FCC PART 15 SUBPART C TEST REPORT

For

Handheld Computer

Model No.: DF7A

FCC ID: IR5DF7A

of

Applicant: MilDef Crete Inc.
Address: 7F, No.250, Sec.3, Pei Shen Rd., Shen Keng District,
New Taipei City Taiwan R.O.C.

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

A2LA Accredited No.: 2732.01

Report No.: W6M21409-14510-C-1

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

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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.
The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.
Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.
Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.
The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that is performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.
The test report may only be reproduced or published in full.
Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

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

Tester:

November 20, 2014		Spencer Yang	Spencer
Date	WTS-Lab.	Name	Signature

Technical responsibility for area of testing:

November 20, 2014		Kevin Wang	Kevin Wang
Date	WTS	Name	Signature

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

1.2 Testing laboratory

1.2.1 Location

OATS
No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 207,
Taiwan (R.O.C.)
3 meter semi-anechoic chamber
No.35, Aly. 21, Ln. 228, Ankang Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)
TEL:886-2-6613-0228
FAX:886-2-2791-5046

Company
Worldwide Testing Services(Taiwan) Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory
A2LA accredited number: 2732.01
FCC filed test laboratory Reg. No. 930600
Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

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

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

1.3 Details of approval holder

Name:	MilDef Crete Inc.
Street:	7F, No.250, Sec.3, Pei Shen Rd.,
Town:	Shen Keng District, New Taipei City
Country:	Taiwan R.O.C.
Telephone:	+886-2-2662-6074
Fax:	+886-2-2662-6079

1.4 Application details

Date of receipt of test item:	October 02, 2014
Date of test:	from October 03, 2014 to November 19, 2014

1.5 General information of Test item

Type of test item:	Handheld Computer
Model Number:	DF7A
Brand Name:	./.
Multi-listing model number:	./.
Photos:	see Appendix

Technical data

Frequency band:	2.4 GHz – 2.4835 GHz

802.11b, g, n 20MHz

Frequency (ch 1):	2.412 GHz
Frequency (ch 6):	2.437 GHz
Frequency (ch 11):	2.462 GHz

Bluetooth Normal, EDR

Frequency (ch 0):	2.402 GHz
Frequency (ch 39):	2.441 GHz
Frequency (ch 78):	2.480 GHz

Number of Channels:	11b, 11g, 11n 20MHz: 11 channels Bluetooth: 79 channels
Operation modes:	duplex
Modulation Type:	DSSS/OFDM、GFSK、π/4DQPSK、8DPSK
Fixed point-to-point operation:	☐ Yes / ☒ No
Type of Antenna:	PIFA antenna
Antenna gain:	BT&WiFi: 3.58 dBi
Power supply:	Adaptor: (I/P: 100-240 V~ 50/60 Hz, 1 A O/P: 5 V, 4 A, MAX 20 W) Battery: 3.7 V, 3520 mAH, 13 Wh USB: 5 VDC power from PC

Emission designator: 802.11b: DSSS: 16M4G1D
802.11g: OFDM: 18M0D1D
802.11n 20MHz: OFDM: 18M6D1D
Bluetooth (Normal): 962KF1D
Bluetooth (EDR): 1M30G1D

Host device: none

Classification :

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

Transmitter **Unom**

Mode A (802.11b)
Power (ch 1 or A): Conducted: 18.65 dBm
Power (ch 6 or B): Conducted: 18.48 dBm
Power (ch 11 or C): Conducted: 18.88 dBm

Mode B (802.11g)
Power (ch 1 or A): Conducted: 20.28 dBm
Power (ch 6 or B): Conducted: 20.43 dBm
Power (ch 11 or C): Conducted: 20.30 dBm

Mode C (802.11n 20 MHz)
Power (ch 1 or A): Conducted: 17.10 dBm
Power (ch 6 or B): Conducted: 17.36 dBm
Power (ch 11 or C): Conducted: 17.32 dBm

Mode D (Bluetooth Normal mode)
Power (ch 0 or A): Conducted: -3.29 dBm
Power (ch 39 or B): Conducted: -2.21 dBm
Power (ch 78 or C): Conducted: -1.87 dBm

Mode E (Bluetooth EDR mode)
Power (ch 0 or A): Conducted: -2.17 dBm
Power (ch 39 or B): Conducted: -1.12 dBm
Power (ch 78 or C): Conducted: -0.90 dBm

Manufacturer: (if applicable)
Name: ./.
Street: ./.
Town: ./.
Country: ./.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART C § 15.247 (2013-10)

2 Technical test

2.1 Summary of test results

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

or

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

2.2 Test environment

Temperature:	23 °C
Relative humidity content:	20 ... 75 %
Air pressure:	86 ... 103 kPa
Power supply:	Adaptor: (I/P: 100-240 V~ 50/60 Hz, 1 A O/P: 5 V, 4 A, MAX 20 W) Battery: 3.7 V, 3520 mAH, 13 Wh USB: 5 VDC power from PC
Extreme conditions parameters:	./.

2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2014/9/2	2015/9/1
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	2014/7/8	2015/7/7
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2014/10/13	2015/10/12
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2014/9/2	2015/9/1
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2014/9/2	2015/9/1
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	2014/10/15	2015/10/14
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2014/7/01	2015/6/30
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2014/2/25	2015/2/24
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	2014/2/18	2015/2/17
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2014/3/3	2015/3/2
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2014/6/05	2015/6/04
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2014/3/3	2015/3/2
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	2014/10/9	2015/10/8
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2014/9/22	2015/9/21
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2014/3/3	2015/3/2
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	2013/12/27	2014/12/26
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2014/1/10	2015/1/09
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2014/6/11	2015/6/10
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2014/8/12	2015/8/11

ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2014/8/12	2015/8/11
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2014/3/3	2015/3/2
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circits	2014/8/12	2015/8/11
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circits	2014/8/12	2015/8/11
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	2014/10/20	2015/10/19
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2014/1/10	2015/1/09
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2014/1/10	2015/1/09
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2014/1/10	2015/1/09
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2014/1/10	2015/1/09
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2014/9/17	2015/9/16
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2014/10/15	2015/10/14
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.	2014/10/15	2015/10/14
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2014/2/27	2015/2/26
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2014/2/19	2015/2/18
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2014/3/3	2015/3/2
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2014/3/3	2015/3/2
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2014/9/22	2015/9/21
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2014/9/22	2015/9/21
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104（S_Cable 9）	279067	HUBER+SUHNER	2014/3/3	2015/3/2
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.	2014/2/19	2015/2/18
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2014/2/19	2015/2/18
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMC	None	Farad	Version ETS-03A1	

2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2009 5.2 using a 50μH LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2009 6.4 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

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

Example:

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

The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.4-2009 6.3.1. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

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

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.
Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Lishui, Shuang Sing Village, Wanli Dist., New Taipei City 207, Taiwan (R.O.C.). The Registration Number: 930600.
When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

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

The formula is as follows:
Average = Peak + Duty Factor
Duty Factor = 20 log (dwell time/T)
T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

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

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

3 Test results (enclosure)

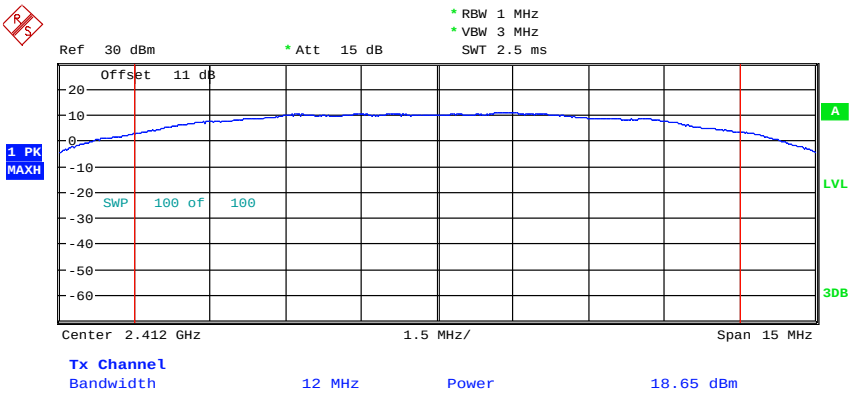
TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)	☒	☒	☐
Equivalent isotropically radiated Power	15.247(b)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(c)	☒	☒	☐
Spurious Emissions conducted – Transmitter operating	15.247	☐	☐	☐
Carrier Frequency Separation	15.247(a) (1)	☒	☒	☐
Number of Hopping Frequencies	15.247(a) (1)(i)	☒	☒	☐
Time of Occupancy (Dwell Time)	15.247(a) (1)(i)	☒	☒	☐
20 dB Bandwidth	15.247(a) (1)(i)	☒	☒	☐
Minimum 6 dB Bandwidth	15.247(a)(2)	☒	☒	☐
Band-edge Compliance of RF Emission	15.247(d)	☒	☒	☐
Peak Power Spectral Density	15.247(e)	☒	☒	☐
Radiated Emission from Digital Part	15.109	☐	☐	☐
Power Line Conducted Emission	15.207(a)	☒	☒	☐

3.1 Peak Output Power (transmitter)

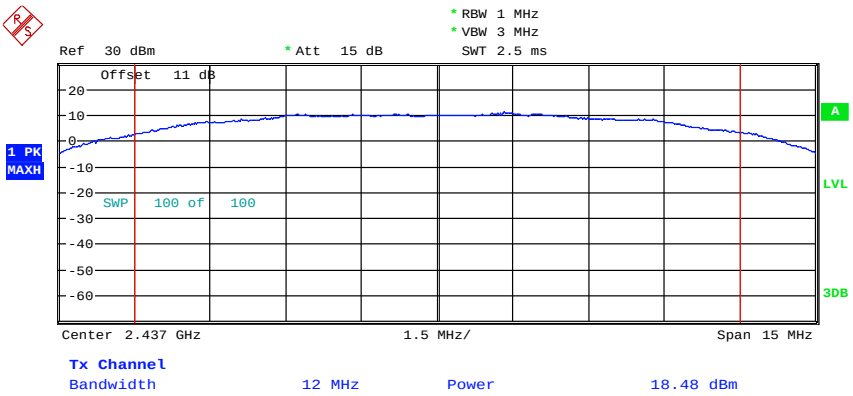
FCC Rule: 15.247(b)(3)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.
The power was measured with modulation (declared by the applicant).

Mode A



MAX OUTPUT POWER 802.11B CH01
Date: 11.NOV.2014 21:44:17



MAX OUTPUT POWER 802.11B CH06

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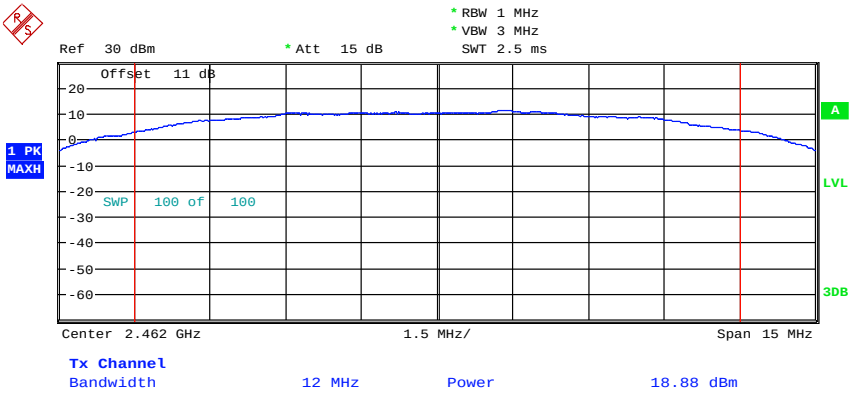
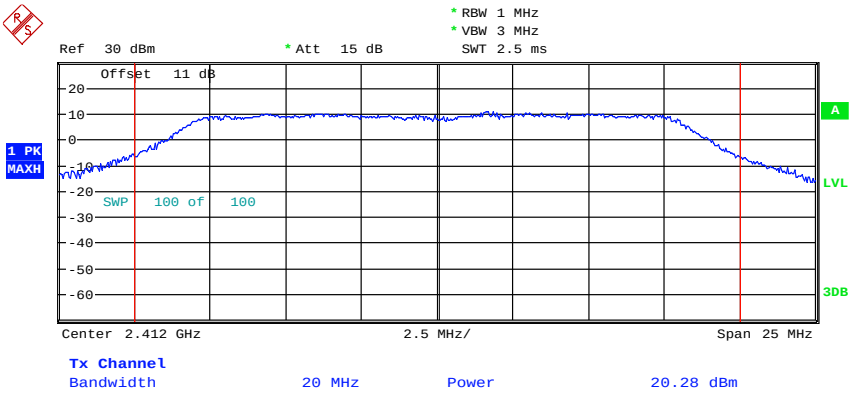


MAX OUTPUT POWER 802.11B CH11

Date: 11.NOV.2014 21:45:38

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Mode B



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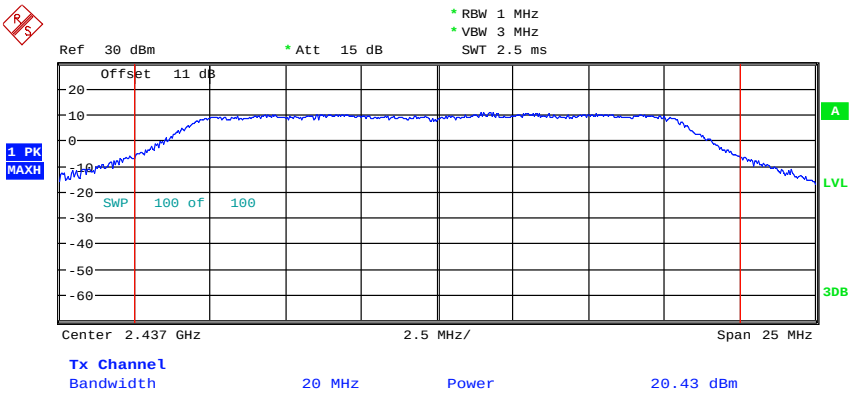
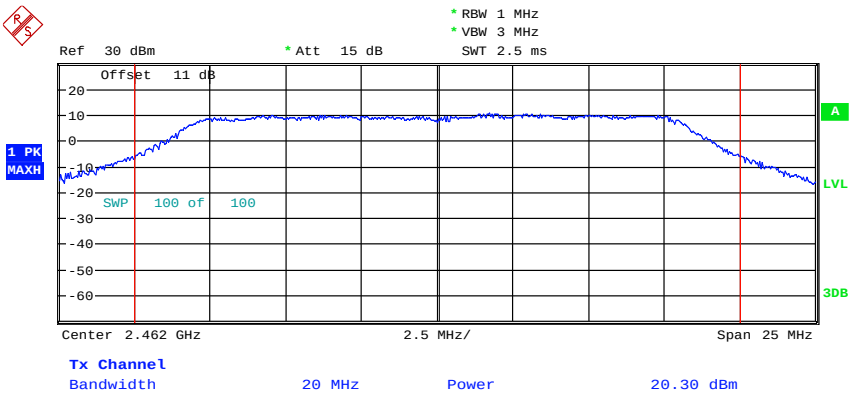


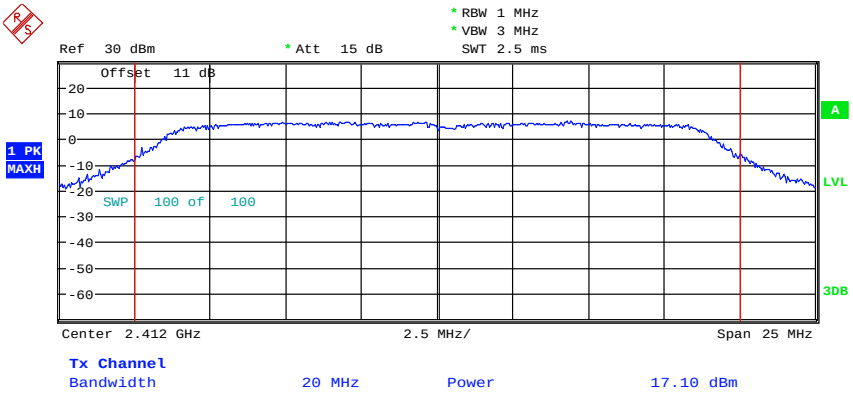
MAX OUTPUT POWER 802.11G CH06
Date: 11.NOV.2014 21:48:18

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



MAX OUTPUT POWER 802.11G CH11
Date: 11.NOV.2014 21:48:50

Mode C



MAX OUTPUT POWER 802.11N 20MHZ CH01
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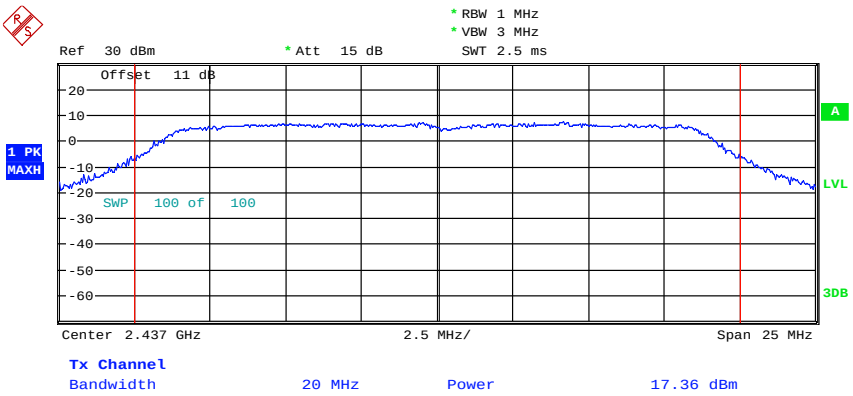
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



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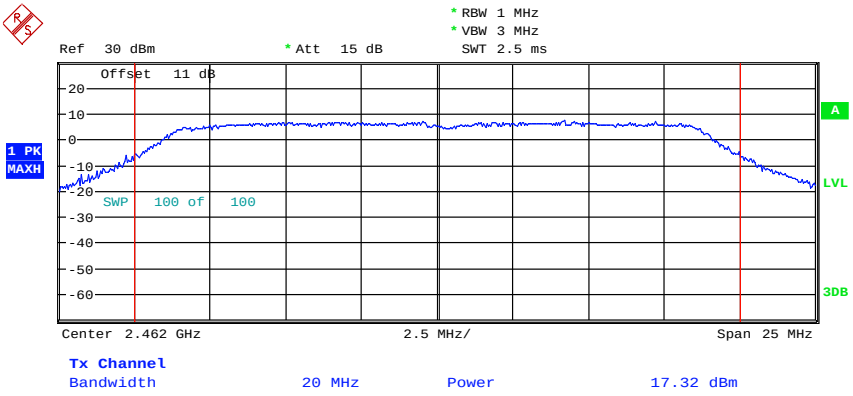
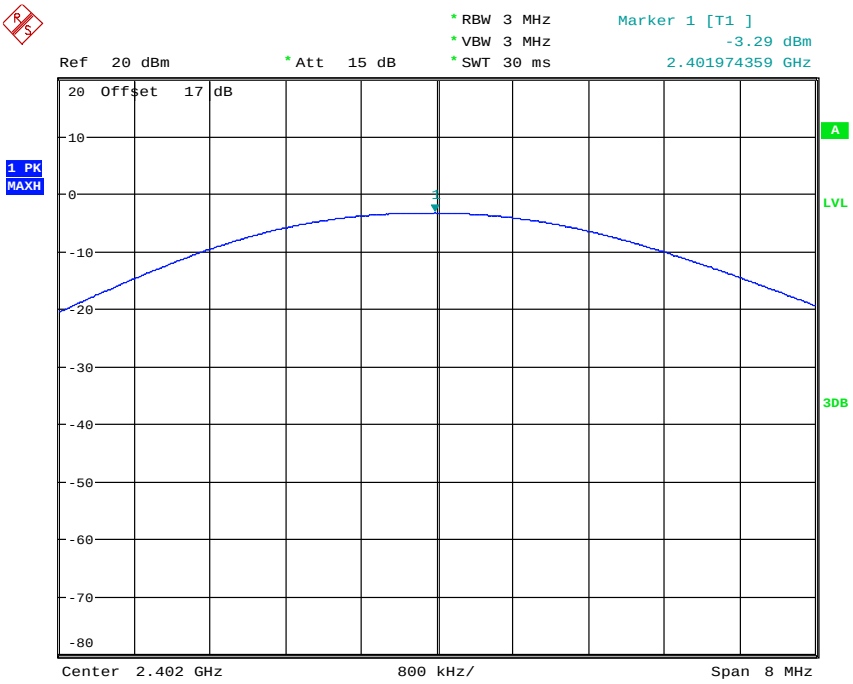


MAX OUTPUT POWER 802.11N 20MHZ CH11
Date: 11.NOV.2014 21:51:08

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Mode D



MAX OUTPUT POWER CH0

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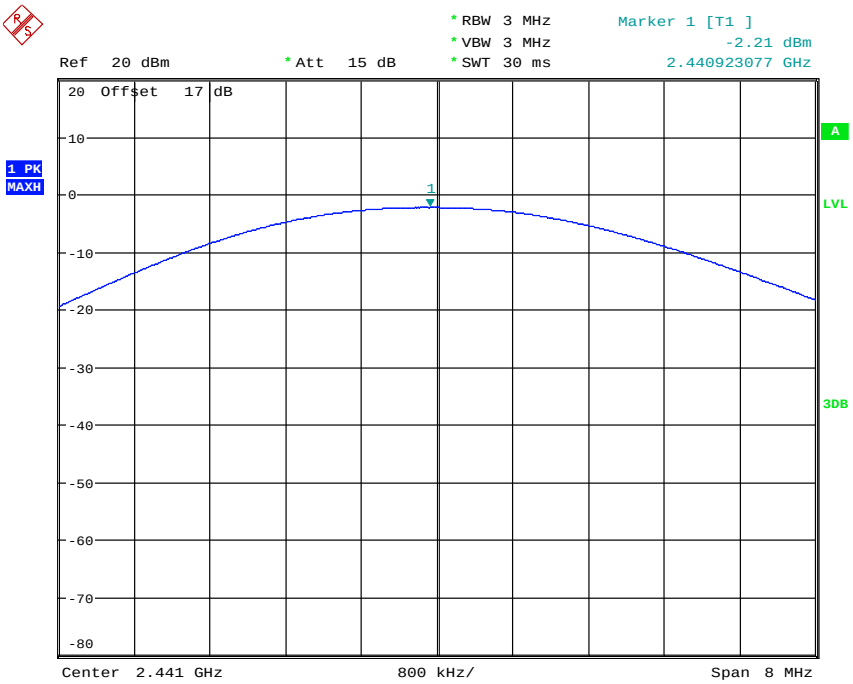
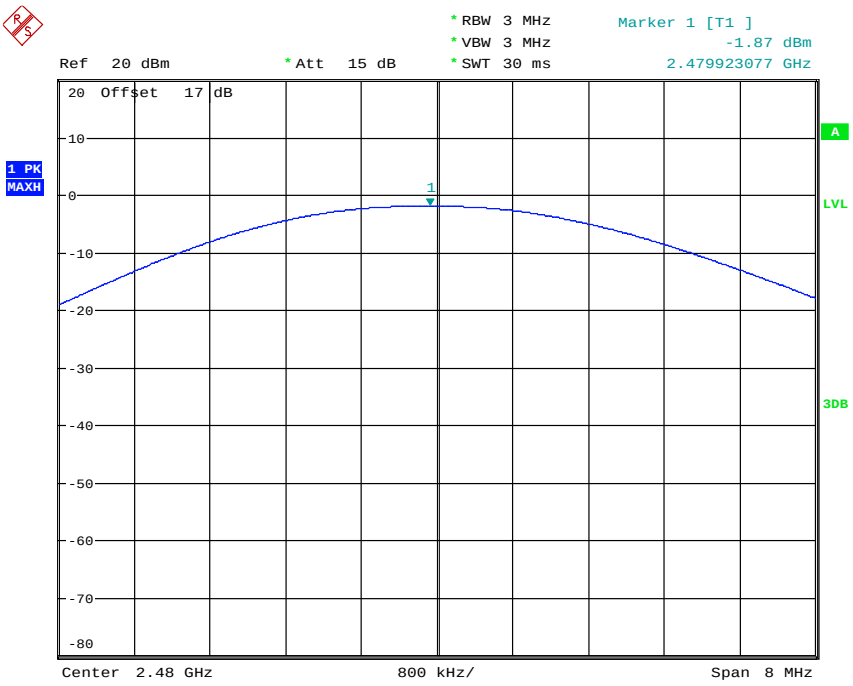


MAX OUTPUT POWER CH39

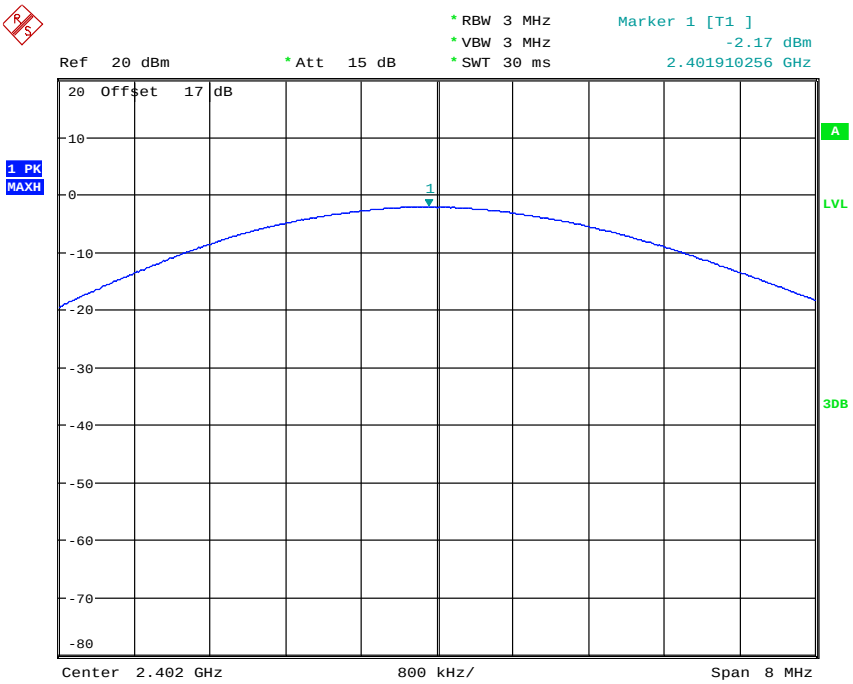
Date: 11.NOV.2014 21:27:07

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



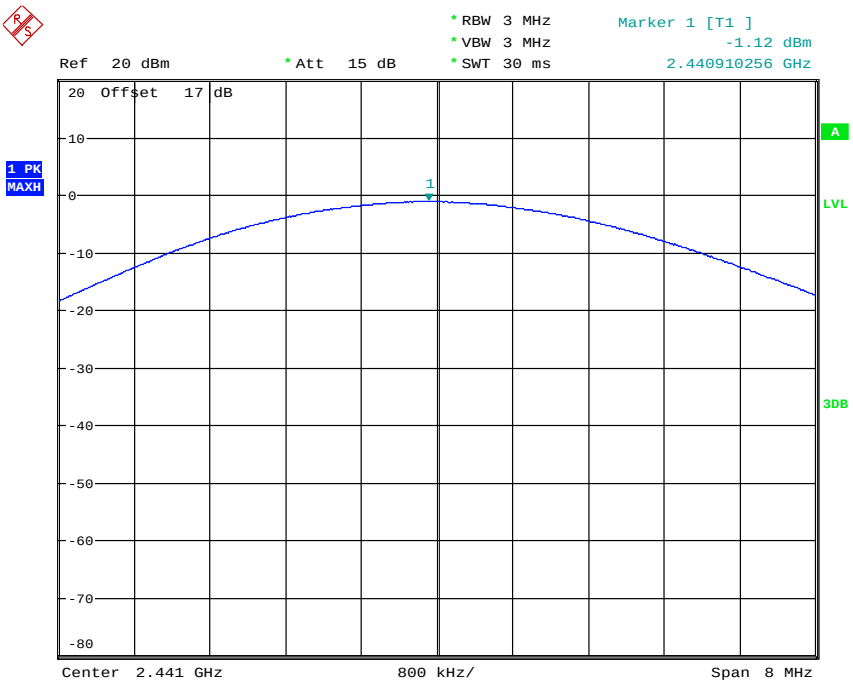
MAX OUTPUT POWER CH78
Date: 11.NOV.2014 21:27:35

Mode E

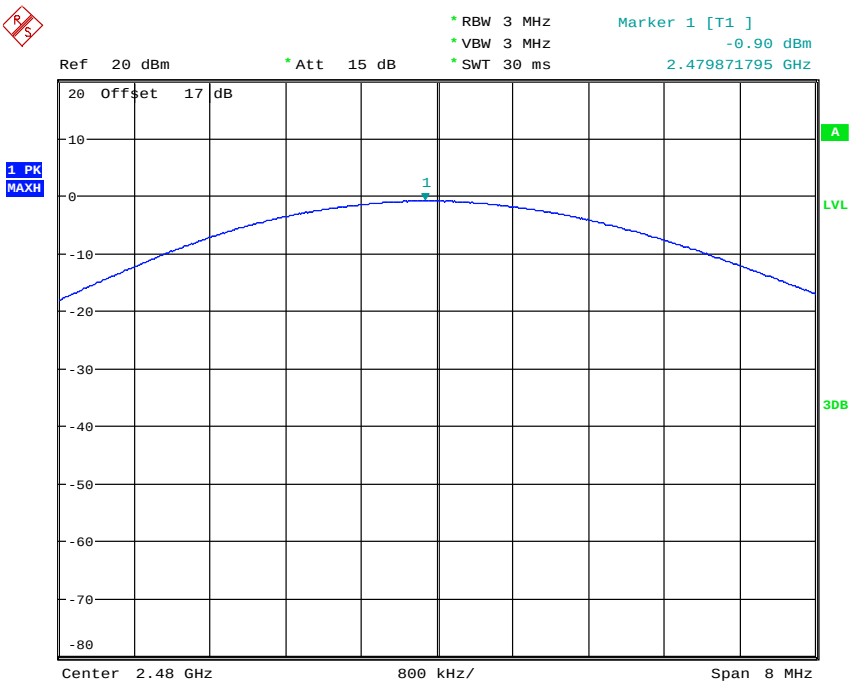


MAX OUTPUT POWER CH0 EDR MODE
Date: 11.NOV.2014 21:34:18

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



MAX OUTPUT POWER CH39 EDR MODE
Date: 11.NOV.2014 21:35:03



MAX OUTPUT POWER CH78 EDR MODE
Date: 11.NOV.2014 21:35:30

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Limits:

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

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

Test equipment used: ETSTW-RE 055, ETSTW-RE 050, ETSTW-RE 073, ETSTW-RE 074, ETSTW-RE 064

3.2 RF Exposure Compliance Requirements

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.
The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

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

S – Power Density
P – Output power ERP
R – Distance
D – Cable Loss
AG – Antenna Gain

Item	Unit	Value	**Remarks**
P	mW	--	Peak value
D	dB	--	--
AG	dBi	--	--
G	--	--	Calculated Value
R	cm	20	Assumed value
S	mW/cm^2	--	Calculated value

Limits:

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

Explanation: Please refer to SAR test report of DF7A.

3.3 Transmitter Radiated Emissions in Restricted Bands

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35
Radiated emission measurements were performed from 30 MHz to 26500 MHz.
For radiated emission tests, the analyzer setting was as followings:

Frequency ≦ 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)
Frequency ＞1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)
Frequency ＞1 GHz , RBW:1 MHz , VBW: 10 Hz (Average measurements)

Limits.

For frequencies below 1GHz:

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

For frequencies above 1GHz (Average measurements).

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

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

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

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

Explanation: See attached diagrams in Appendix.

3.4 Spurious Emissions (tx)

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

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

FCC Rule: 15.247(c), 15.35
For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies above 1GHz (Peak measurements).
Modified Limit for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

For frequencies above 1GHz (Average measurements).
Max. reading – 20dB

Max. reading – 20 dB
Guidance on Measurement of Digit Transmission Systems:
"If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation."

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

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

Test equipment used: ETSTW-RE 003, ETSTW-RE 030, ETSTW-RE 111, ETSTW-RE 088, ETSTW-RE 018, ETSTW-RE 064

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

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

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

The peak and average spurious emission plots was measured with the average limits.
In the Table being listed the critical peak and average value and exhibit the compliance with the above calculated Limits.

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

Summary table with radiated data of the test plots

Model: DF7A Date: 2014/11/09~2014/11/12
Mode: TX 802.11b CH1 Temperature: 24 °C Engineer: Leon&Roy
Polarization: Horizontal 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.54	peak	14.30	34.84	46.00	-11.16	80	100
307.9760	25.00	peak	16.19	41.19	46.00	-4.81	175	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4824.0260	54.74	50.07	0.33	55.07	50.40	74.00	54.00	-3.60	218	100
7236.0000	40.84	---	3.77	44.61	---	74.00	54.00	-29.39	155	100
9648.0000	36.55	---	7.88	44.43	---	74.00	54.00	-29.57	220	100
12060.0000	34.64	---	13.12	47.76	---	74.00	54.00	-26.24	175	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
123.3066	19.62	peak	13.51	33.13	43.50	-10.37	90	100
183.5671	20.93	peak	13.23	34.16	43.50	-9.34	135	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4817.6350	52.80	50.13	0.31	53.11	50.44	74.00	54.00	-3.56	245	100
7236.0000	40.85	---	3.77	44.62	---	74.00	54.00	-29.38	165	100
9648.0000	36.42	---	7.88	44.30	---	74.00	54.00	-29.70	190	100
12060.0000	34.24	---	13.12	47.36	---	74.00	54.00	-26.64	250	100

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Mode: TX 802.11b CH6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.90	peak	14.30	35.20	46.00	-10.80	90	100
307.9760	25.03	peak	16.19	41.22	46.00	-4.78	175	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4873.9580	55.34	50.28	0.45	55.79	50.73	74.00	54.00	-3.27	213	100
7311.0000	40.73	---	3.62	44.35	---	74.00	54.00	-29.65	60	100
9748.0000	34.70	---	8.20	42.90	---	74.00	54.00	-31.10	230	100
12185.0000	33.00	---	13.69	46.69	---	74.00	54.00	-27.31	70	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
92.2044	24.11	peak	9.29	33.40	43.50	-10.10	45	100
152.4648	18.90	peak	15.33	34.23	43.50	-9.27	130	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4873.7480	54.36	50.33	0.45	54.81	50.78	74.00	54.00	-3.22	220	100
7311.0000	40.29	---	3.62	43.91	---	74.00	54.00	-30.09	60	100
9748.0000	35.23	---	8.20	43.43	---	74.00	54.00	-30.57	110	150
12185.0000	32.38	---	13.69	46.07	---	74.00	54.00	-27.93	40	150

Mode: TX 802.11b CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.25	peak	14.30	34.55	46.00	-11.45	145	100
307.9760	24.93	peak	16.19	41.12	46.00	-4.88	30	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4921.8440	55.26	50.13	0.65	55.91	50.78	74.00	54.00	-3.22	145	100
7386.0000	40.37	---	3.85	44.22	---	74.00	54.00	-29.78	20	100
9848.0000	35.81	---	8.57	44.38	---	74.00	54.00	-29.62	135	100
12310.0000	35.40	---	14.42	49.82	---	74.00	54.00	-24.18	60	100

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
123.3066	19.21	peak	13.51	32.72	43.50	-10.78	160	100
152.4648	19.04	peak	15.33	34.37	43.50	-9.13	255	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4921.8440	54.25	50.16	0.65	54.90	50.81	74.00	54.00	-3.19	115	100
7386.0000	40.45	---	3.85	44.30	---	74.00	54.00	-29.70	200	100
9848.0000	35.46	---	8.57	44.03	---	74.00	54.00	-29.97	185	100
12310.0000	34.03	---	14.42	48.45	---	74.00	54.00	-25.55	50	100

Mode: TX 802.11g CH1

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	19.85	peak	14.30	34.15	46.00	-11.85	160	100
307.9760	24.84	peak	16.19	41.03	46.00	-4.97	230	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4825.6510	47.43	---	0.33	47.76	---	74.00	54.00	-26.24	120	100
7236.0000	40.73	---	3.77	44.50	---	74.00	54.00	-29.50	155	100
9648.0000	35.48	---	7.88	43.36	---	74.00	54.00	-30.64	175	100
12060.0000	34.87	---	13.12	47.99	---	74.00	54.00	-26.01	40	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	19.78	peak	15.33	35.11	43.50	-8.39	105	100
183.5671	21.48	peak	13.23	34.71	43.50	-8.79	170	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4825.6510	46.60	---	0.33	46.93	---	74.00	54.00	-27.07	110	100
7236.0000	40.58	---	3.77	44.35	---	74.00	54.00	-29.65	35	100
9648.0000	35.01	---	7.88	42.89	---	74.00	54.00	-31.11	215	100
12060.0000	34.75	---	13.12	47.87	---	74.00	54.00	-26.13	140	100

Mode: TX 802.11g CH6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.58	peak	14.30	34.88	46.00	-11.12	145	100
307.9760	25.04	peak	16.19	41.23	46.00	-4.77	120	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)
4873.7480	48.85	---	0.45	49.30	---	74.00	54.00	-24.70	90	100
7311.0000	41.11	---	3.62	44.73	---	74.00	54.00	-29.27	155	100
9748.0000	34.73	---	8.20	42.93	---	74.00	54.00	-31.07	120	100
12185.0000	33.03	---	13.69	46.72	---	74.00	54.00	-27.28	135	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
92.2044	24.41	peak	9.29	33.70	43.50	-9.80	160	100
152.4648	18.97	peak	15.33	34.30	43.50	-9.20	195	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)
4873.7480	47.79	---	0.45	48.24	---	74.00	54.00	-25.76	110	100
7311.0000	41.22	---	3.62	44.84	---	74.00	54.00	-29.16	35	100
9748.0000	35.85	---	8.20	44.05	---	74.00	54.00	-29.95	210	100
12185.0000	33.57	---	13.69	47.26	---	74.00	54.00	-26.74	175	100

Mode: TX 802.11g CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.50	peak	14.30	34.80	46.00	-11.20	140	100
307.9760	24.99	peak	16.19	41.18	46.00	-4.82	215	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)
4921.8440	47.94	---	0.65	48.59	---	74.00	54.00	-25.41	245	100
7386.0000	39.85	---	3.85	43.70	---	74.00	54.00	-30.30	70	100
9848.0000	35.61	---	8.57	44.18	---	74.00	54.00	-29.82	165	100
12310.0000	34.49	---	14.42	48.91	---	74.00	54.00	-25.09	220	100

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	18.79	peak	15.33	34.12	43.50	-9.38	95	100
183.5671	20.68	peak	13.23	33.91	43.50	-9.59	170	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)
4921.8440	47.09	---	0.65	47.74	---	74.00	54.00	-26.26	105	100
7386.0000	40.08	---	3.85	43.93	---	74.00	54.00	-30.07	170	100
9848.0000	35.62	---	8.57	44.19	---	74.00	54.00	-29.81	210	100
12310.0000	34.68	---	14.42	49.10	---	74.00	54.00	-24.90	165	100

Mode: TX 802.11n(20MHz) CH1

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	19.85	peak	14.30	34.15	46.00	-11.85	125	100
307.9760	24.66	peak	16.19	40.85	46.00	-5.15	160	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)
4817.6350	47.75	---	0.31	48.06	---	74.00	54.00	-25.94	230	100
7236.0000	41.34	---	3.77	45.11	---	74.00	54.00	-28.89	175	100
9648.0000	35.23	---	7.88	43.11	---	74.00	54.00	-30.89	195	100
12060.0000	35.79	---	13.12	48.91	---	74.00	54.00	-25.09	60	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	19.22	peak	15.33	34.55	43.50	-8.95	135	100
183.5671	21.97	peak	13.23	35.20	43.50	-8.30	55	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)
4825.6510	45.20	---	0.33	45.53	---	74.00	54.00	-28.47	110	100
7236.0000	40.50	---	3.77	44.27	---	74.00	54.00	-29.73	35	100
9648.0000	35.53	---	7.88	43.41	---	74.00	54.00	-30.59	245	100
12060.0000	33.90	---	13.12	47.02	---	74.00	54.00	-26.98	70	100

Mode: TX 802.11n(20MHz) CH6
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.06	peak	14.30	34.36	46.00	-11.64	120	100
307.9760	24.78	peak	16.19	40.97	46.00	-5.03	95	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)
4873.7480	47.77	---	0.45	48.22	---	74.00	54.00	-25.78	160	100
7311.0000	40.87	---	3.62	44.49	---	74.00	54.00	-29.51	75	100
9748.0000	34.85	---	8.20	43.05	---	74.00	54.00	-30.95	165	100
12185.0000	33.38	---	13.69	47.07	---	74.00	54.00	-26.93	140	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	19.04	peak	15.33	34.37	43.50	-9.13	140	100
183.5671	20.94	peak	13.23	34.17	43.50	-9.33	35	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)
4865.7310	46.83	---	0.43	47.26	---	74.00	54.00	-26.74	140	100
7311.0000	41.10	---	3.62	44.72	---	74.00	54.00	-29.28	75	100
9748.0000	35.28	---	8.20	43.48	---	74.00	54.00	-30.52	235	100
12185.0000	33.05	---	13.69	46.74	---	74.00	54.00	-27.26	60	100

Mode: TX 802.11n(20MHz) CH11
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	19.52	peak	14.30	33.82	46.00	-12.18	160	100
307.9760	24.50	peak	16.19	40.69	46.00	-5.31	15	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)
4921.8440	47.38	---	0.65	48.03	---	74.00	54.00	-25.97	140	100
7386.0000	40.69	---	3.85	44.54	---	74.00	54.00	-29.46	175	100
9848.0000	36.48	---	8.57	45.05	---	74.00	54.00	-28.95	60	100
12310.0000	35.03	---	14.42	49.45	---	74.00	54.00	-24.55	135	100

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	18.61	peak	15.33	33.94	43.50	-9.56	145	100
183.5671	20.69	peak	13.23	33.92	43.50	-9.58	50	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4921.8440	46.13	---	0.65	46.78	---	74.00	54.00	-27.22	170	100
7386.0000	40.16	---	3.85	44.01	---	74.00	54.00	-29.99	145	100
9848.0000	34.97	---	8.57	43.54	---	74.00	54.00	-30.46	220	100
12310.0000	34.83	---	14.42	49.25	---	74.00	54.00	-24.75	165	100

Mode: TX Bluetooth Normal 2402MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	19.97	peak	14.30	34.27	46.00	-11.73	125	100
307.9760	24.43	peak	16.19	40.62	46.00	-5.38	70	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4804.0000	42.29	---	0.28	42.57	---	74.00	54.00	-31.43	125	100
7206.0000	42.09	---	3.85	45.94	---	74.00	54.00	-28.06	30	100
9608.0000	34.41	---	7.93	42.34	---	74.00	54.00	-31.66	145	100
12010.0000	34.22	---	12.65	46.87	---	74.00	54.00	-27.13	100	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	18.32	peak	15.33	33.65	43.50	-9.85	145	100
183.5671	20.41	peak	13.23	33.64	43.50	-9.86	90	100

Frequency (MHz)	Reading (dBuV) Peak	Reading (dBuV) Ave.	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave.	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
4804.0000	42.80	---	0.28	43.08	---	74.00	54.00	-30.92	275	100
7206.0000	41.66	---	3.85	45.51	---	74.00	54.00	-28.49	200	100
9608.0000	34.33	---	7.93	42.26	---	74.00	54.00	-31.74	240	100
12010.0000	32.81	---	12.65	45.46	---	74.00	54.00	-28.54	155	100

Mode: TX Bluetooth Normal 2441MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	19.94	peak	14.30	34.24	46.00	-11.76	140	100
307.9760	24.54	peak	16.19	40.73	46.00	-5.27	95	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)
4882.0000	42.61	---	0.48	43.09	---	74.00	54.00	-30.91	35	100
7323.0000	41.10	---	3.66	44.76	---	74.00	54.00	-29.24	240	100
9764.0000	33.59	---	8.33	41.92	---	74.00	54.00	-32.08	150	100
12205.0000	32.93	---	13.75	46.68	---	74.00	54.00	-27.32	110	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
92.2044	24.23	peak	9.29	33.52	43.50	-9.98	140	100
183.5671	20.36	peak	13.23	33.59	43.50	-9.91	35	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)
4882.0000	42.34	---	0.48	42.82	---	74.00	54.00	-31.18	185	100
7323.0000	40.38	---	3.66	44.04	---	74.00	54.00	-29.96	70	100
9764.0000	34.34	---	8.33	42.67	---	74.00	54.00	-31.33	220	100
12205.0000	34.21	---	13.75	47.96	---	74.00	54.00	-26.04	130	100

Mode: TX Bluetooth Normal 2480MHz
Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
245.7715	20.08	peak	14.30	34.38	46.00	-11.62	135	100
307.9760	24.55	peak	16.19	40.74	46.00	-5.26	90	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)
4960.0000	41.13	---	0.88	42.01	---	74.00	54.00	-31.99	220	100
7440.0000	41.27	---	3.93	45.20	---	74.00	54.00	-28.80	195	100
9920.0000	33.29	---	8.50	41.79	---	74.00	54.00	-32.21	330	100
12400.0000	32.76	---	14.46	47.22	---	74.00	54.00	-26.78	235	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
152.4648	19.65	peak	15.33	34.98	43.50	-8.52	160	100
183.5671	21.28	peak	13.23	34.51	43.50	-8.99	175	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)
4960.0000	41.15	---	0.88	42.03	---	74.00	54.00	-31.97	105	100
7440.0000	41.13	---	3.93	45.06	---	74.00	54.00	-28.94	40	100
9920.0000	33.54	---	8.50	42.04	---	74.00	54.00	-31.96	270	100
12400.0000	31.80	---	14.46	46.26	---	74.00	54.00	-27.74	190	100

Note

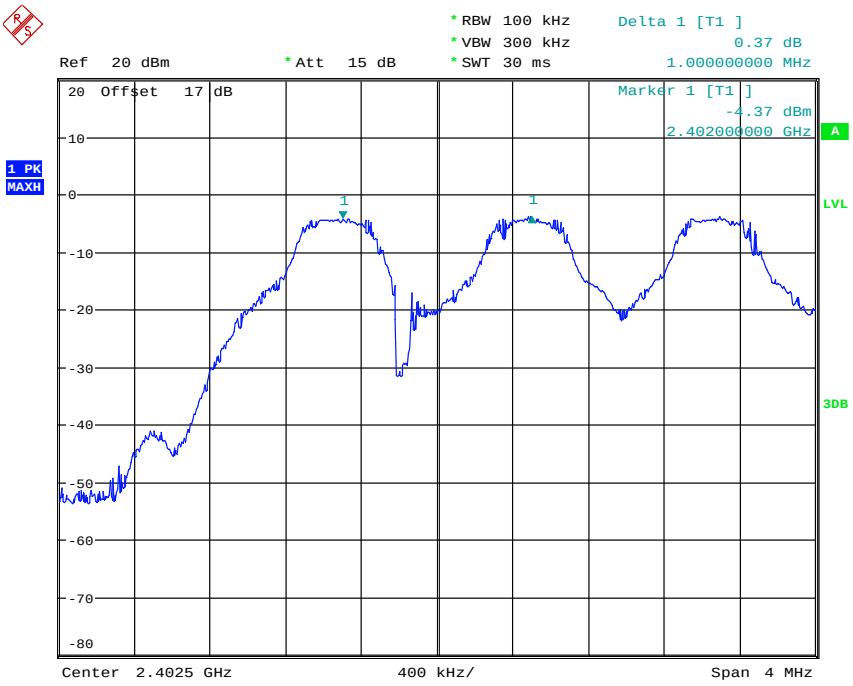
1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
2. **The formula of measured value as: Test Result = Reading + Correction Factor**
3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
5. **Measurement uncertainty for 3m measurement: 30-1000 MHz = ± 3.72 dB, 1-18 GHz = ± 5.33 dB, 18-40 GHz= ± 3.43 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
6. **See attached diagrams in appendix.**

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

Test equipment used: ETSTW-RE 003, ETSTW-RE 030, ETSTW-RE 111, ETSTW-RE 088, ETSTW-RE 018, ETSTW-RE 064

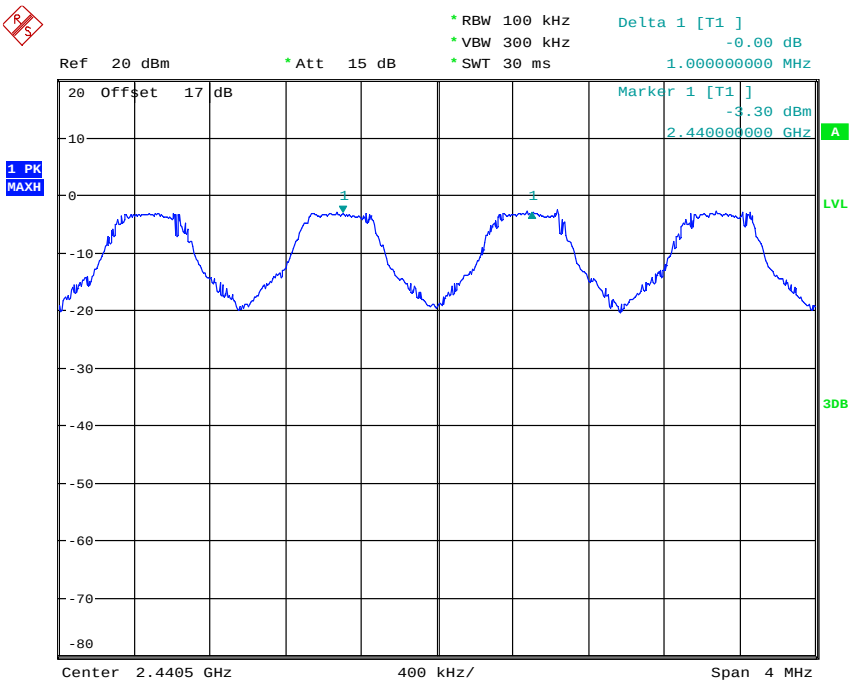
3.5 Carrier Frequency Separation

Carrier Frequency Separation was measured with modulation (declared by manufacturer).
According to FCC rules part 15 subpart C §15.247 frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.

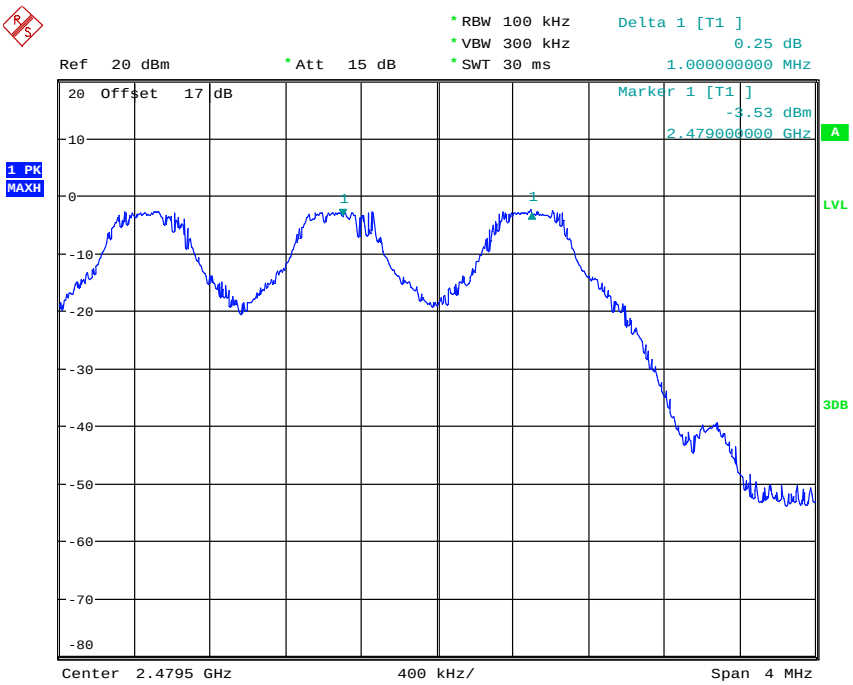


FREQUENCY SEPARATION CH0
Date: 11.NOV.2014 21:31:26

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



FREQUENCY SEPARATION CH39
Date: 11.NOV.2014 21:32:10



FREQUENCY SEPARATION CH78
Date: 11.NOV.2014 21:32:58

Limits:

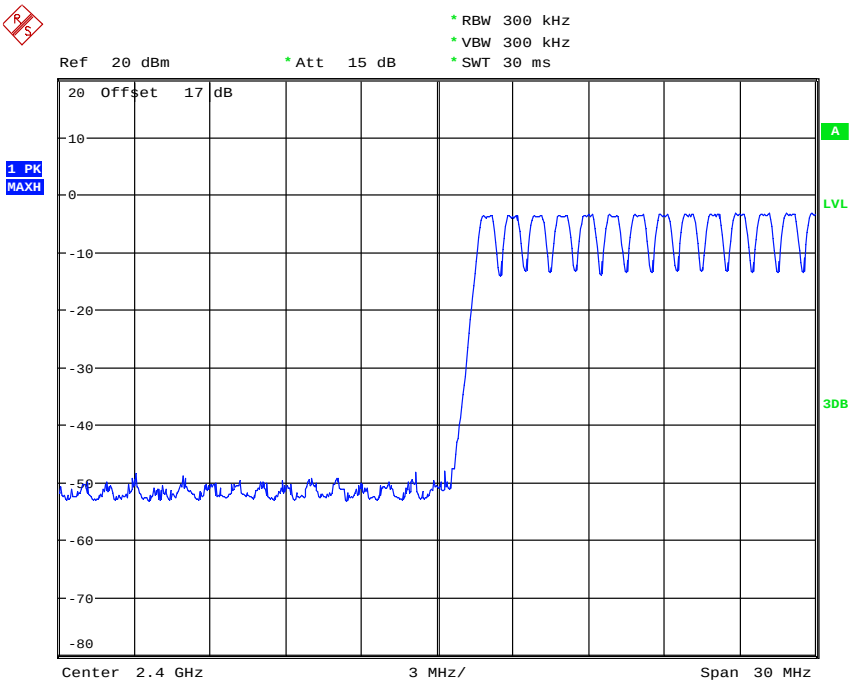
Frequency Range MHz	Limits	
	20 dB bandwidth < 25 kHz	20 dB bandwidth > 25 kHz
902-928	25 kHz	20 dB bandwidth
2400-2483.5 5725-5850.0	25 kHz	20 dB bandwidth

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

3.6 Number of Hopping Frequencies

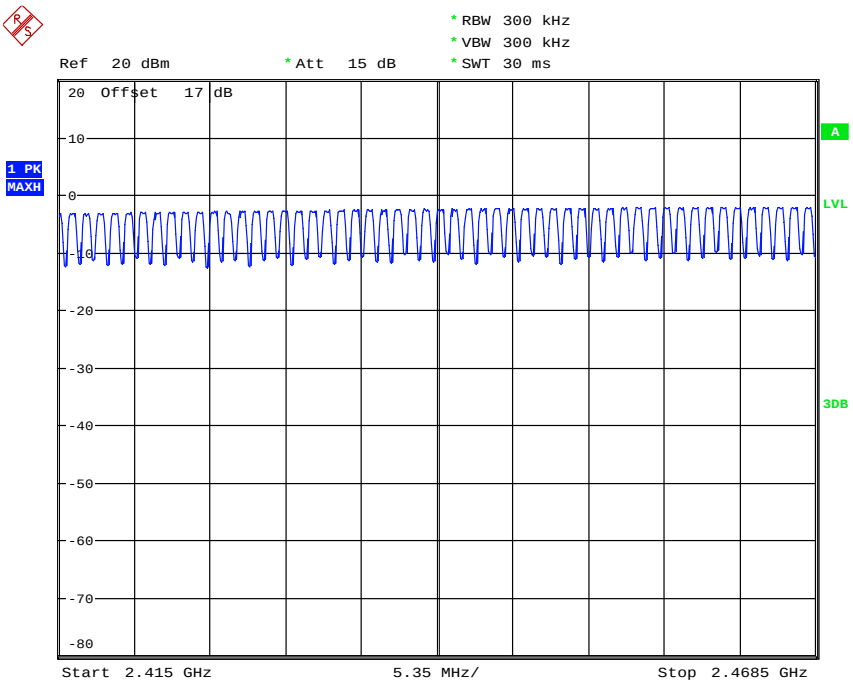
According to FCC rules part 15 subpart C §15.247 frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies. Frequency hopping systems in 5725-5850 MHz bands shall use least 75 hopping frequencies.

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

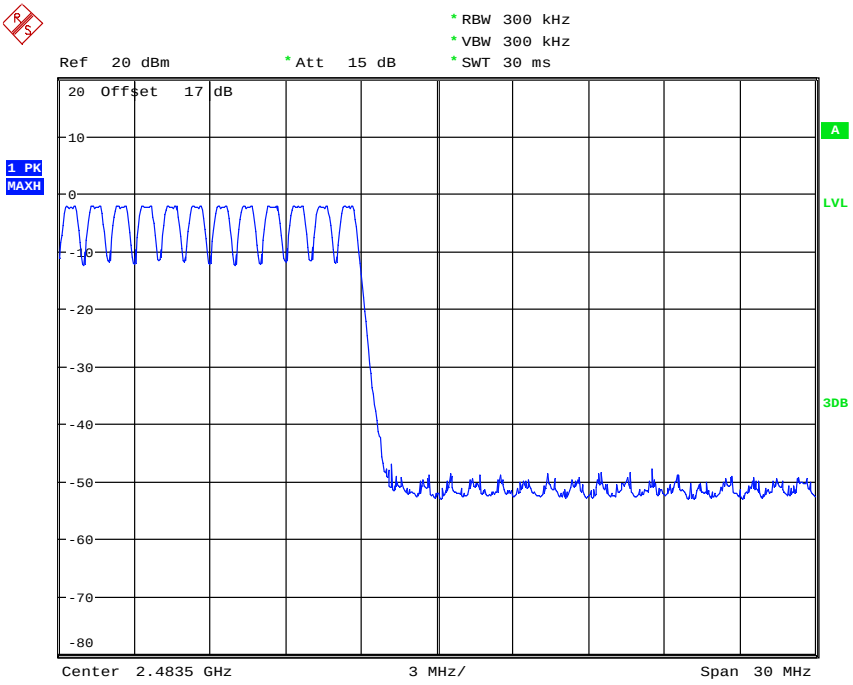


NUMBER OF HOPPING CH0-13
Date: 11.NOV.2014 21:28:46

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



NUMBER OF HOPPING CH14-66
Date: 11.NOV.2014 21:30:34



NUMBER OF HOPPING CH67-78
Date: 11.NOV.2014 21:29:26

Limits:

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

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

3.6.1 Pseudorandom Frequency Hopping Sequence

The generation of the hopping sequence is determined by the Bluetooth cord specification and complies with the FCC requirements.

3.6.2 Coordination of hopping sequences to other transmitters

According to the Bluetooth core specification such a coordination is not possible. During scatternet function only one of the two hopping sequences will be used at a definite moment.

3.6.3 System Receiver Hopping Capability

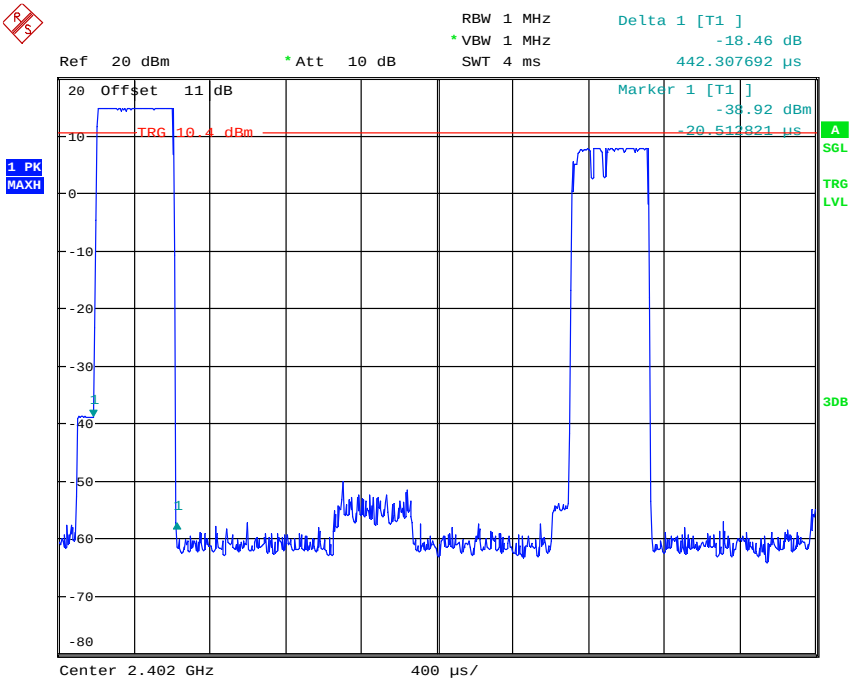
According to the Bluetooth core specification. The system receivers shift frequencies in synchronization with the transmitted signals.

3.7 Time of Occupancy (Dwell Time)

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

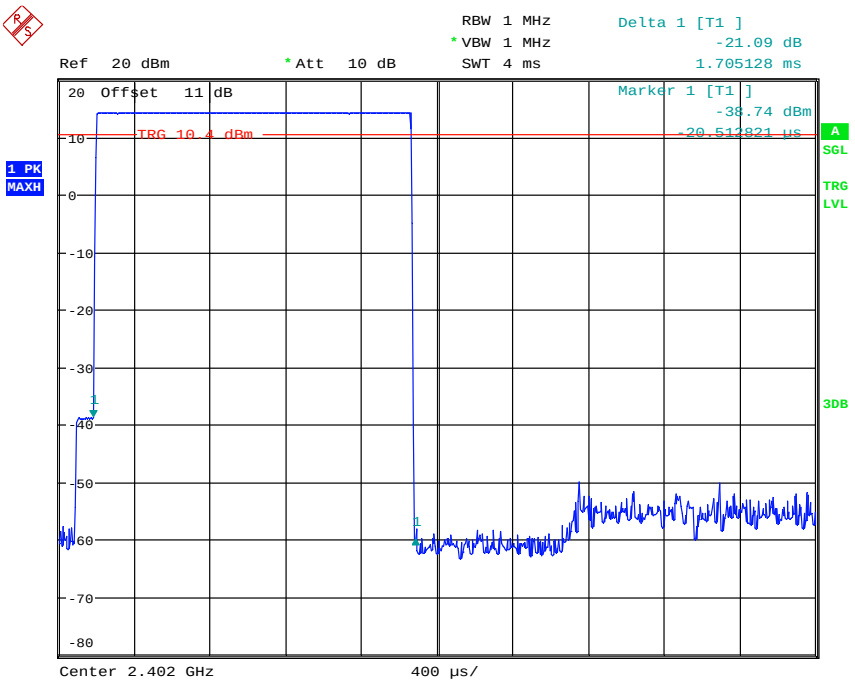
In 2400-2483.5 MHz band the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

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

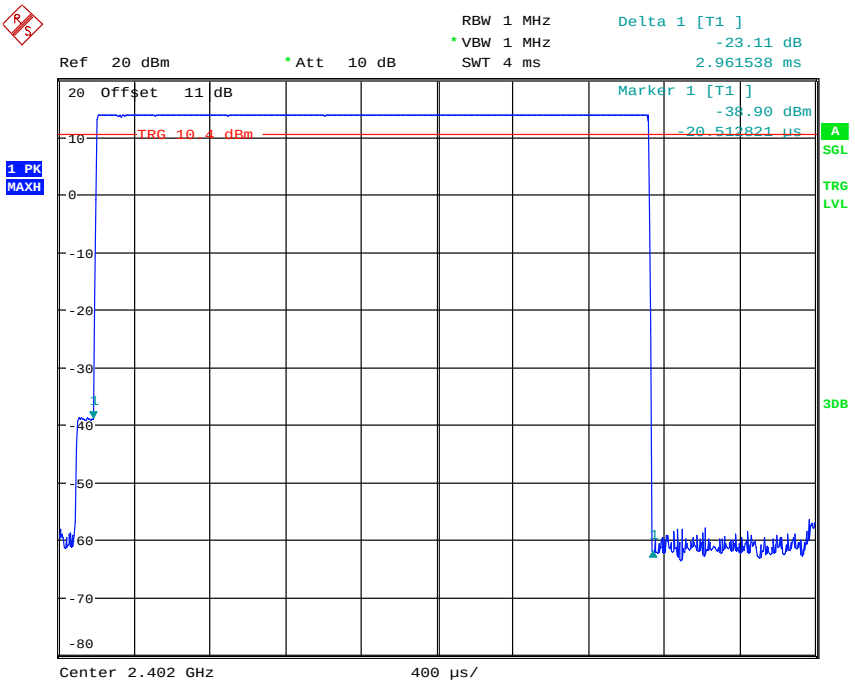


DWELL TIME CH0 DH1(0.442ms * 320events = 141.44ms)
Date: 11.NOV.2014 16:47:40

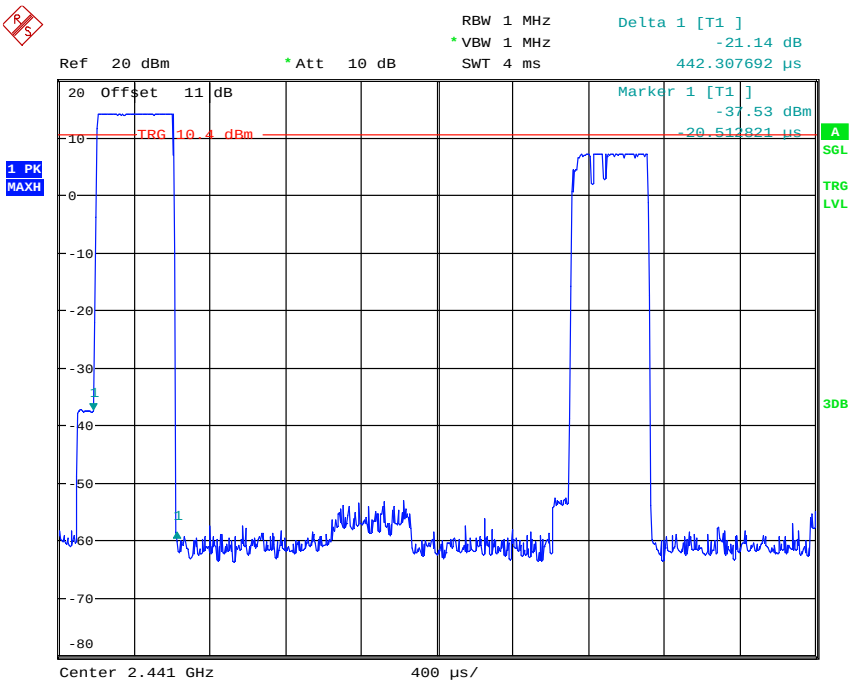
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



DWELL TIME CH0 DH3(1.705ms * 160events = 272.8ms)
Date: 11.NOV.2014 16:51:06

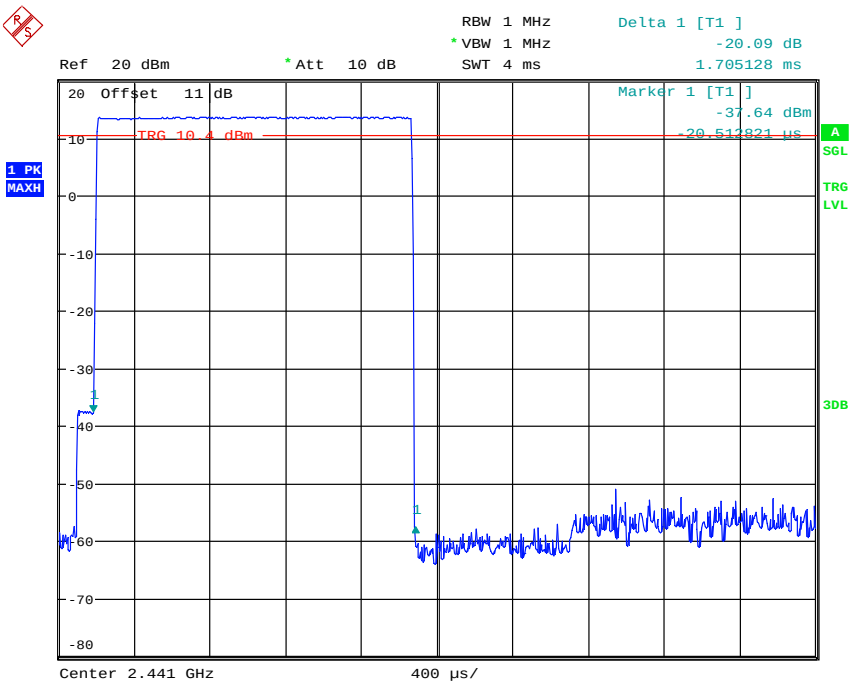


DWELL TIME CH0 DH5(2.962ms * 106events = 313.972m)
Date: 11.NOV.2014 16:54:44



DWELL TIME CH39 DH1(0.442ms * 320events = 141.44ms)

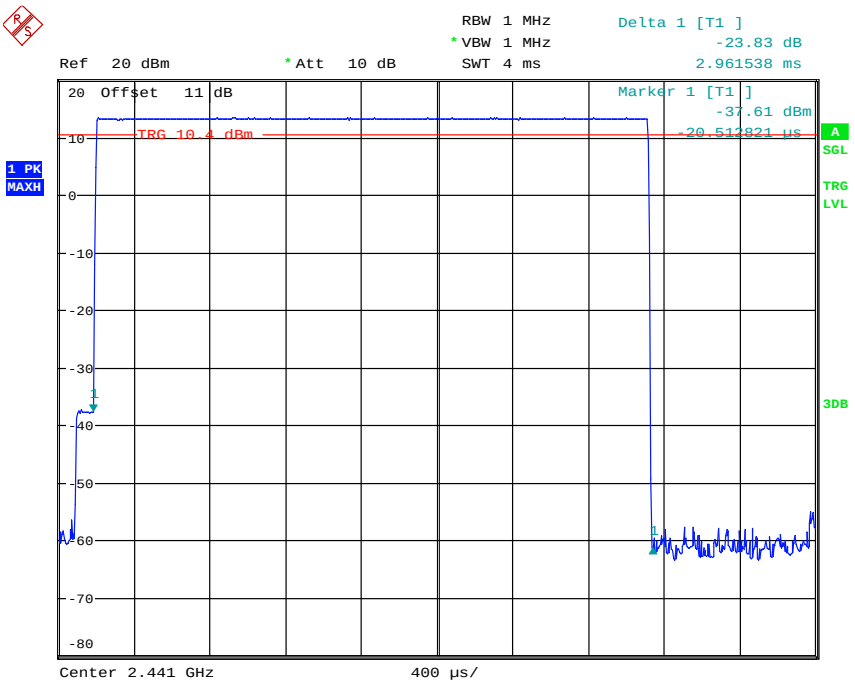
Date: 11.NOV.2014 16:47:25



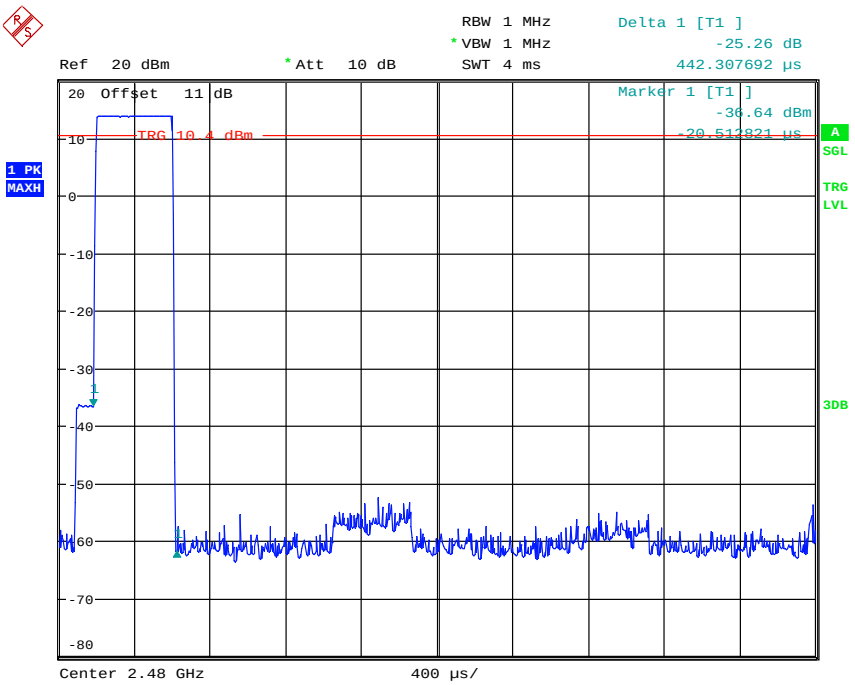
DWELL TIME CH39 DH3(1.705ms * 160events = 272.8ms)

Date: 11.NOV.2014 16:51:31

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

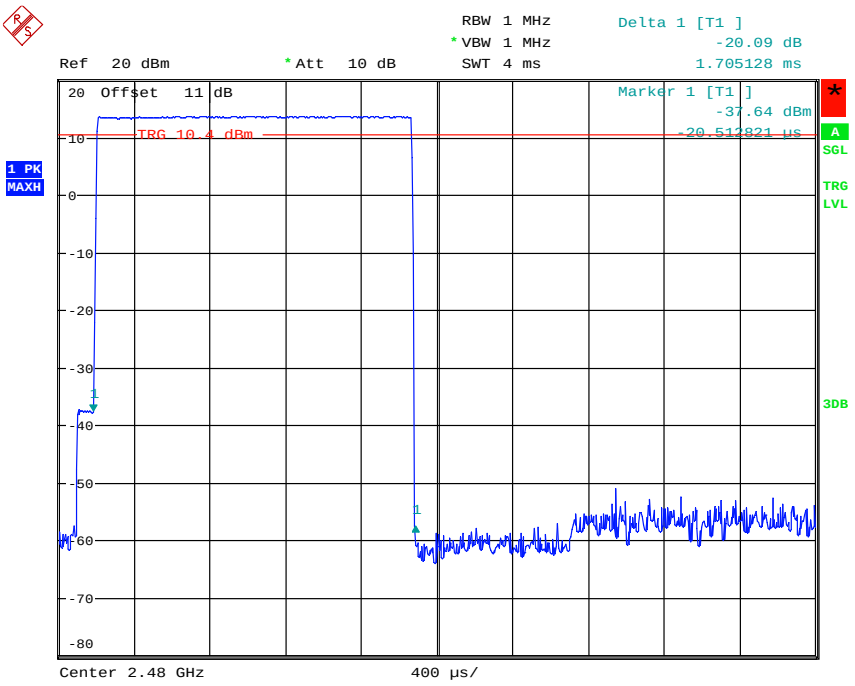


DWELL TIME CH39 DH5(2.962ms * 106events = 313.972m)
Date: 11.NOV.2014 16:54:24

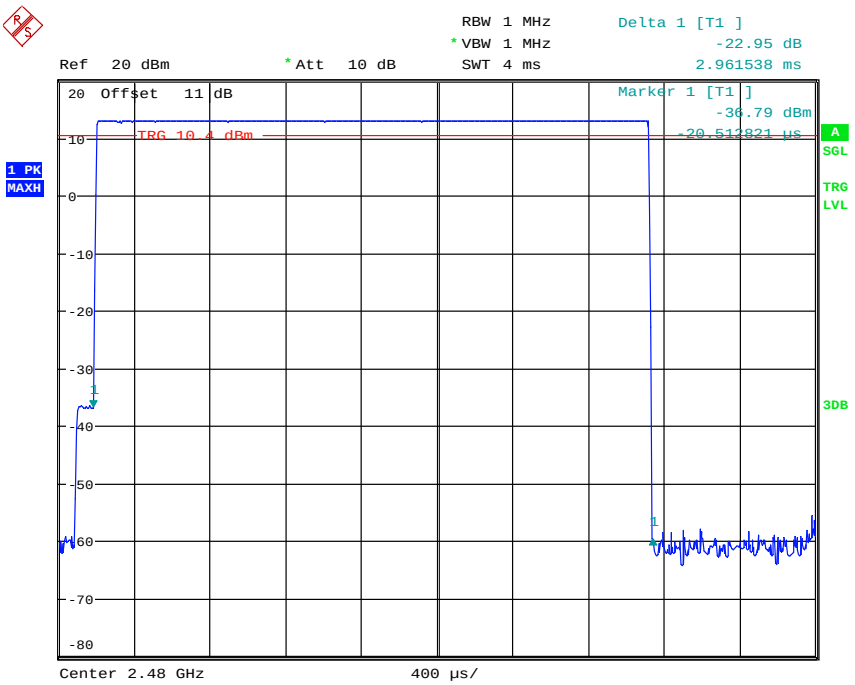


DWELL TIME CH78 DH1(0.442ms * 320events = 141.44ms)
Date: 11.NOV.2014 16:46:58

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



DWELL TIME CH78 DH3(1.705ms * 160events = 272.8m)
Date: 11.NOV.2014 16:51:57



DWELL TIME CH78 DH5(2.962ms * 106events = 313.972m)
Date: 11.NOV.2014 16:53:57

Limits and measurement periods:

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

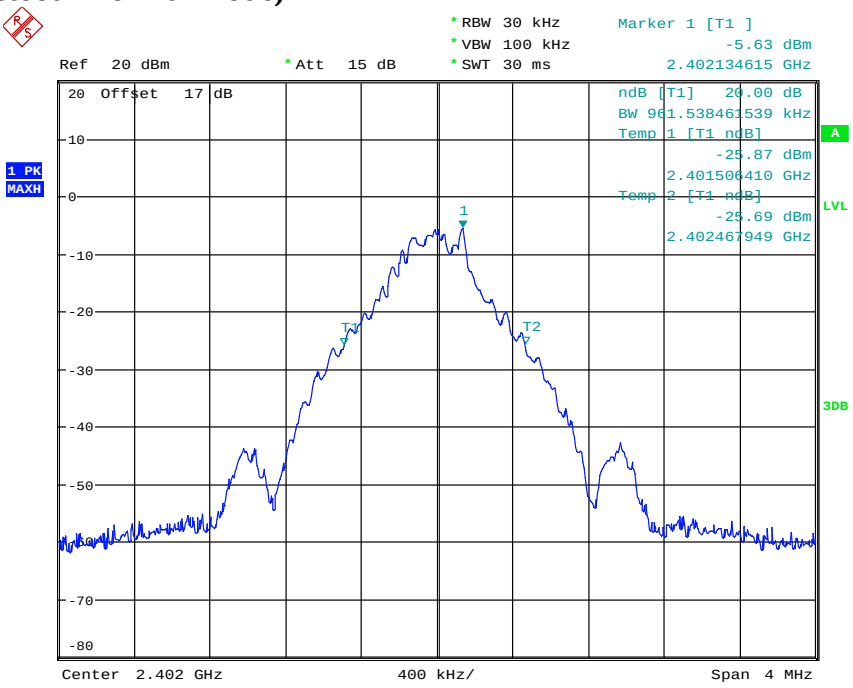
Test equipment used: ETSTW-RE 055, ETSTW-RE 064

3.8 20dB Bandwidth

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

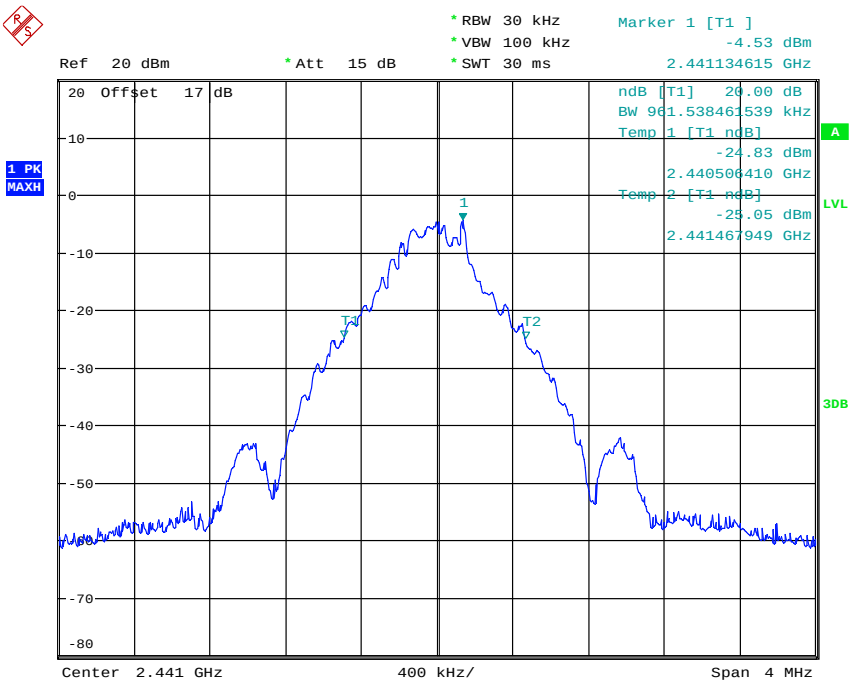
For frequency hopping systems operating in the 902-928 MHz band the maximum 20dB bandwidth of the hopping channel is 500 kHz.

Mode D (Bluetooth Normal mode)



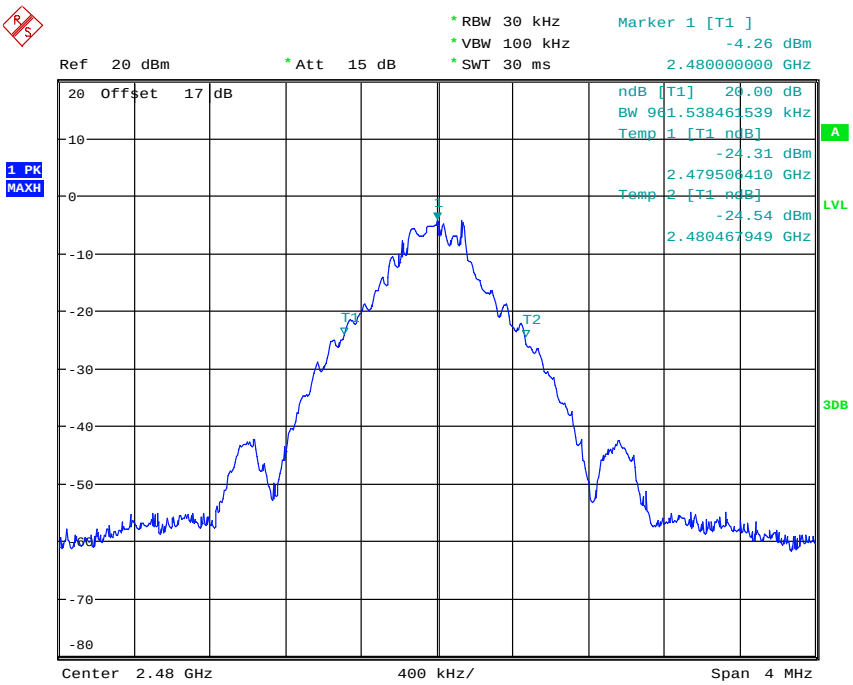
20DB BANDWIDTH CH0
Date: 11.NOV.2014 21:26:35

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



20DB BANDWIDTH CH39

Date: 11.NOV.2014 21:27:15

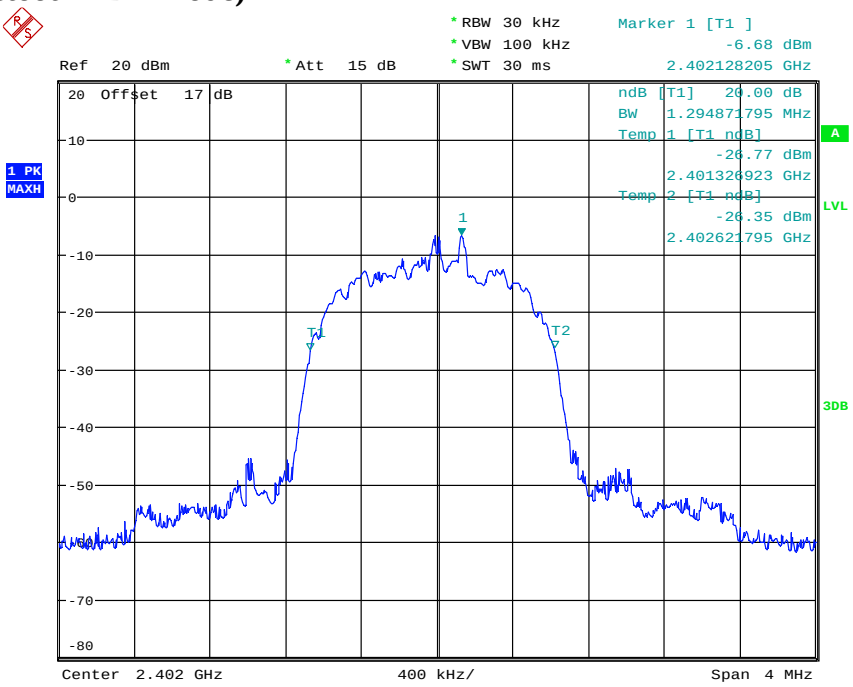


20DB BANDWIDTH CH78

Date: 11.NOV.2014 21:27:43

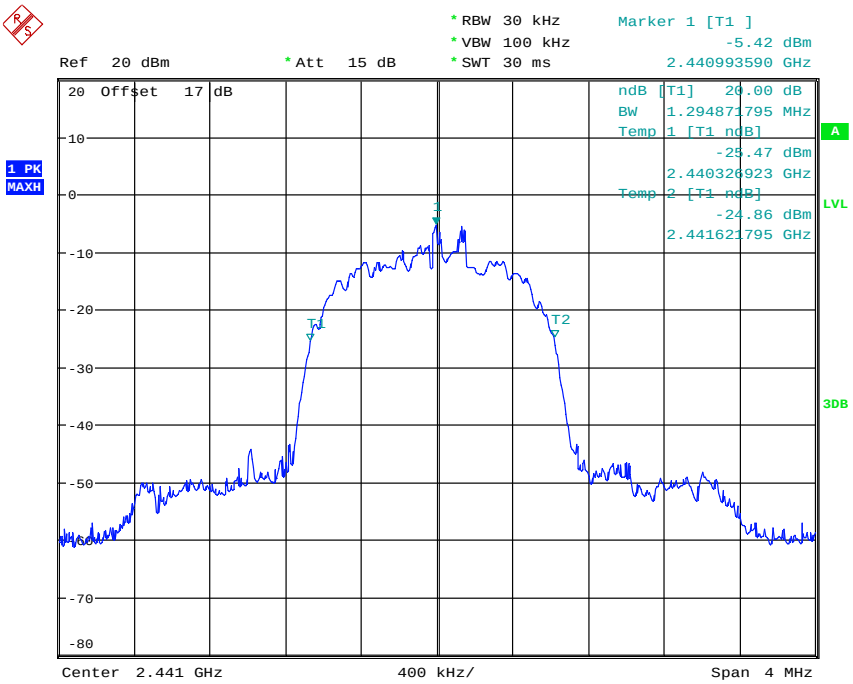
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Mode E (Bluetooth EDR mode)



20DB BANDWIDTH CH0 EDR MODE

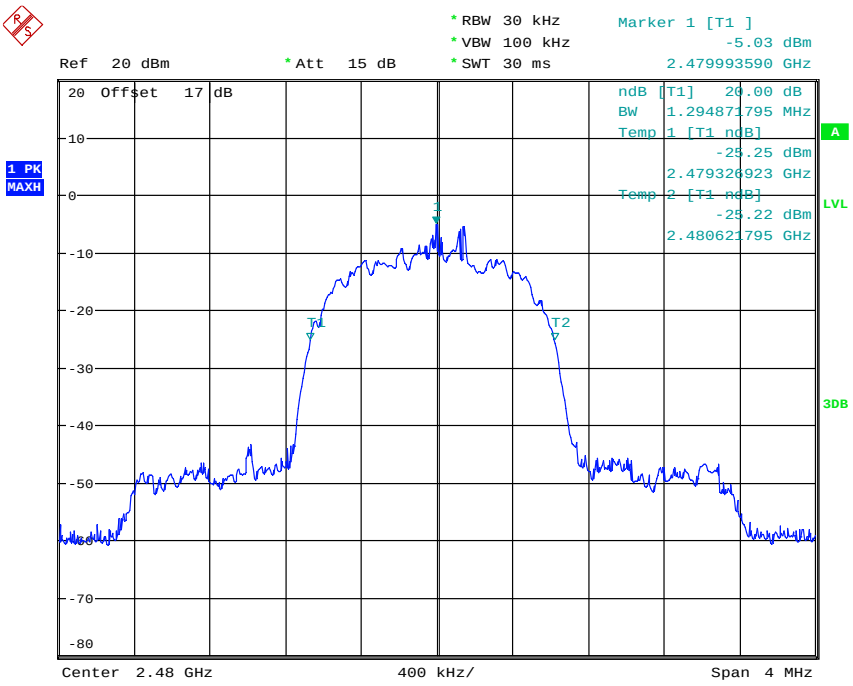
Date: 11.NOV.2014 21:34:26



20DB BANDWIDTH CH39 EDR MODE

Date: 11.NOV.2014 21:35:10

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



20DB BANDWIDTH CH78 EDR MODE
Date: 11.NOV.2014 21:35:38

Limits:

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

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

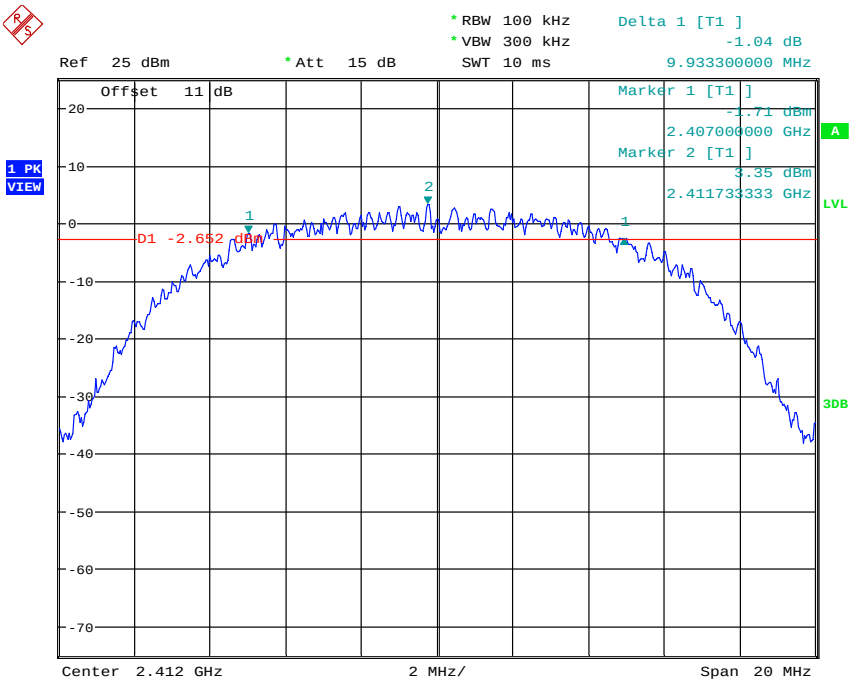
3.8.1 System Receiver Input Bandwidth

It is determined in the Bluetooth core specification. The value matches to the bandwidth of transmitter signal.

3.9 Minimum 6 dB Bandwidth

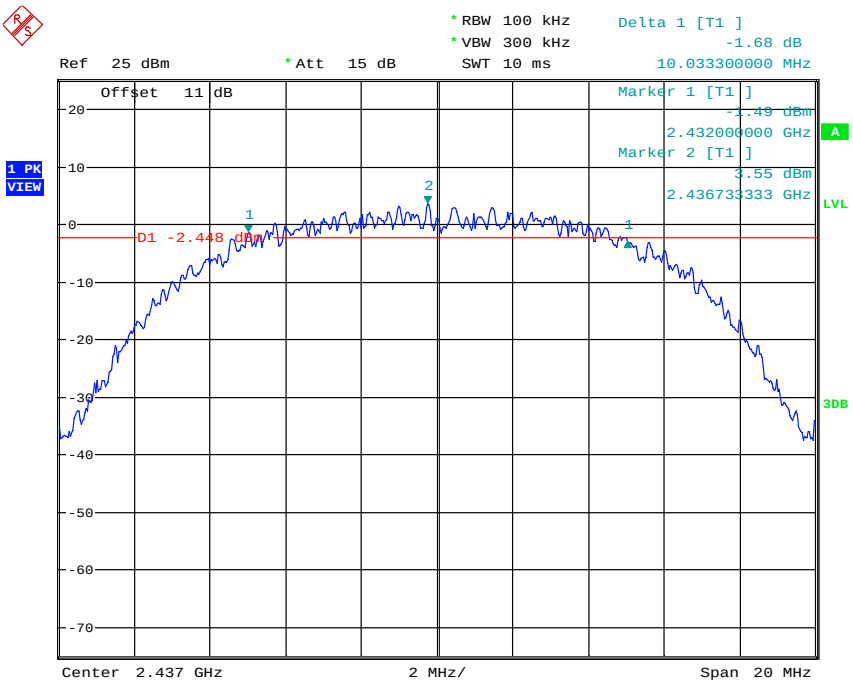
The analyzer ResBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission.
The 6 dB bandwidth is the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

Mode A

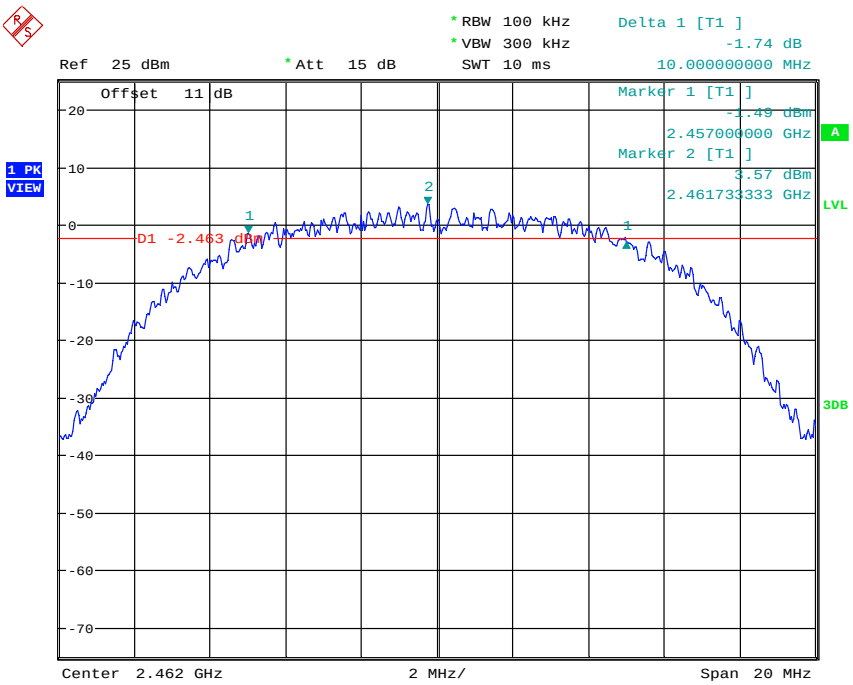


6DB BANDWIDTH 802.11B CH01
Date: 11.NOV.2014 21:44:24

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



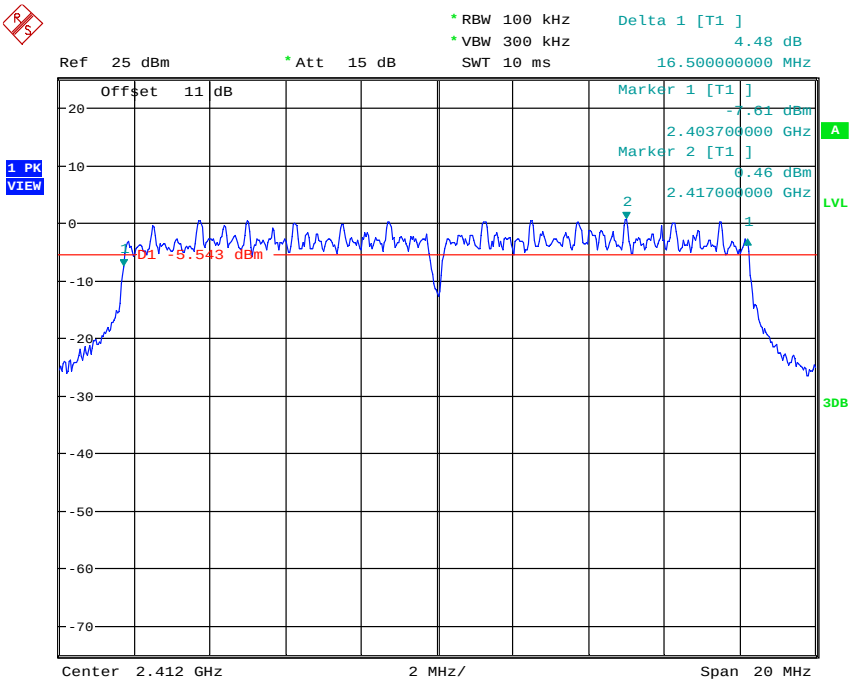
6DB BANDWIDTH 802.11B CH06
Date: 11.NOV.2014 21:45:13



6DB BANDWIDTH 802.11B CH11
Date: 11.NOV.2014 21:45:45

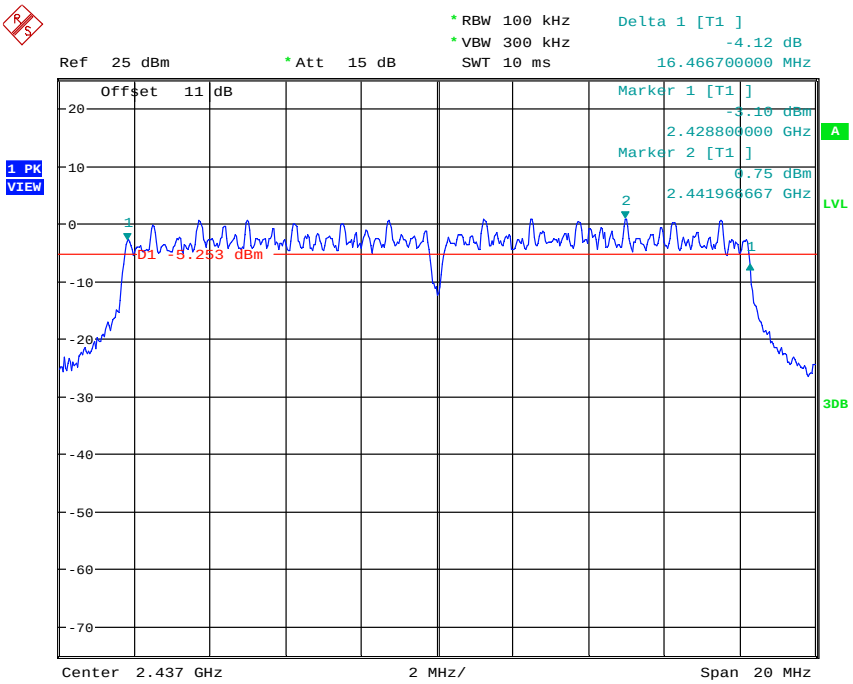
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Mode B



6DB BANDWIDTH 802.11G CH01

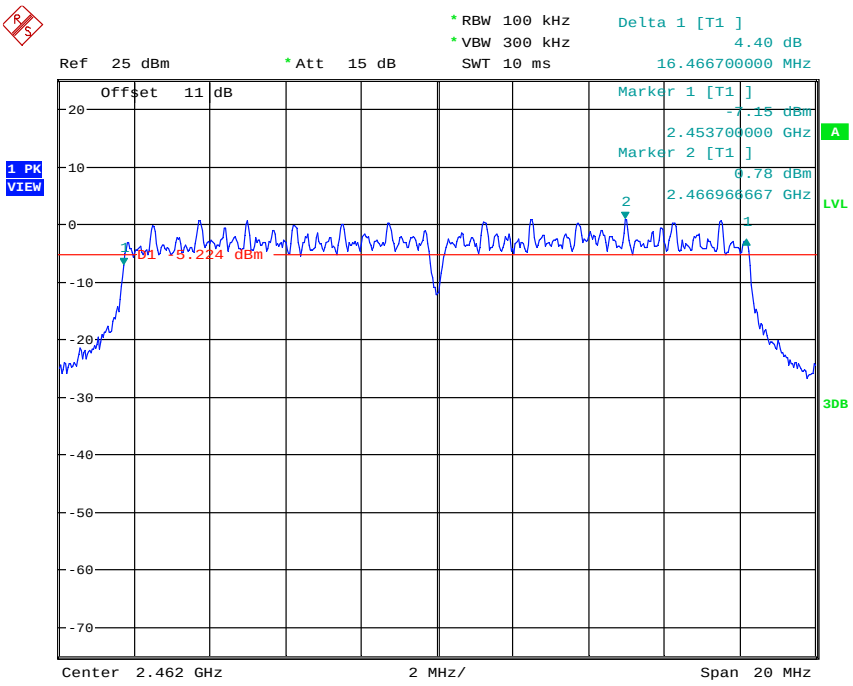
Date: 11.NOV.2014 21:47:42



6DB BANDWIDTH 802.11G CH06

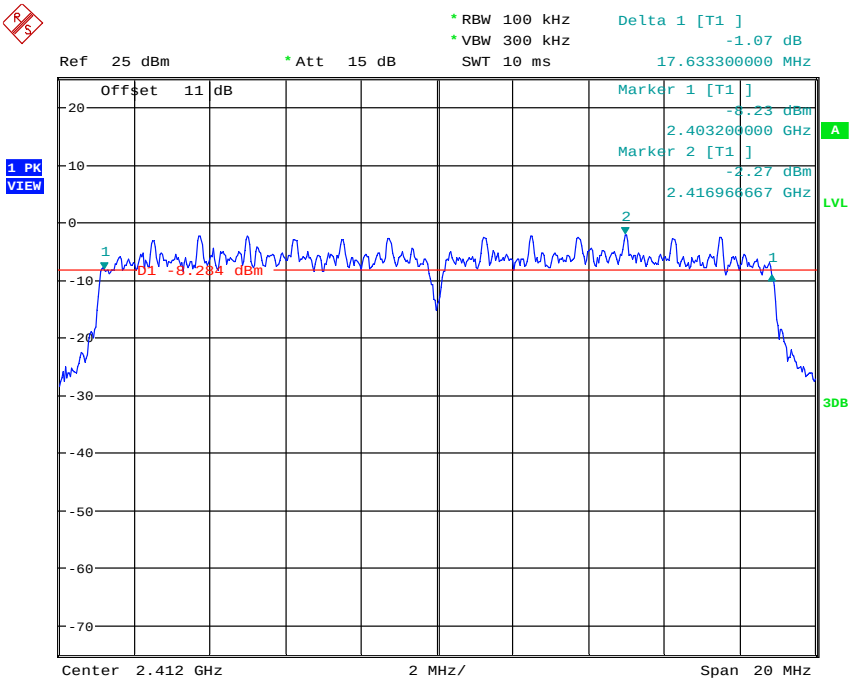
Date: 11.NOV.2014 21:48:26

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



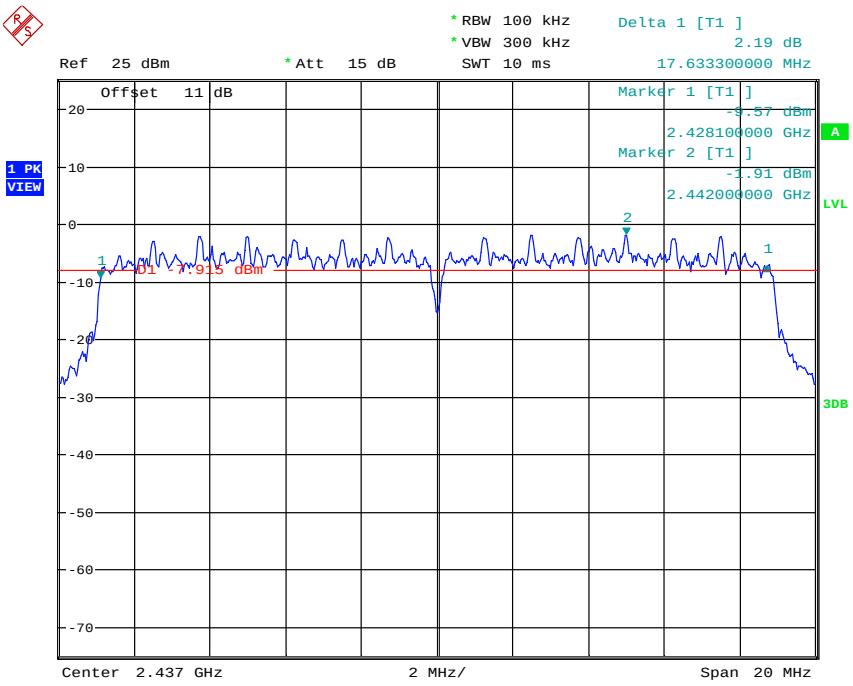
6DB BANDWIDTH 802.11G CH11
Date: 11.NOV.2014 21:48:57

Mode C

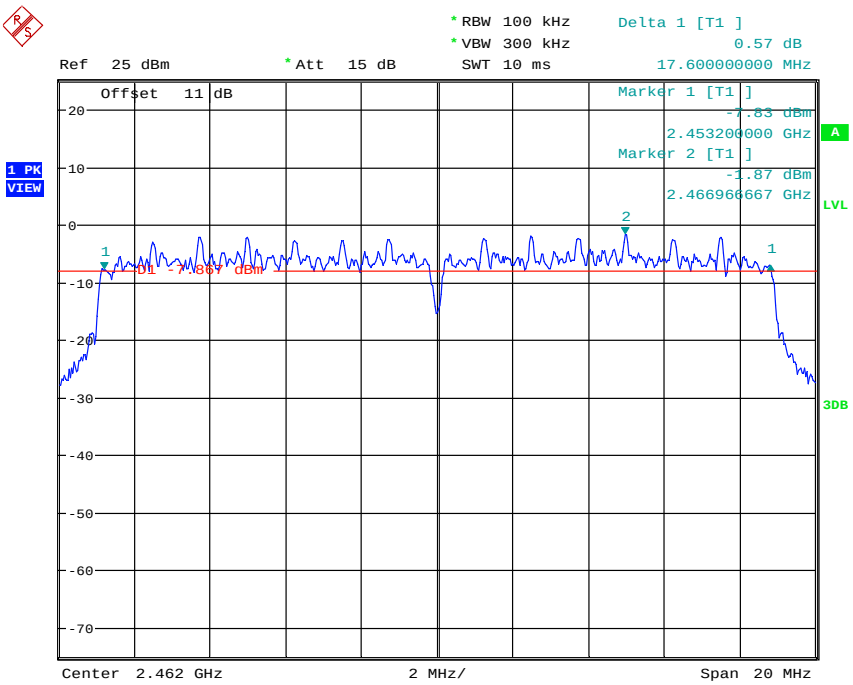


6DB BANDWIDTH 802.11N 20MHZ CH01
Date: 11.NOV.2014 21:50:01

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



6DB BANDWIDTH 802.11N 20MHZ CH06
Date: 11.NOV.2014 21:50:39



6DB BANDWIDTH 802.11N 20MHZ CH11
Date: 11.NOV.2014 21:51:16

Limits:

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

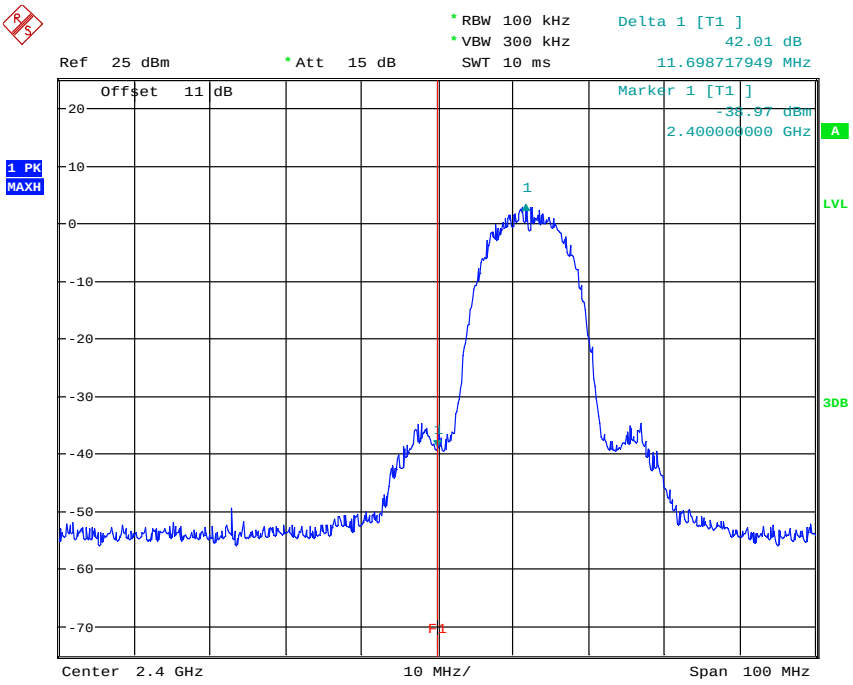
Test equipment used: ETSTW-RE 055, ETSTW-RE 050

3.10 Radiated Emission on the band edge

According to FCC rules part 15 subpart C §15.247(c) in any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required.

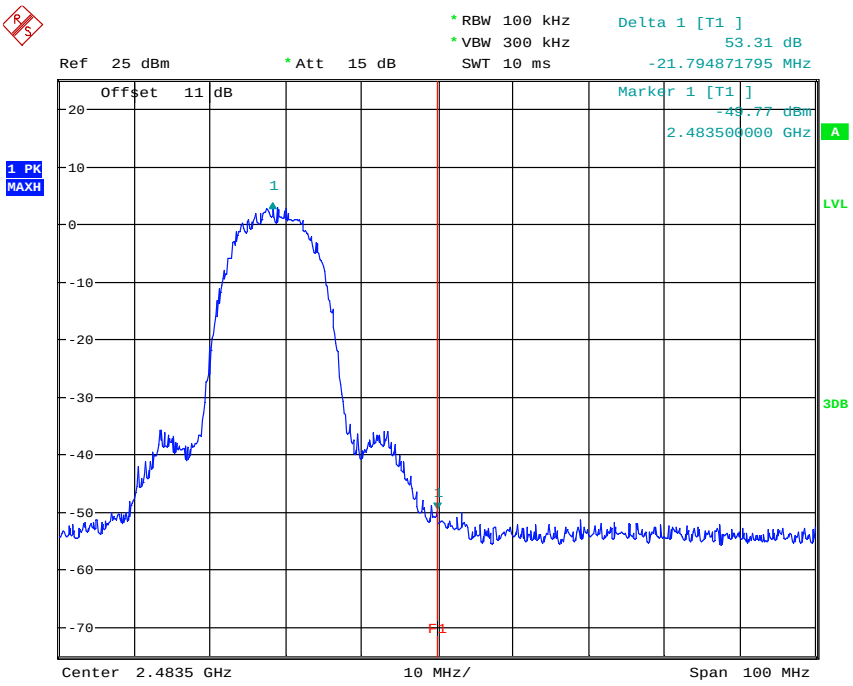
In addition radiated emission which fall in the restricted bands, as defined in section 15.205(a), must also with the radiated emission limits.

Mode A.



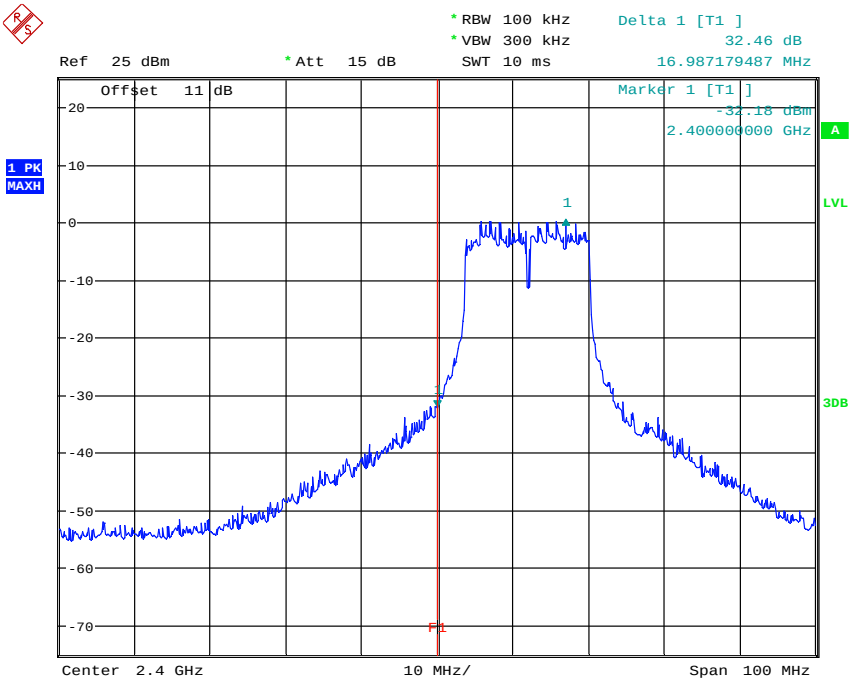
BANDEDGE 802.11B CH01
Date: 11.NOV.2014 21:44:38

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



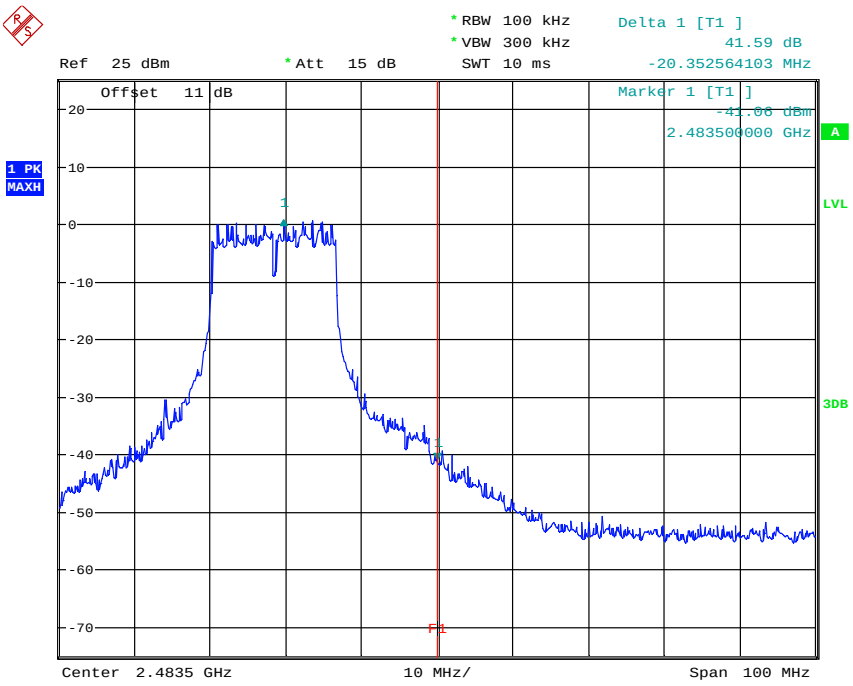
BANDEDGE 802.11B CH11
Date: 11.NOV.2014 21:45:59

Mode B



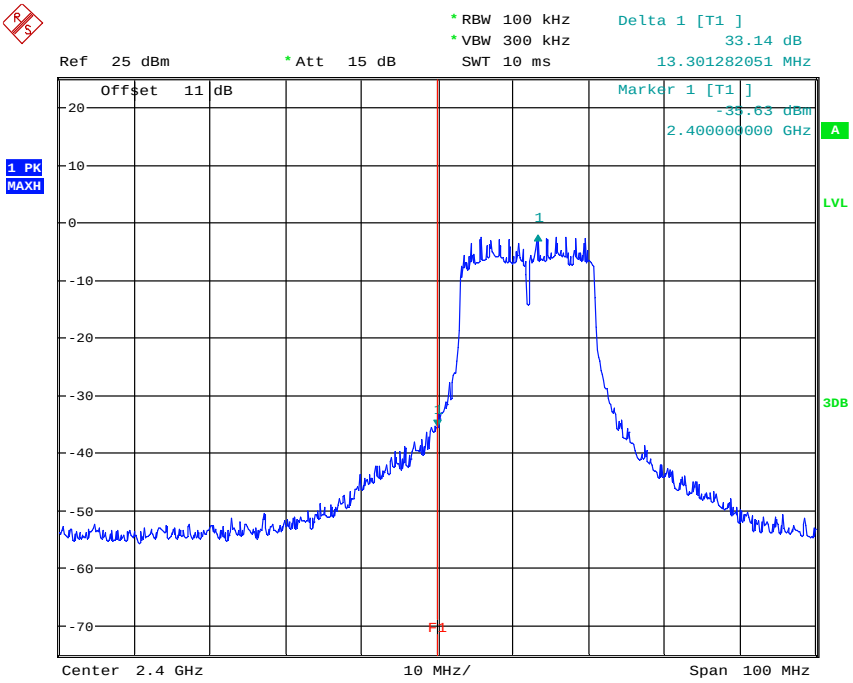
BANDEDGE 802.11G CH01
Date: 11.NOV.2014 21:47:56

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



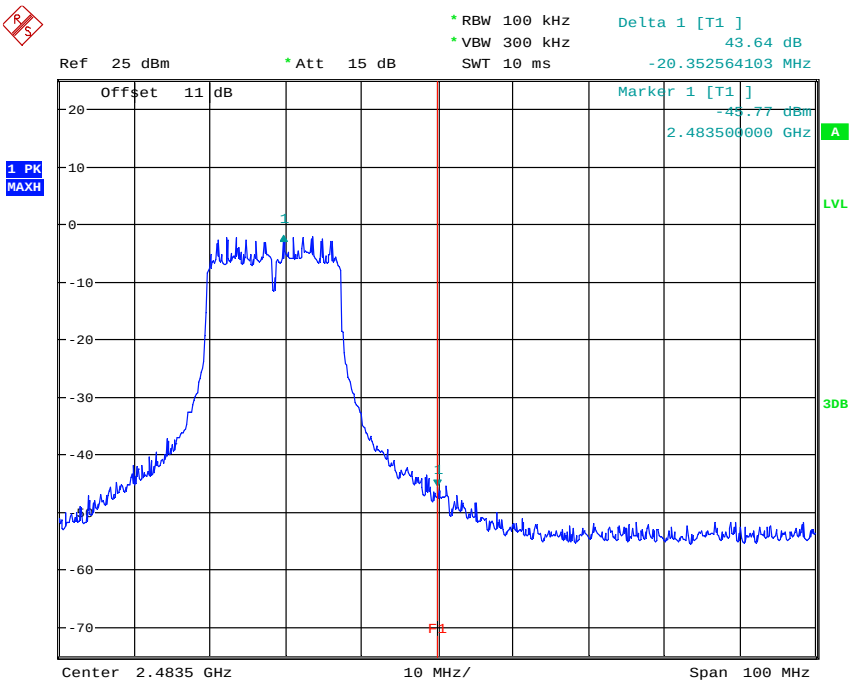
BANDEDGE 802.11G CH11
Date: 11.NOV.2014 21:49:11

Mode C



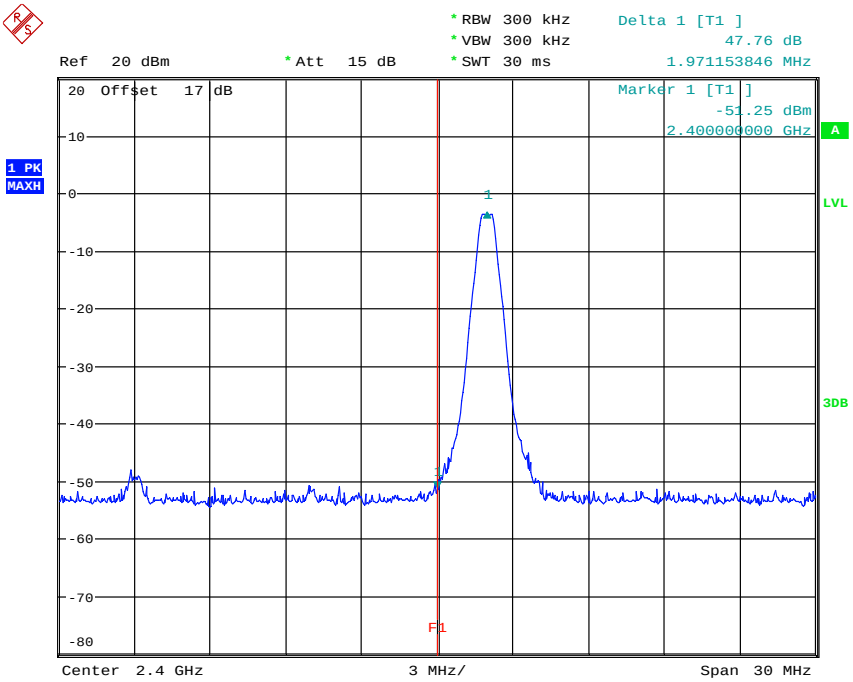
BANDEDGE 802.11N 20MHZ CH01
Date: 11.NOV.2014 21:50:15

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



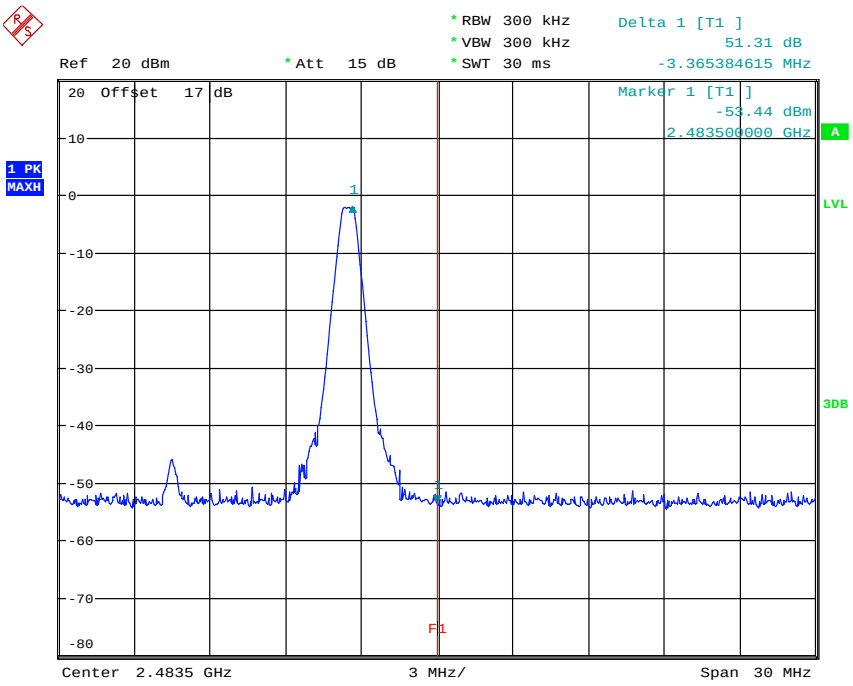
BANDEDGE 802.11N 20MHZ CH11
Date: 11.NOV.2014 21:51:30

Mode D



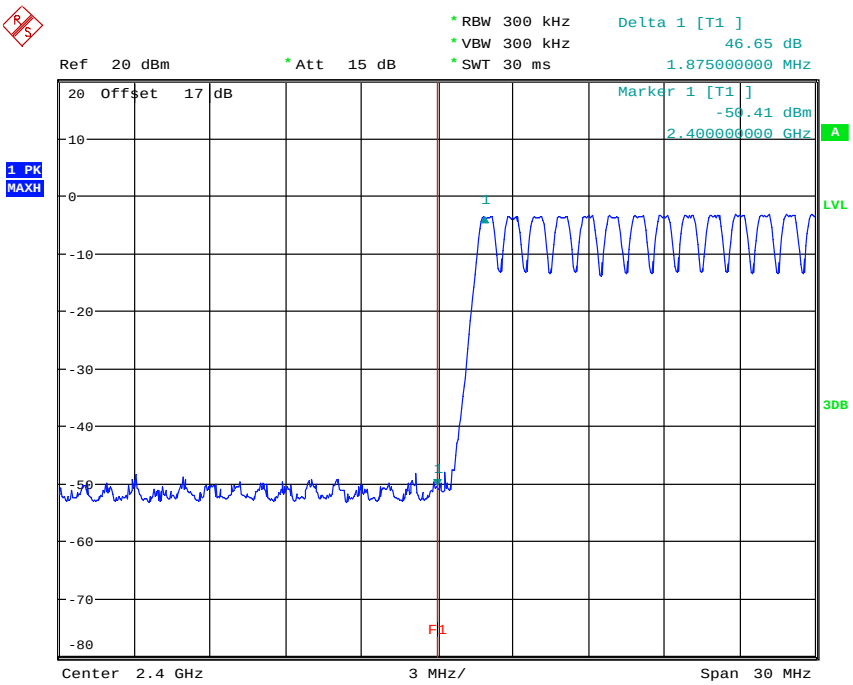
BANDEDGE CH0
Date: 11.NOV.2014 21:26:46

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



BANDEDGE CH78

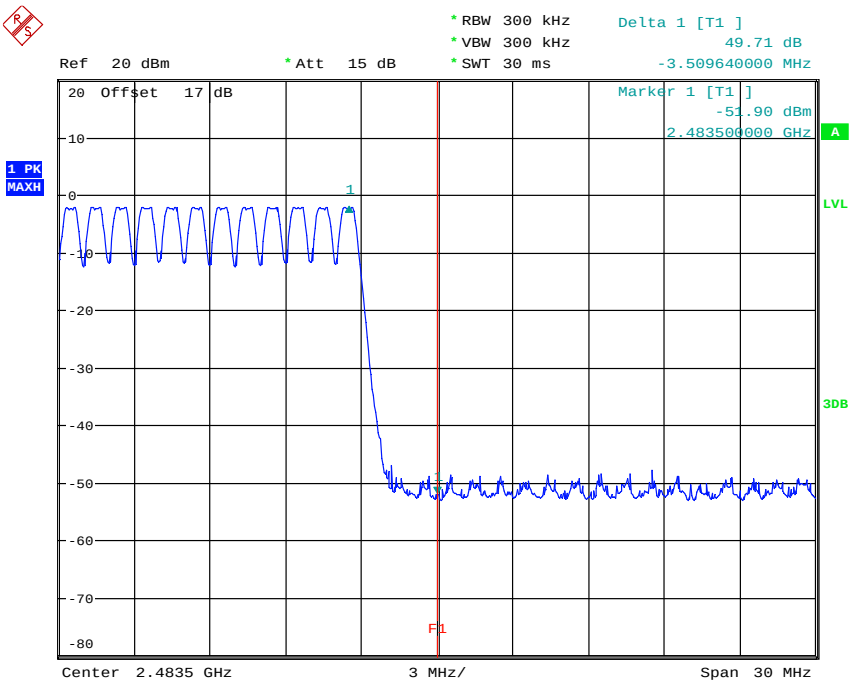
Date: 11.NOV.2014 21:27:50



BANDEDGE CH0 HOPPING MODE

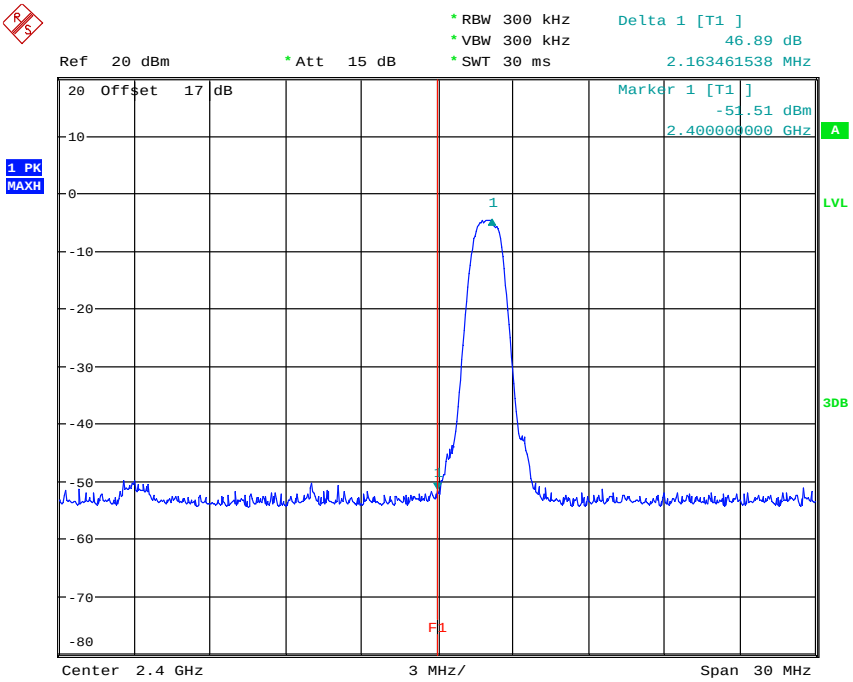
Date: 11.NOV.2014 21:28:47

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



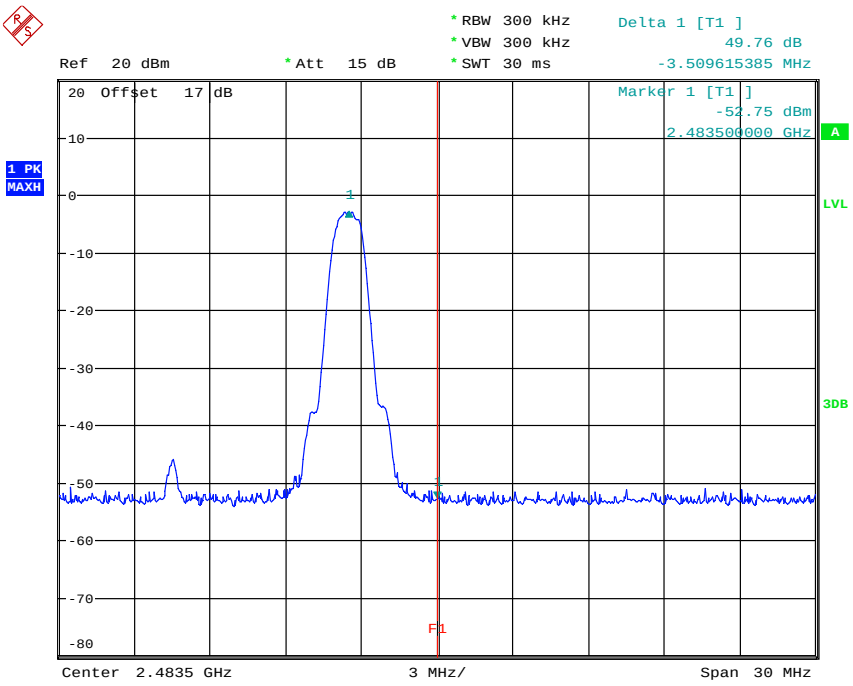
BANDEDGE CH78 HOPPING MODE
Date: 11.NOV.2014 21:29:27

Mode E

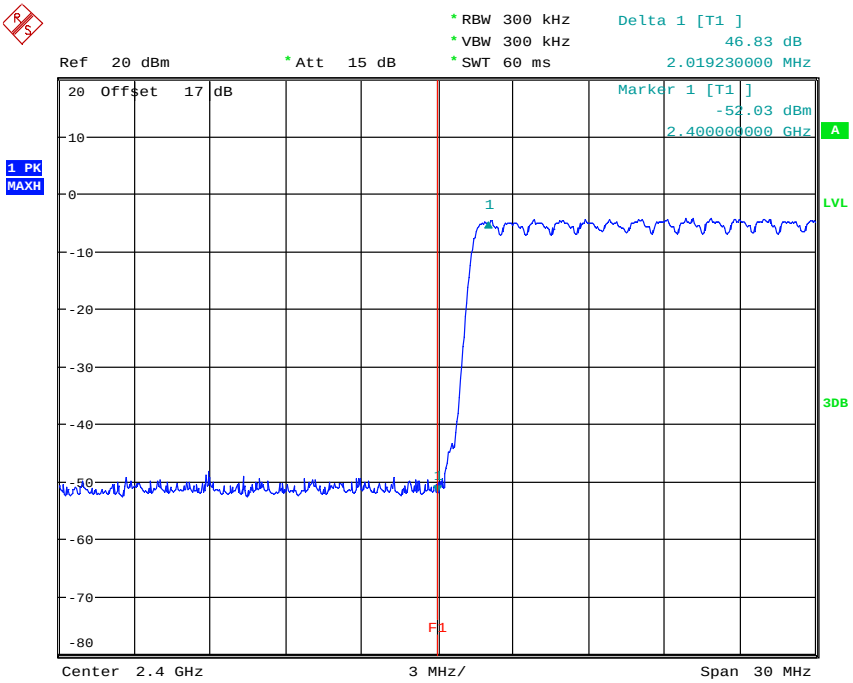


BANDEDGE CH0 EDR MODE
Date: 11.NOV.2014 21:34:34

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

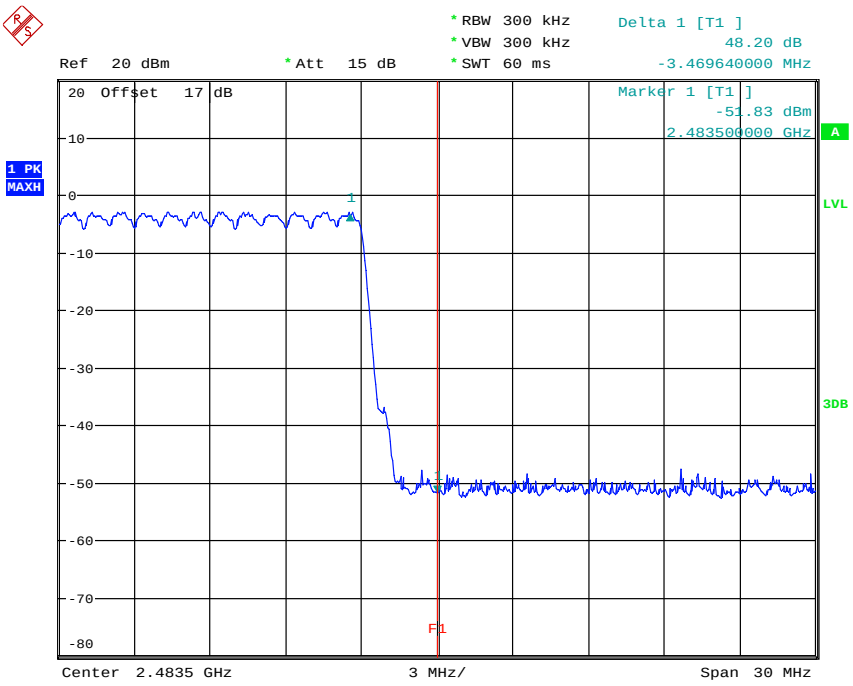


BANDEDGE CH78 EDR MODE
Date: 11.NOV.2014 21:35:50



BANDEDGE CH0 EDR HOPPING MODE
Date: 11.NOV.2014 21:38:10

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



BANDEDGE CH78 EDR HOPPING MODE
Date: 11.NOV.2014 21:39:54

Limit:

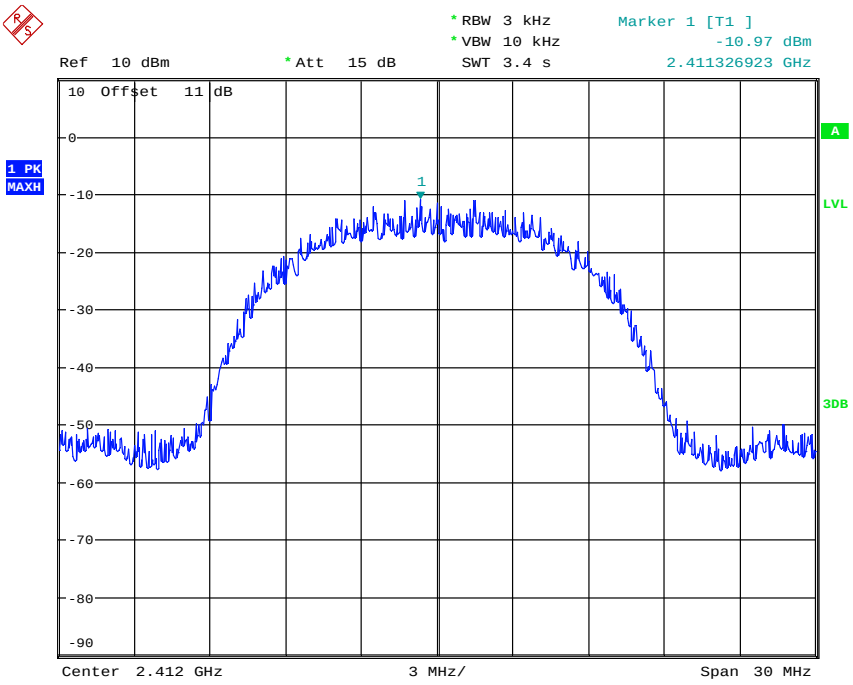
Frequency Range / MHz	Limit
902 –928 2400 – 2483.5 5725 - 5850	- 20 dB

Test equipment used: ETSTW-RE 055, ETSTW-RE 050, ETSTW-RE 064

3.11 Peak Power Spectral Density

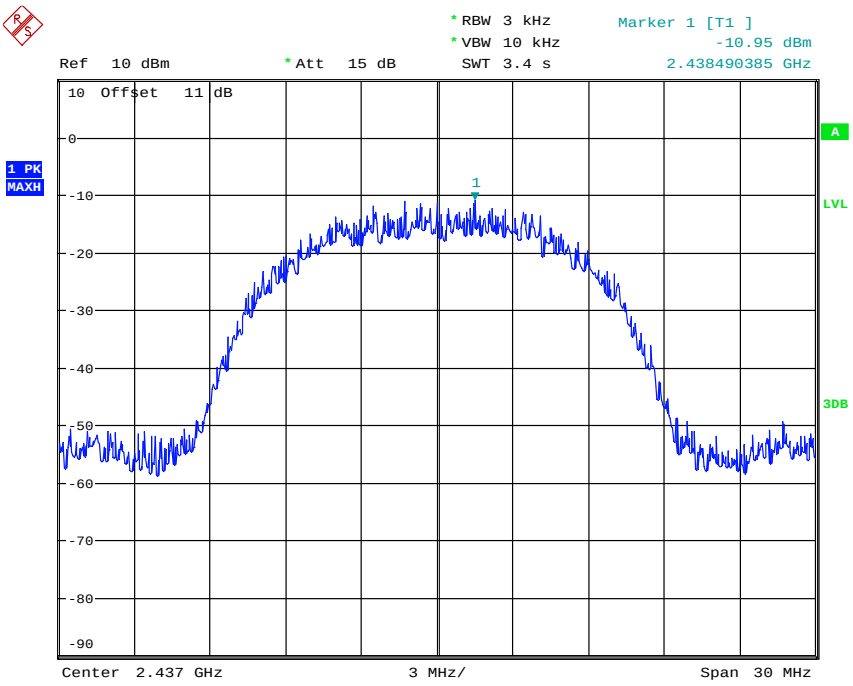
Peak Power Spectral density is a measured at low, middle and high channel.
The peak output power is measured with a measurement bandwidth of 10 MHz and displayed on diagram together with Peak Power Spectral Density result which was measured with a bandwidth of 3 kHz, appreciate frequency span and sweep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

Mode A

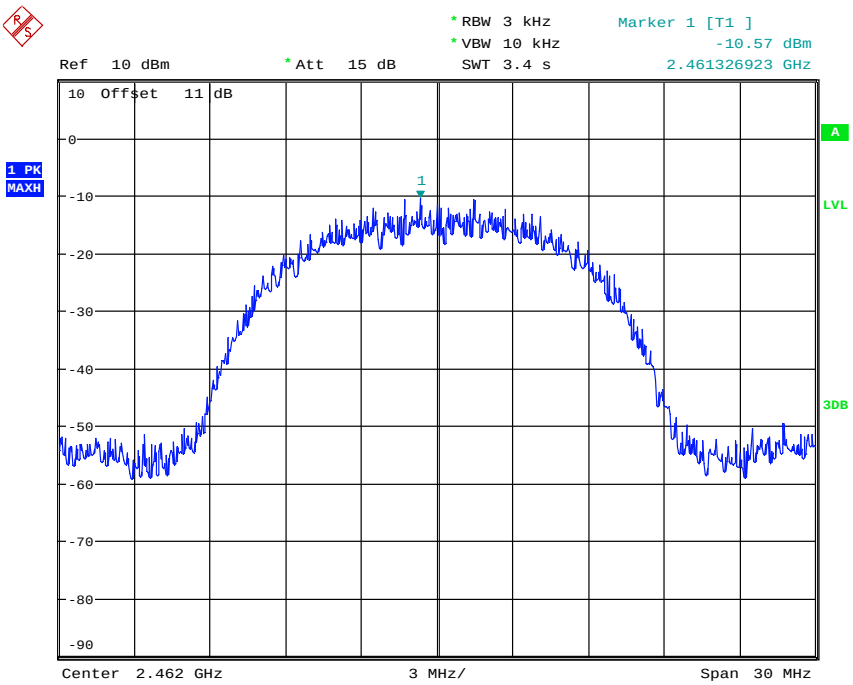


POWER DENSITY 802.11B CH01
Date: 11.NOV.2014 21:44:33

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



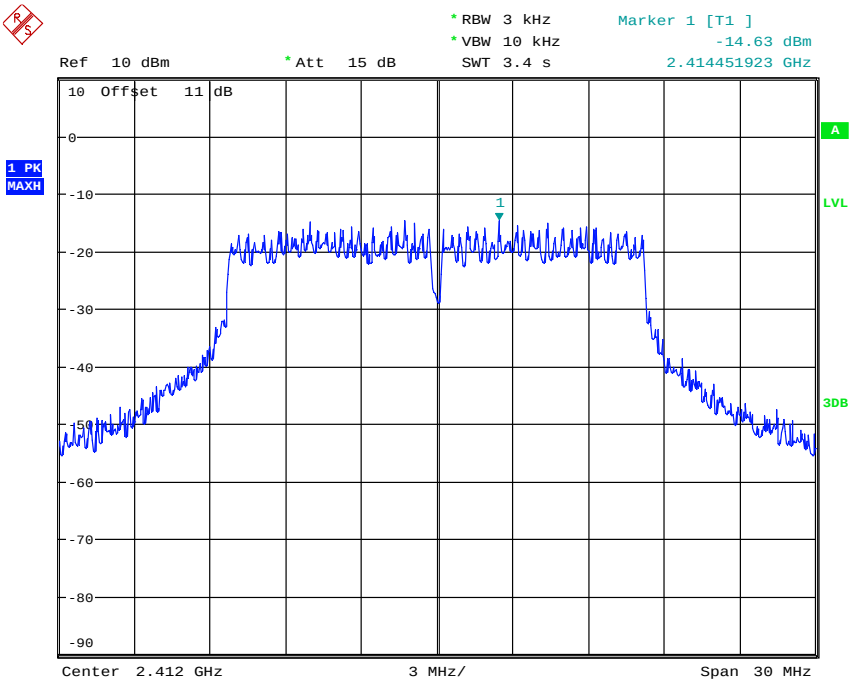
POWER DENSITY 802.11B CH06
Date: 11.NOV.2014 21:45:22



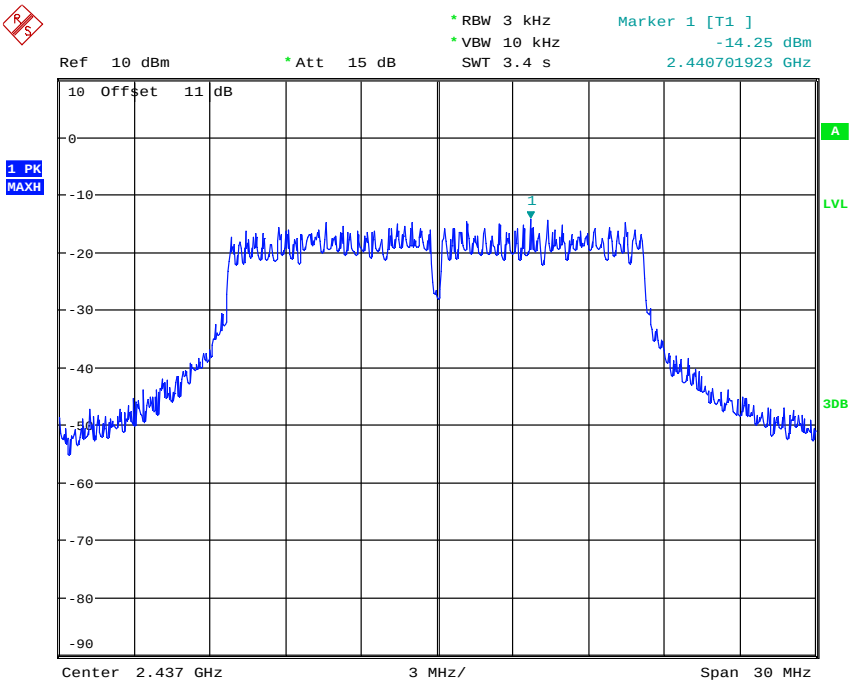
POWER DENSITY 802.11B CH11
Date: 11.NOV.2014 21:45:54

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Mode B

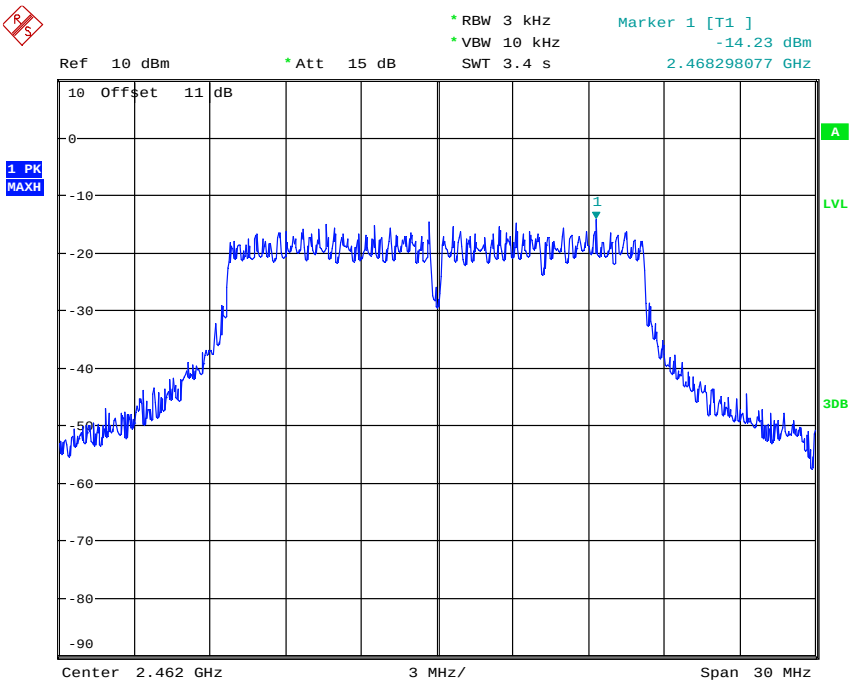


POWER DENSITY 802.11G CH01
Date: 11.NOV.2014 21:47:51



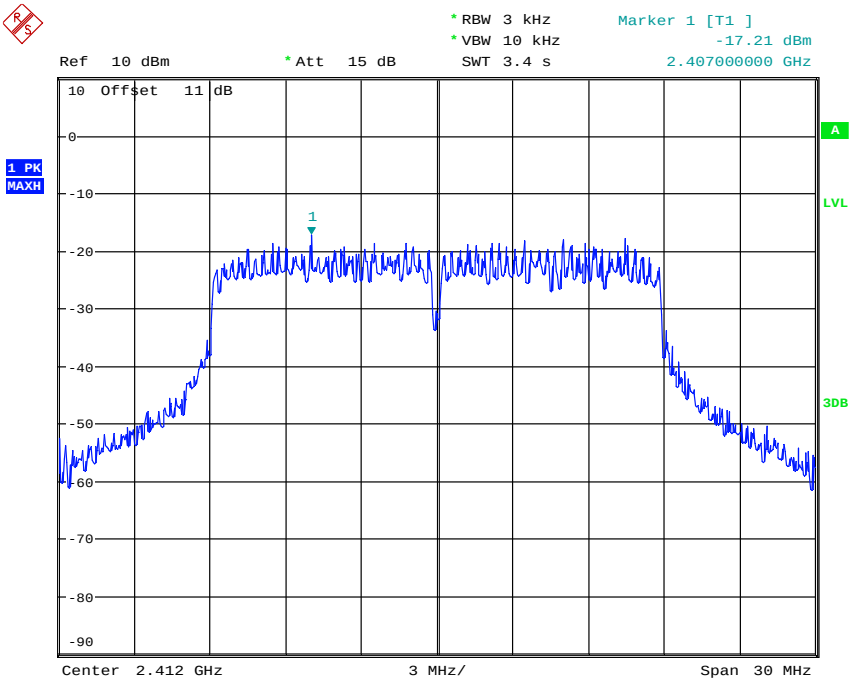
POWER DENSITY 802.11G CH06
Date: 11.NOV.2014 21:48:35

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



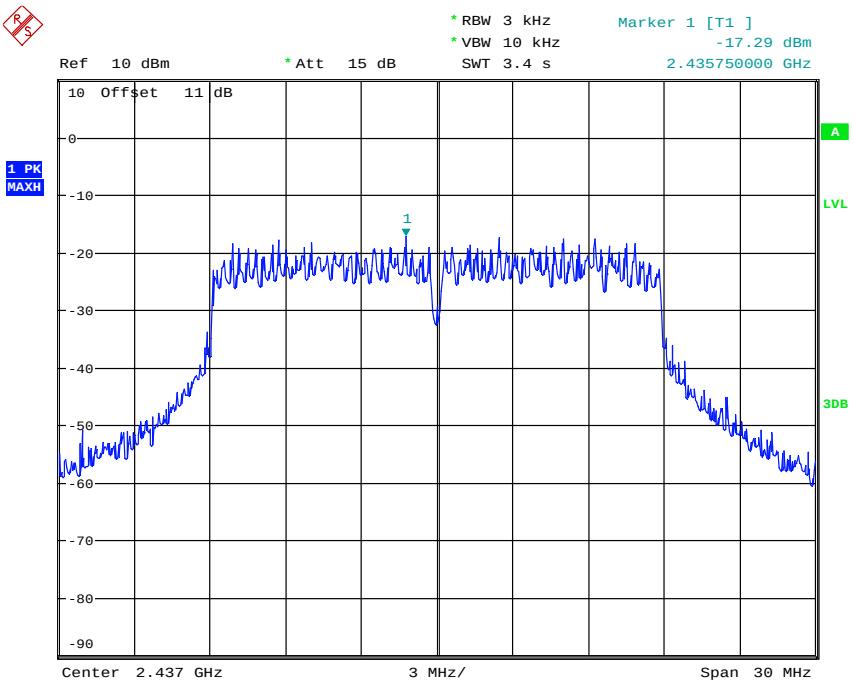
POWER DENSITY 802.11G CH11
Date: 11.NOV.2014 21:49:06

Mode C

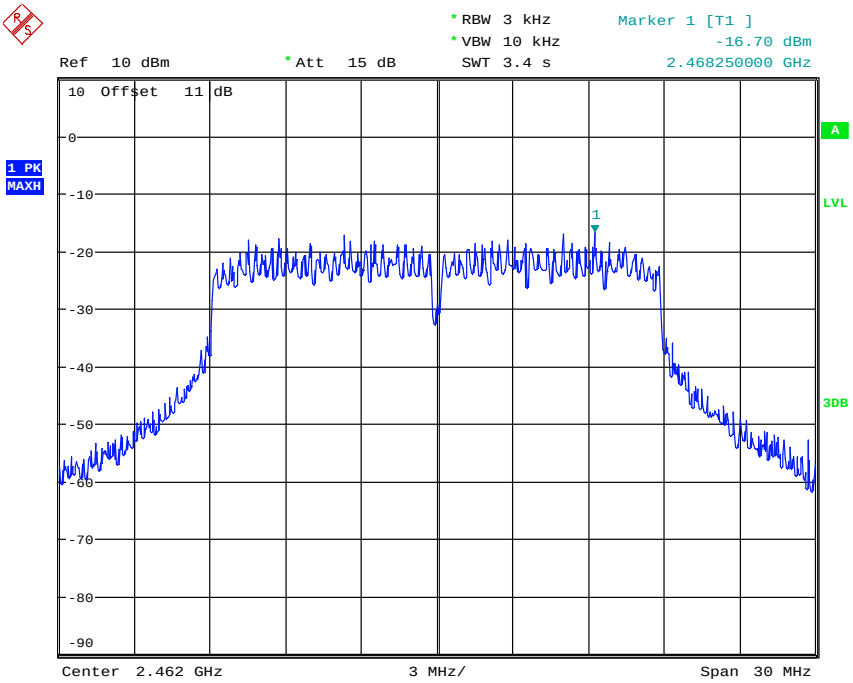


POWER DENSITY 802.11N 20MHZ CH01
Date: 11.NOV.2014 21:50:10

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



POWER DENSITY 802.11N 20MHZ CH06
Date: 11.NOV.2014 21:50:48



POWER DENSITY 802.11N 20MHZ CH11
Date: 11.NOV.2014 21:51:25

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Limits:

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

Test equipment used: ETSTW-RE 055, ETSTW-RE 050

3.12 Radiated Emission from Digital Part

FCC Rule: 15.109

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

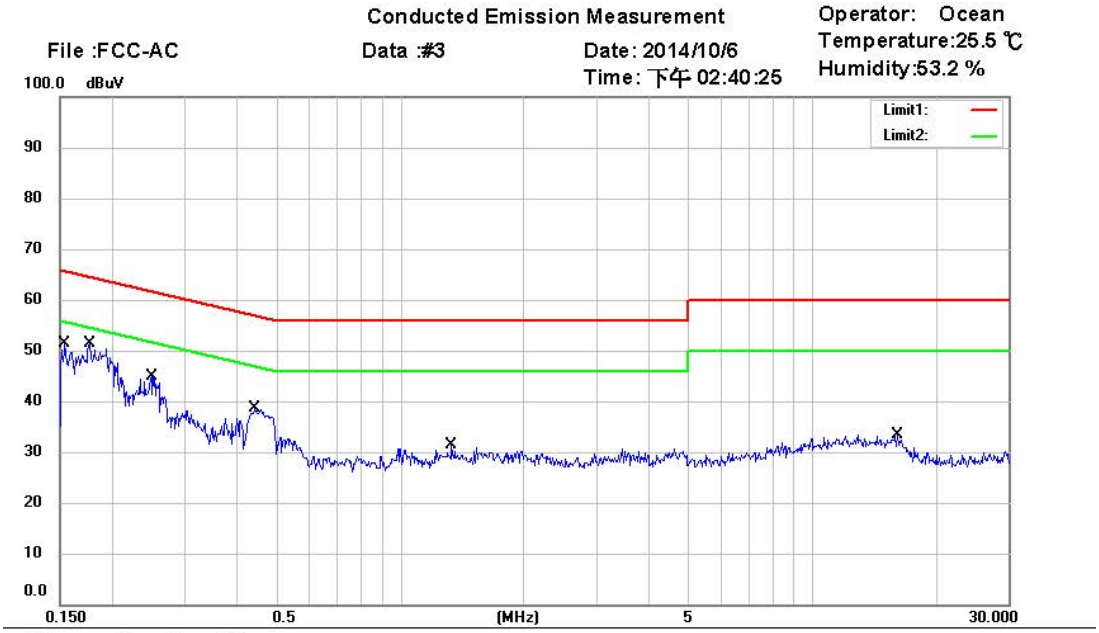
Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 003, ETSTW-RE 030, ETSTW-RE 055, ETSTW-RE 064, ETSTW-RE 111

Explanation: Please refer to separated test report no.: W6M21409-14510-P-15B.

3.13 Power Line Conducted Emission

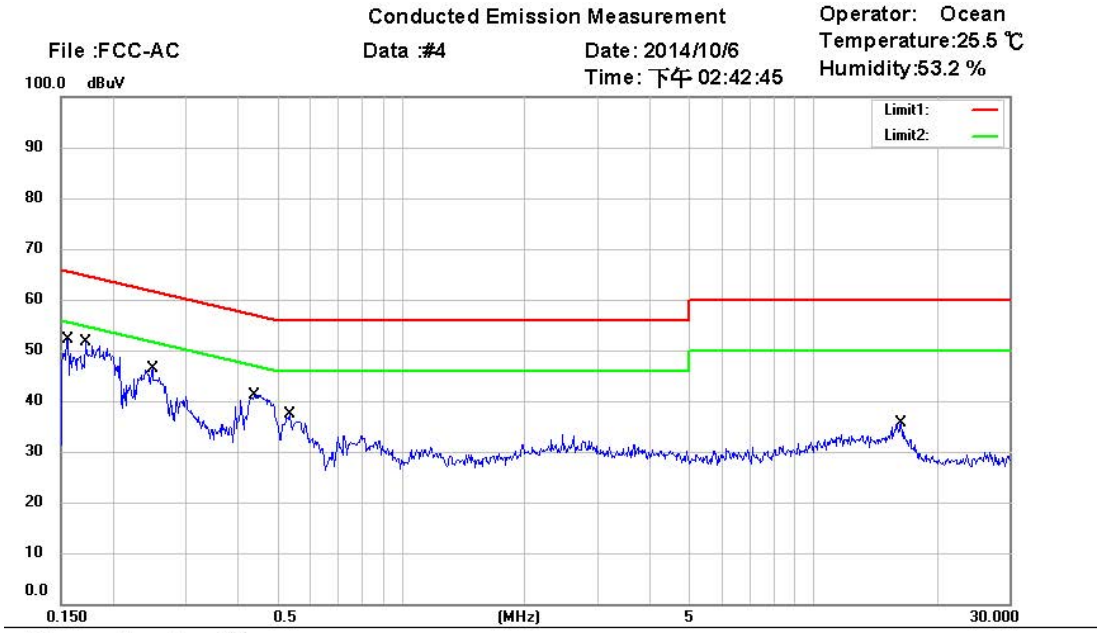
For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.
This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: N
EUT : W6M21409-14510
Power : 120 Va.c.
M/N:
Test Mode : Adaptor
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1535	27.80	QP	9.67	37.47	65.81	-28.34	
	0.1535	3.84	AVG	9.67	13.51	55.81	-42.30	
*	0.1766	33.98	QP	9.67	43.65	64.64	-20.99	
	0.1766	18.95	AVG	9.67	28.62	54.64	-26.02	
	0.2484	27.18	QP	9.67	36.85	61.81	-24.96	
	0.2484	18.09	AVG	9.67	27.76	51.81	-24.05	
	0.4443	23.97	QP	9.68	33.65	56.98	-23.33	
	0.4443	14.22	AVG	9.68	23.90	46.98	-23.08	
	1.3370	10.31	QP	9.72	20.03	56.00	-35.97	
	1.3370	3.32	AVG	9.72	13.04	46.00	-32.96	
	16.1250	13.87	QP	10.13	24.00	60.00	-36.00	
	16.1250	8.50	AVG	10.13	18.63	50.00	-31.37	

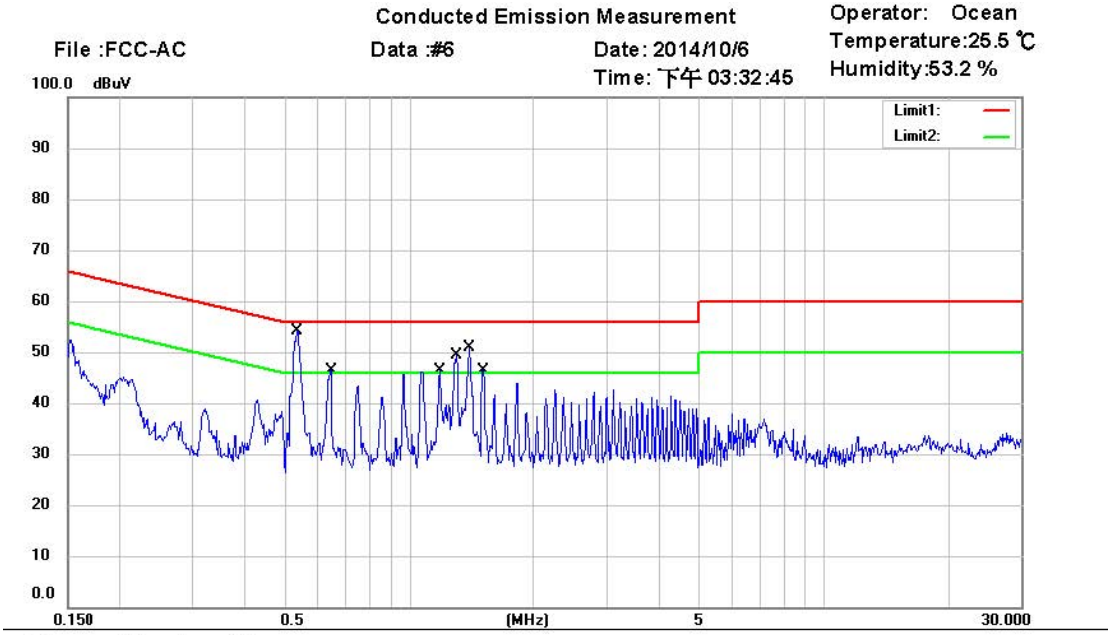
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: L1
EUT : W6M21409-14510
Power : 120 Va.c.
M/N:
Test Mode : Adaptor
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1550	27.40	QP	9.66	37.06	65.73	-28.67	
	0.1550	3.90	AVG	9.66	13.56	55.73	-42.17	
	0.1717	30.46	QP	9.66	40.12	64.88	-24.76	
	0.1717	11.86	AVG	9.66	21.52	54.88	-33.36	
	0.2485	29.32	QP	9.66	38.98	61.81	-22.83	
	0.2485	19.92	AVG	9.66	29.58	51.81	-22.23	
	0.4391	27.07	QP	9.67	36.74	57.08	-20.34	
*	0.4391	18.30	AVG	9.67	27.97	47.08	-19.11	
	0.5360	20.99	QP	9.67	30.66	56.00	-25.34	
	0.5360	8.84	AVG	9.67	18.51	46.00	-27.49	
	16.3750	17.20	QP	10.03	27.23	60.00	-32.77	
	16.3750	10.79	AVG	10.03	20.82	50.00	-29.18	

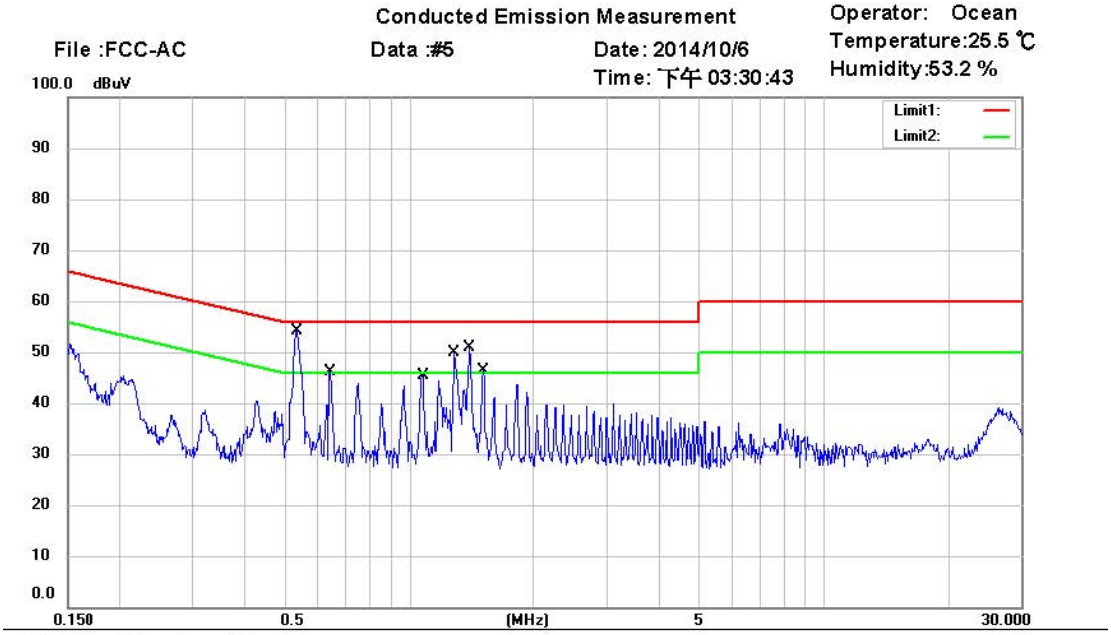
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: N
EUT : W6M21409-14510
Power : 120 Va.c.
M/N:
Test Mode : USB
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.5360	41.20	QP	9.68	50.88	56.00	-5.12	
	0.5360	22.80	AVG	9.68	32.48	46.00	-13.52	
	0.6462	30.03	QP	9.69	39.72	56.00	-16.28	
	0.6462	15.01	AVG	9.69	24.70	46.00	-21.30	
	1.1840	23.58	QP	9.71	33.29	56.00	-22.71	
	1.1840	7.09	AVG	9.71	16.80	46.00	-29.20	
	1.2943	24.53	QP	9.71	34.24	56.00	-21.76	
	1.2943	4.13	AVG	9.71	13.84	46.00	-32.16	
	1.3910	37.78	QP	9.72	47.50	56.00	-8.50	
	1.3910	21.89	AVG	9.72	31.61	46.00	-14.39	
	1.5013	32.64	QP	9.73	42.37	56.00	-13.63	
	1.5013	17.86	AVG	9.73	27.59	46.00	-18.41	

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A



Site : Chamber_03
Condition : FCC Part 15 Class B Conduction (QP)
Phase: L1
EUT : W6M21409-14510
Power : 120 Va.c.
M/N:
Test Mode : USB
Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
*	0.5336	40.50	QP	9.67	50.17	56.00	-5.83	
	0.5336	21.63	AVG	9.67	31.30	46.00	-14.70	
	0.6417	32.87	QP	9.68	42.55	56.00	-13.45	
	0.6417	15.21	AVG	9.68	24.89	46.00	-21.11	
	1.0715	32.60	QP	9.70	42.30	56.00	-13.70	
	1.0715	16.48	AVG	9.70	26.18	46.00	-19.82	
	1.2808	32.14	QP	9.71	41.85	56.00	-14.15	
	1.2808	13.56	AVG	9.71	23.27	46.00	-22.73	
	1.3933	37.29	QP	9.72	47.01	56.00	-8.99	
	1.3933	19.68	AVG	9.72	29.40	46.00	-16.60	
	1.5013	32.38	QP	9.73	42.11	56.00	-13.89	
	1.5013	15.85	AVG	9.73	25.58	46.00	-20.42	

Note

1. **The formula of measured value as: Test Result = Reading + Correction Factor**
2. **The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss**
3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
5. **Measurement uncertainty = ±1.60 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
6. **Up Line: QP Limit Line, Down Line: Ave Limit Line.**

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Limits:

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

Test equipment used: ETSTW-CE 001, ETSTW-CE 016, ETSTW-RE 064,
ETSTW-RE 045

Appendix

Measurement diagrams

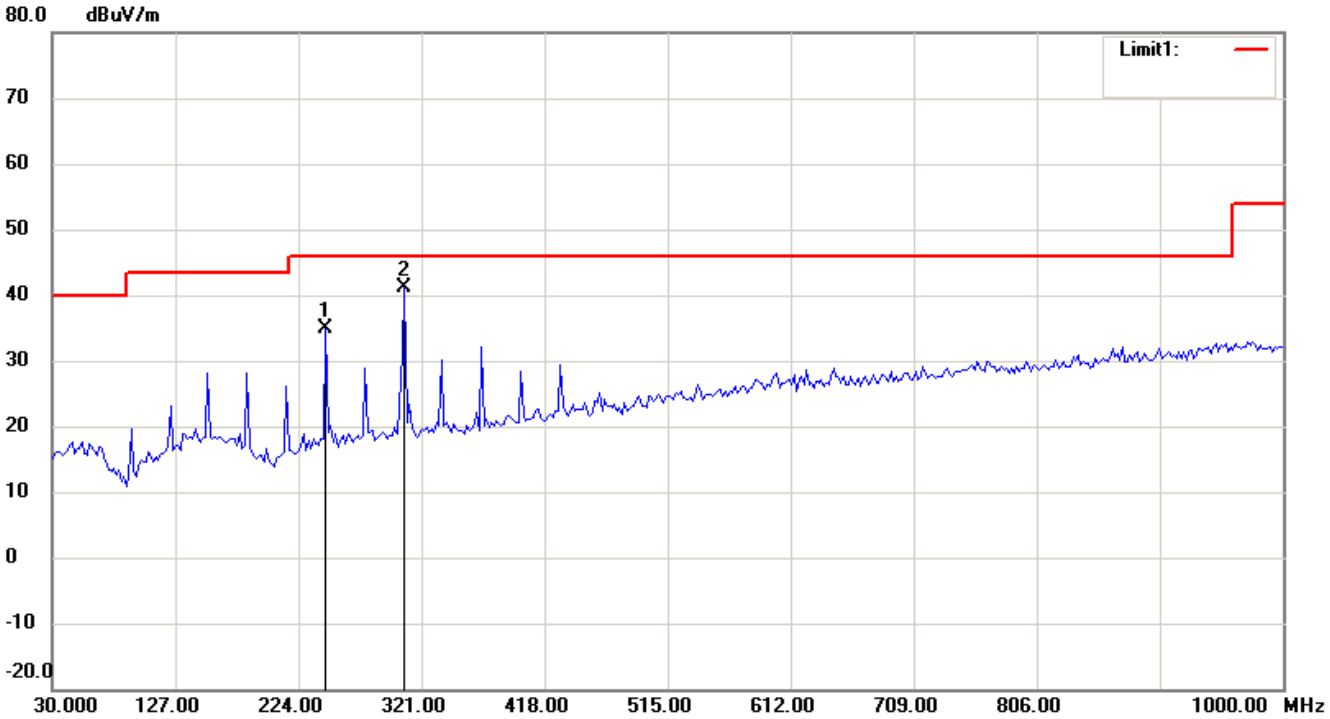
Spurious Emissions radiated

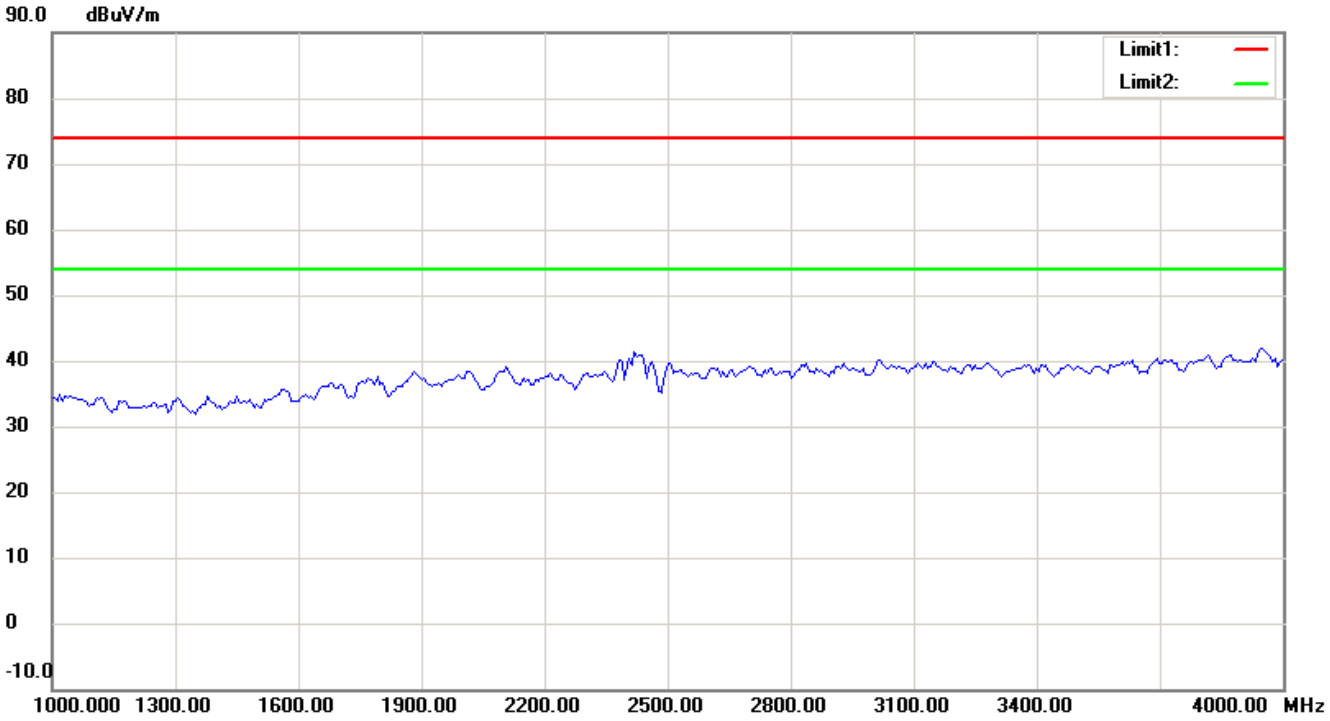
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Spurious Emissions radiated_Transmitter

802.11b CH1

Antenna Polarization H

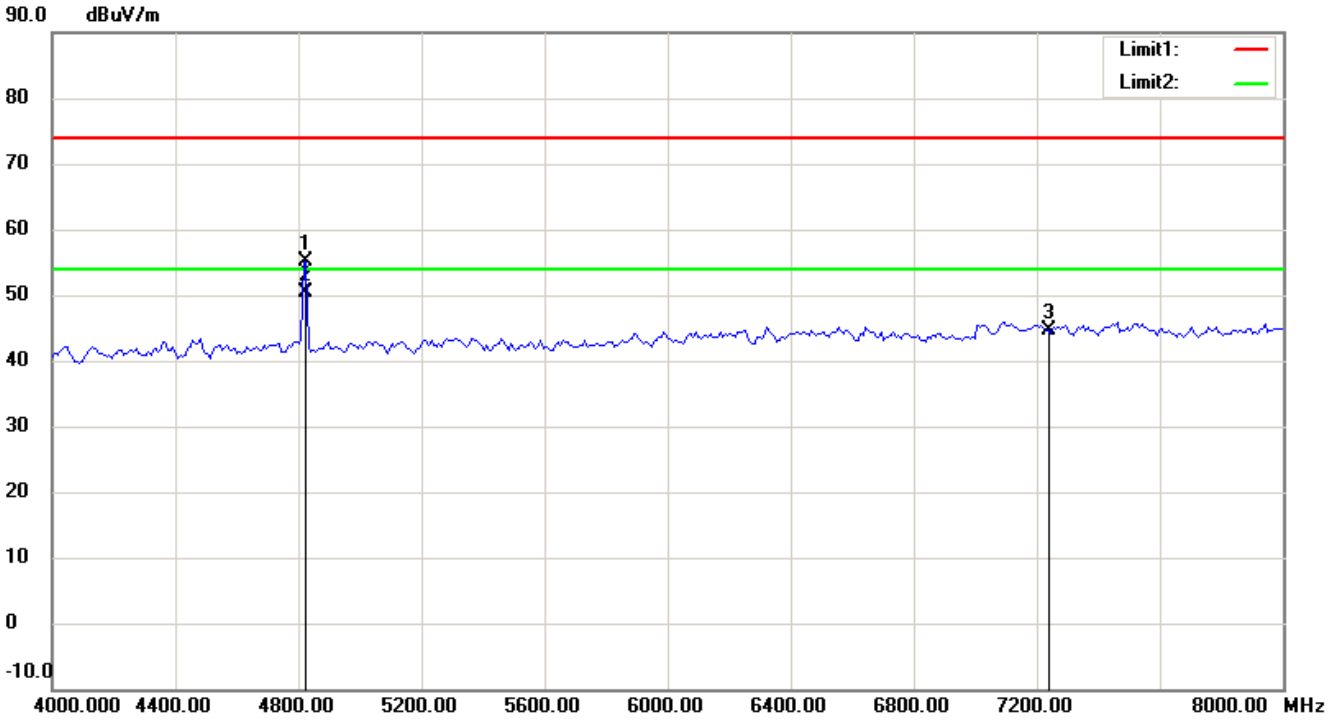


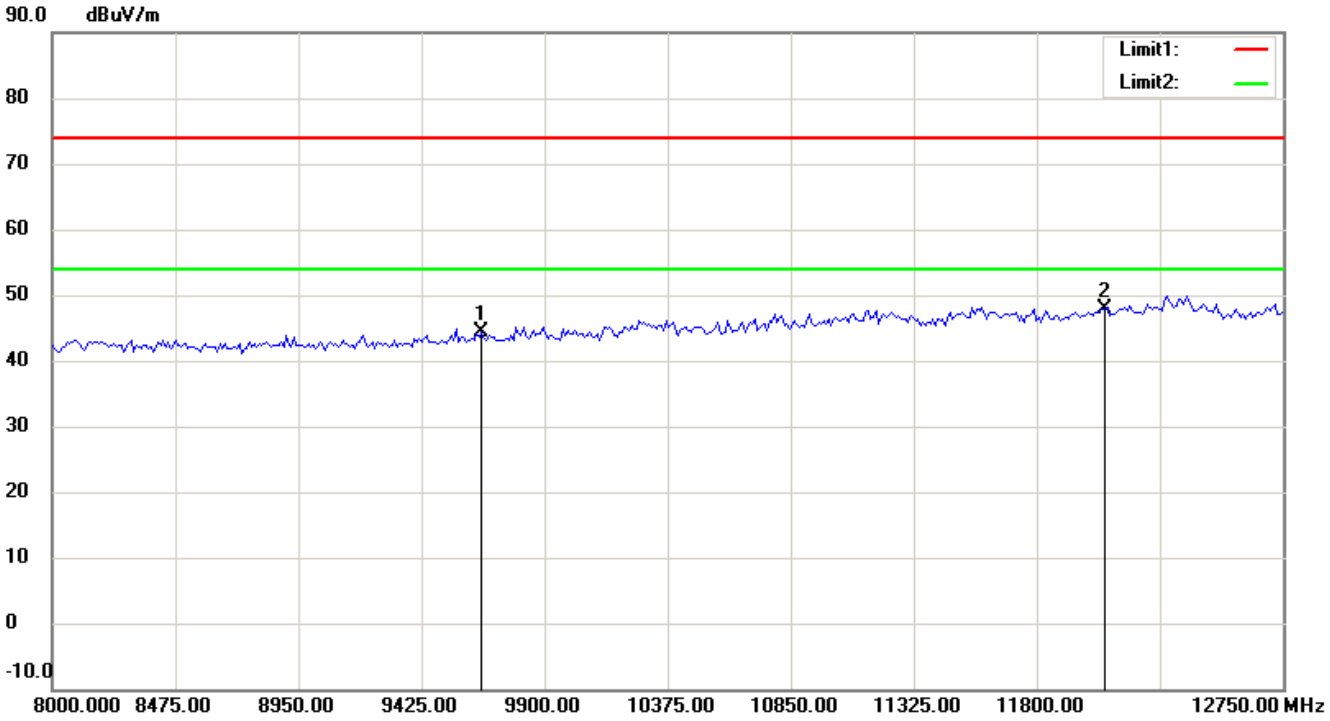


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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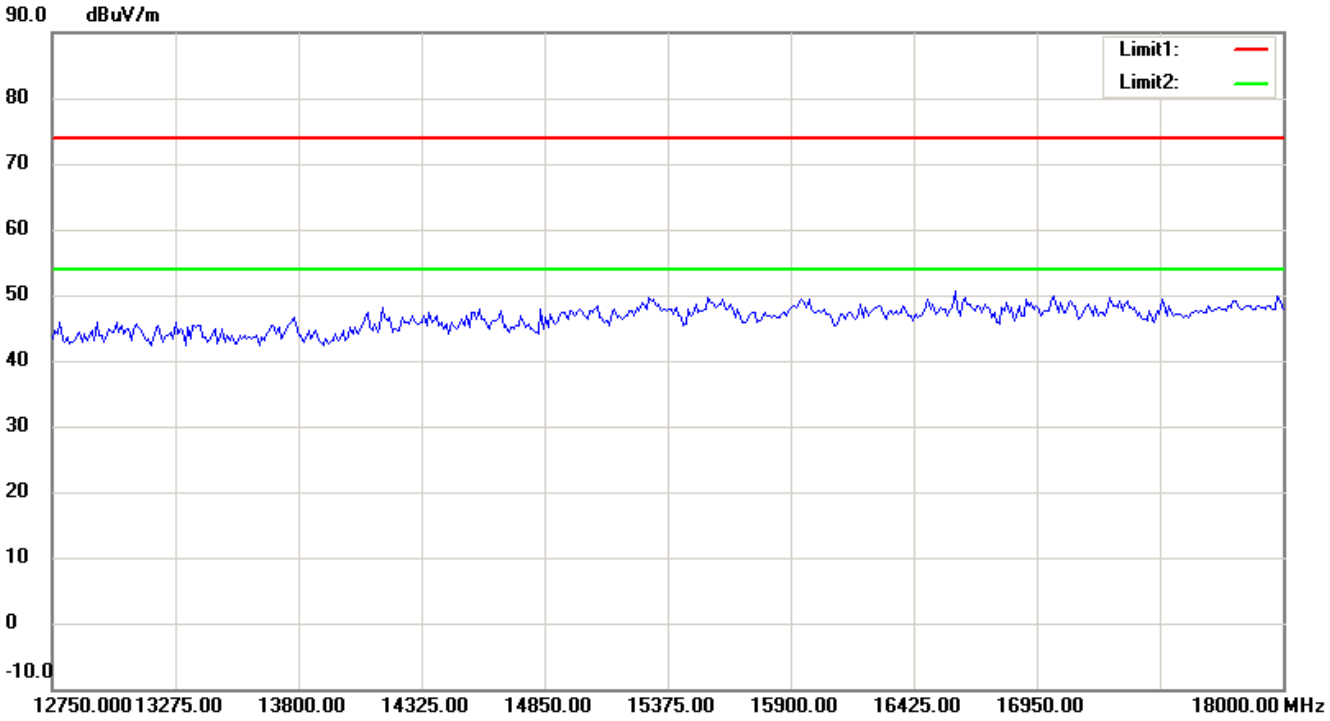
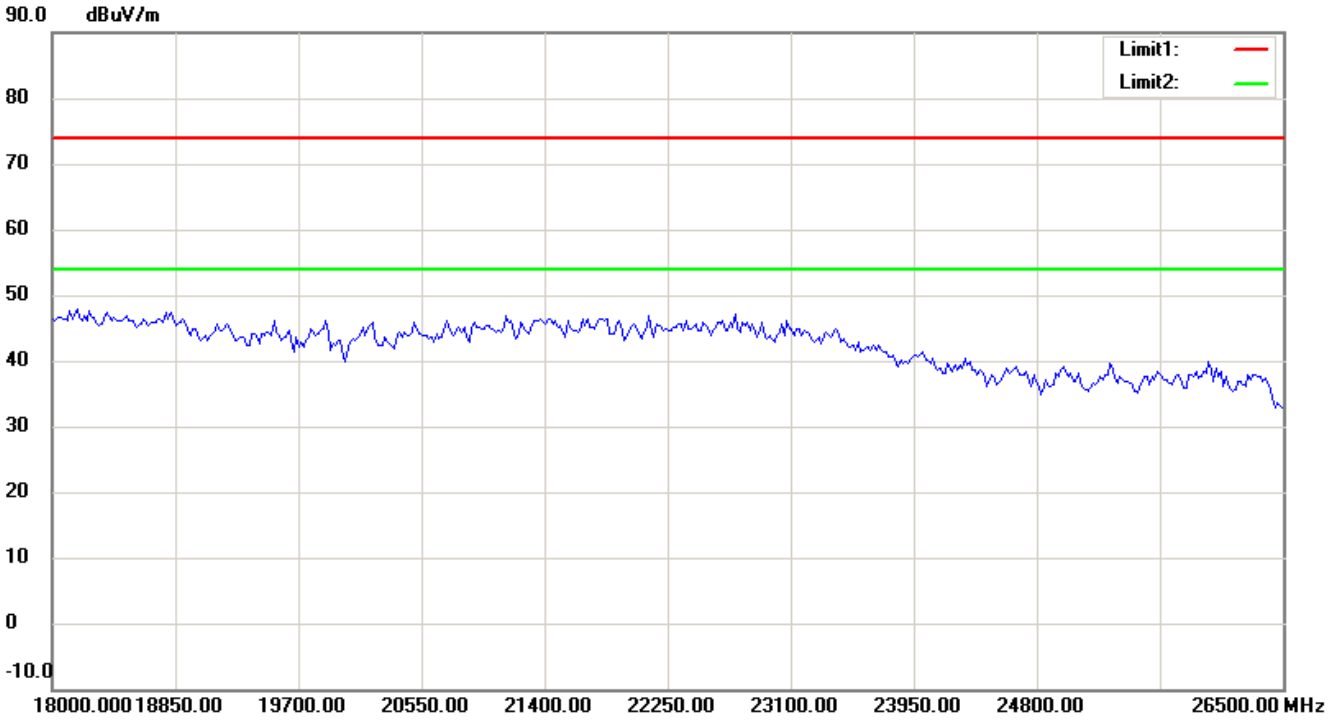
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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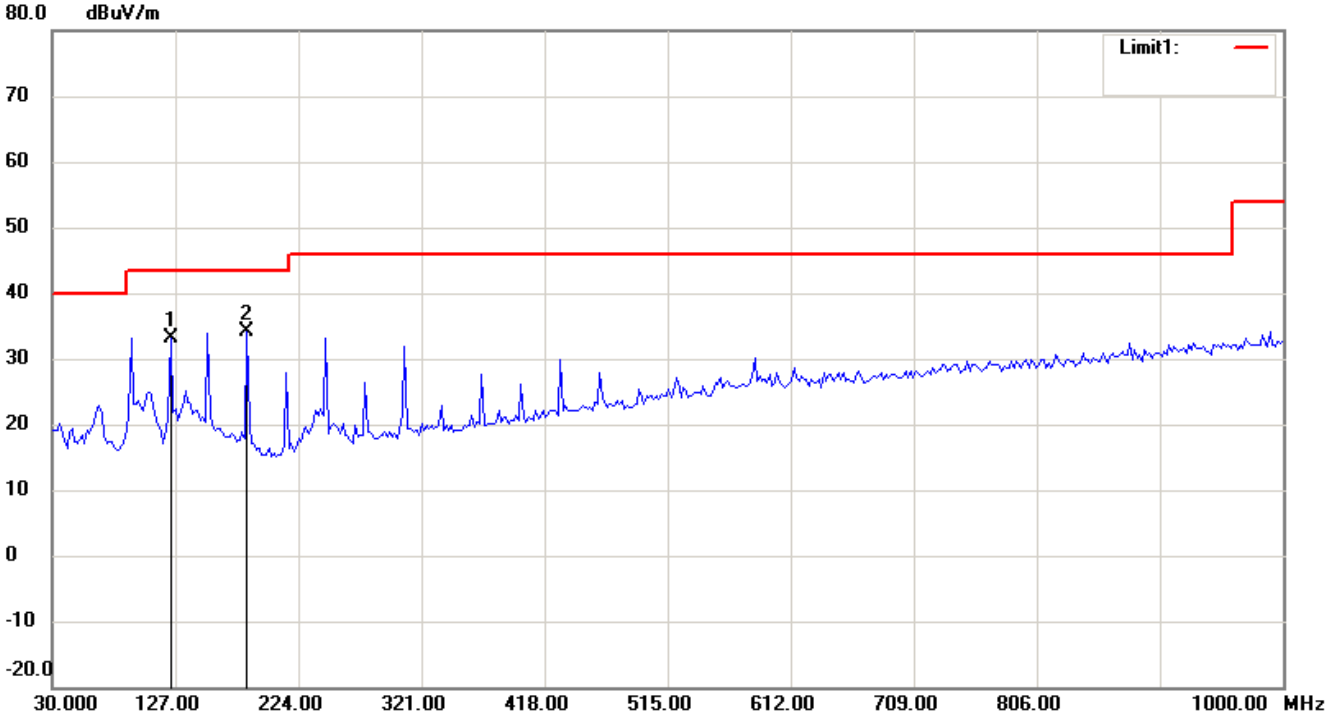
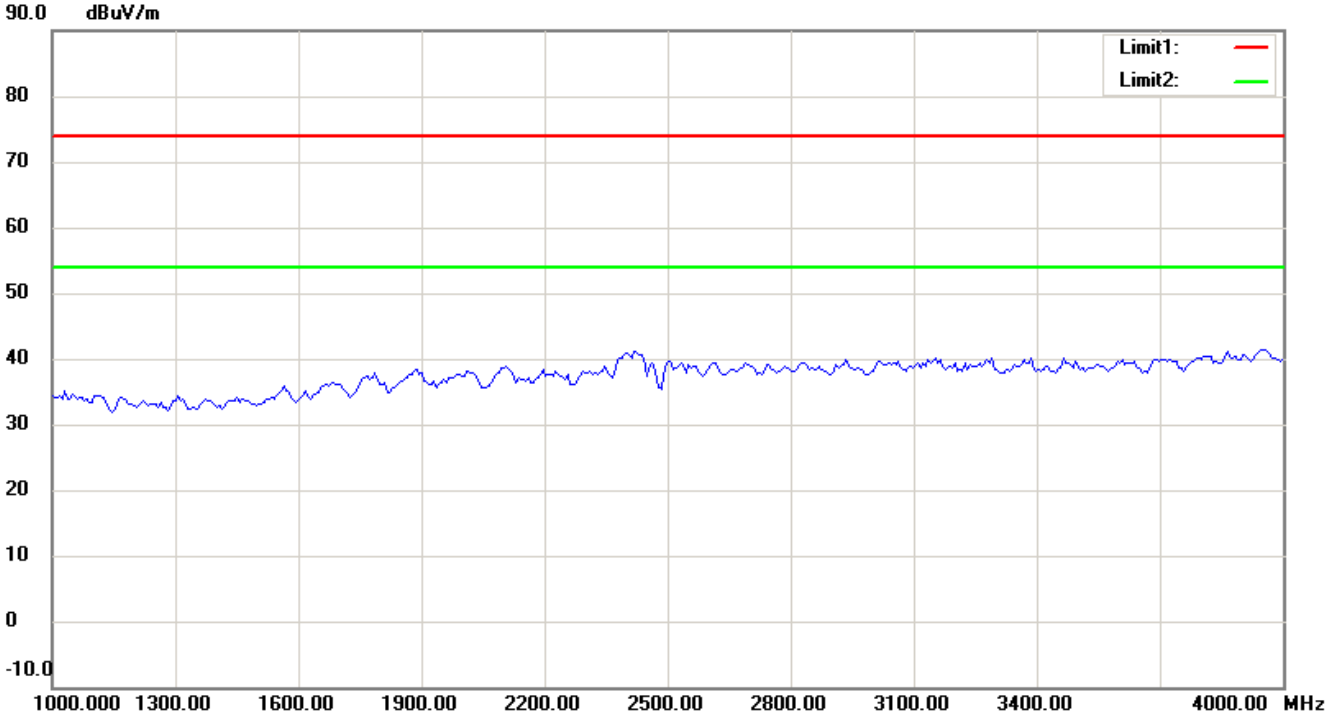
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
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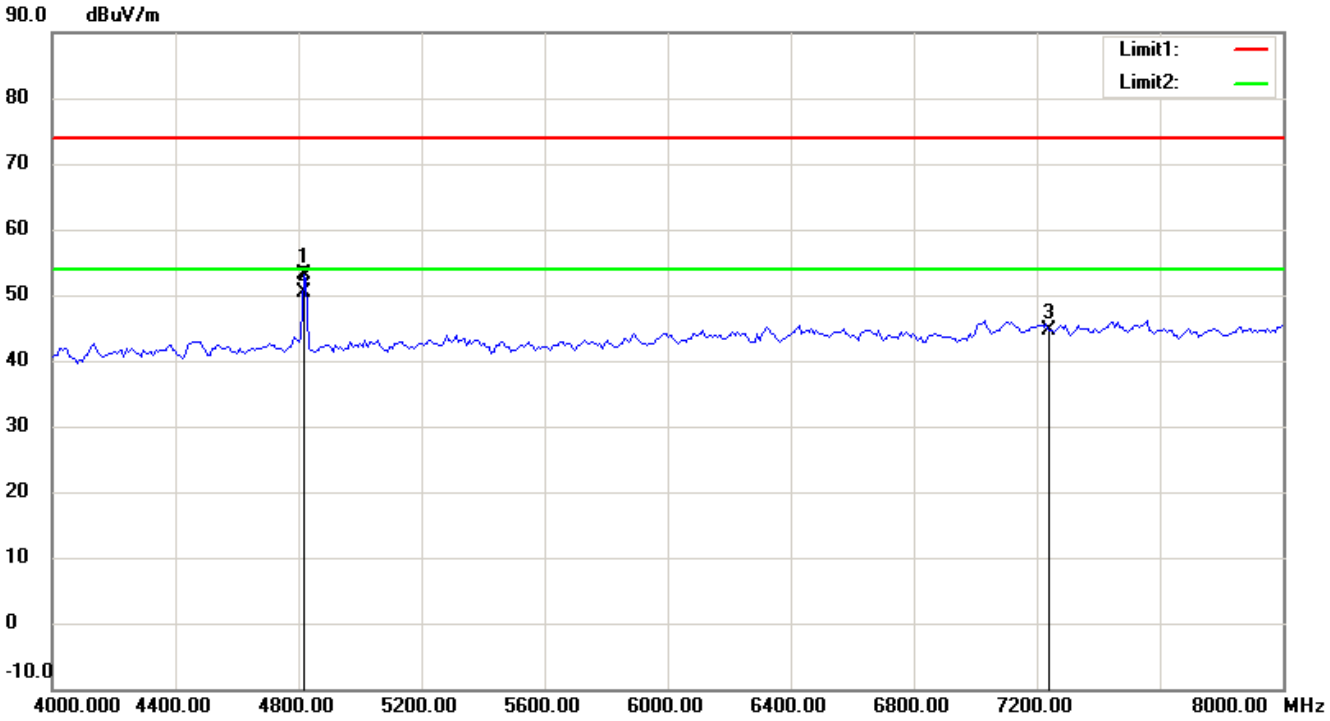
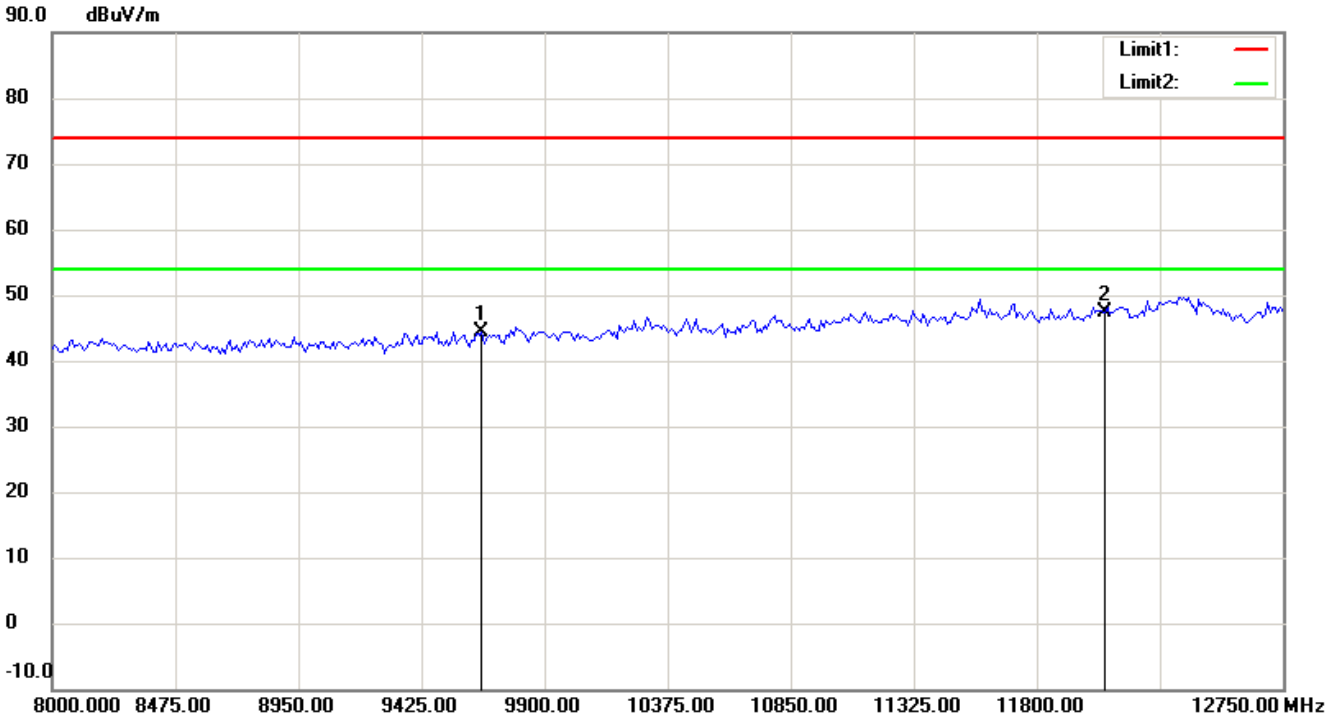
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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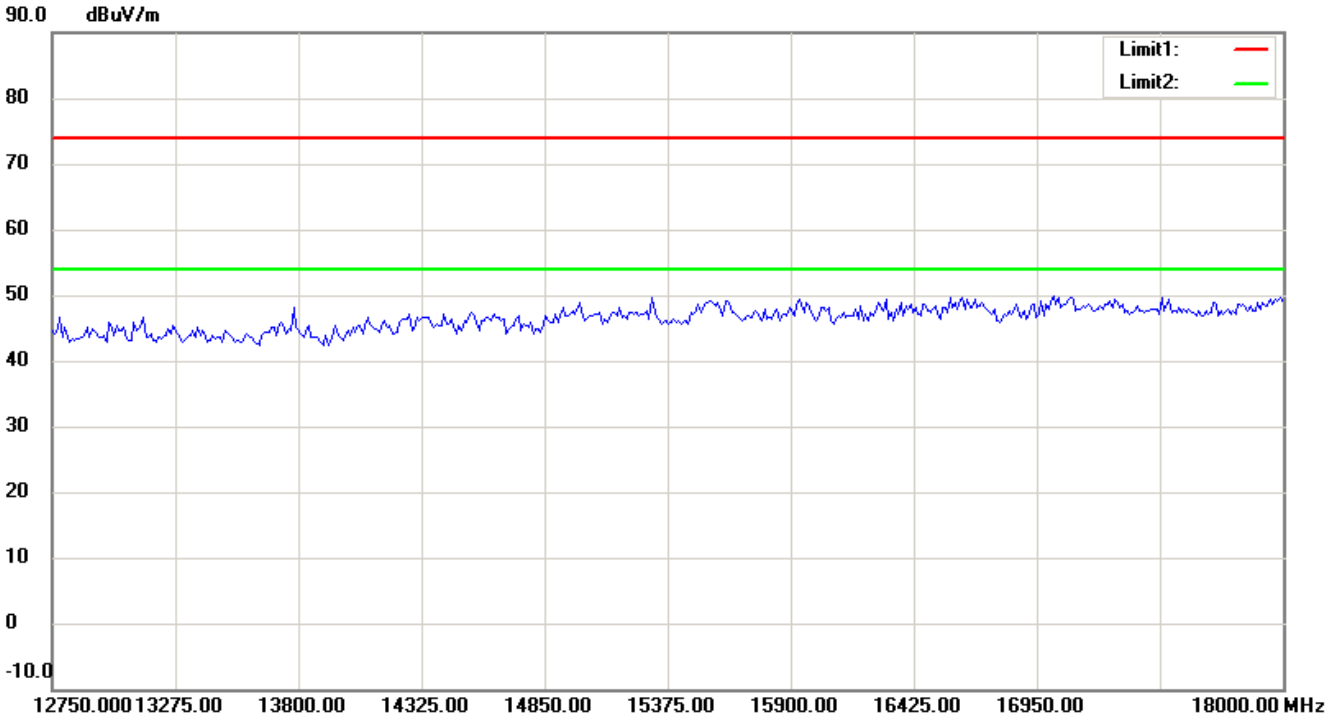

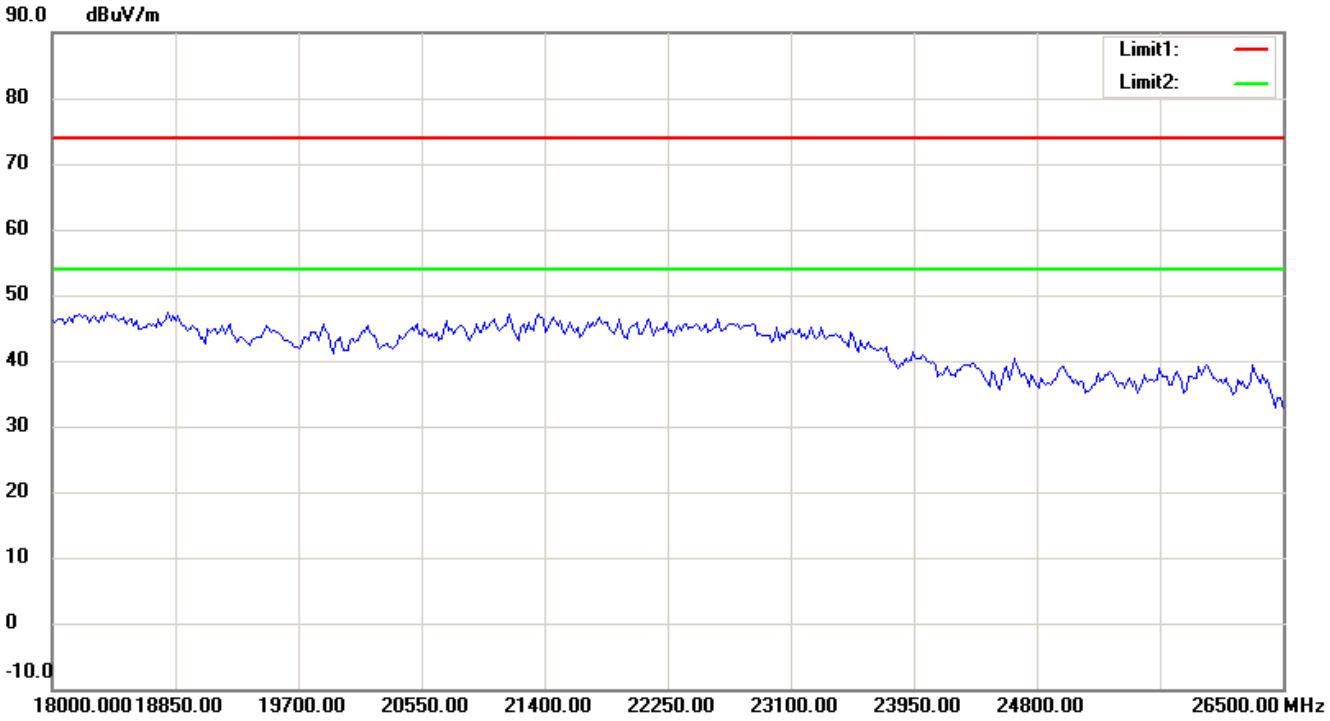

Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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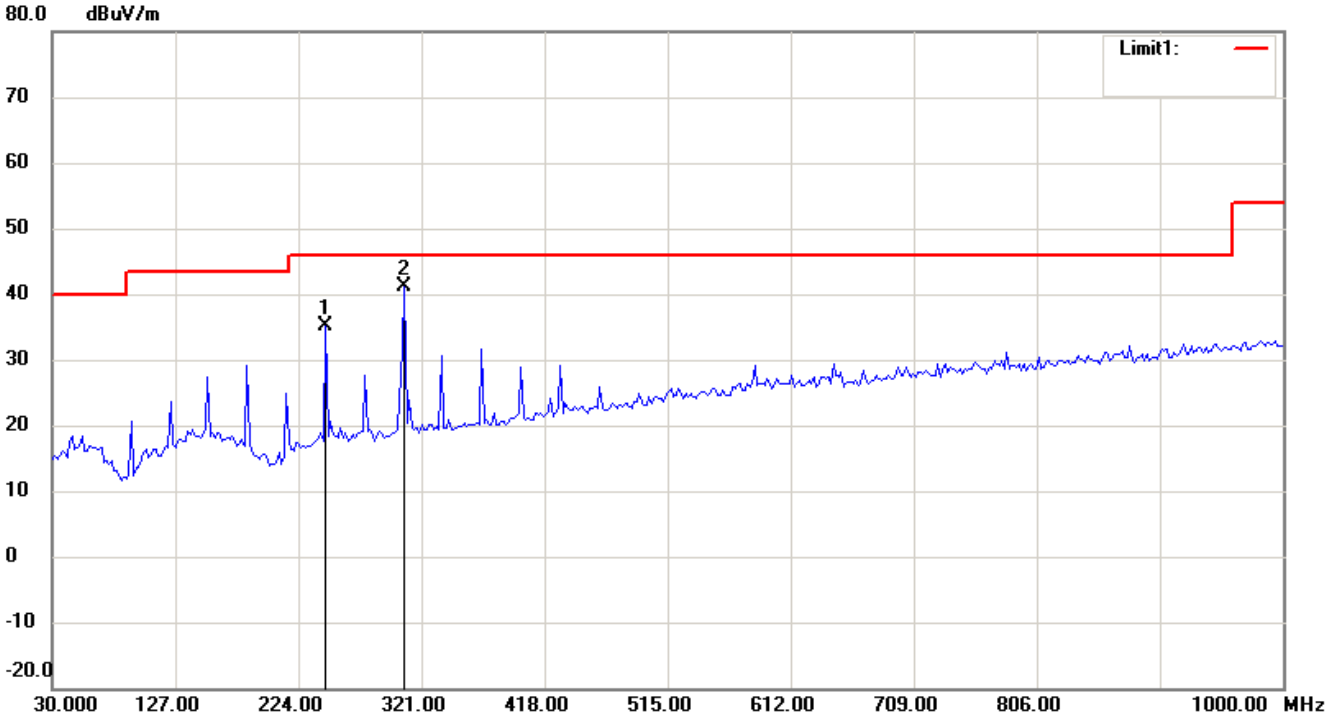
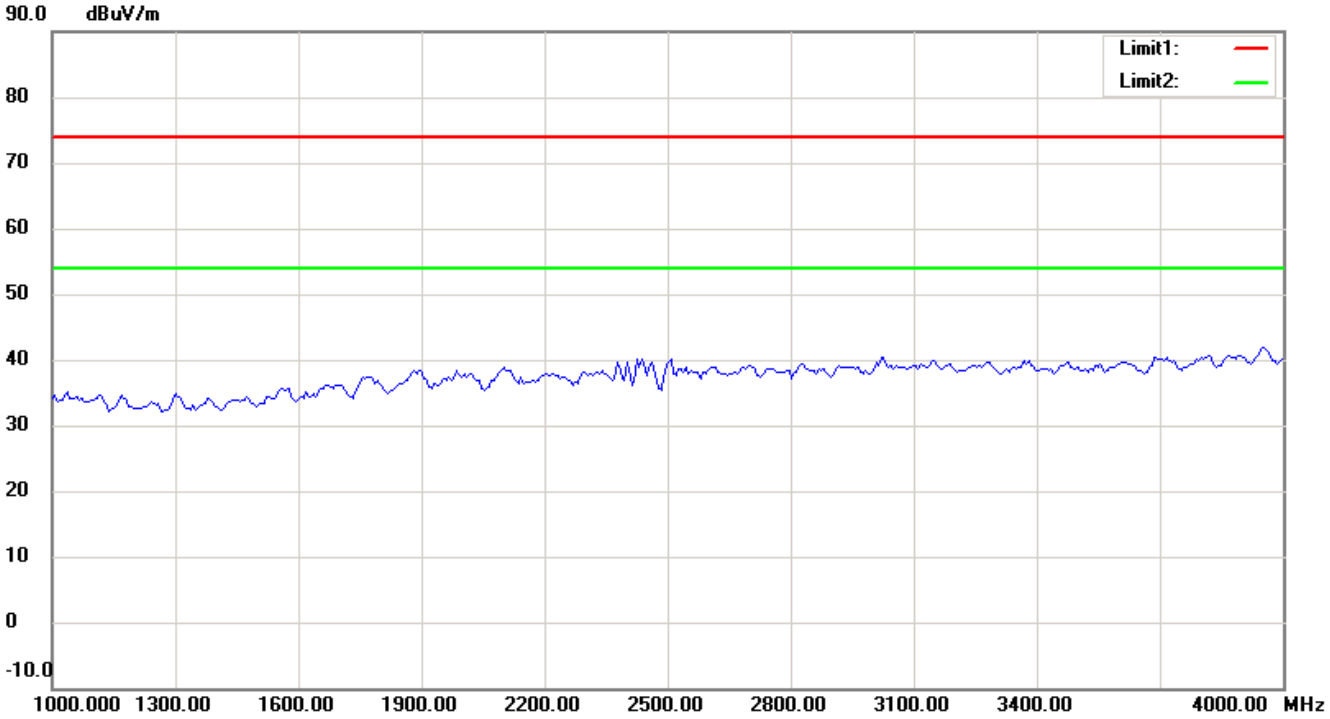
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11b CH6

Antenna Polarization H

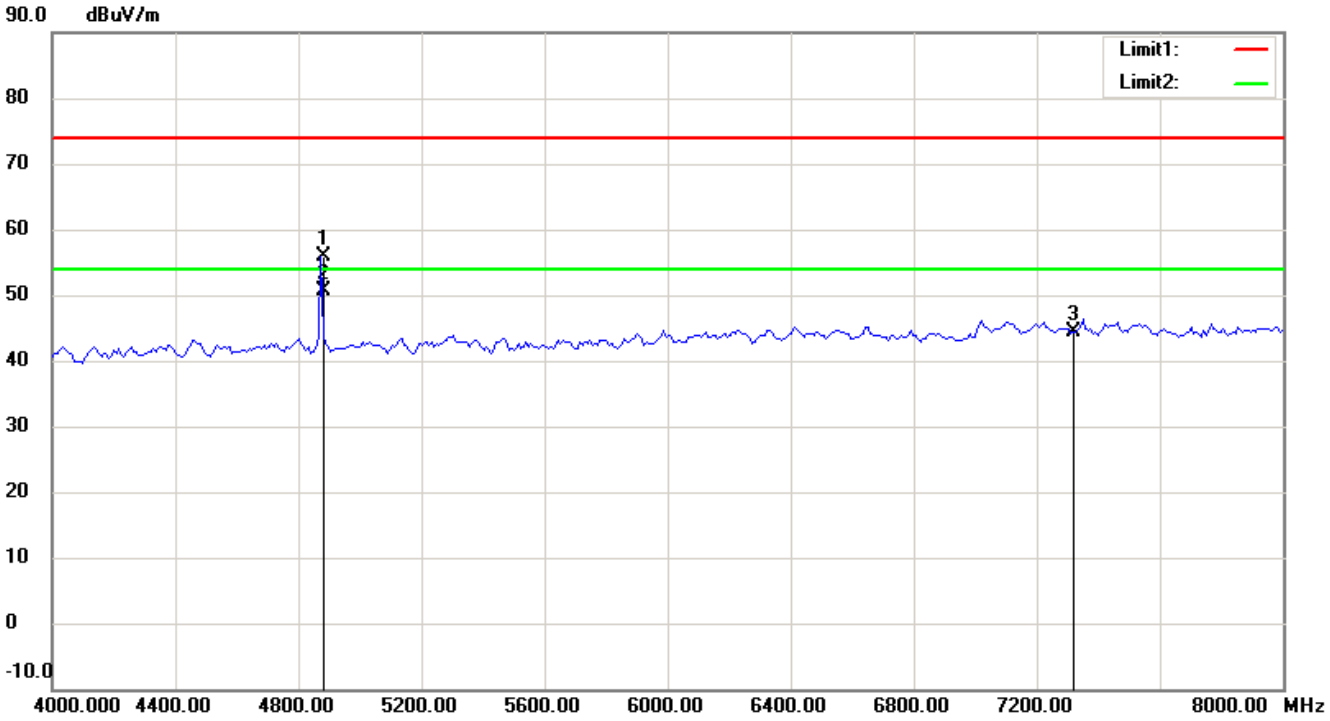


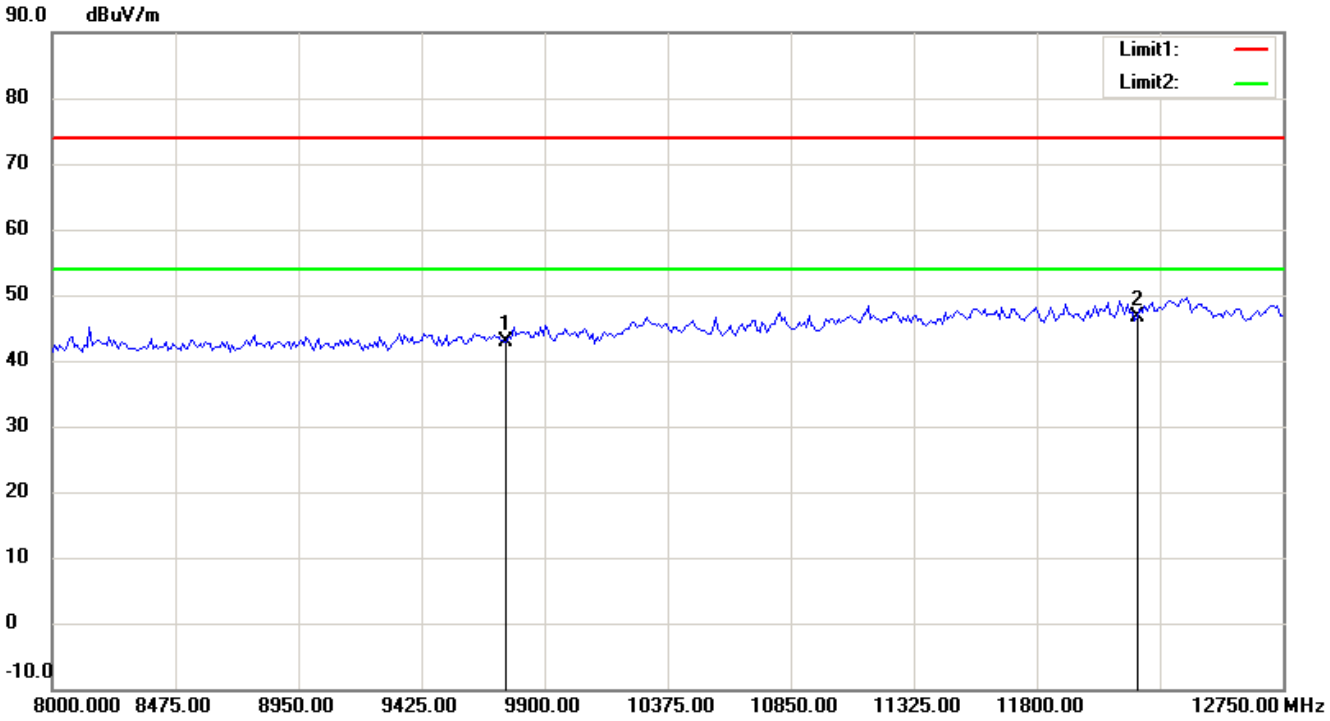


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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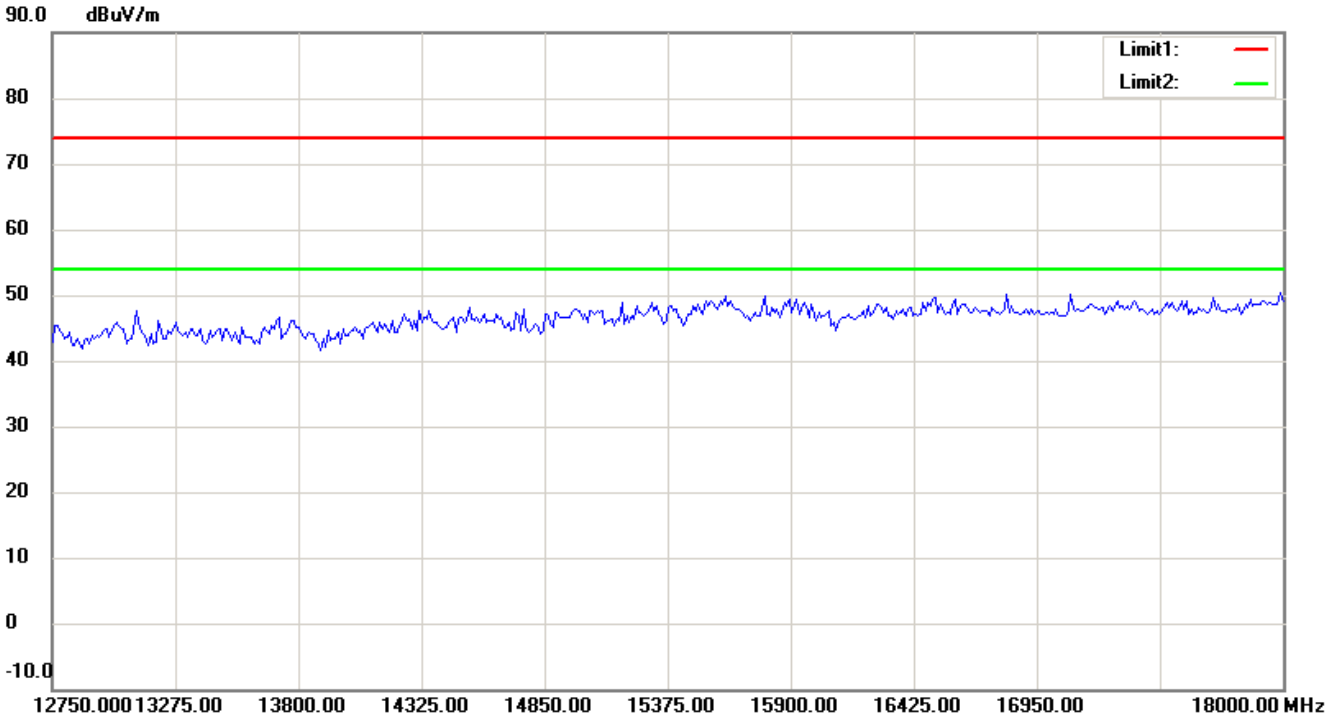
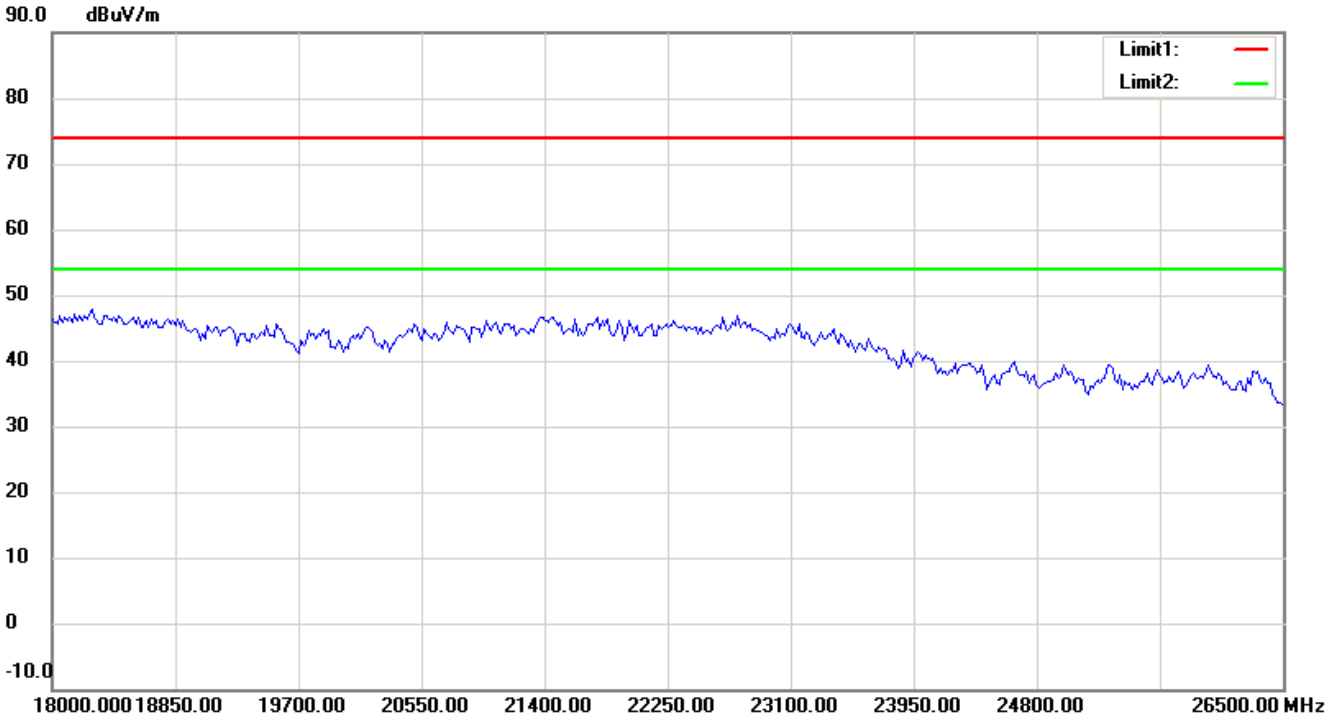
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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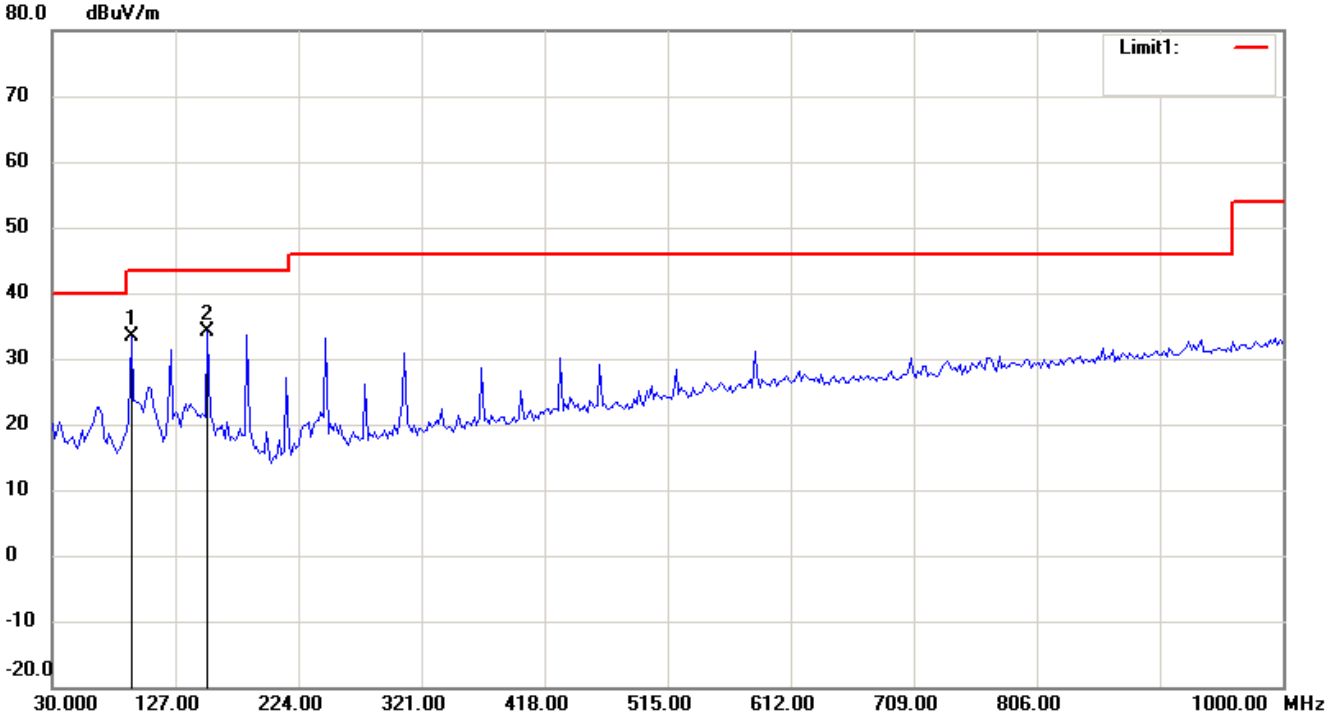
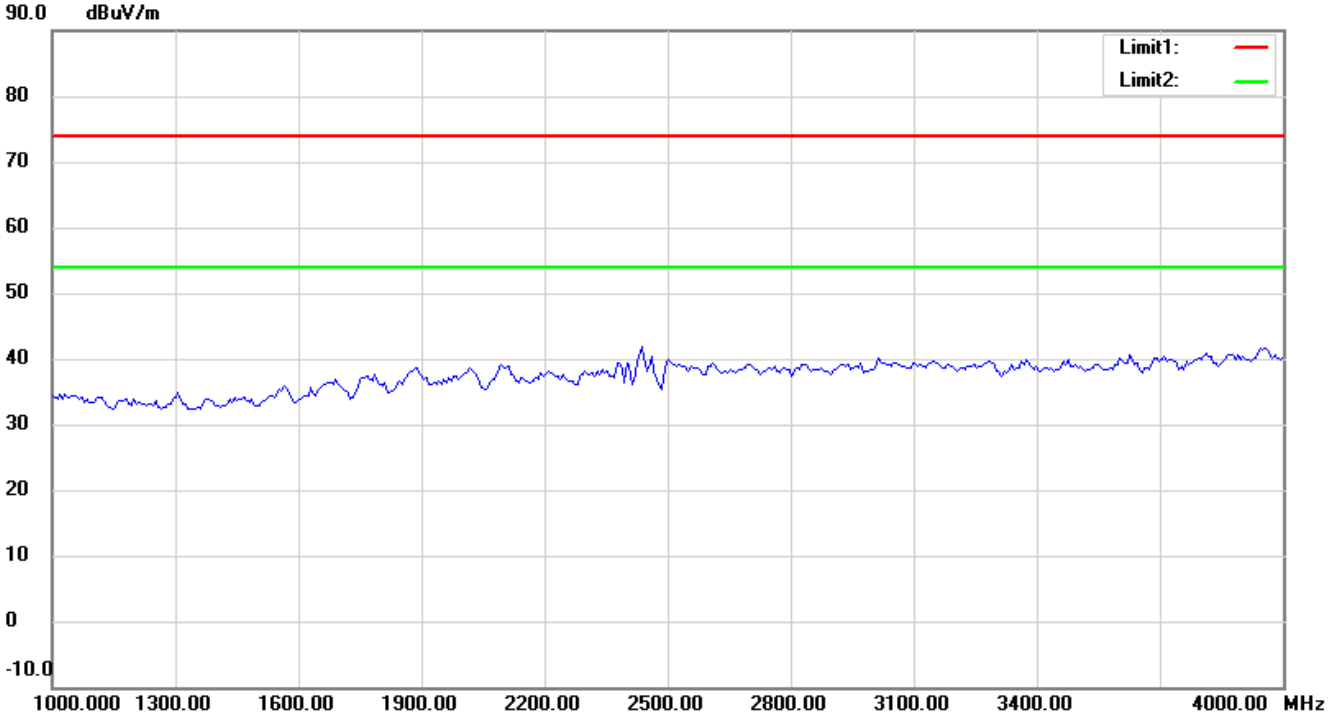
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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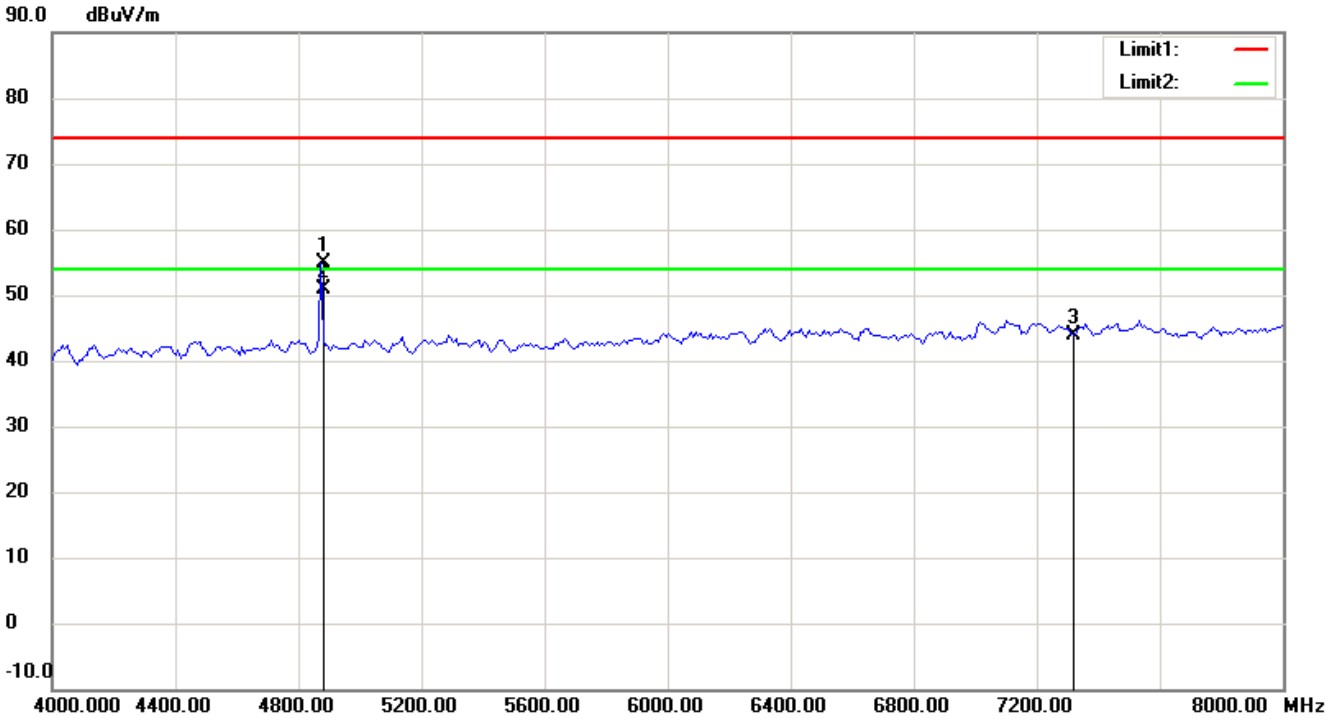
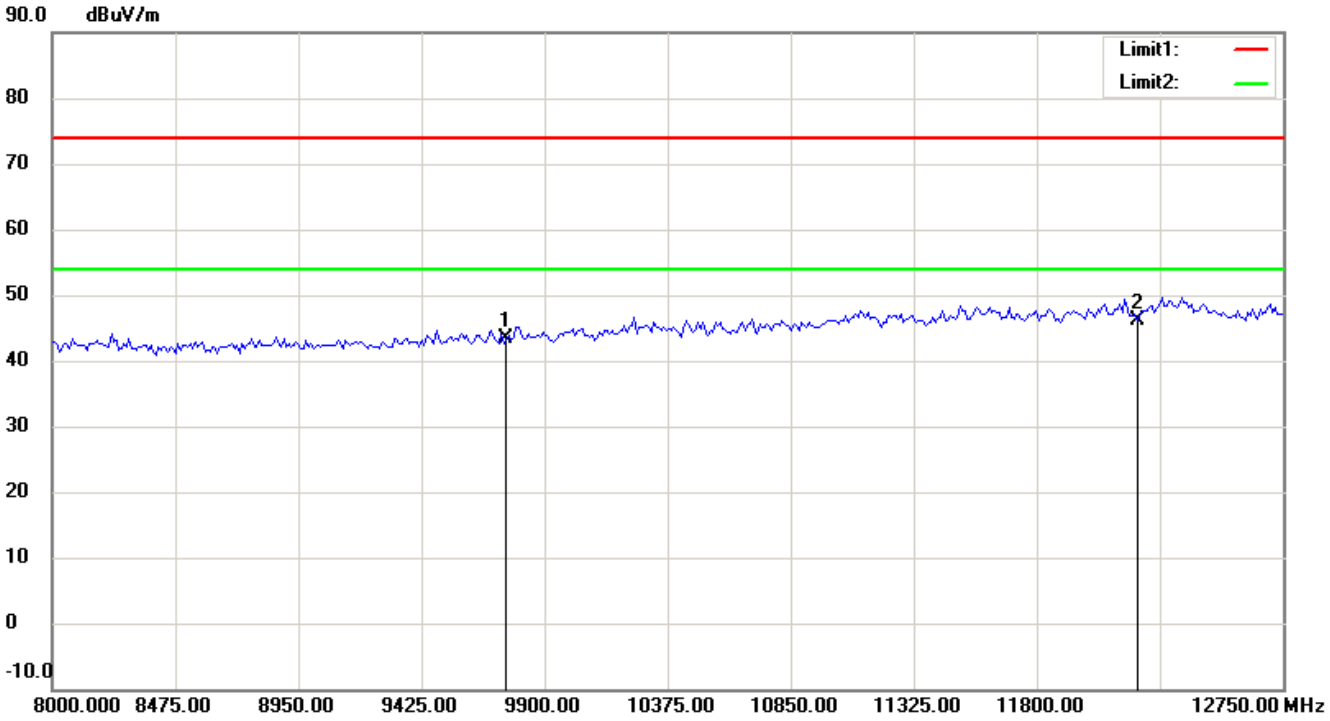
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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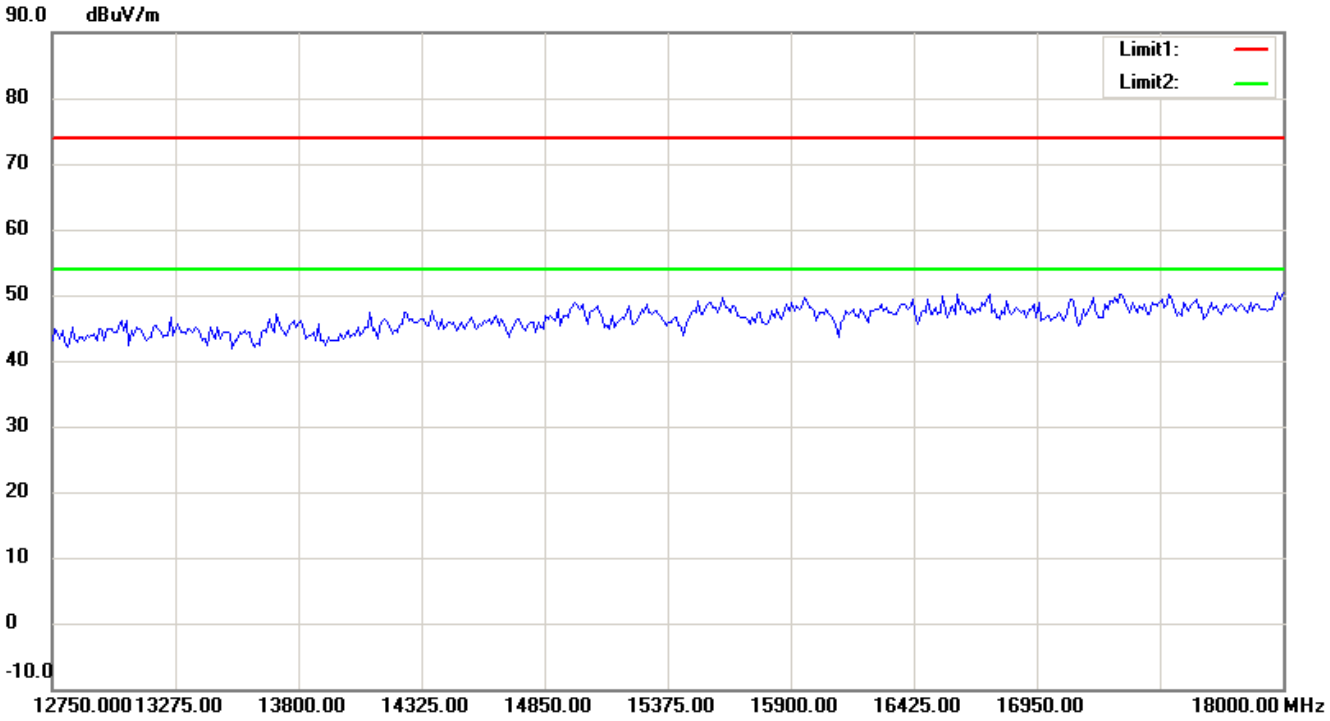
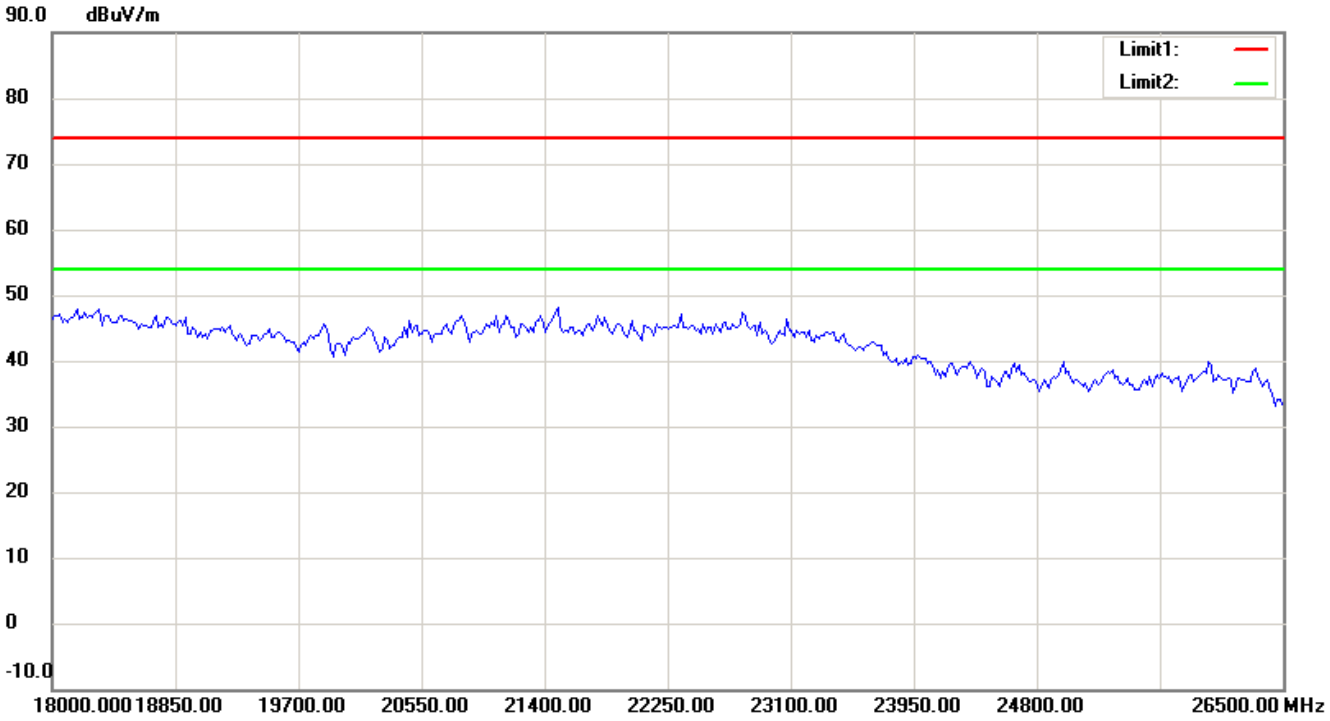
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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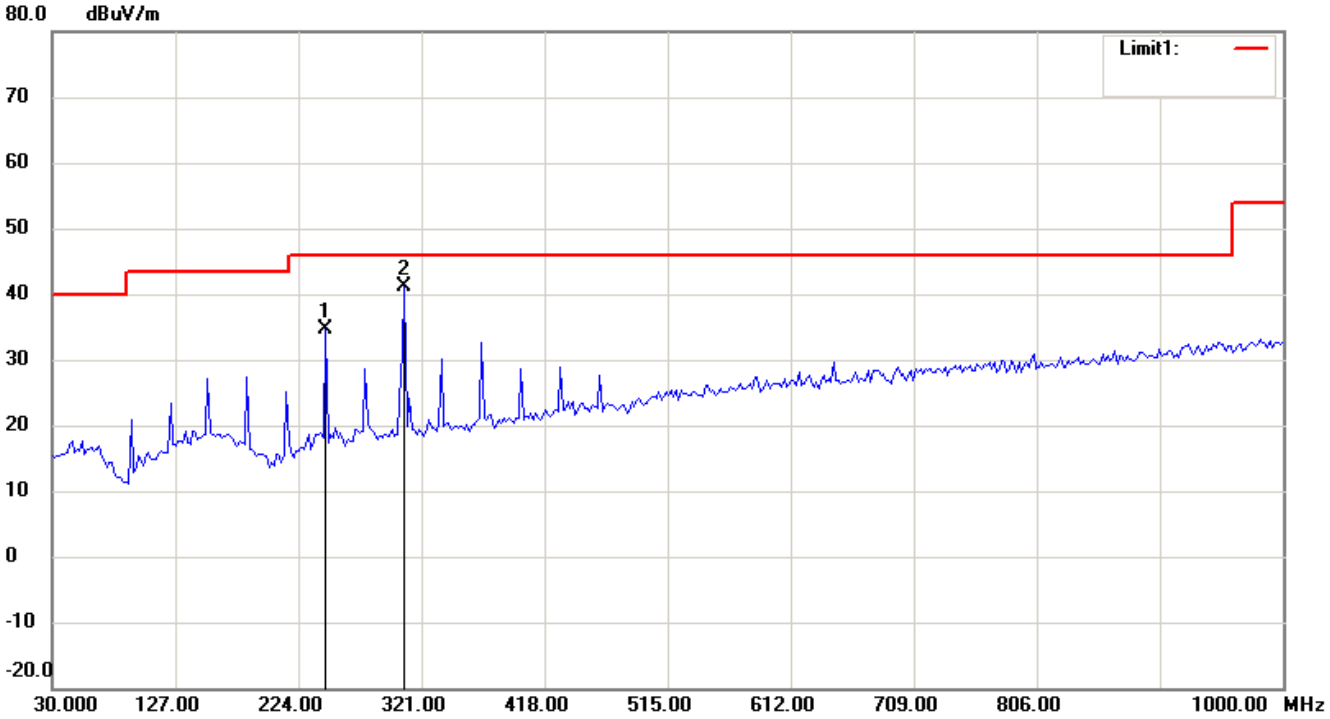
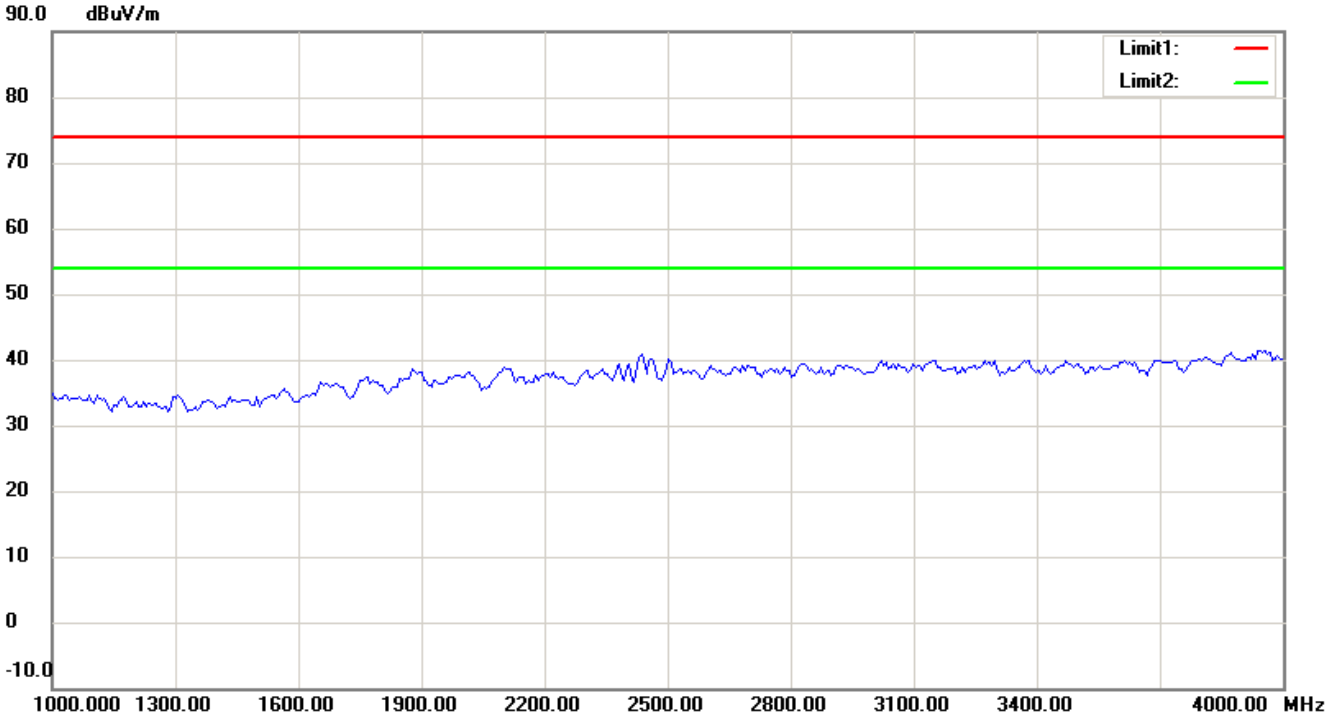
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11b CH11

Antenna Polarization H





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

Note:

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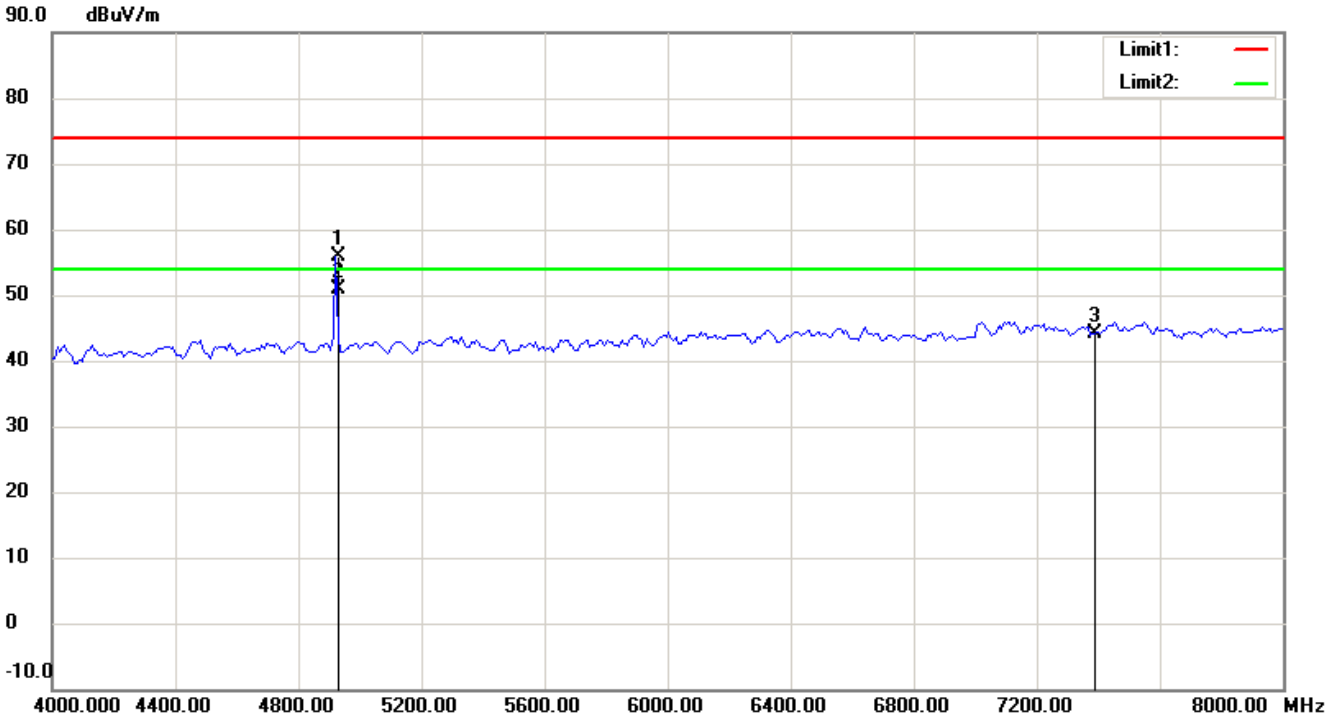

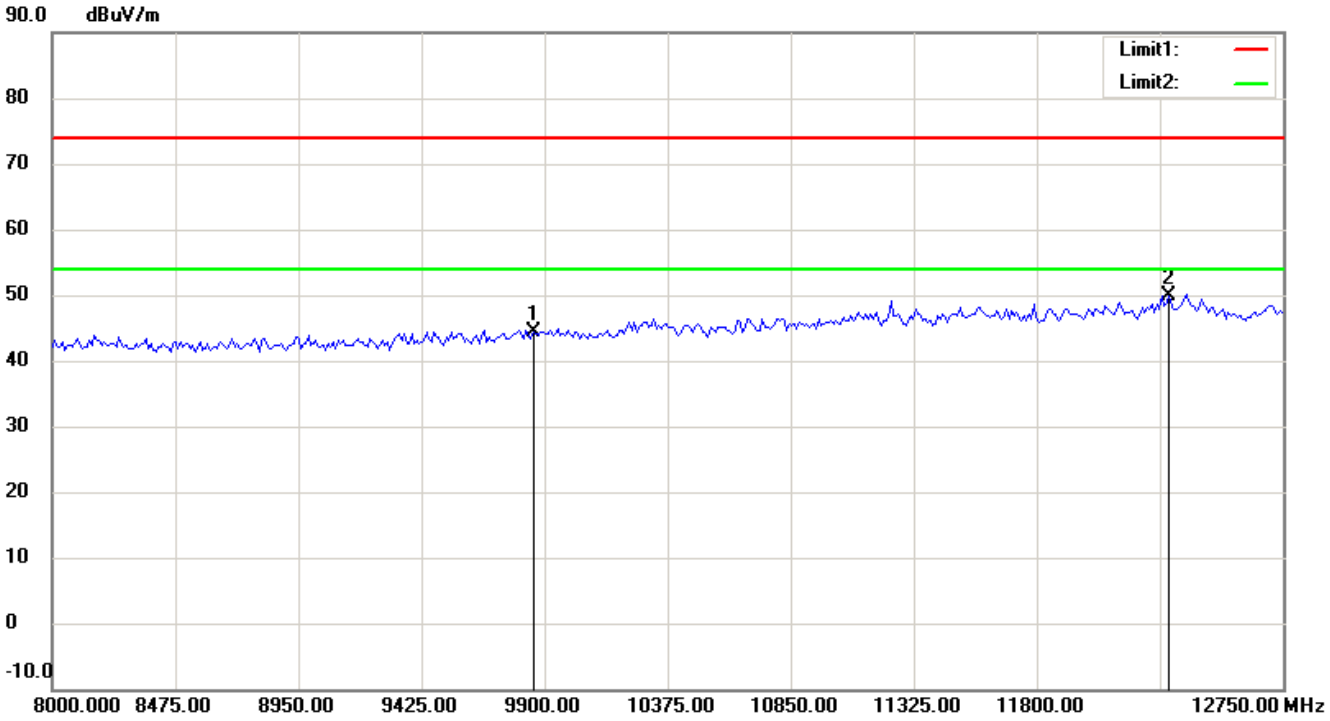

Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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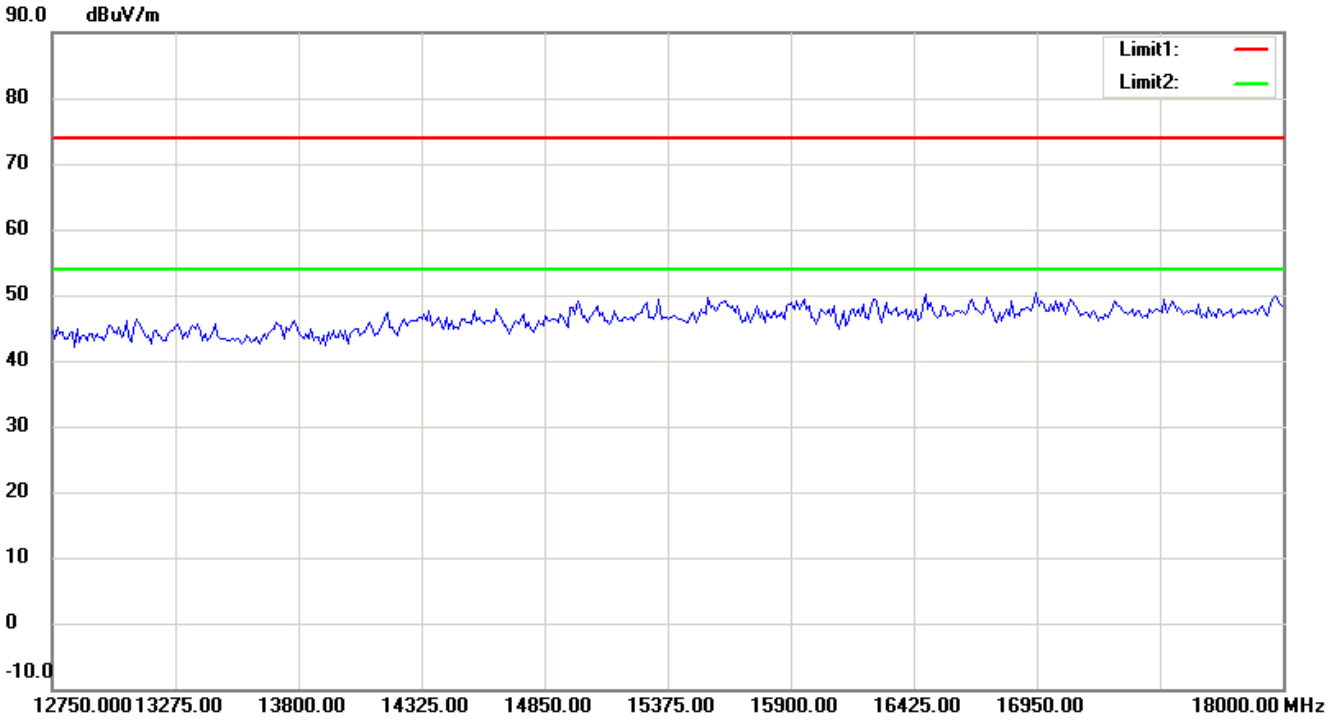
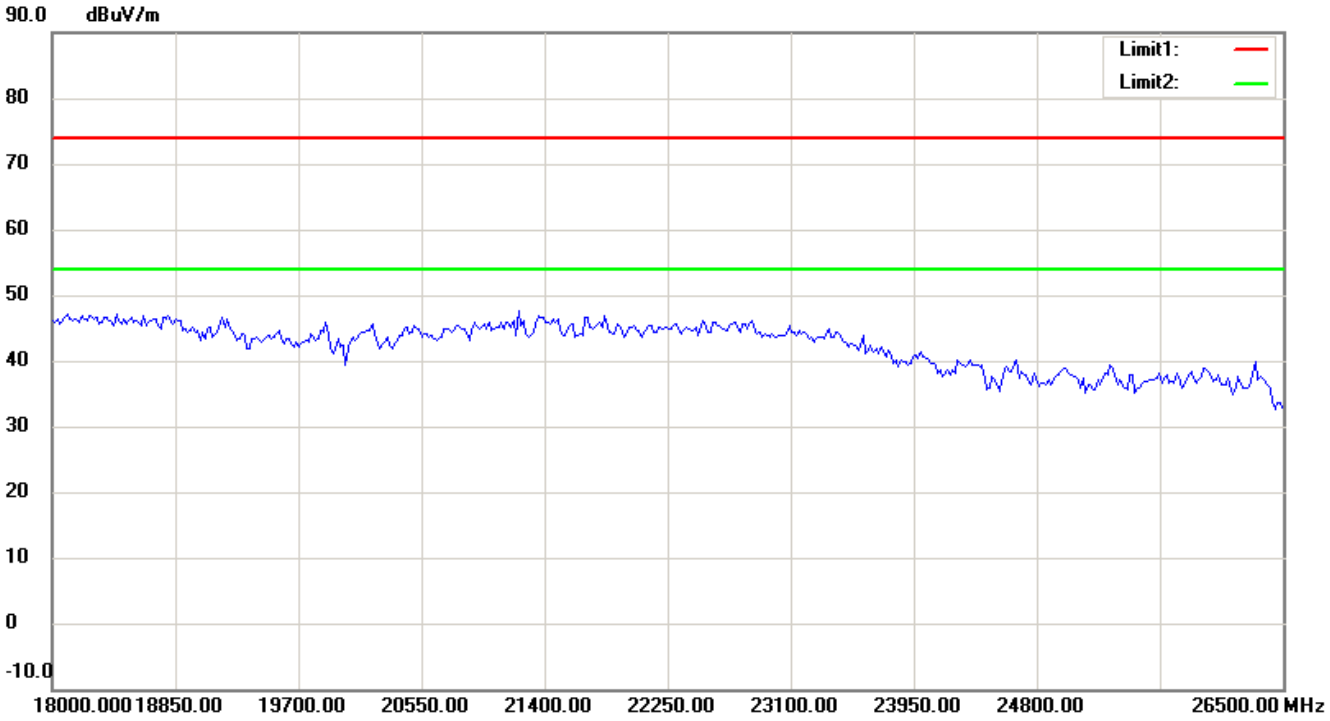
FCC ID: IR5DF7A





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
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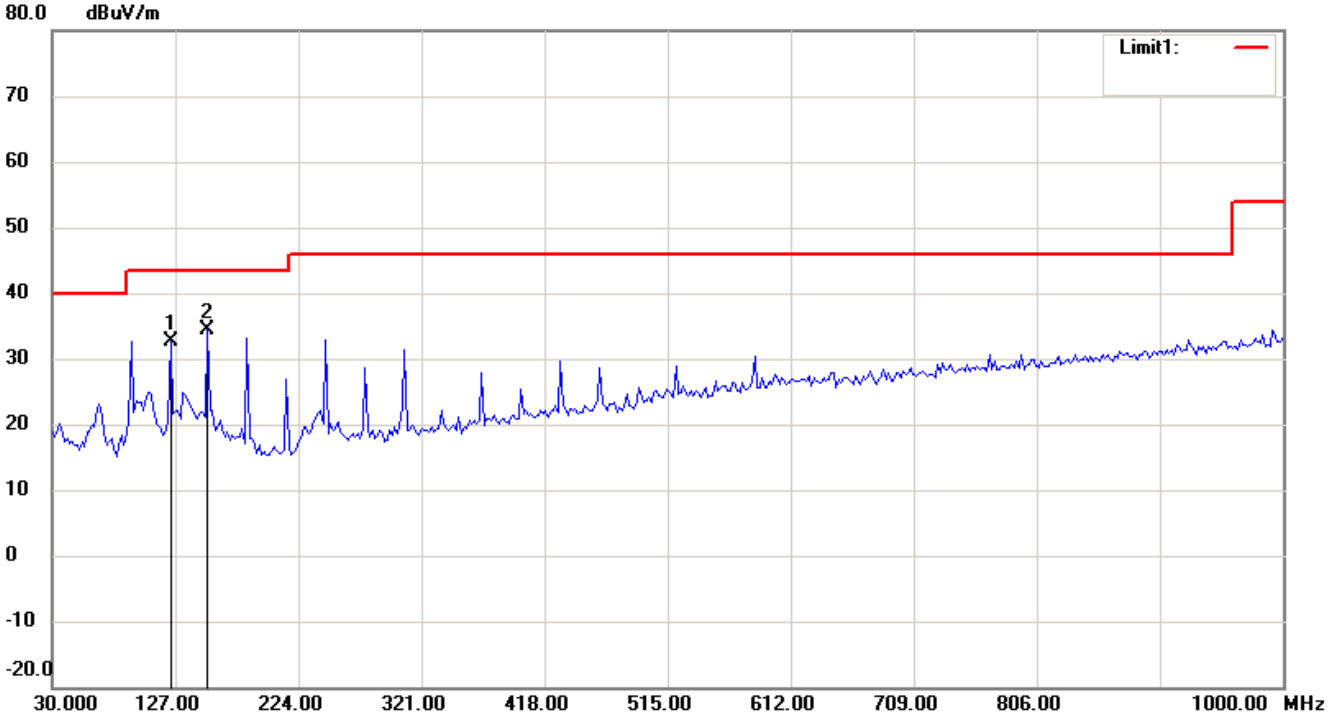
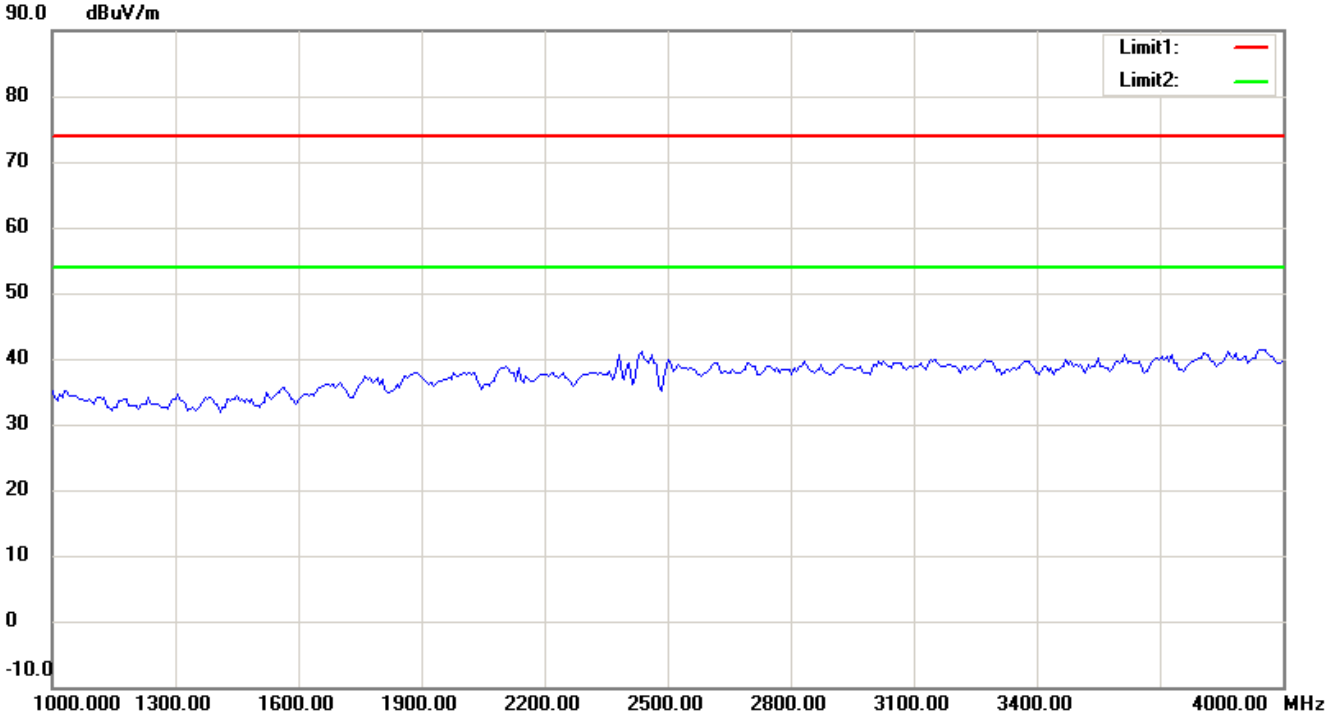
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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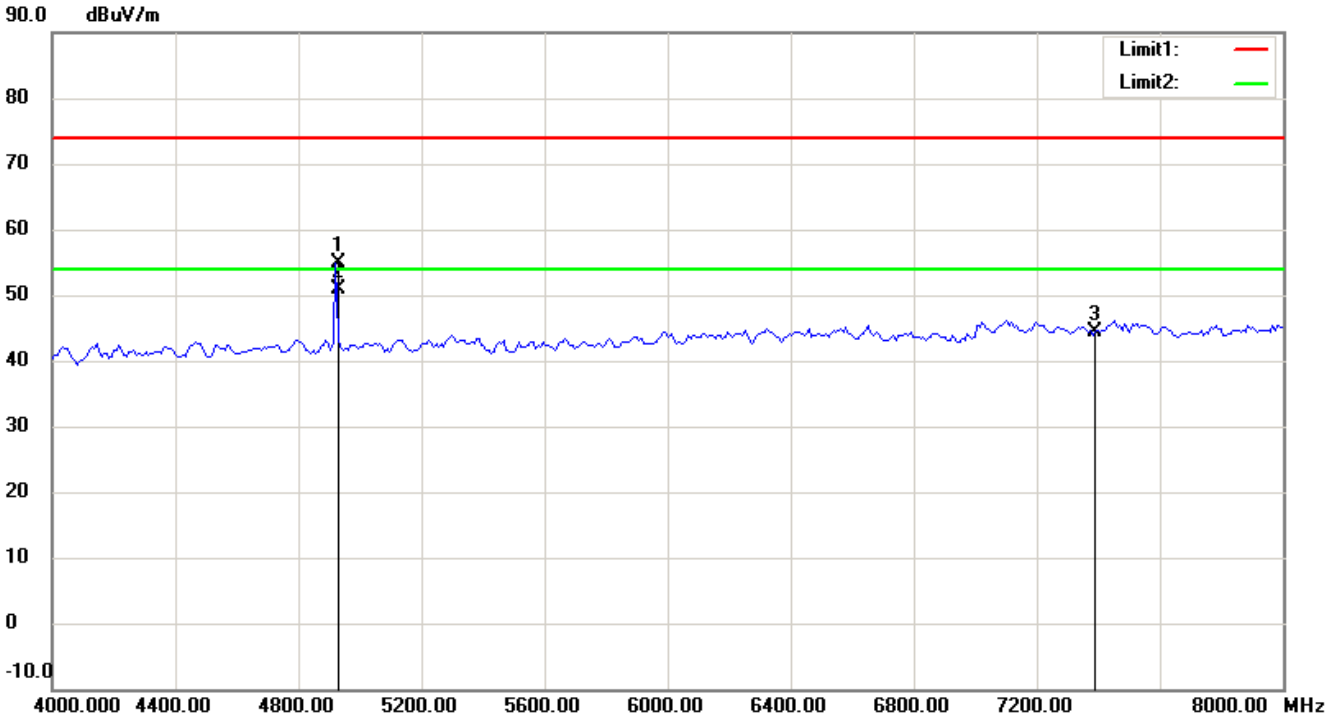

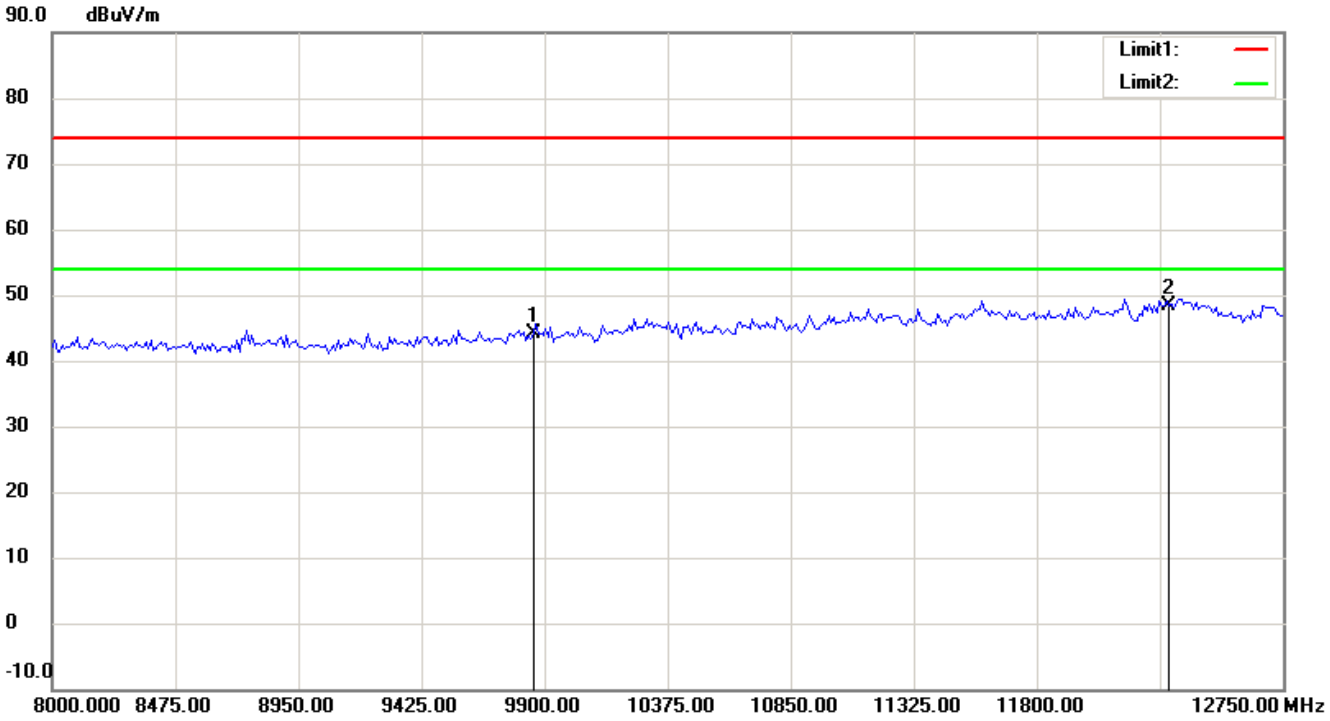

Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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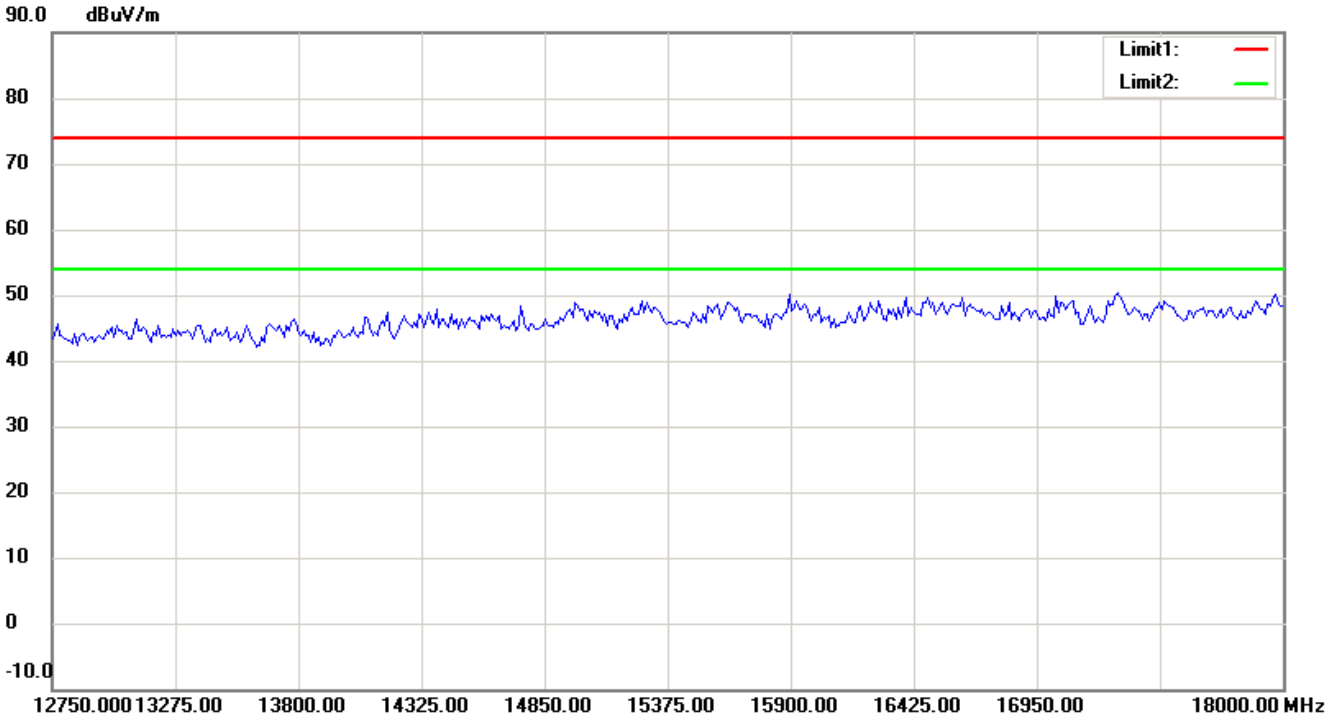
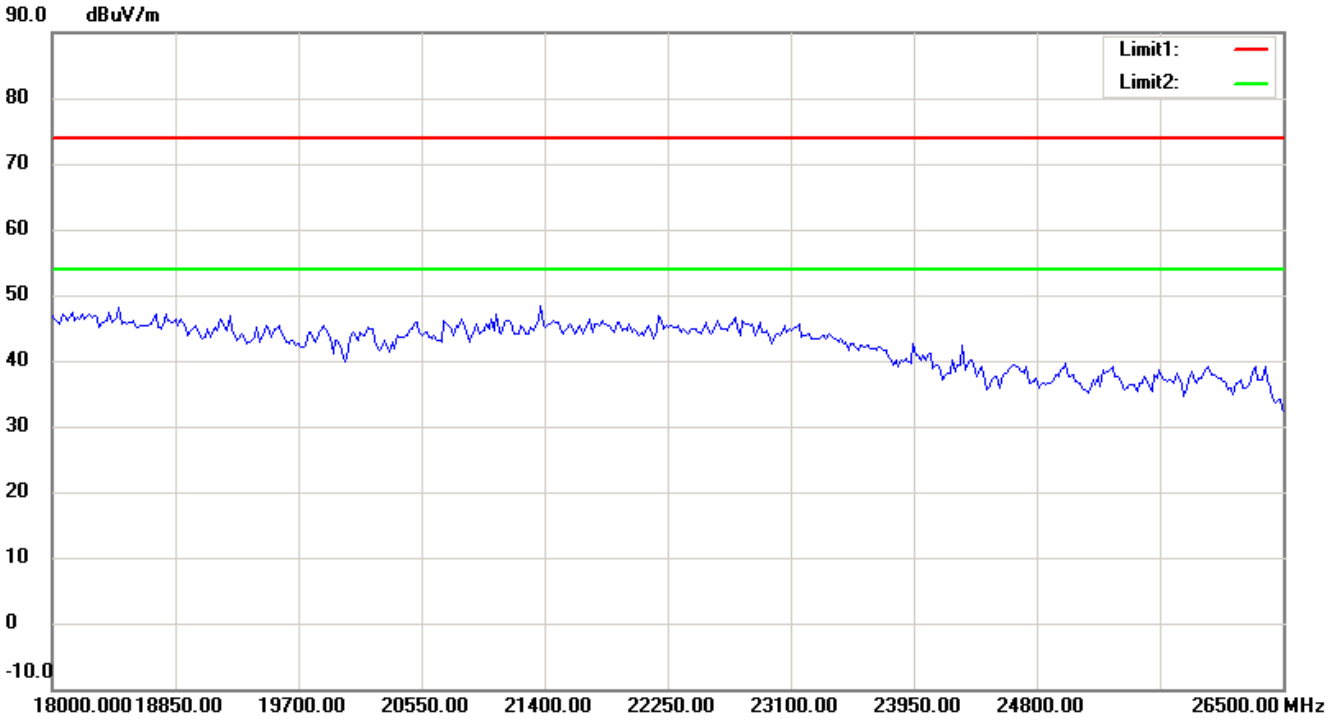
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
2. **The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.**
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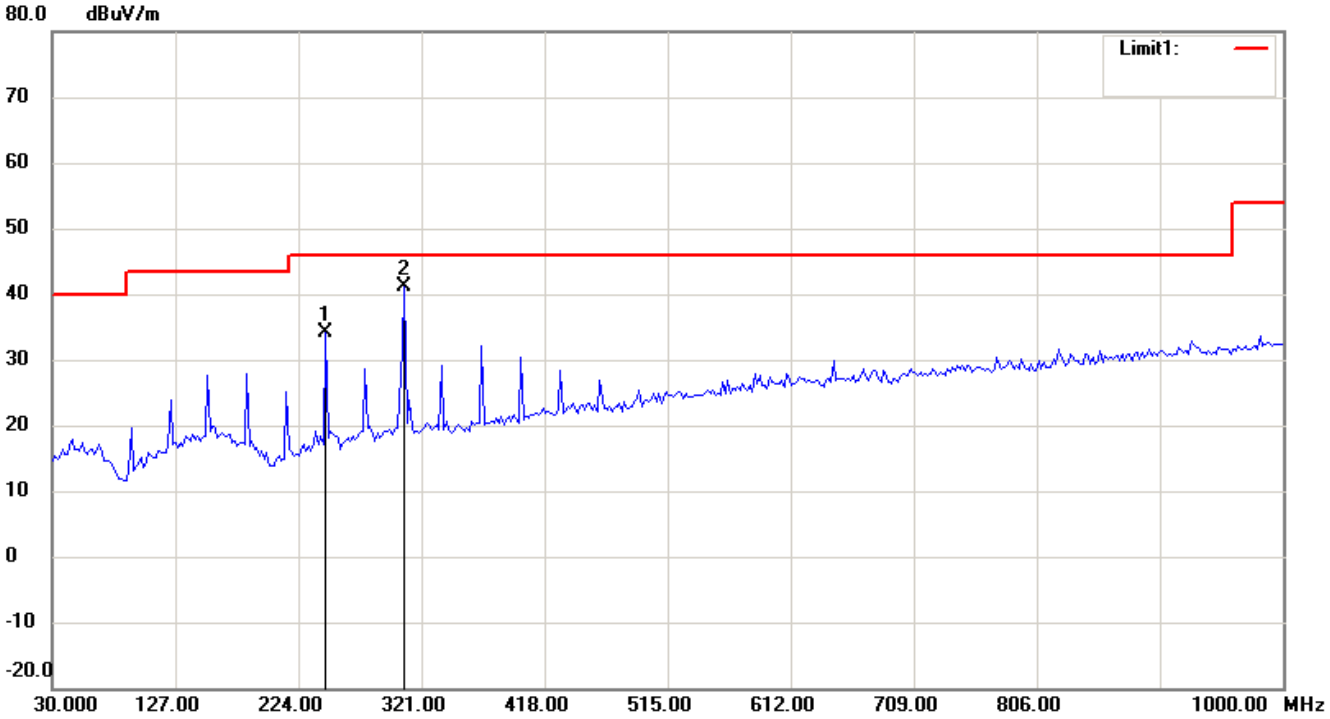
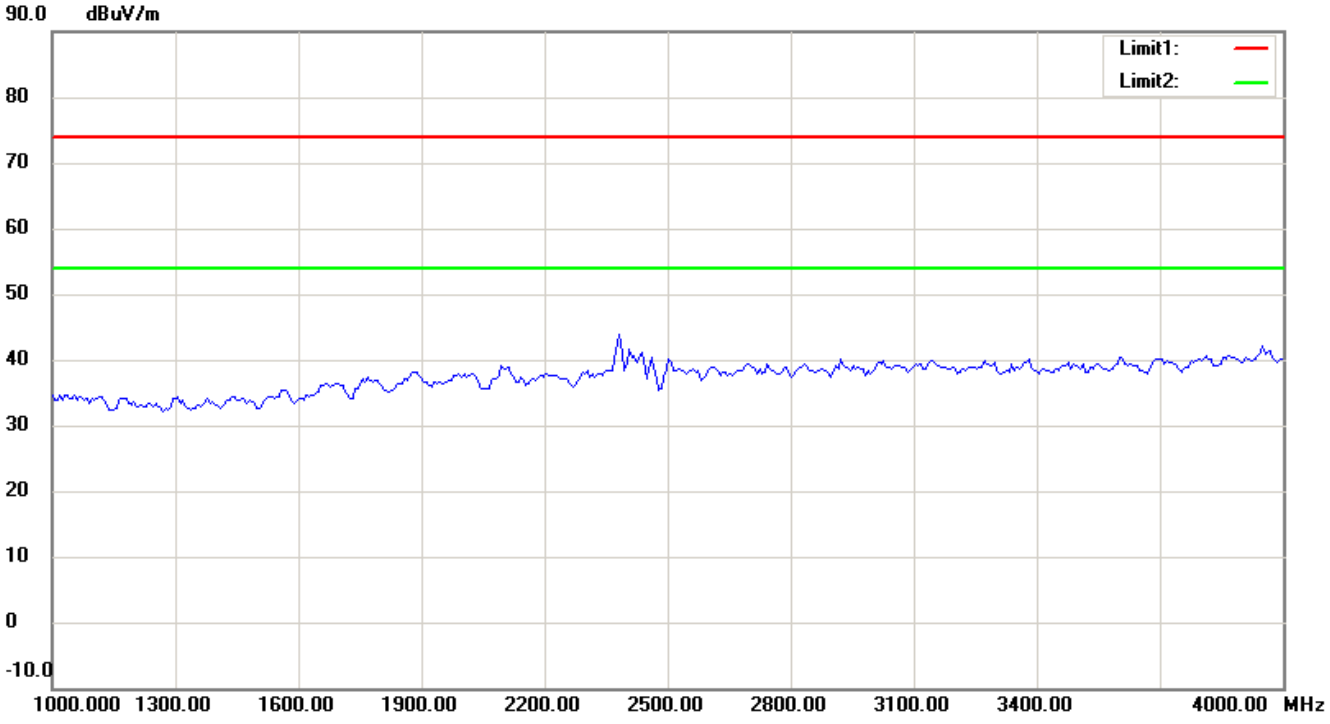
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11g CH1

Antenna Polarization H





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

Note:

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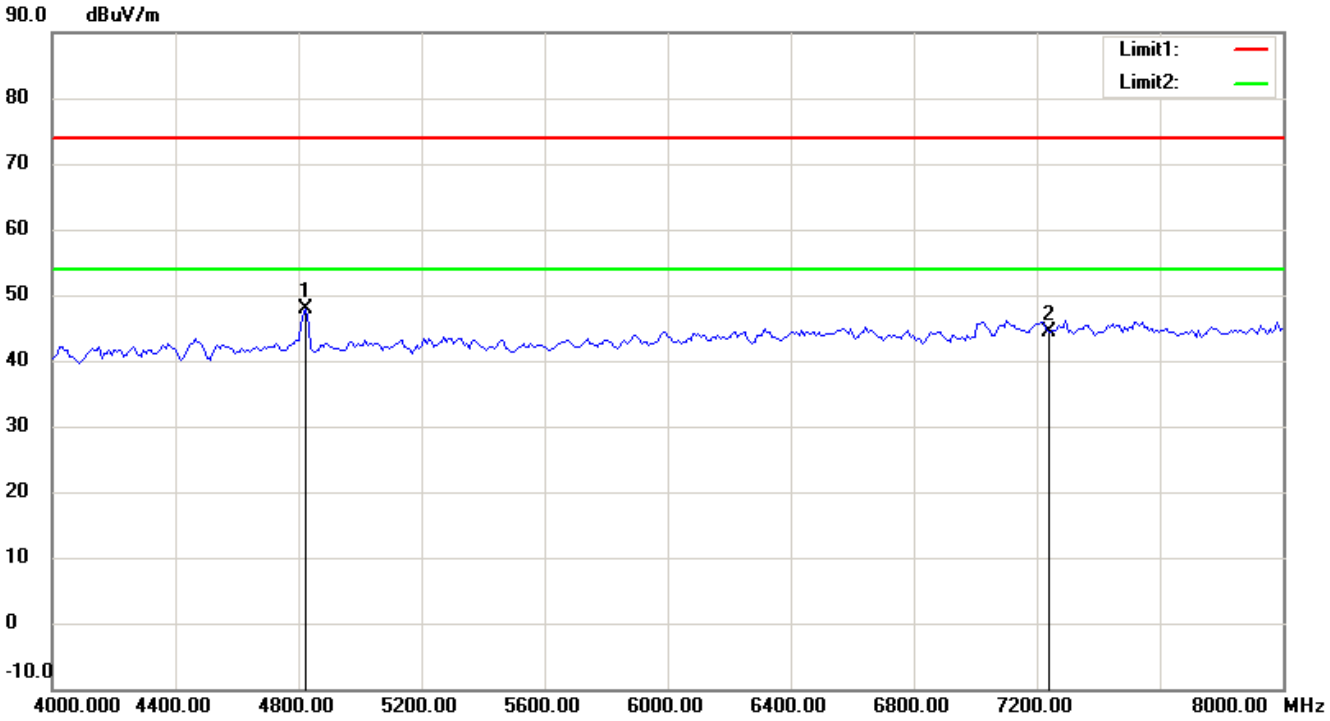
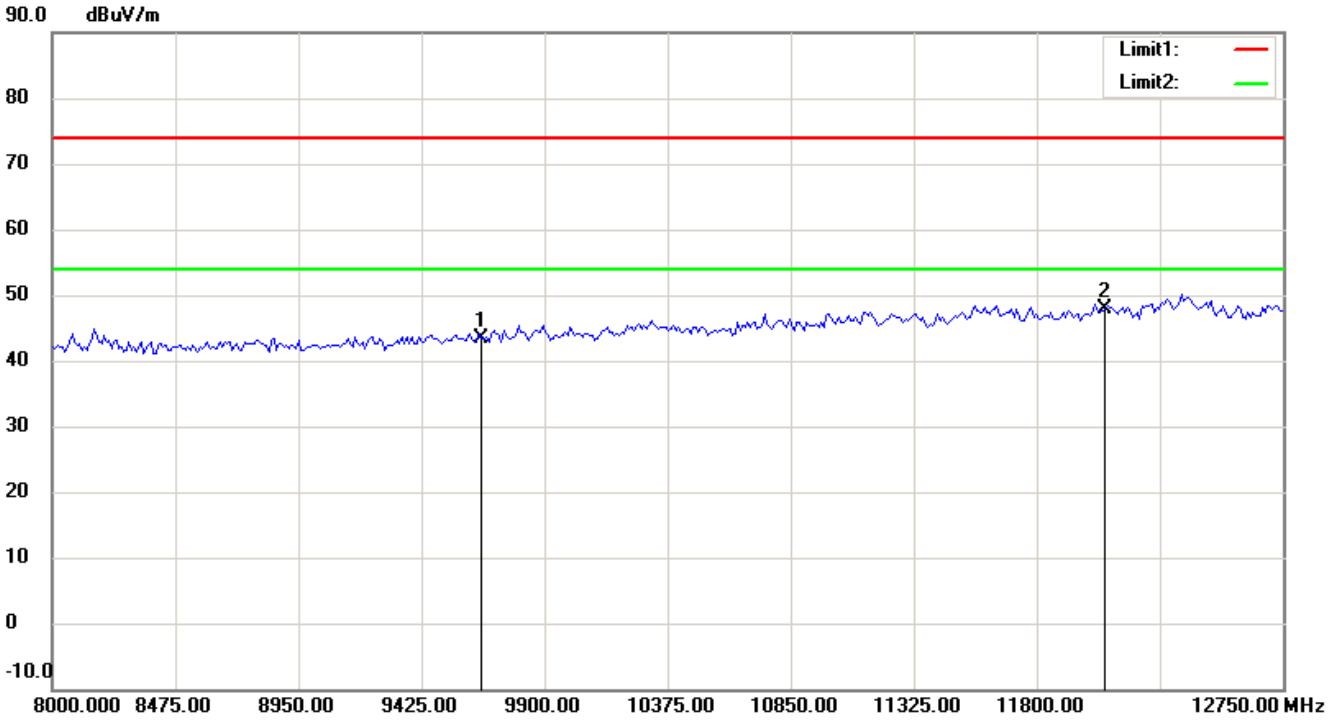
FCC ID: IR5DF7A





Up Line: Peak Limit Line Down Line: Ave Limit Line
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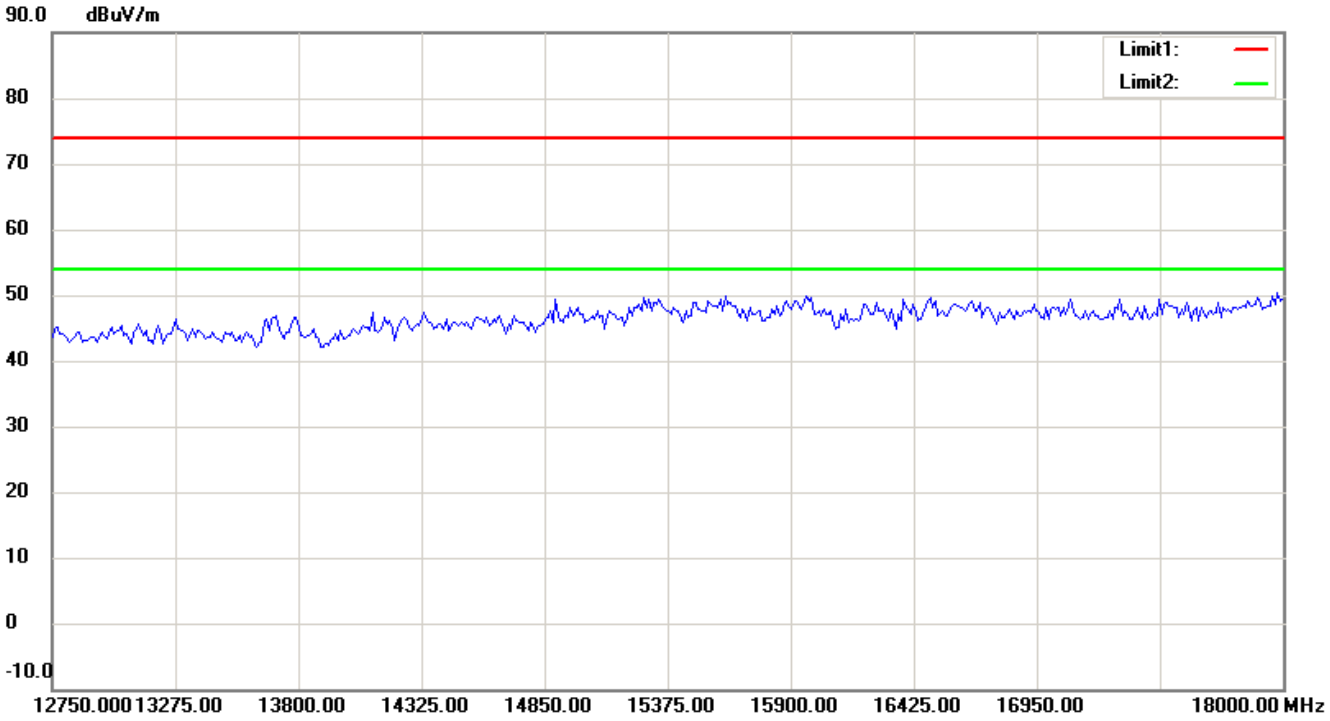
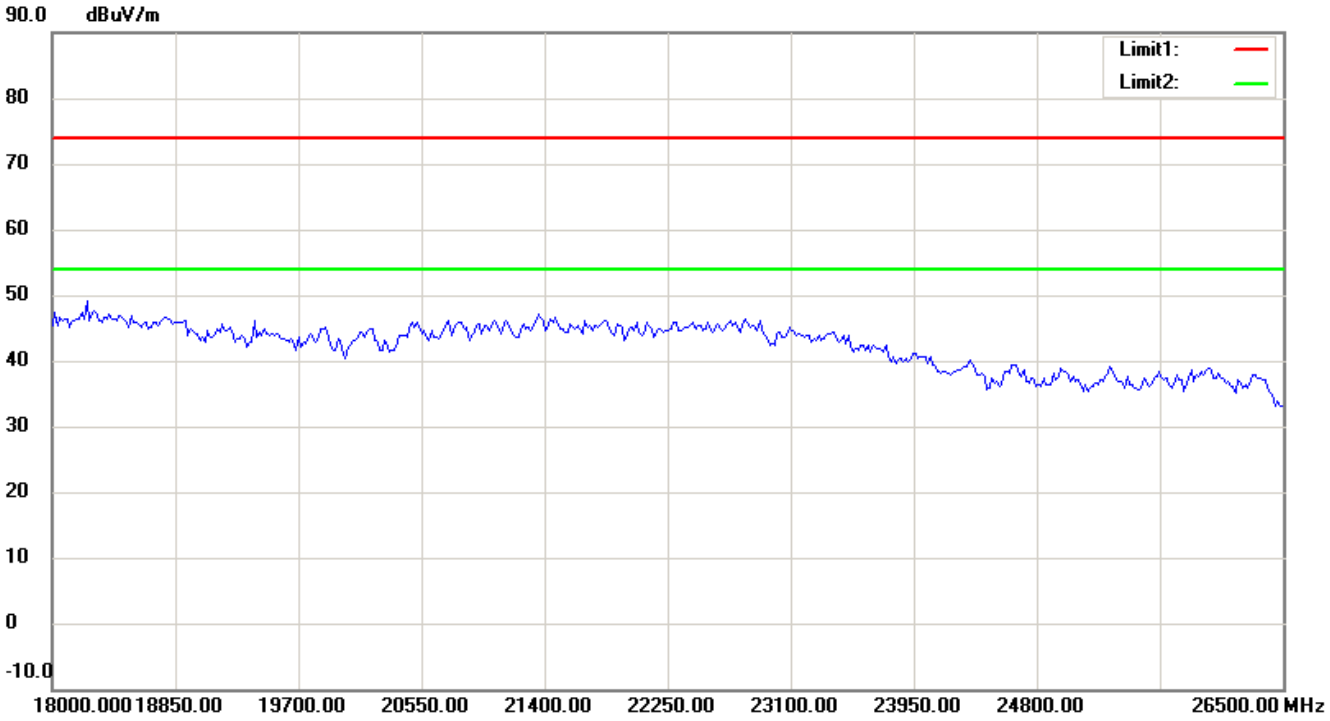
FCC ID: IR5DF7A





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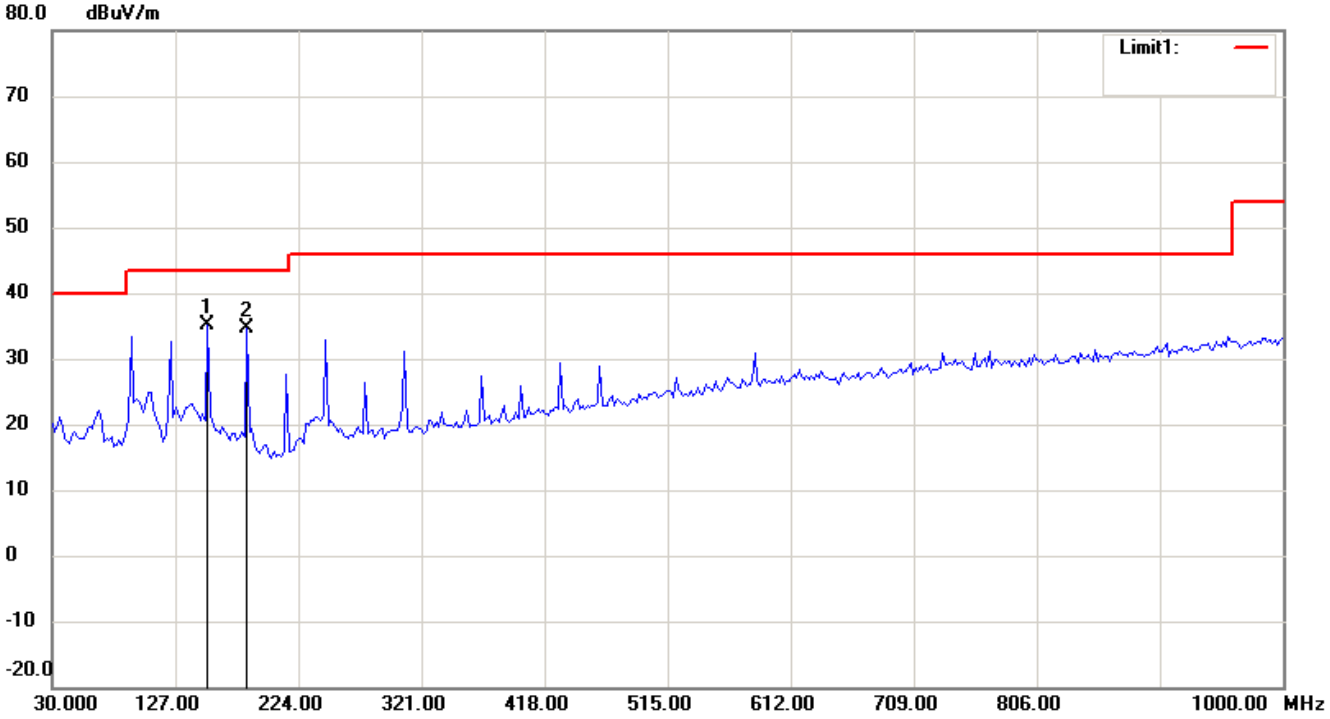
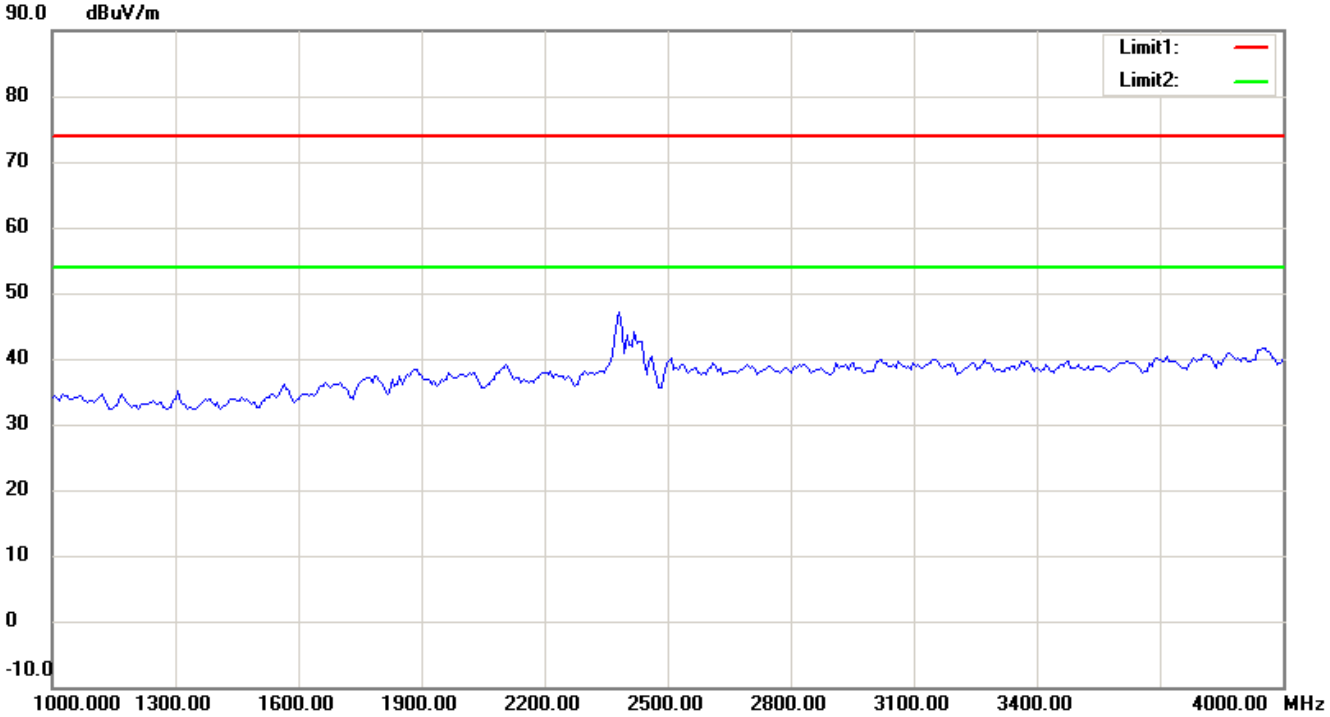
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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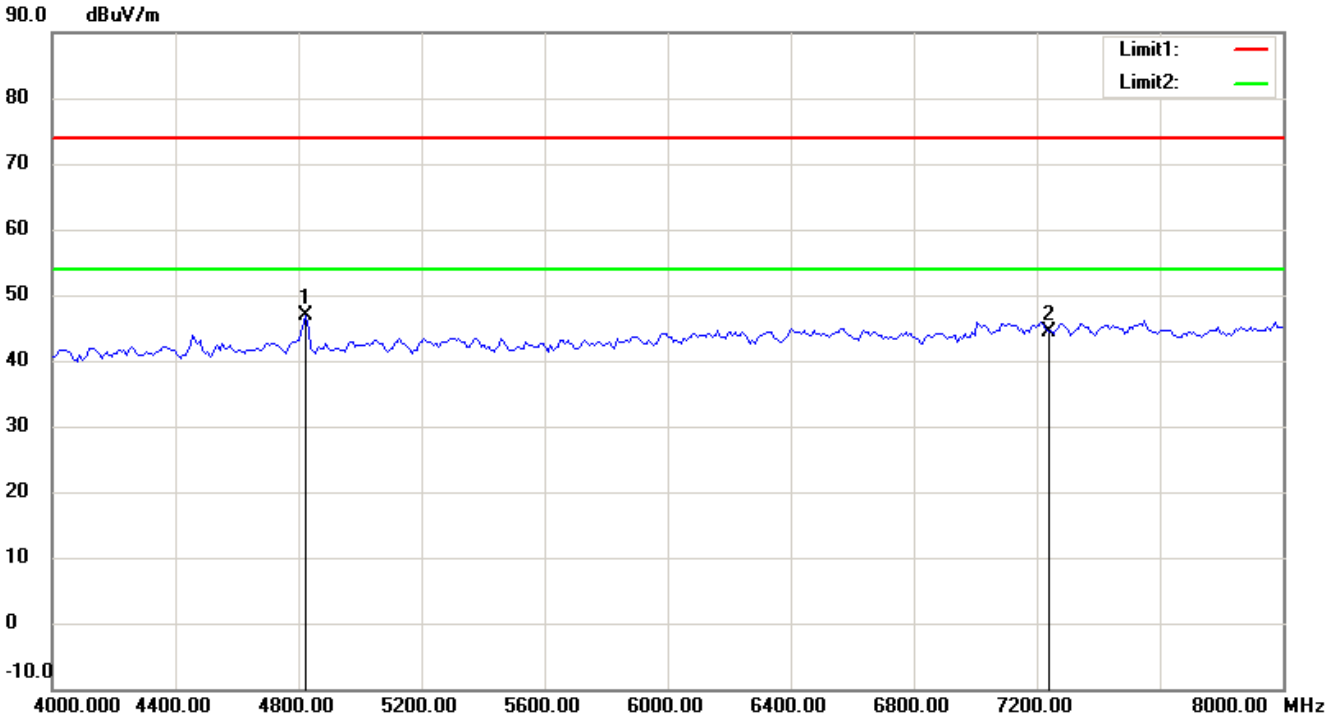
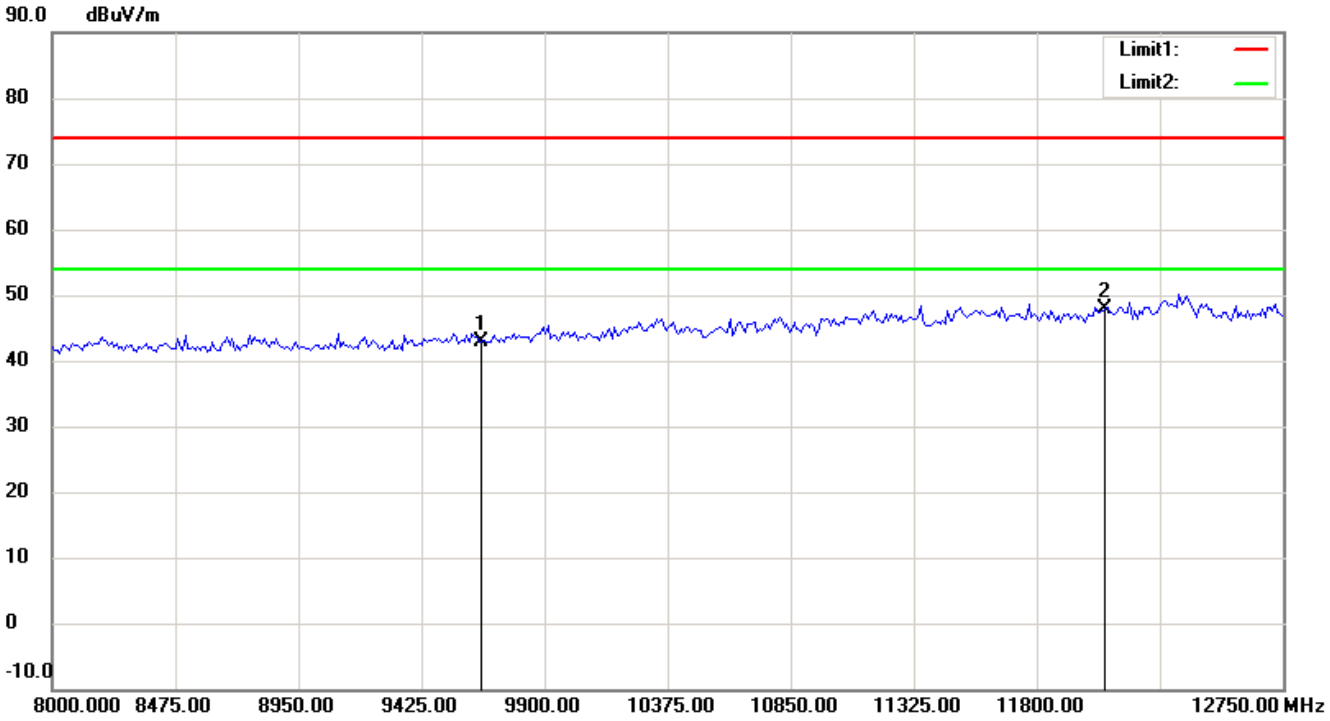
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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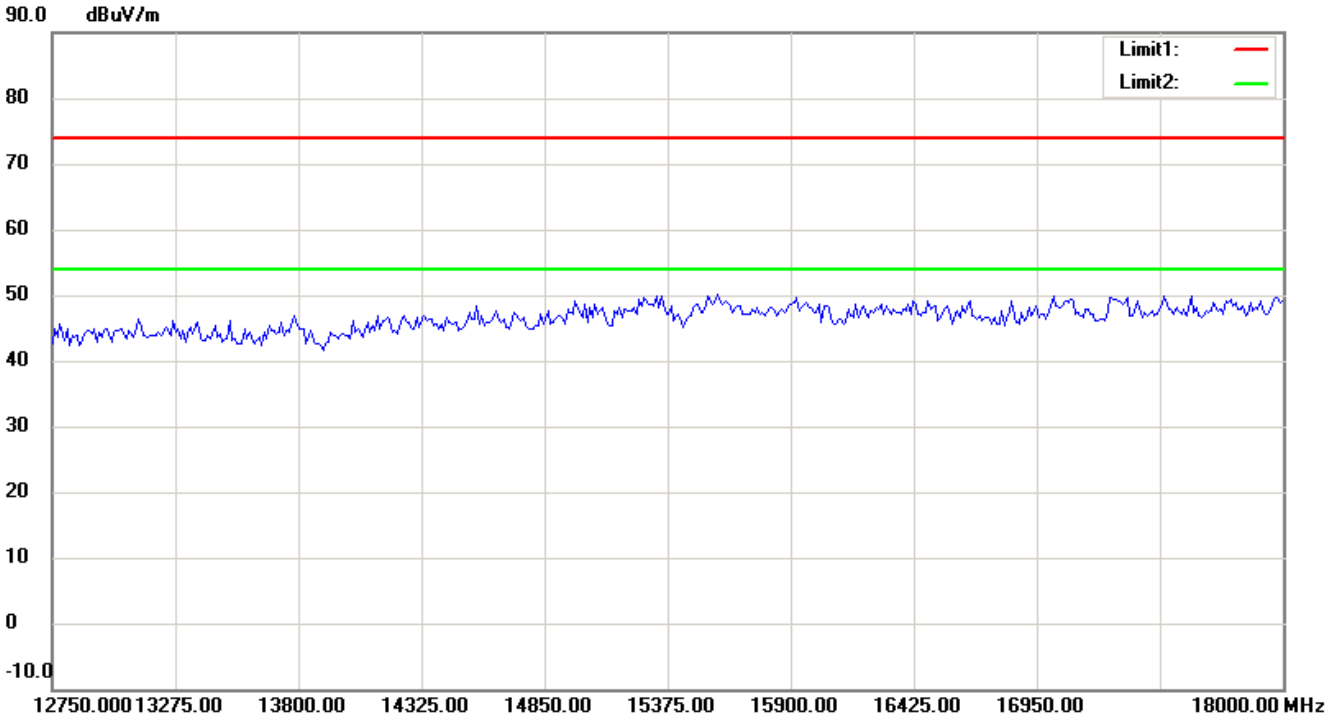
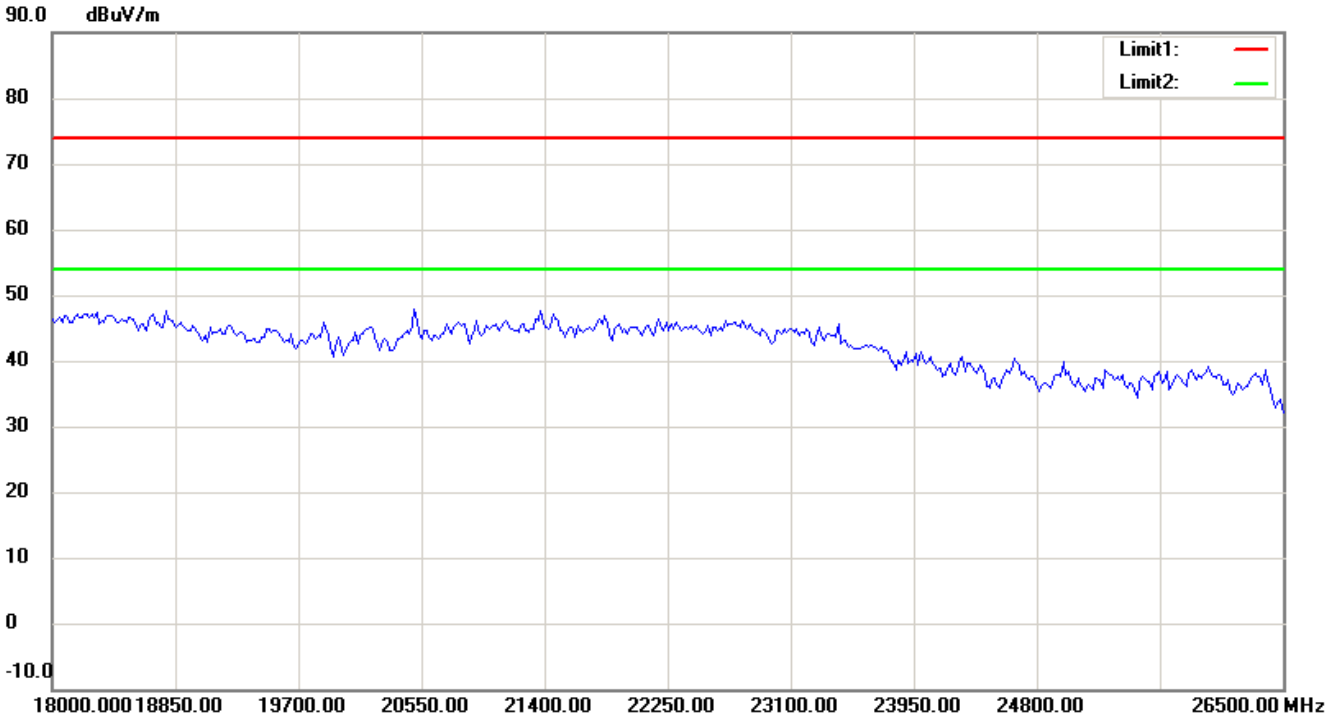
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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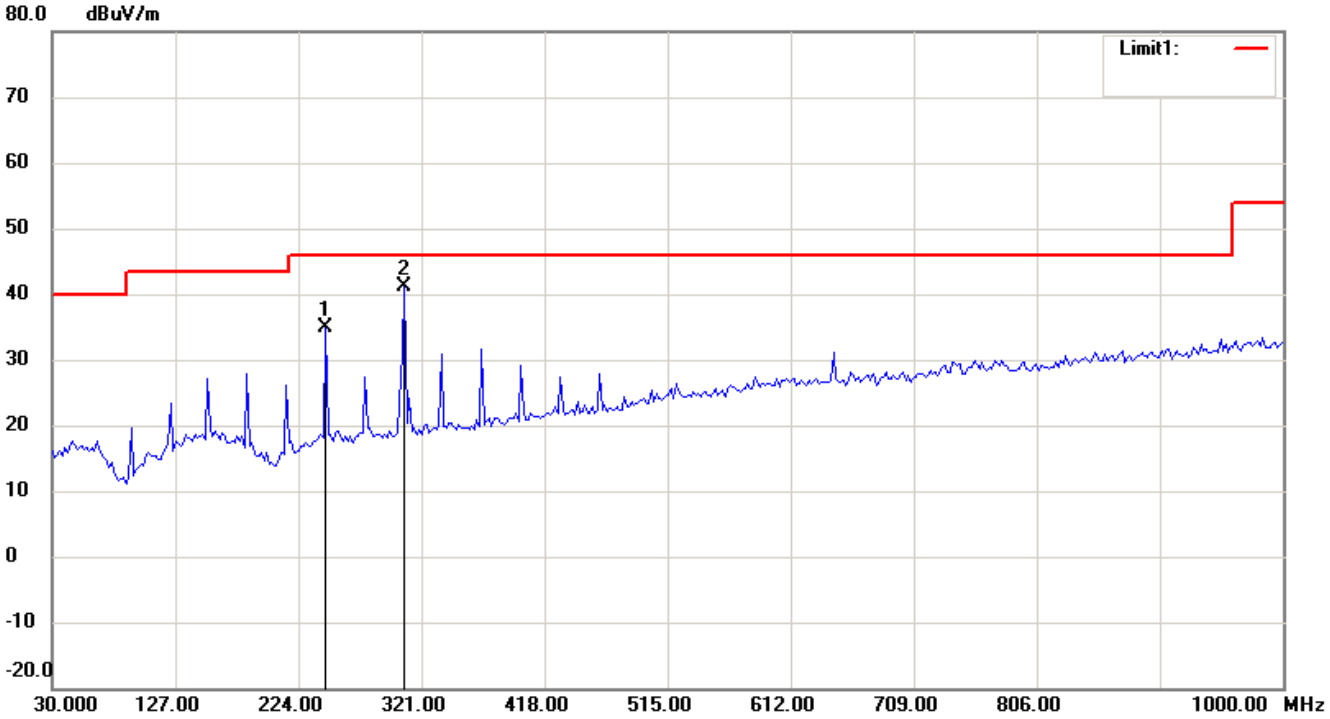
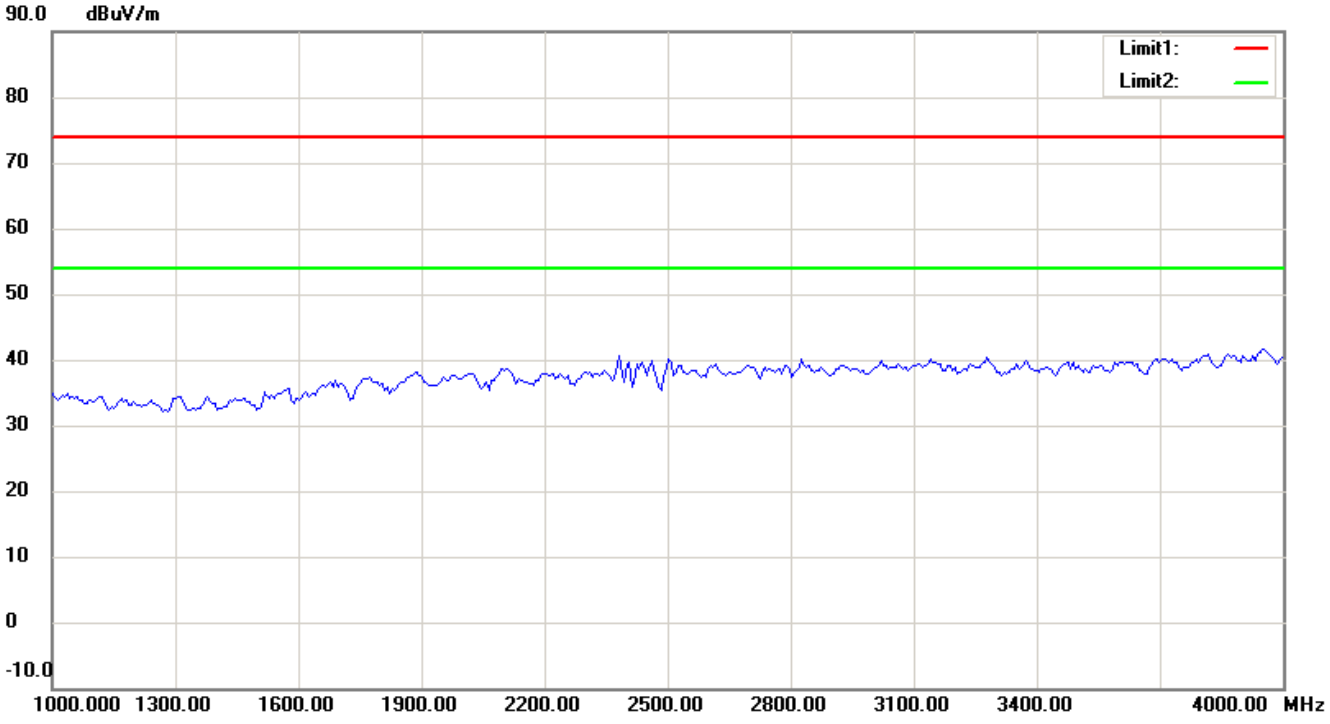
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11g CH6

Antenna Polarization H





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

Note:

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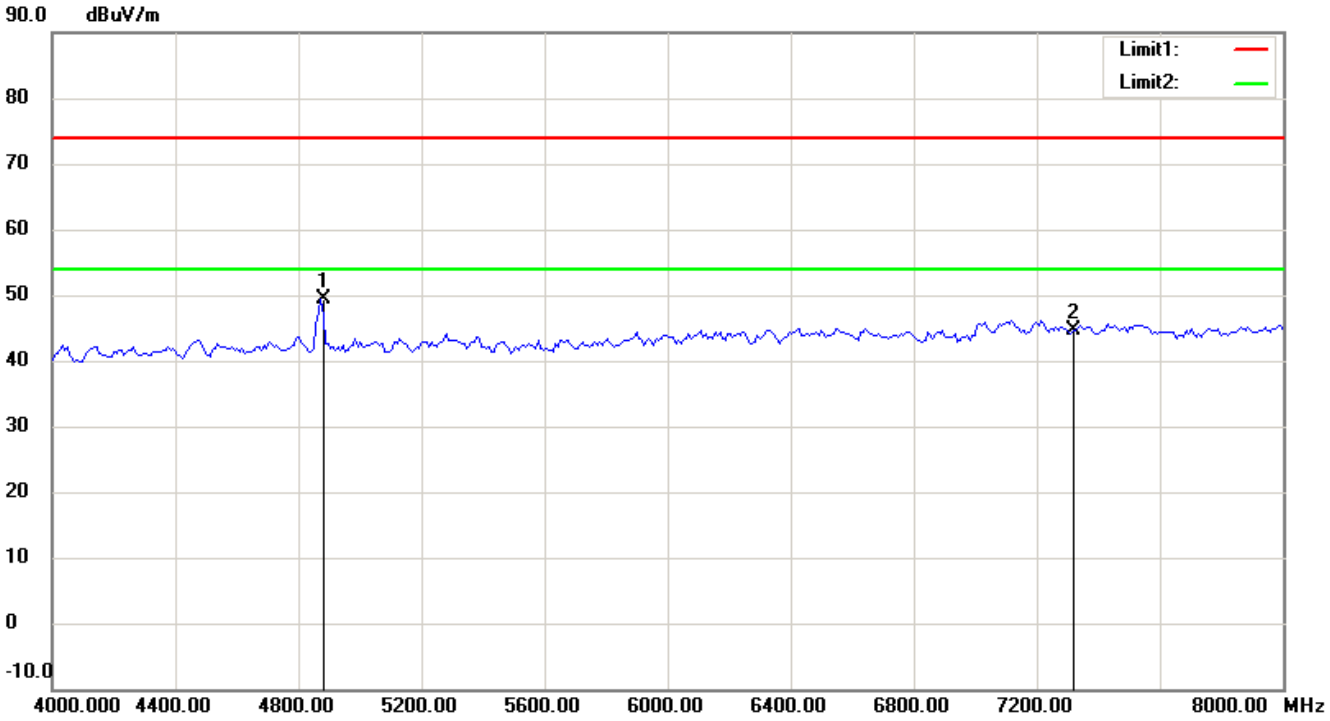
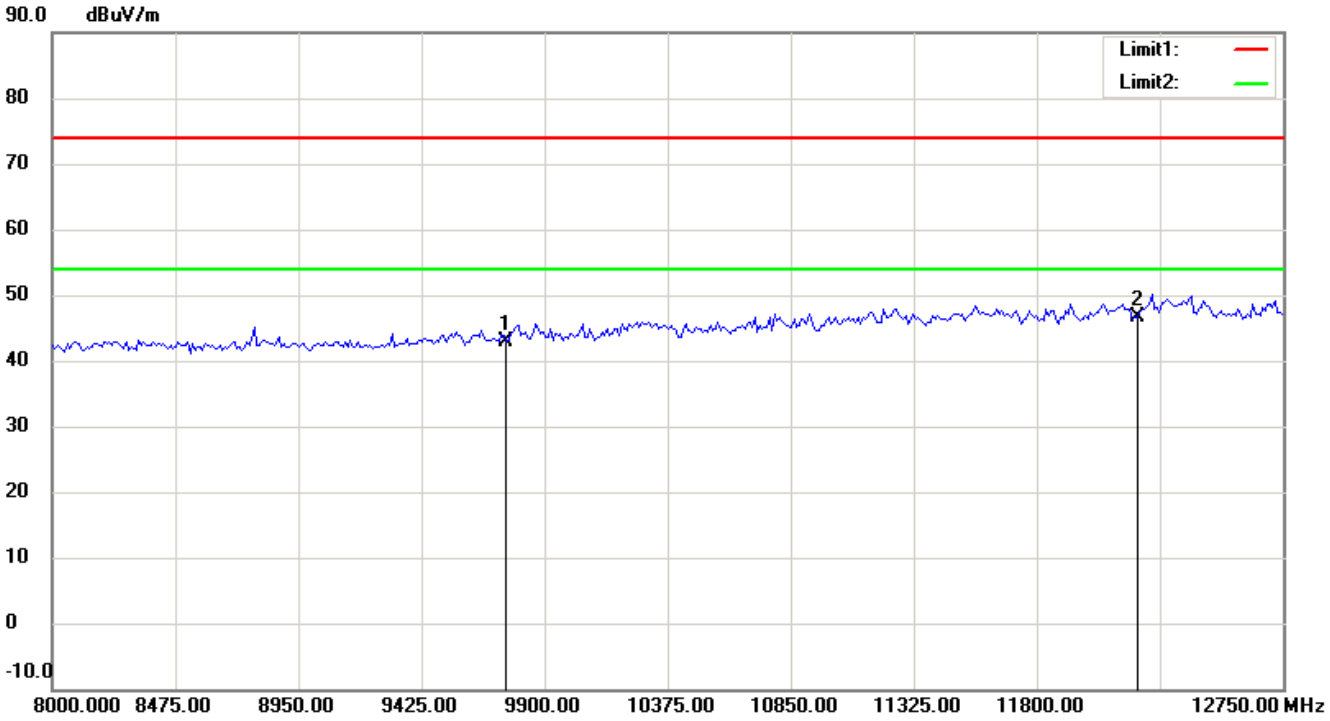
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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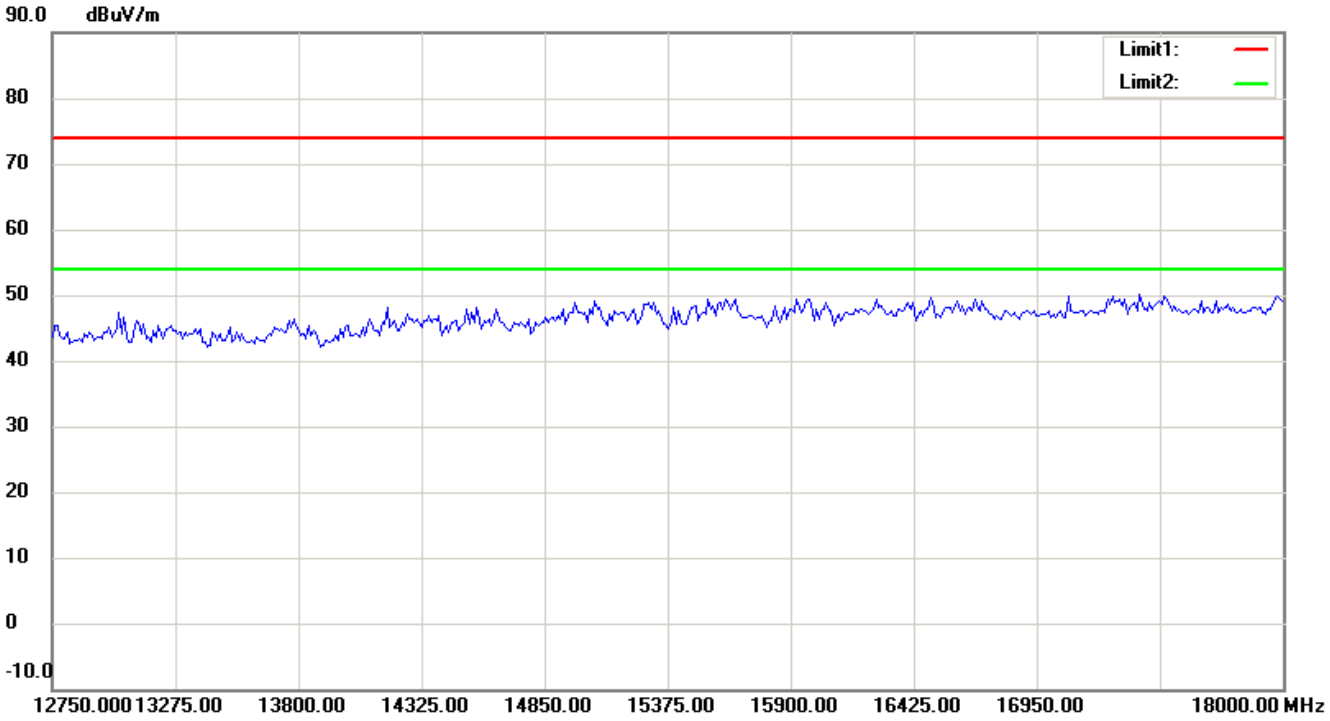
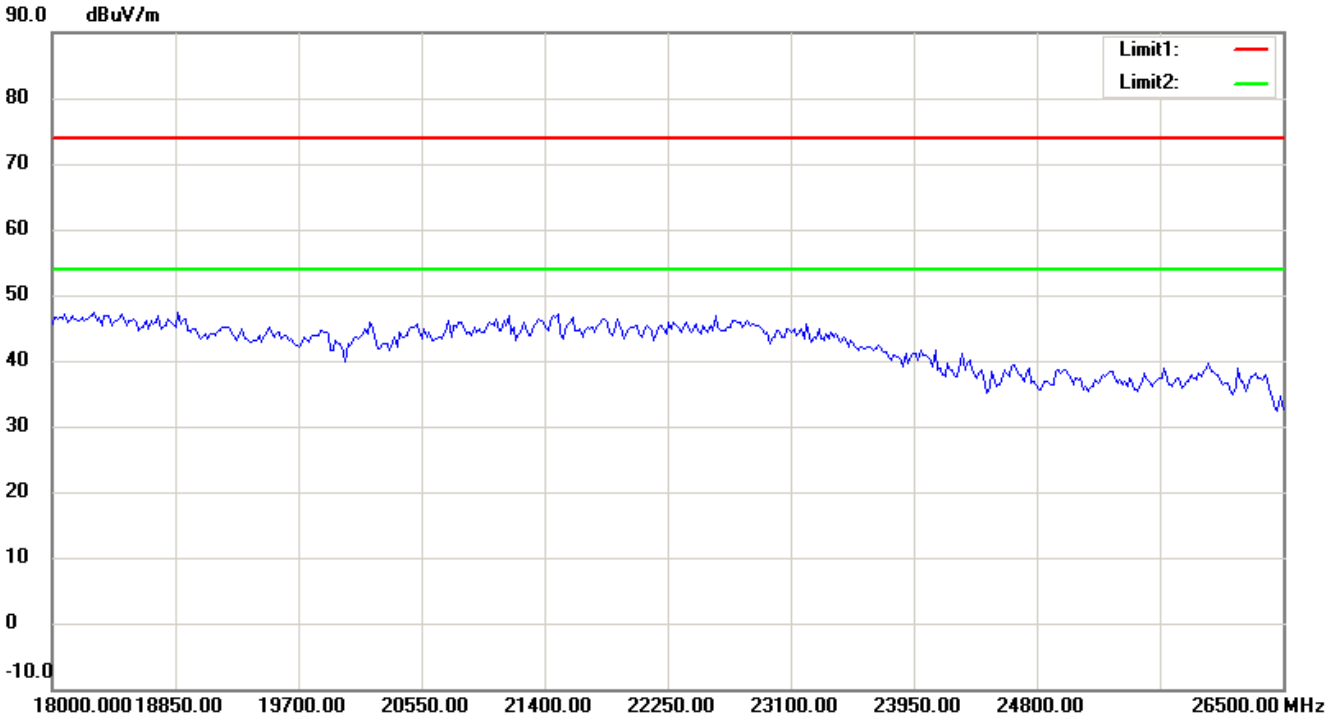
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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Note:

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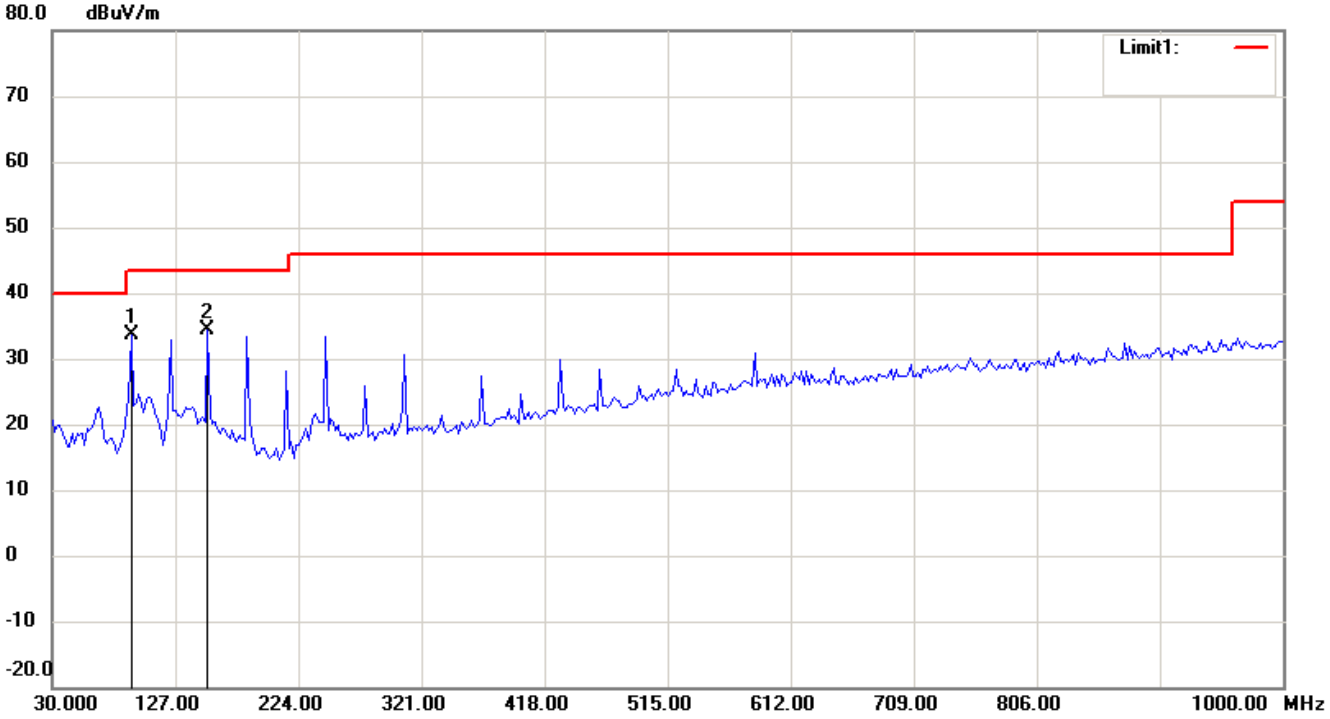
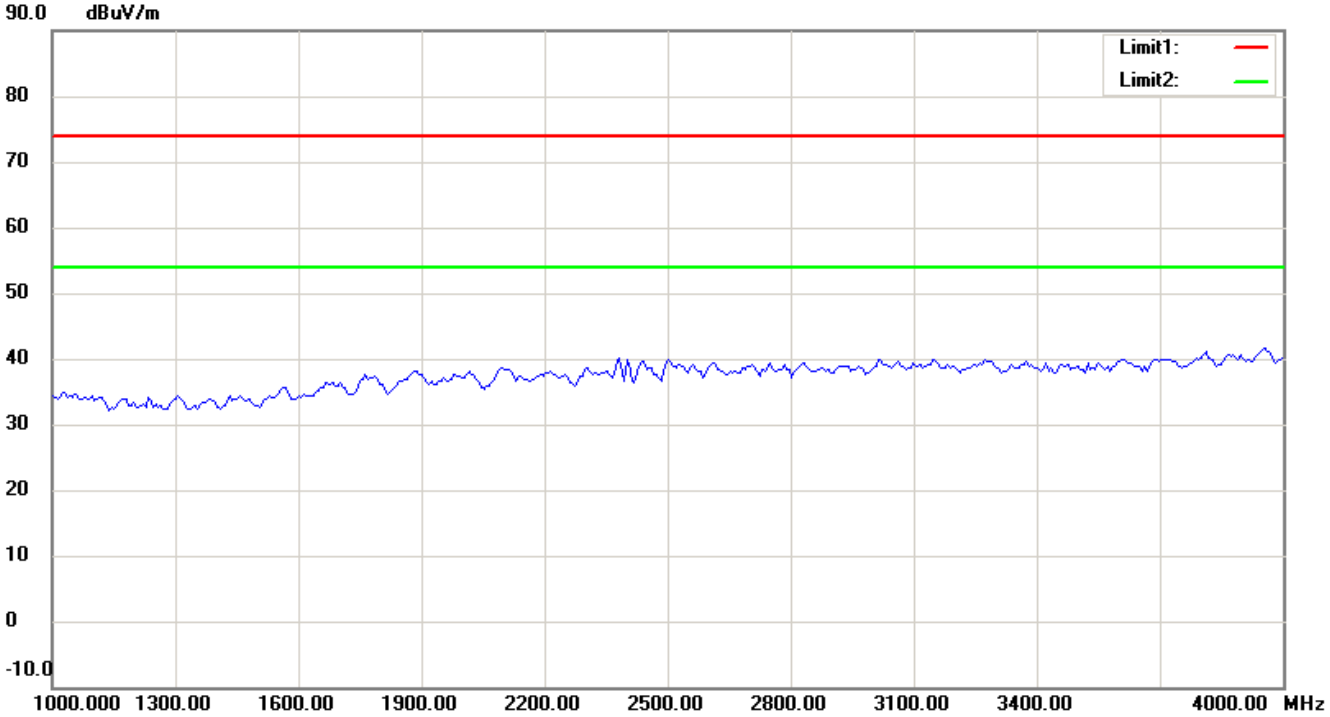
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

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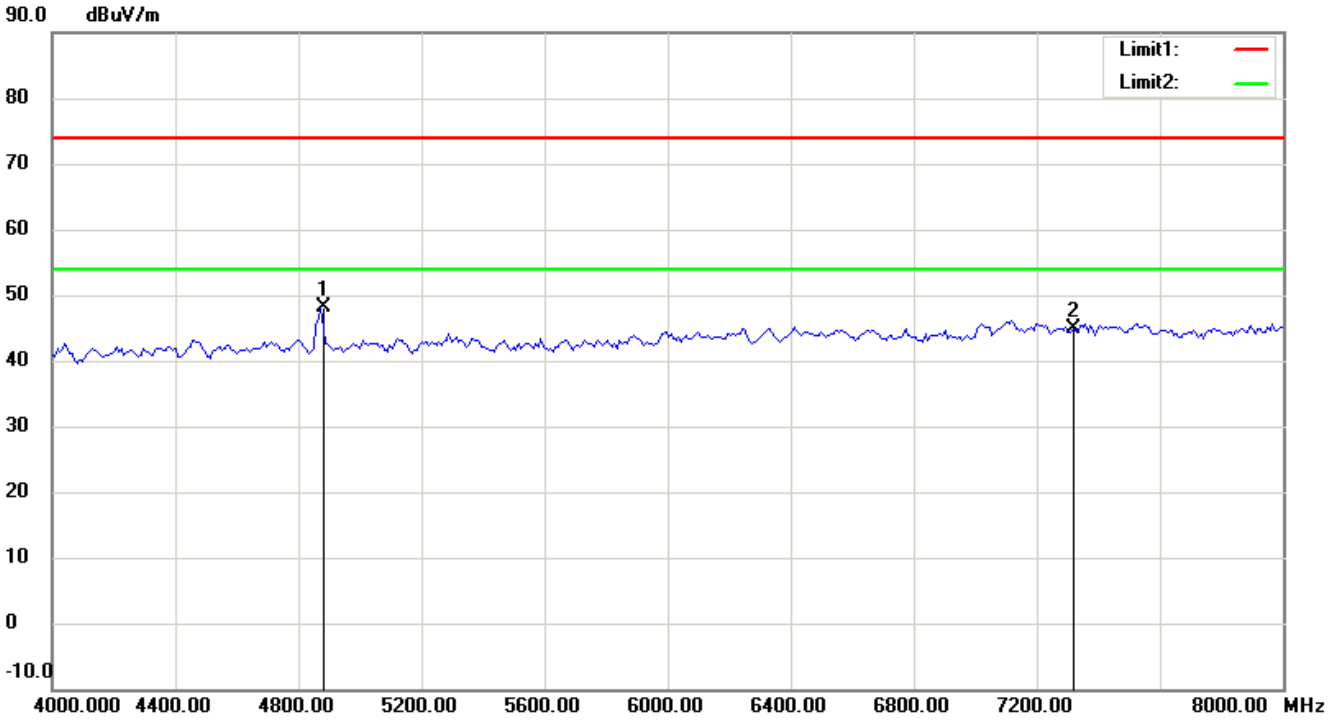
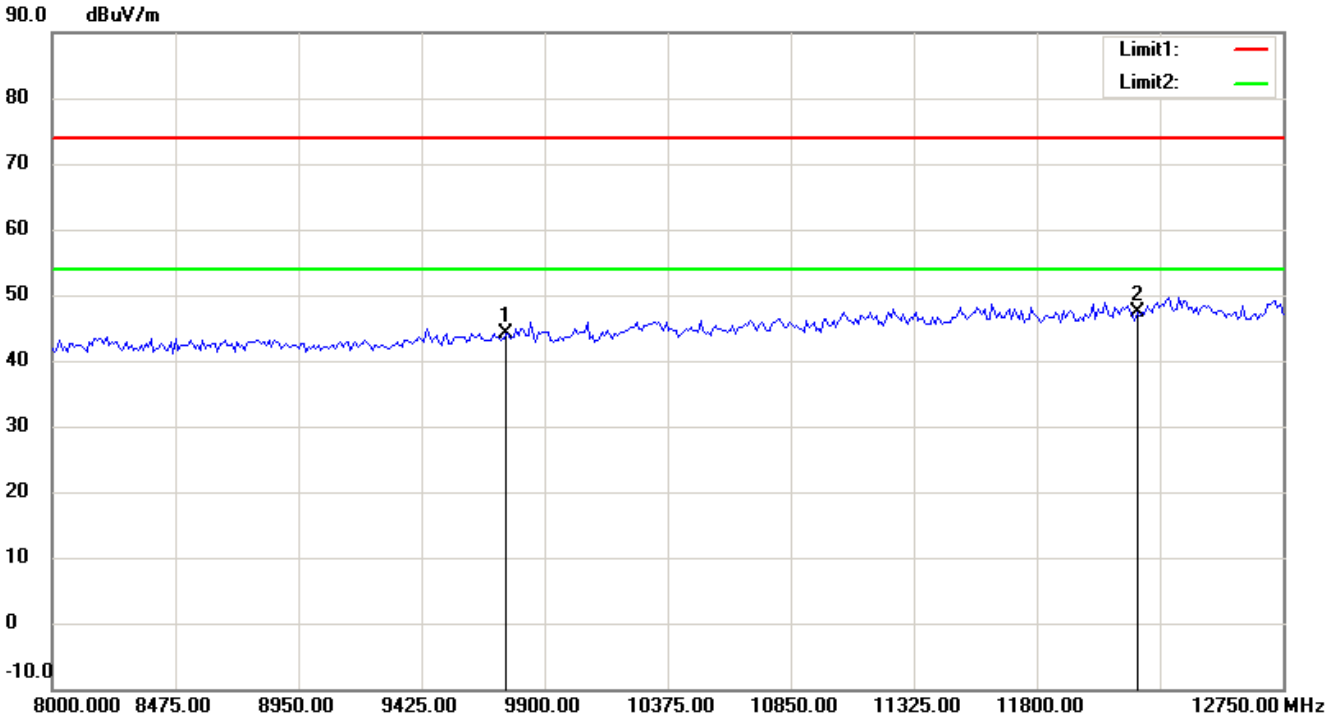
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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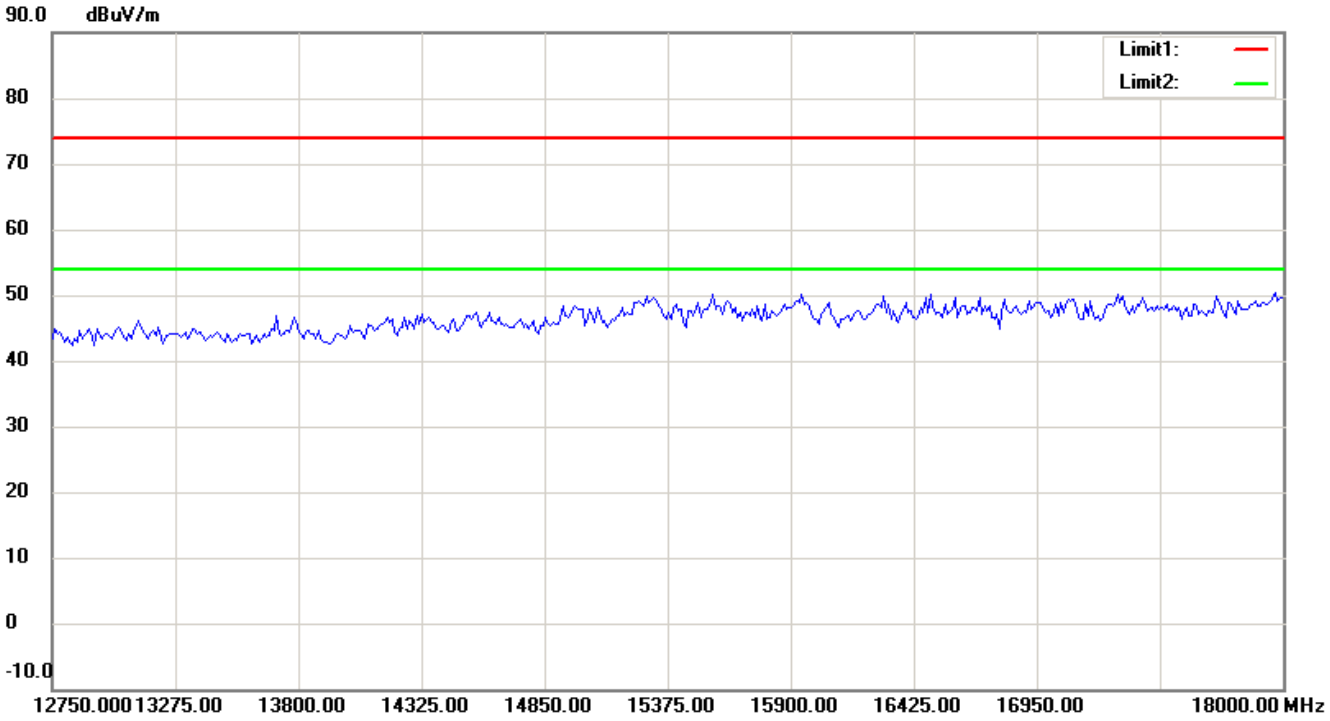

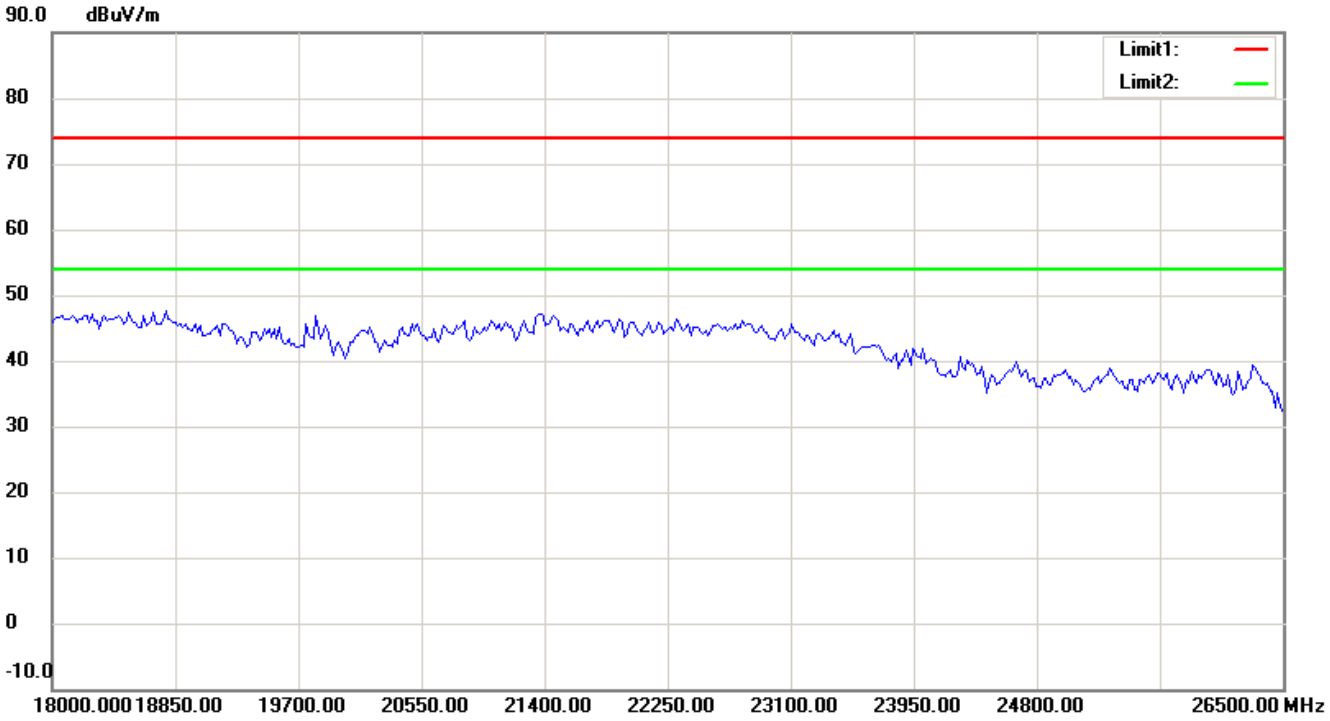

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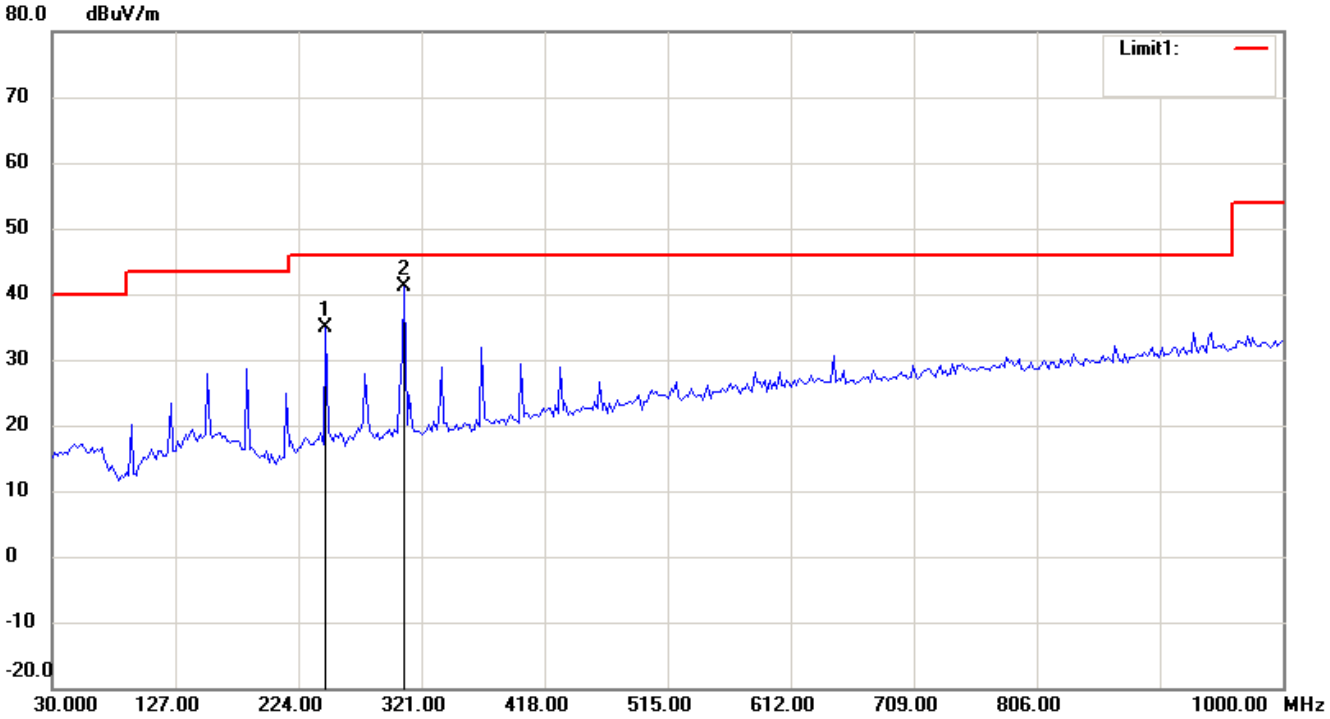
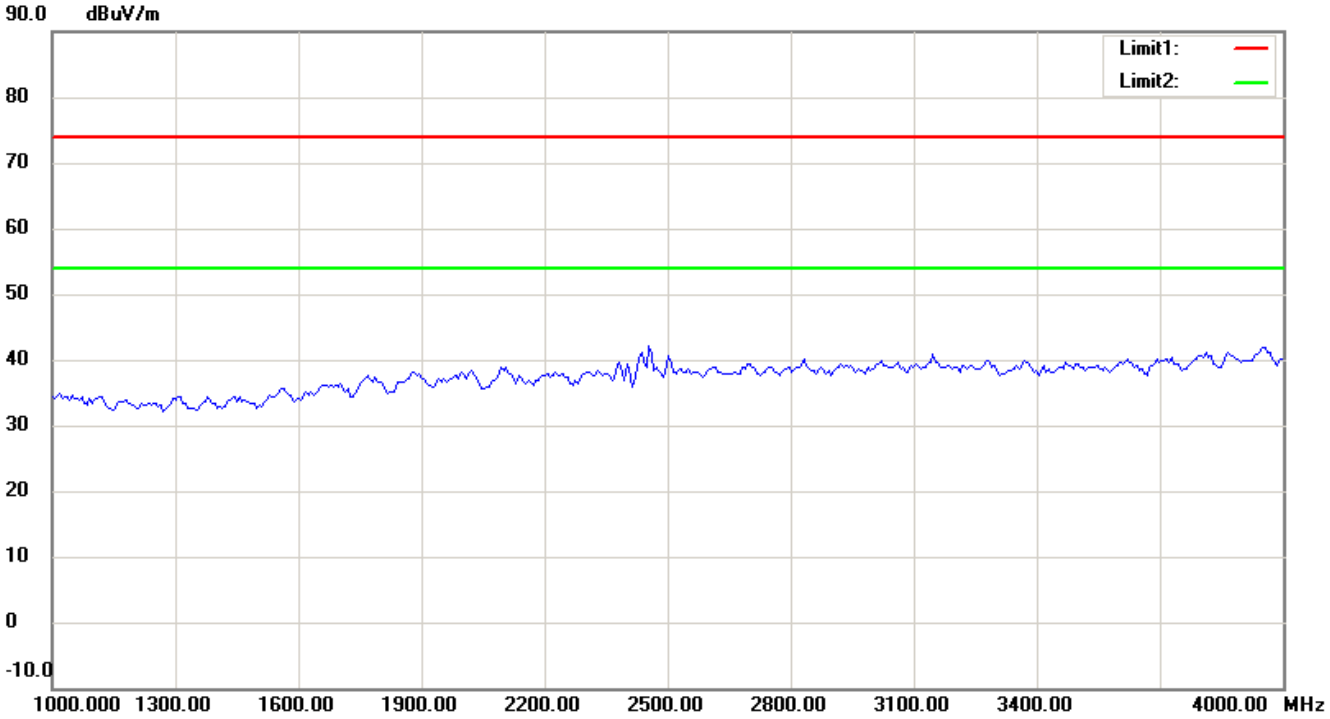
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11g CH11

Antenna Polarization H





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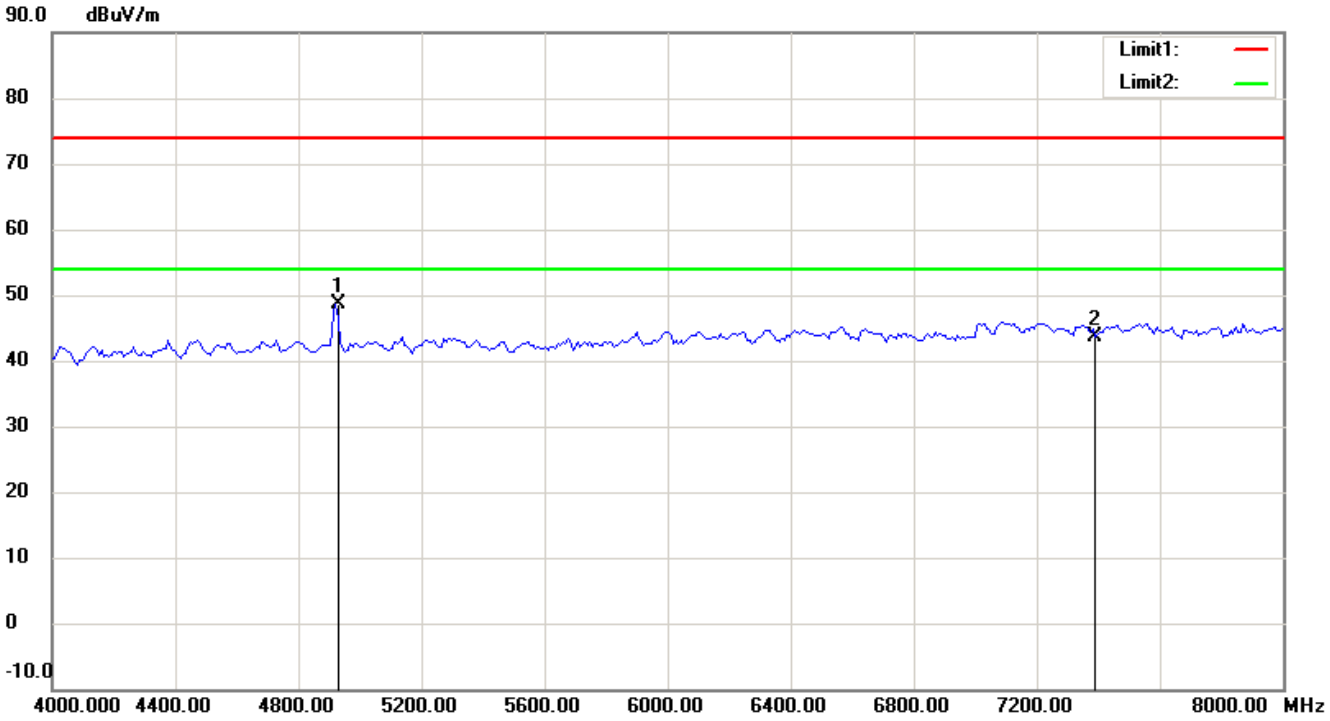

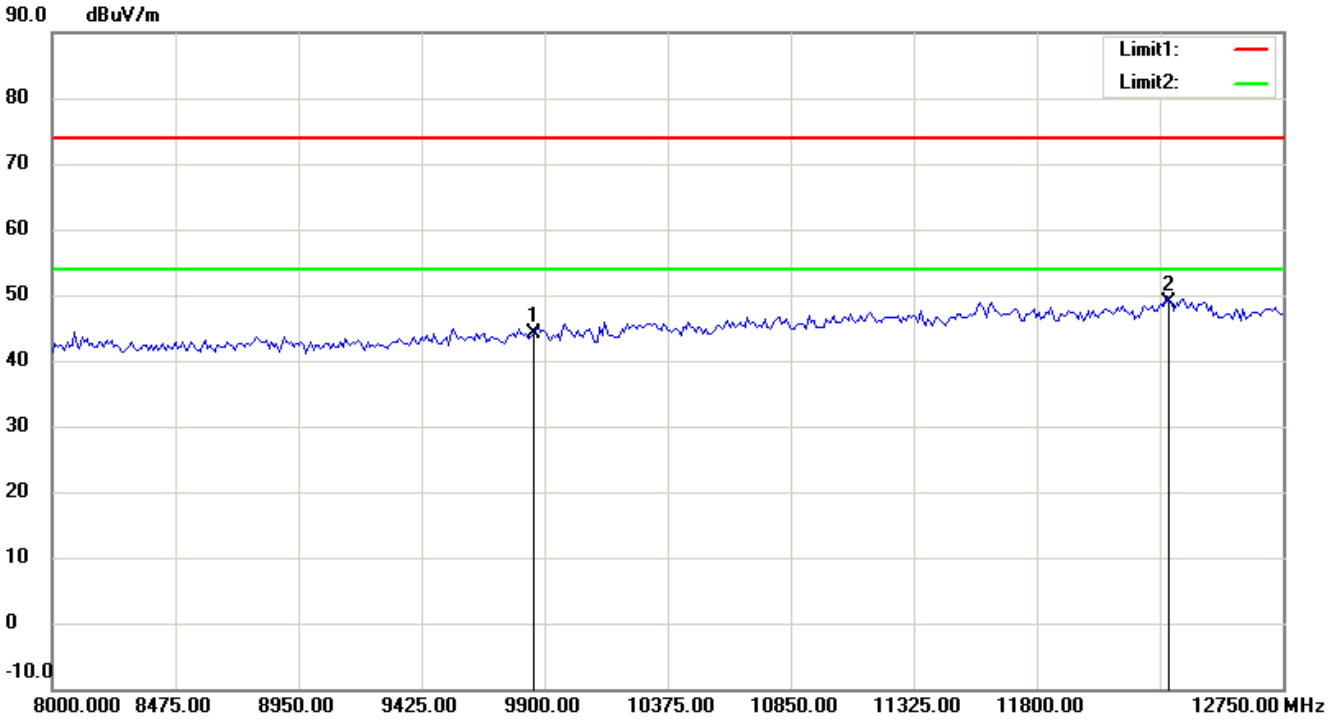

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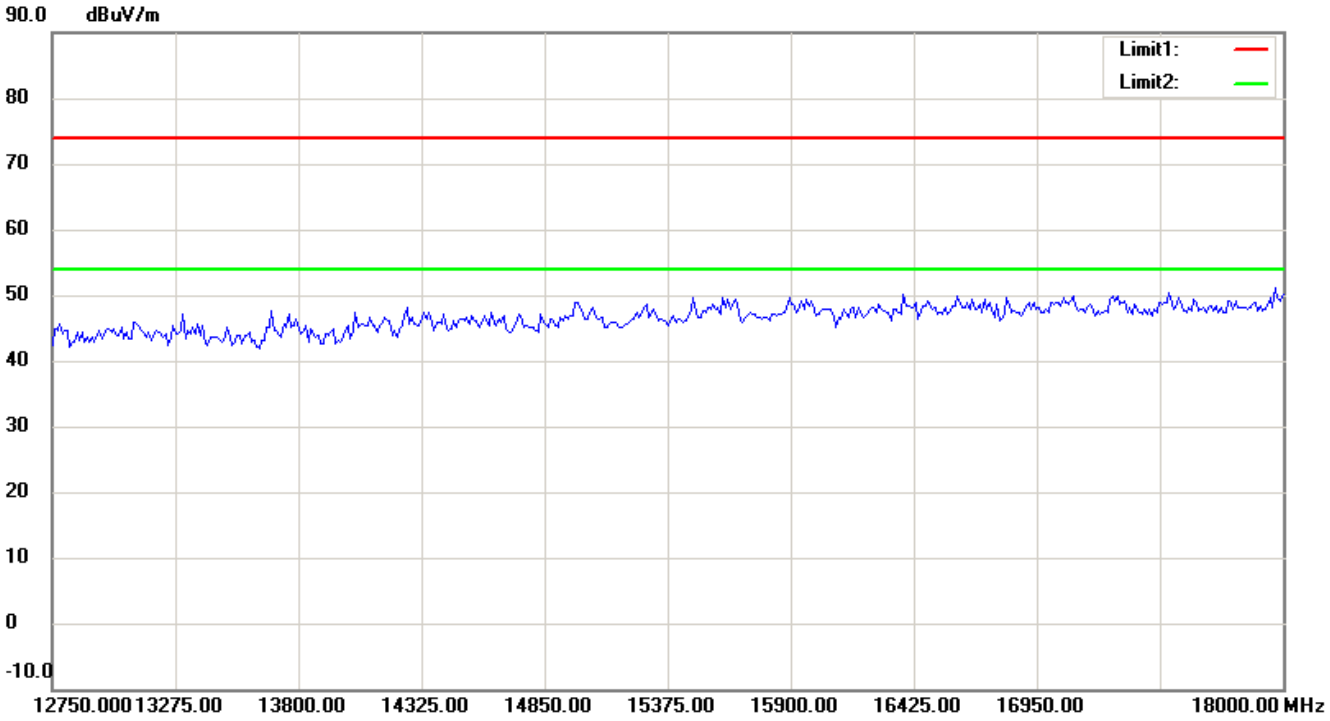

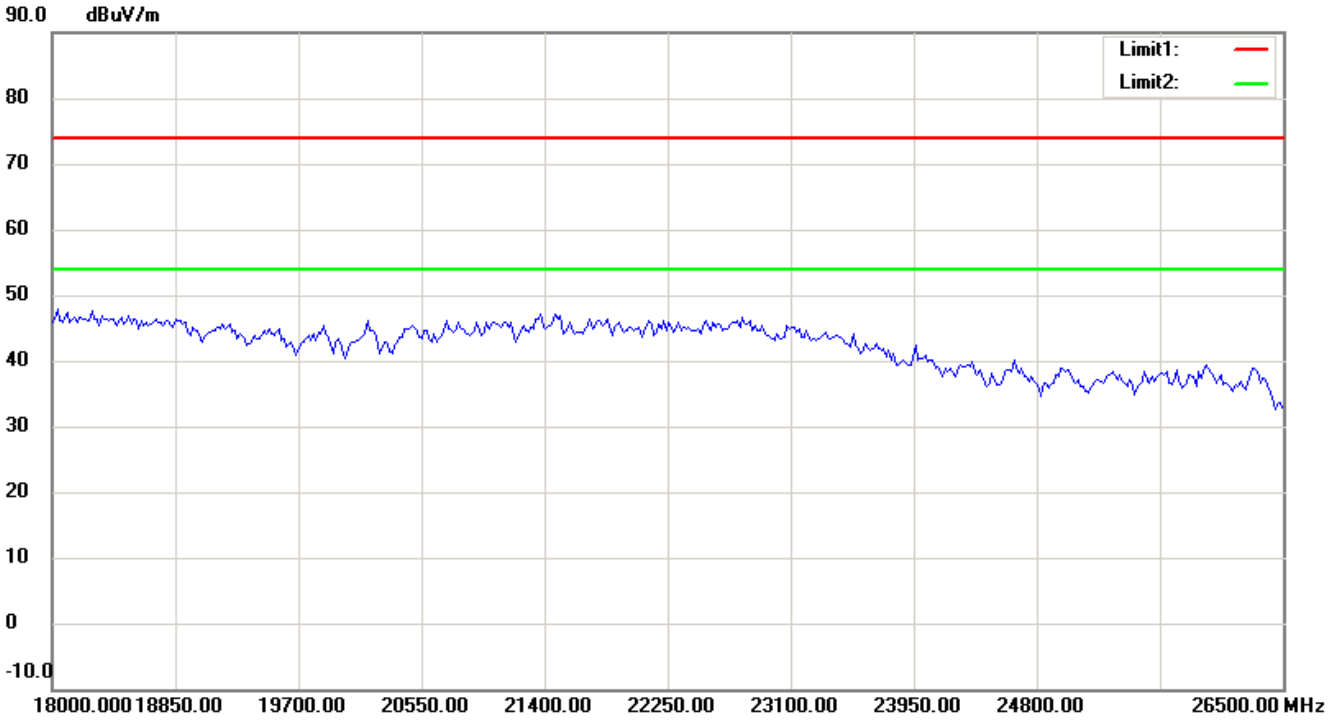

Up Line: Peak Limit Line Down Line: Ave Limit Line
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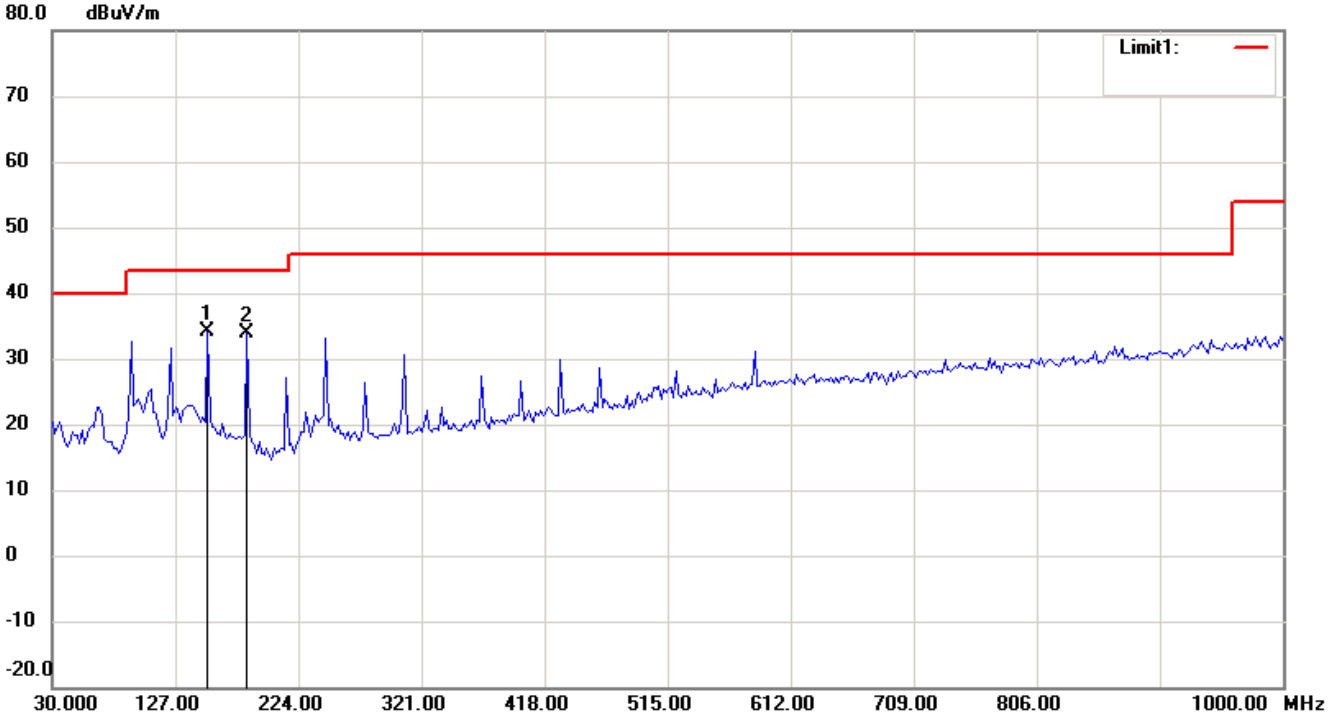
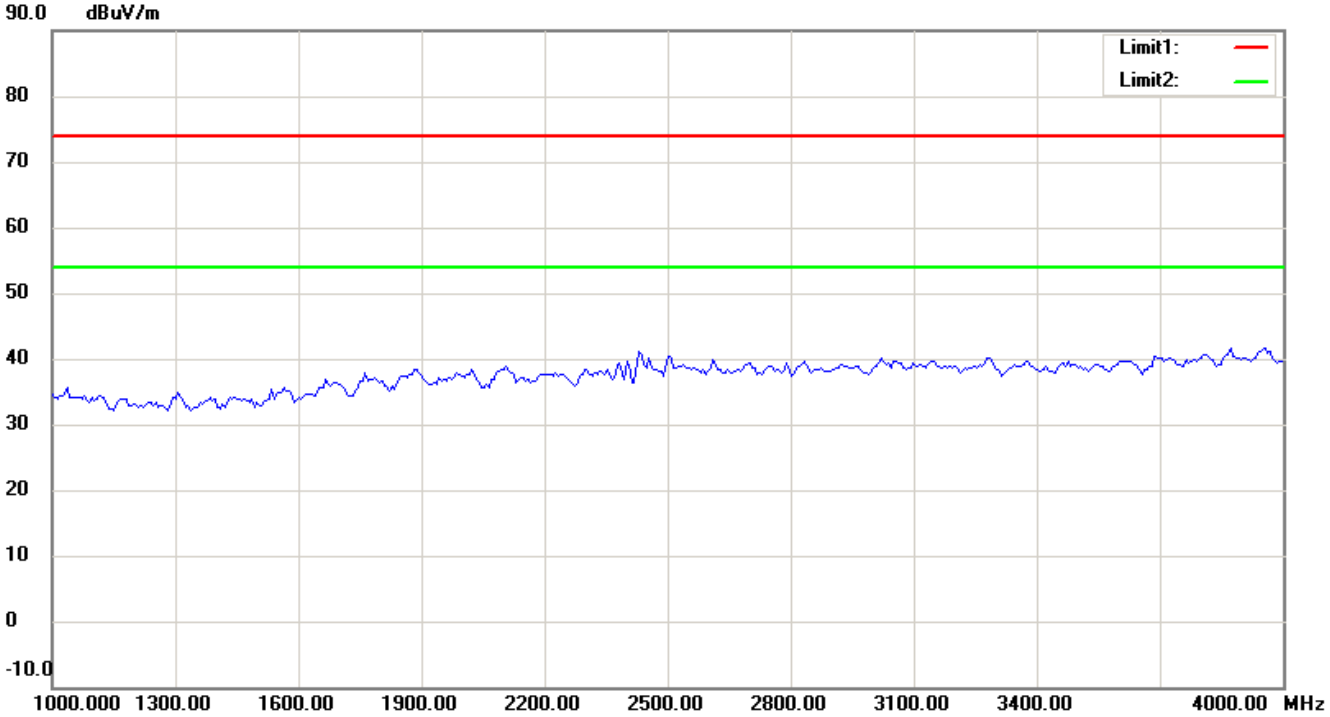
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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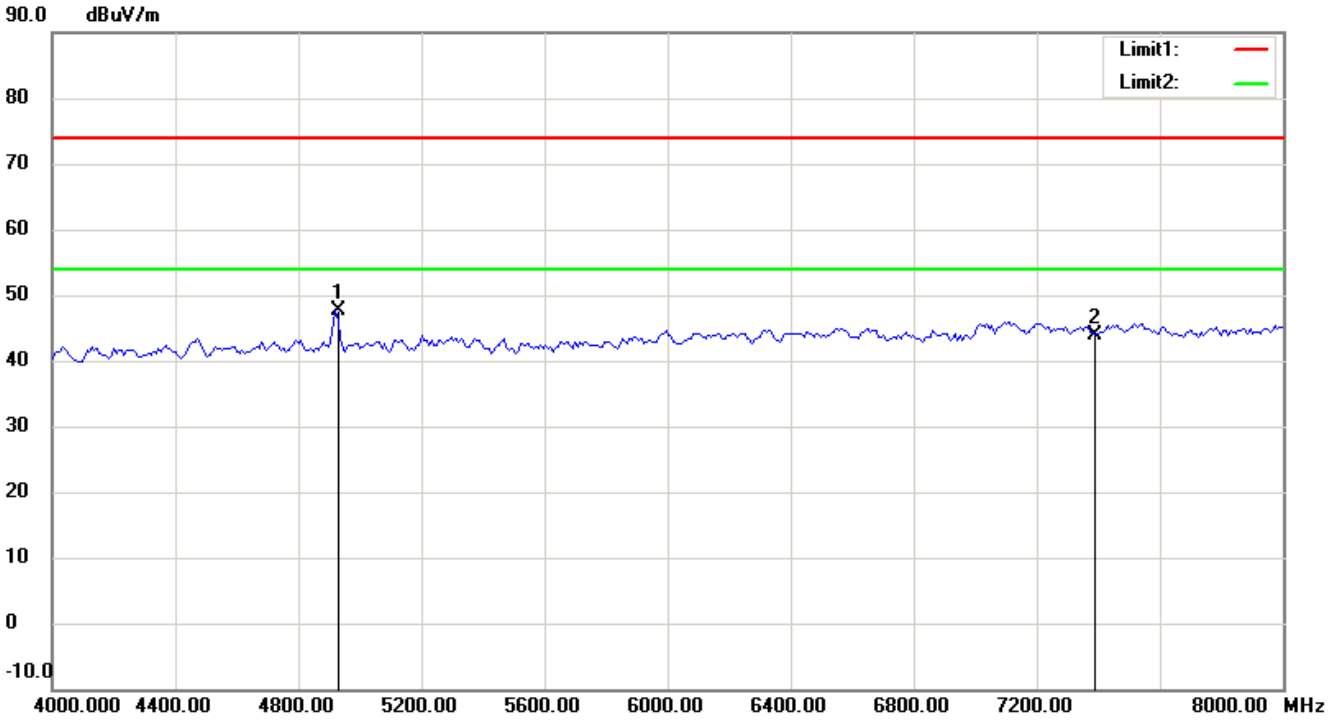

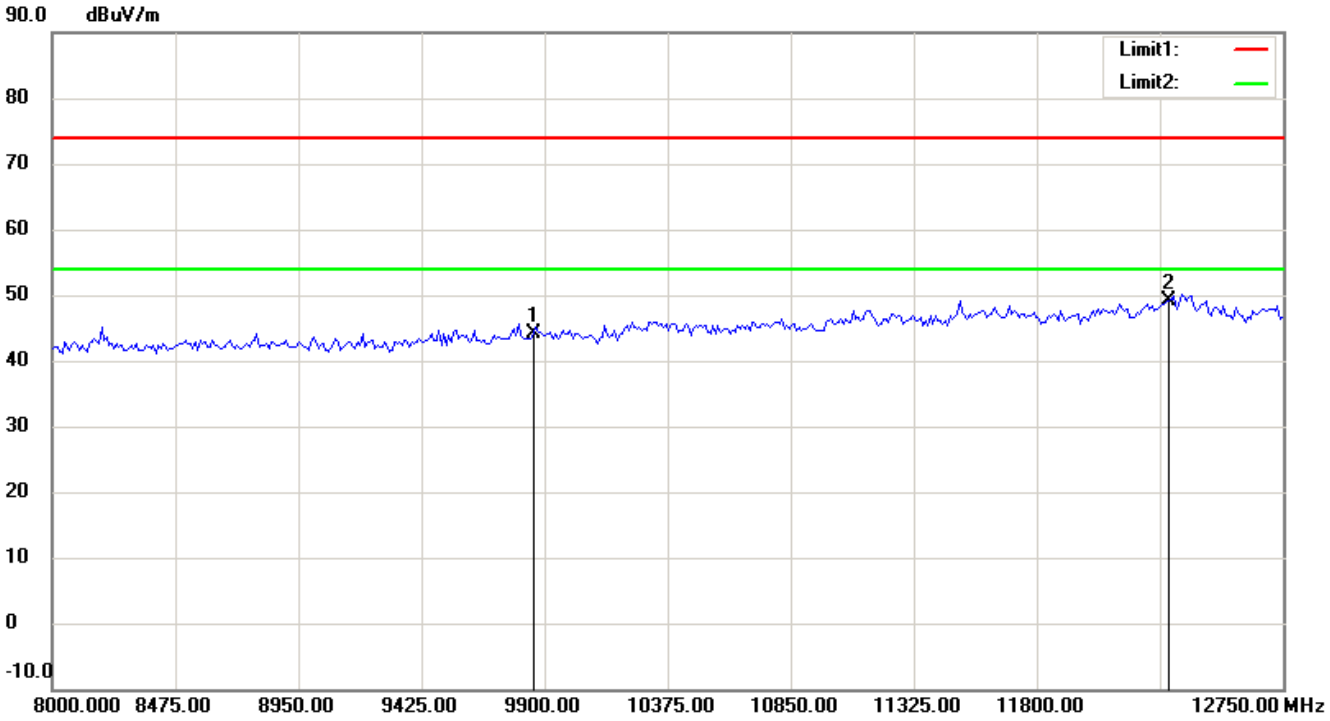

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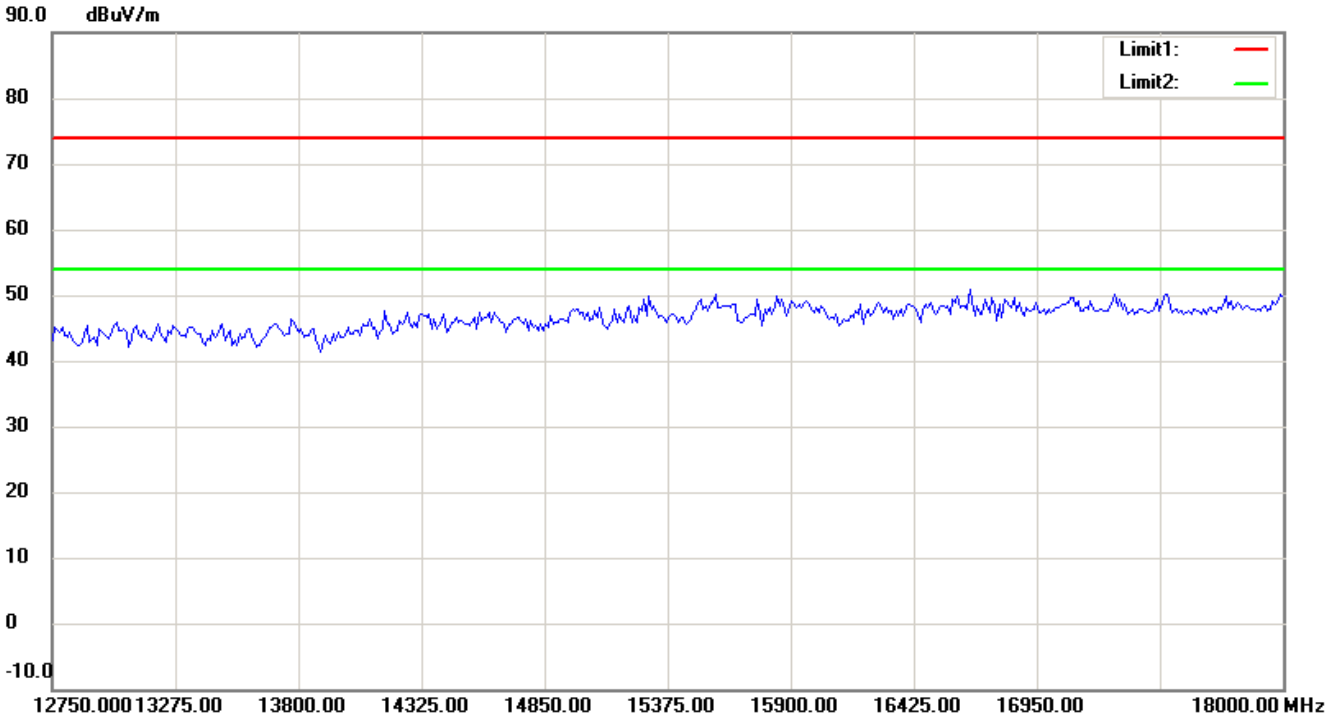

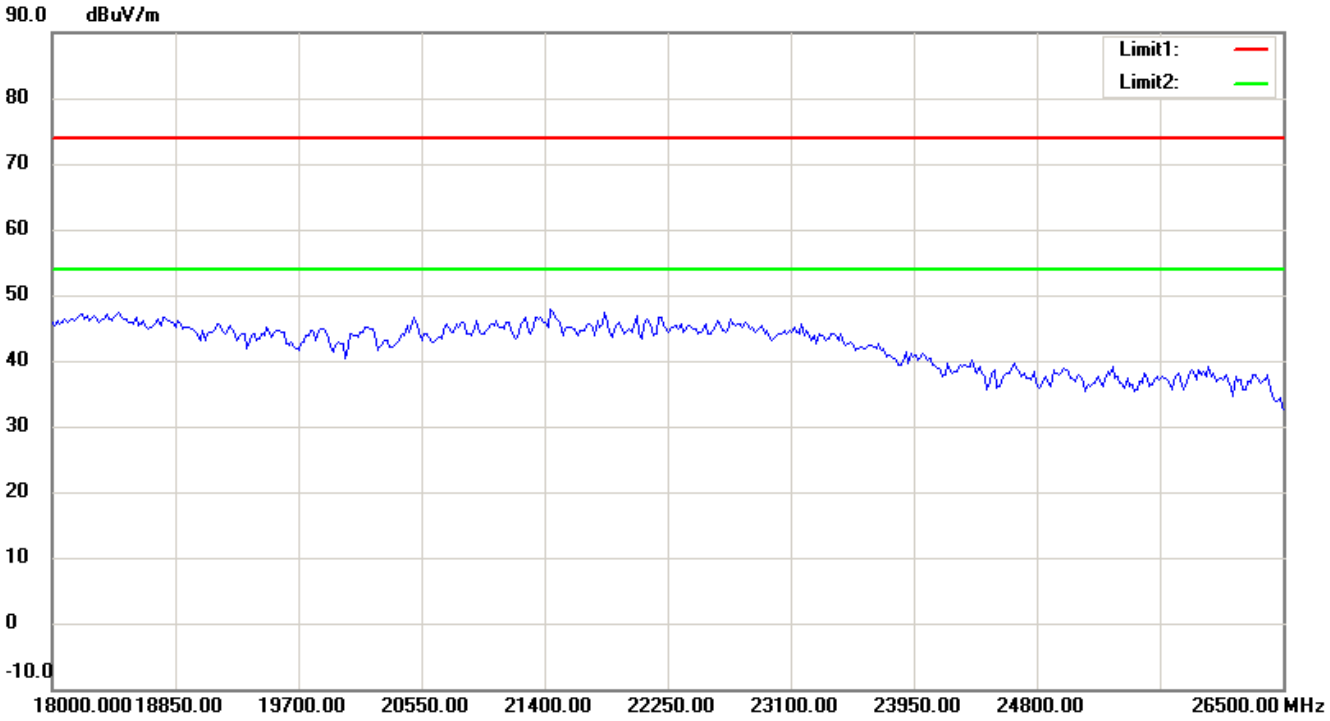

Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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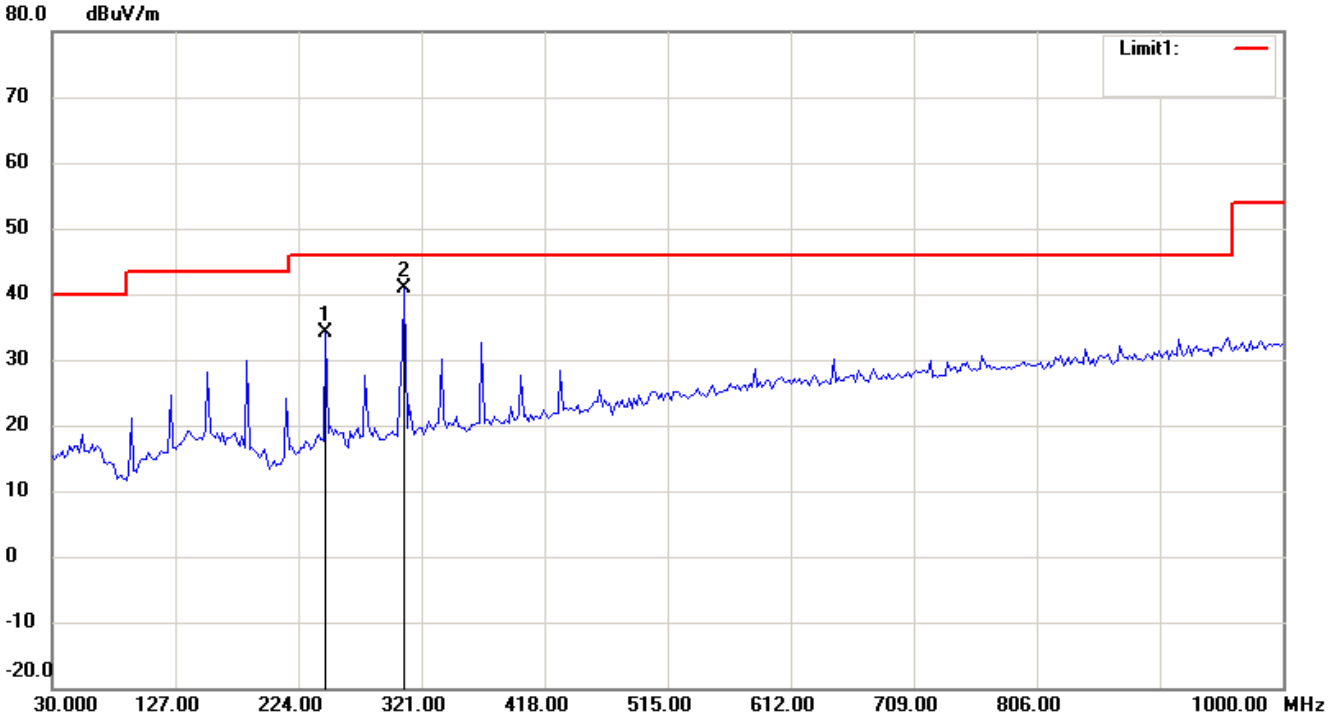
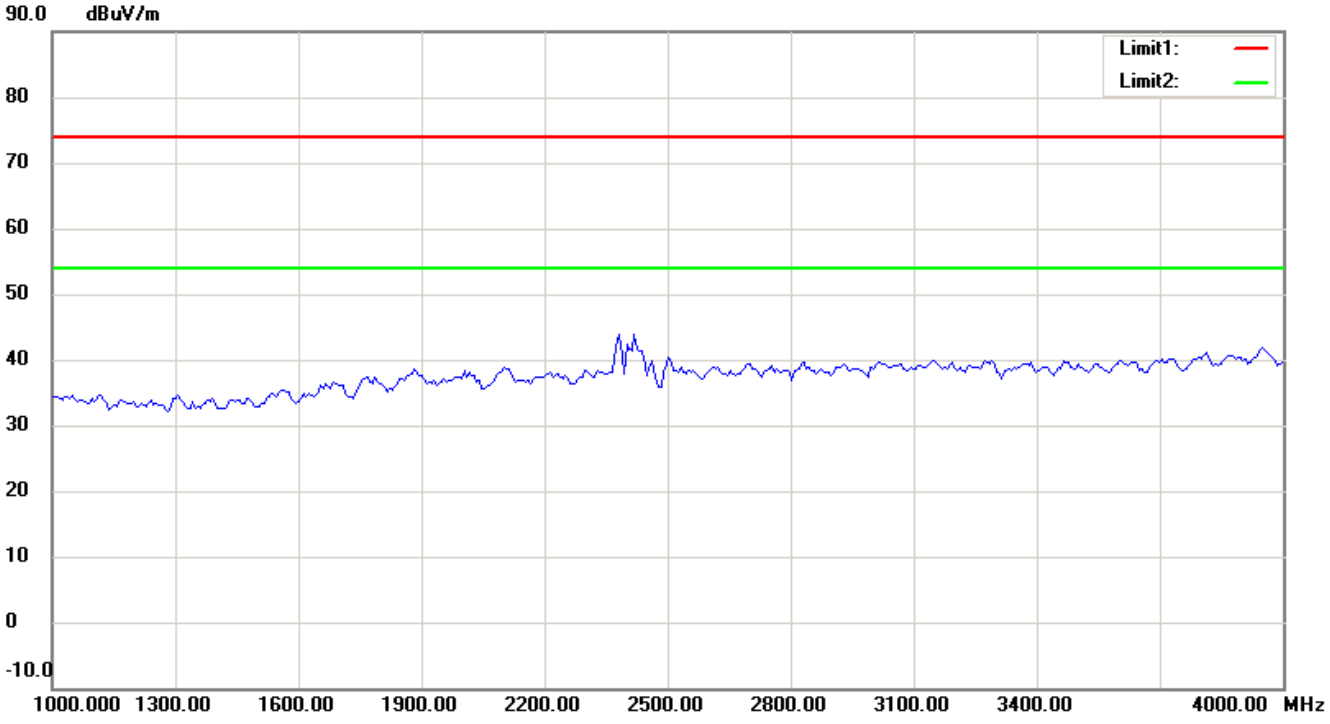
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11n(20MHz) CH1
Antenna Polarization H





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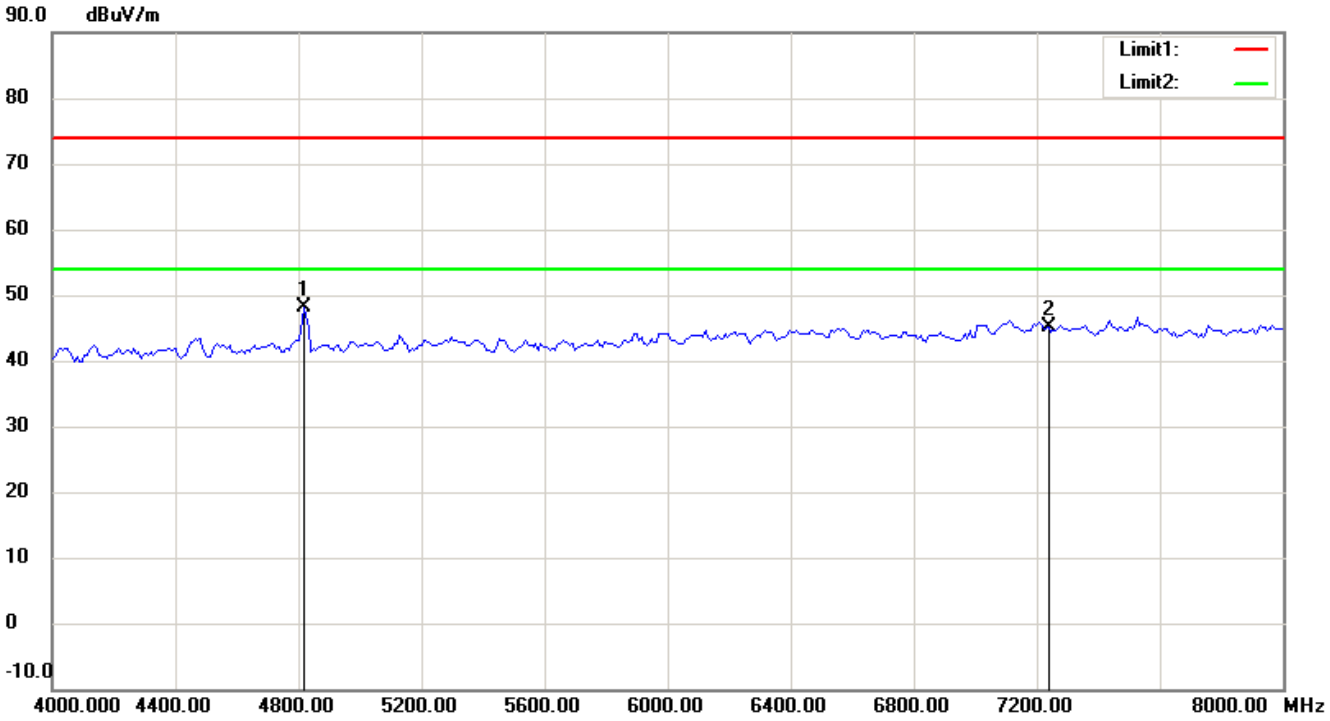
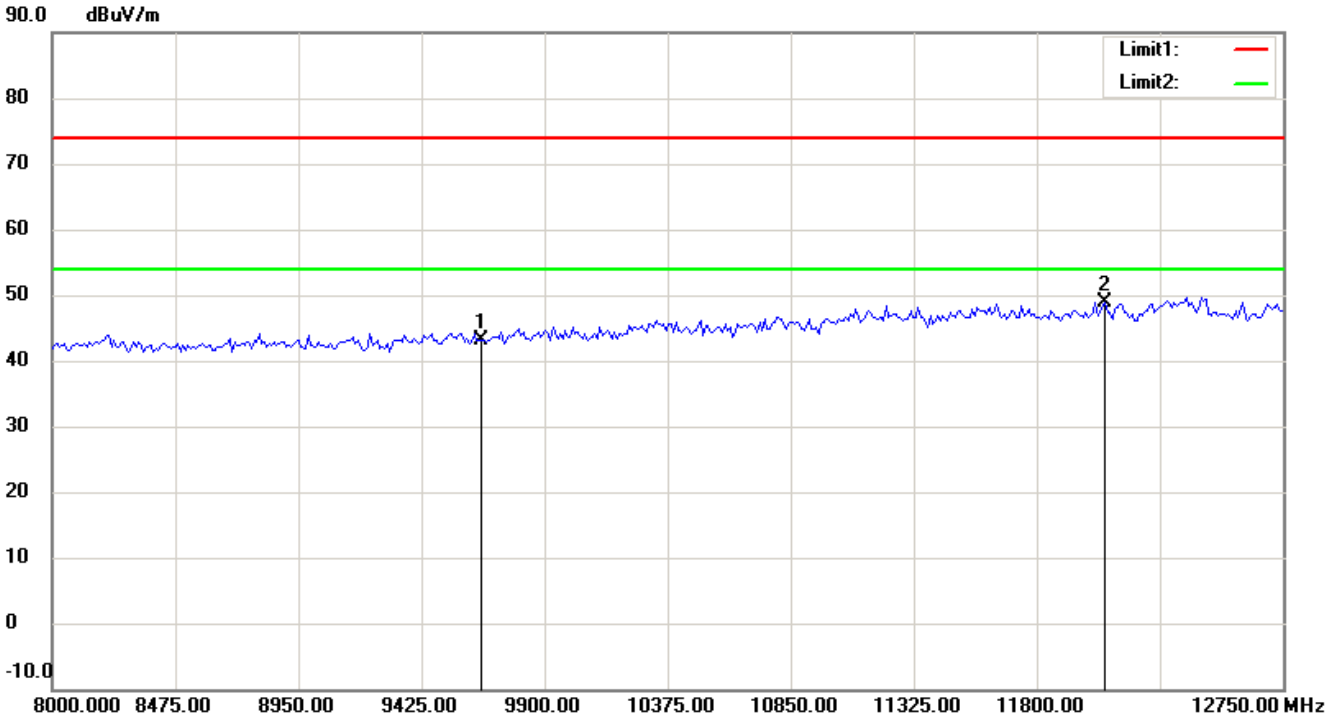
FCC ID: IR5DF7A

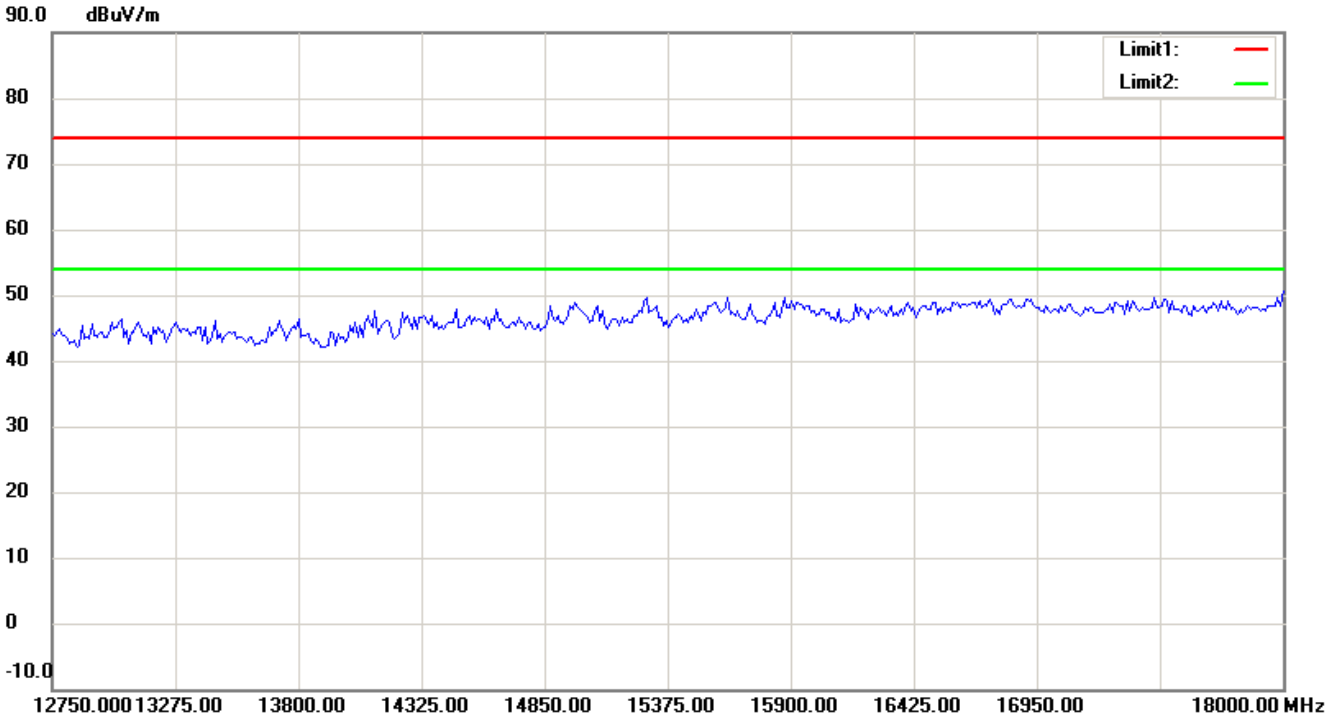


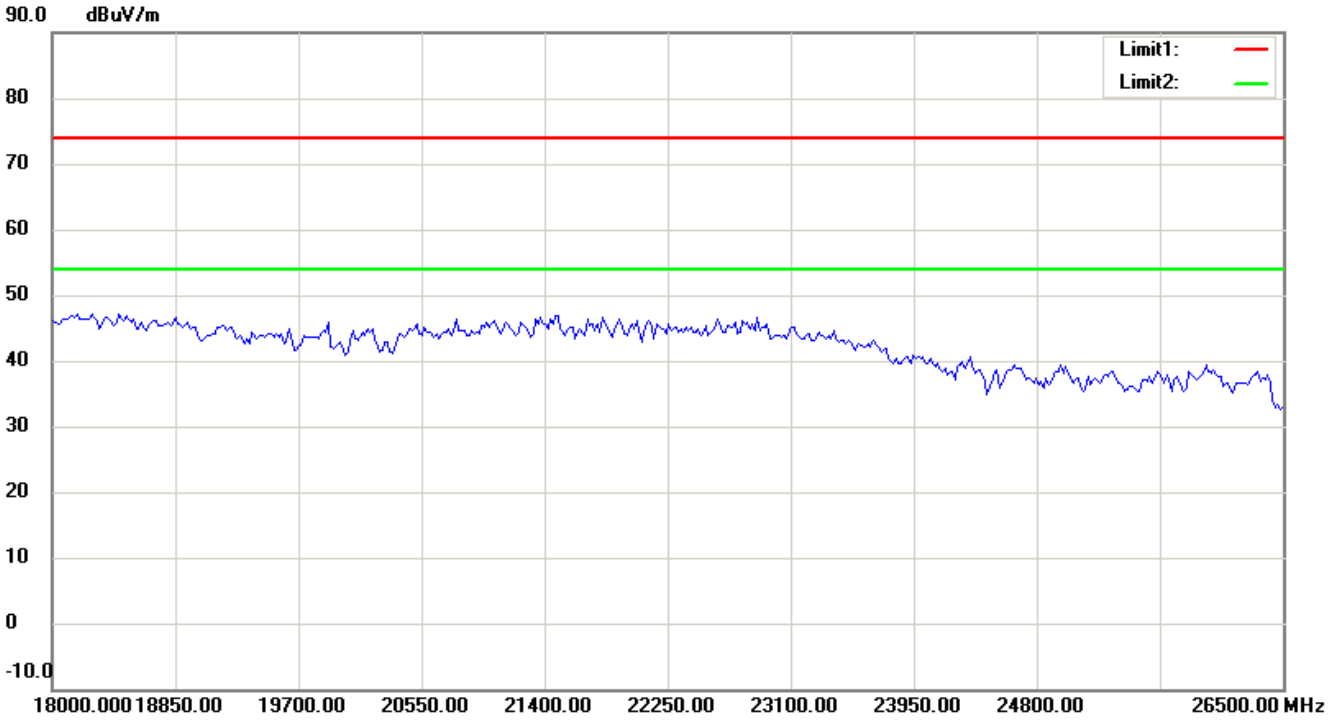


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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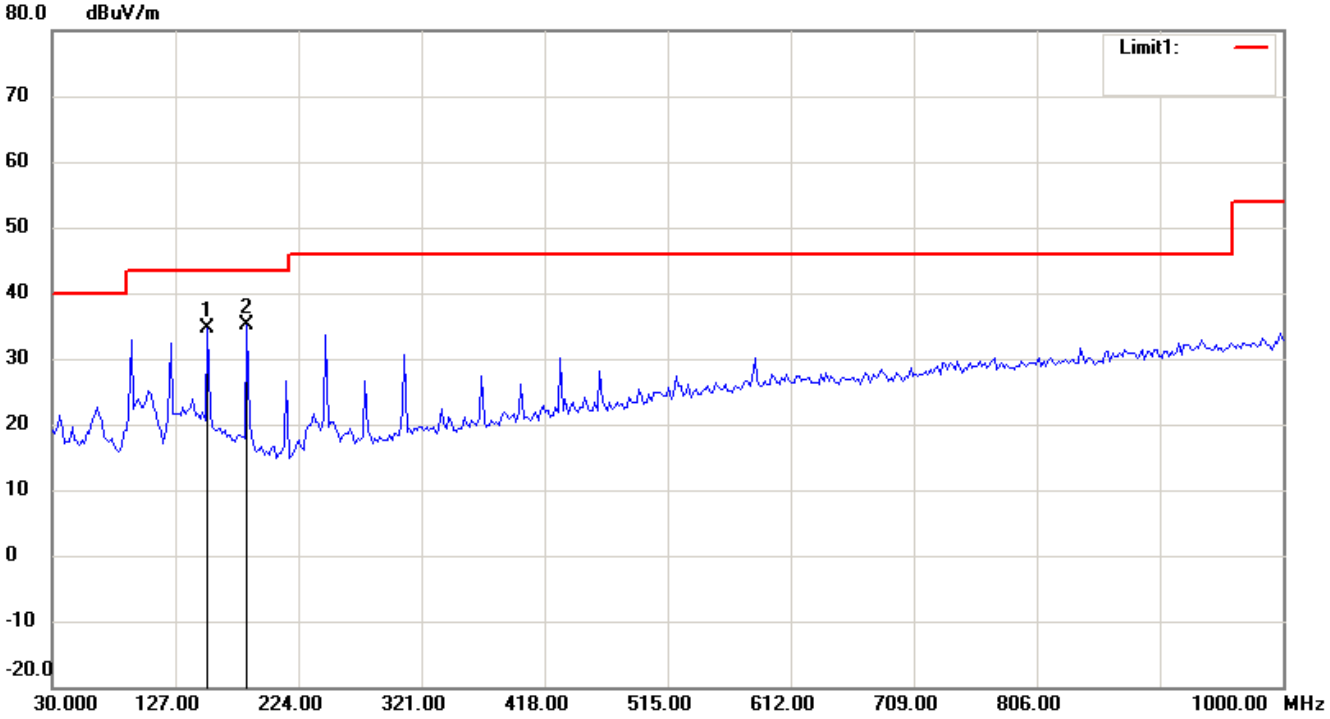
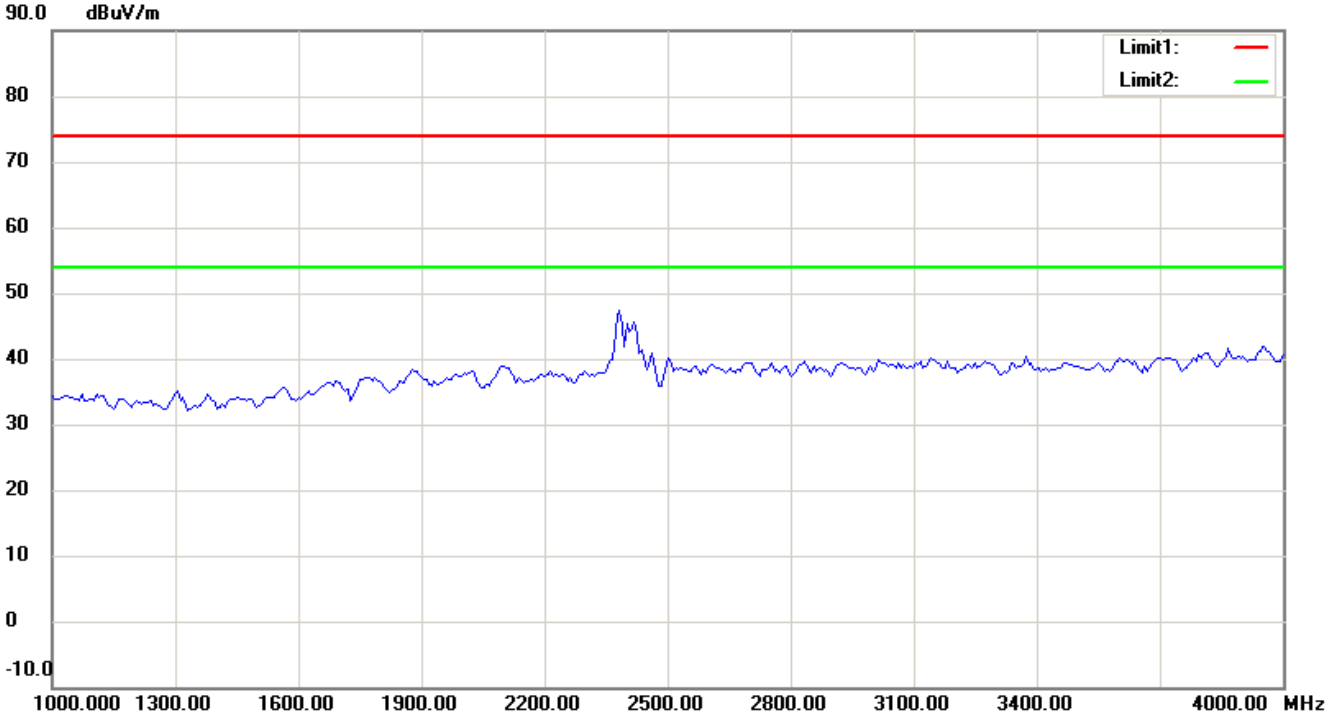
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

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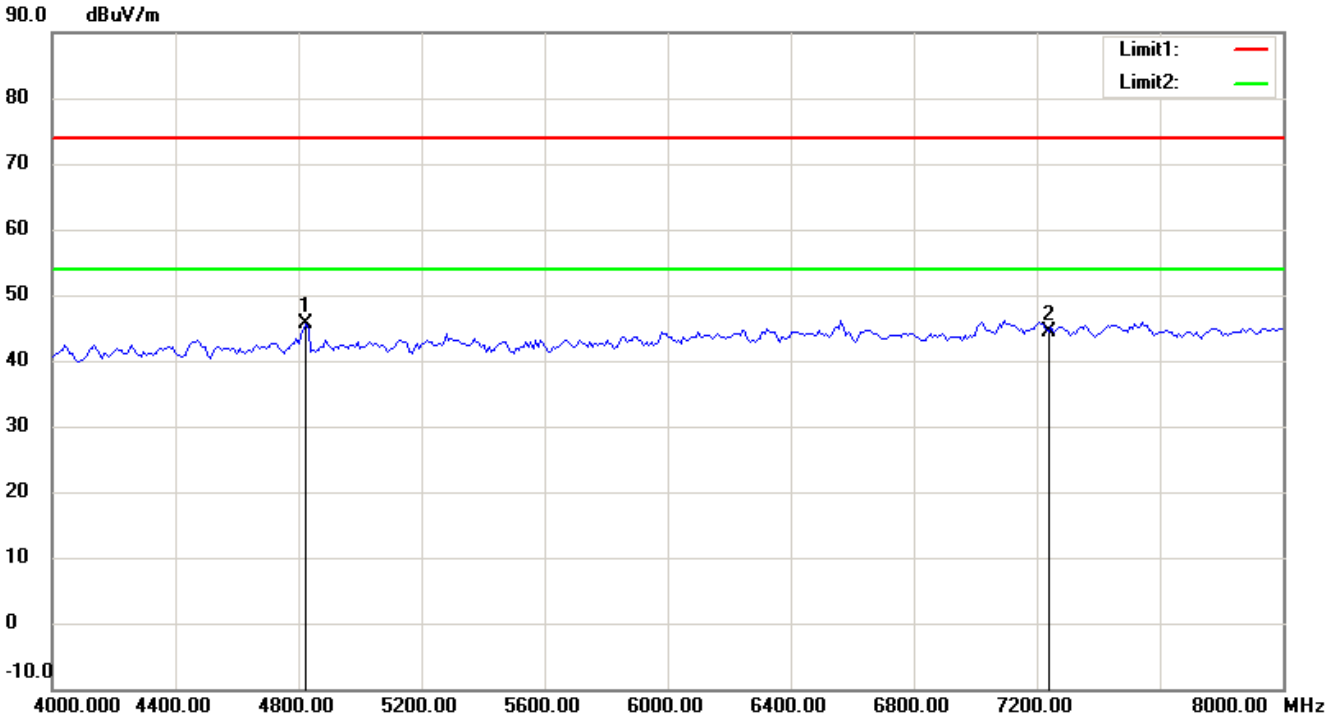
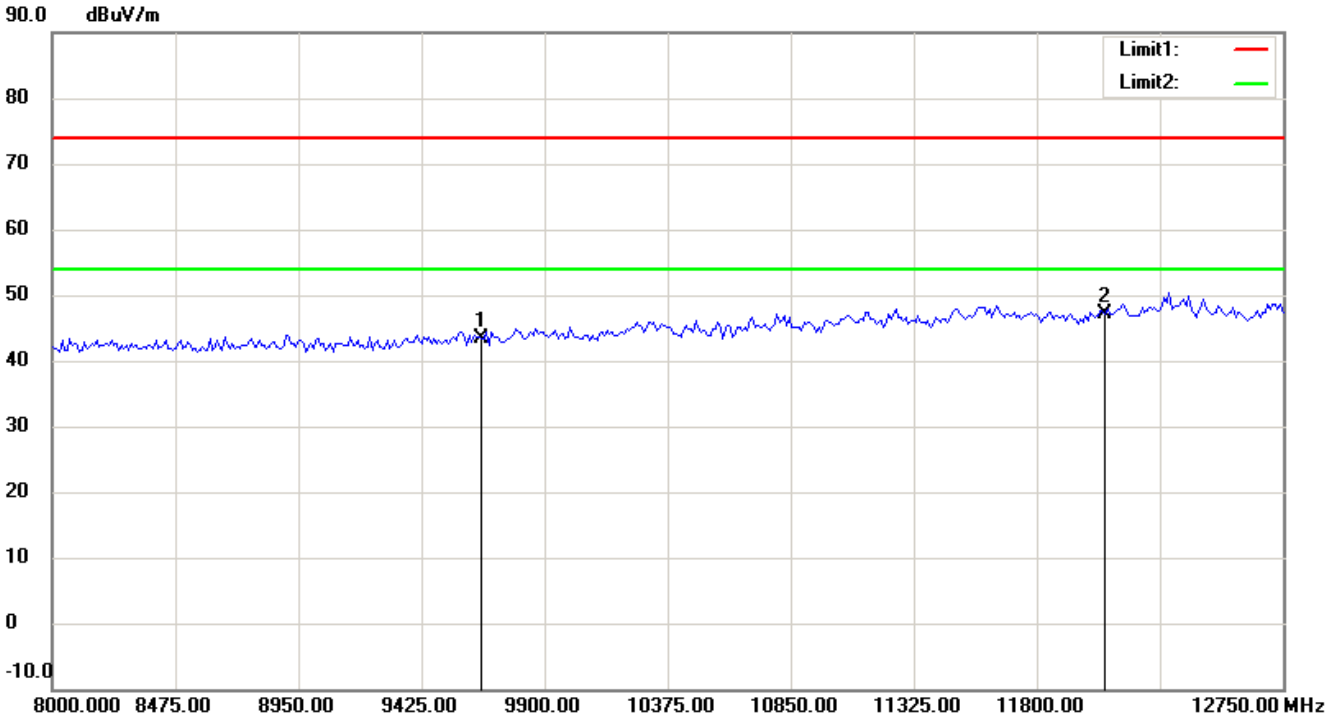
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





Up Line: Peak Limit Line Down Line: Ave Limit Line
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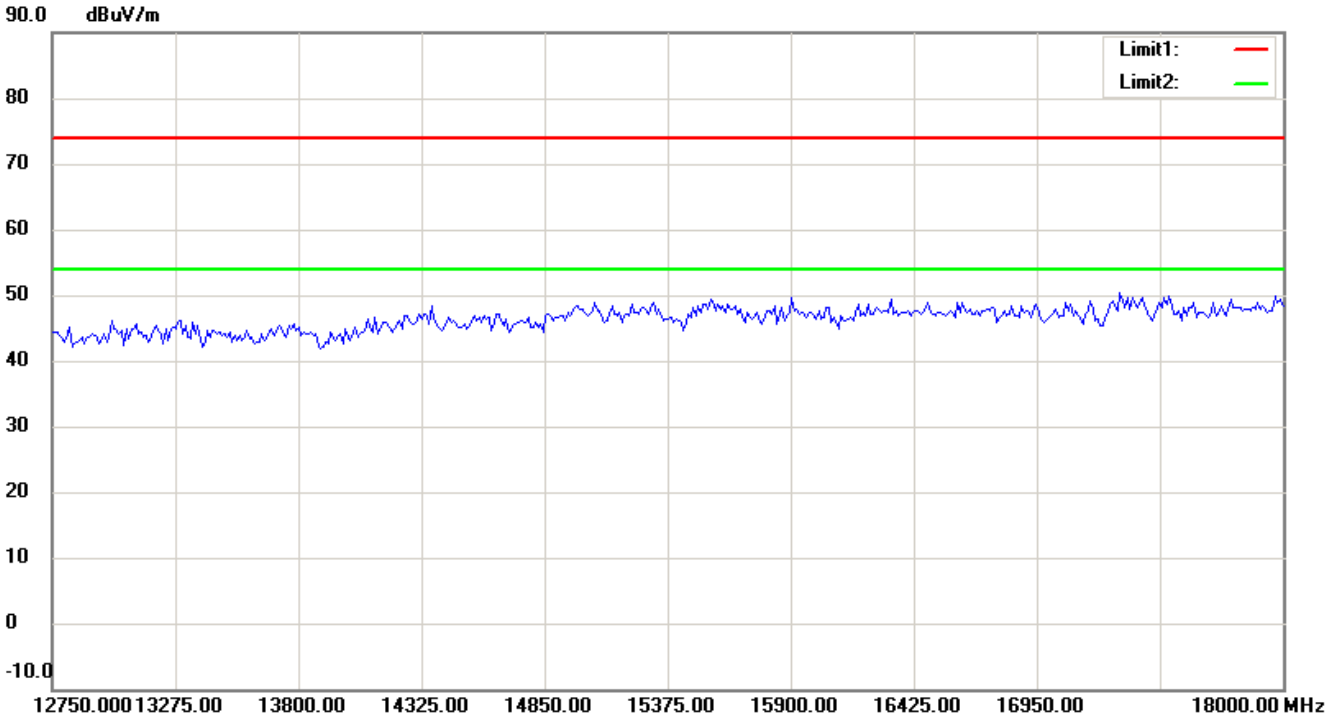
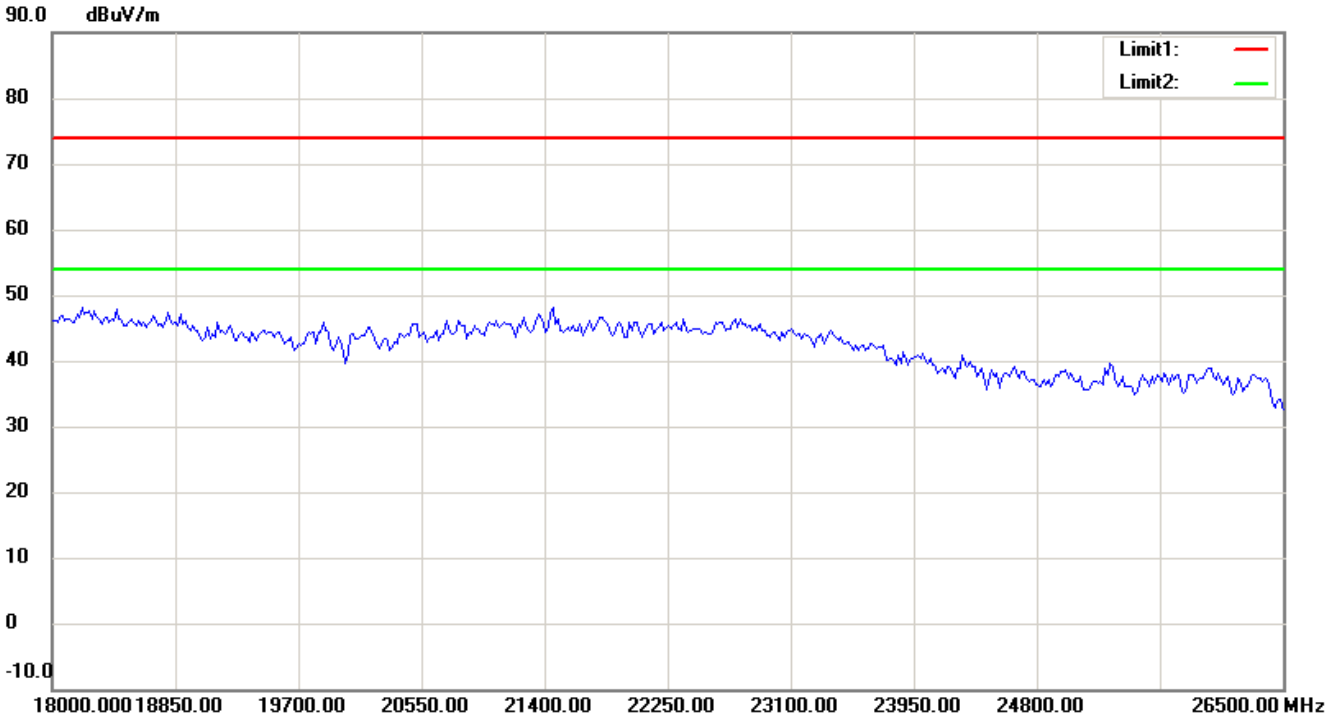
FCC ID: IR5DF7A





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

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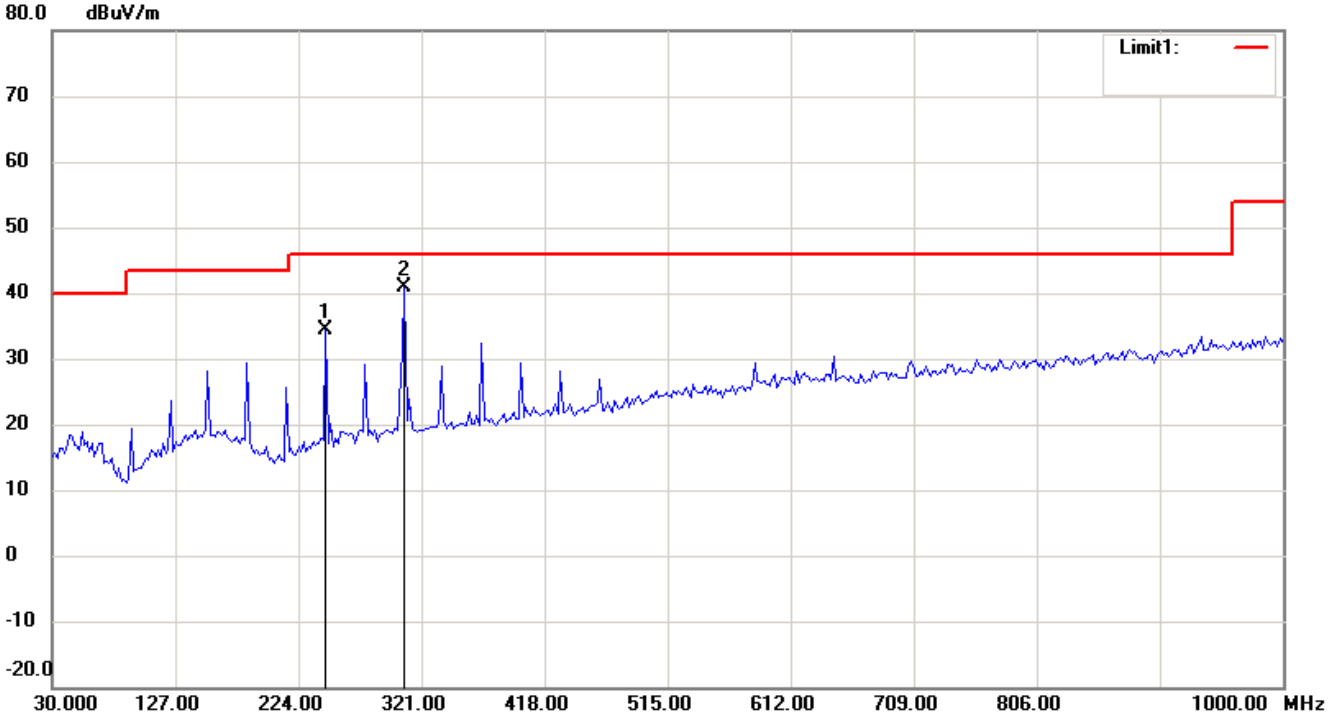
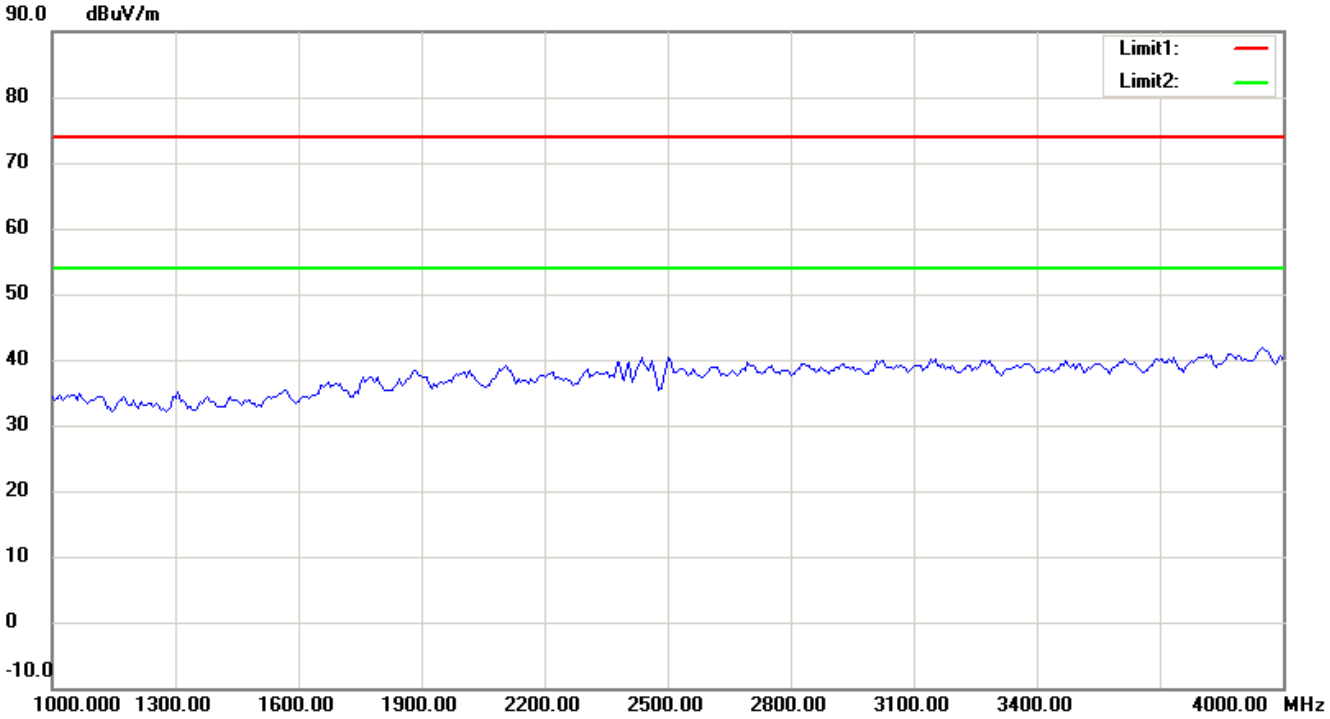
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11n(20MHz) CH6
Antenna Polarization H





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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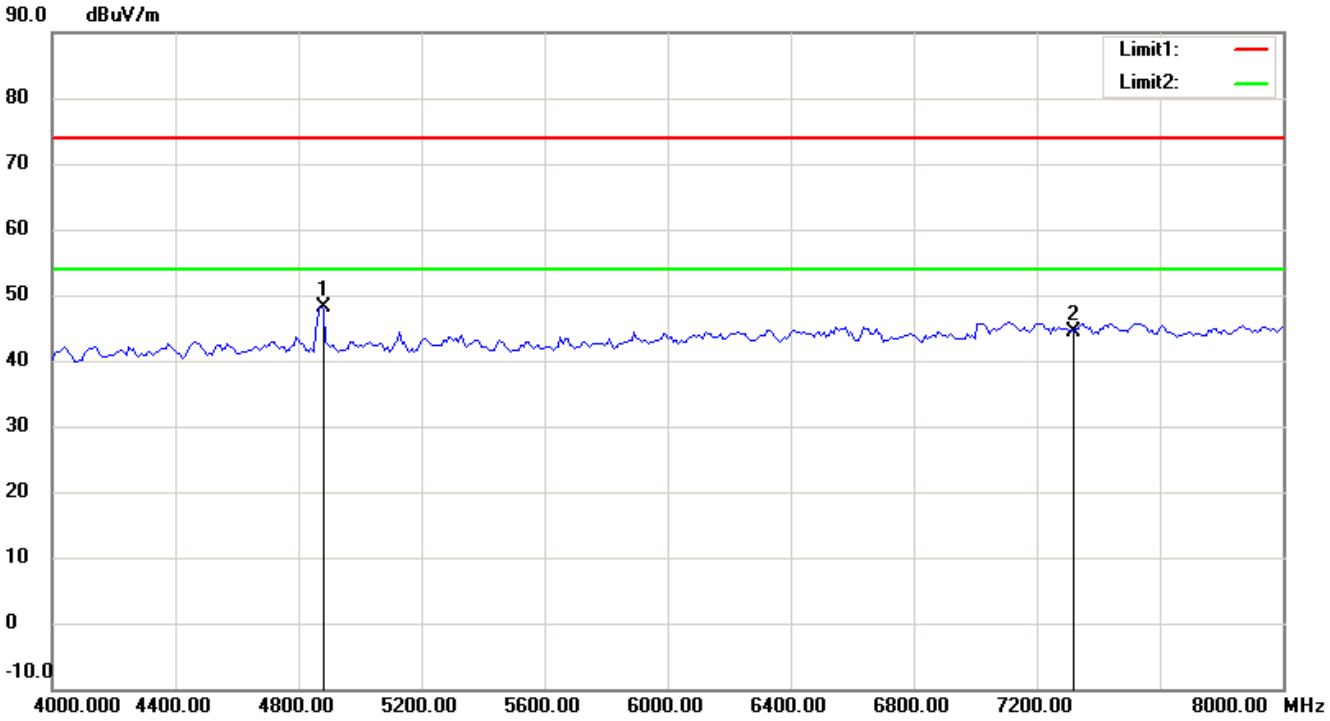
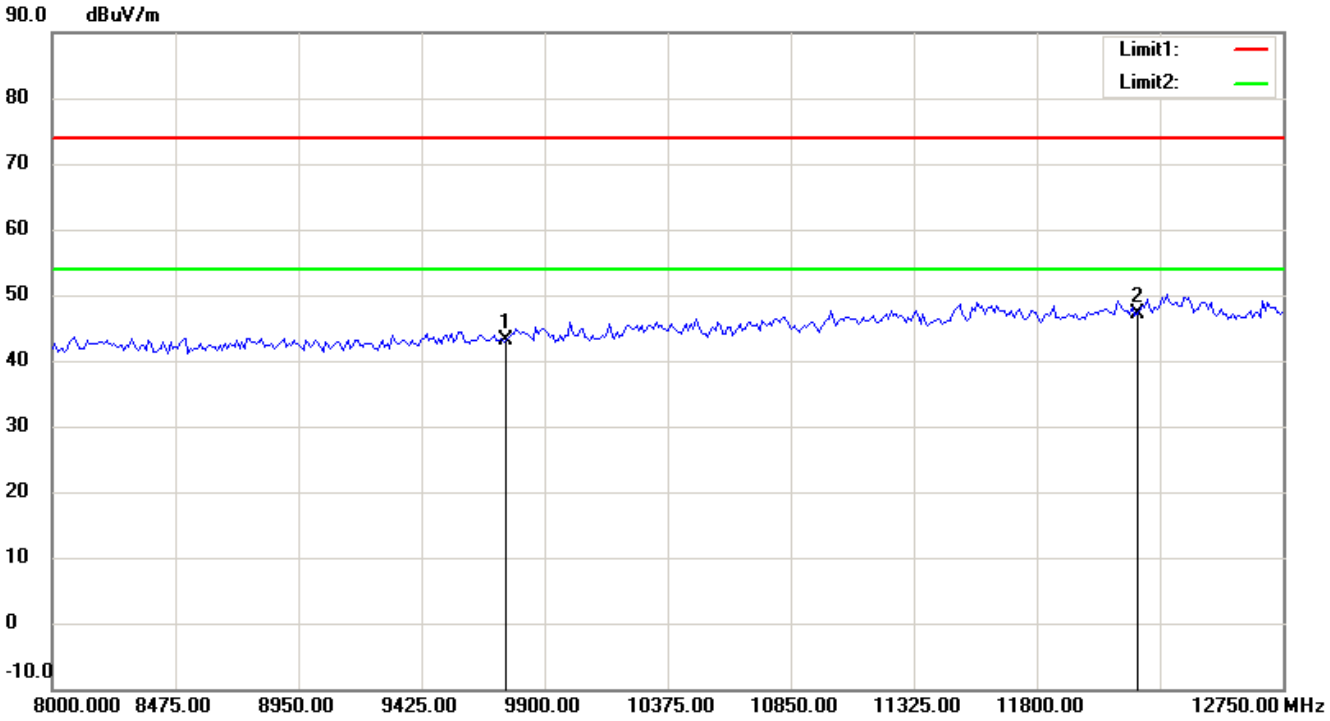
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

1. **The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.**
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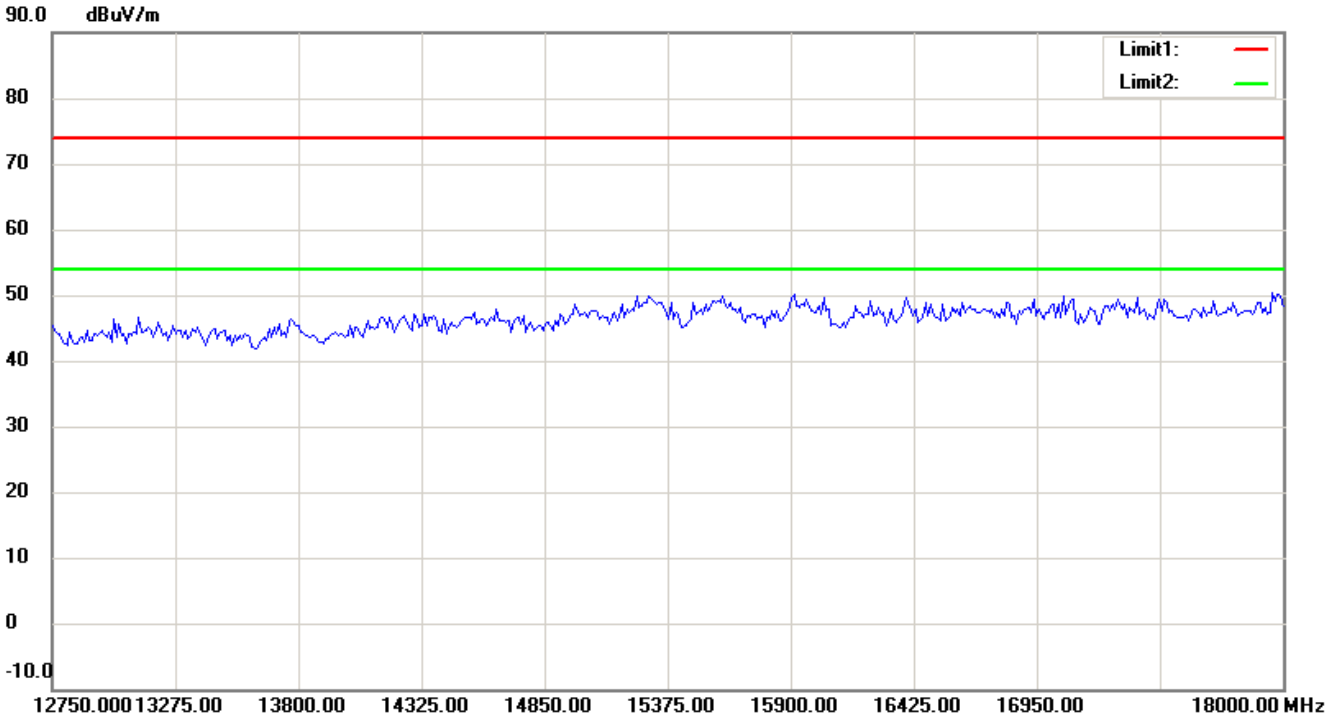
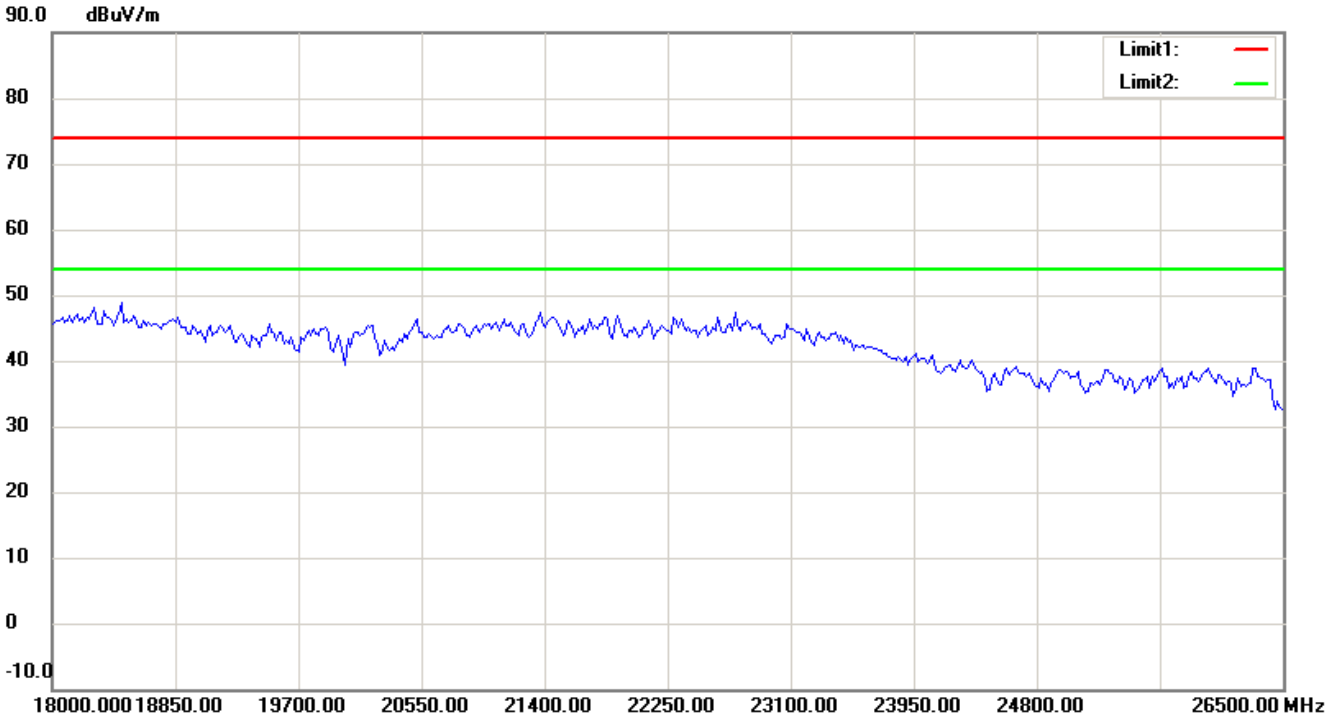
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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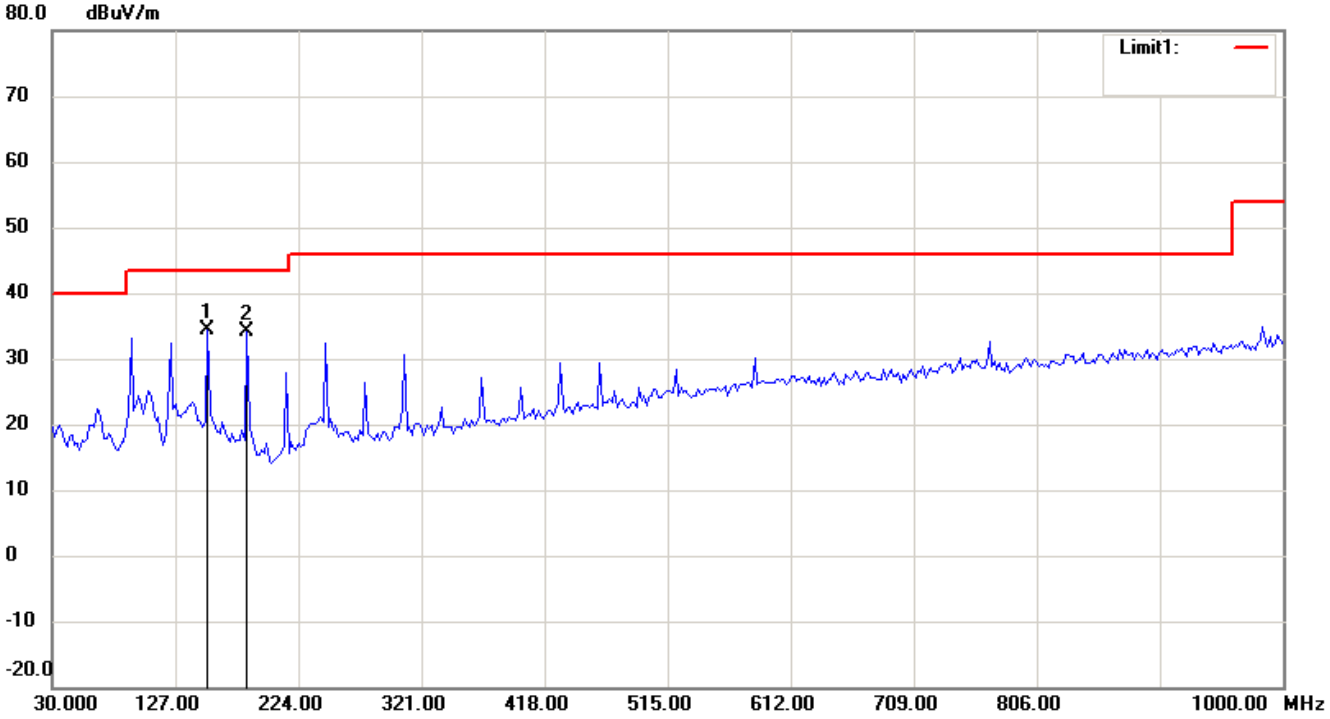
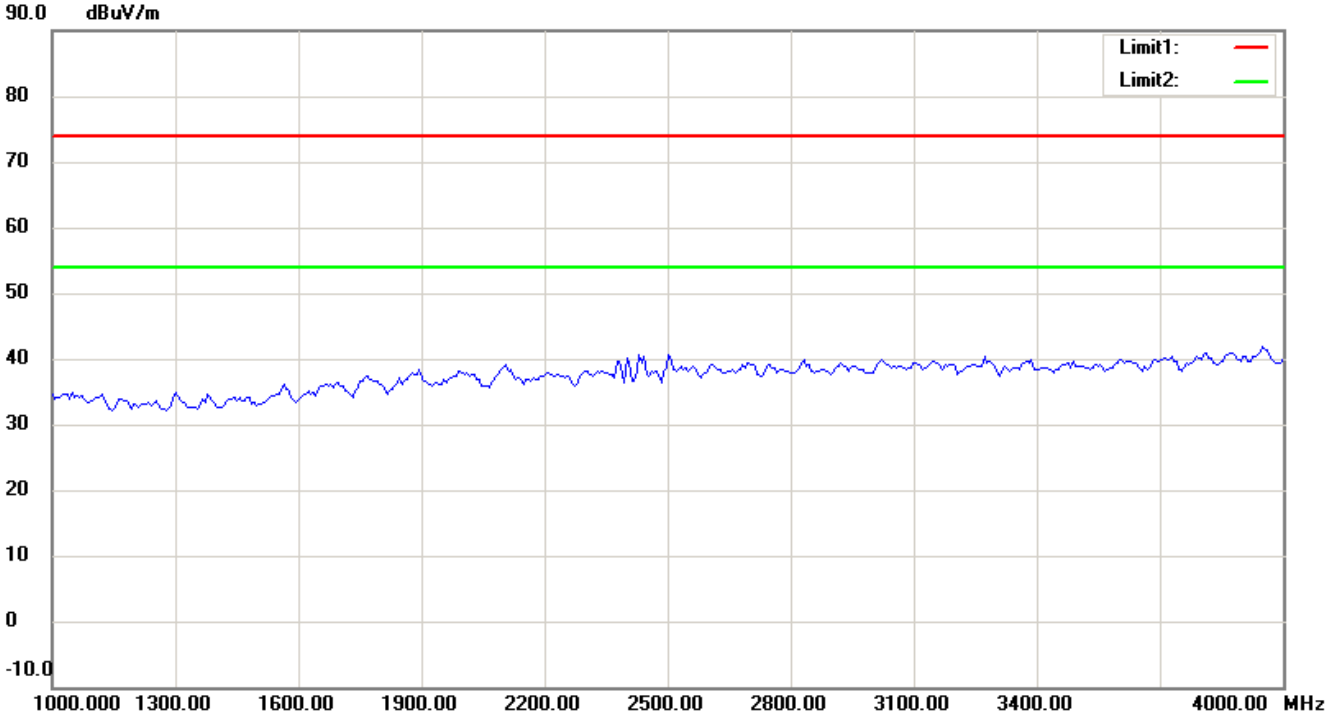
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

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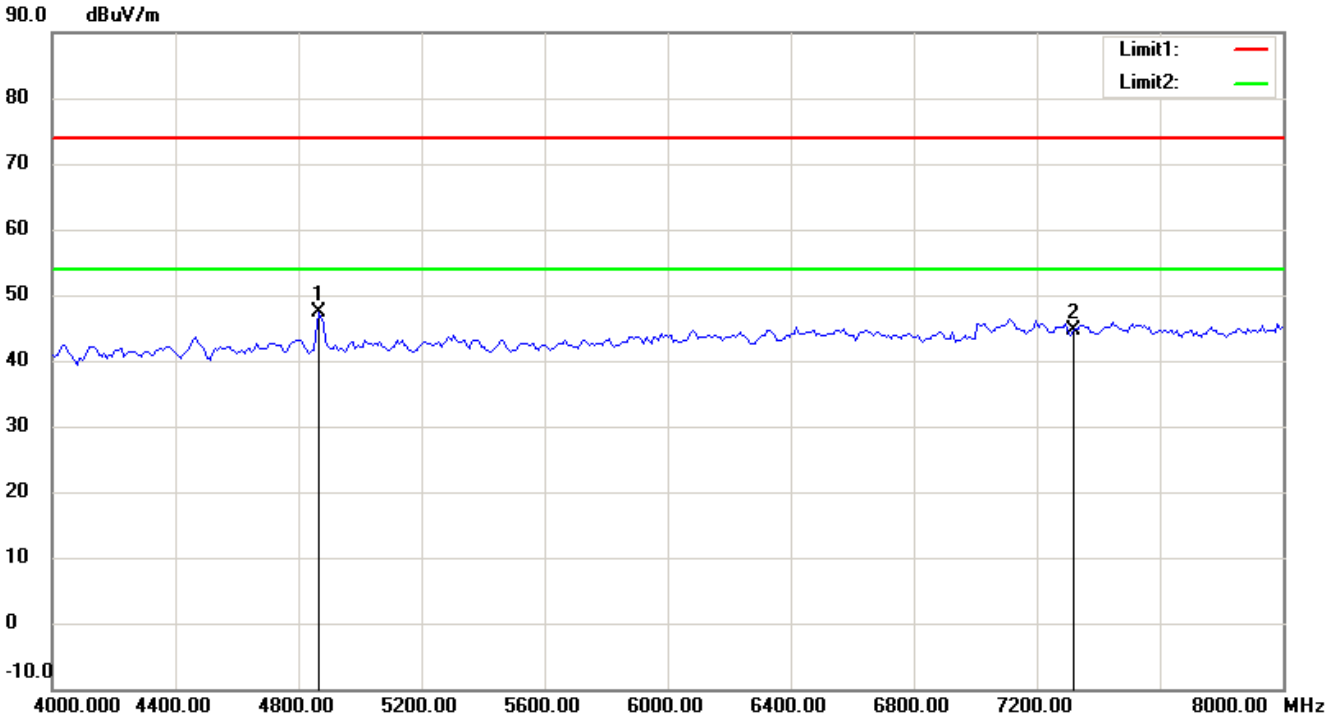
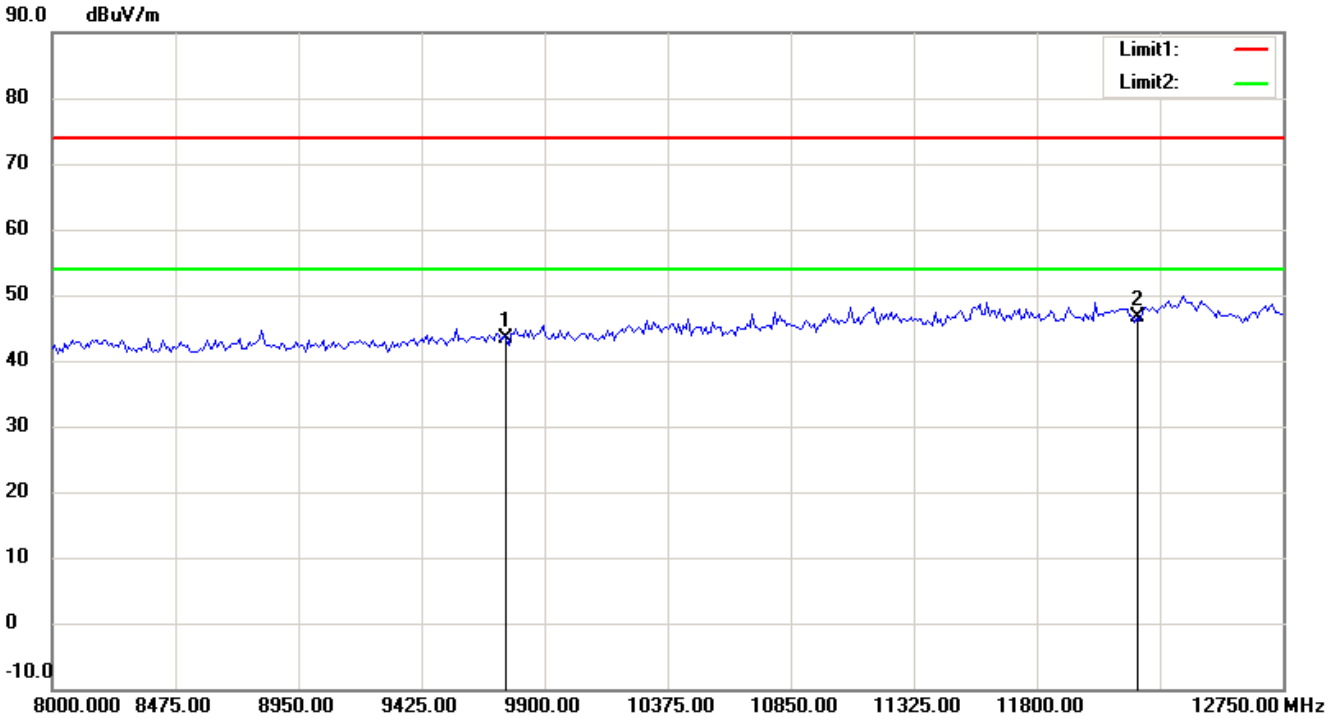
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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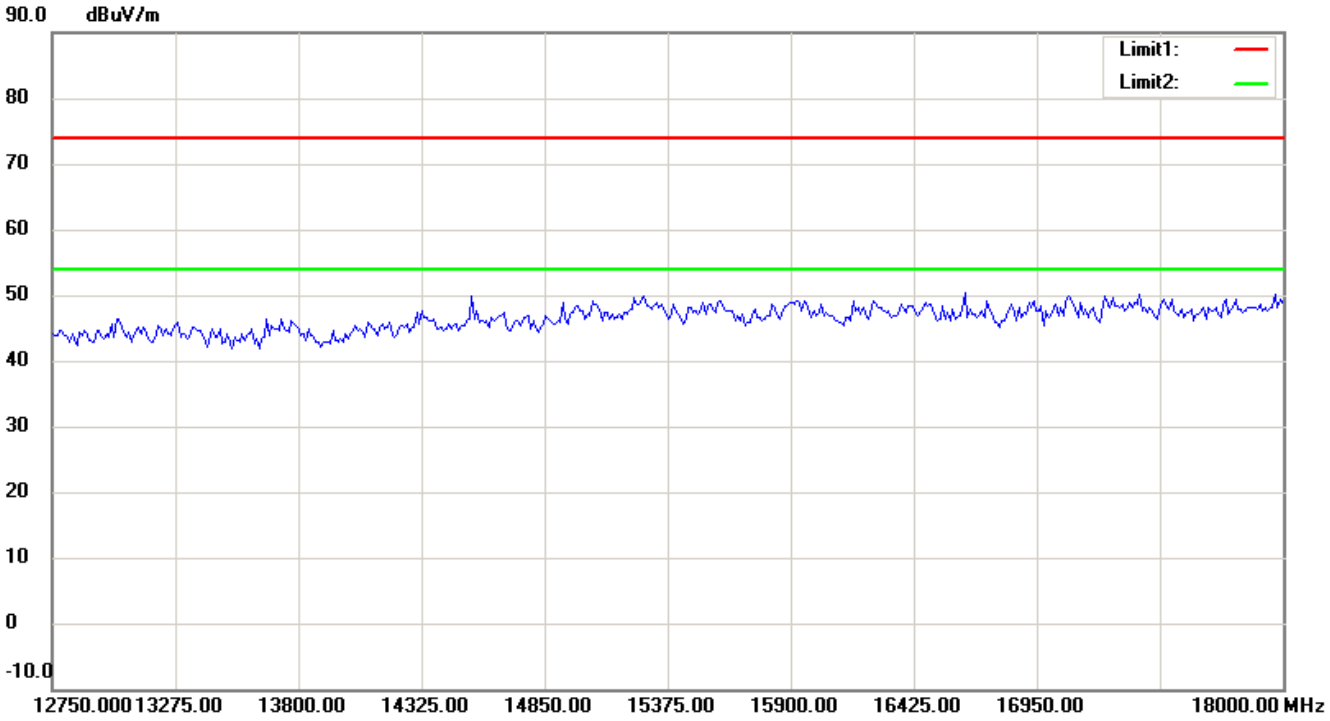
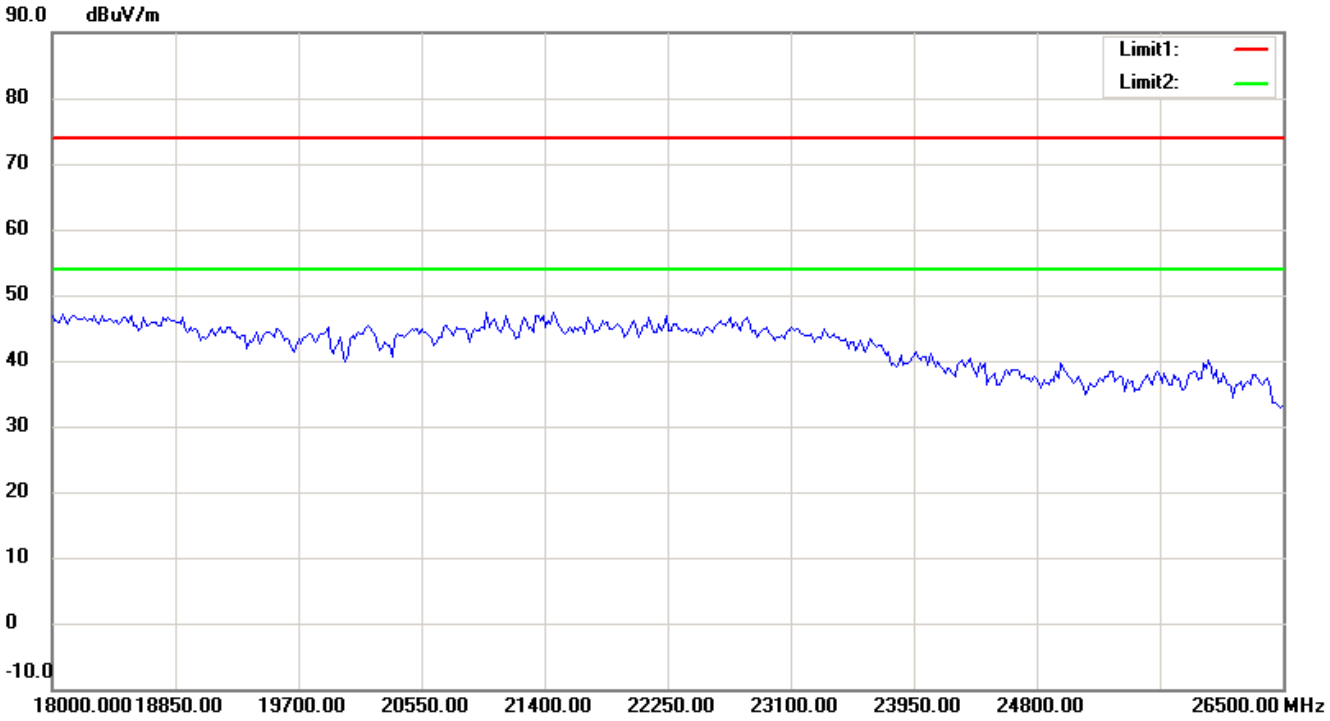
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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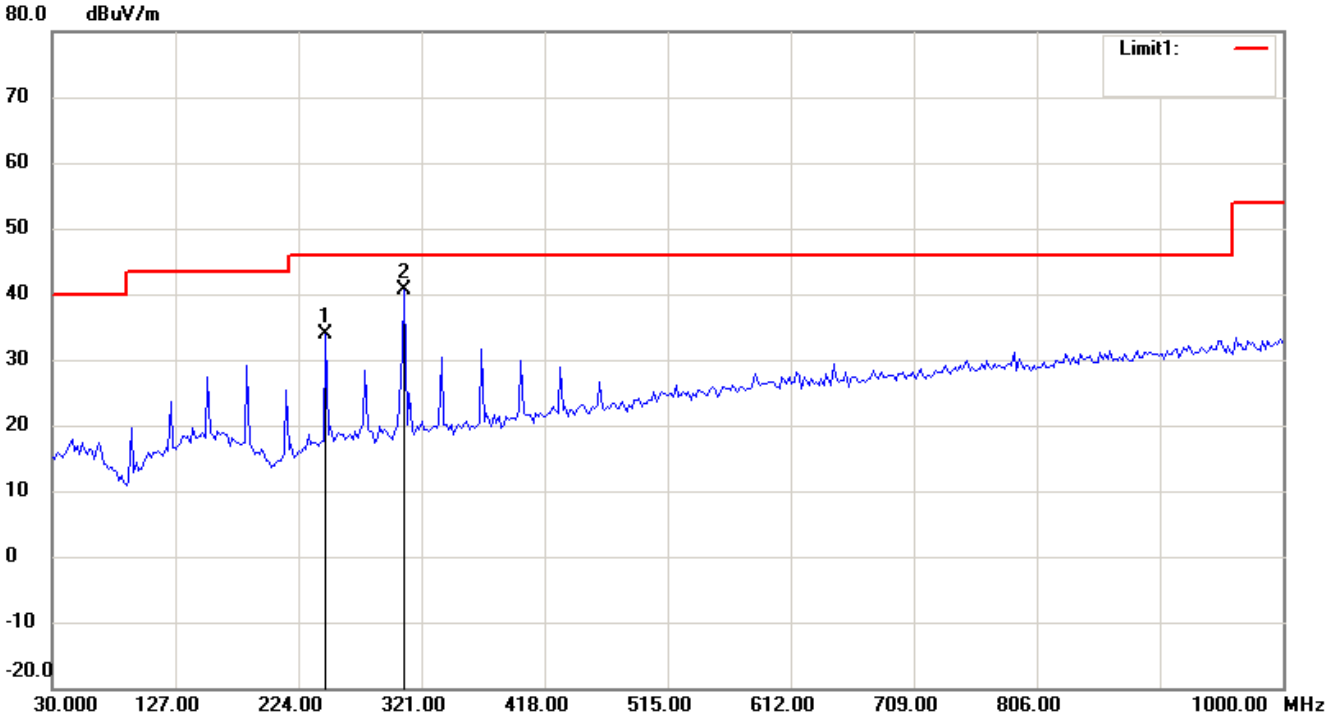
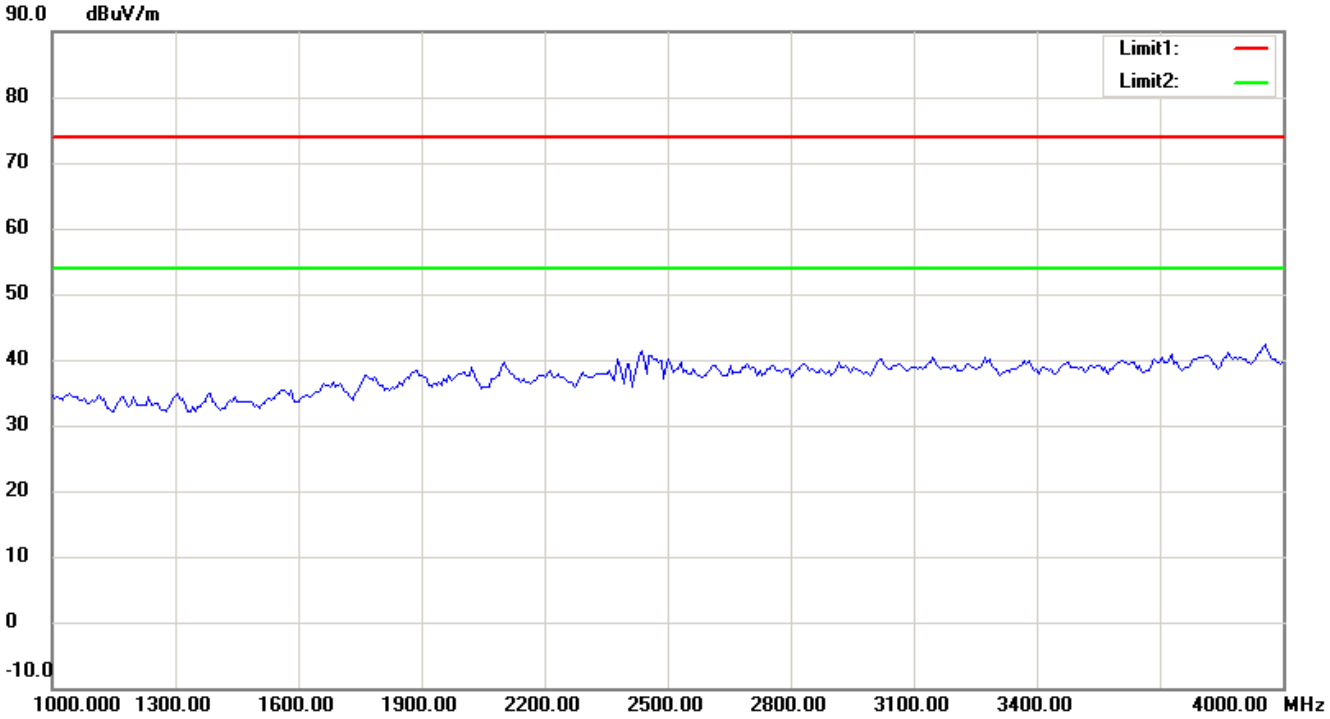
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

802.11n(20MHz) CH11
Antenna Polarization H





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

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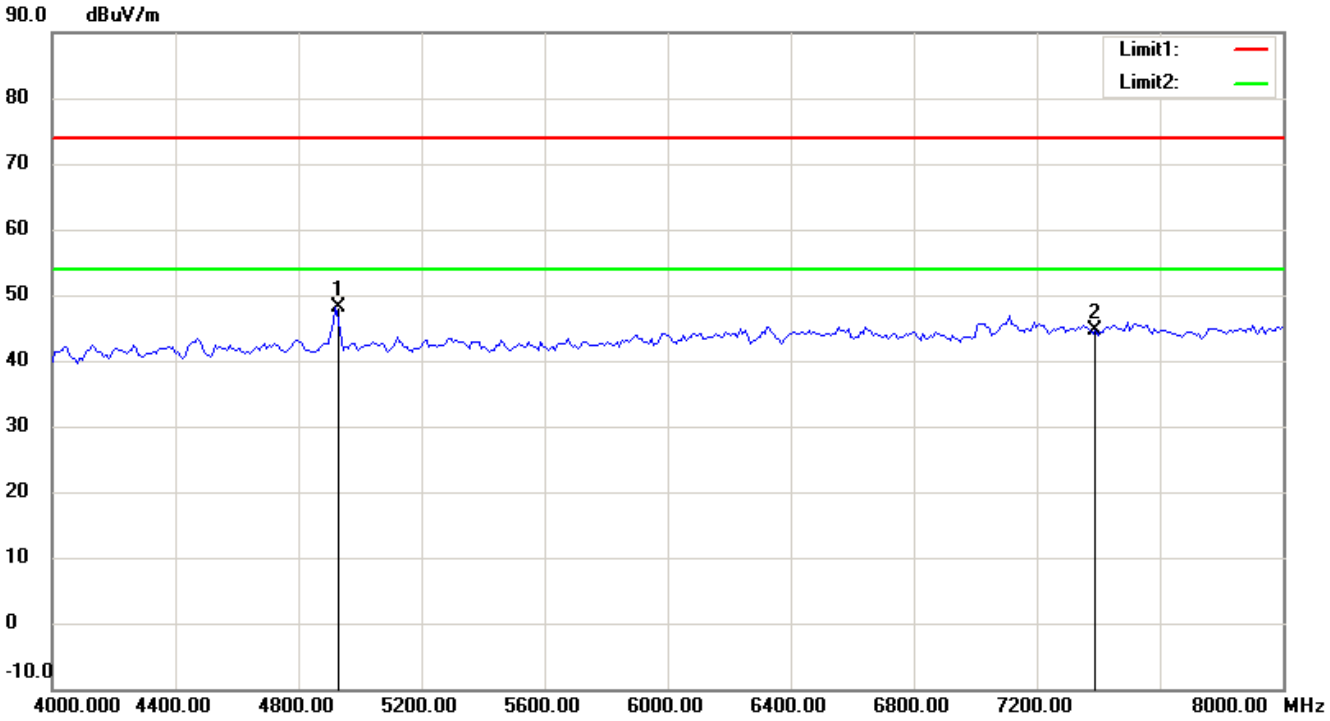
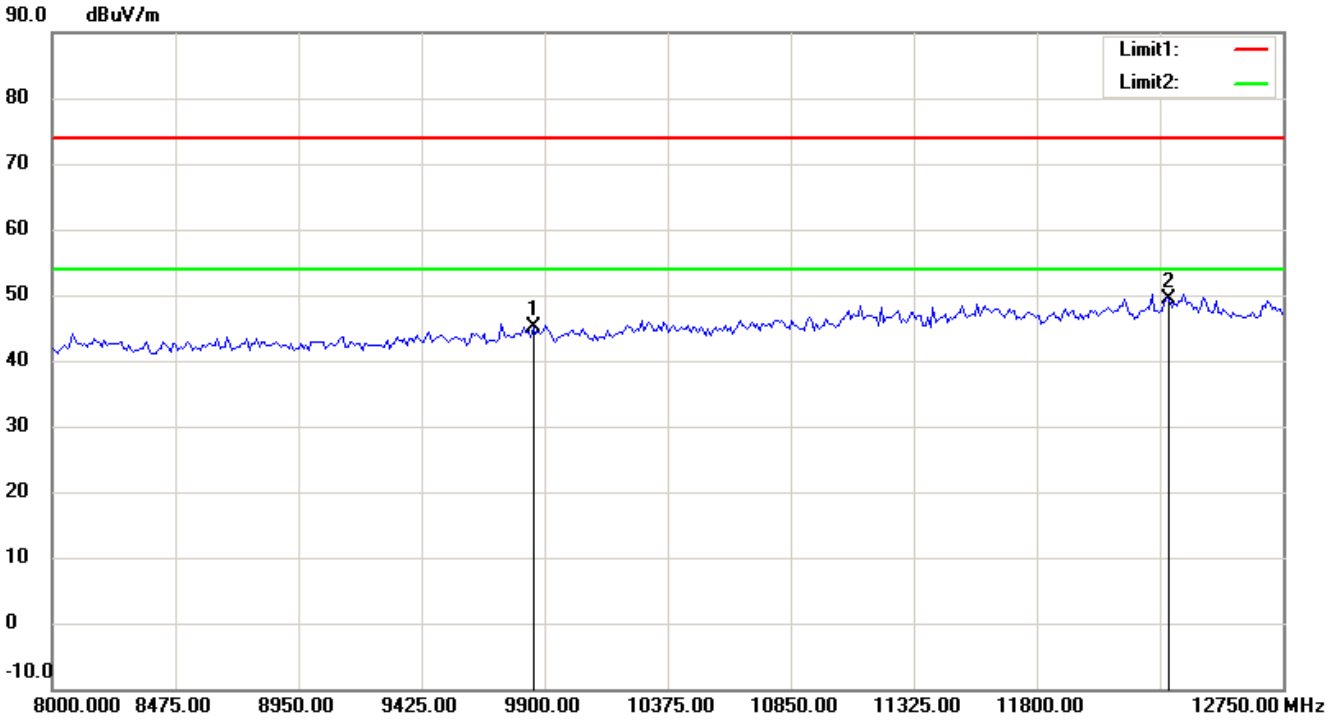
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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Note:

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Registration number: W6M21409-14510-C-1
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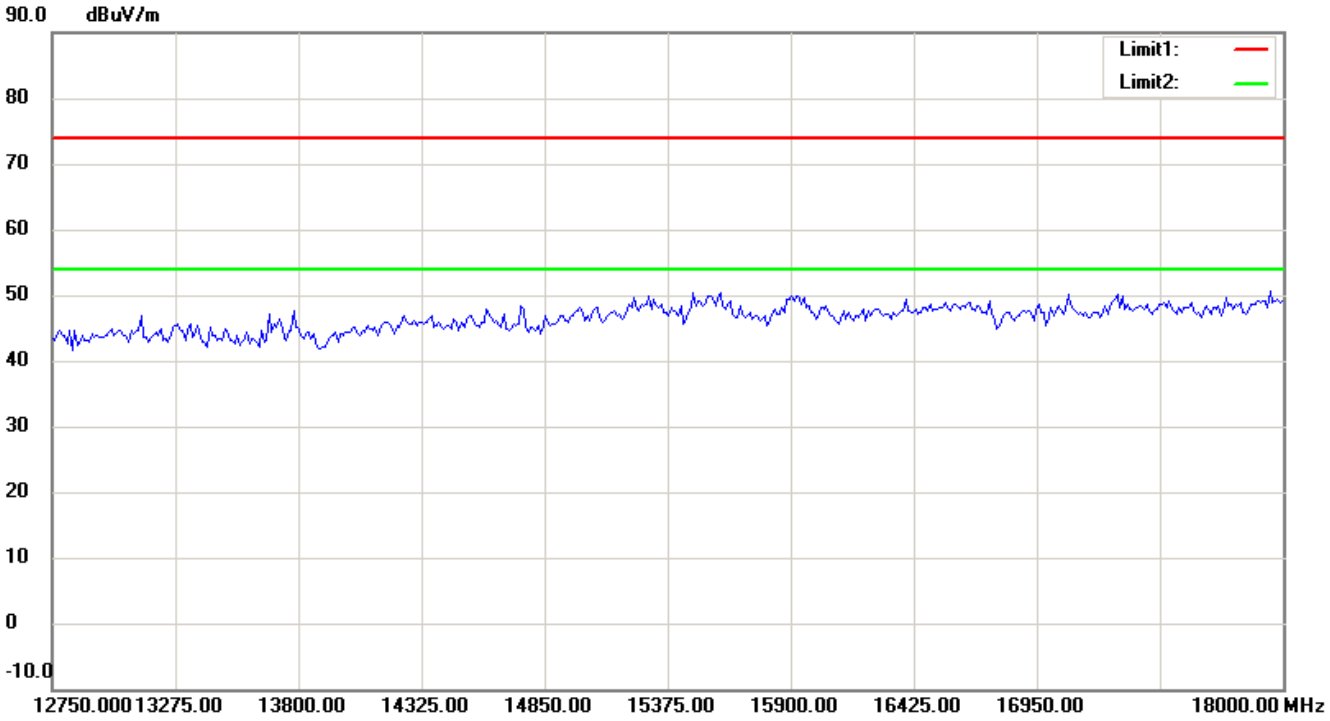

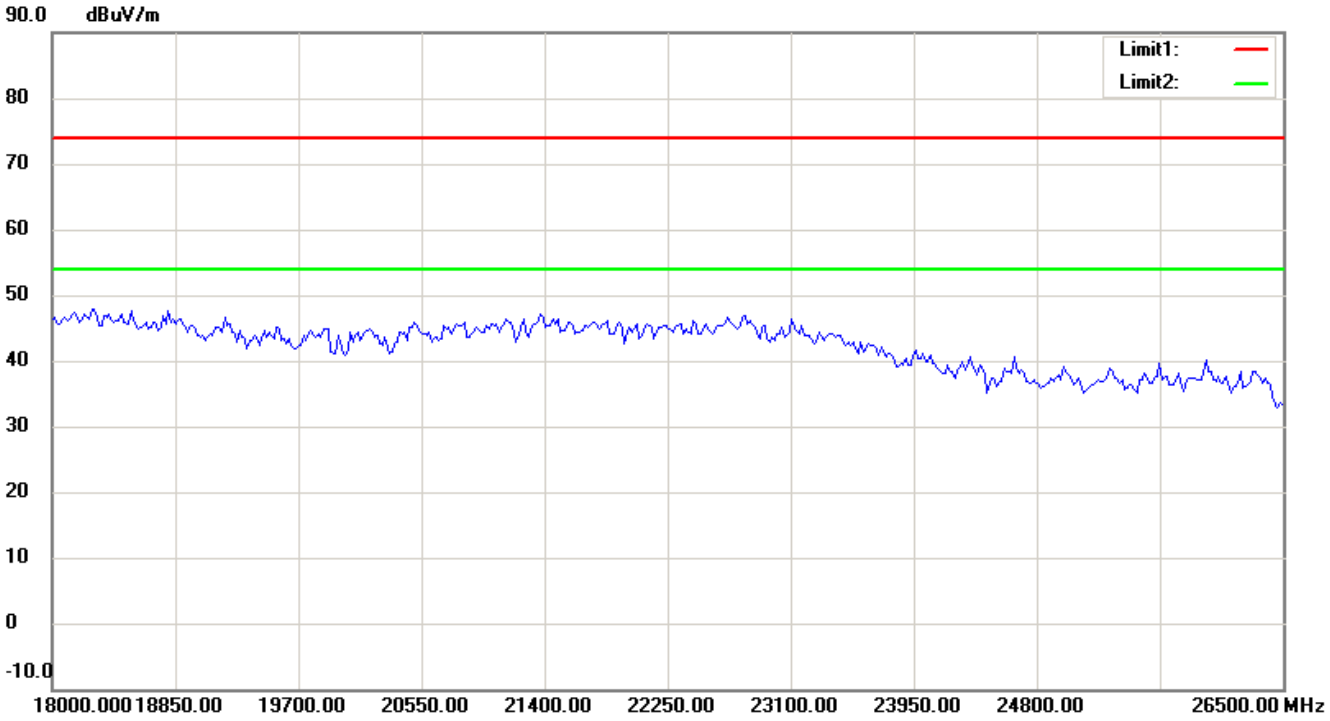

Up Line: Peak Limit Line Down Line: Ave Limit Line
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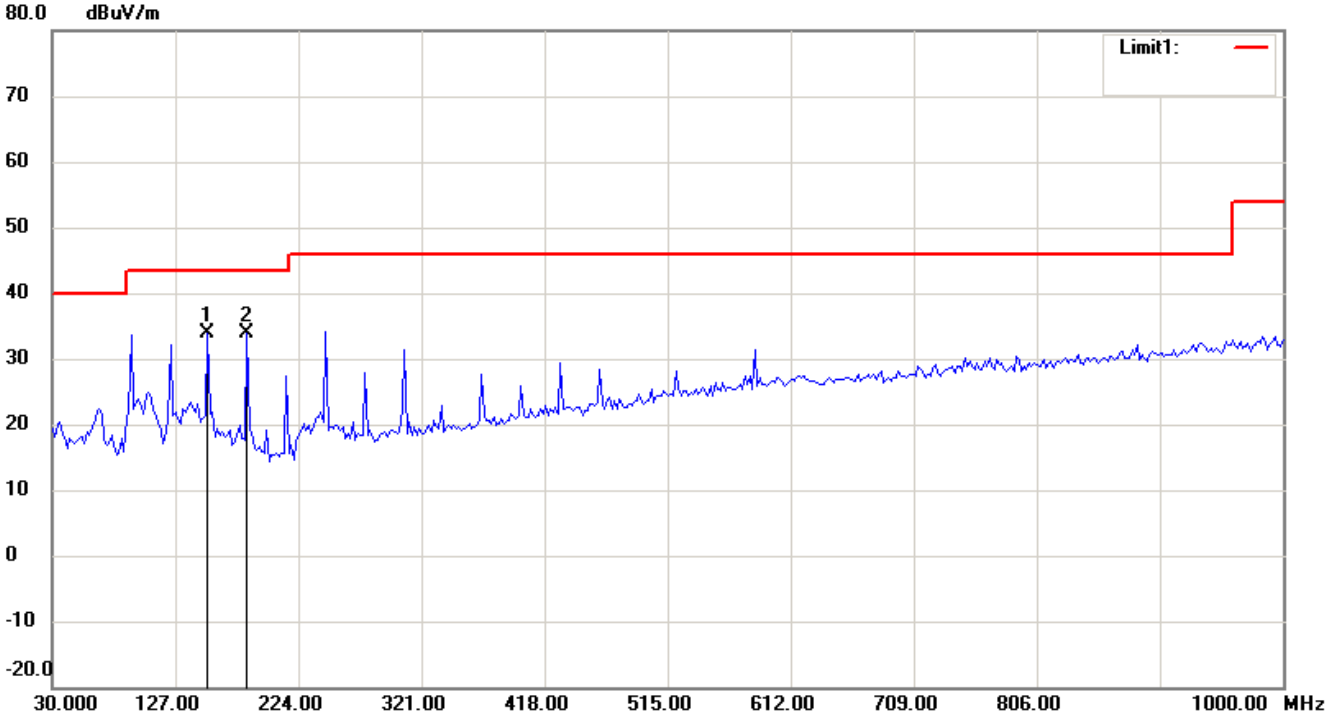
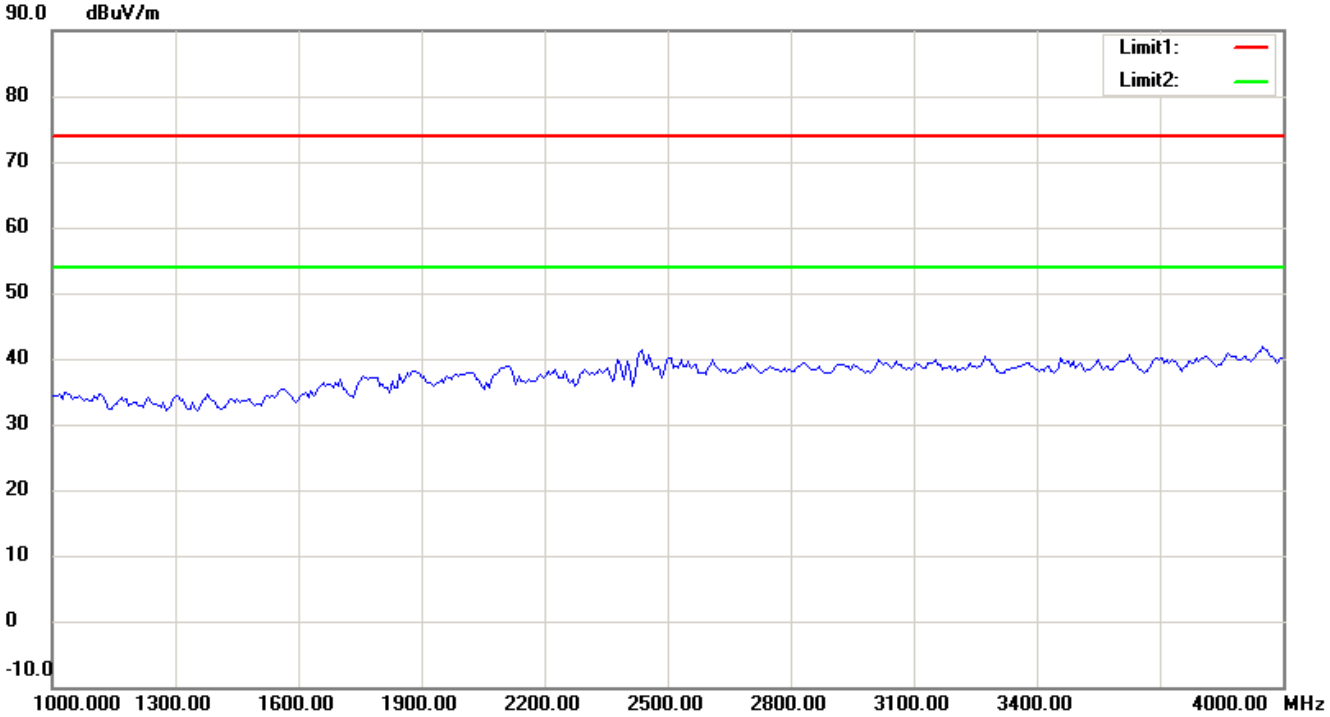
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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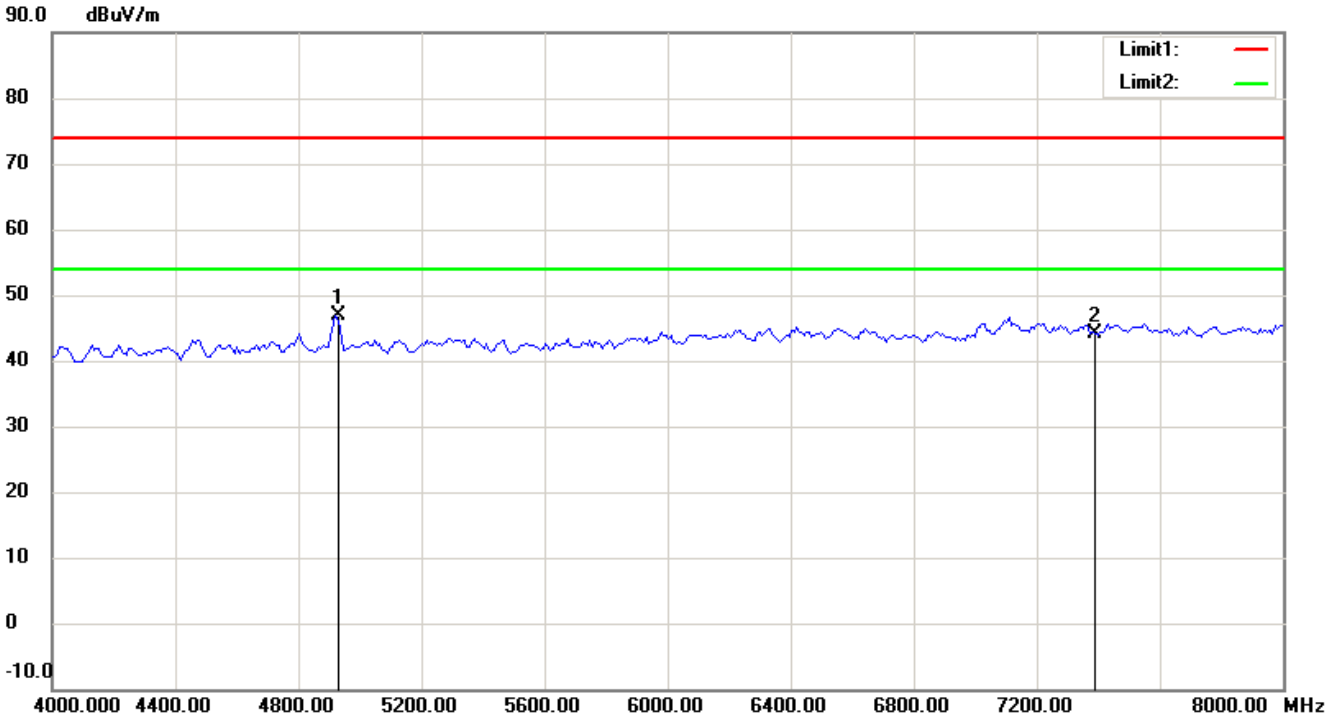

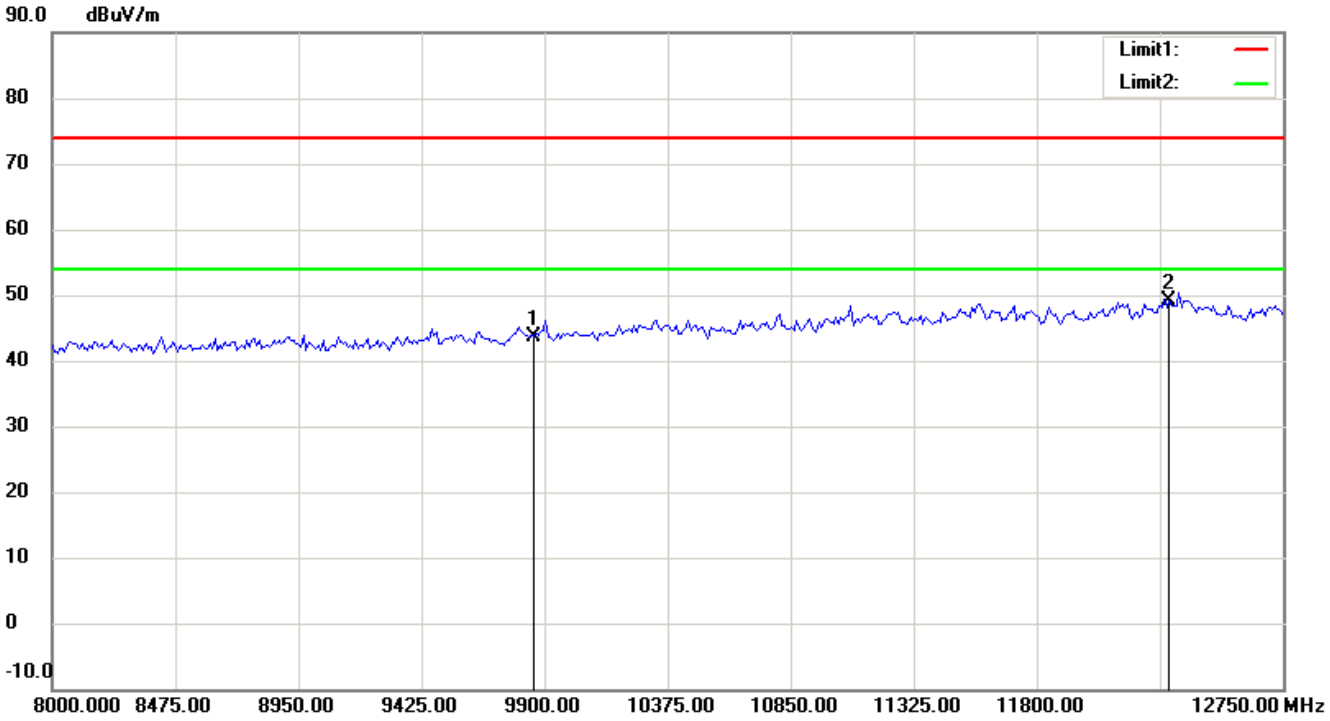

Up Line: Peak Limit Line Down Line: Ave Limit Line
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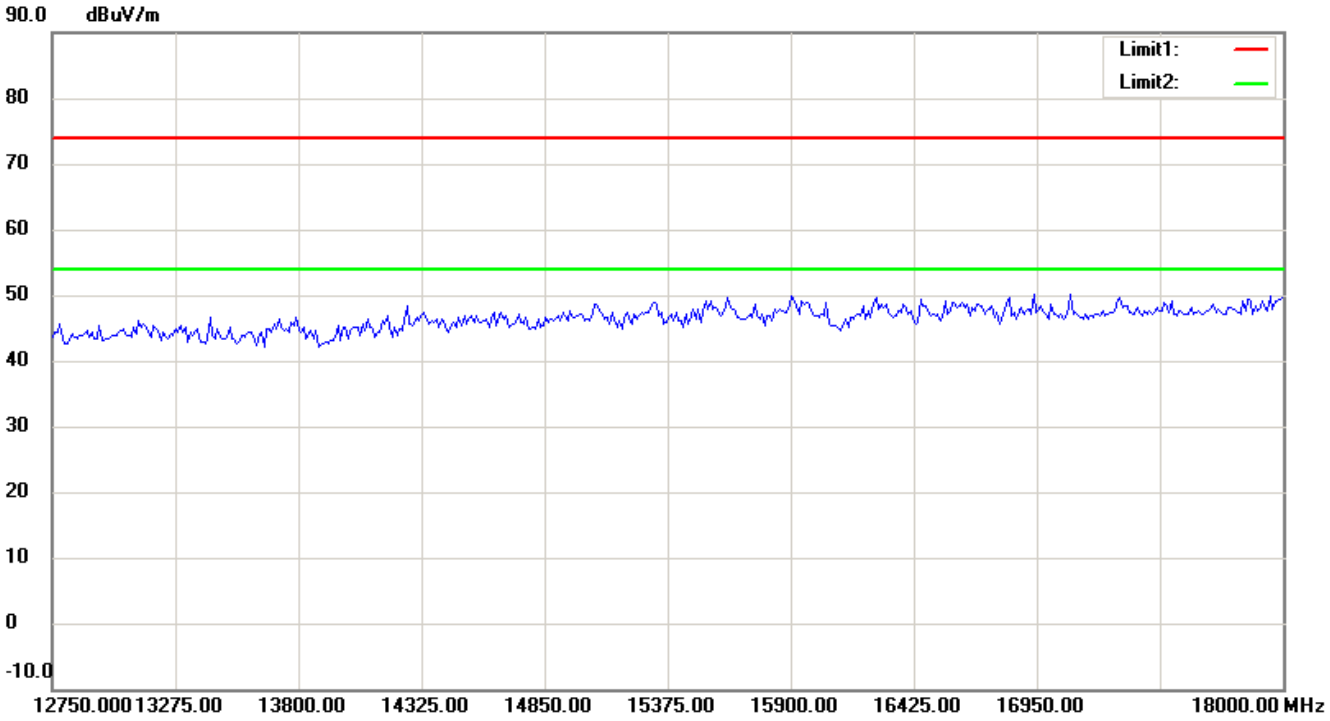

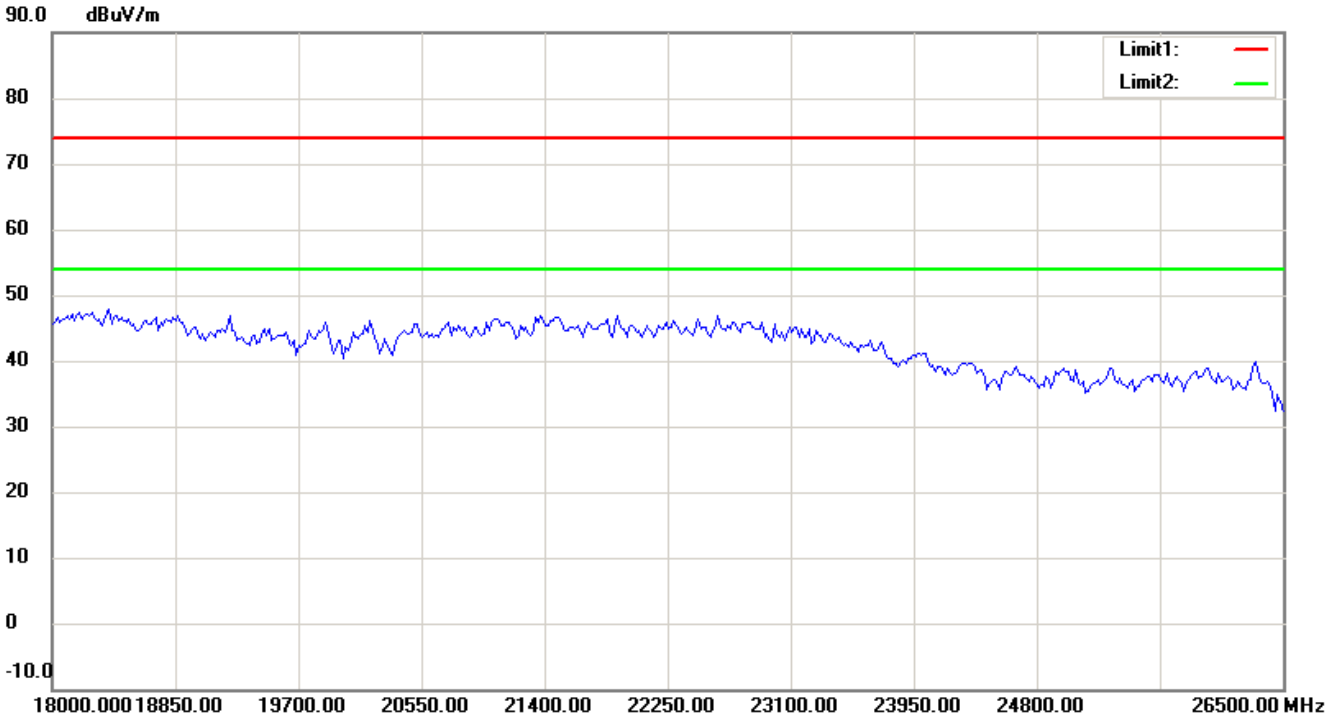

Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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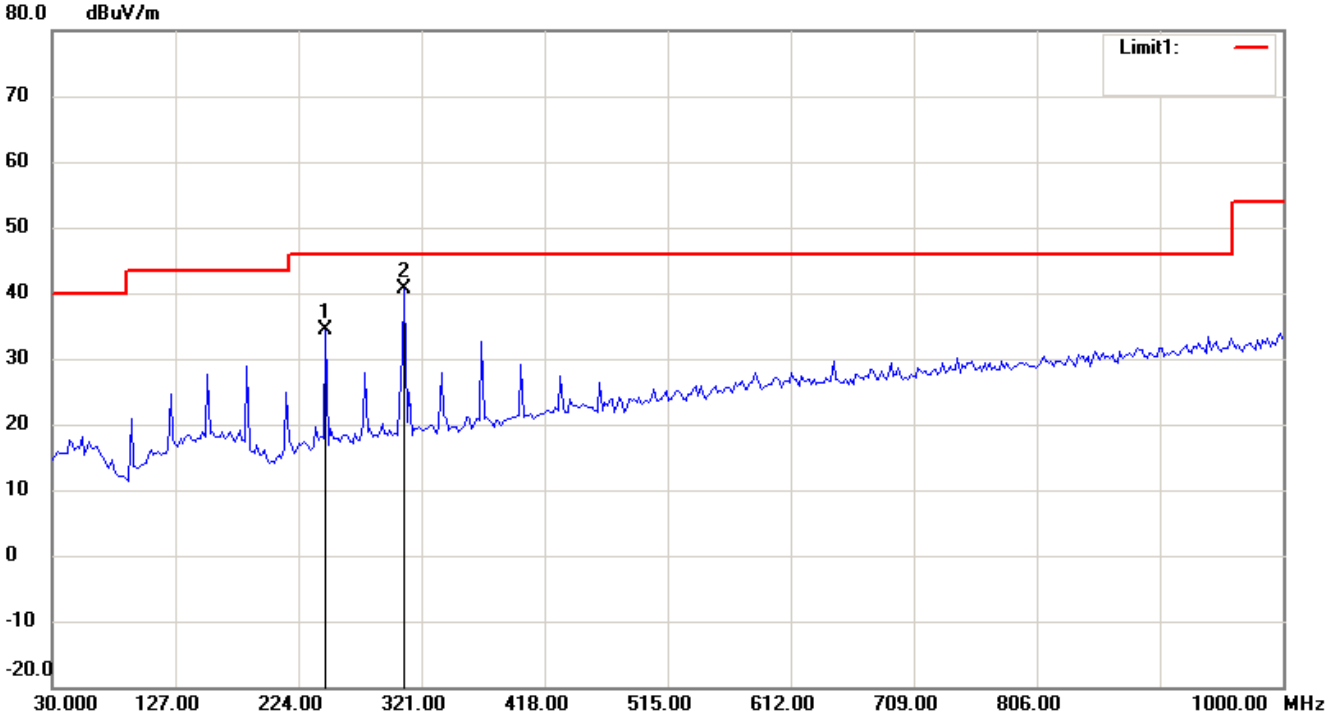
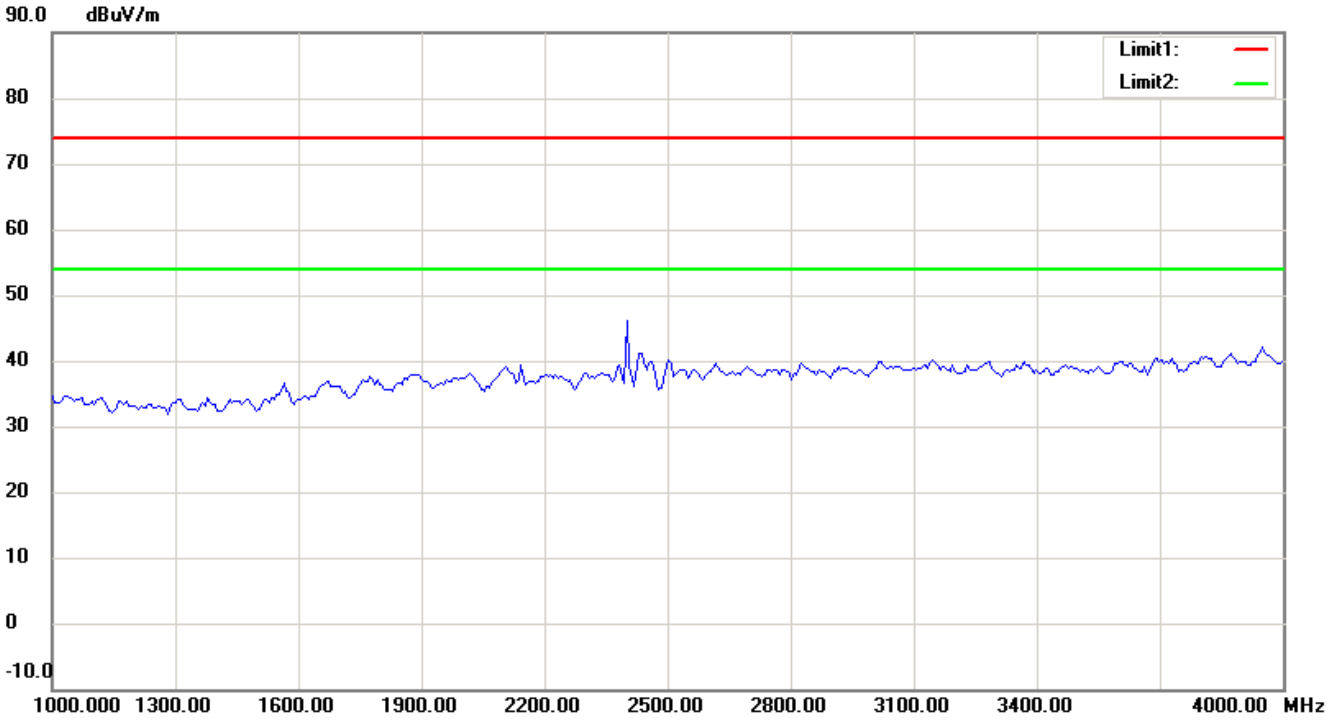
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Bluetooth Normal 2402MHz

Antenna Polarization H





Up Line: Peak Limit Line Down Line: Ave Limit Line
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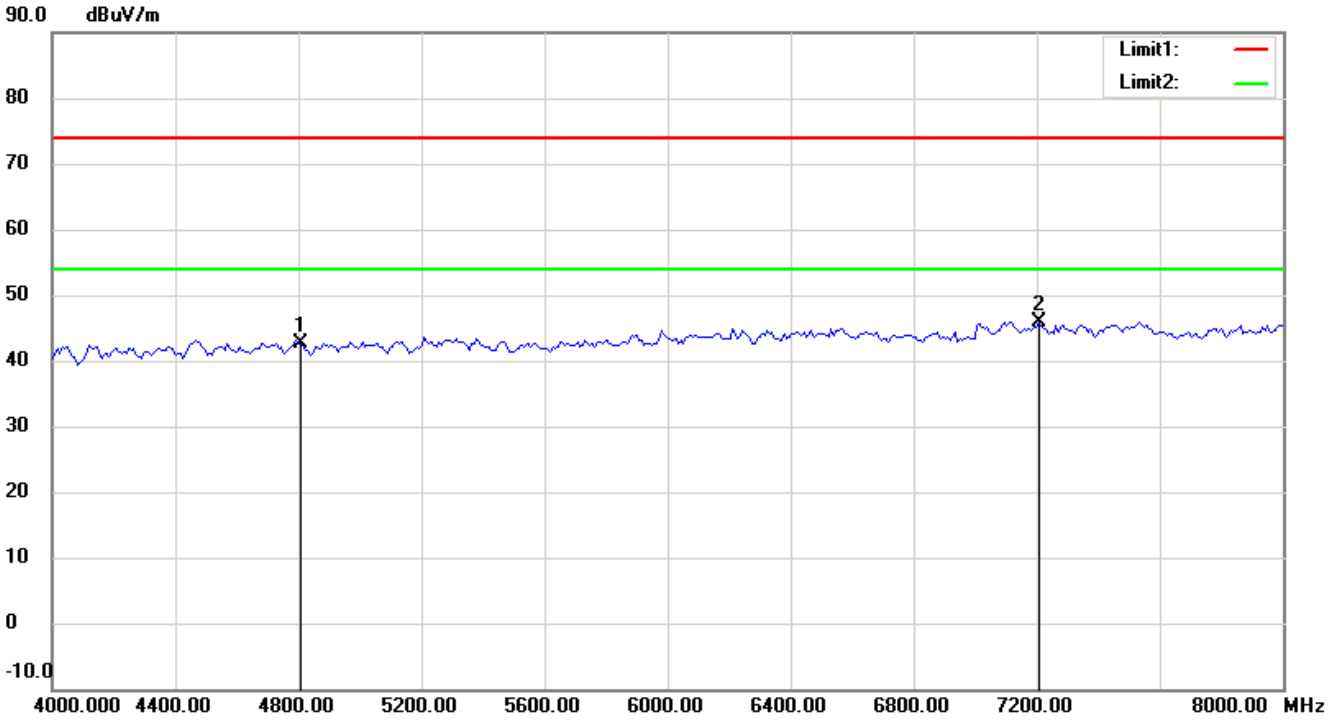
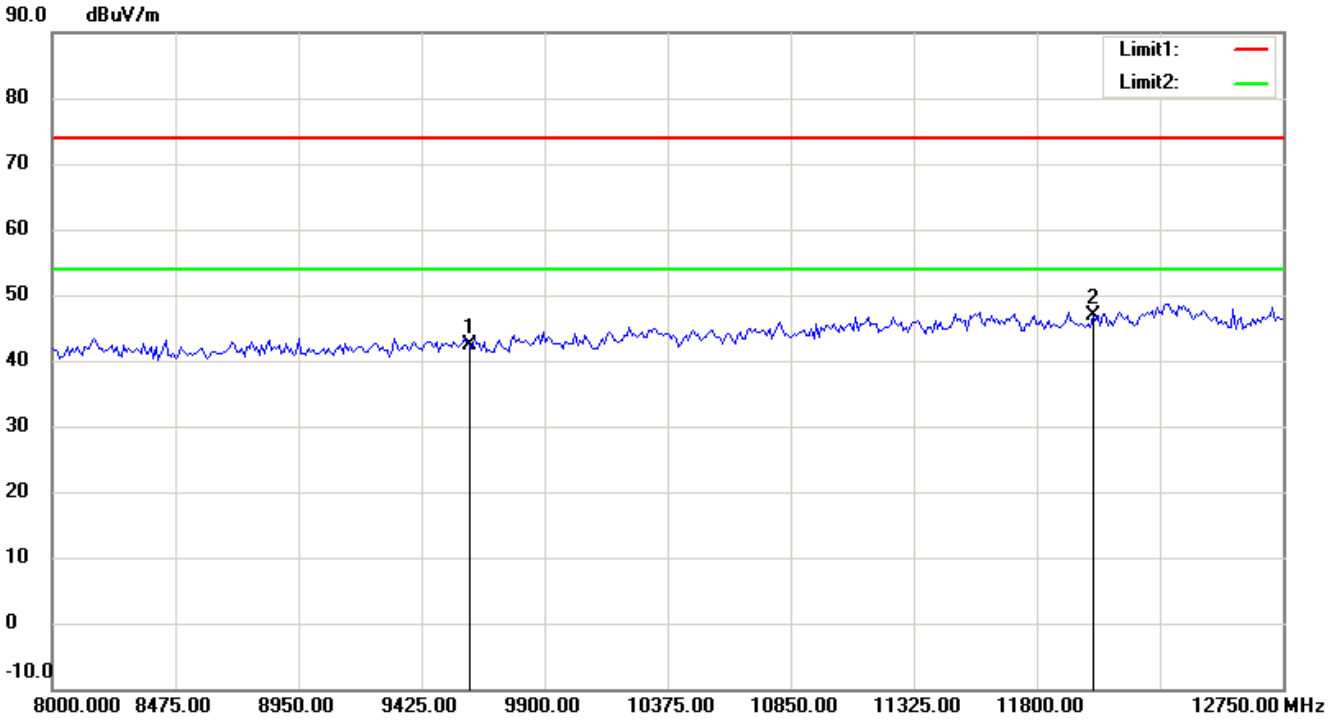
FCC ID: IR5DF7A





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Note:

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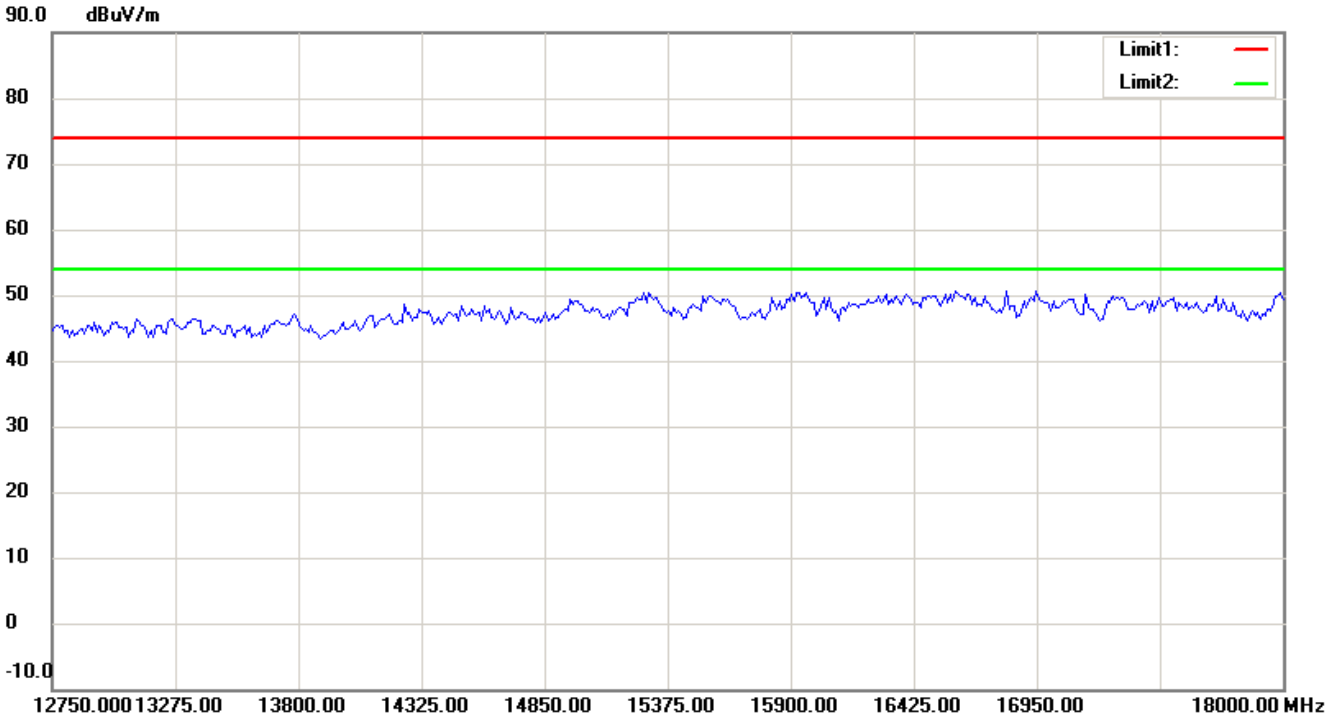
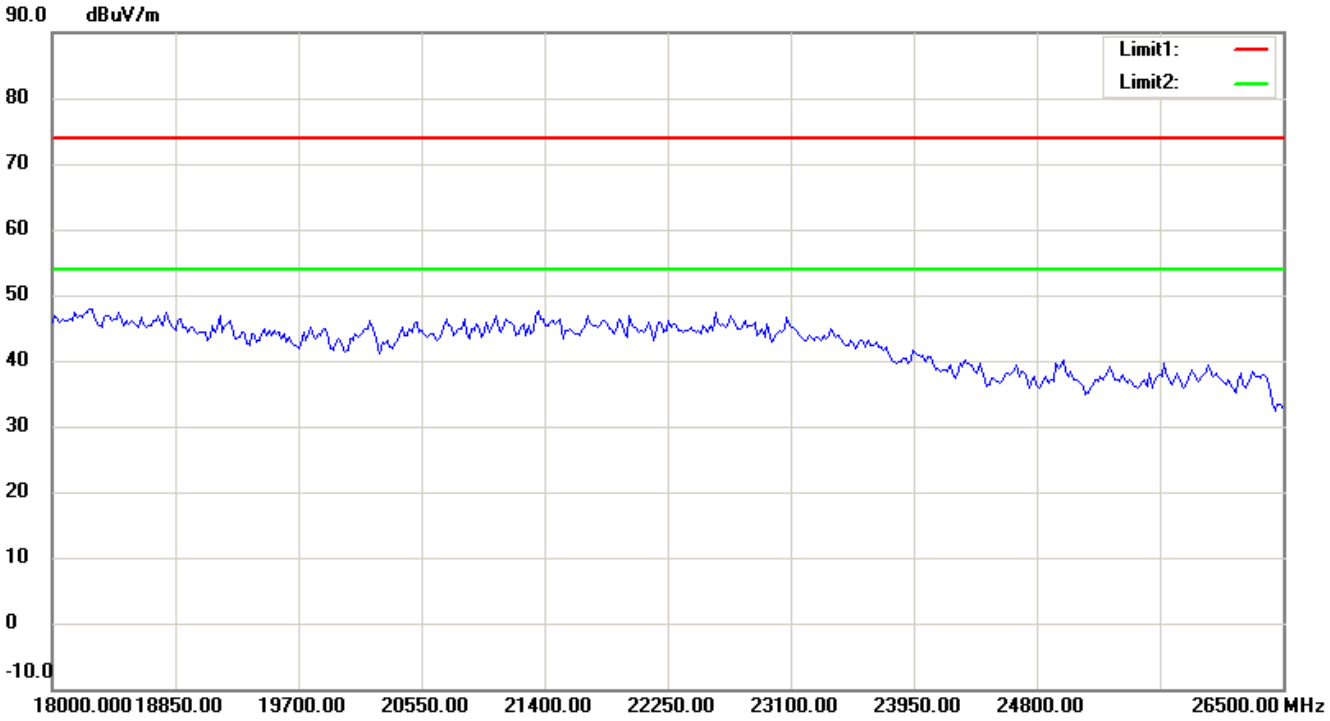
FCC ID: IR5DF7A





Up Line: Peak Limit Line Down Line: Ave Limit Line
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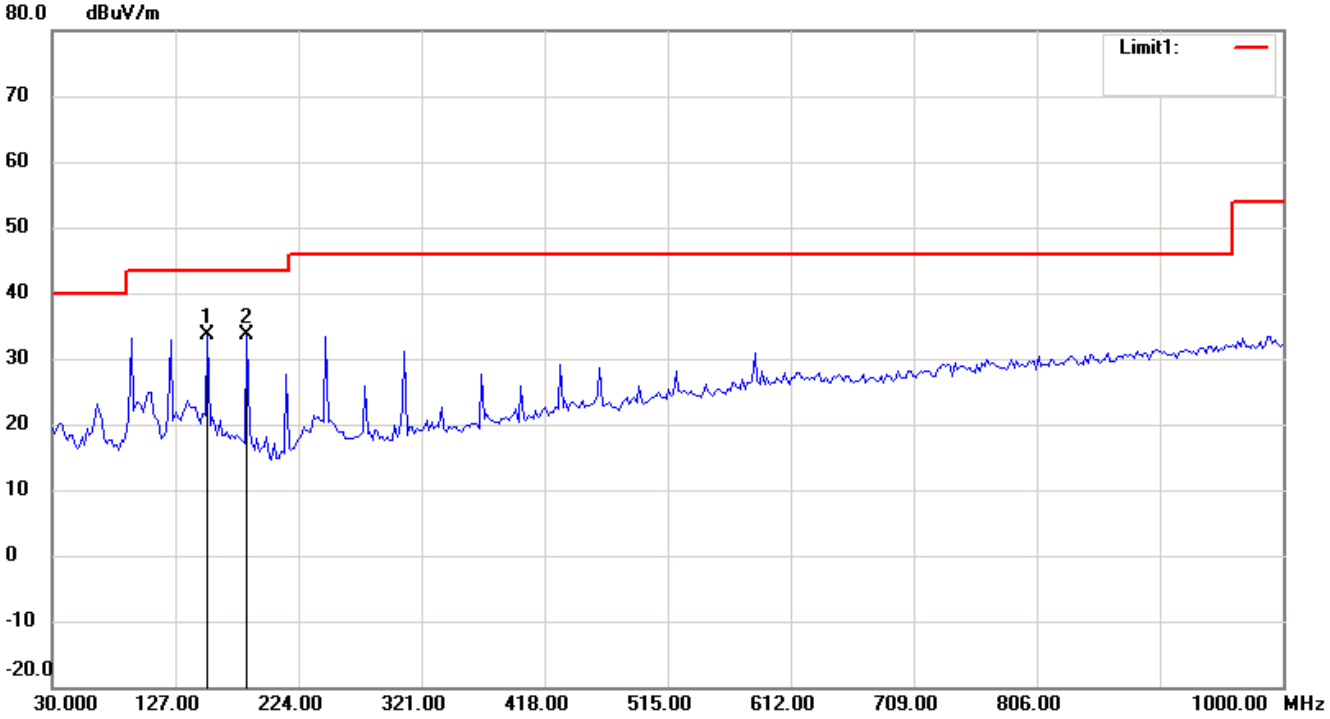
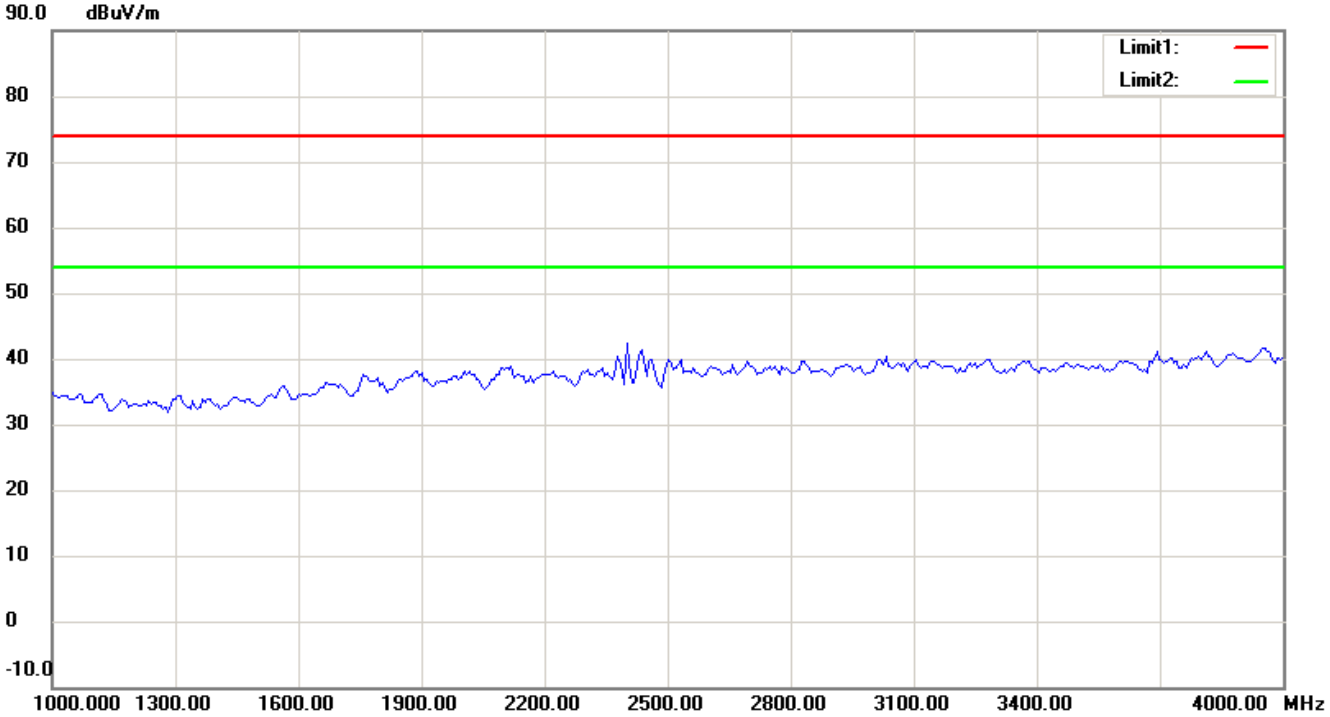
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V

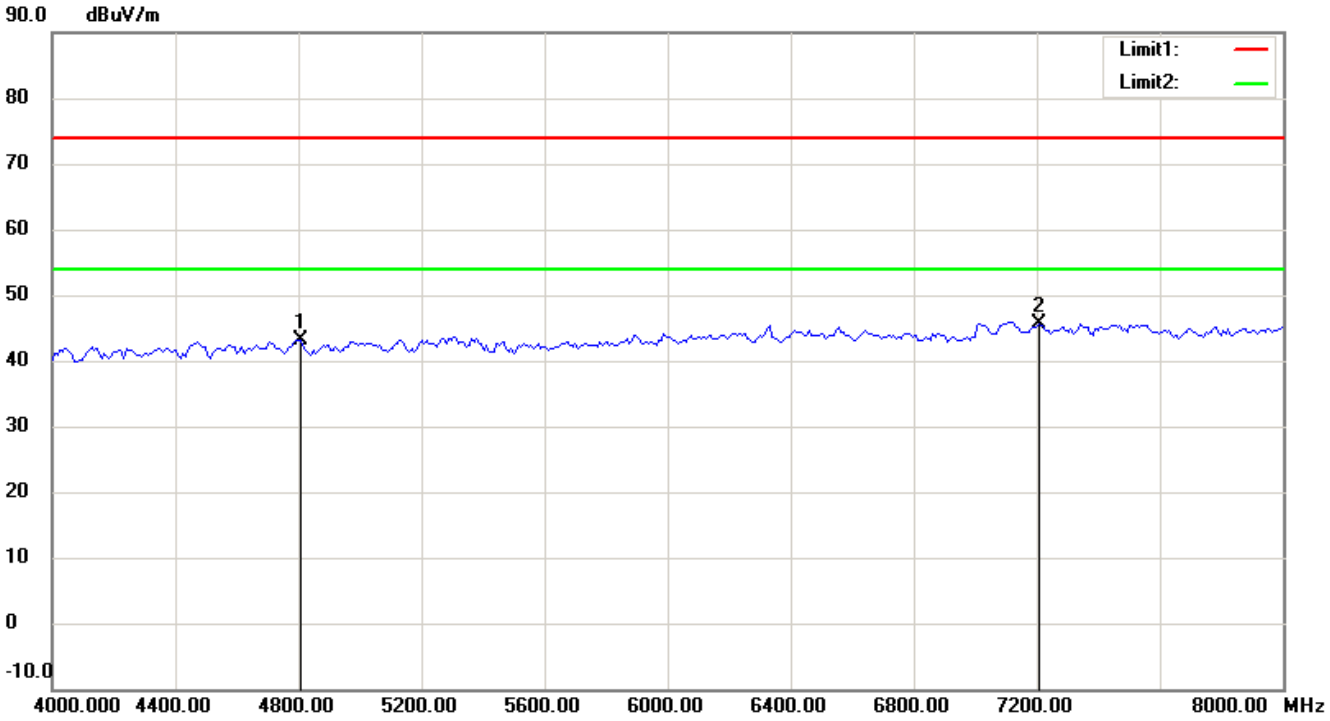


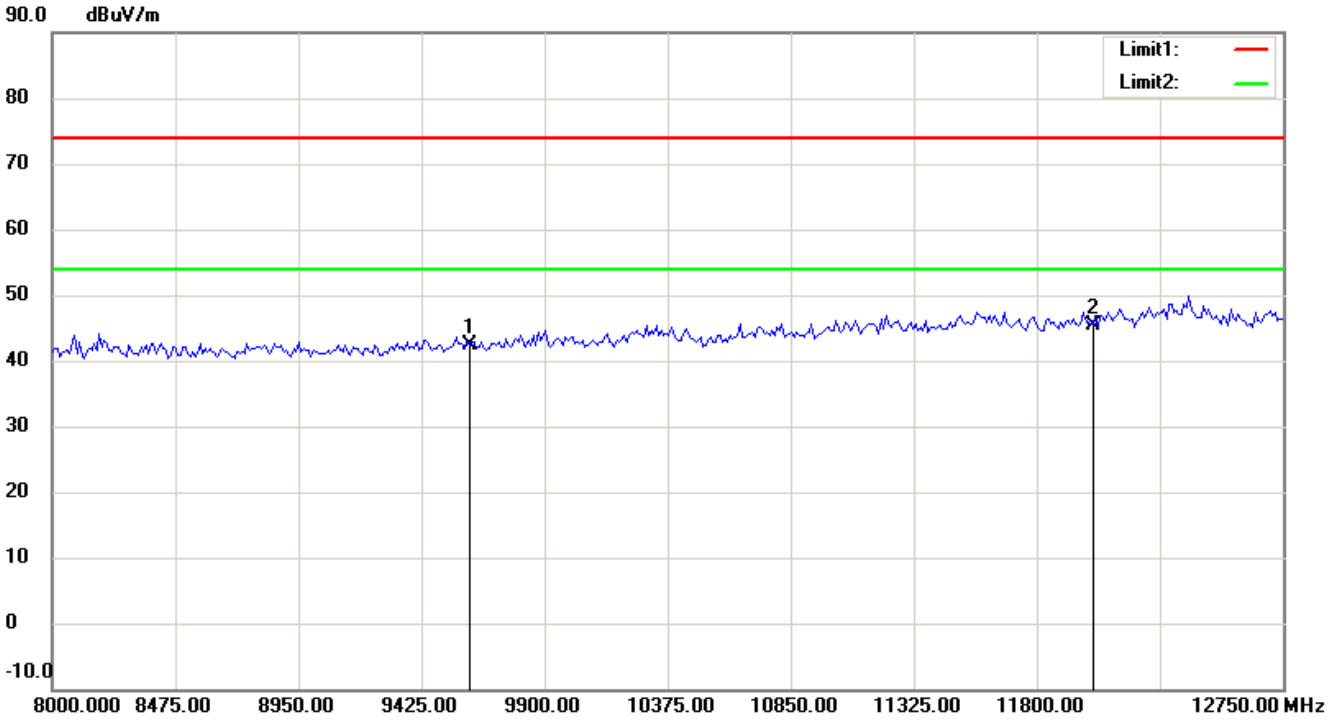


Up Line: Peak Limit Line Down Line: Ave Limit Line
Note:

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

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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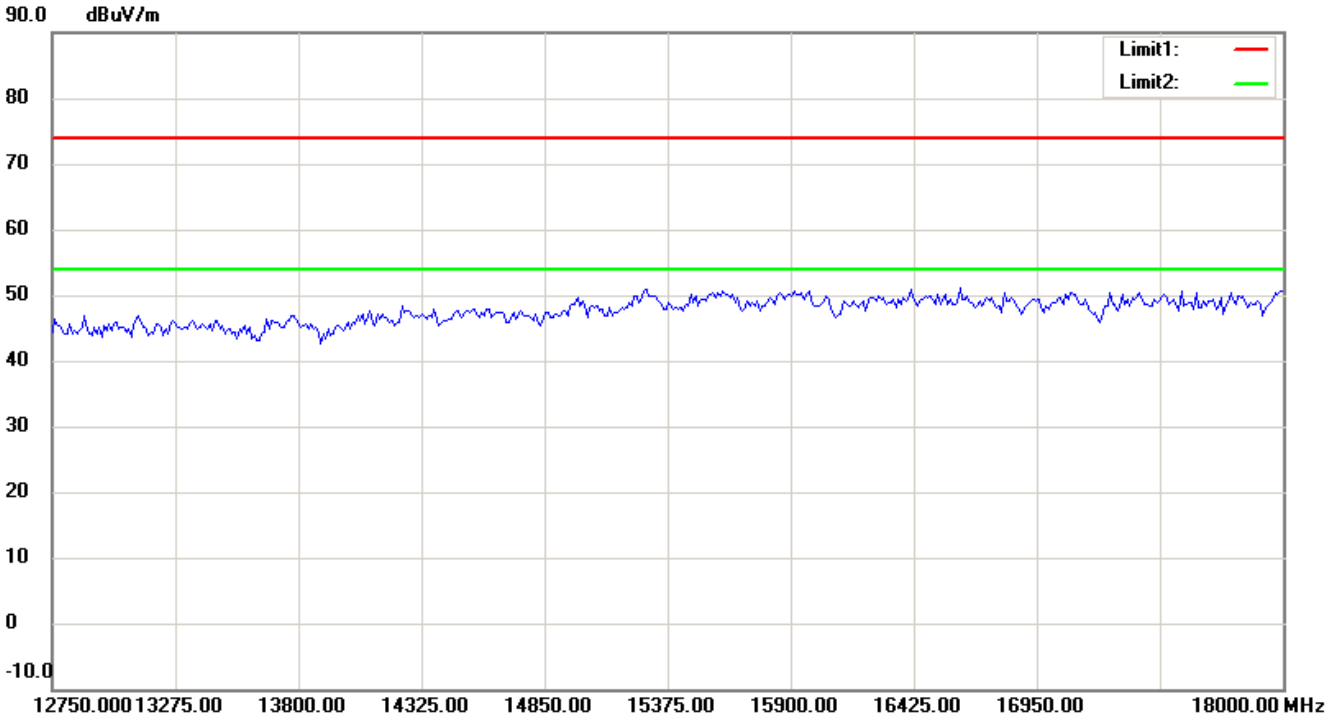
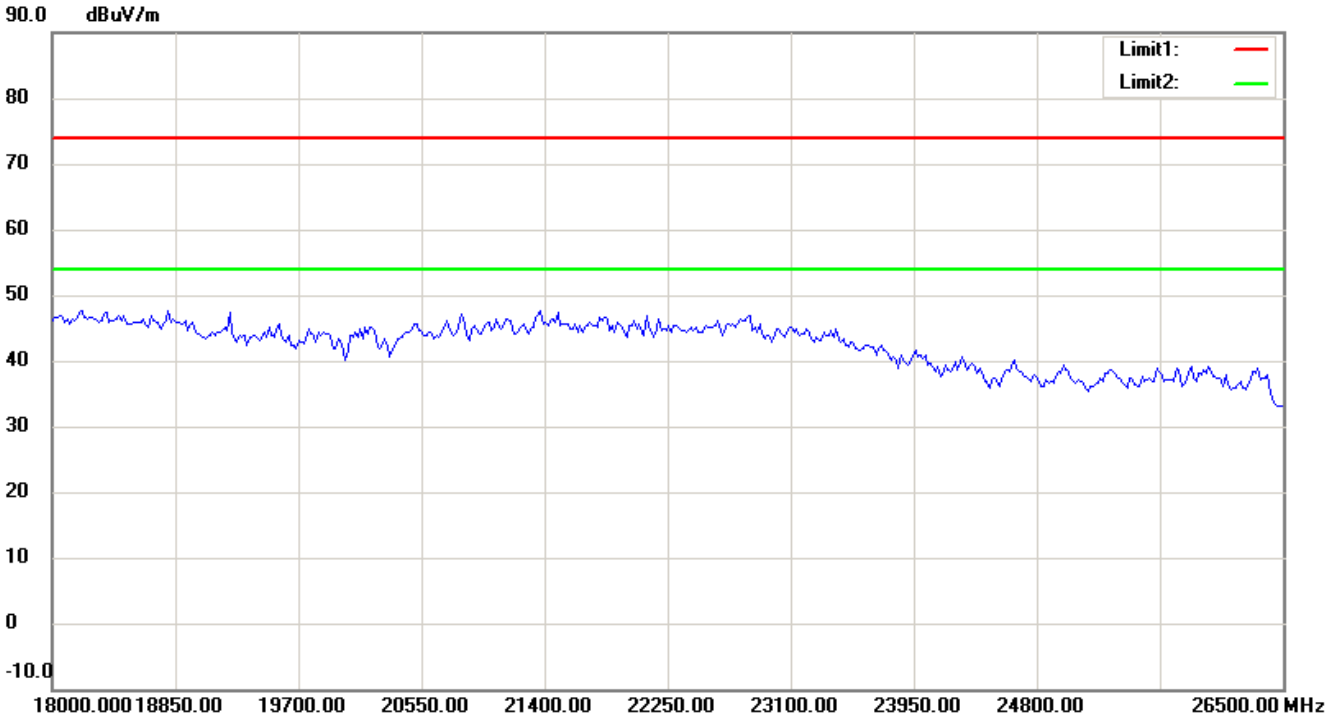
FCC ID: IR5DF7A





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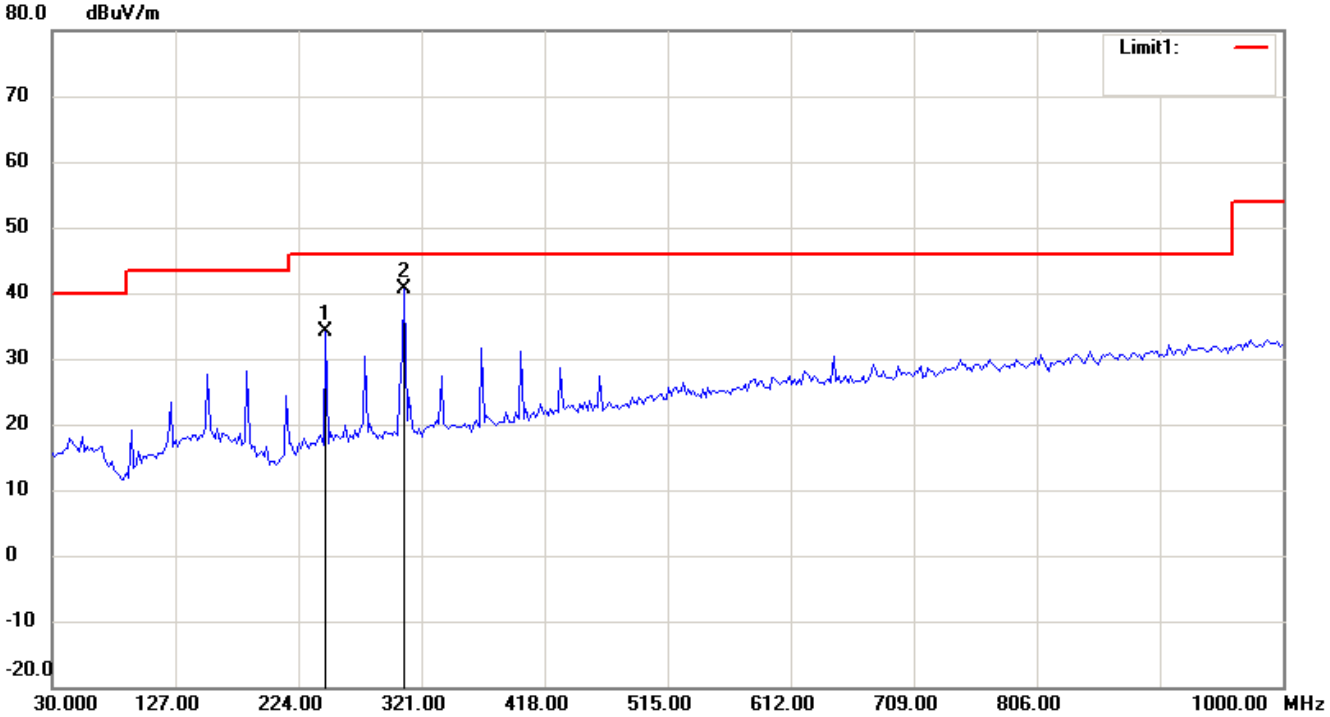
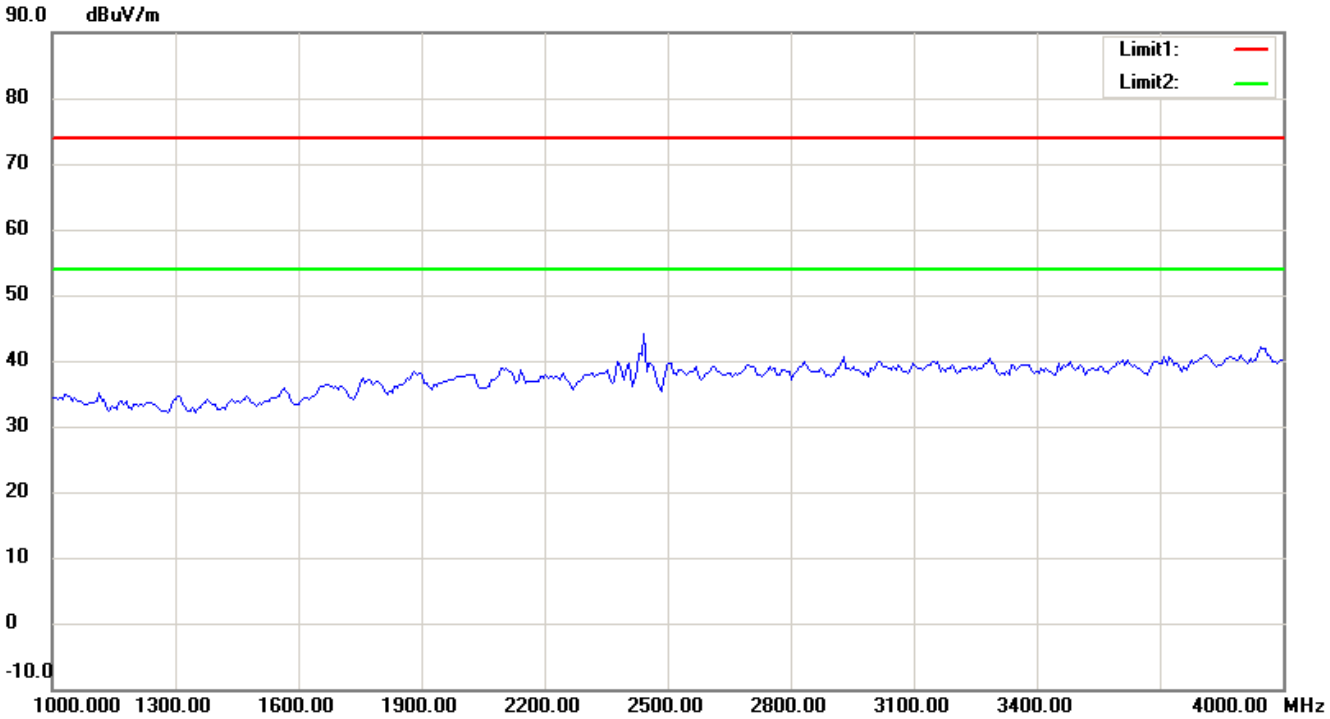
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Bluetooth Normal 2441MHz

Antenna Polarization H





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

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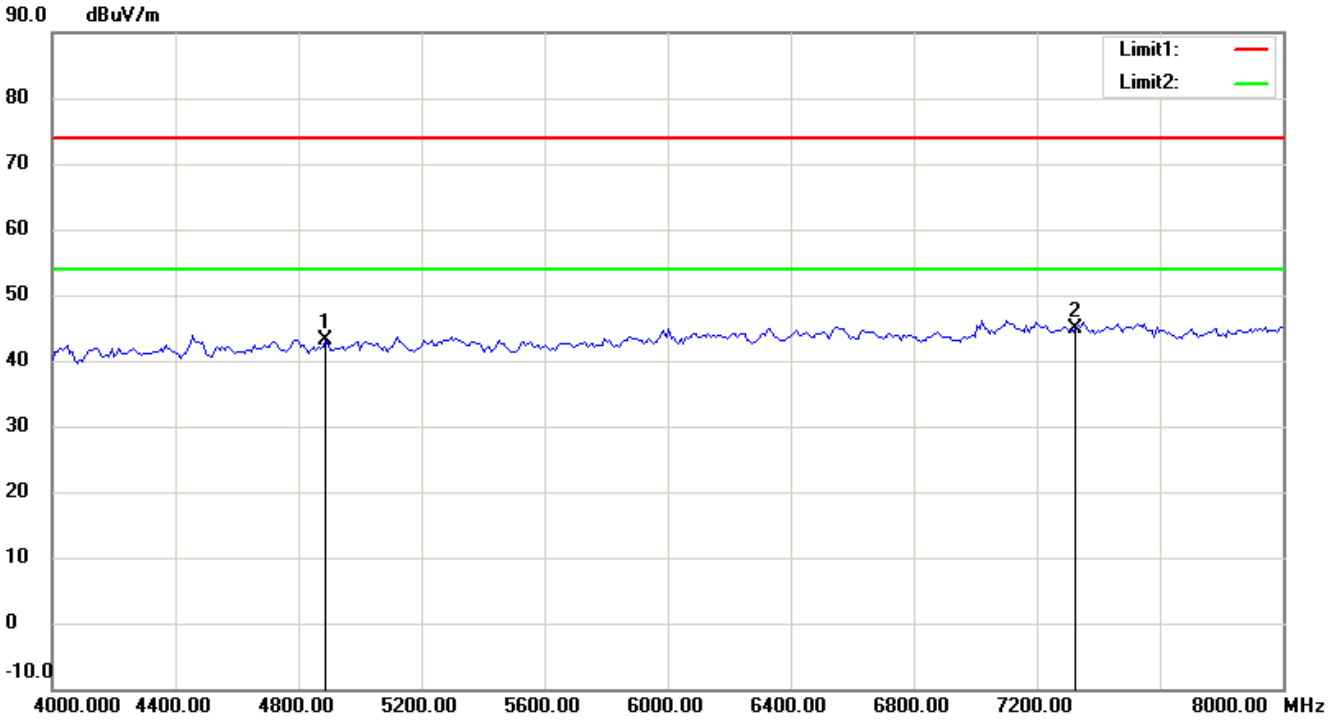
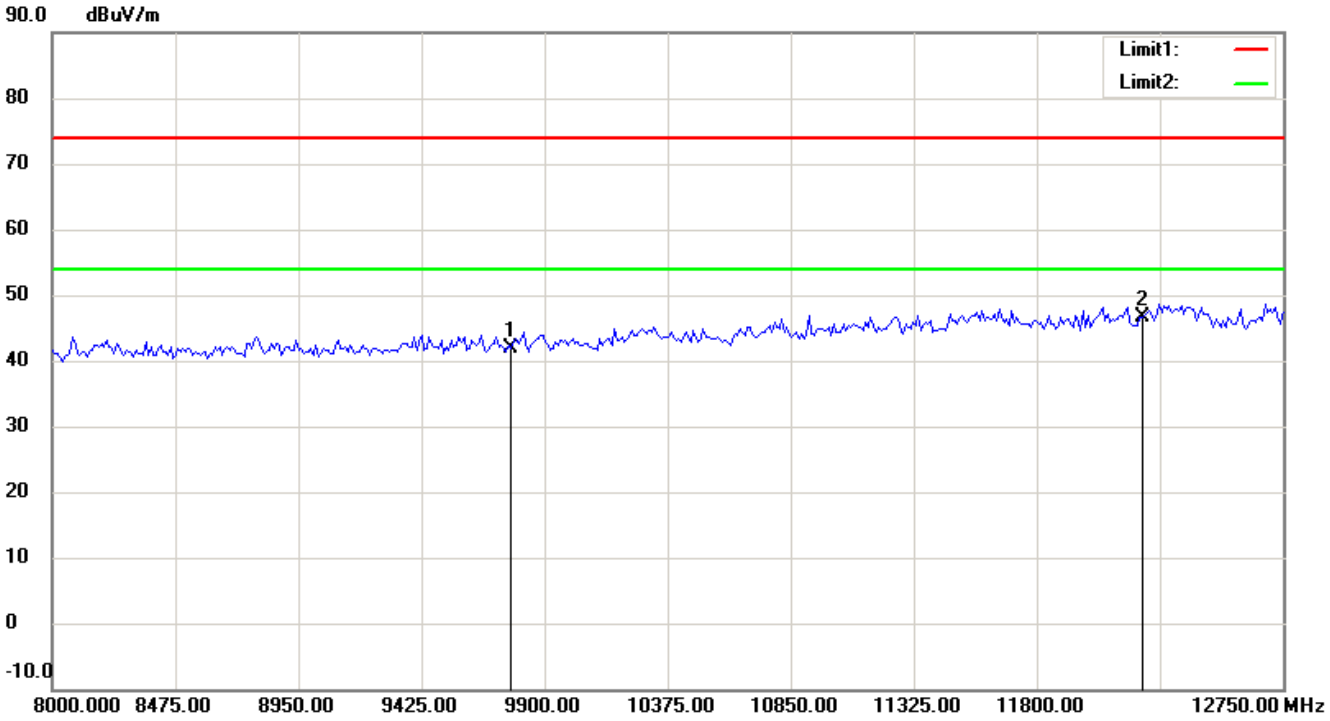
3. **For corrected test results are listed in the relevant table of radiated test data of this test report.**

Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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

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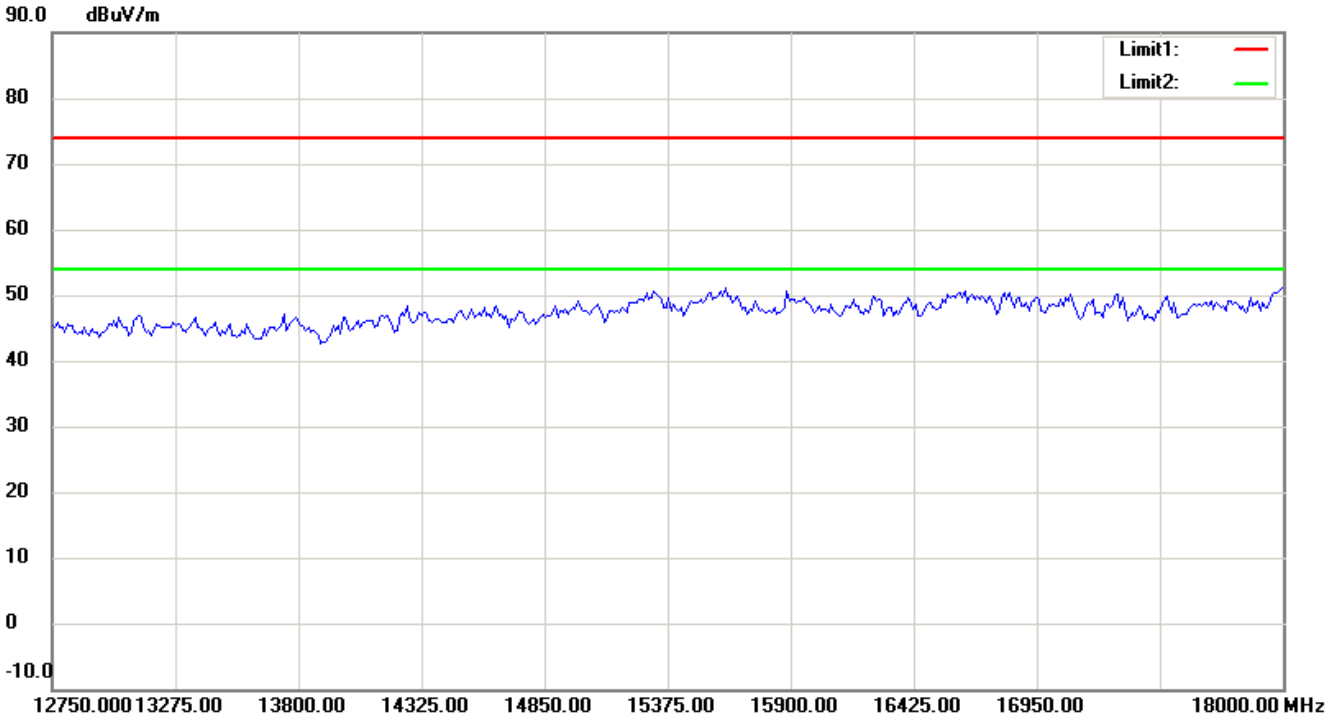
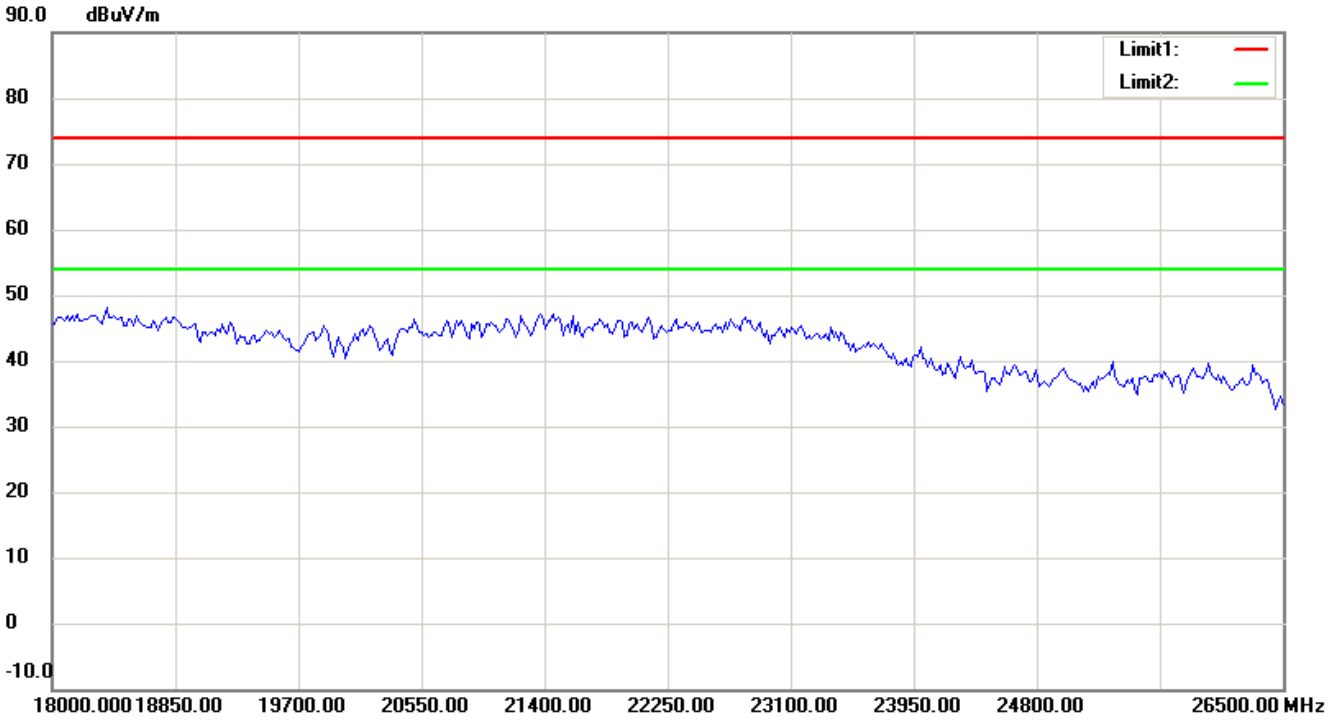
FCC ID: IR5DF7A





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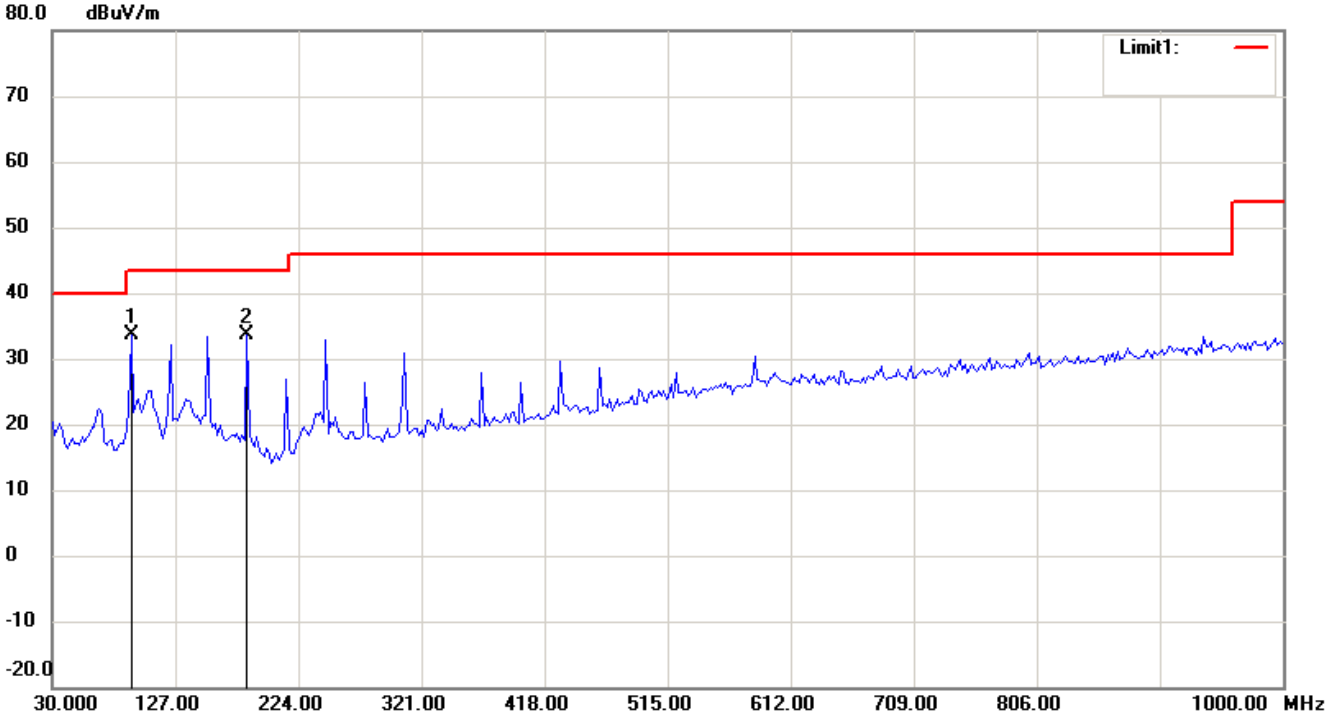
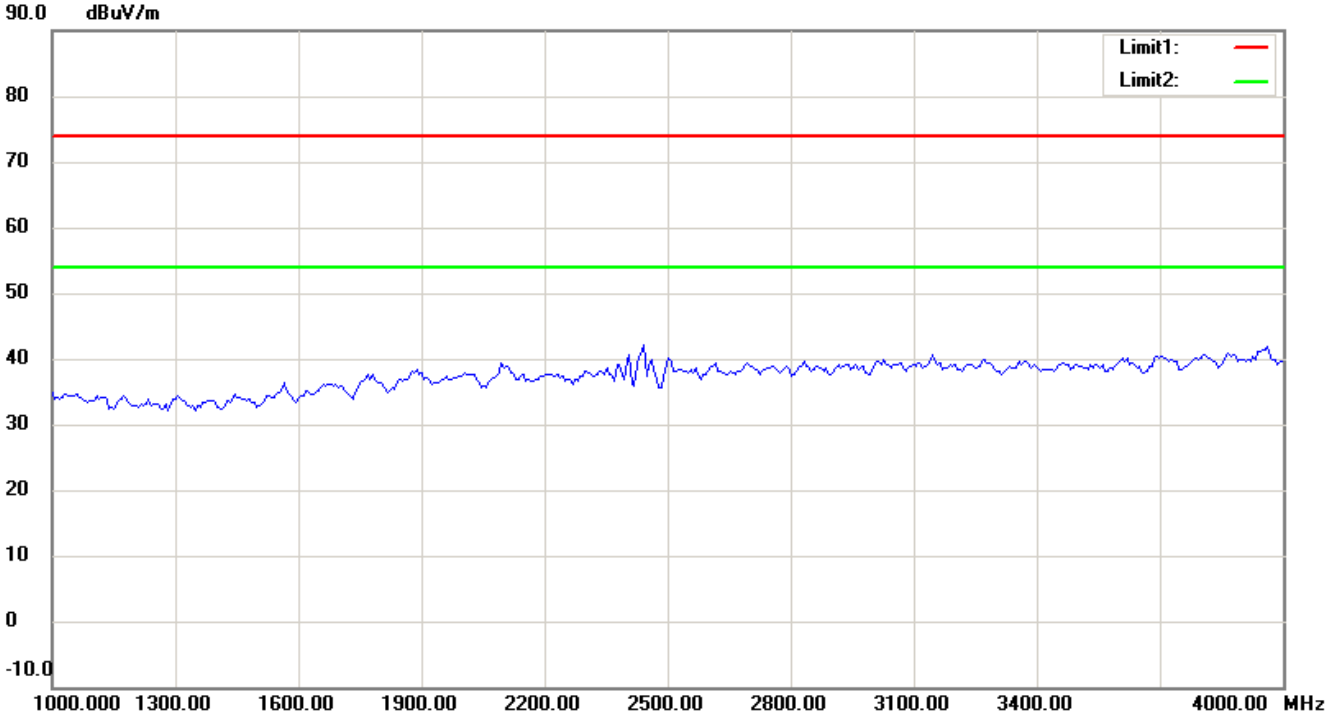
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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

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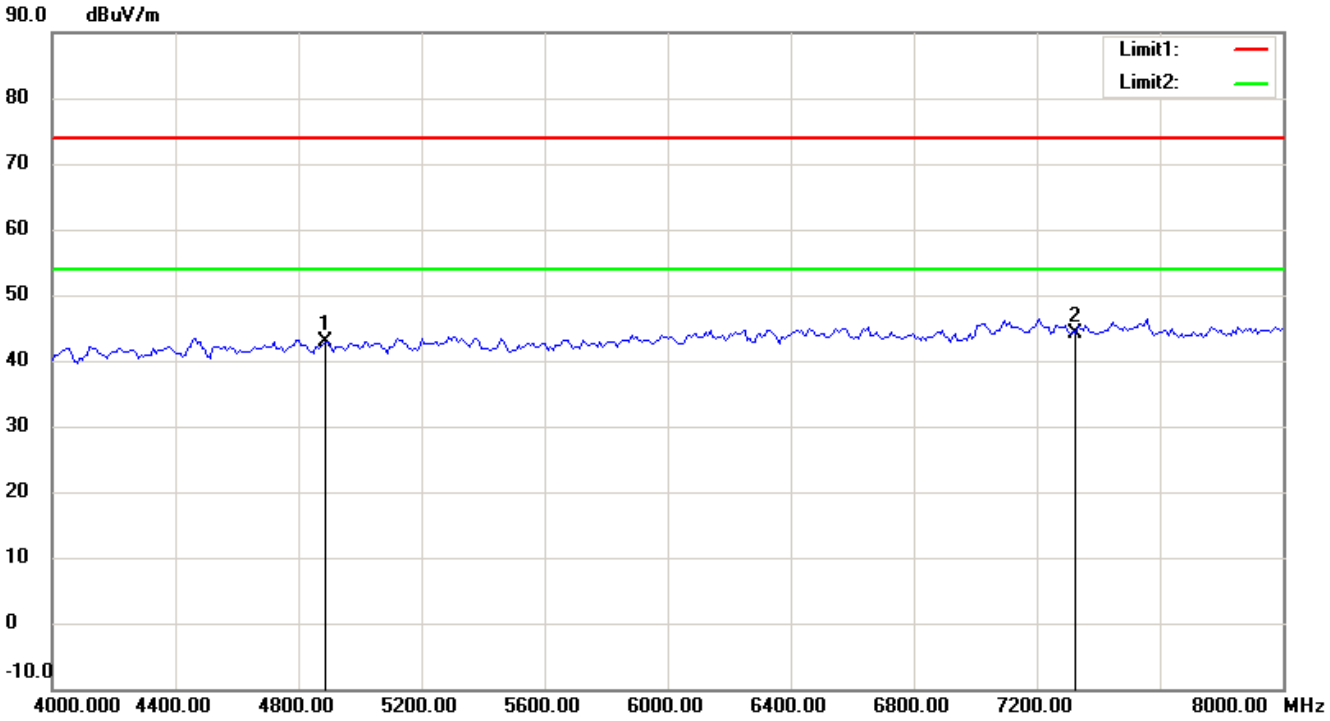
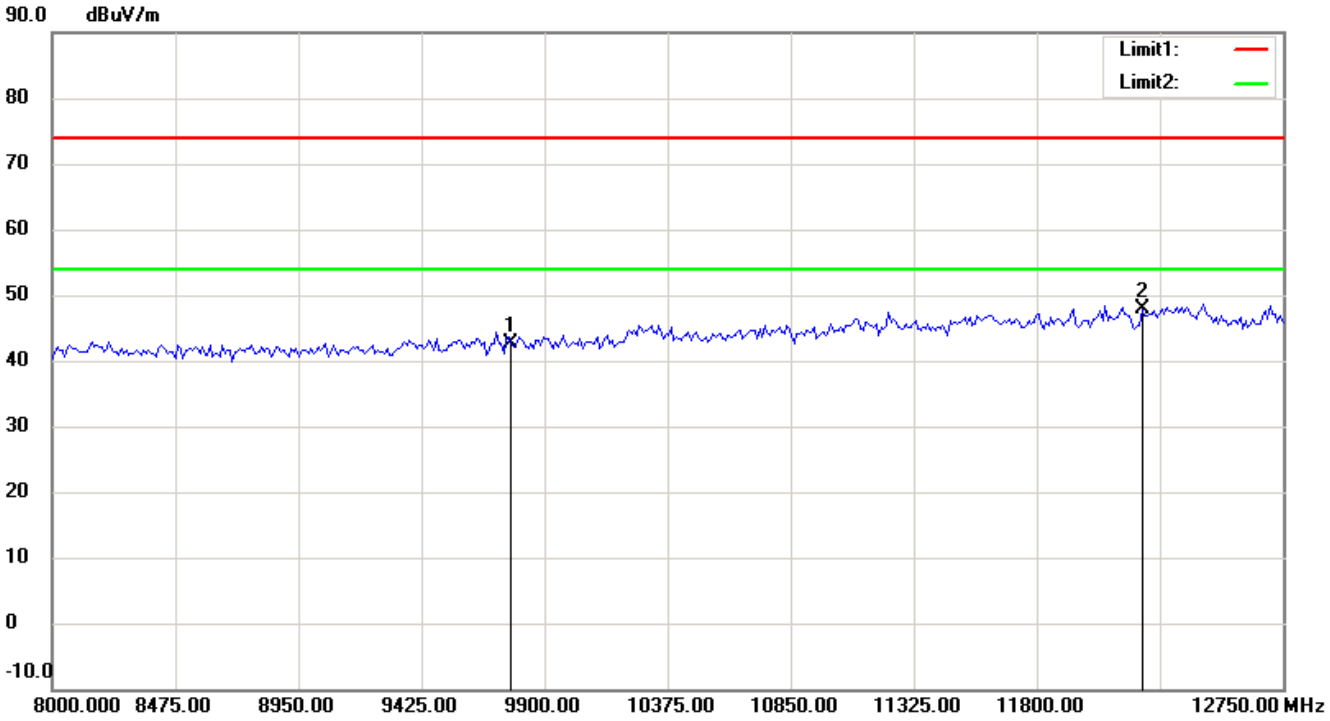
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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Note:

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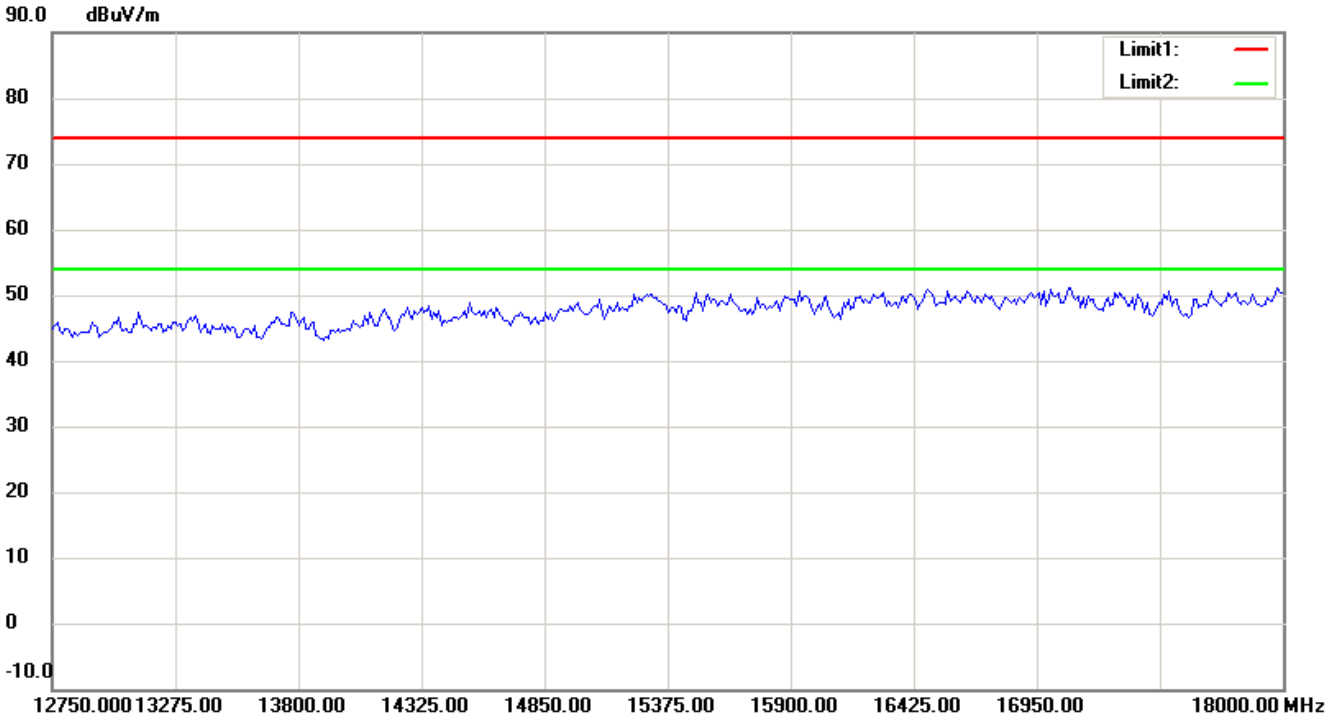
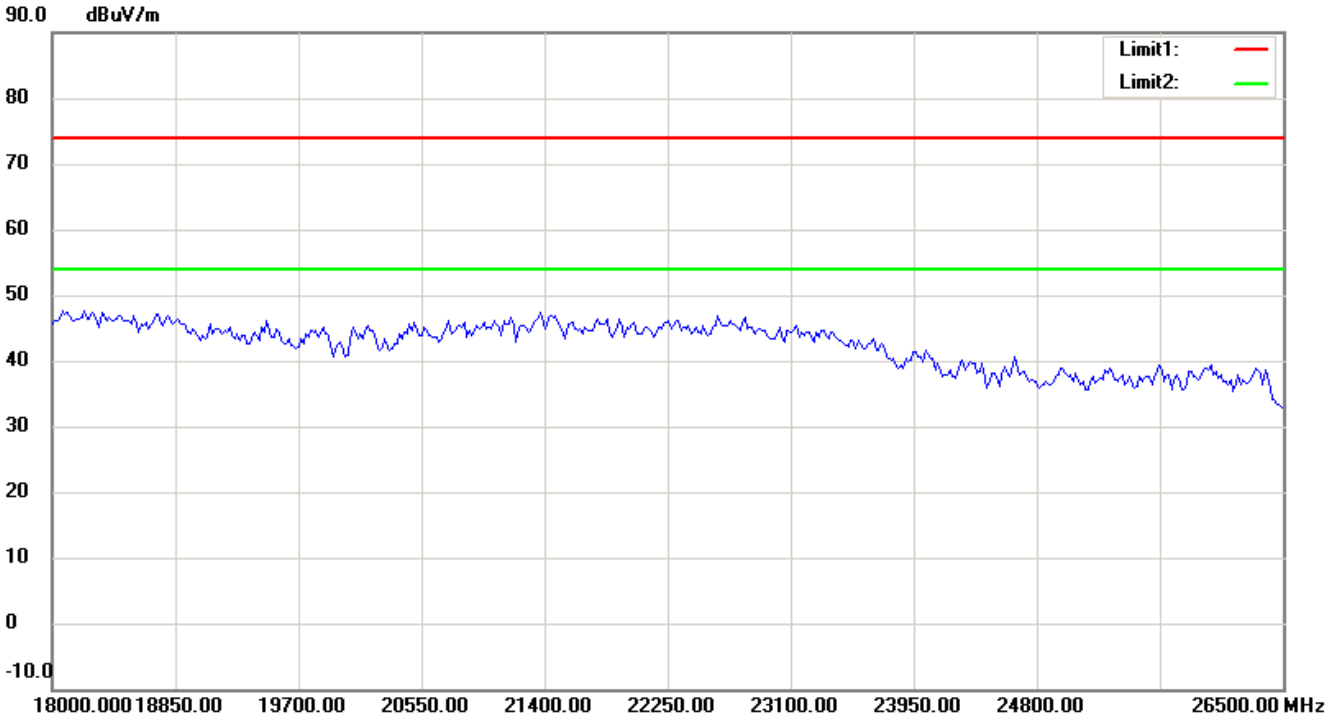
FCC ID: IR5DF7A





Up Line: Peak Limit Line Down Line: Ave Limit Line
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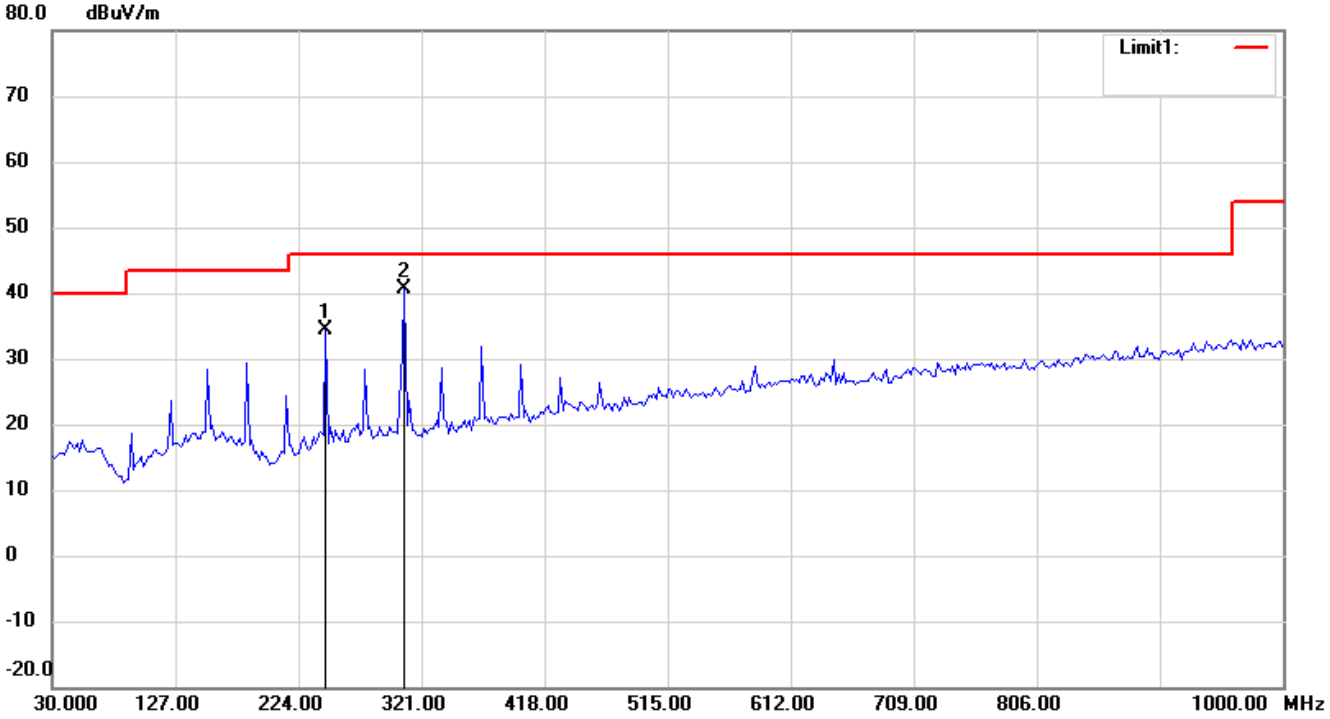
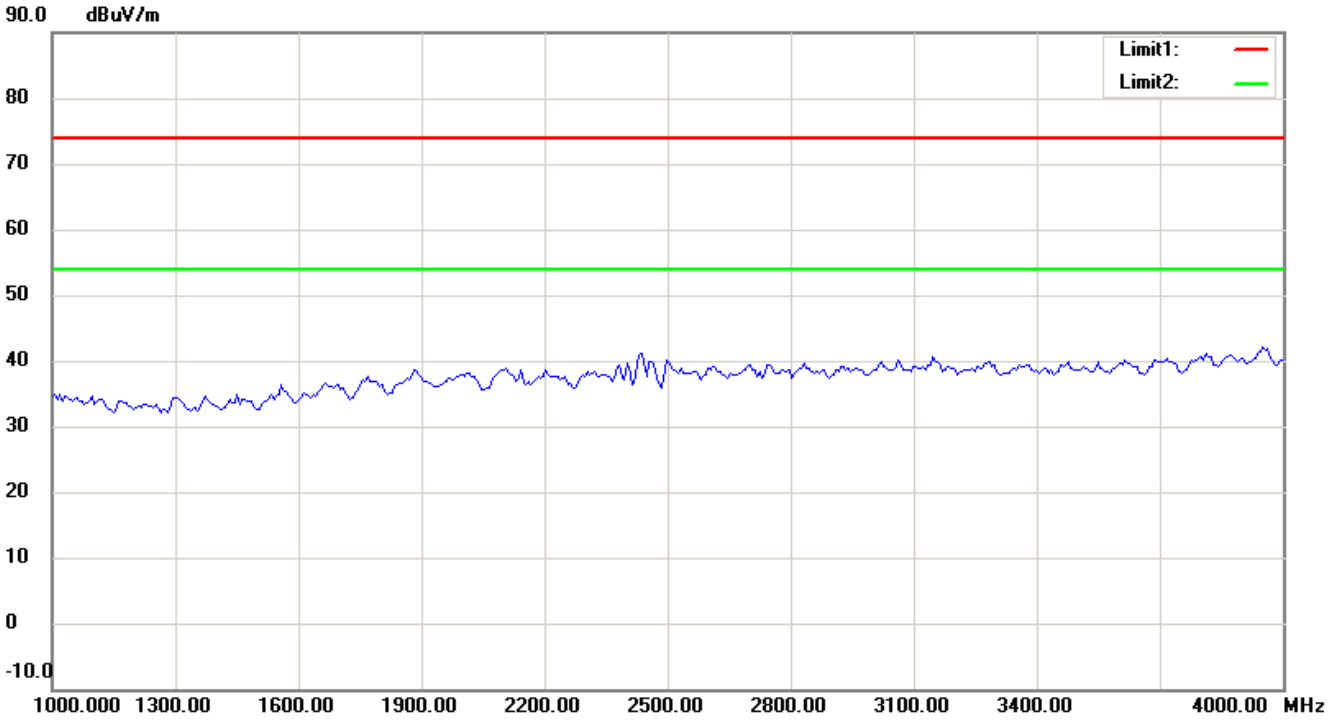
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Bluetooth Normal 2480MHz

Antenna Polarization H





Up Line: Peak Limit Line Down Line: Ave Limit Line
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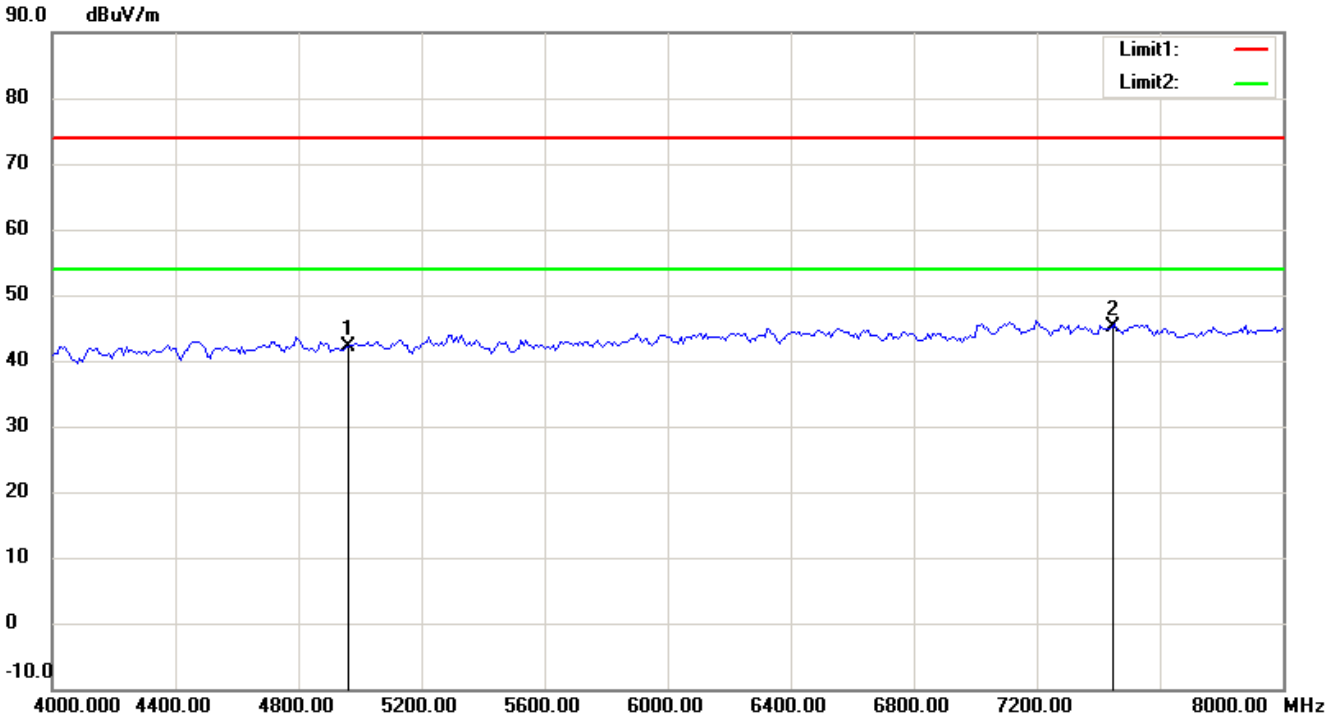
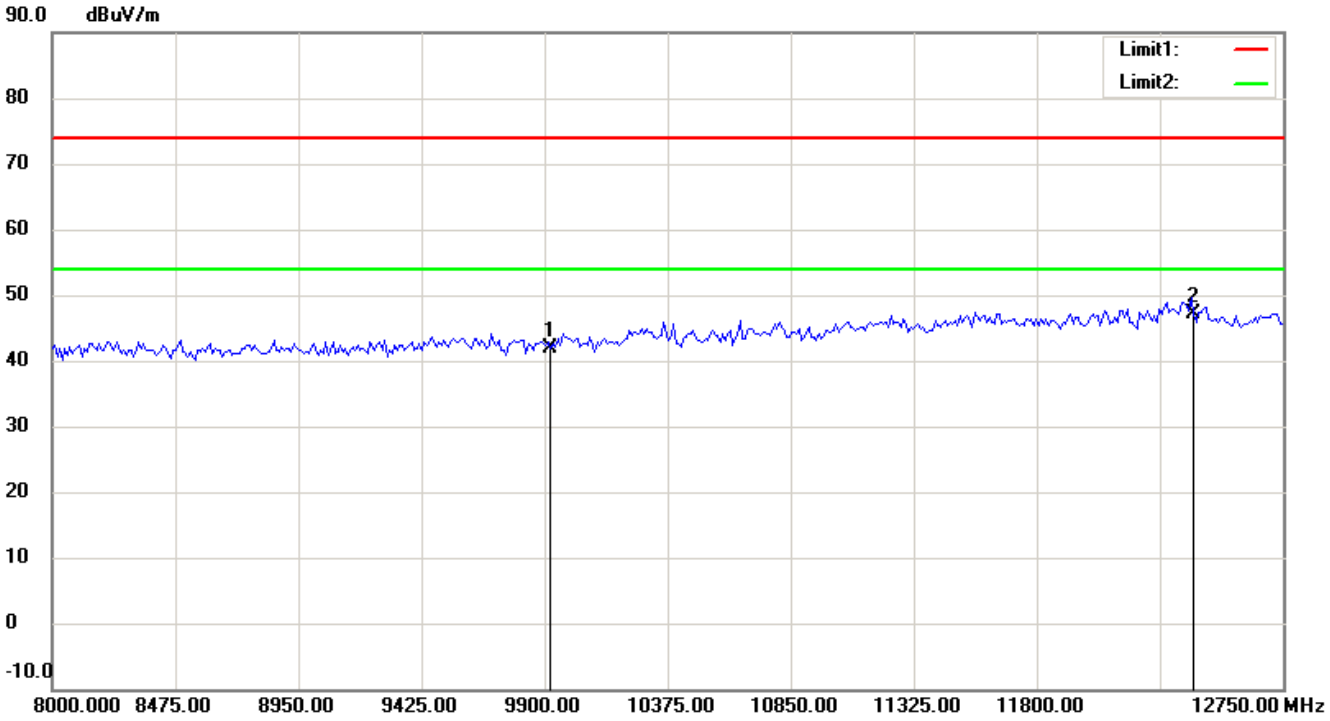
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A





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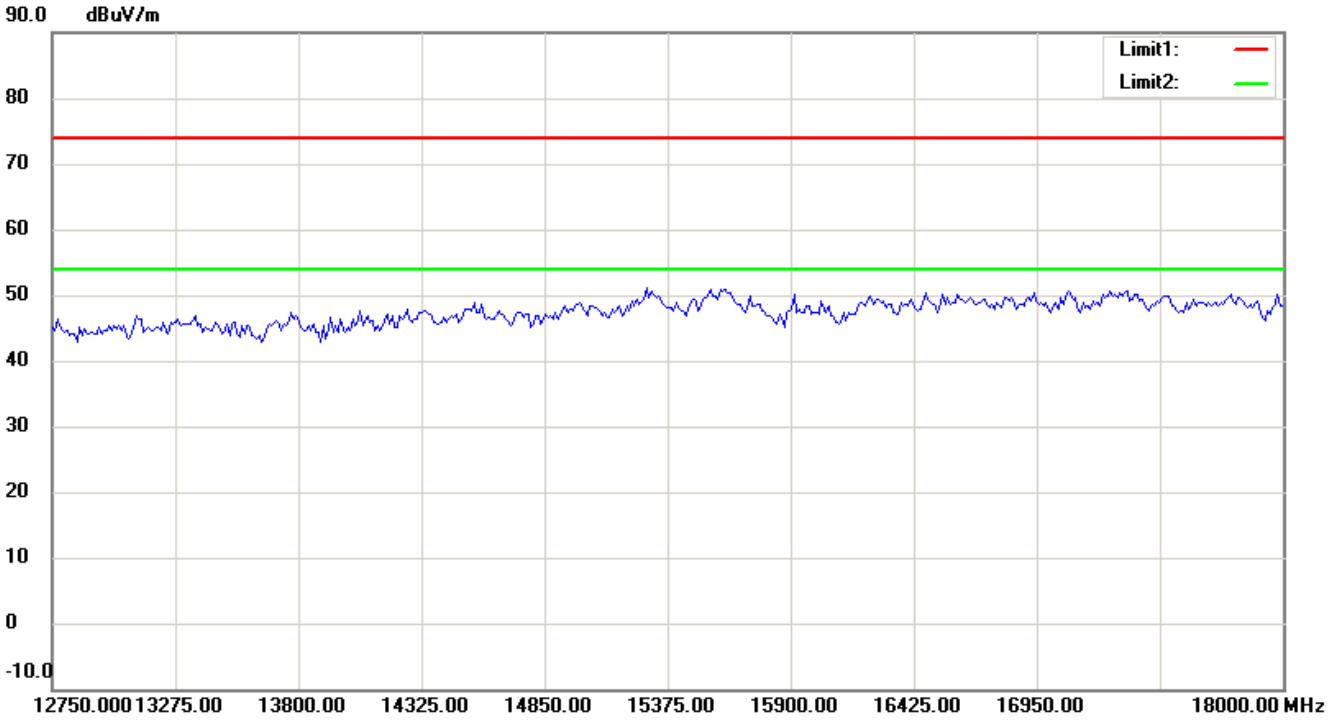

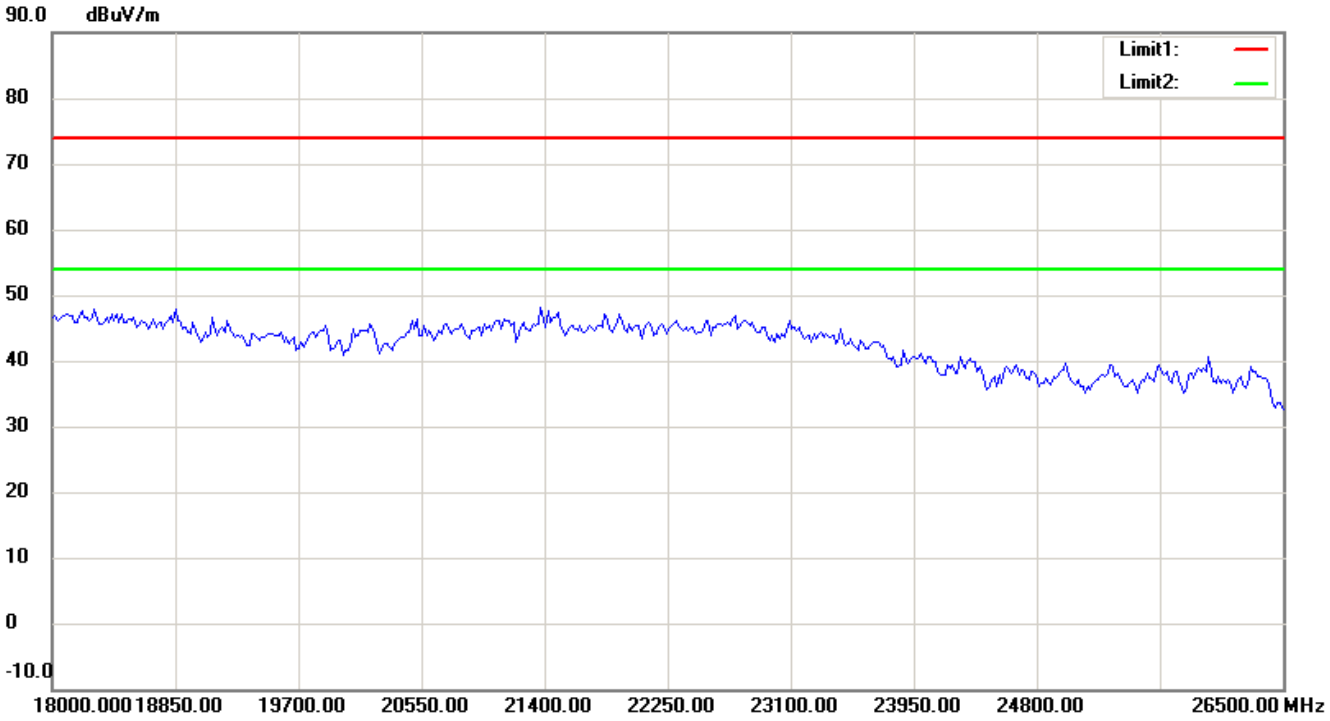

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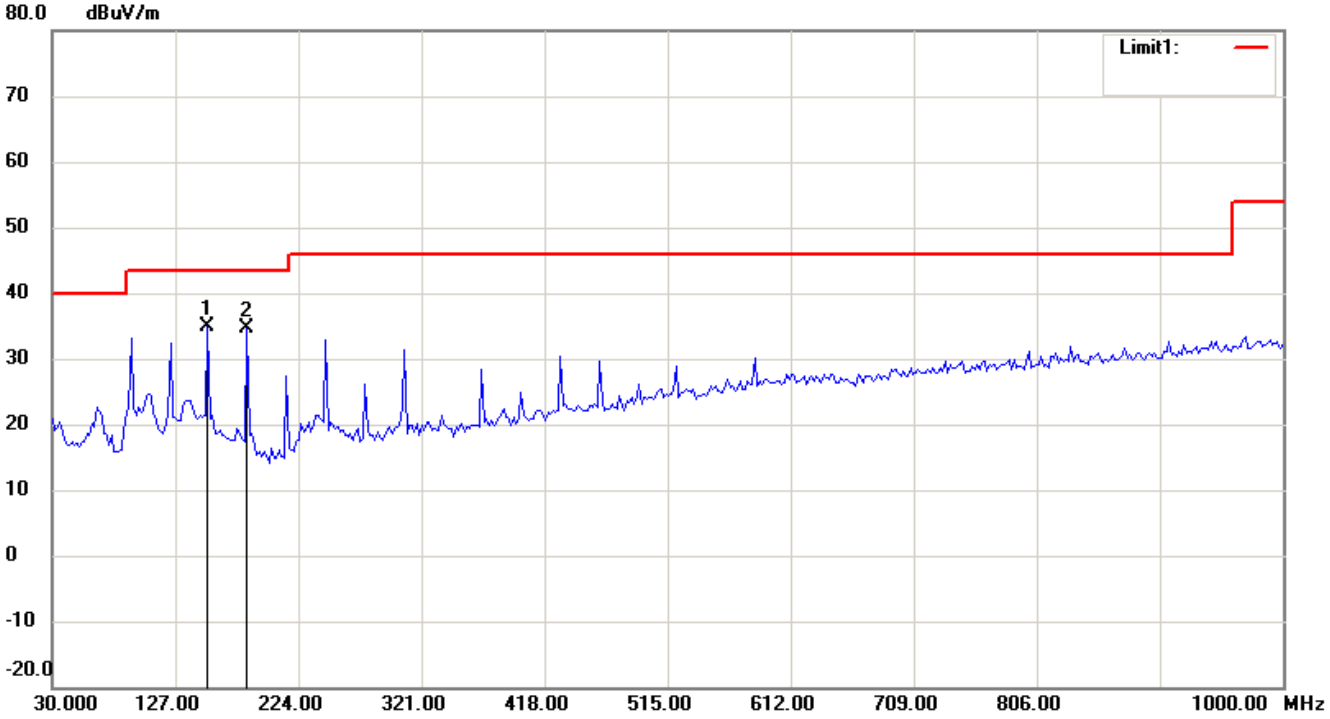
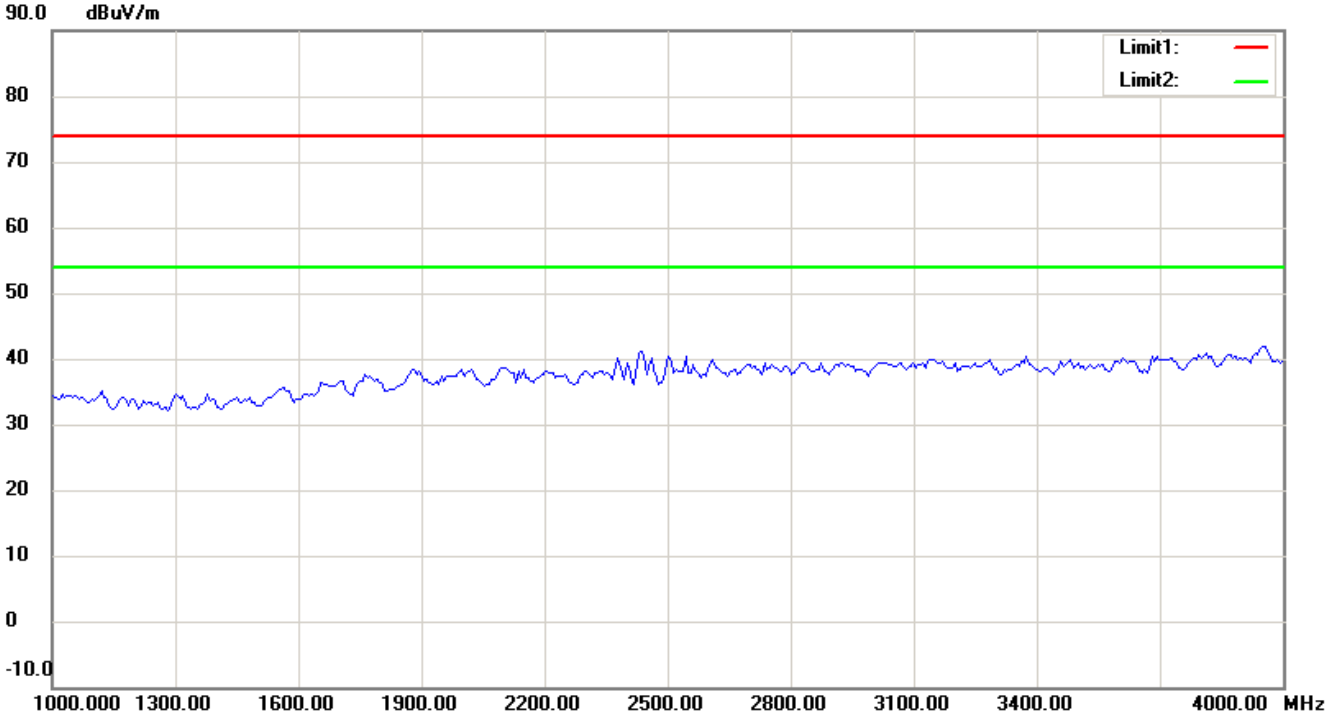
Registration number: W6M21409-14510-C-1
FCC ID: IR5DF7A

Antenna Polarization V





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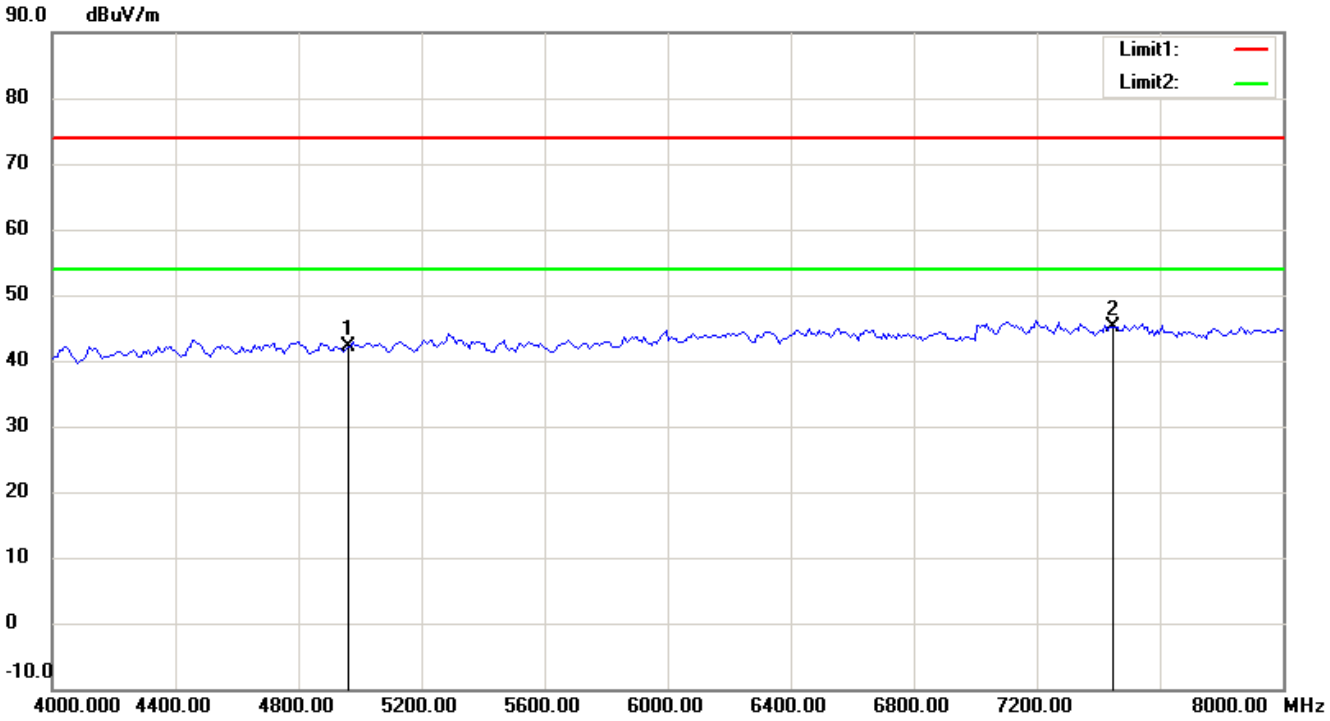

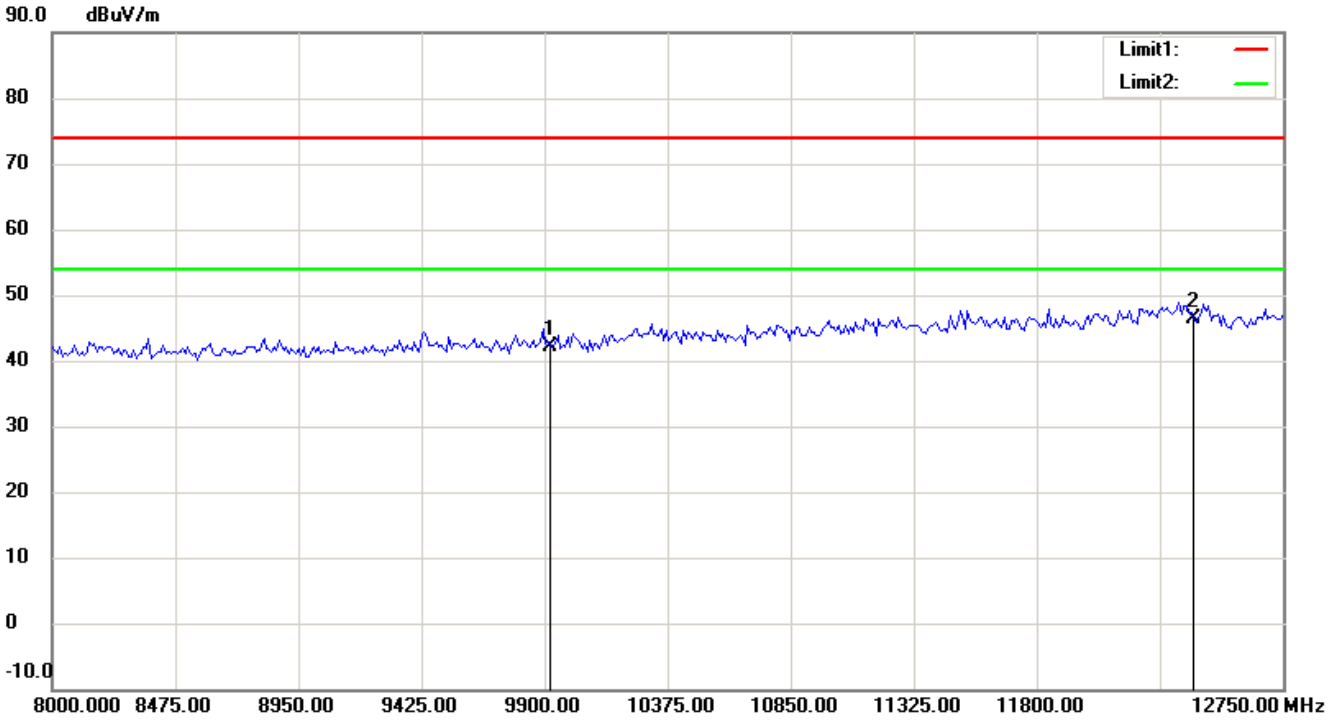

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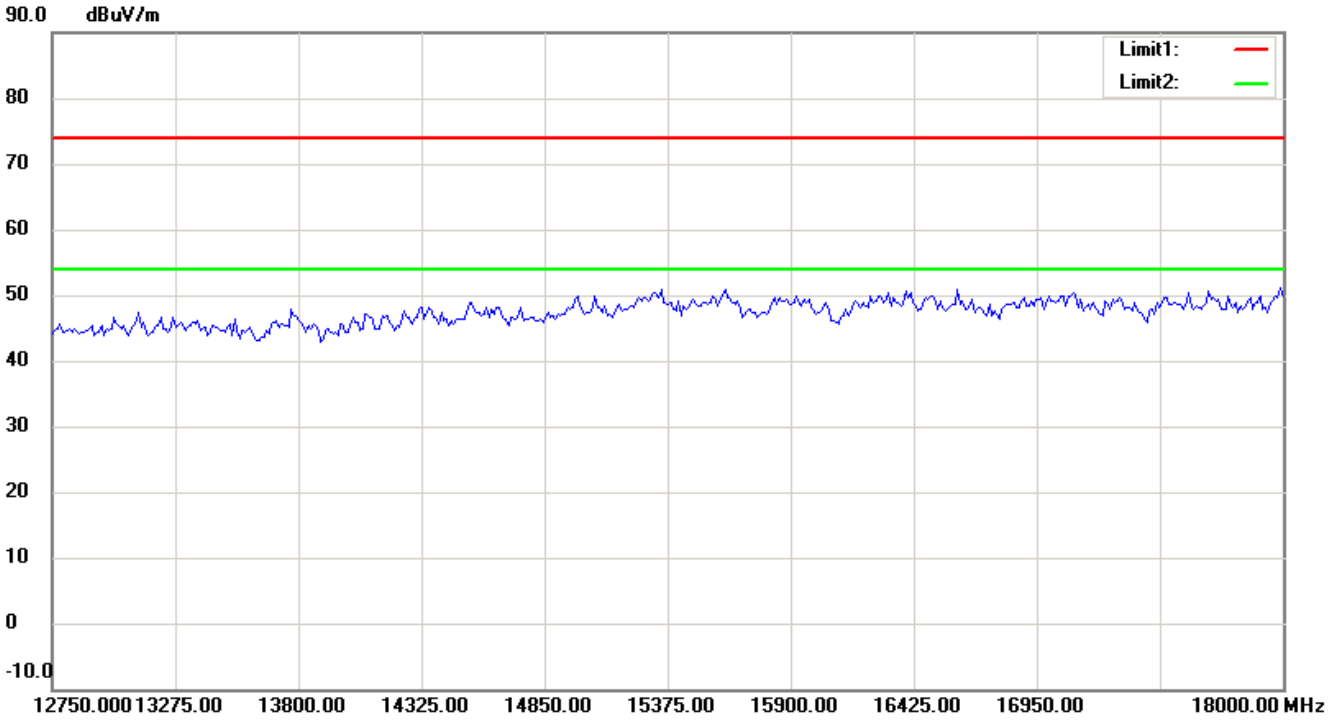

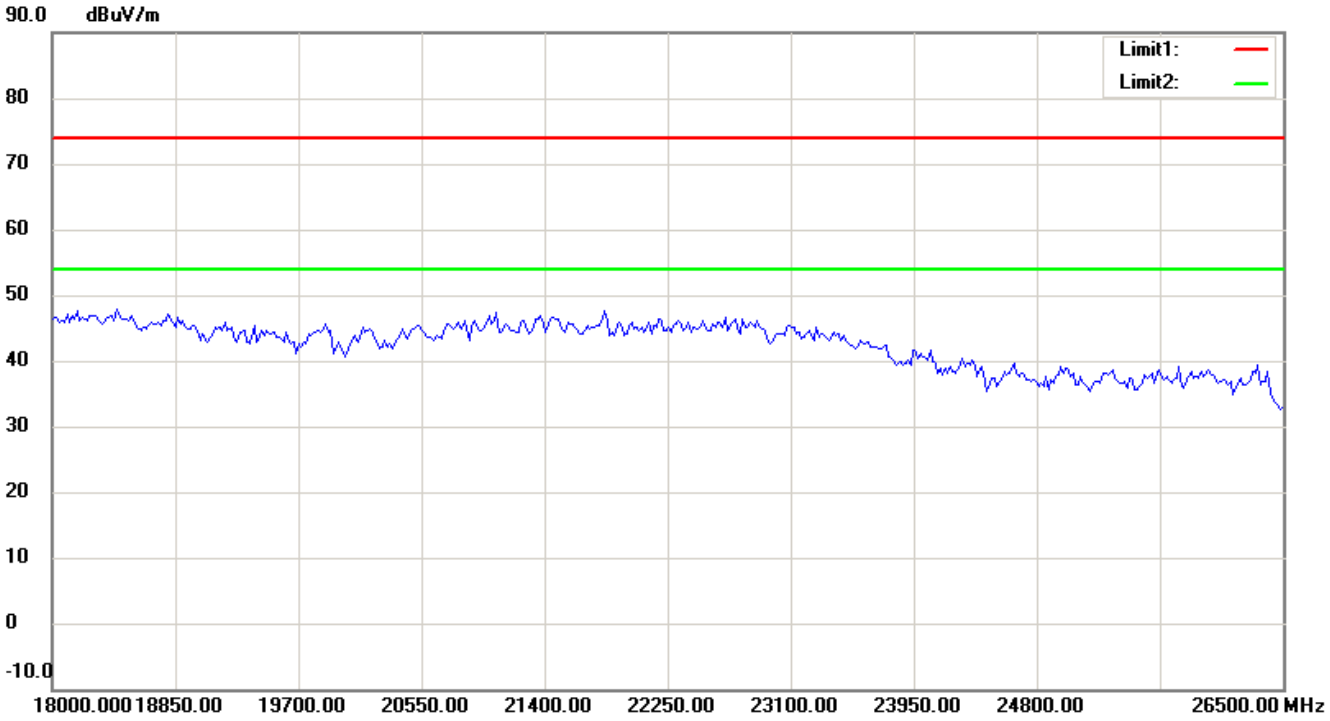

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