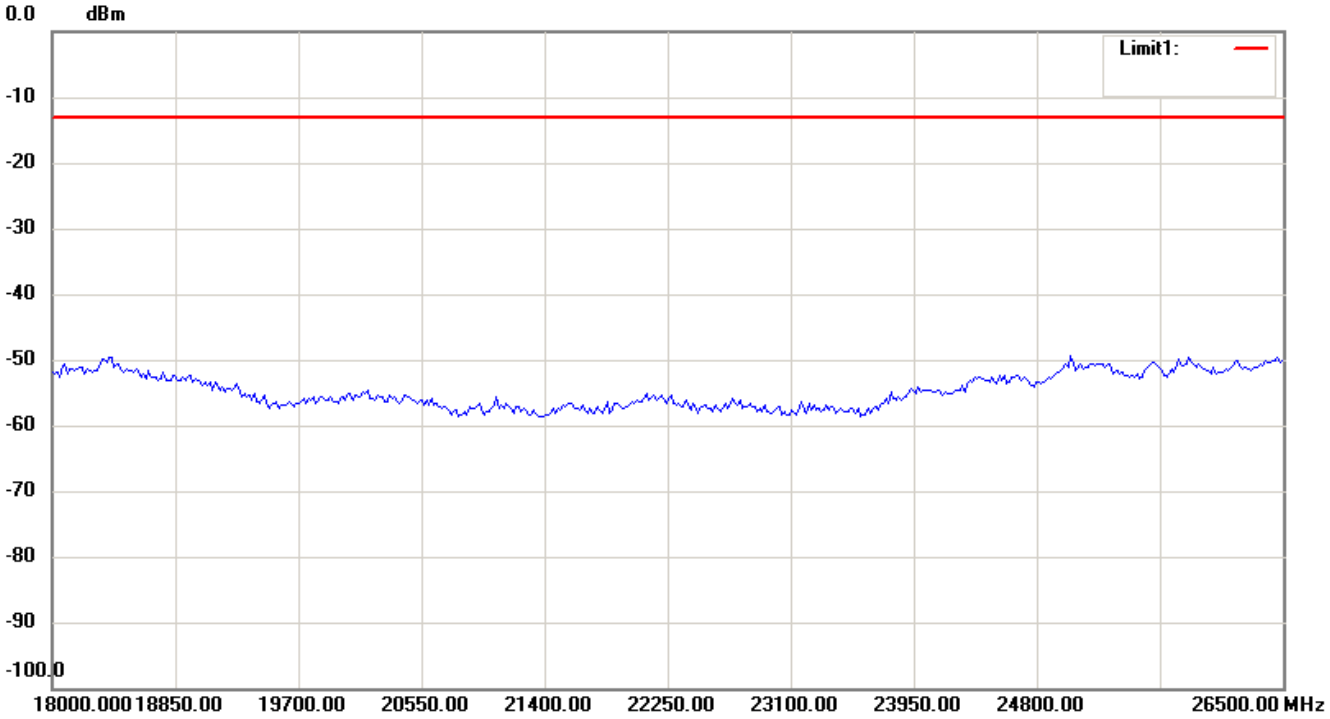
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**





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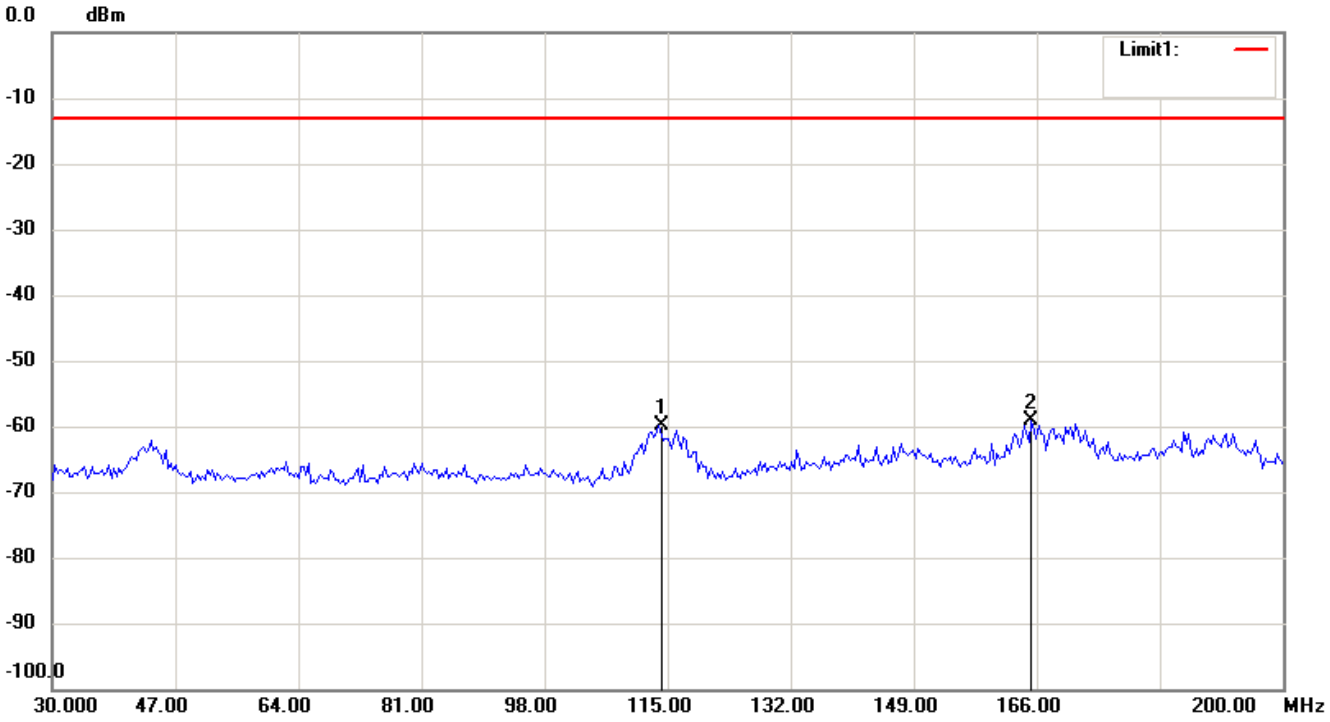
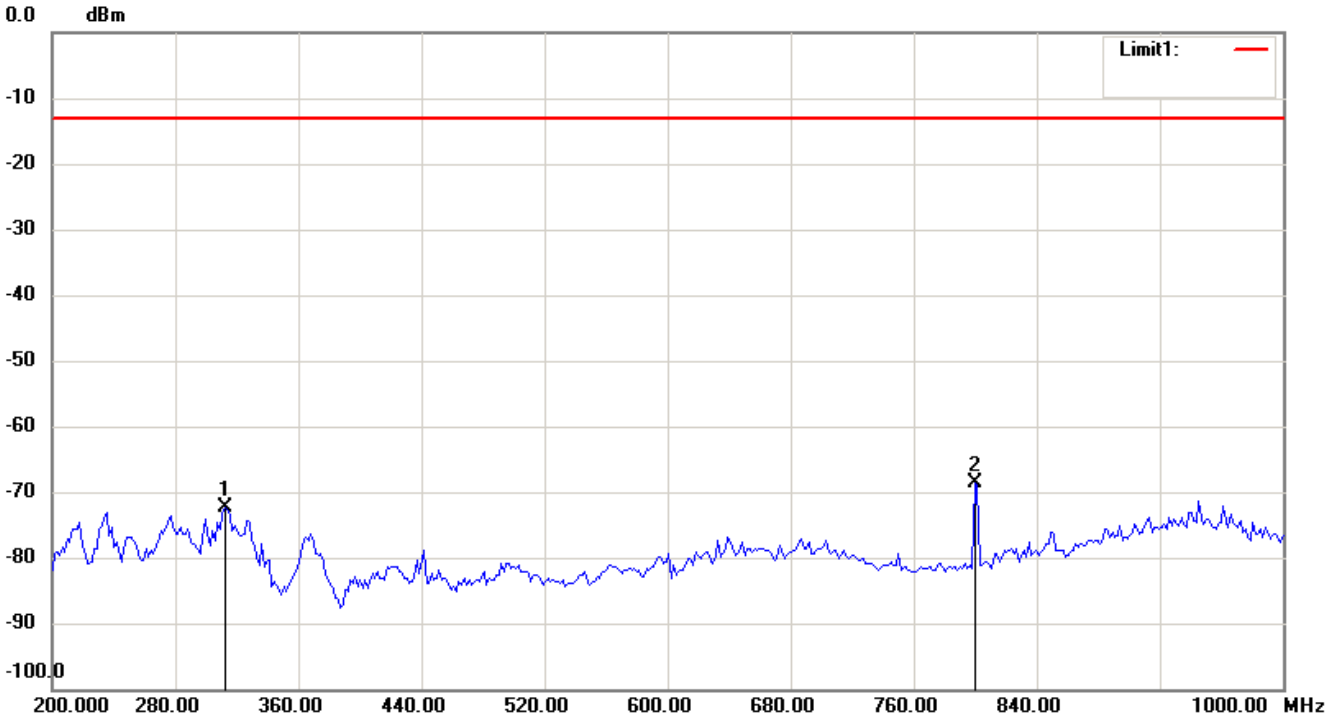
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_CH 810_132 V
Antenna Polarization H





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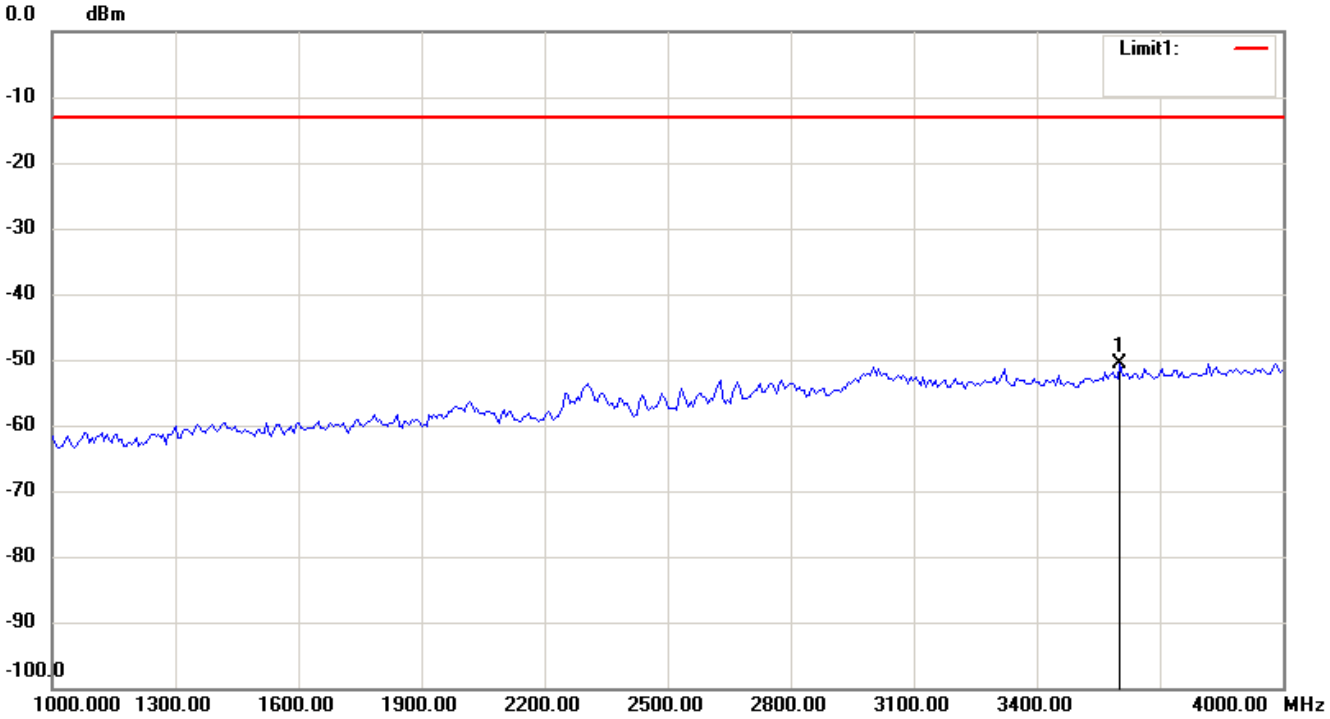

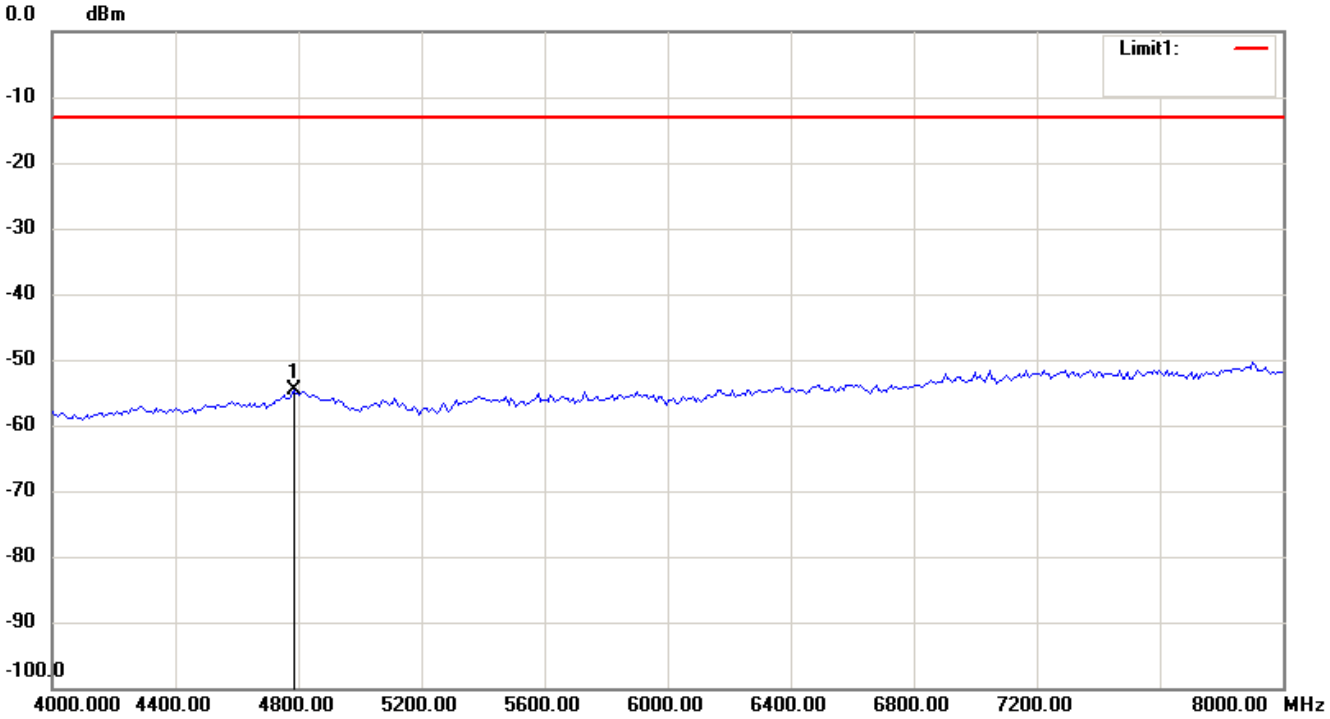

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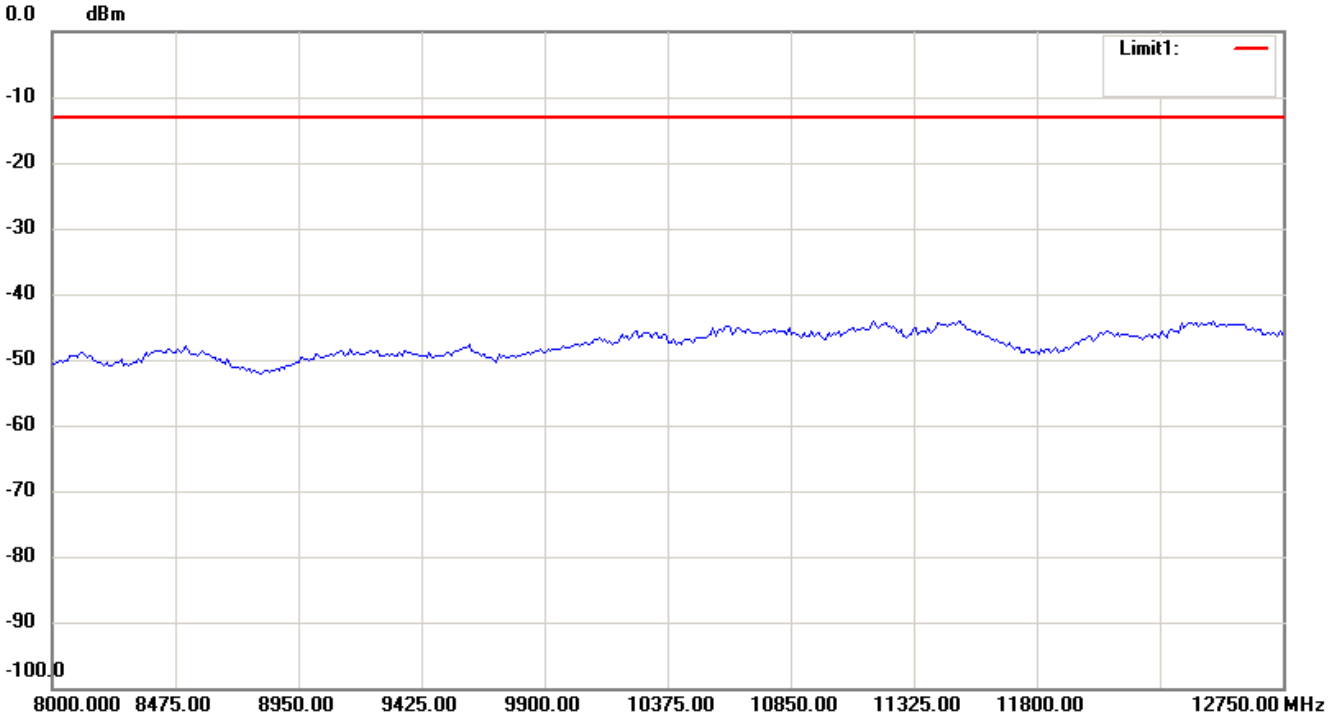

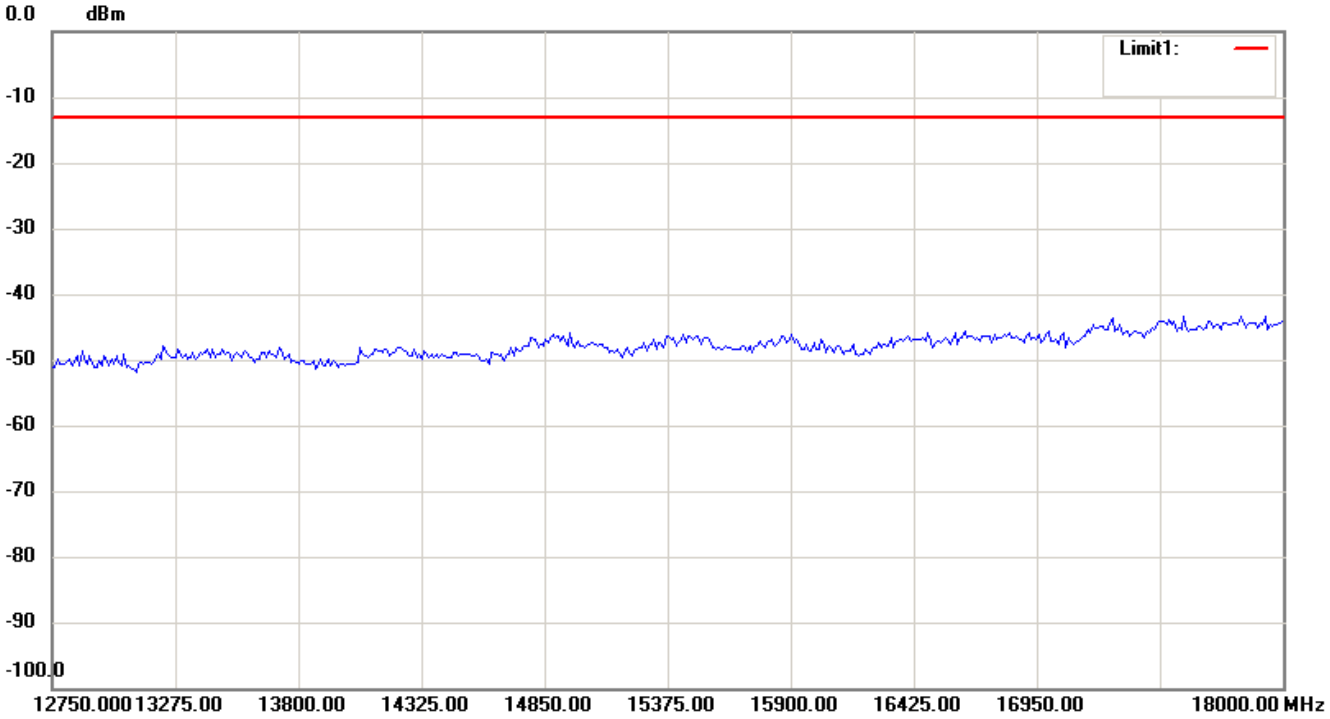

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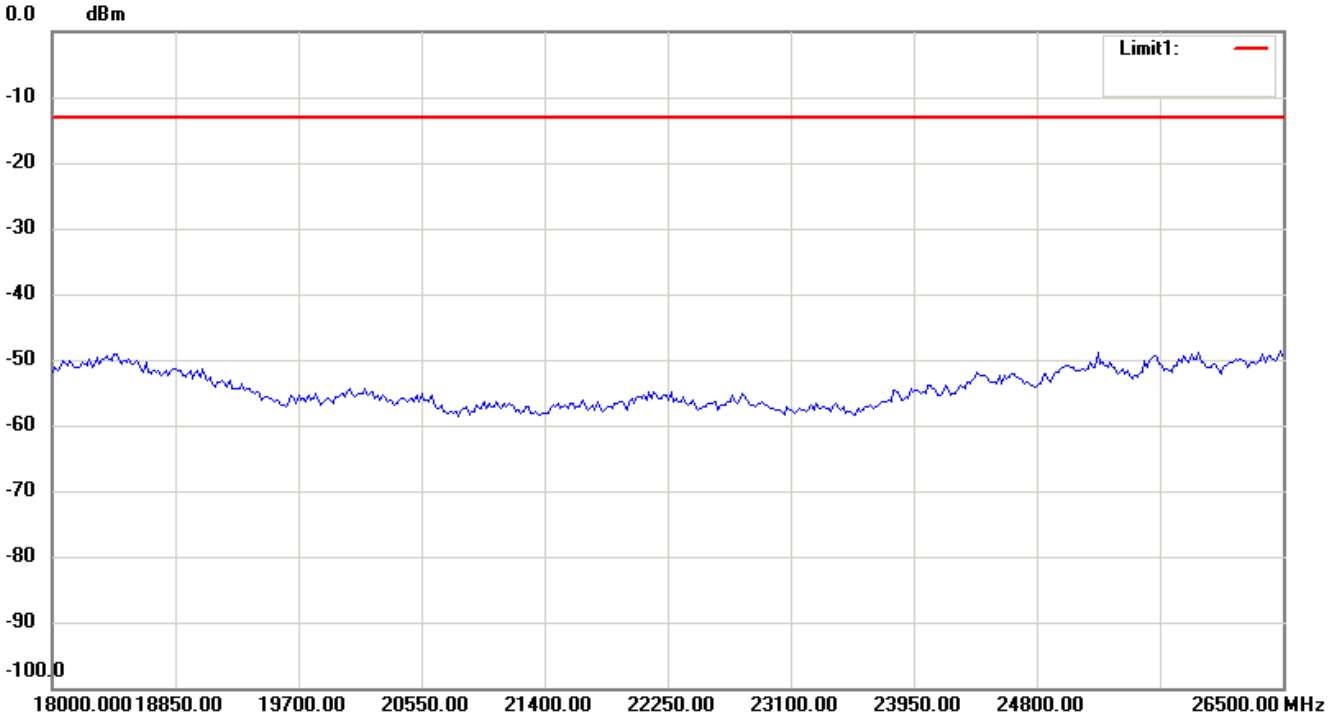
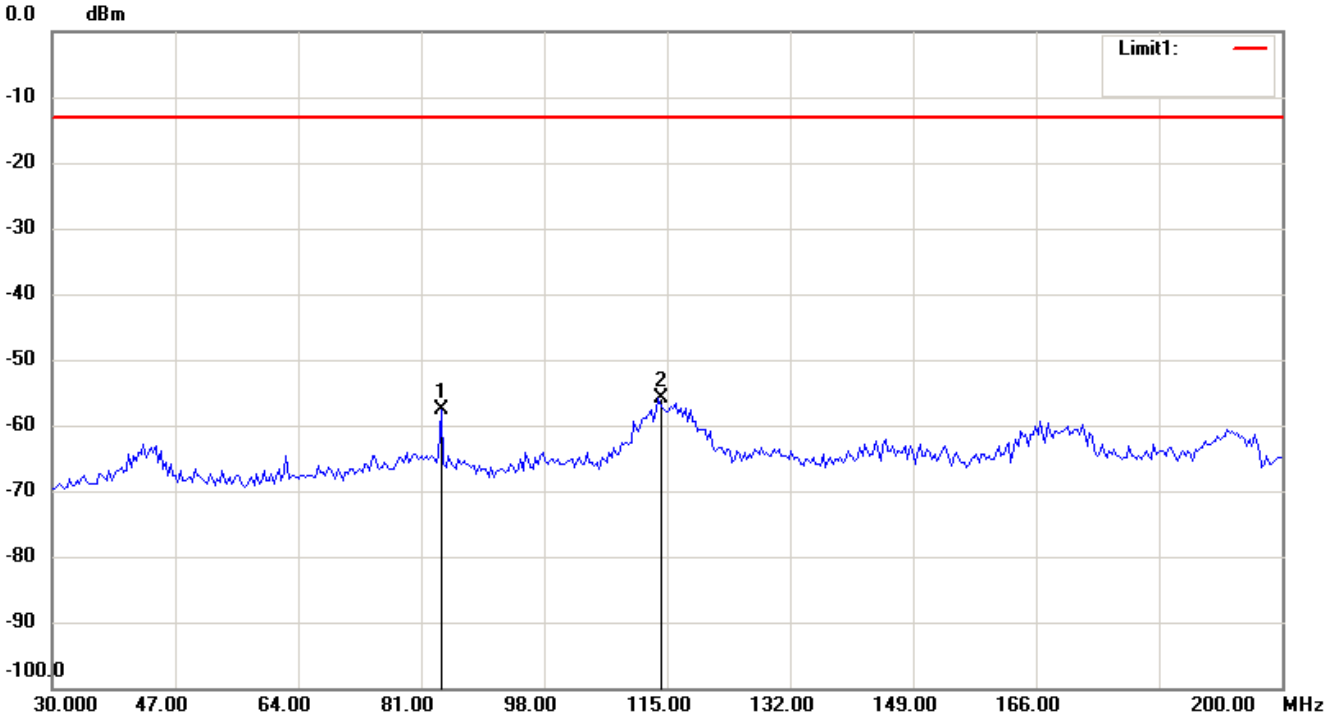
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400



Antenna Polarization V



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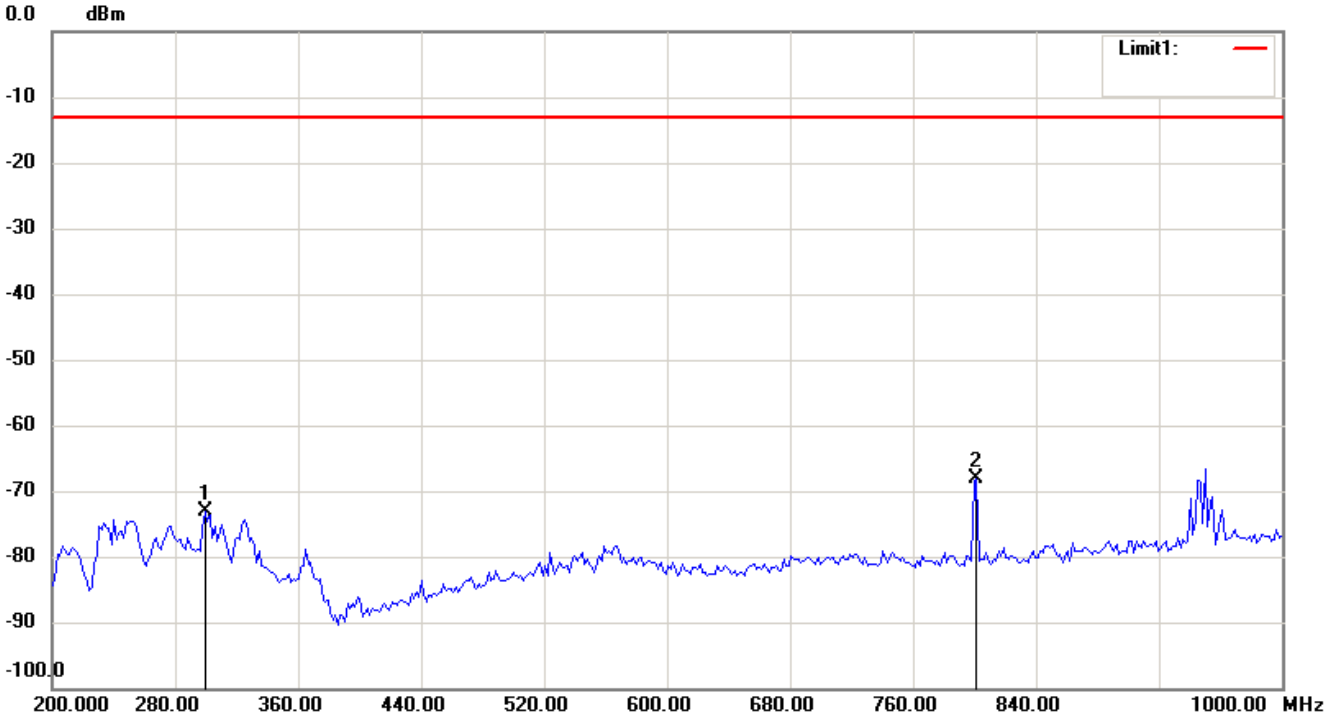

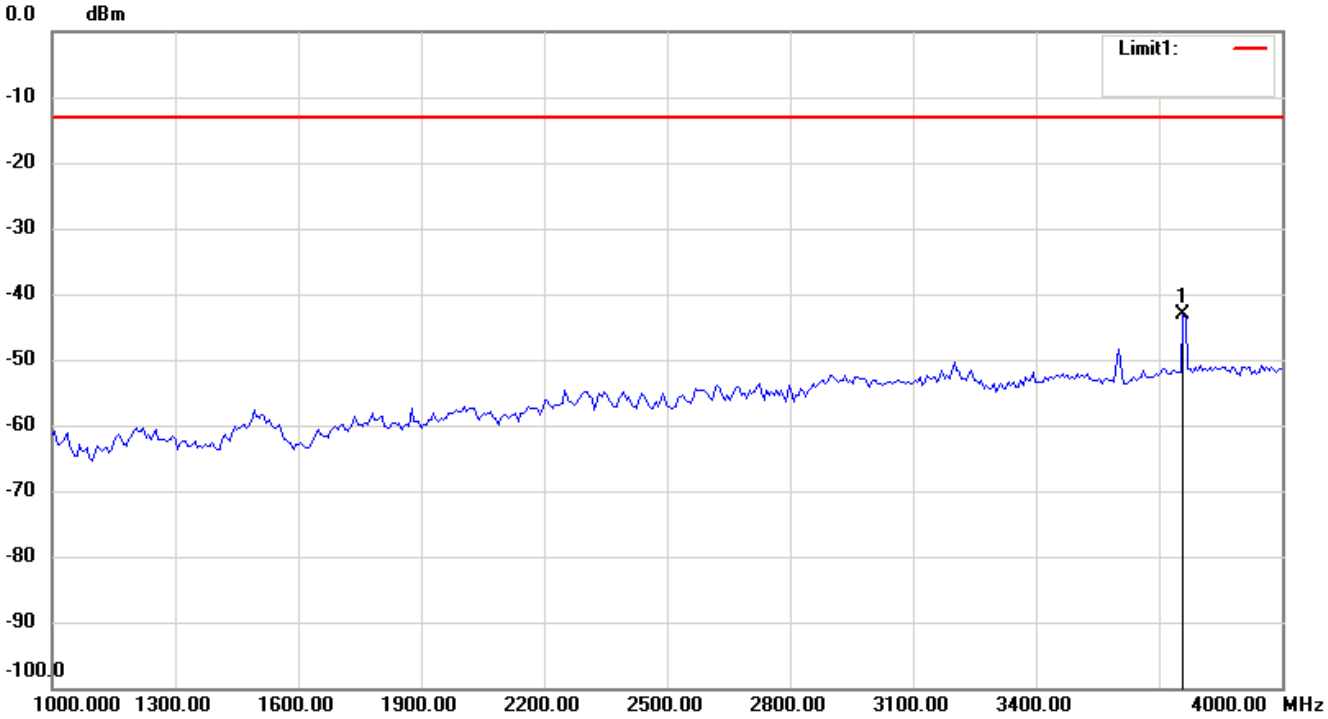

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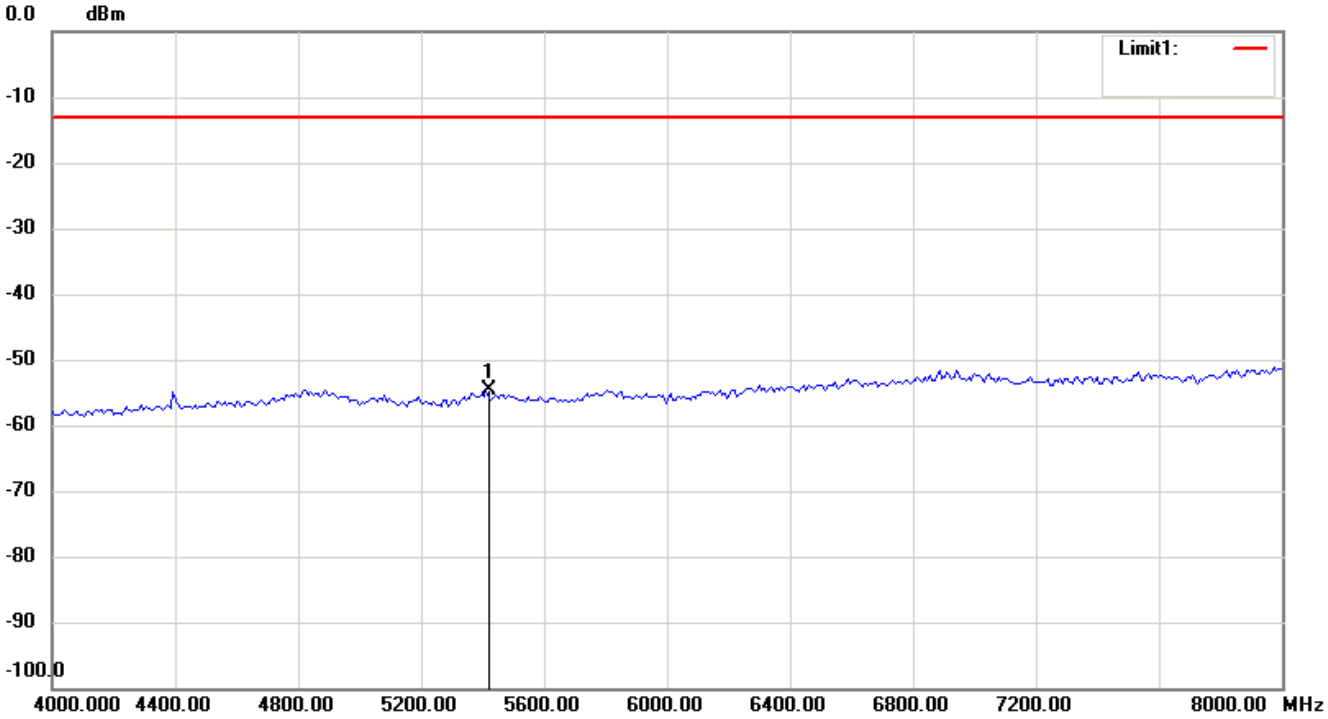

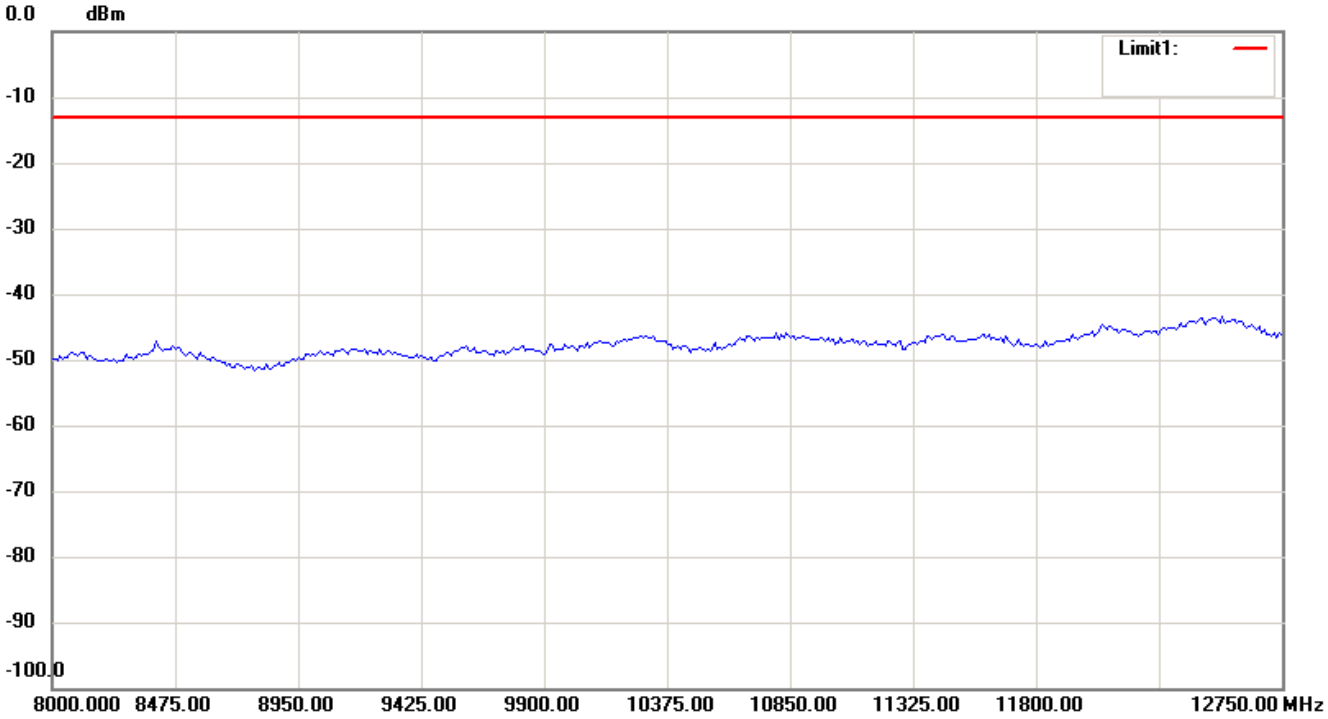

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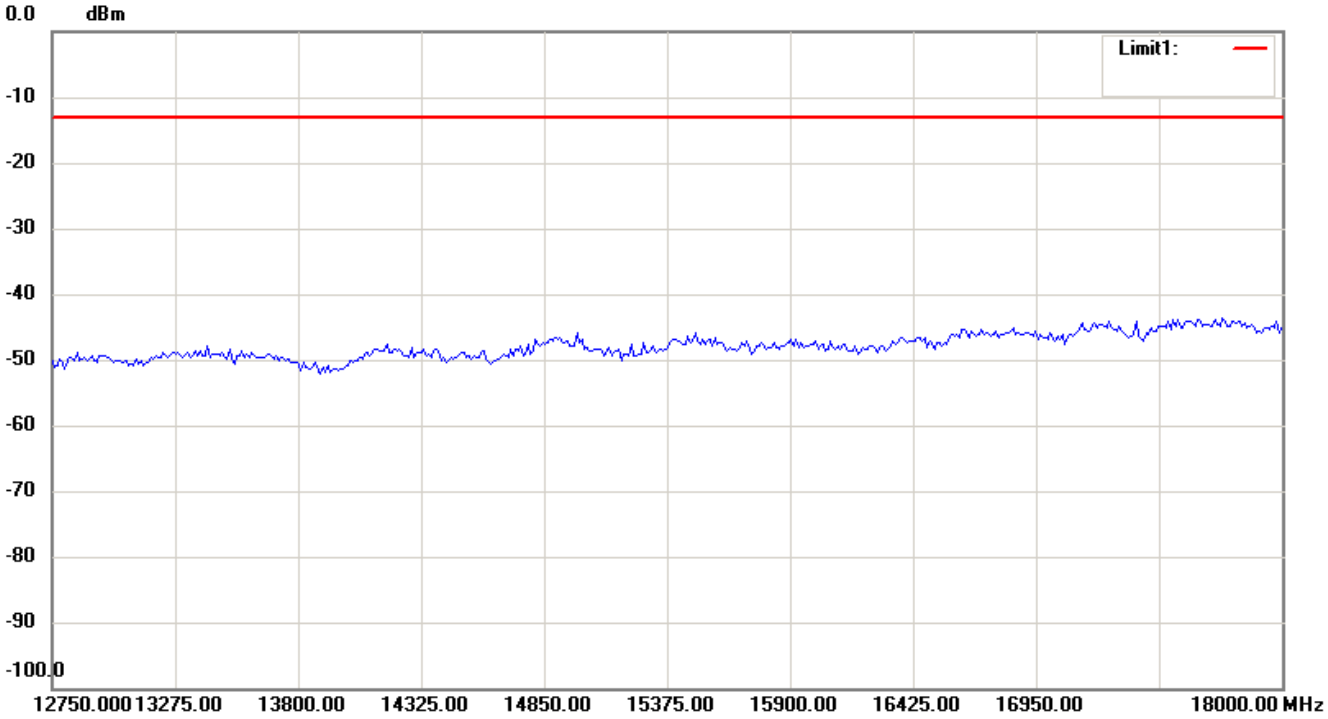

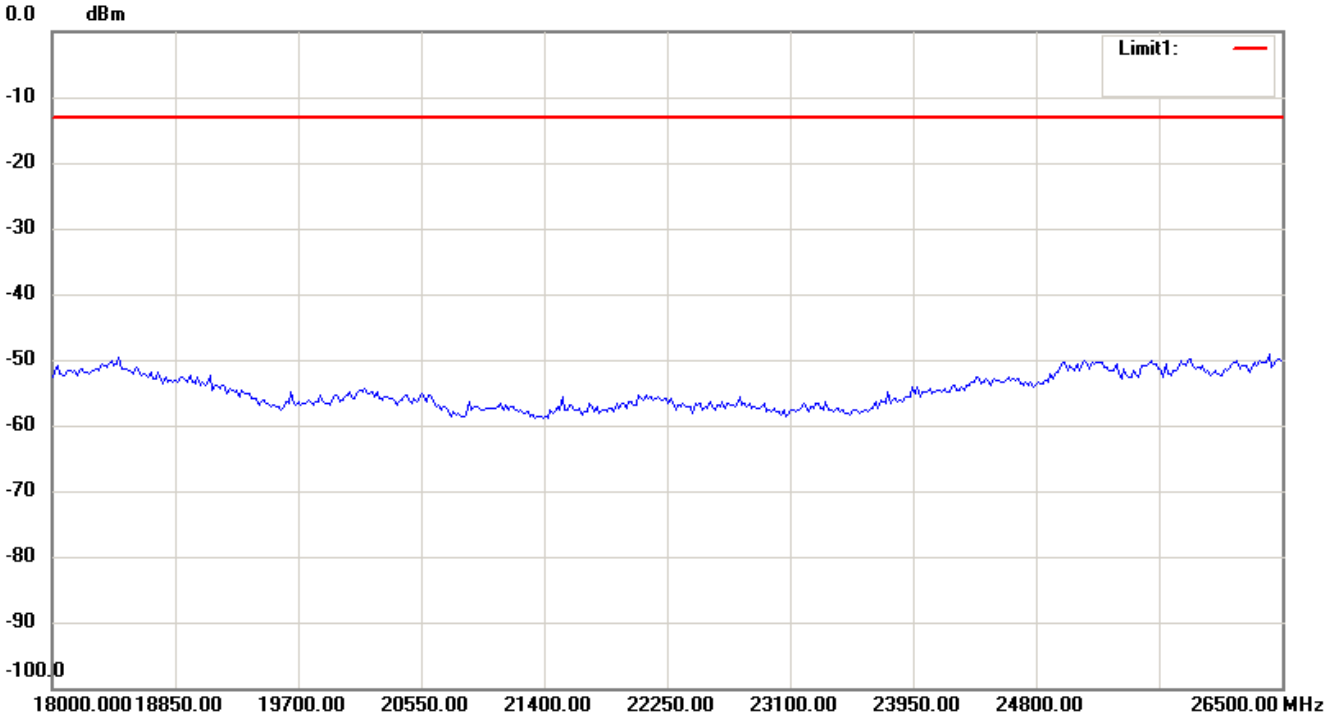

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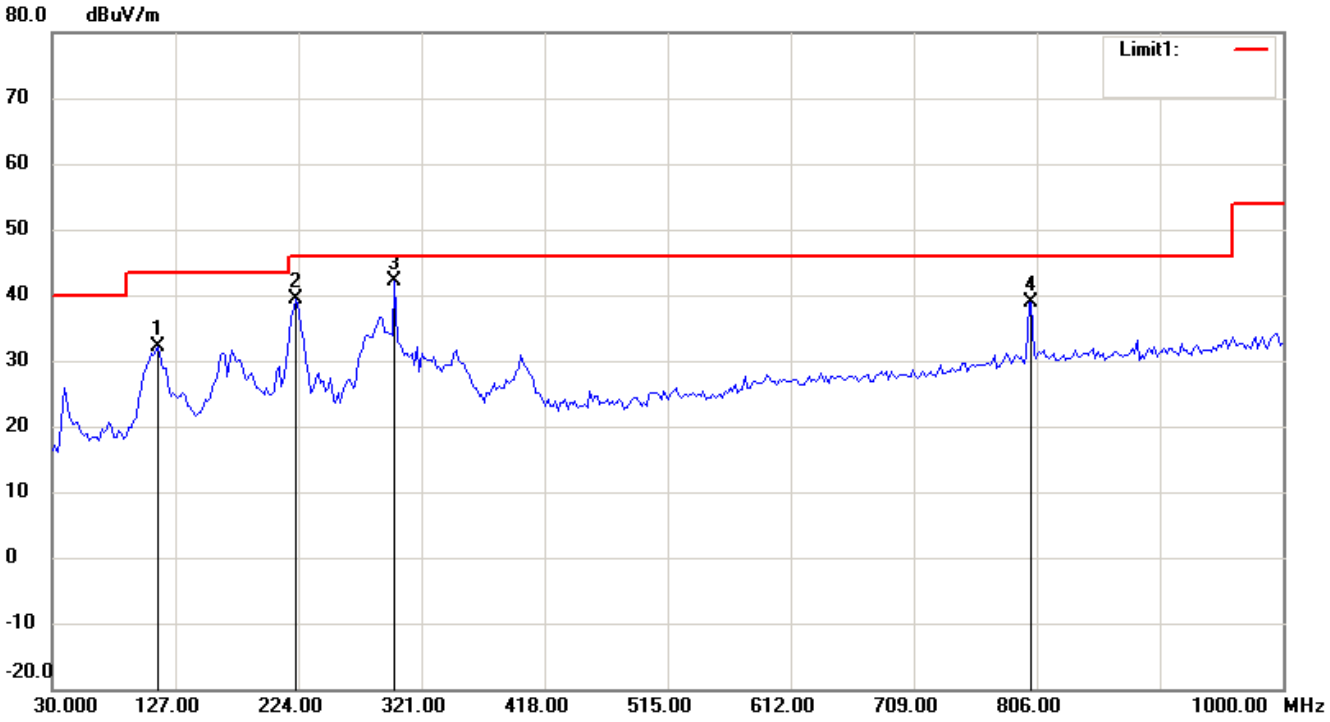
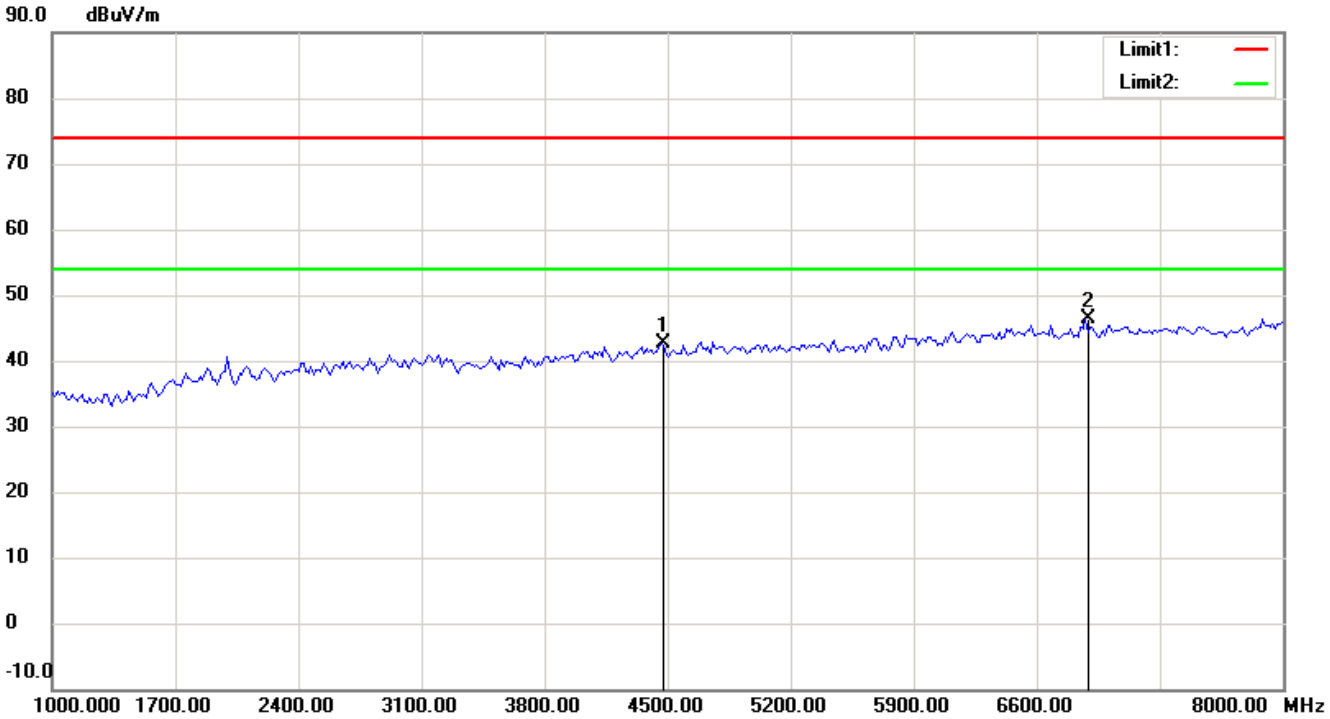
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400
1900 band_Idle Mode_108V
Antenna Polarization H





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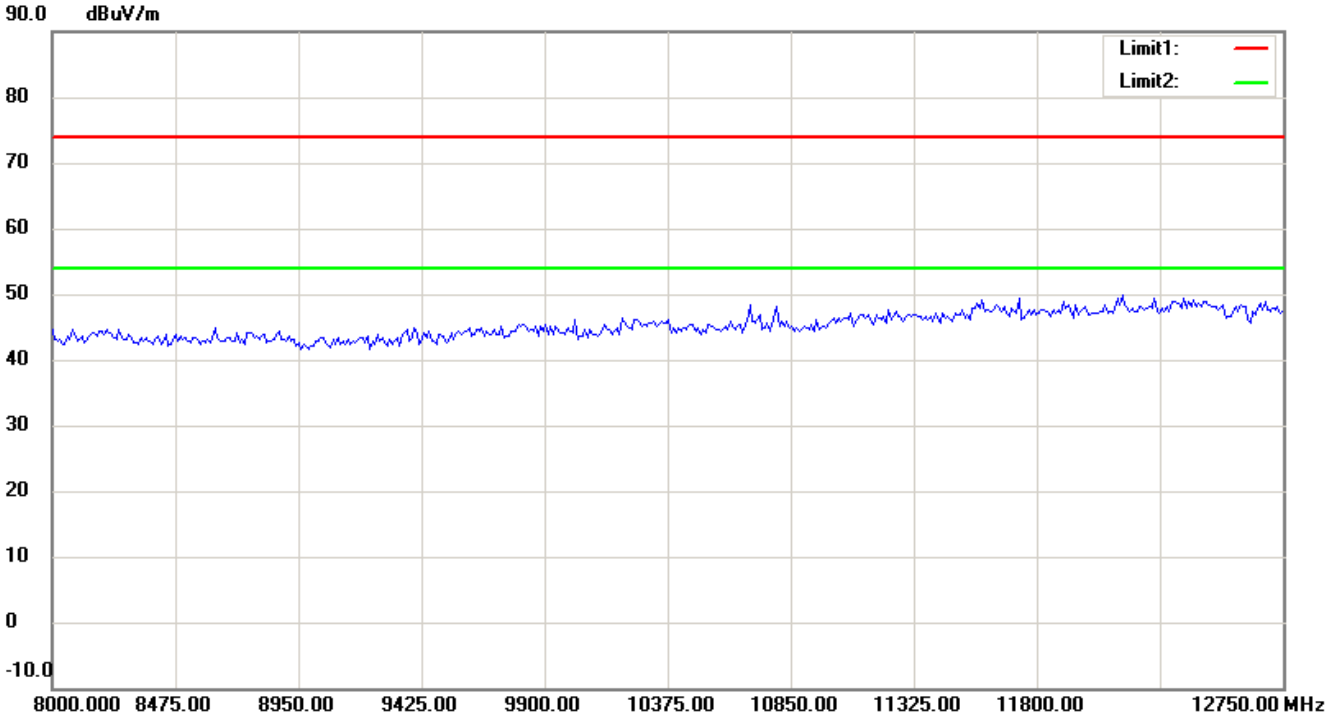

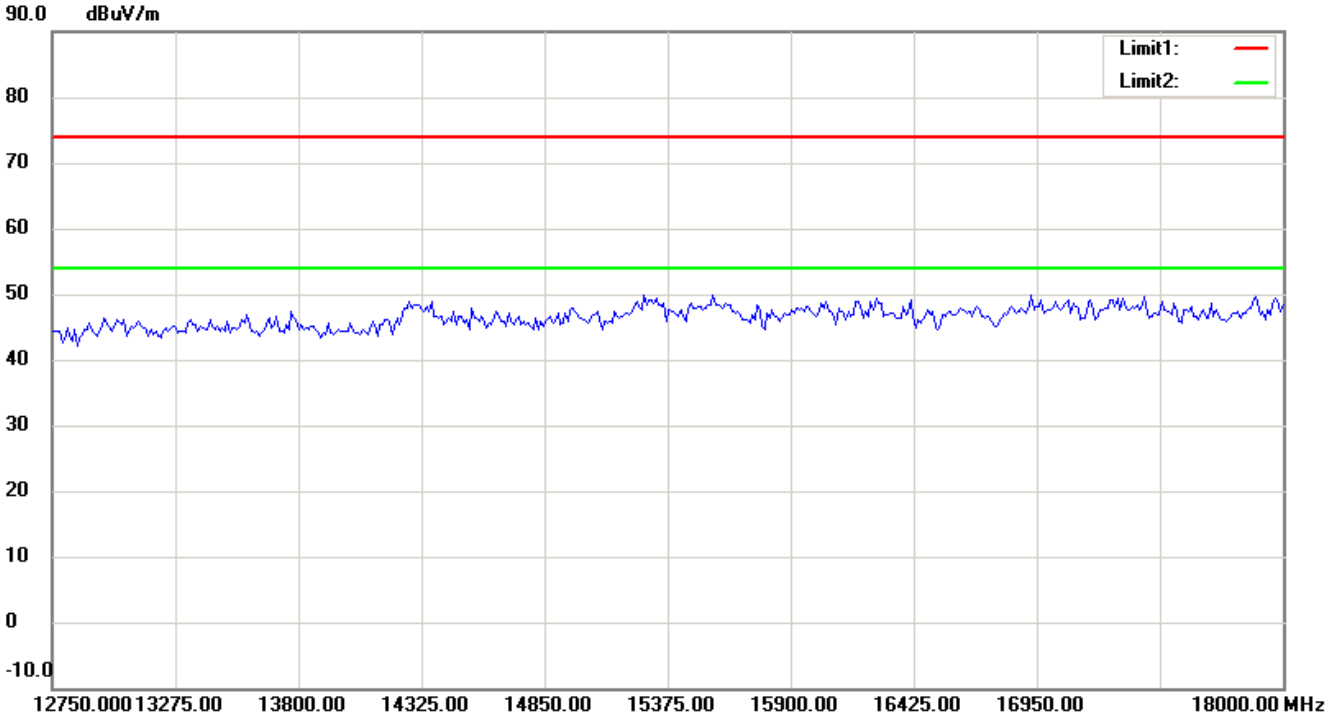

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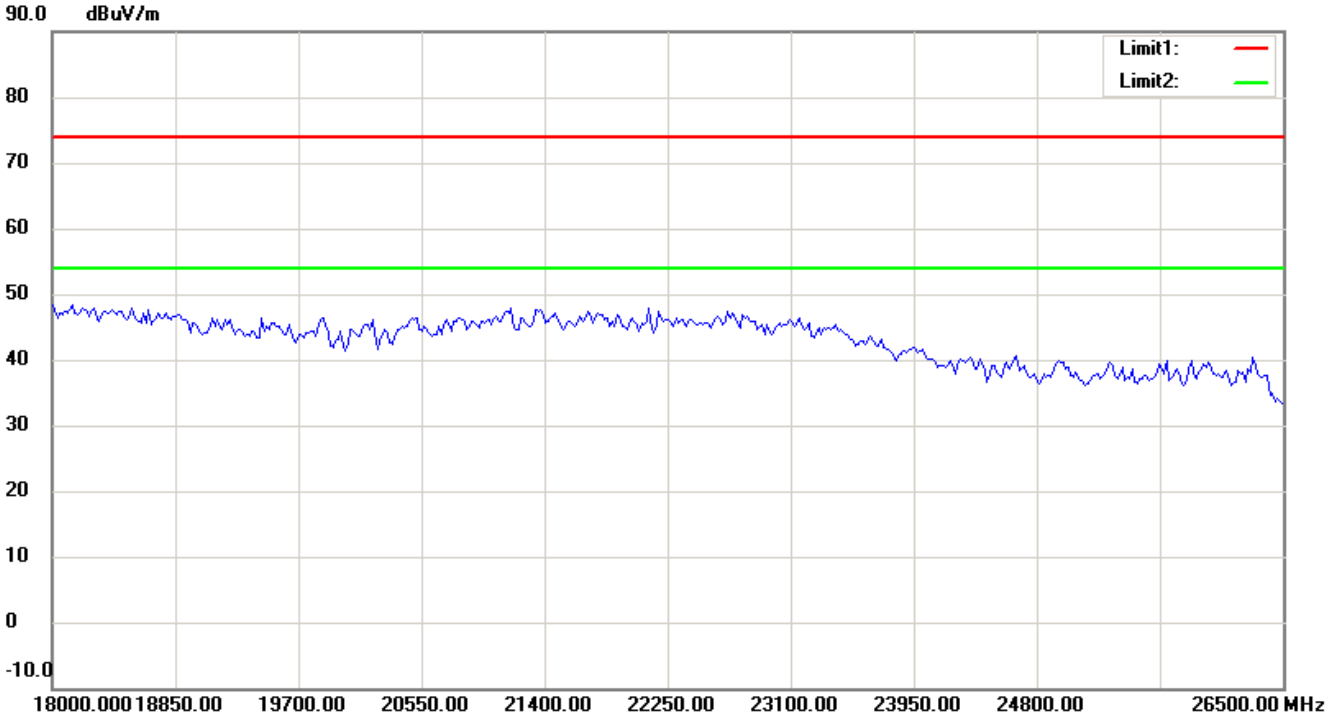
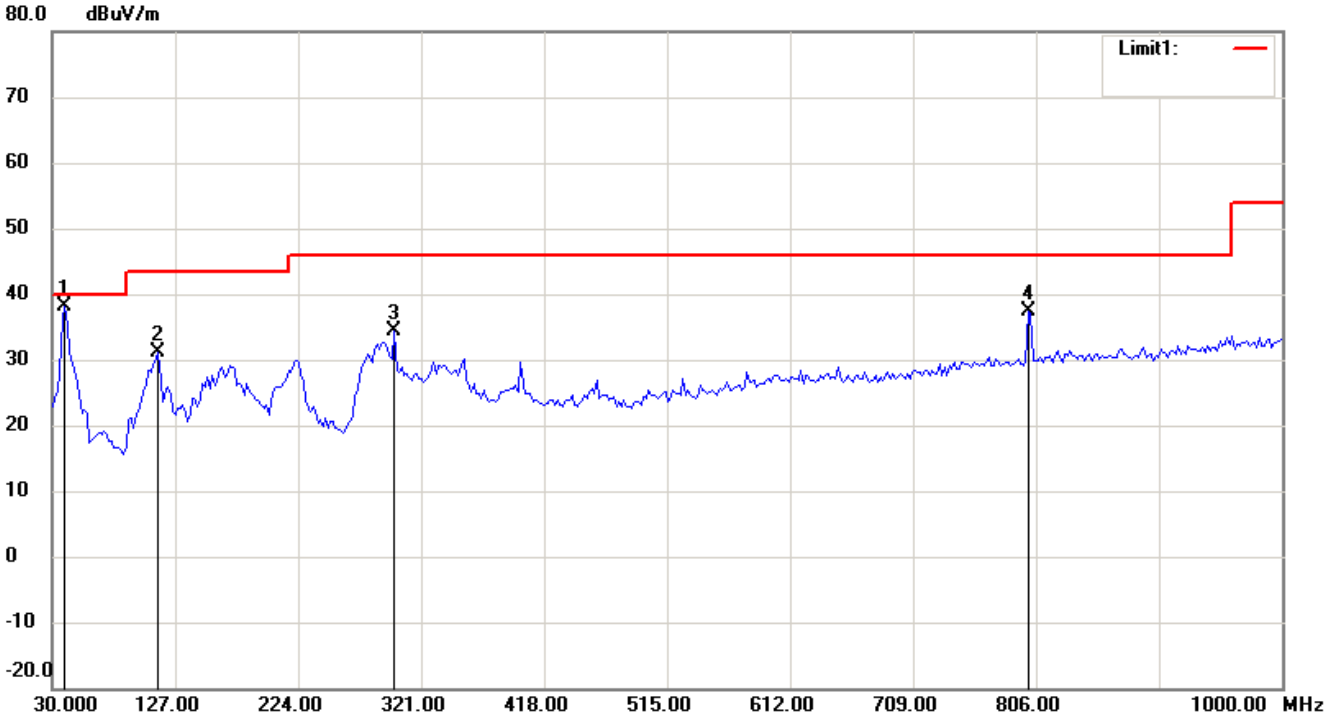


Antenna Polarization V



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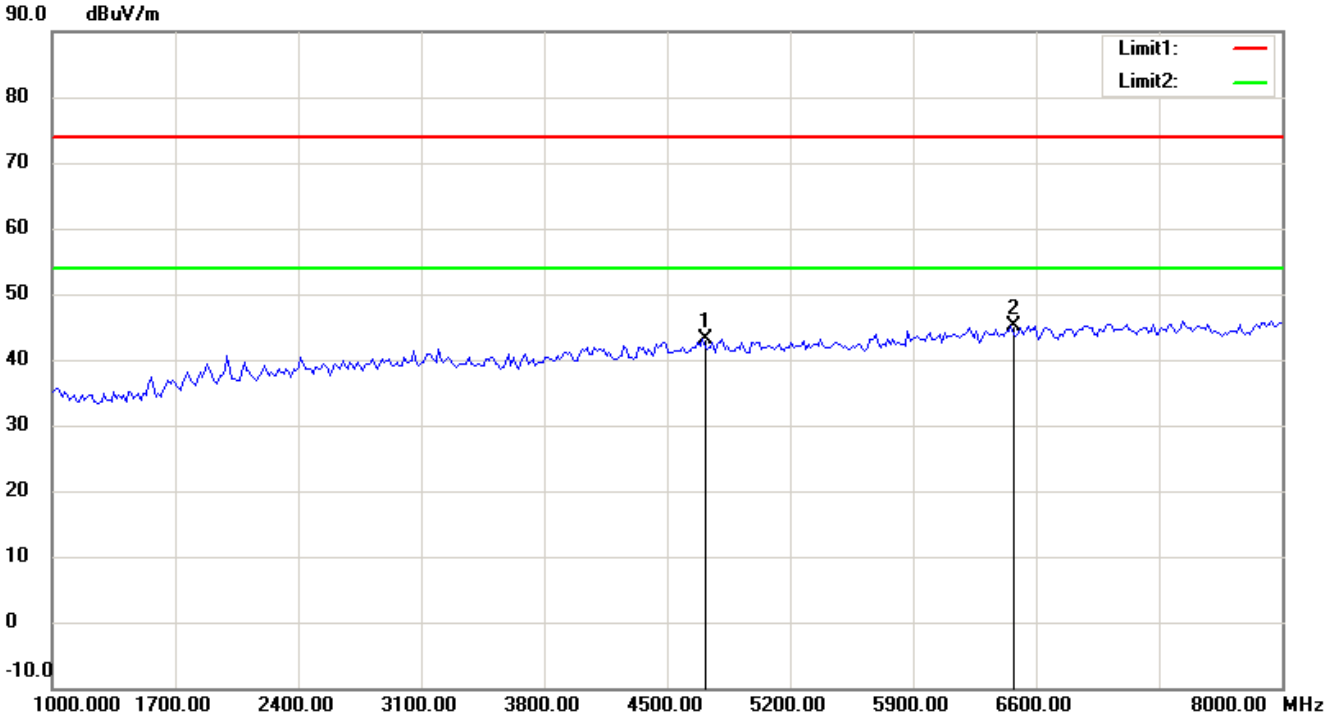

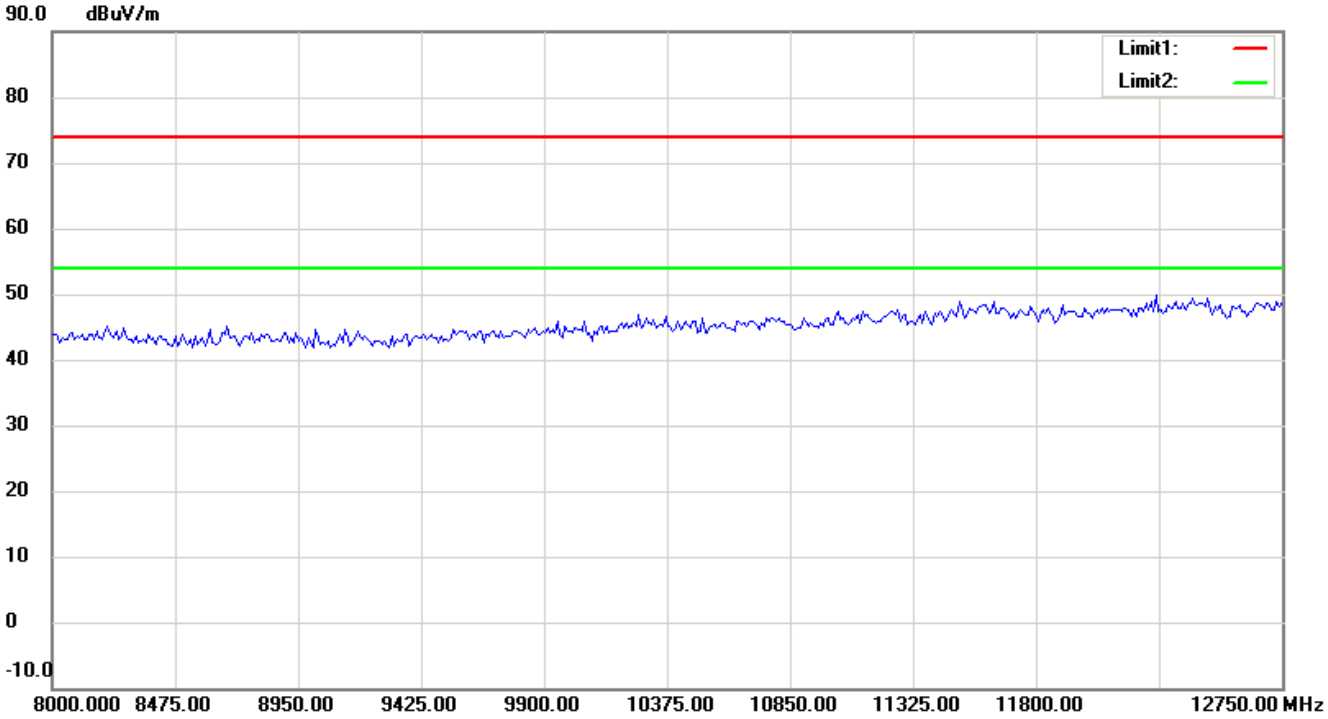

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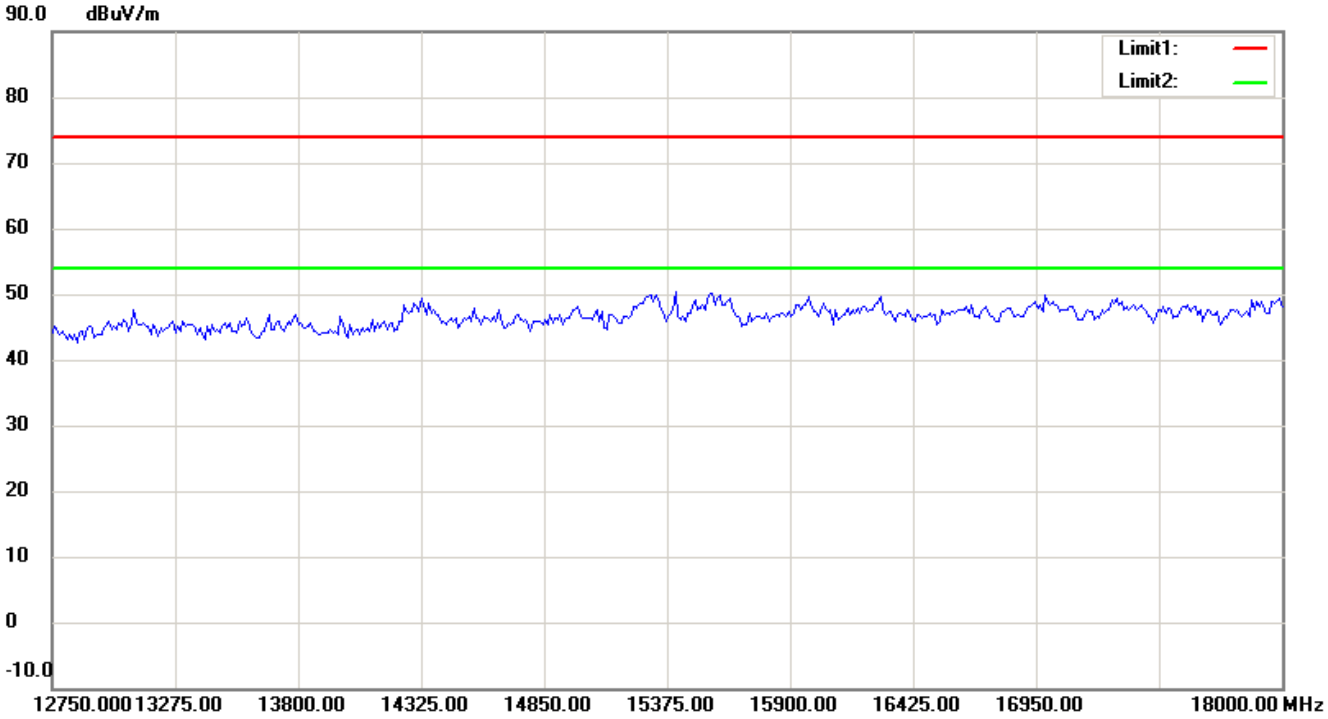

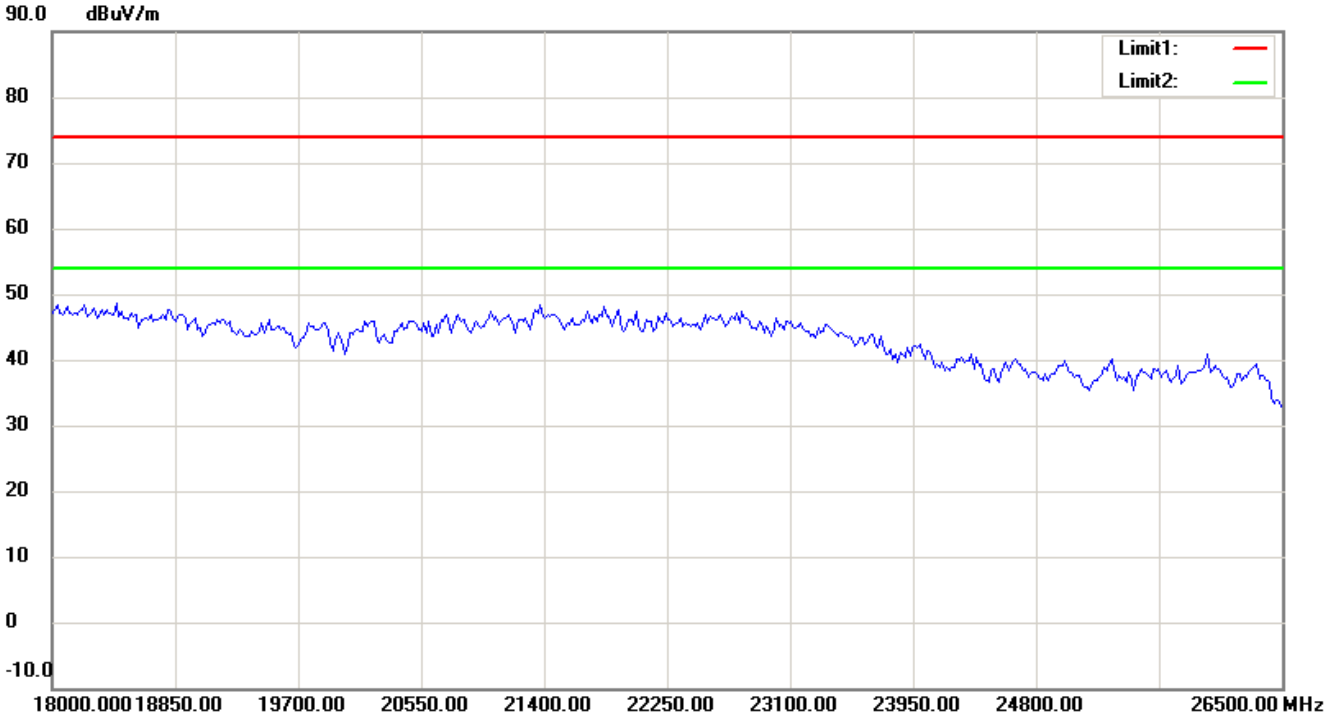

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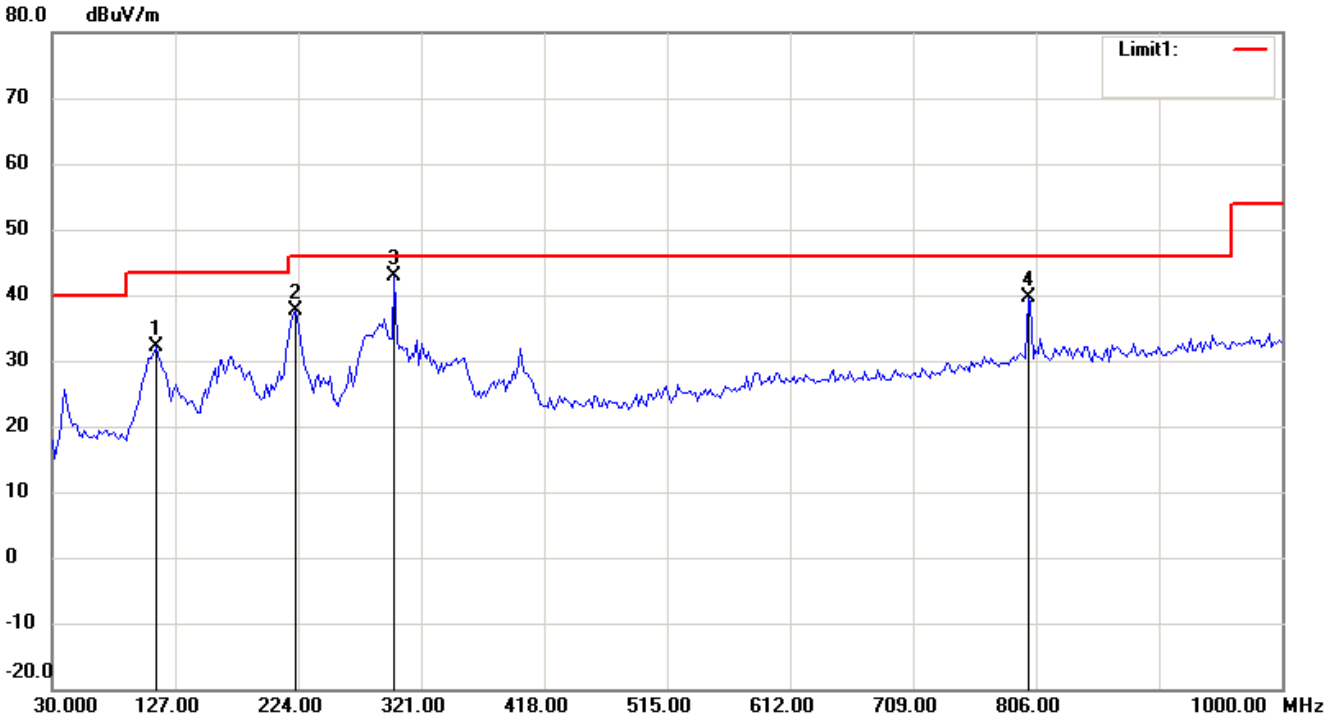
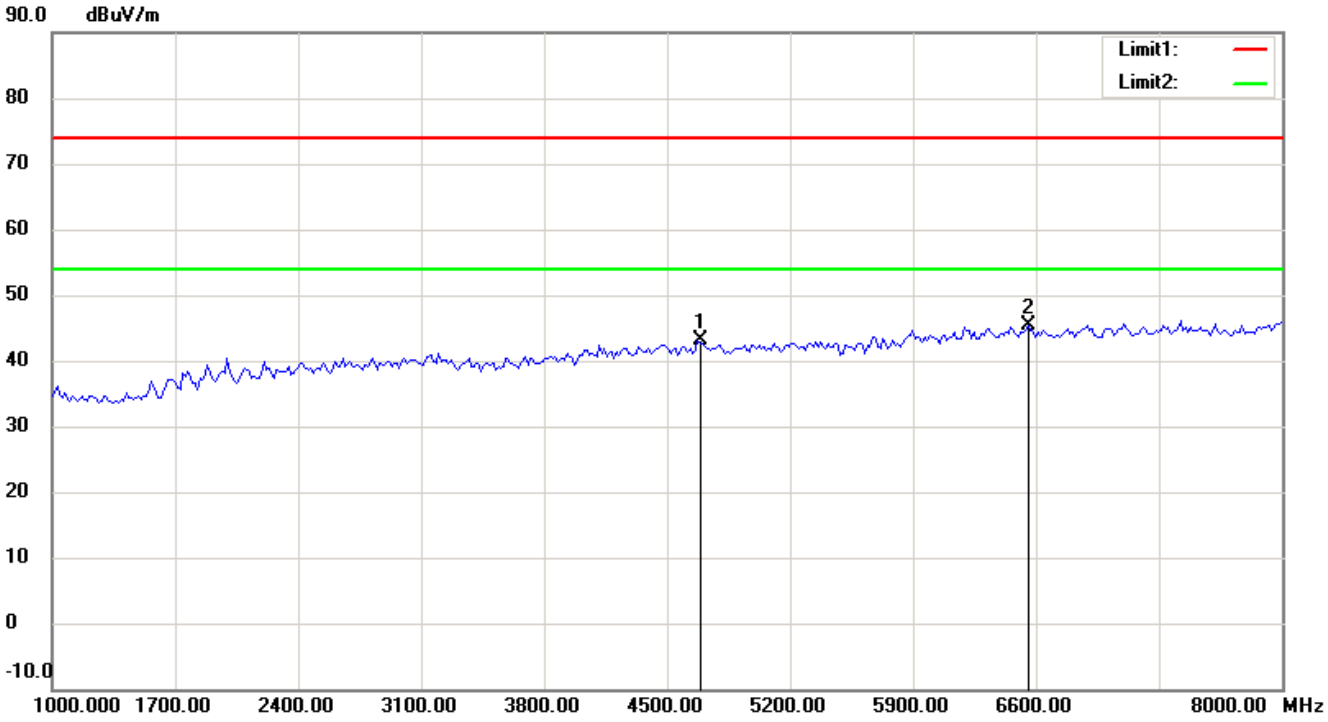
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 band_Idle Mode_132 V
Antenna Polarization H





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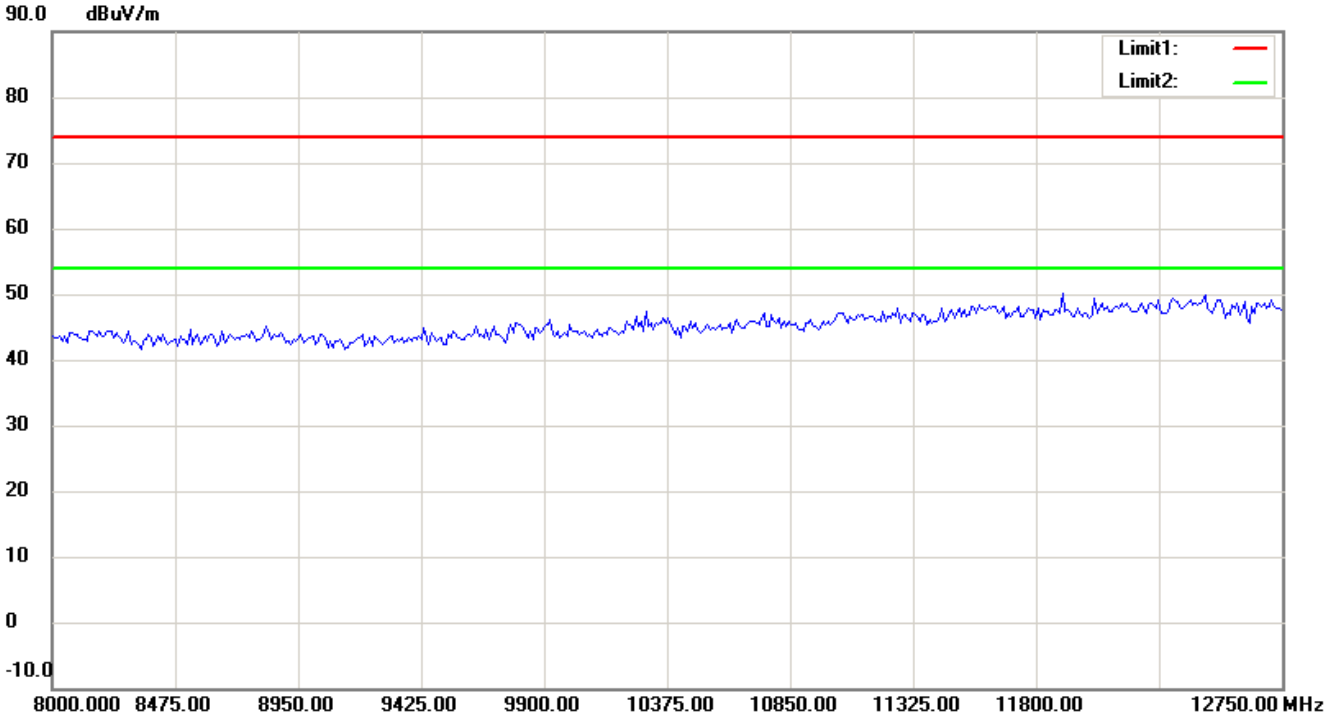

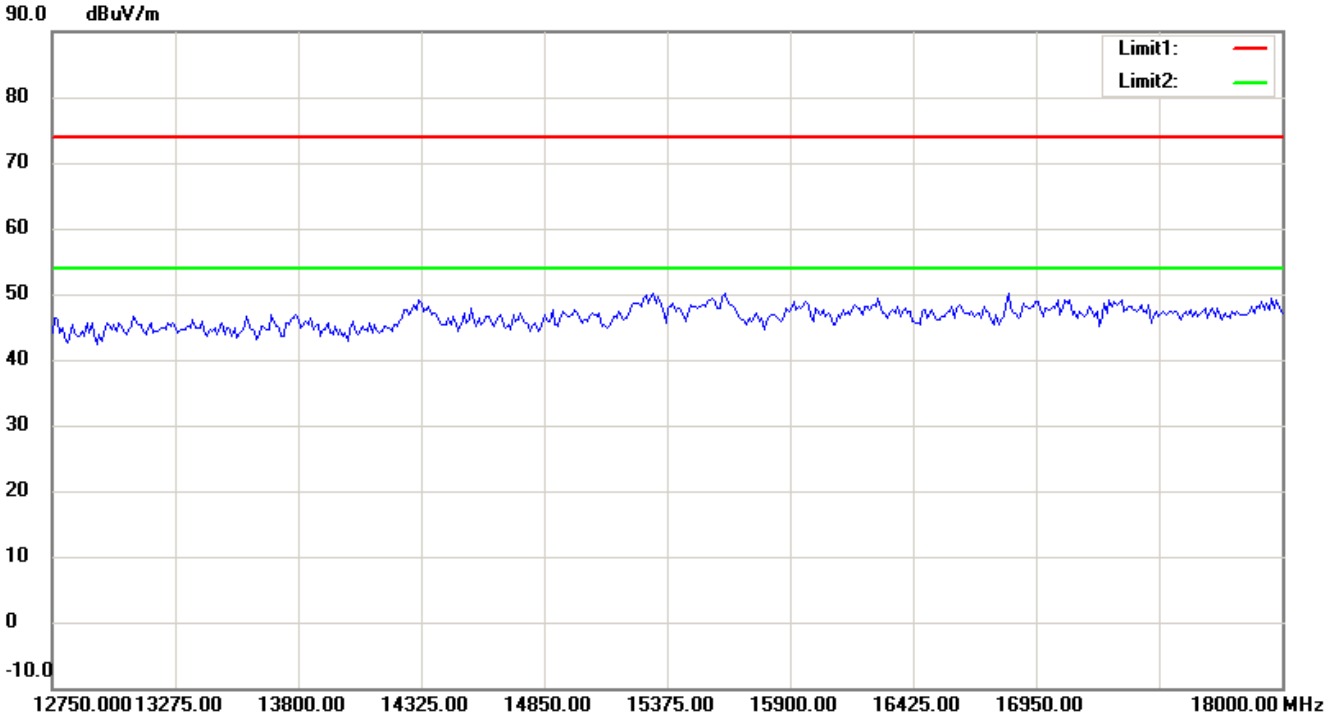

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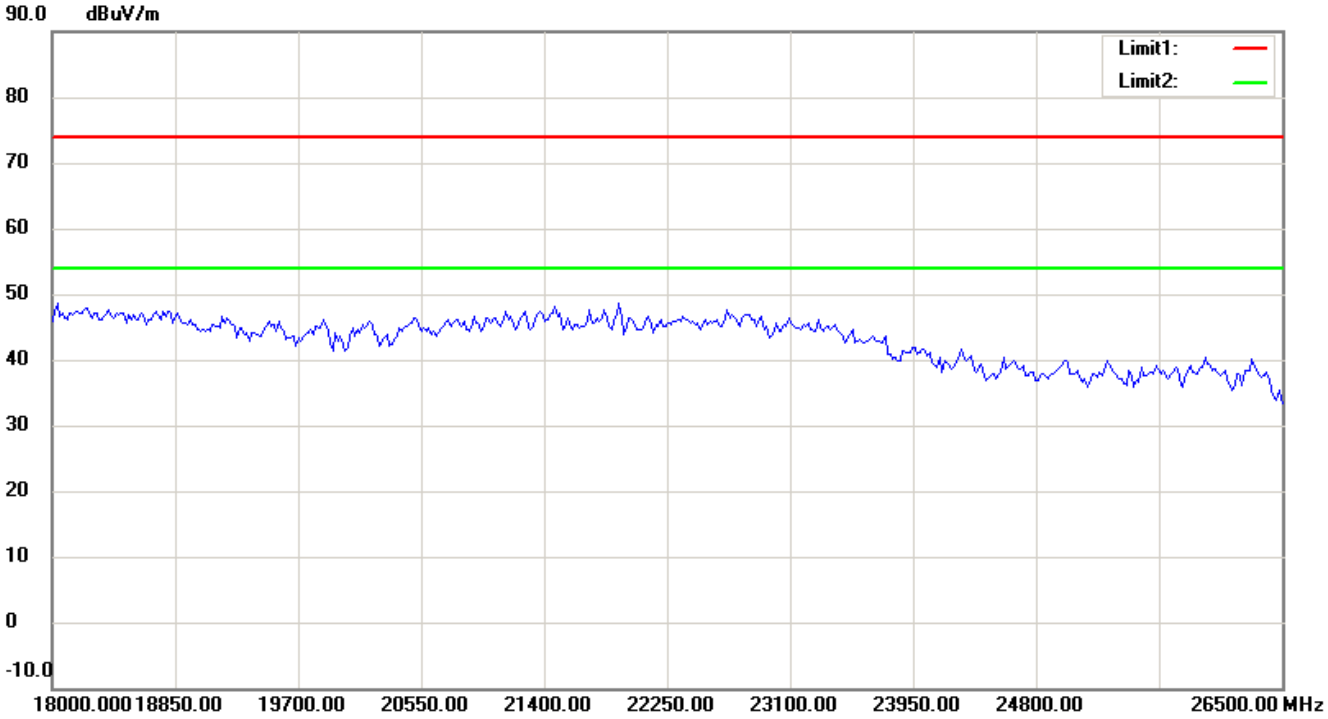
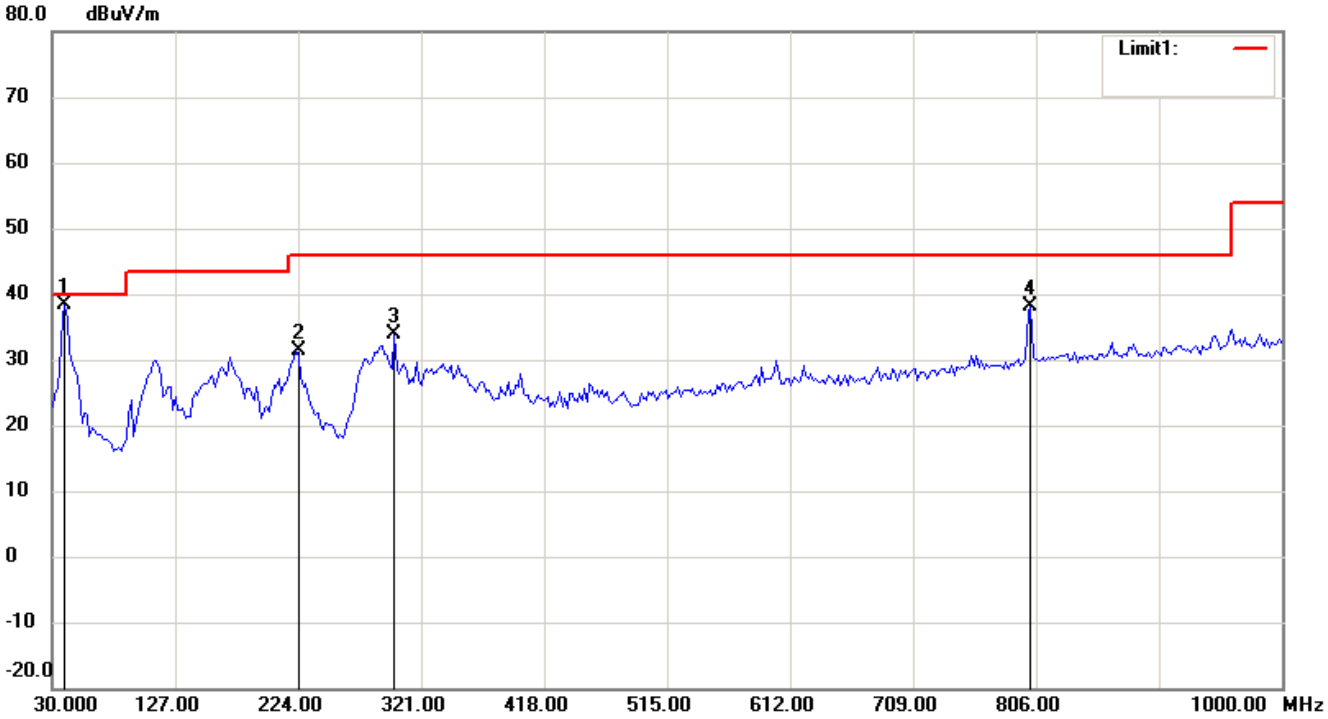


Antenna Polarization V



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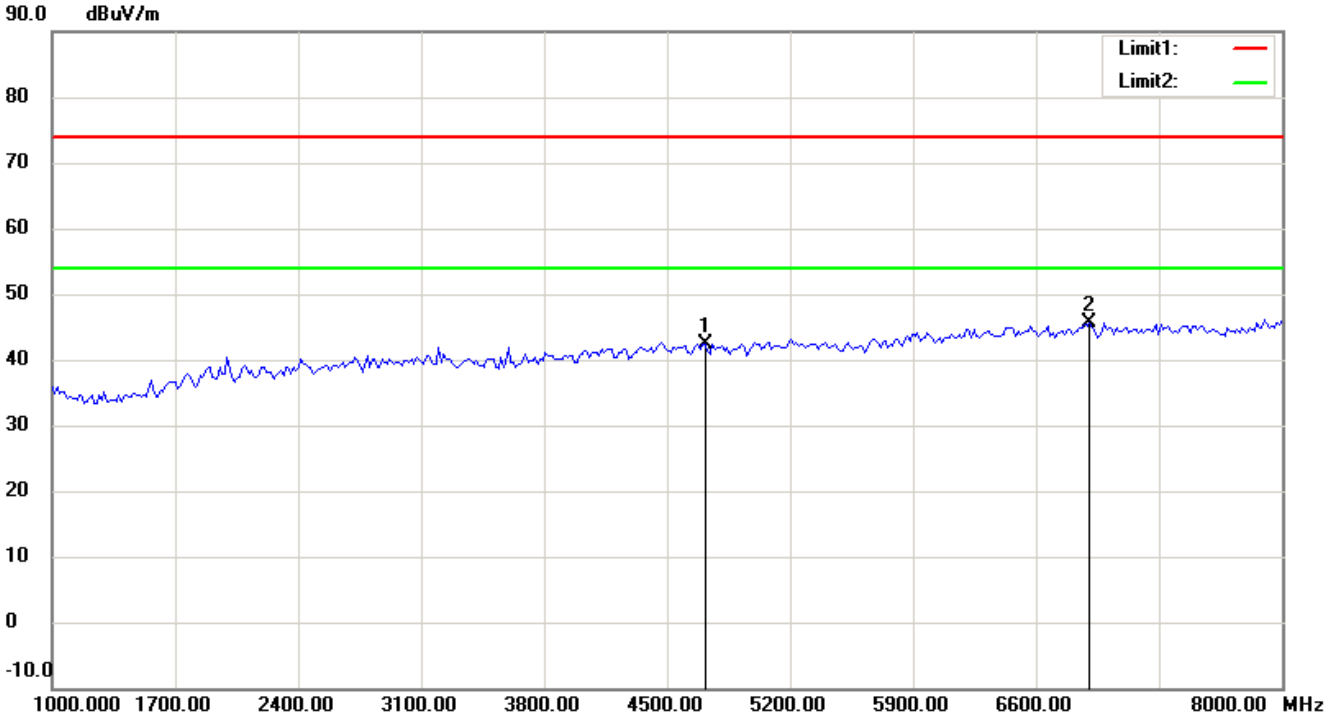

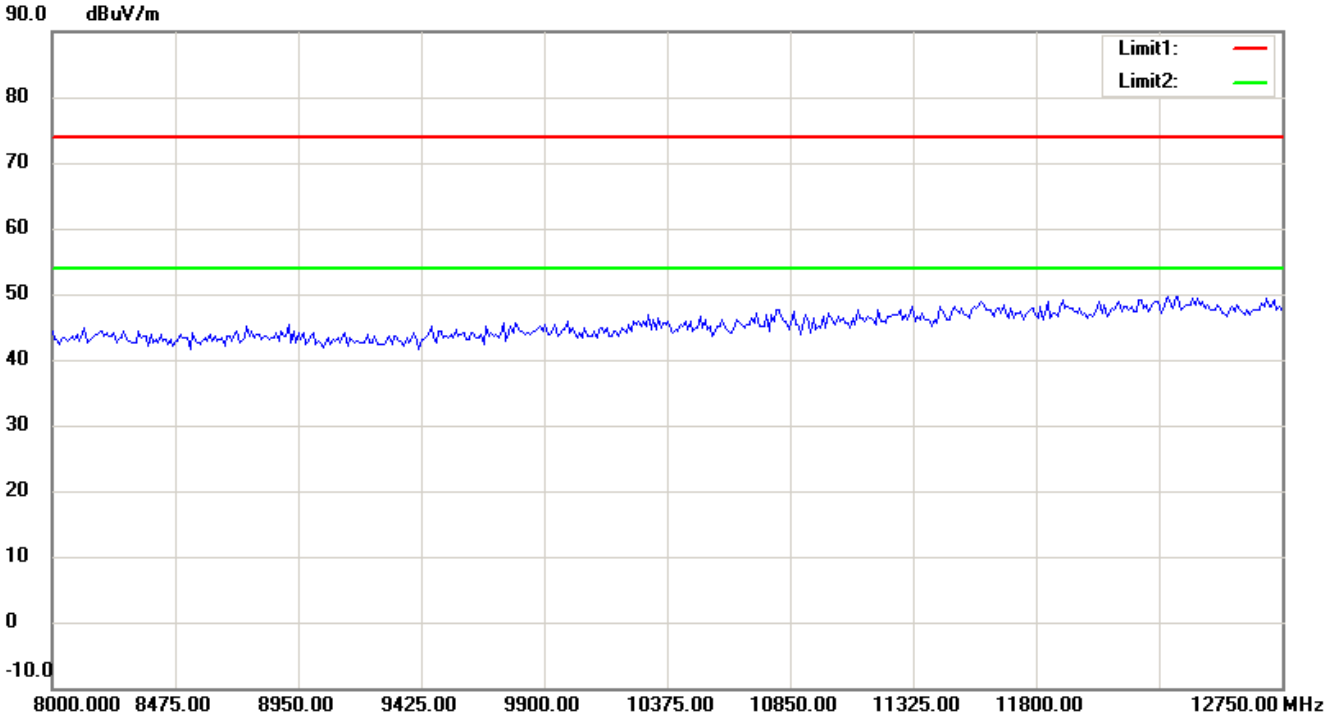

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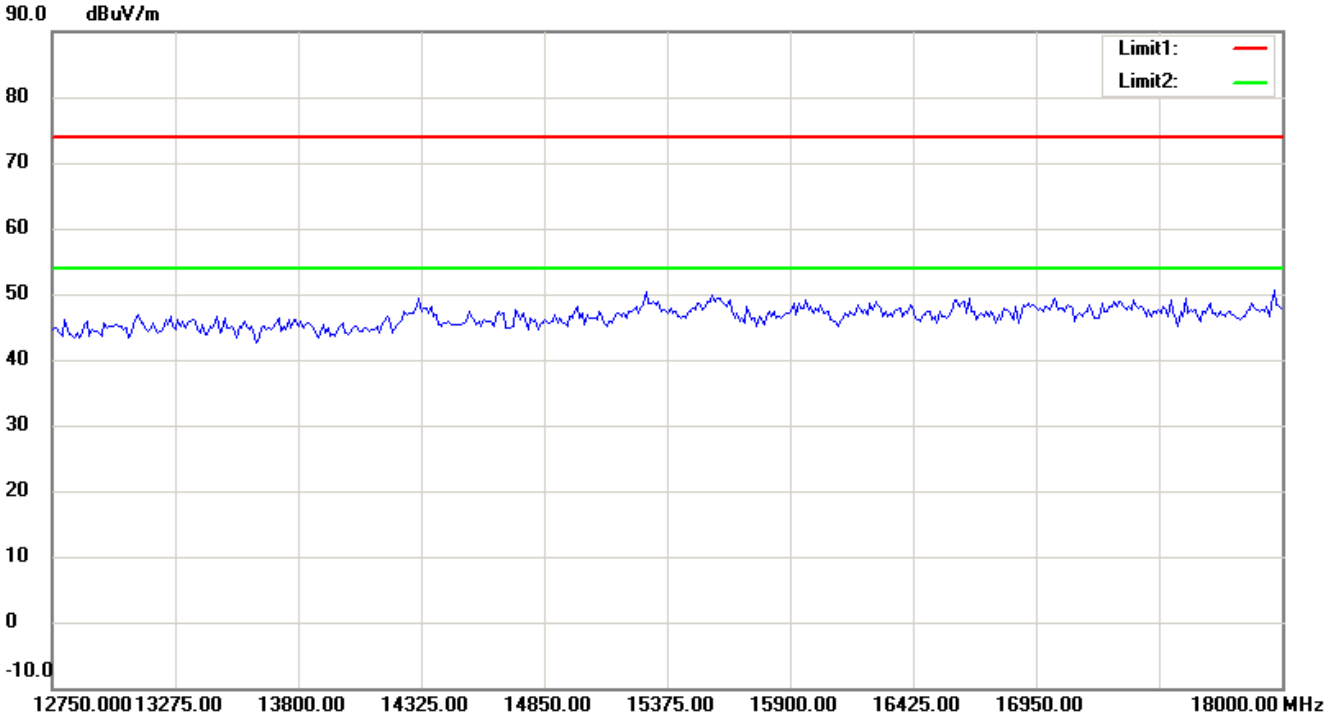

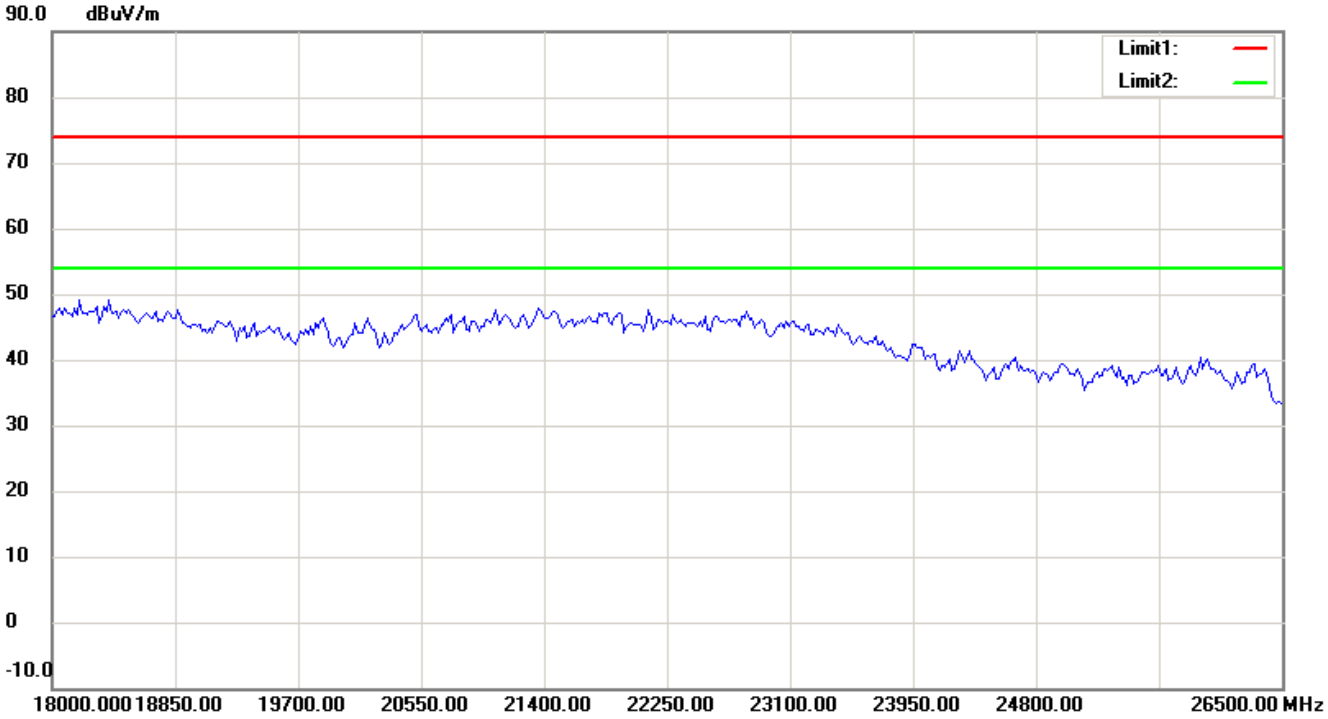

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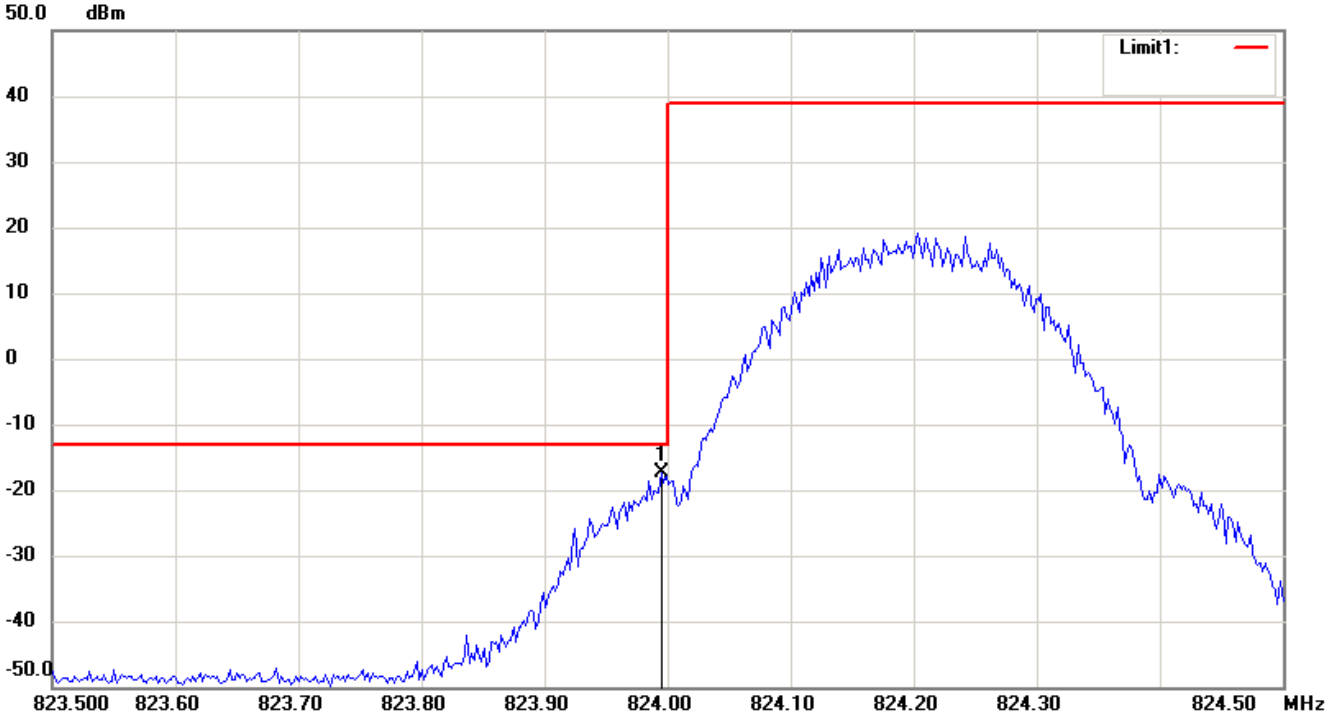
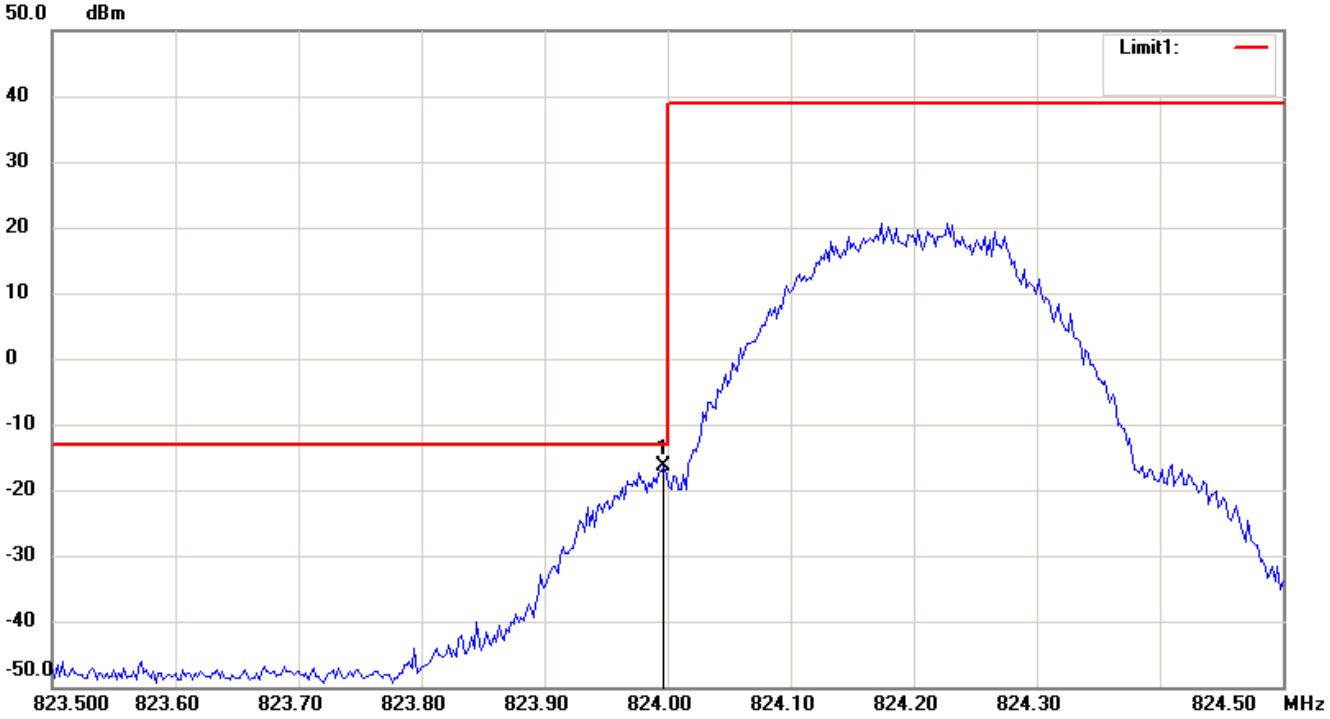
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

Band edge emissions
850 Band – channel 128
Antenna Polarization H



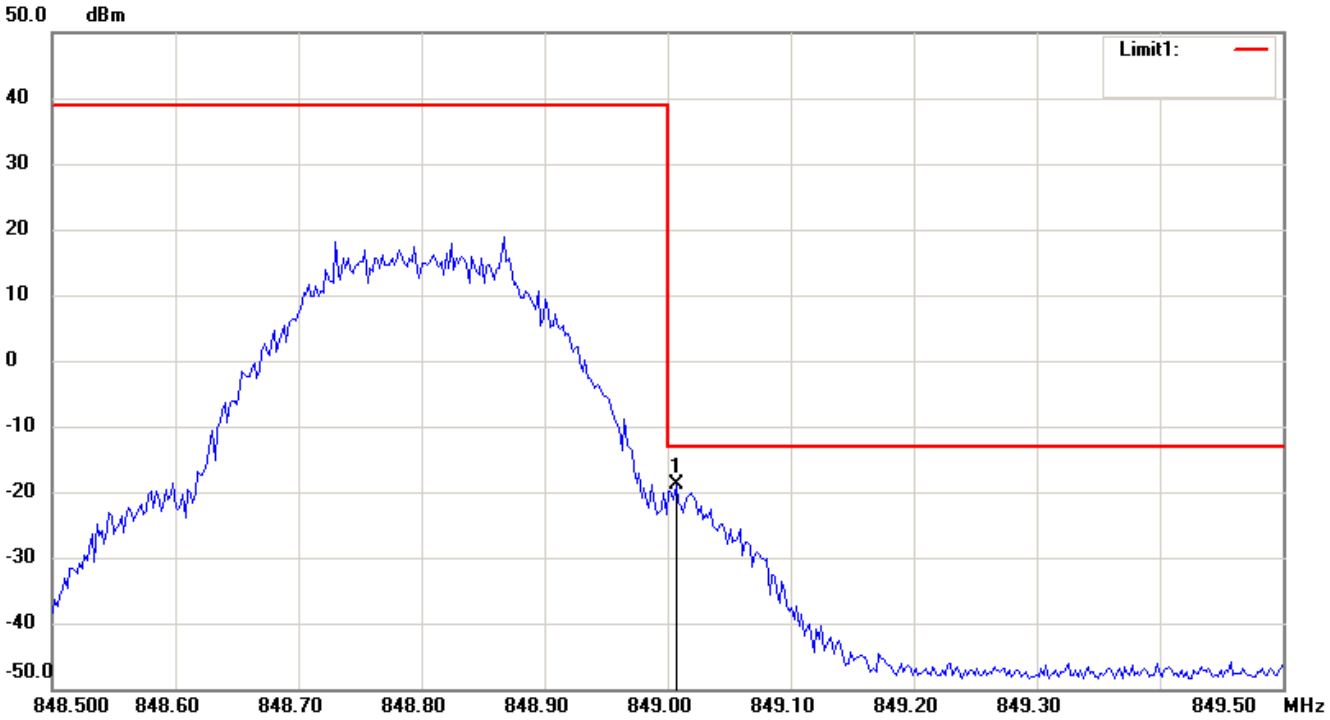
Antenna Polarization V



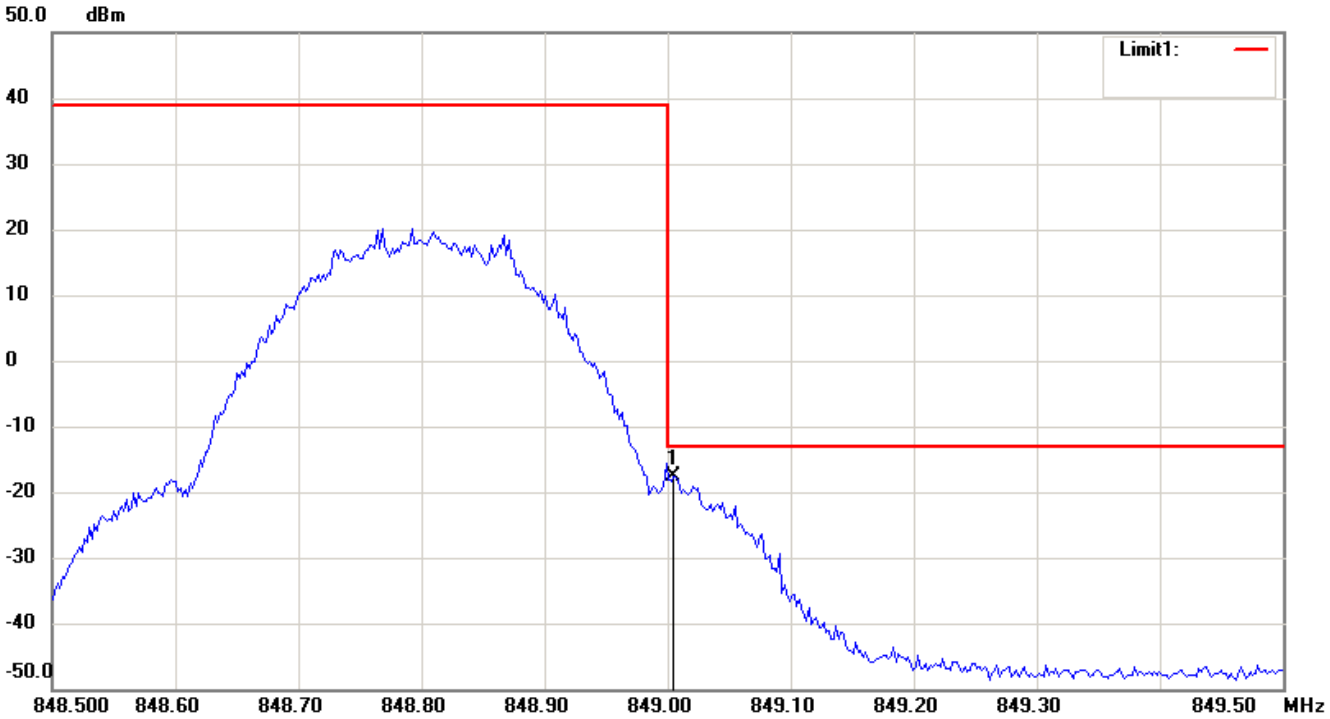
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

850 Band – channel 251

Antenna Polarization H



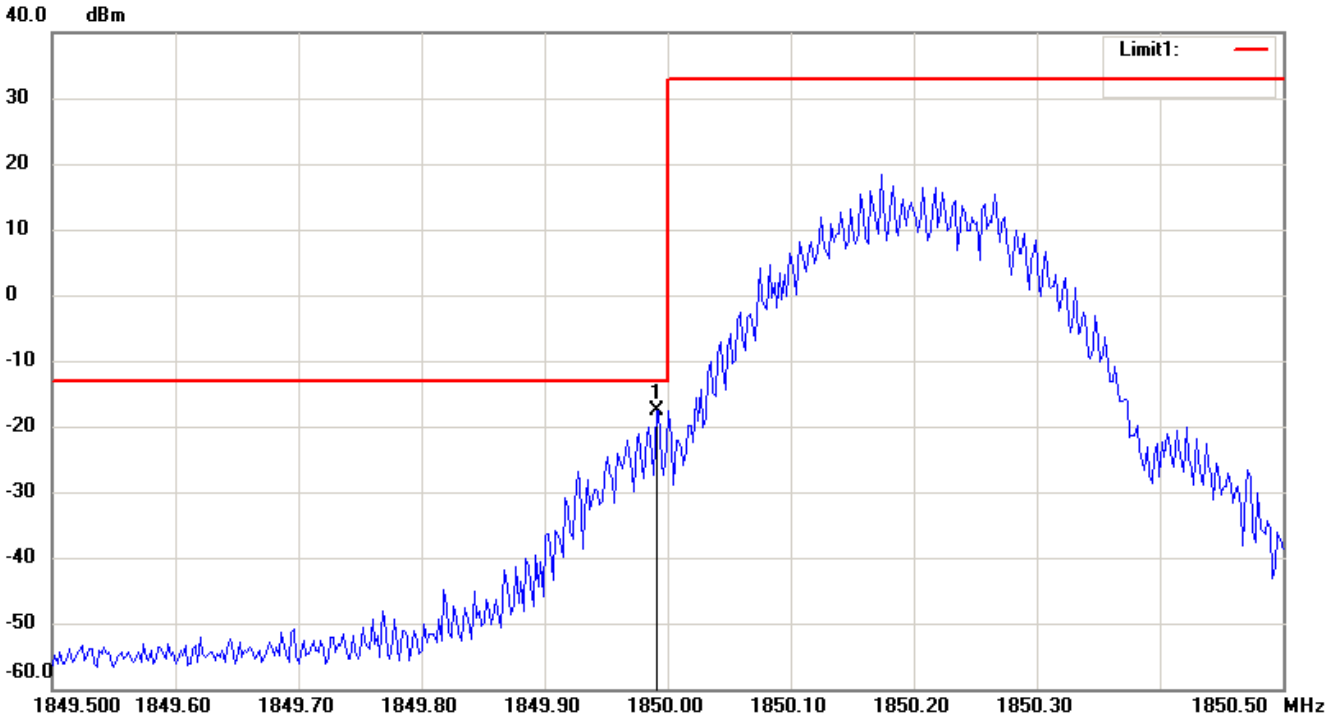
Antenna Polarization V



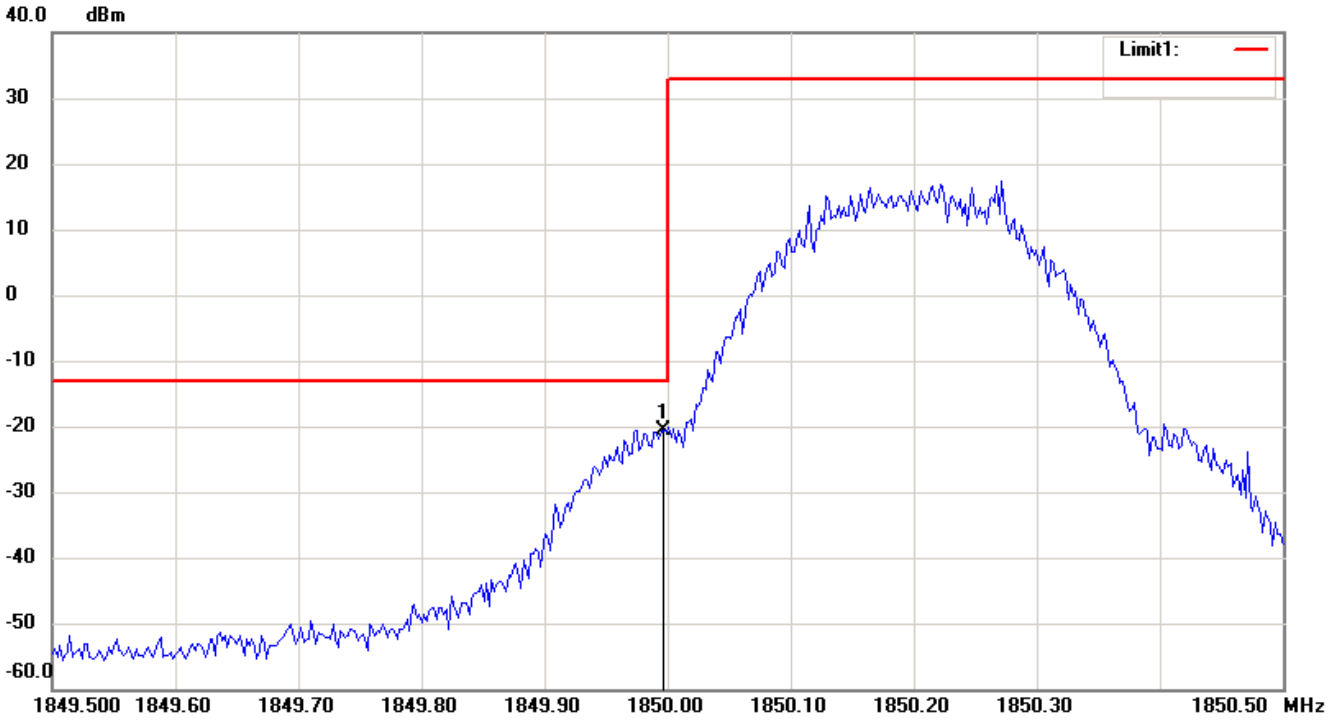
Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 Band – channel 512

Antenna Polarization H



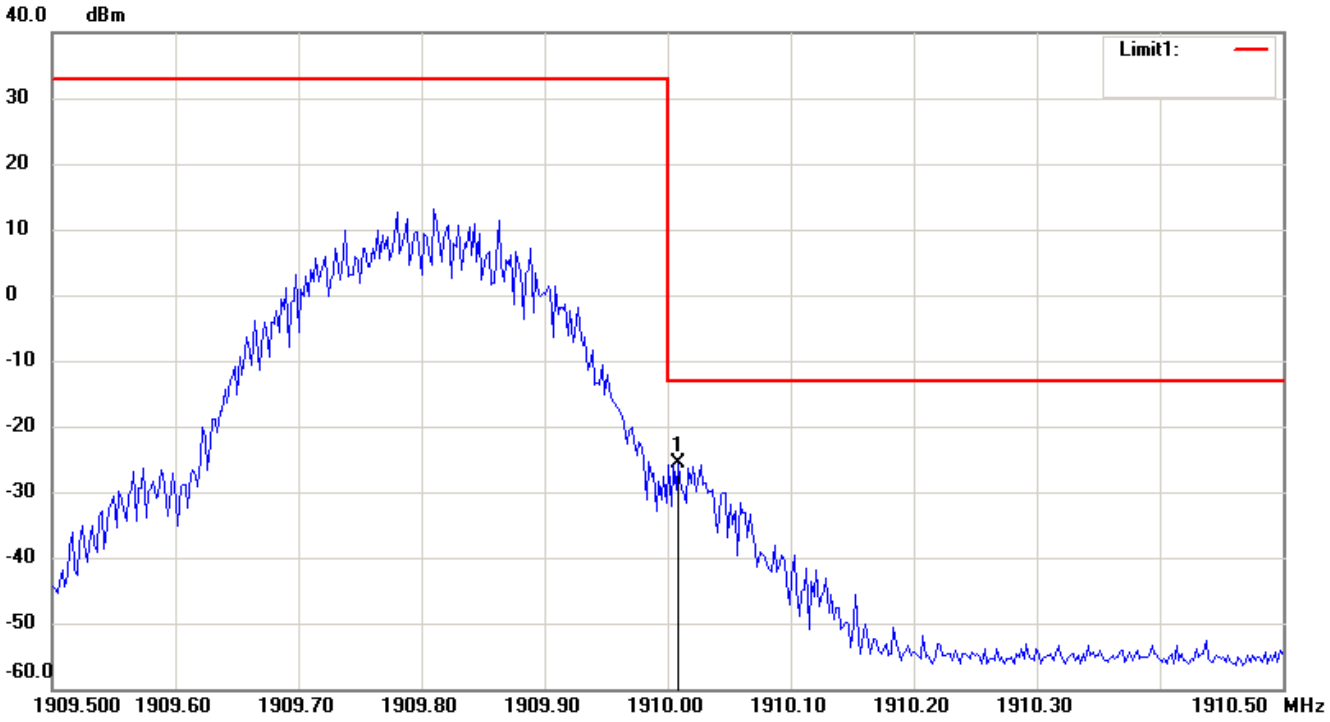
Antenna Polarization V



Report Number: W6M21309-13566-P-2224
FCC ID: 2ABGRMVX400

1900 Band – channel 810

Antenna Polarization H



Antenna Polarization V