

FCC PART 15 SUBPART C TEST REPORT

for

Module

Model No.: RF915

FCC ID: VEARF915A

of

Applicant: **CHY FIREMATE CO., LTD.**

Address: **No.3, SHENG-LI 1 STREET, HSIN TIEN VILLAGE,
JEN-TE TAINAN HSIEN Taiwan**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

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

A2LA Accredited No.: 2732.01



Report No.: W6M21402-13969-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



Worldwide Testing Services(Taiwan) Co., Ltd.

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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 its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

Tester:

May 05, 2014

Leon Chueh

Leon Chueh

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

May 05, 2014

Kevin Wang

Kevin Wang

Date

WTS

Name

Signature



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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: 2730.01

FCC filed test laboratory Reg. No. 930600

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



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

Name: ./.

Accredited number: ./.

Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.



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1.3 Details of approval holder

Name:	CHY FIREMATE CO., LTD.
Street:	No.3, SHENG-LI 1 STREET, HSIN TIEN VILLAGE, JEN-TE
Town:	TAINAN HSIEN
Country:	Taiwan
Telephone:	+886-6-279-4811
Fax:	+886-6-249-2316
Teletex:	./.

1.4 Application details

Date of receipt of test item:	March 17, 2014
Date of test:	From March 18, 2014 to May 05, 2014

1.5 General information of Test item

Type of test item:	Module
Model Number:	RF915
Multi-listing model number:	./.
Photos:	see Annex

Technical data

Frequency band:	902-928 MHz
Operation Frequency:	904-926 MHz
Frequency 1:	904 MHz
Frequency 2:	916 MHz
Frequency 3:	926 MHz
Operation modes:	simplex
Modulation Type:	FSK
Antenna type:	Dipole Antenna
Gain:	-0.17 dBi
Power supply:	9Vdc from testing peripheral

Manufacturer: (if different from applicant)

Name:	./.
Street:	./.
Town:	./.
Country:	./.
Additional information:	./.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART C § 15.249 (2011-10)



2 Technical test

2.1 Summary of test results

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

1

or

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

A small, empty square box with a black border, likely a placeholder for an image or a button.

2.2 Test environment

Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Details Power supply: 9Vdc from testing peripheral

Extreme conditions parameters: Not required



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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	2013/9/2	2014/9/1
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2013/7/10	2014/7/9
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2013/10/28	2014/10/27
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2013/9/2	2014/9/1
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2013/9/2	2014/9/1
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2013/10/15	2014/10/14
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2013/7/3	2014/7/2
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	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	2013/5/31	2014/5/30
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	2013/10/7	2014/10/6
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2013/10/11	2014/10/10
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	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	Schwarzbeck	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	2013/6/28	2014/6/27
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2013/8/16	2014/8/15
ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2013/8/16	2014/8/15



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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	2013/8/13	2014/8/12
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circits	2013/8/13	2014/8/12
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2013/10/7	2014/10/6
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40/12+9SS	3	WI	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	2013/9/18	2014/9/17
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2014/2/27	2015/2/26
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.	2014/2/27	2015/2/26
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	2013/10/11	2014/10/10
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2013/10/11	2014/10/10
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	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_EMCA	None	Farad	Version ETS-03A1	



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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2009 5.2 using a 50 μ H 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 dB μ V) 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 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/m @3m

ANSI STANDARD C63.4-2009 6.3.1 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm height and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the centre of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

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.

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.



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3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.249 (a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions conducted – Transmitter operating	15.249 (e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Digital Part	15.109	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Out of Band Spurious Emission, Band edge-Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following is intentionally left blank.



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3.1 Peak Output Power (transmitter)

FCC Rule: 15.249 (b)

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).

Model: RF915 Date: 2014/04/28
Mode: 904 MHz Temperature: 24 °C Engineer: Leon
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
903.9900	78.35	60.09	27.21	105.56	87.30	114.00	94.00	-6.70	260	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
903.9510	68.91	50.65	27.21	96.12	77.86	114.00	94.00	-16.14	160	100

Mode: 916 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
915.9514	76.91	58.80	27.41	104.32	86.21	114.00	94.00	-7.79	260	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
915.9464	68.01	49.90	27.41	95.42	77.31	114.00	94.00	-16.69	150	100

Mode: 926 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
925.9850	75.78	57.52	27.59	103.37	85.11	114.00	94.00	-8.89	260	100



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Polarization: Vertical

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result (dBuV/m)		Limit (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
925.9818	67.44	49.18	27.59	95.03	76.77	114.00	94.00	-17.23	155	100

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 044

Explanation: The diagrams for the field strength measurements are included in appendix.

3.2 Equivalent isotropic radiated power

Because using an permanent antenna there are no deviations from the radiated test results according 3.1.

3.3 RF Exposure Compliance Requirements

Not applicable for this EUT for the low power level.



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3.4 Out of Band Radiated Emissions

FCC Rule: 15.249 (d)(e), 15.35(b)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequency above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Limits:

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	46.5
Above 960	500	54.0

For frequencies above 1 GHz (Peak measurements).

Limit + 20 dB $54.0 \text{ dB}\mu\text{V/m} + 20 \text{ dB} = 74 \text{ dB}\mu\text{V/m}$

Or

Must be attenuated at least 50dB below the level of fundamental

Test equipment used: ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030, ETSTW-RE 044

Explanation: Please see attached diagram as appendix.



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3.5 Spurious emission (tx)

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

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

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

The peak and average spurious emission plots was measured with the average limits.

The critical peak value listed in the table agree with the above calculated limits.

Summary table with radiated data of the test plots

Model:	RF915	Date:	2014/04/28
Mode:	904 MHz	Temperature:	24 °C
Polarization:	Horizontal	Humidity:	60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
76.6533	10.36	peak	10.37	20.73	40.00	-19.27	115	100
893.0862	12.00	QP	27.04	39.04	46.00	-6.96	250	100

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1805.6110	55.24	---	-6.95	48.29	---	74.00	54.00	-25.71	130	100
2713.4270	52.83	---	-4.05	48.78	---	74.00	54.00	-25.22	75	100
3621.2420	51.51	---	-2.24	49.27	---	74.00	54.00	-24.73	150	100
4521.0420	50.46	---	-0.06	50.40	---	74.00	54.00	-23.60	115	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
76.6533	26.15	peak	10.37	36.52	40.00	-3.48	105	100
99.9800	10.92	peak	10.89	21.81	43.50	-21.69	70	100



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Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
2713.4270	48.52	---	-4.05	44.47	---	74.00	54.00	-29.53	120	100
3621.2420	55.22	40.96	-2.24	52.98	38.72	74.00	54.00	-15.28	155	100
4521.0420	51.76	---	-0.06	51.70	---	74.00	54.00	-22.30	125	100
5426.8540	44.10	---	1.58	45.68	---	74.00	54.00	-28.32	170	100

Mode: 916 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
76.6533	9.51	peak	10.37	19.88	40.00	-20.12	70	100
893.0860	16.93	peak	27.04	43.97	46.00	-2.03	130	100

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
1829.6590	50.18	---	-6.71	43.47	---	74.00	54.00	-30.53	135	100
2749.4990	50.35	---	-3.91	46.44	---	74.00	54.00	-27.56	60	100
3669.3390	47.33	---	-2.08	45.25	---	74.00	54.00	-28.75	110	100
4577.1540	54.82	40.71	-0.24	54.58	40.47	74.00	54.00	-13.53	125	100

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
76.6533	25.76	peak	10.37	36.13	40.00	-3.87	45	100
103.8675	11.55	peak	11.49	23.04	43.50	-20.46	120	100

Frequency (MHz)	Reading (dBuV)		Factor (dB)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.	Corr.	Peak	Ave.	Peak	Ave.			
2749.4990	53.04	---	-3.91	49.13	---	74.00	54.00	-24.87	55	100
3663.3270	53.98	---	-2.10	51.88	---	74.00	54.00	-22.12	130	100
4577.1540	57.94	39.83	-0.24	57.70	39.59	74.00	54.00	-14.41	90	100
5498.9980	43.17	---	1.71	44.88	---	74.00	54.00	-29.12	130	100



Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: VEARF915A

Mode: 926 MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
916.4128	13.06	QP	27.42	40.48	46.00	-5.52	145	100
933.9076	17.02	peak	27.72	44.74	46.00	-1.26	55	100

Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak Ave.	Corr.	Peak Ave.	Peak Ave.			
2779.5590	53.38	---	-3.80	49.58	---	74.00	54.00
3705.4110	51.23	---	-1.98	49.25	---	74.00	54.00
4625.2510	57.47	39.21	-0.31	57.16	38.90	74.00	54.00
5555.1100	43.12	---	1.61	44.73	---	74.00	54.00

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
76.6533	25.10	peak	10.37	35.47	40.00	-4.53	90	100
103.8675	11.62	peak	11.49	23.11	43.50	-20.39	135	100

Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak Ave.	Corr.	Peak Ave.	Peak Ave.			
2779.5590	49.84	---	-3.80	46.04	---	74.00	54.00
3705.4110	57.82	39.56	-1.98	55.84	37.58	74.00	54.00
4625.2510	57.33	39.07	-0.31	57.02	38.76	74.00	54.00
5555.1100	42.36	---	1.61	43.97	---	74.00	54.00

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 = ± 3.68 dB, 1-18 GHz = ± 5.37 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. Up Line: PK Limit Line, Down Line: Ave Limit Line.
7. See attached diagrams in appendix.

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

Test equipment used: ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030, ETSTW-RE 044, ETSTW-RE 088, ETSTW-RE 018



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Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

3.6 Radiated Emissions from Digital Part

Summary table with radiated data of the test plots

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

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 = ± 3.68 dB, 1-18 GHz = ± 5.37 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.**

Test equipment used: ETSTW-RE 004, ETSTW-RE 111, ETSTW-RE 030,
ETSTW-RE 044

Explanation: This test is not required.

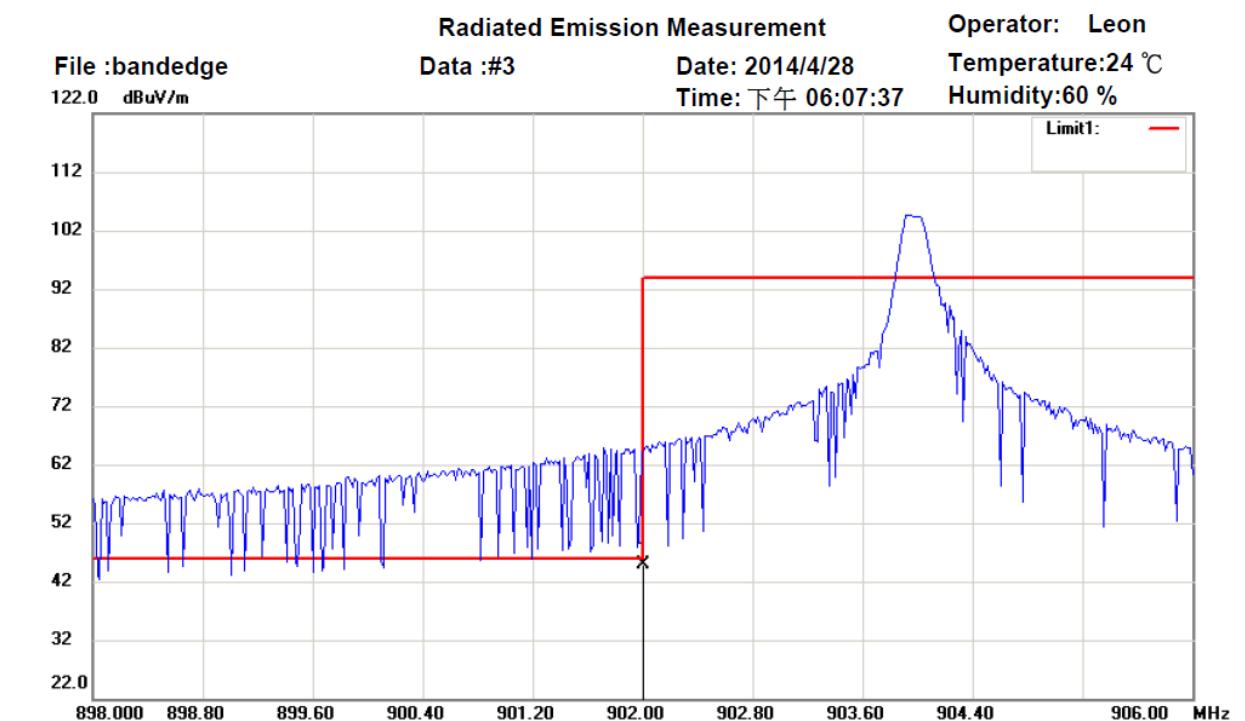


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3.7 Radiated Emission on the band edge

From the following plots, they show that the fundamental emissions are confined in the specified band and are at least 50 dB below the carrier level at band edge (2400 and 2483.5 MHz). It meets the requirement of section 15.249(d).



Site : Chamber_01

Condition : FCC 15.249 Bandedge(902-928)_QP

Polarization: *Horizontal*

EUT : W6M21402-13969

Power : 9 Vdc.

M/N: RF915

Distance: 3m

Test Mode : Bandedge

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	902.0000	17.79	QP	27.17	44.96	46.00	100	260	-1.04	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

Radiated Emission Measurement

Operator: Leon

File :bandedge

Data :#4

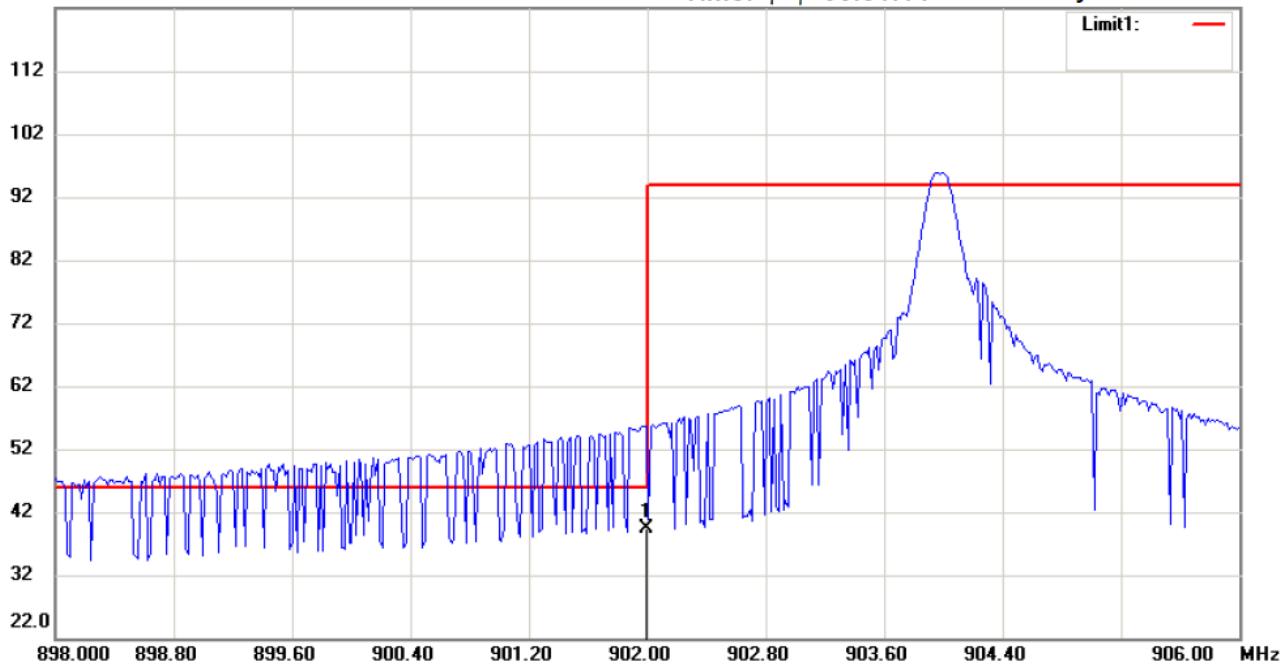
Date: 2014/4/28

Temperature:24 °C

122.0 dBuV/m

Time: 下午 06:31:14

Humidity:60 %



Site : Chamber_01

Condition : FCC 15.249 Bandedge(902-928)_QP

Polarization: *Vertical*

EUT : W6M21402-13969

Power : 9 Vd.c.

M/N: RF915

Distance: 3m

Test Mode : Bandedge

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	901.9920	12.32	QP	27.17	39.49	46.00	100	150	-6.51	

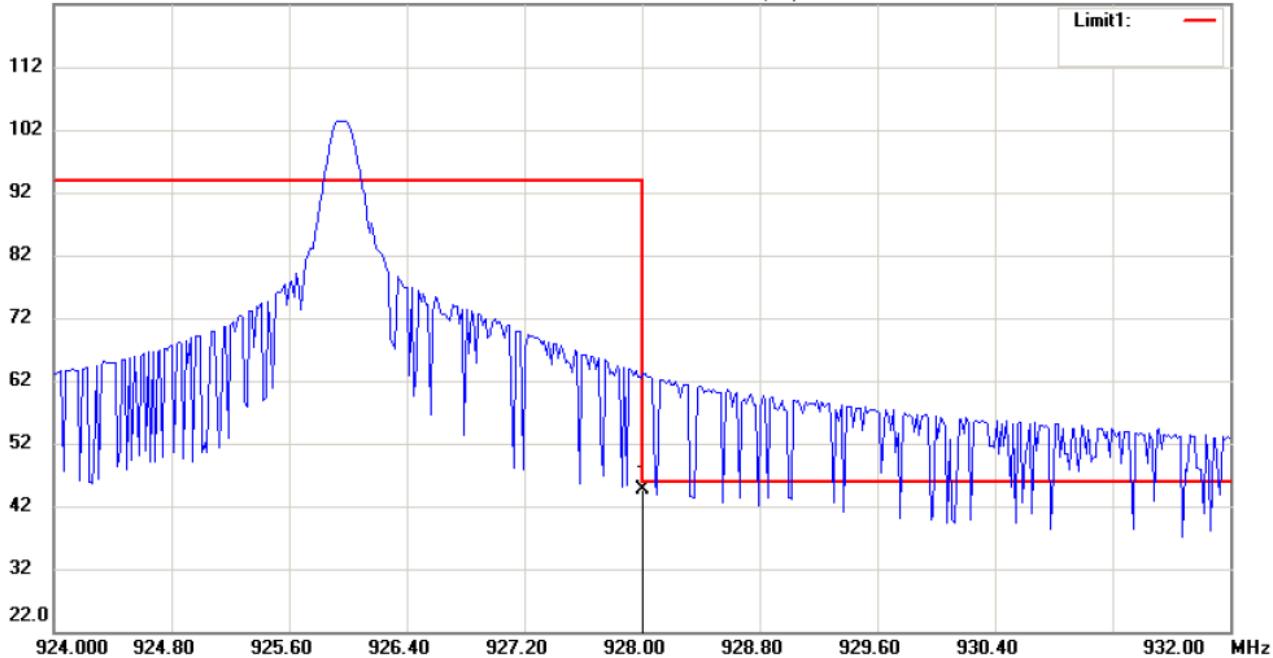


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

File :bandedge Radiated Emission Measurement Operator: Leon
122.0 dBuV/m Data :#3 Date: 2014/4/28 Temperature:24 °C
 Time: 下午 07:42:30 Humidity:60 %



Site : Chamber_01

Condition : FCC 15.249 Bandedge(902-928)_QP

Polarization: *Horizontal*

EUT : W6M21402-13969

Power : 9 Vd.c.

M/N: RF915

Distance: 3m

Test Mode : Bandedge

Note :

Mk.	Frequency (MHz)	Reading (dBuV)	Detector	Corr. factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	928.0000	17.12	QP	27.62	44.74	46.00	100	260	-1.26	

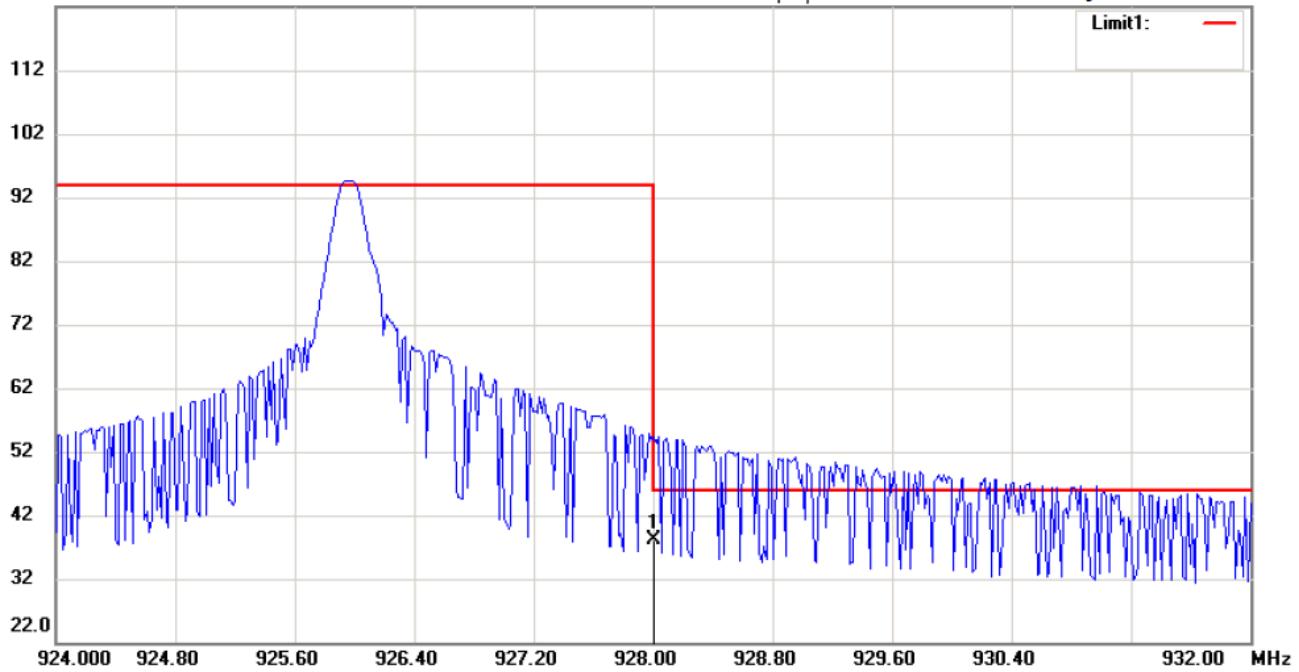


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

File :bandedge Radiated Emission Measurement Operator: Leon
122.0 dB μ V/m Data :#4 Date: 2014/4/28 Temperature:24 °C
122.0 dB μ V/m Time: 下午 07:47:41 Humidity:60 %



Site : Chamber_01

Condition : FCC 15.249 Bandedge(902-928)_QP

Polarization: *Vertical*

EUT : W6M21402-13969

Power : 9 Vd.c.

M/N: RF915

Distance: 3m

Test Mode : Bandedge

Note :

Mk.	Frequency (MHz)	Reading (dB μ V)	Detector	Corr. factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	928.0000	10.58	QP	27.62	38.20	46.00	100	155	-7.80	

Limit:

Frequency Range (MHz)	Limit (dB μ V/m)	
	Peak	Average
902 – 928	114	94
2400 – 2483.5	74	54
5725 – 5875	74	54

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 044



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FCC ID: VEARF915A

3.8 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 below 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 transacted 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.

Model: RF915

Date: --

Mode:

Temperature: -- °C

Engineer: --

Polarization: N

Humidity: -- %

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
--	QP	Ave.	--	QP	Ave.	QP	Ave.	--
--	--	--	--	--	--	--	--	--

Polarization: L1

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
--	QP	Ave.	--	QP	Ave.	QP	Ave.	--
--	--	--	--	--	--	--	--	--

Note:

- 1. The formula of measured value as: Test Result = Reading + Correction Factor**
- 2. The Correction Factor = Cable Loss + LISN Insertion 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 = ± 1.41 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.**
- 6. This test is not required because there is no AC power line or signal line for this EUT.**

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-CE 006, ETSTW-RE 045

Explanation: Please see attached diagram as appendix.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21402-13969-C-1
FCC ID: VEARF915A

Appendix

A Measurement diagrams

1. Fundamental Field Strength
2. Spurious Emissions radiated

B Photos

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

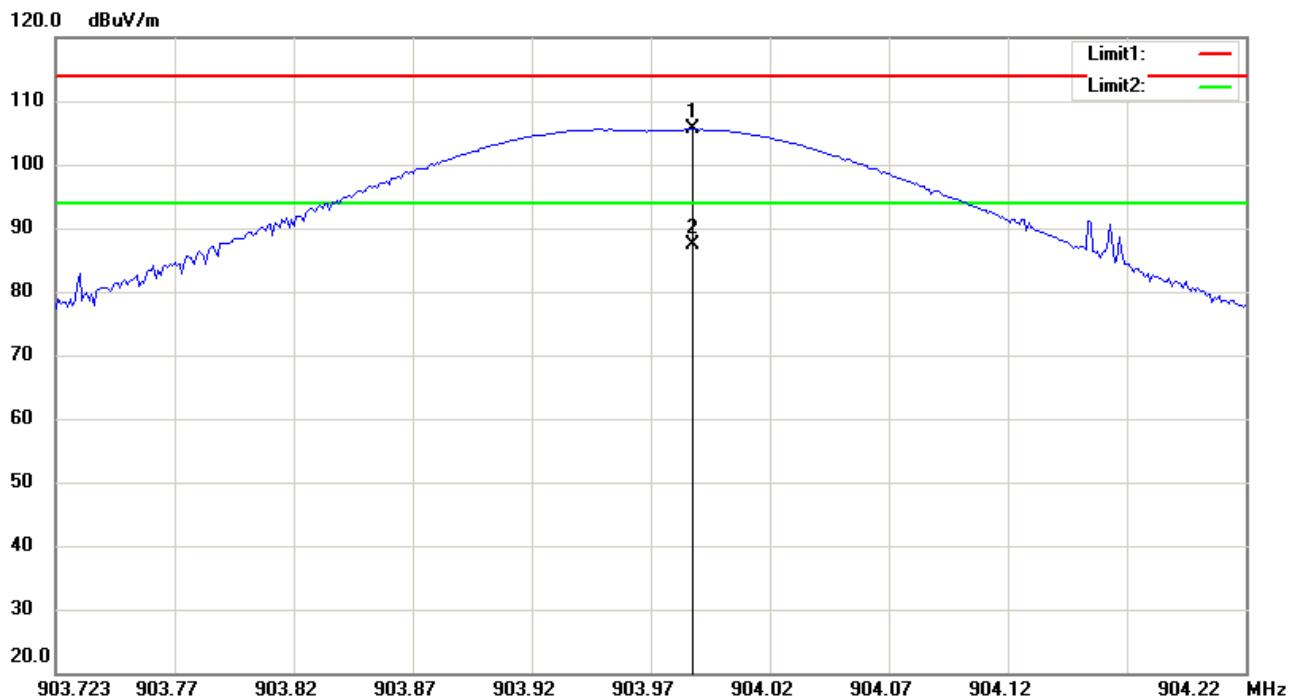
Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

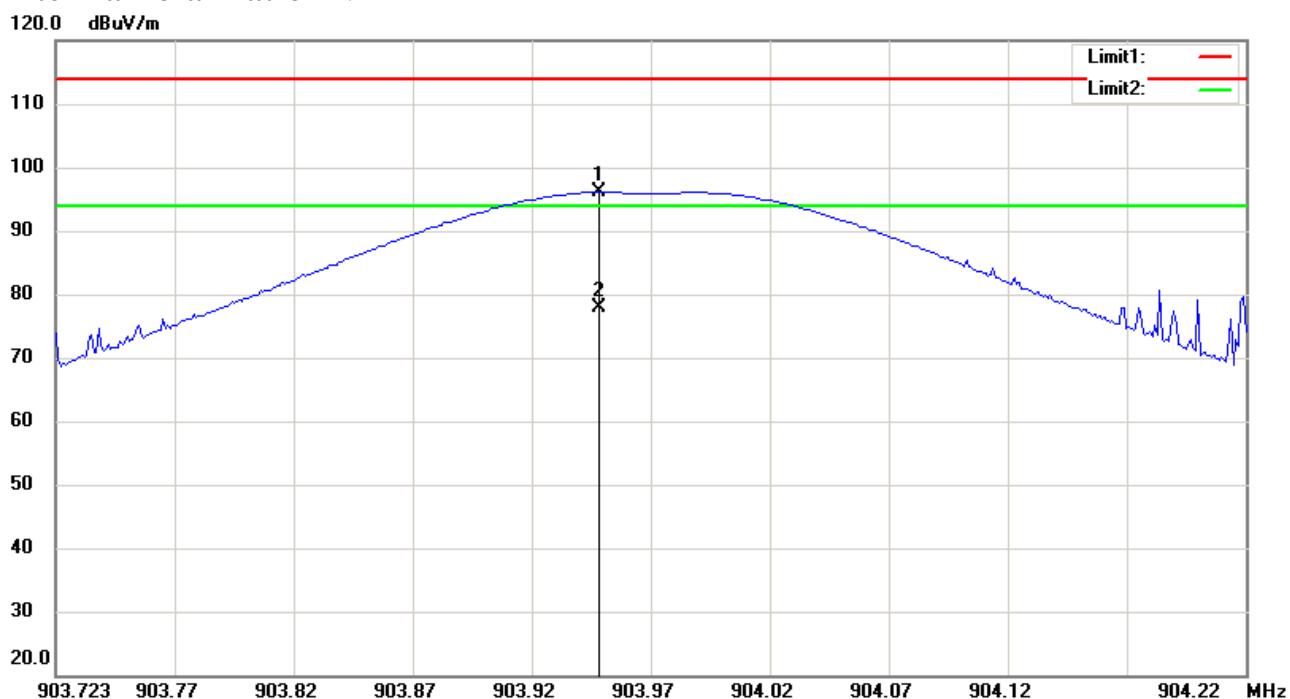
Fundamental Field Strength

904 MHz

Antenna Polarization H



Antenna Polarization V



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

Note:

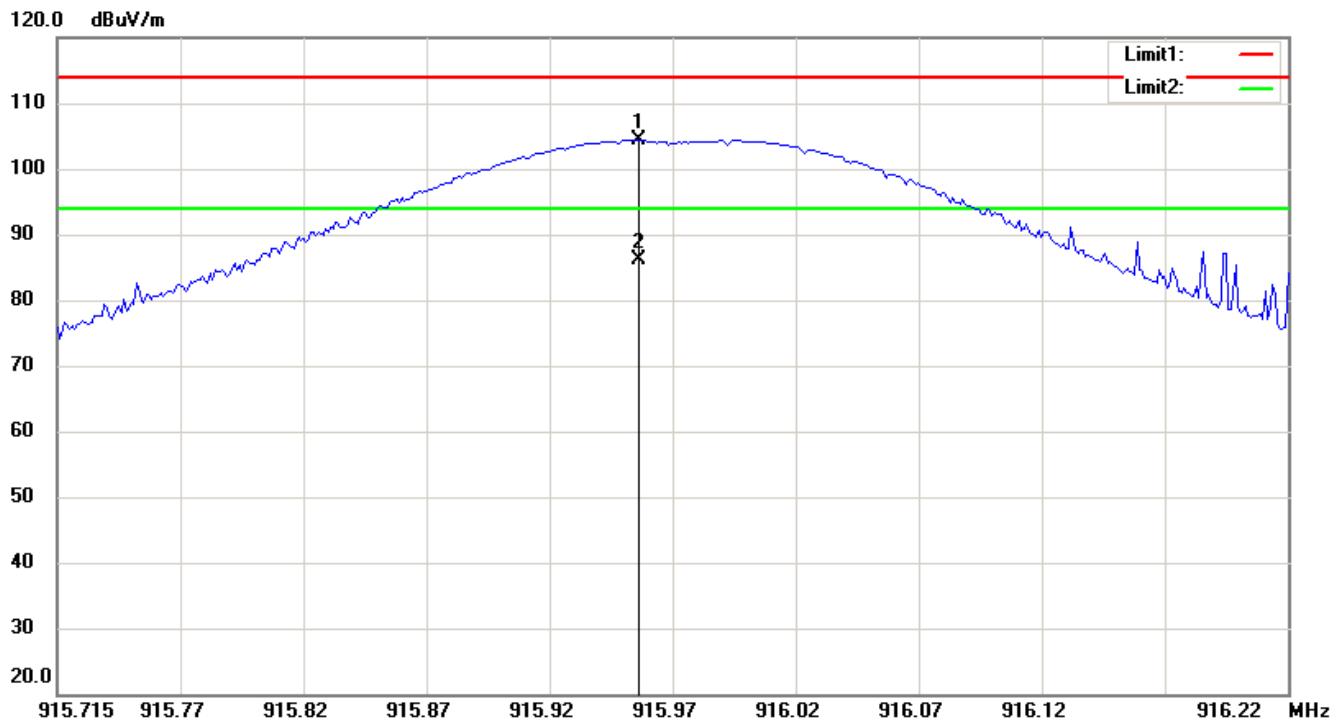
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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

Registration number: W6M21402-13969-C-1

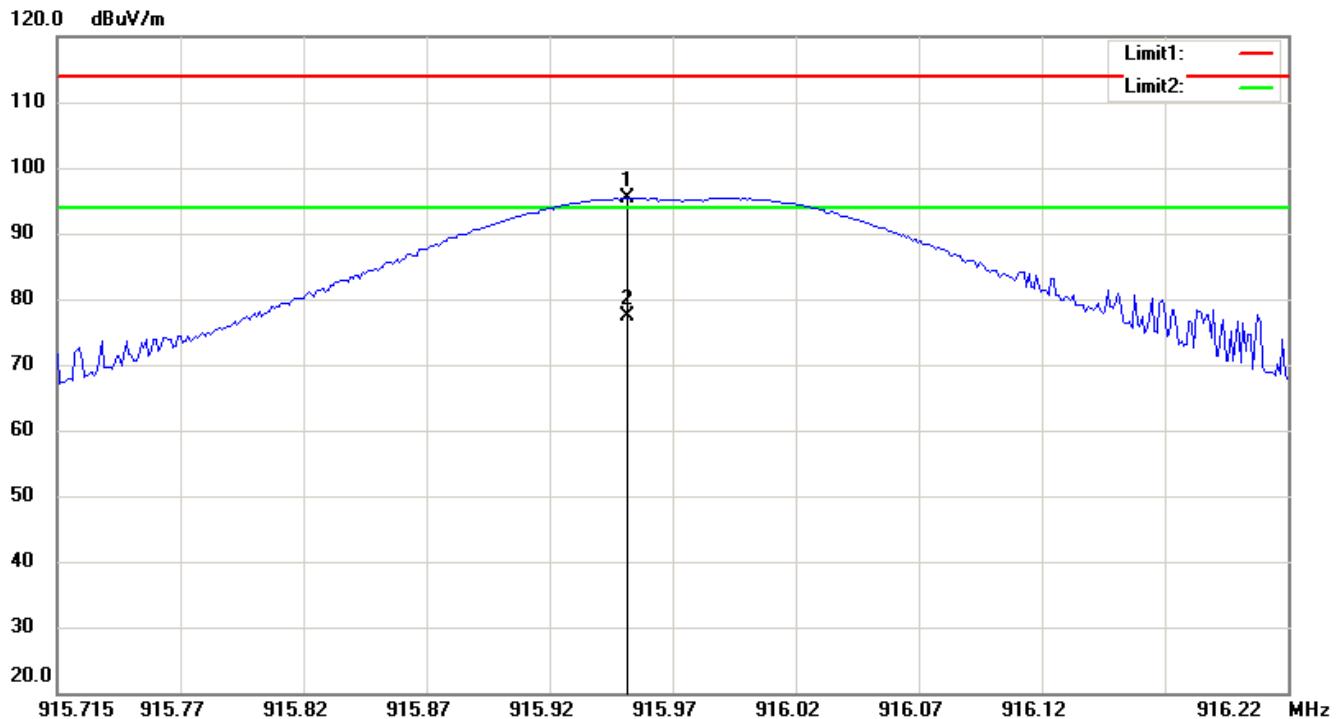
FCC ID: VEARF915A

916 MHz

Antenna Polarization H



Antenna Polarization V



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

Note:

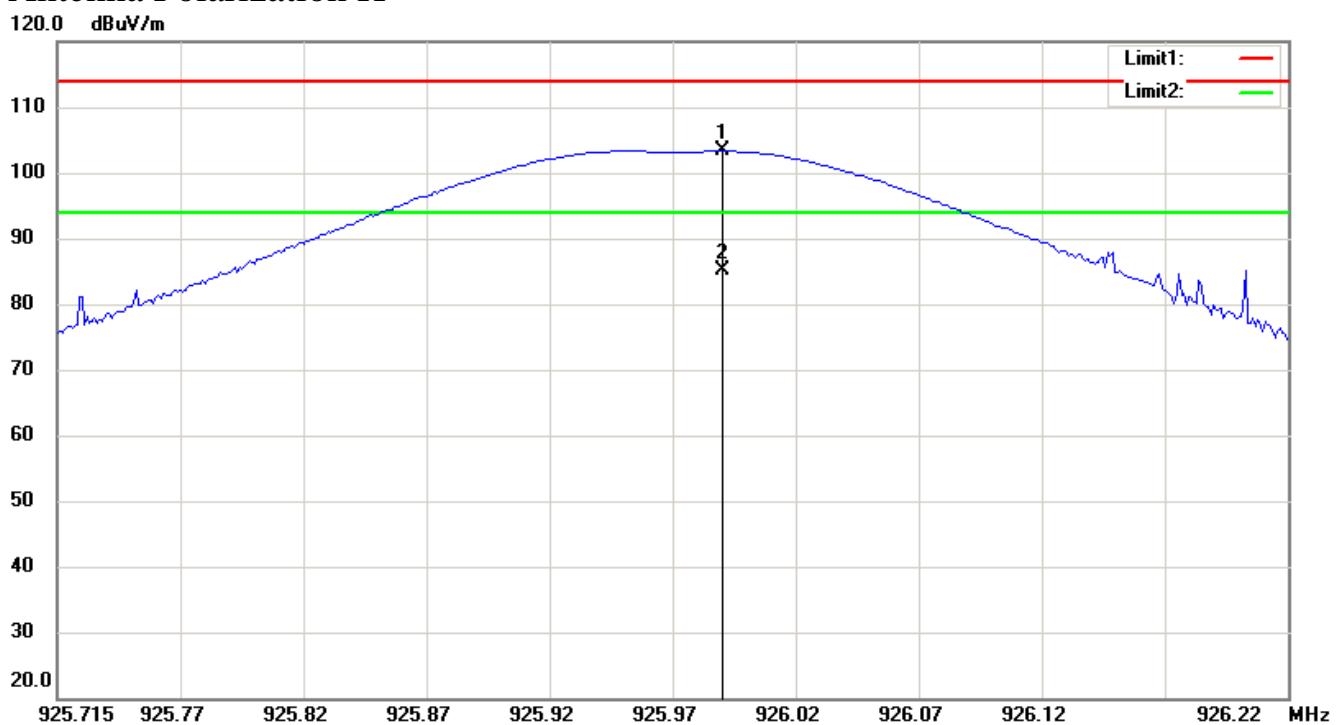
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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

Registration number: W6M21402-13969-C-1

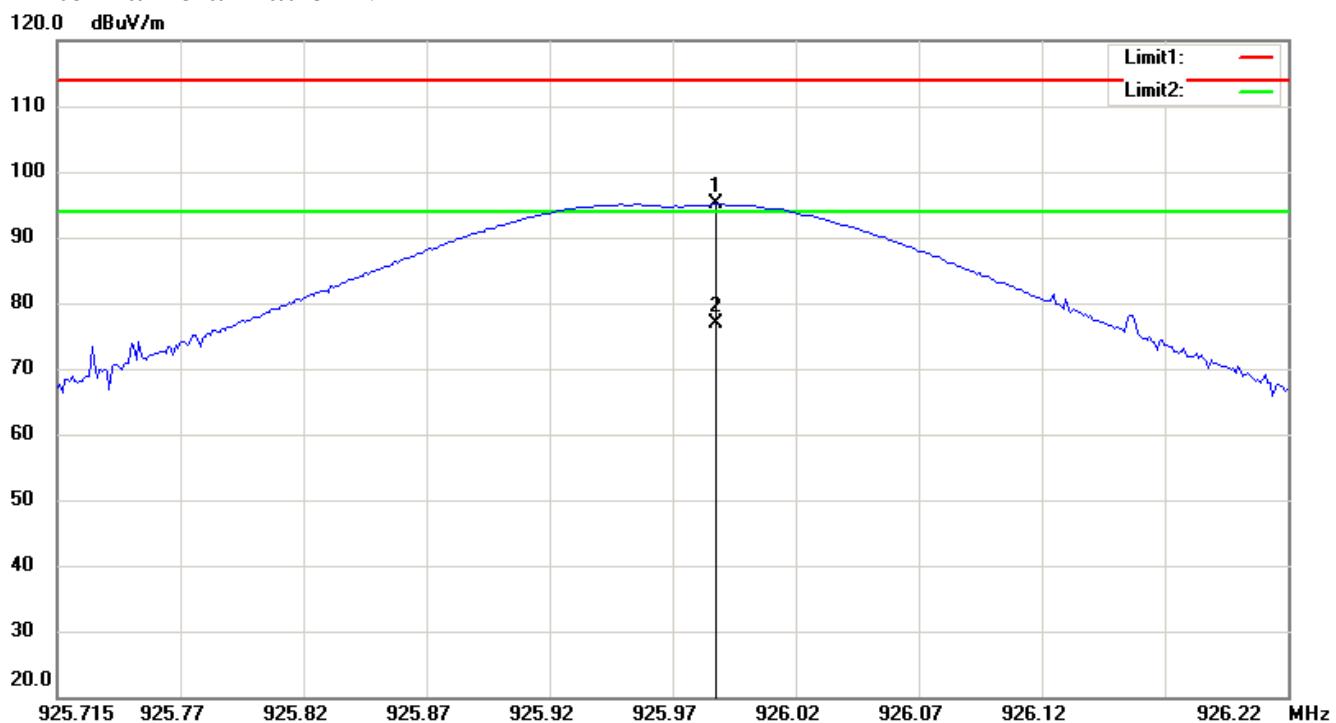
FCC ID: VEARF915A

926 MHz

Antenna Polarization H



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 fundamental field strength test data of this test report.

Registration number: W6M21402-13969-C-1

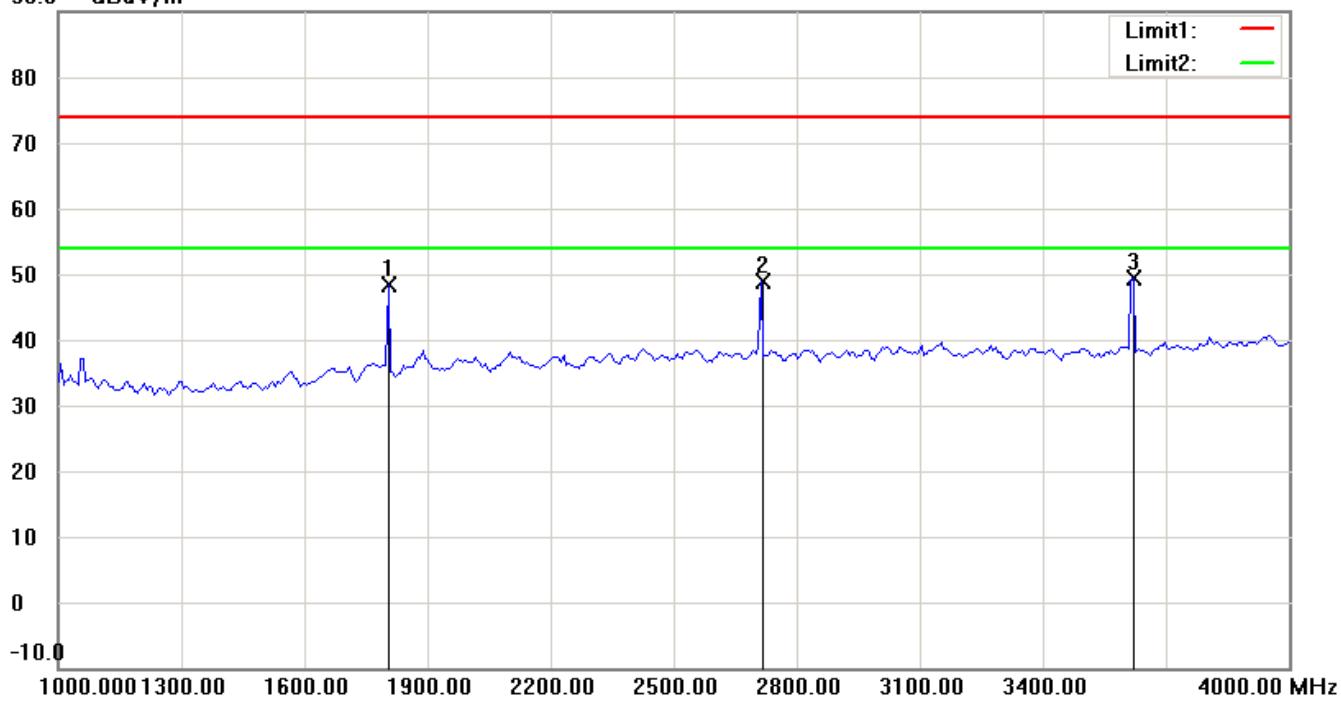
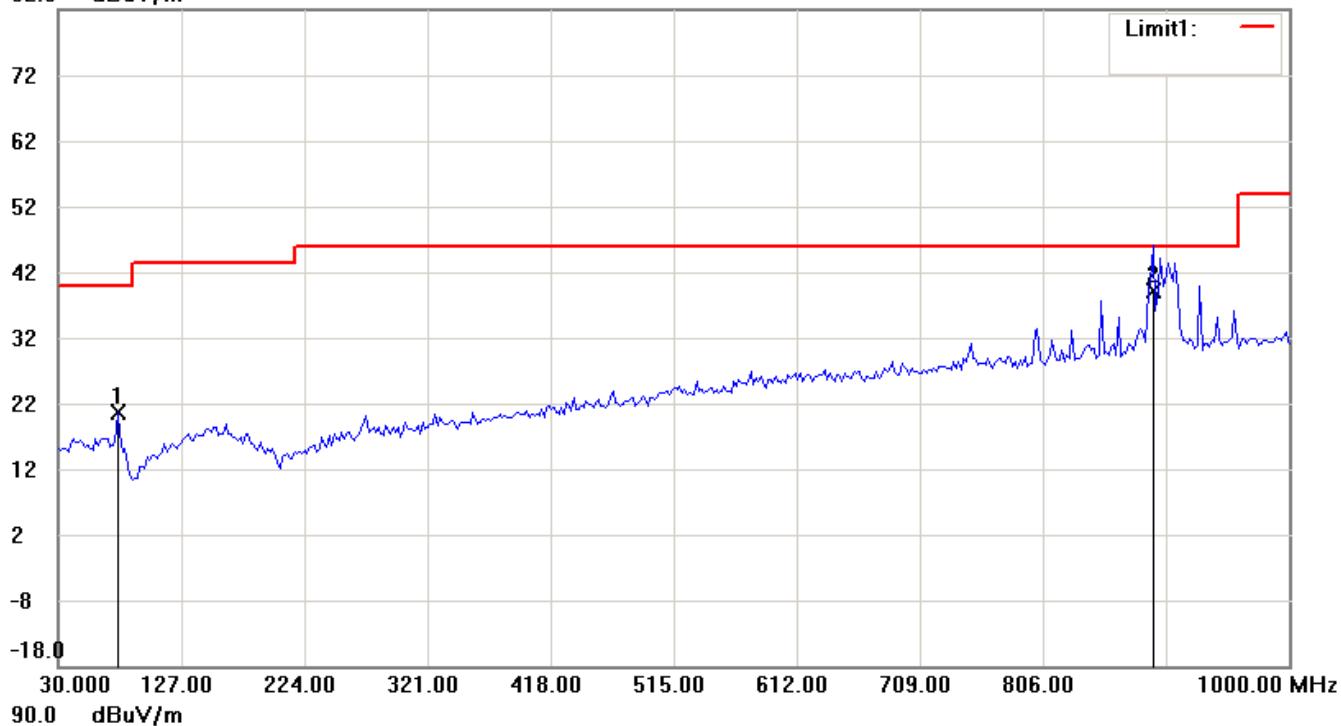
FCC ID: VEARF915A

Spurious Emissions radiated

904 MHz

Antenna Polarization H

82.0 dBuV/m



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

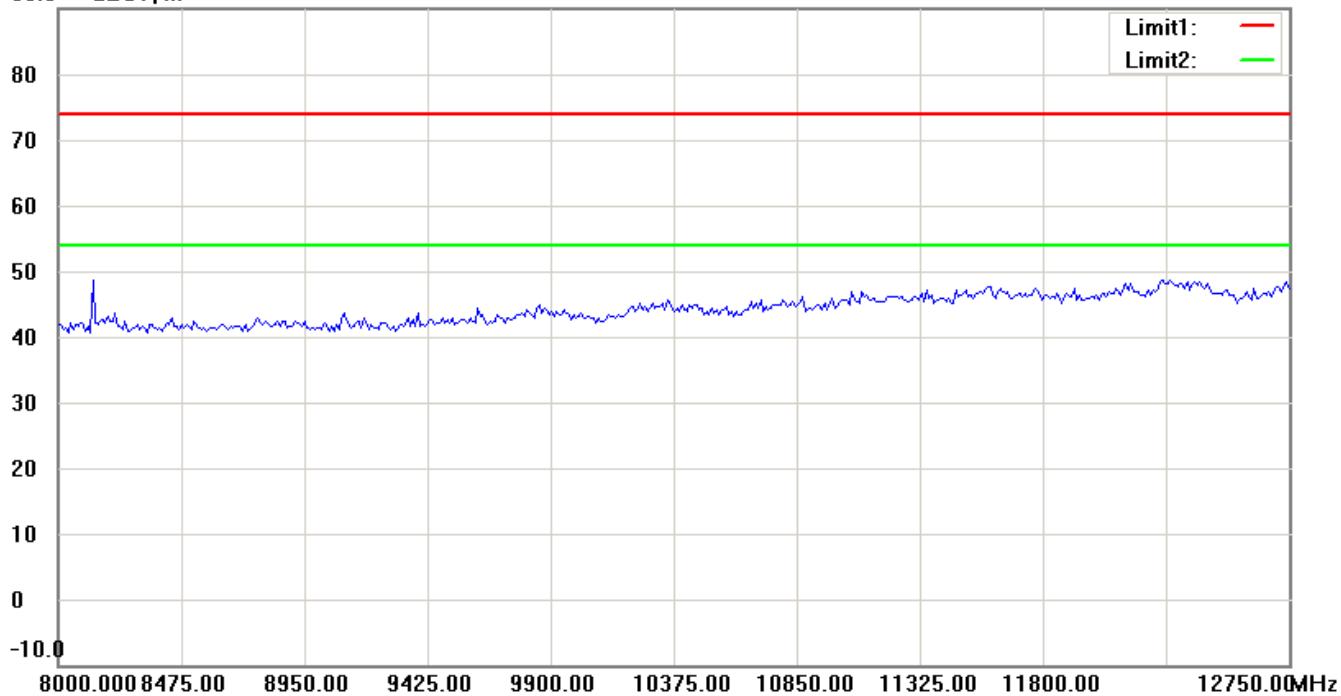
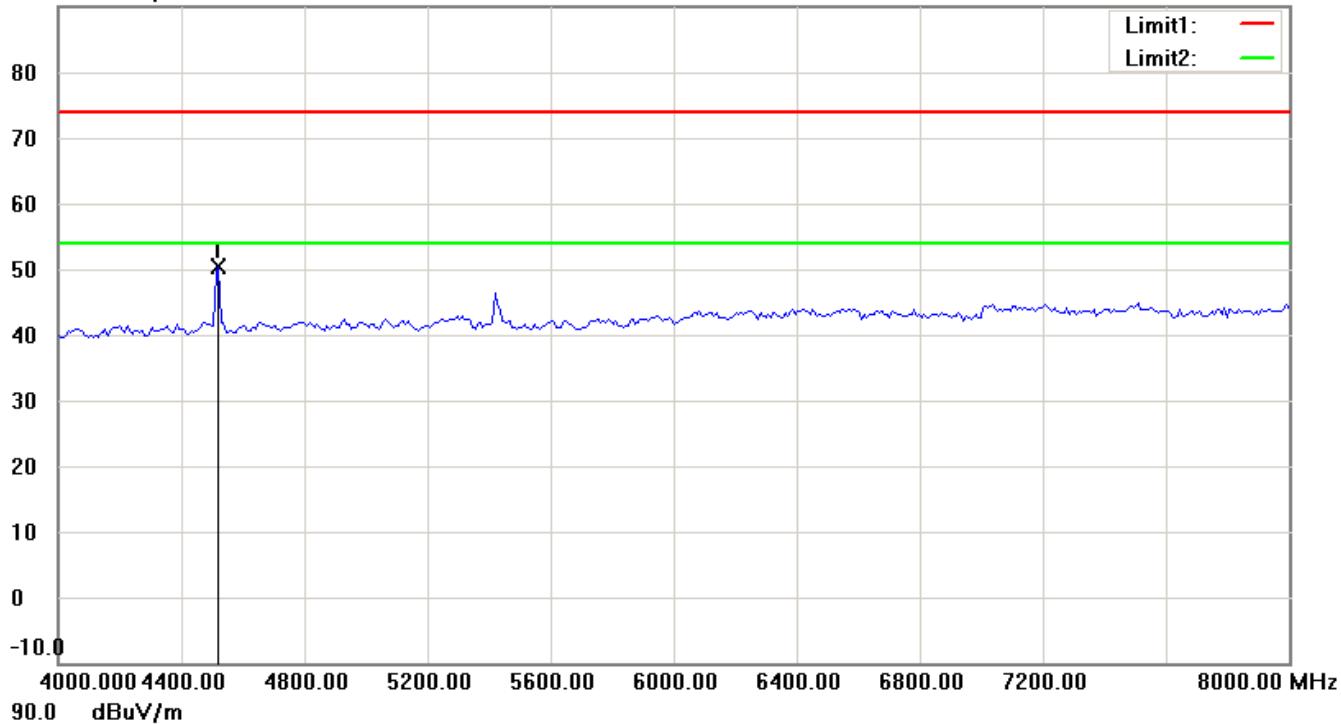
Note:

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: W6M21402-13969-C-1

FCC ID: VEARF915A

90.0 dBuV/m



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

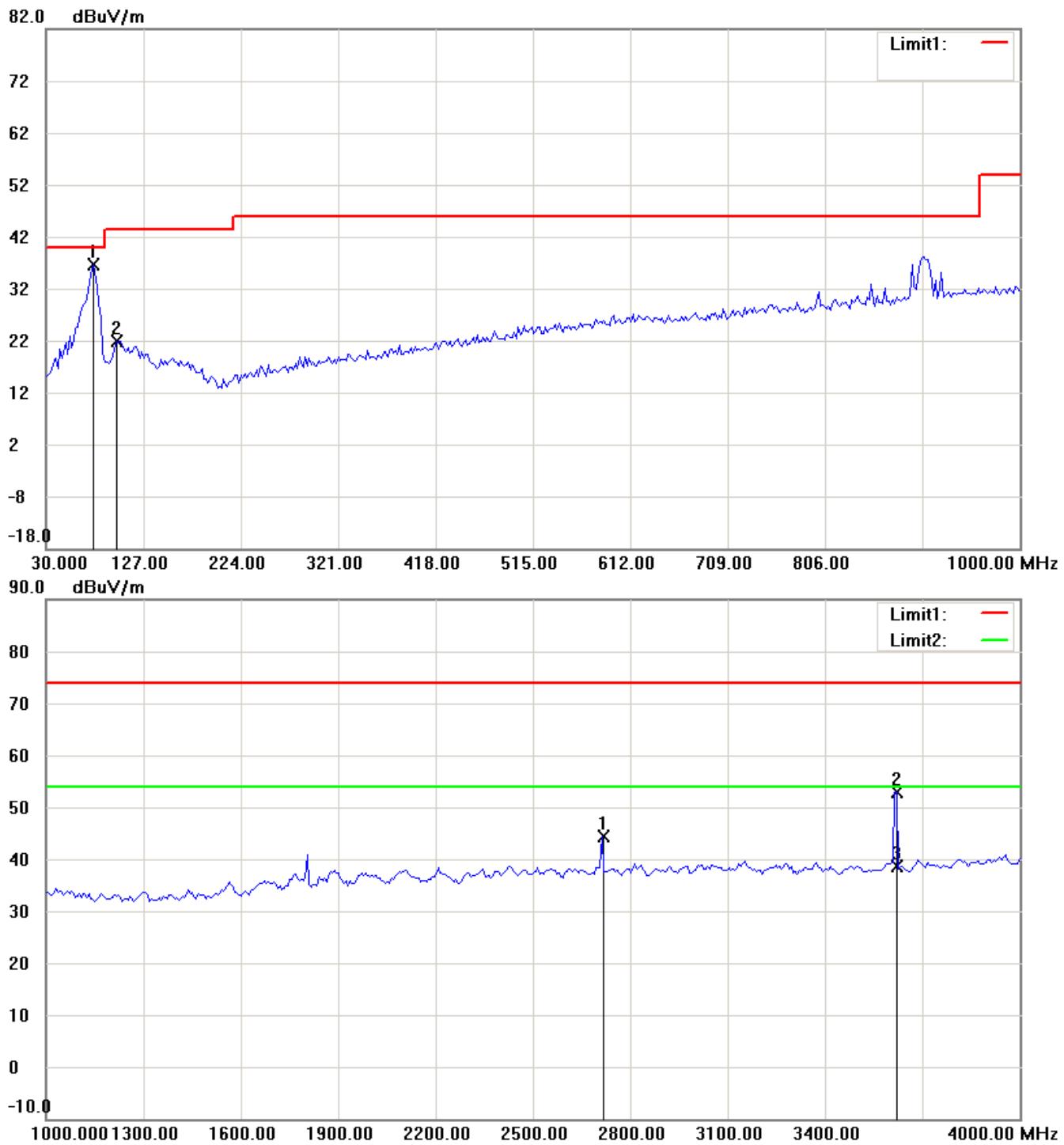
Note:

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: W6M21402-13969-C-1

FCC ID: VEARF915A

Antenna Polarization V



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

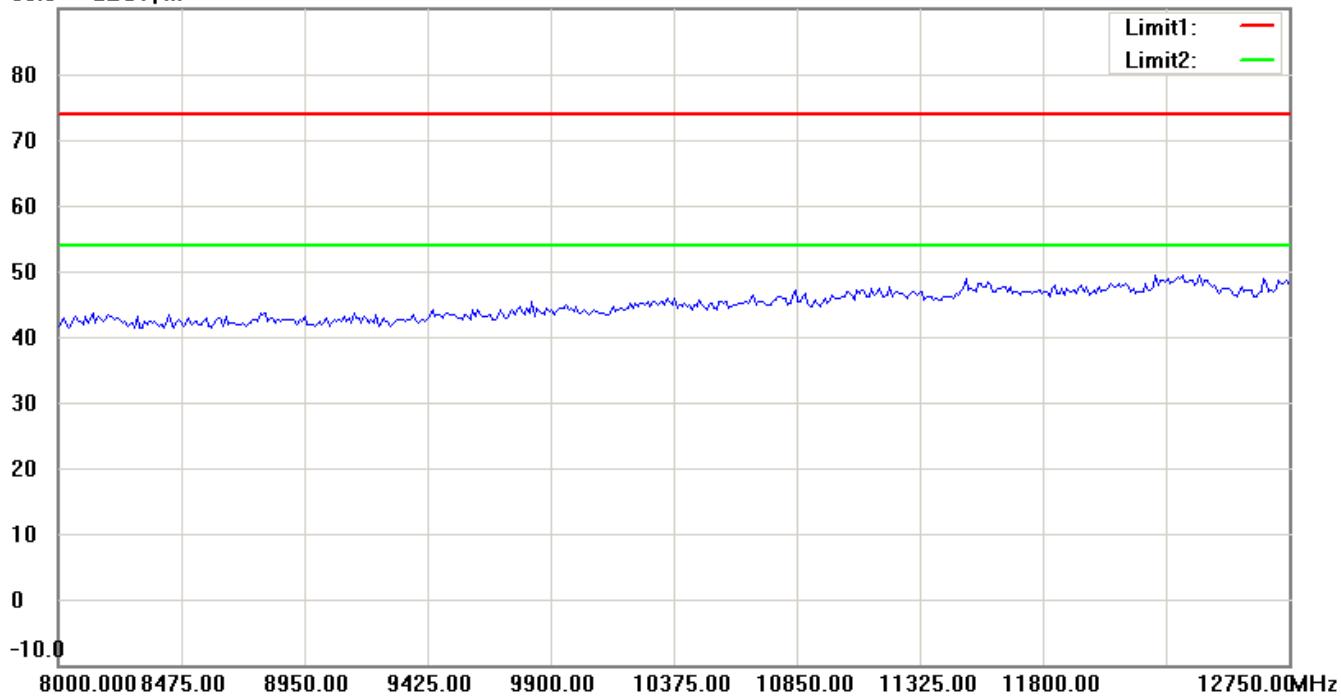
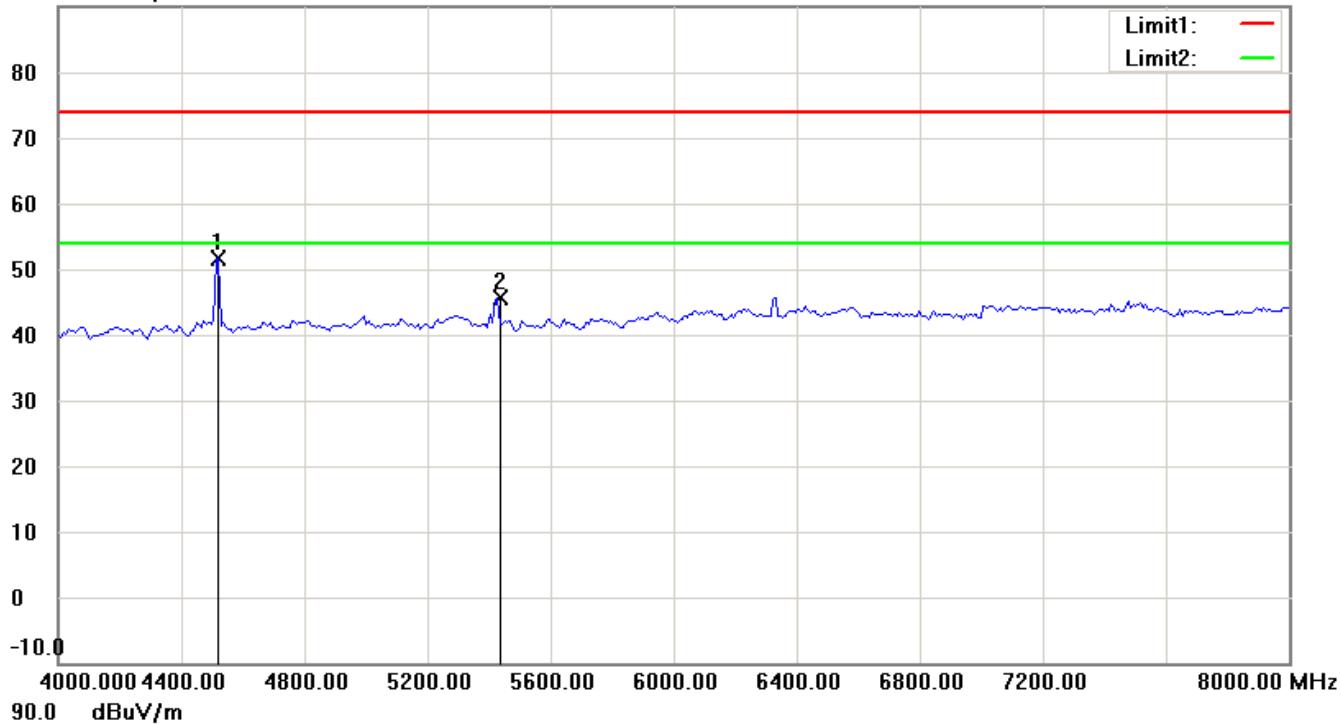
Note:

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: W6M21402-13969-C-1

FCC ID: VEARF915A

90.0 dBuV/m



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

Note:

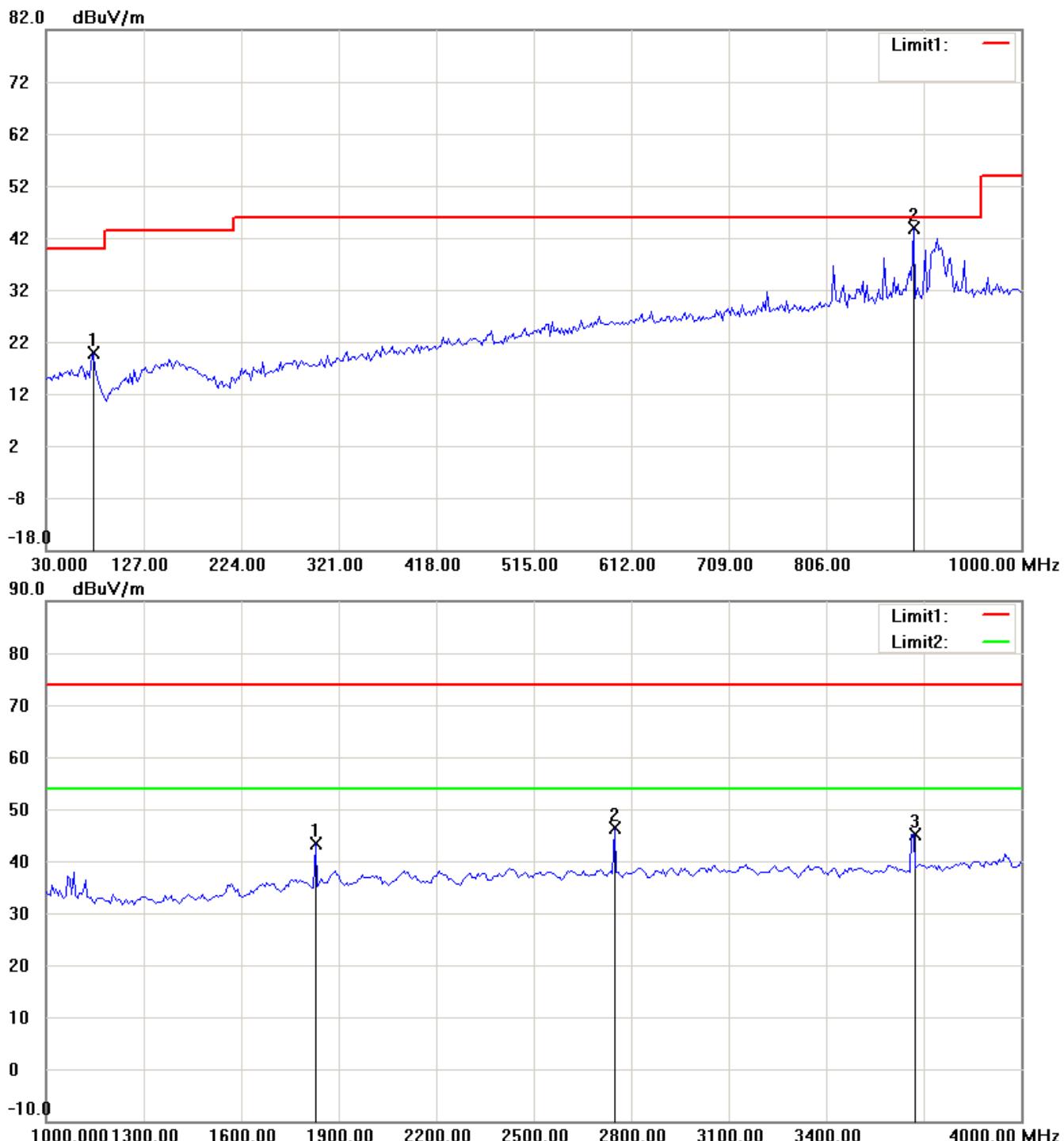
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

916 MHz

Antenna Polarization H



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

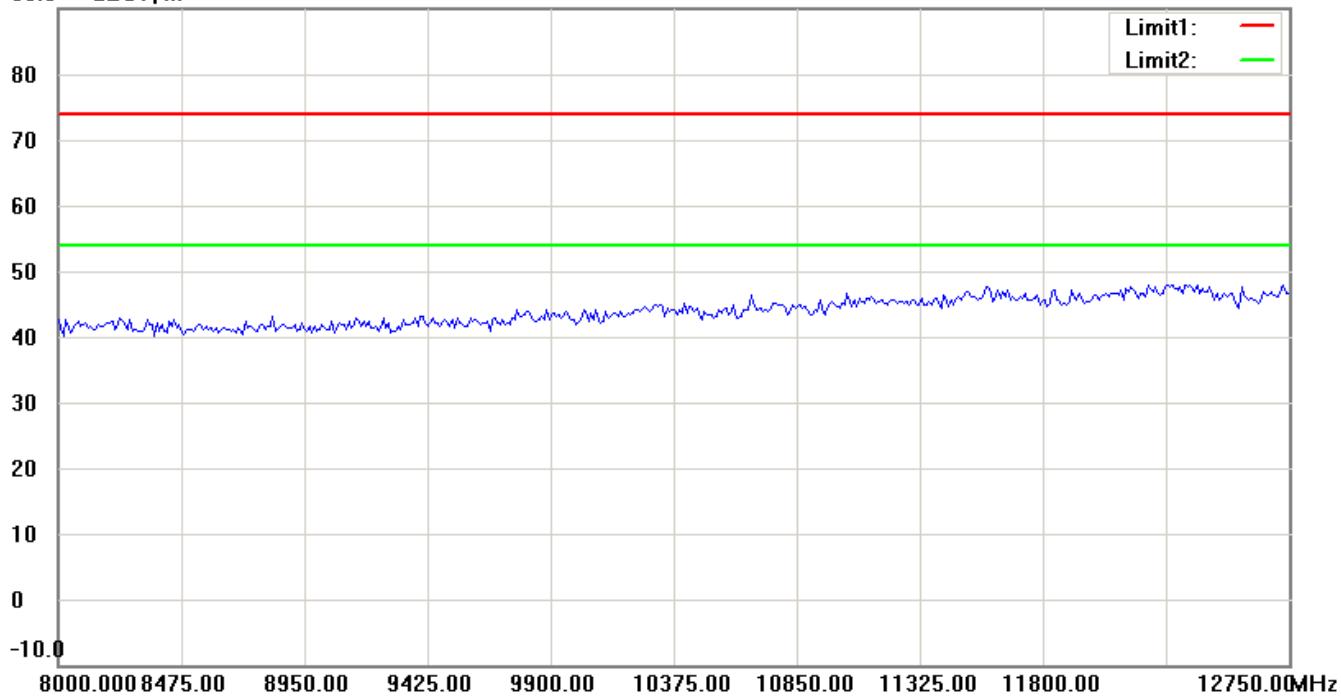
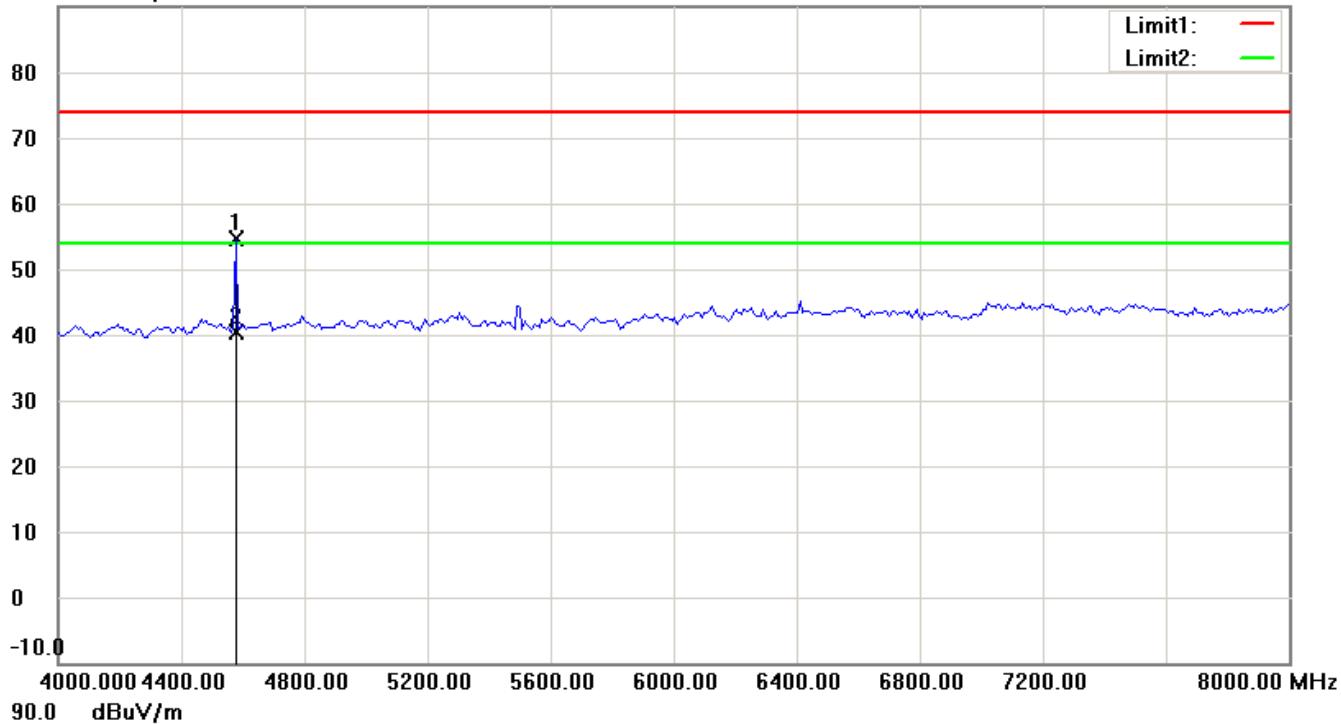
Note:

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

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

90.0 dBuV/m



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

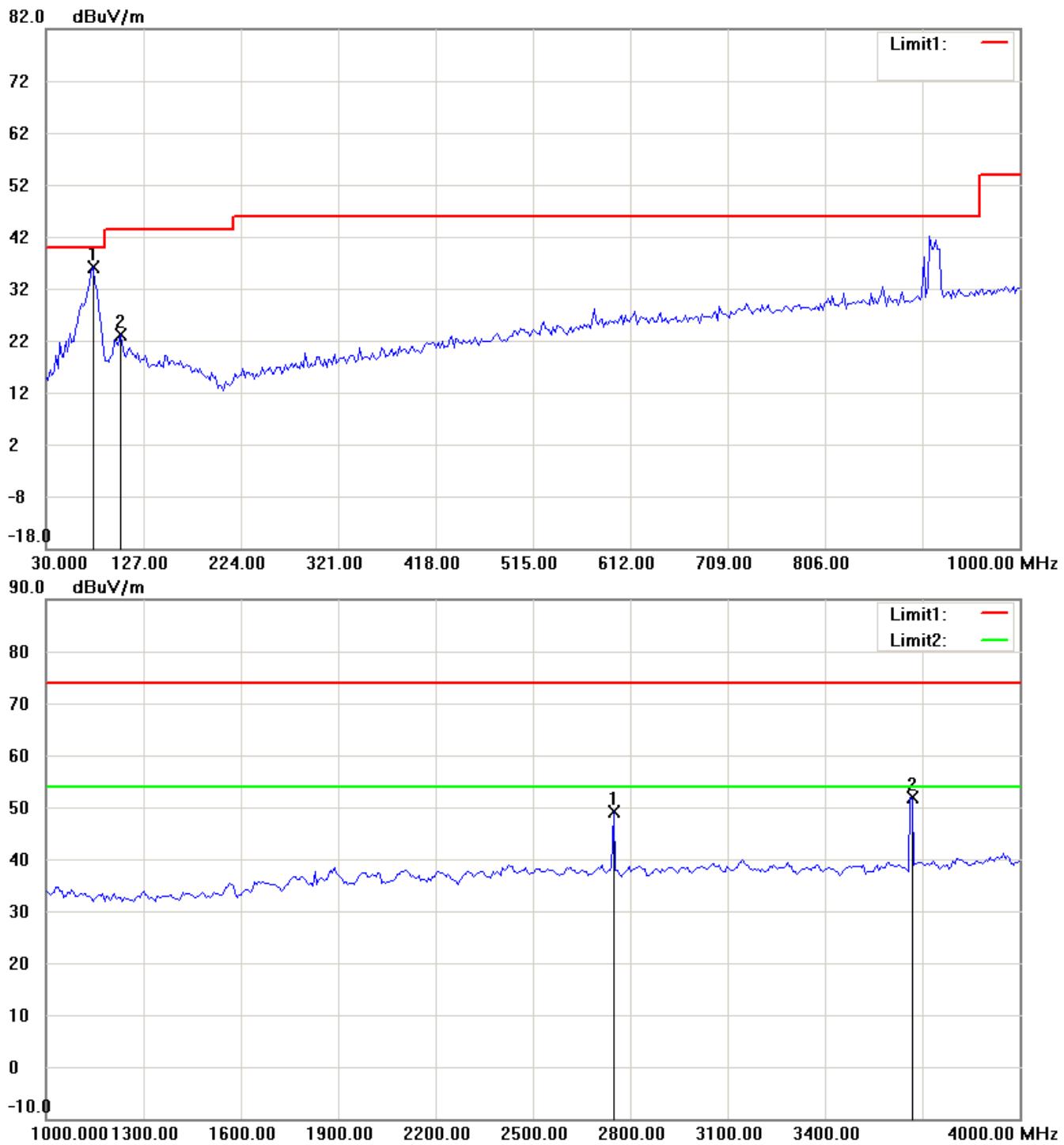
Note:

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: W6M21402-13969-C-1

FCC ID: VEARF915A

Antenna Polarization V



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

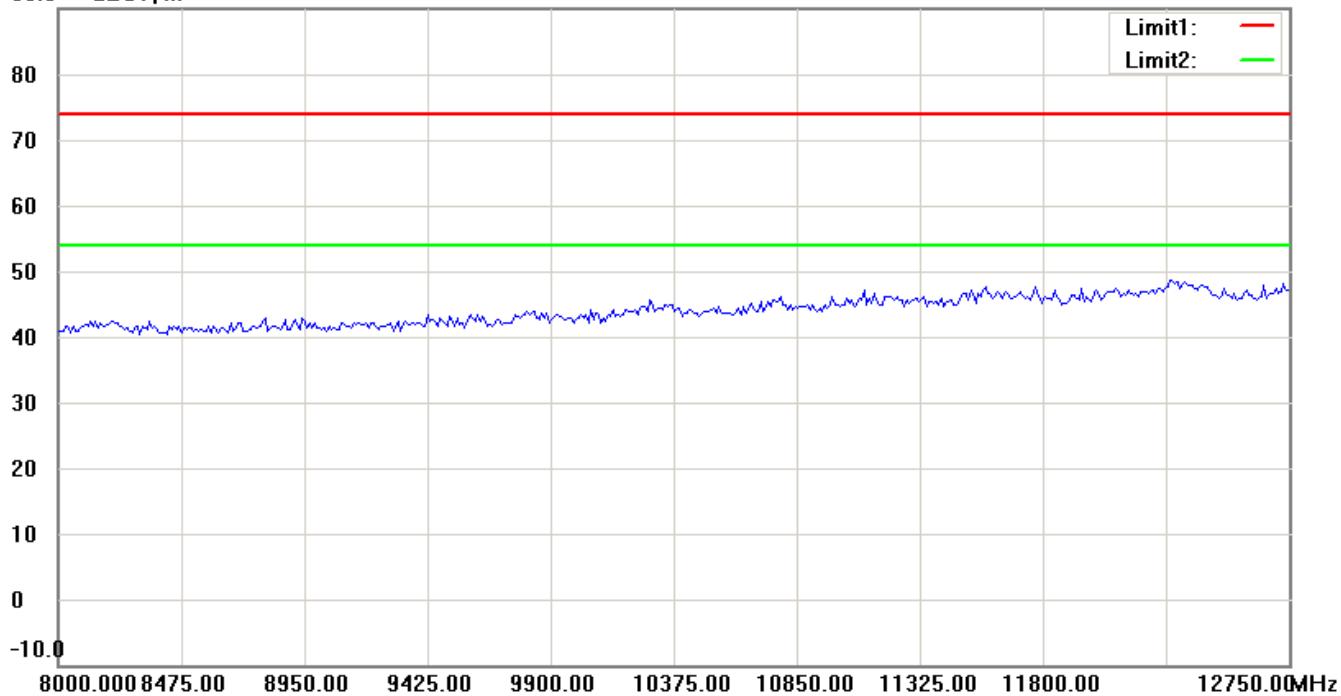
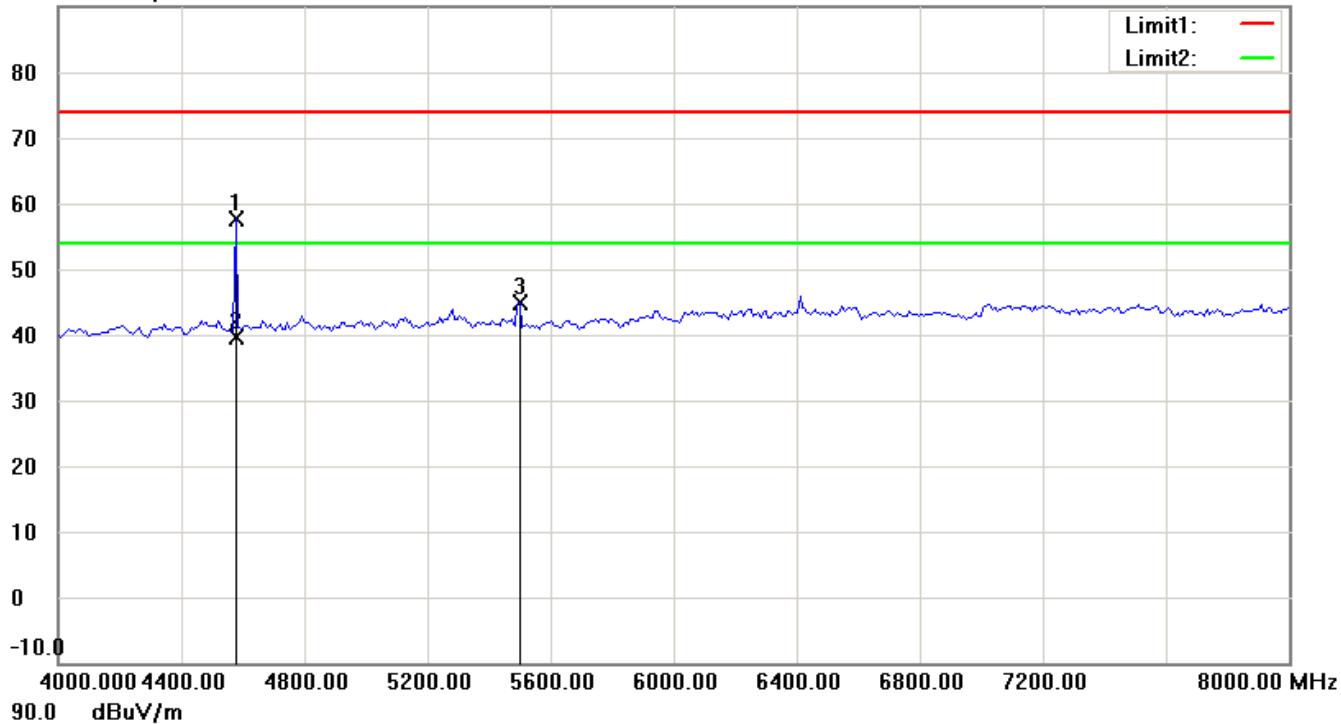
Note:

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: W6M21402-13969-C-1

FCC ID: VEARF915A

90.0 dBuV/m



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.



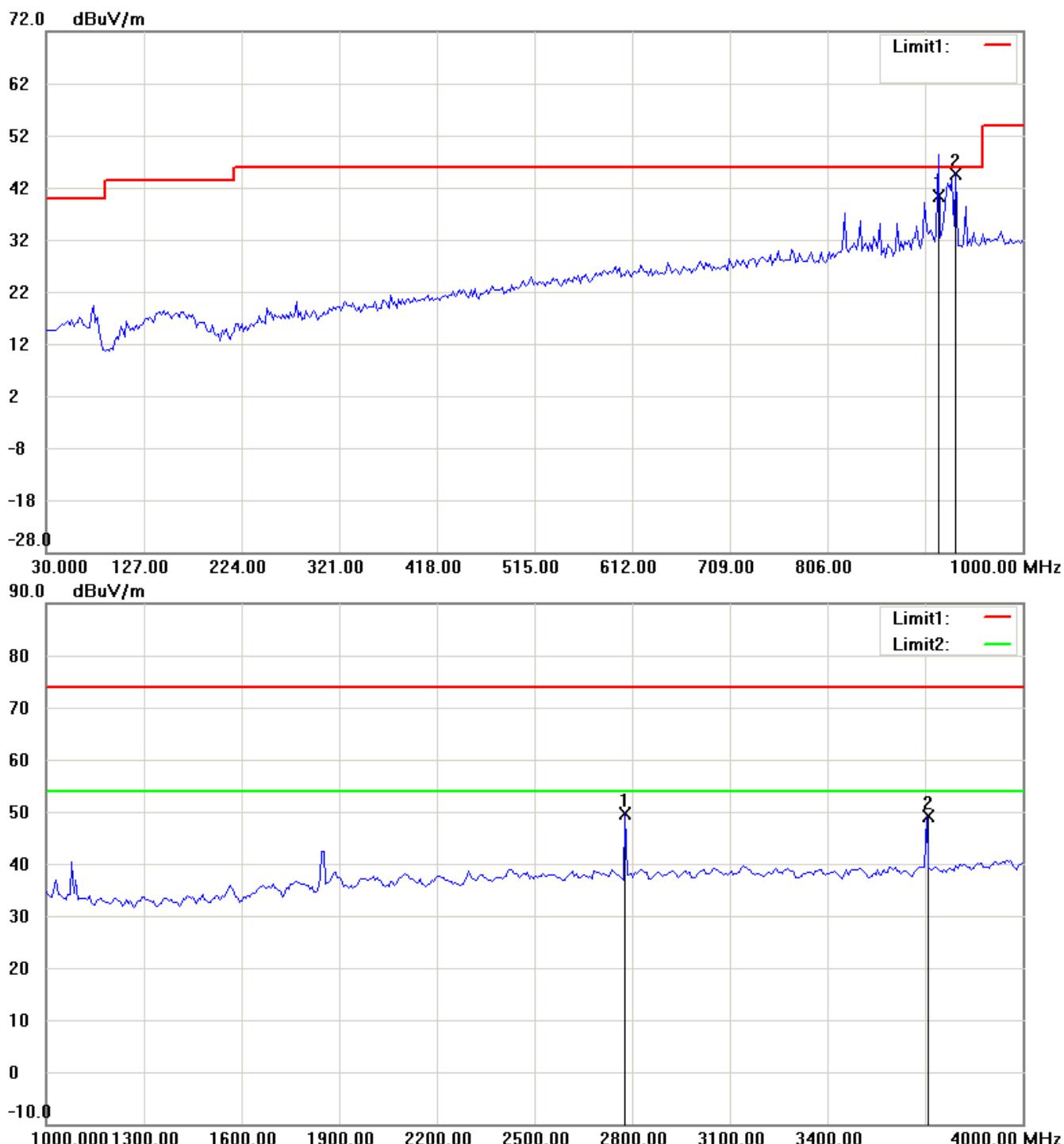
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

926 MHz

Antenna Polarization H



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

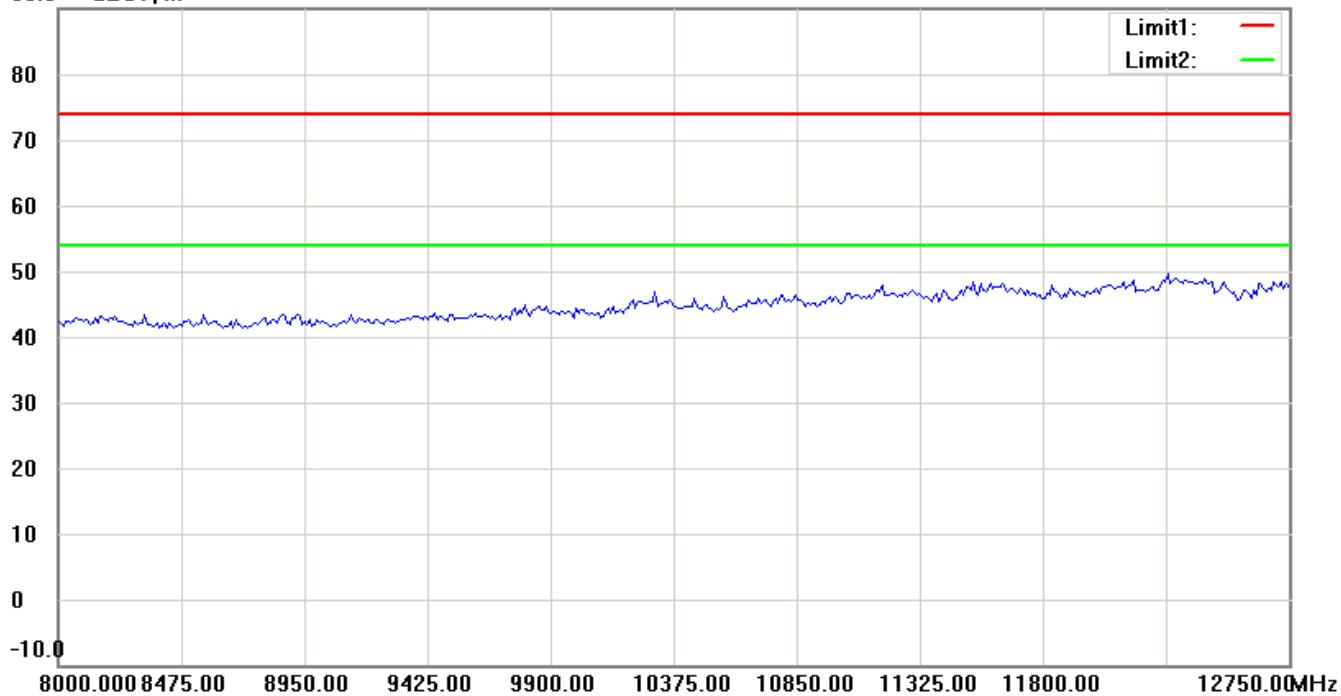
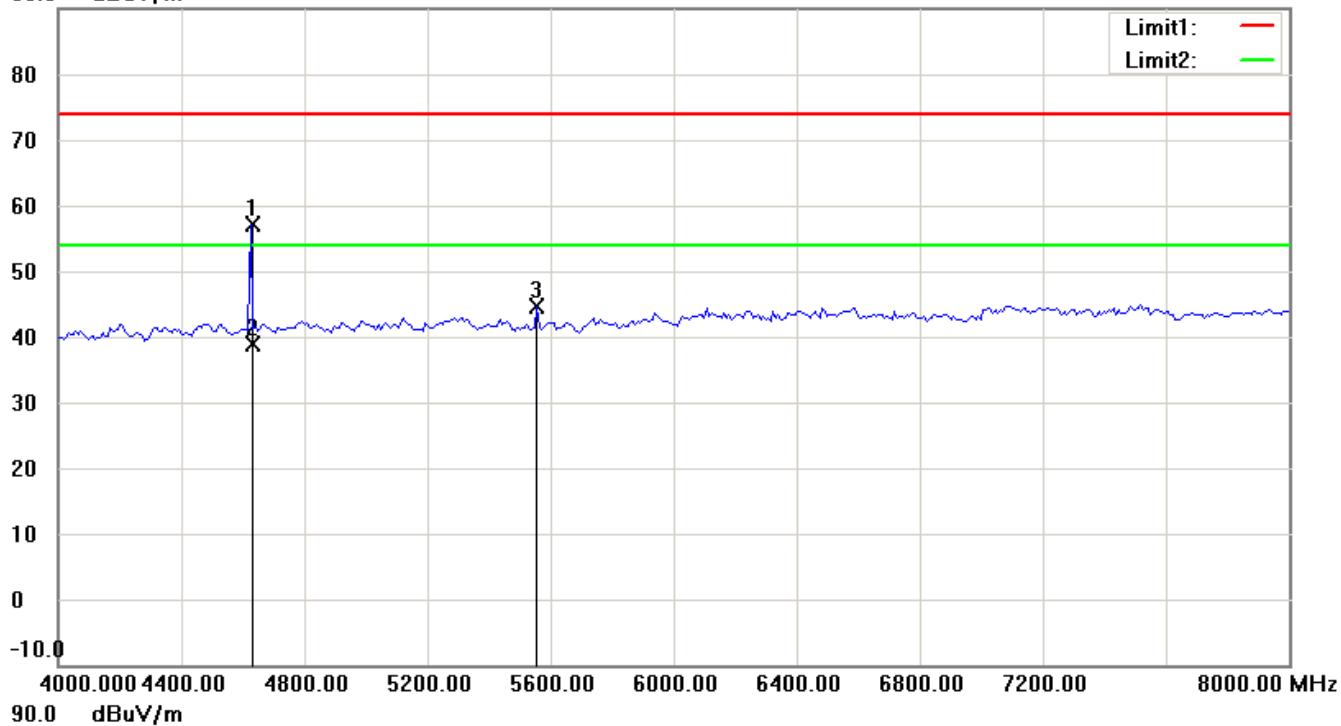
Note:

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

Registration number: W6M21402-13969-C-1

FCC ID: VEARF915A

90.0 dBuV/m



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

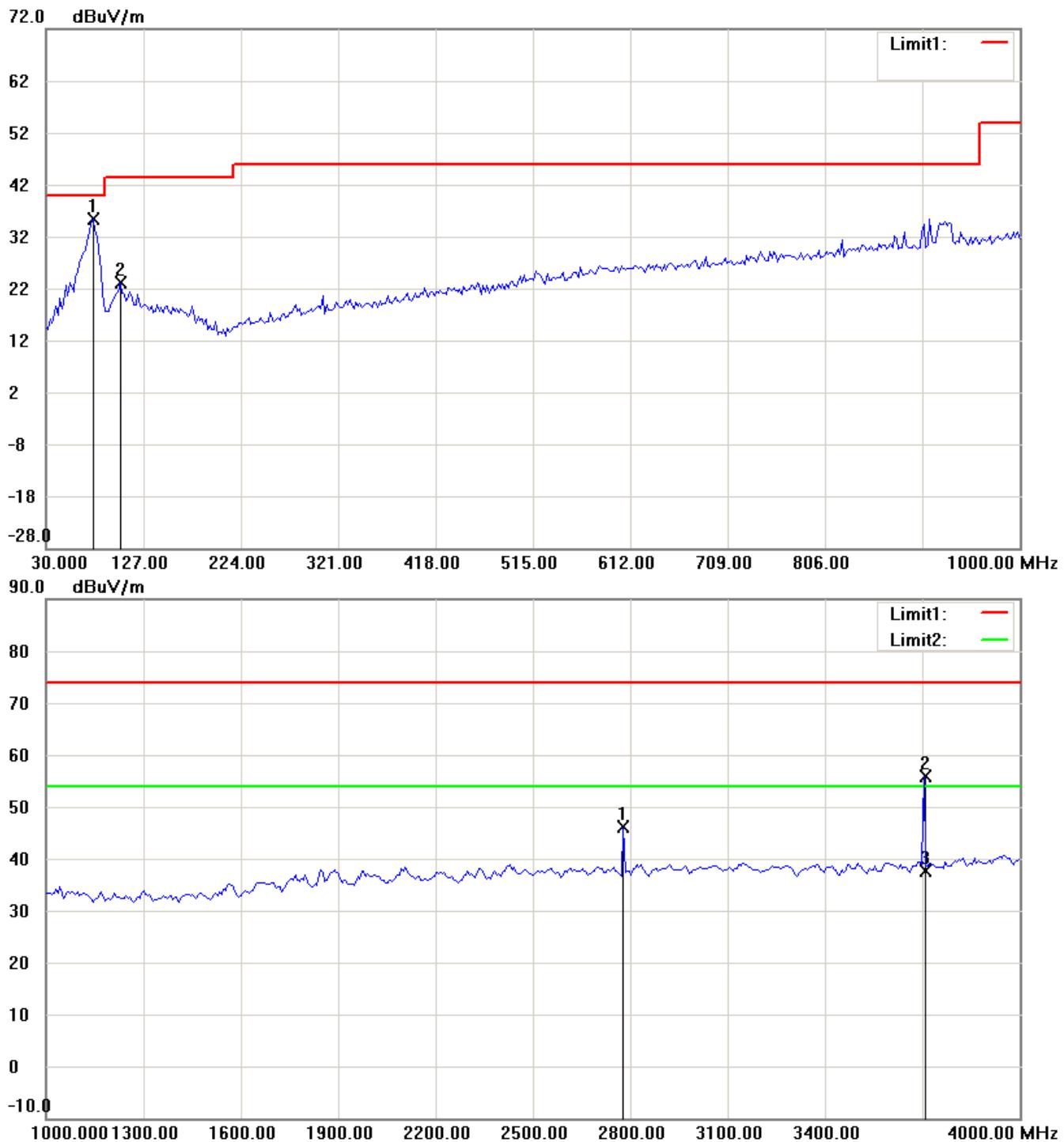
Note:

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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Antenna Polarization V



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

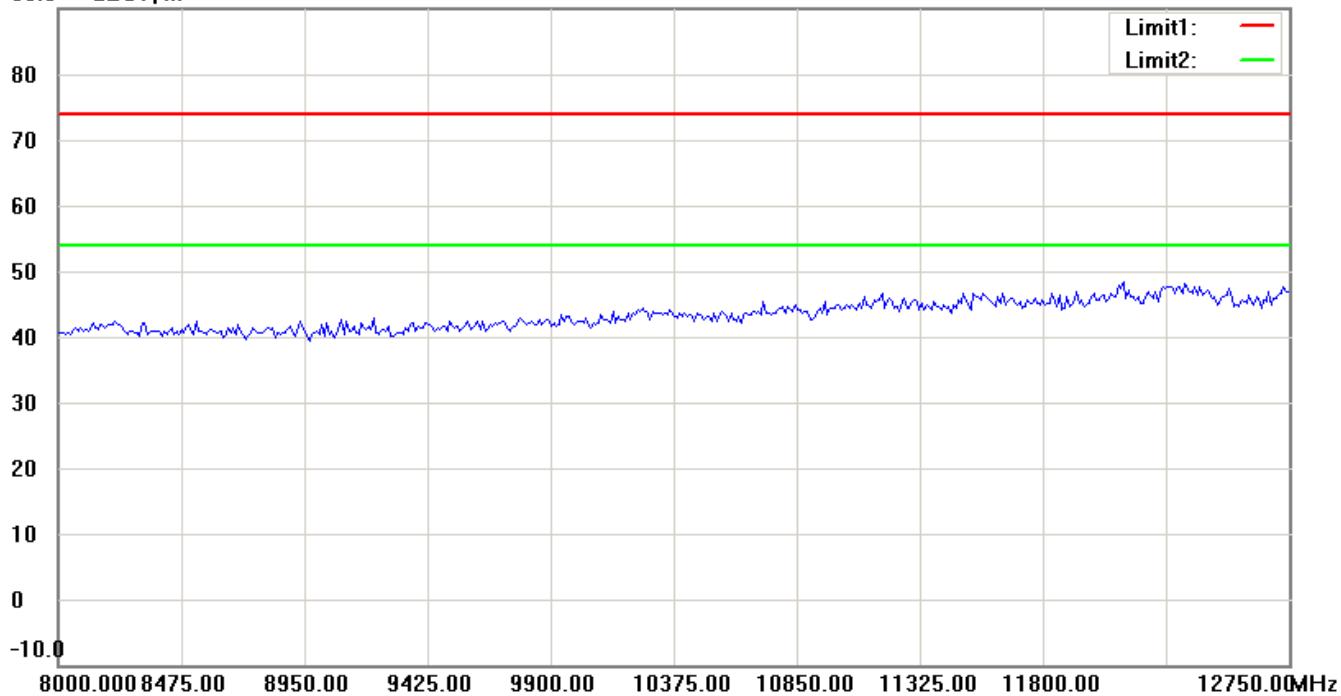
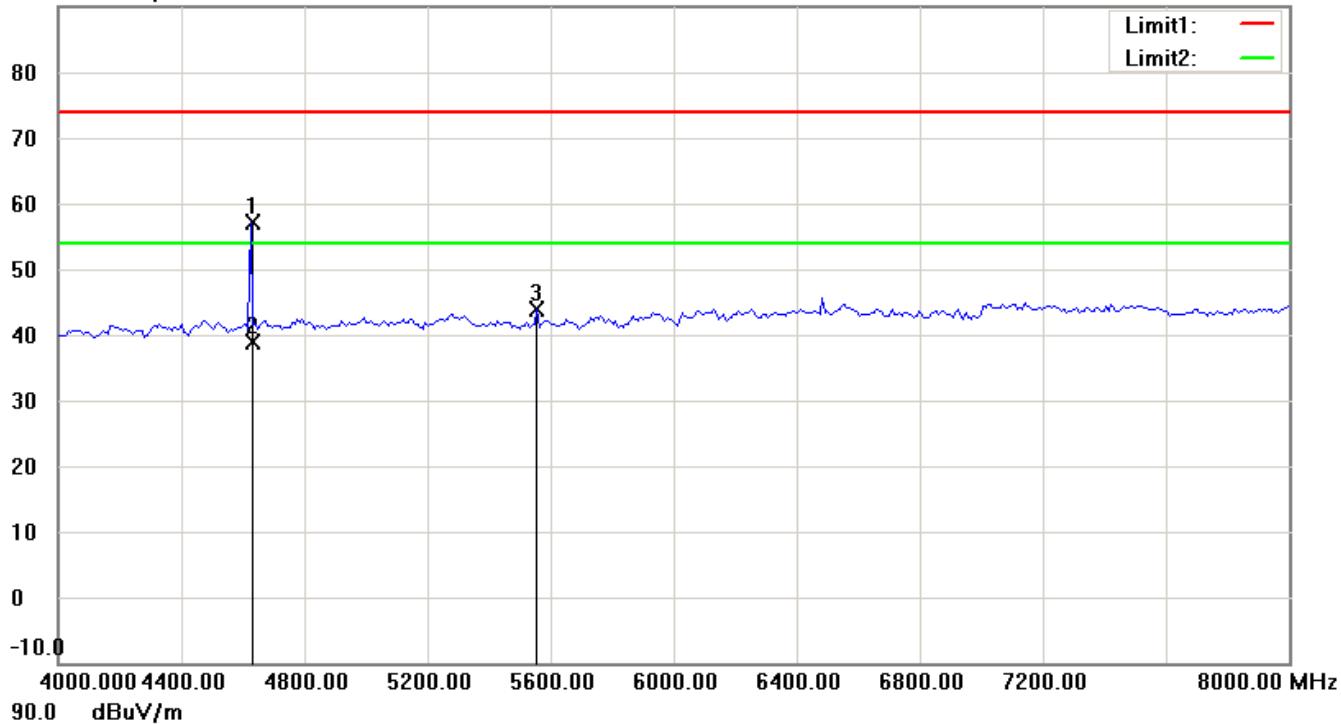
Note:

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.

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90.0 dBuV/m



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

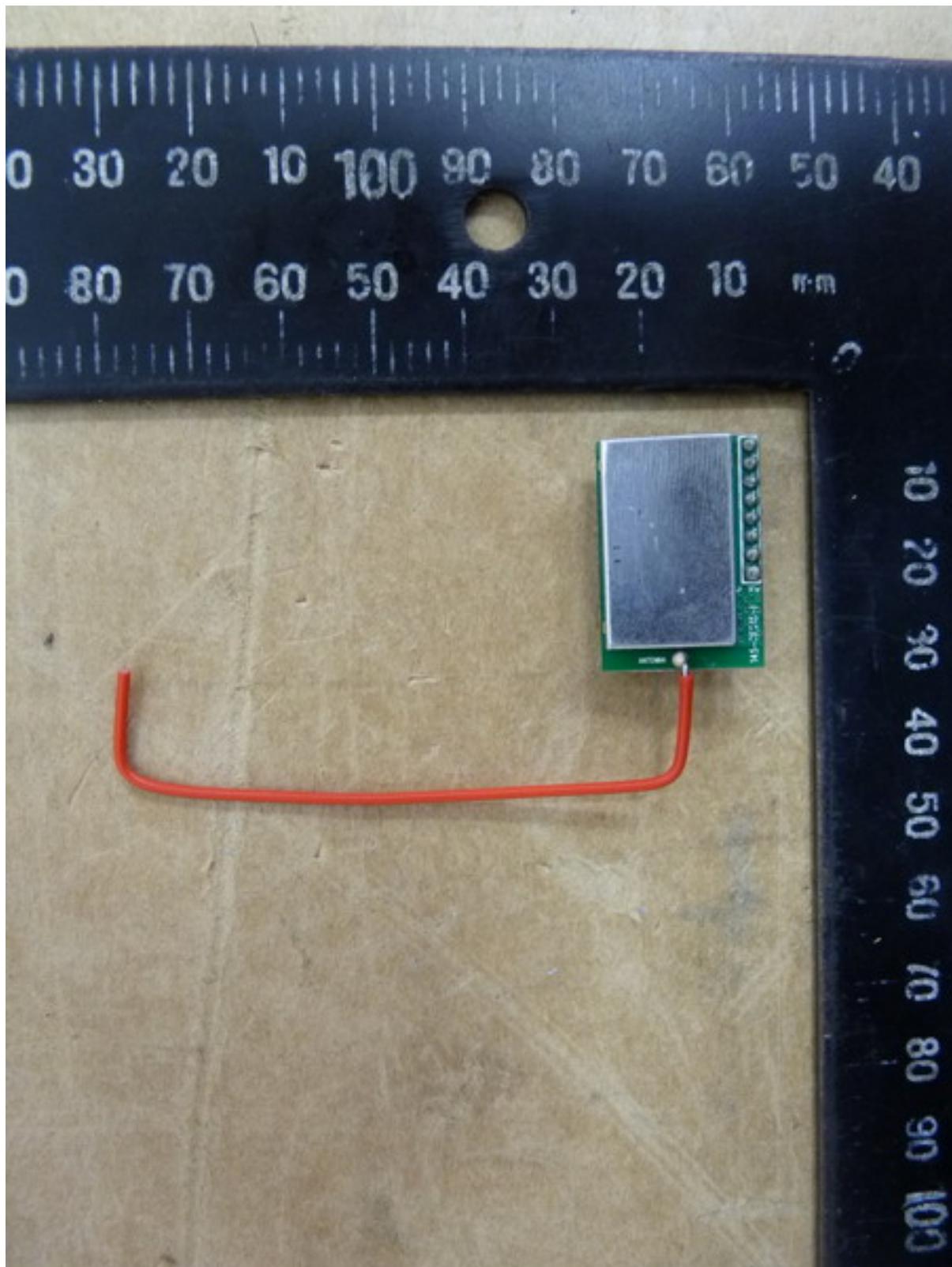
Note:

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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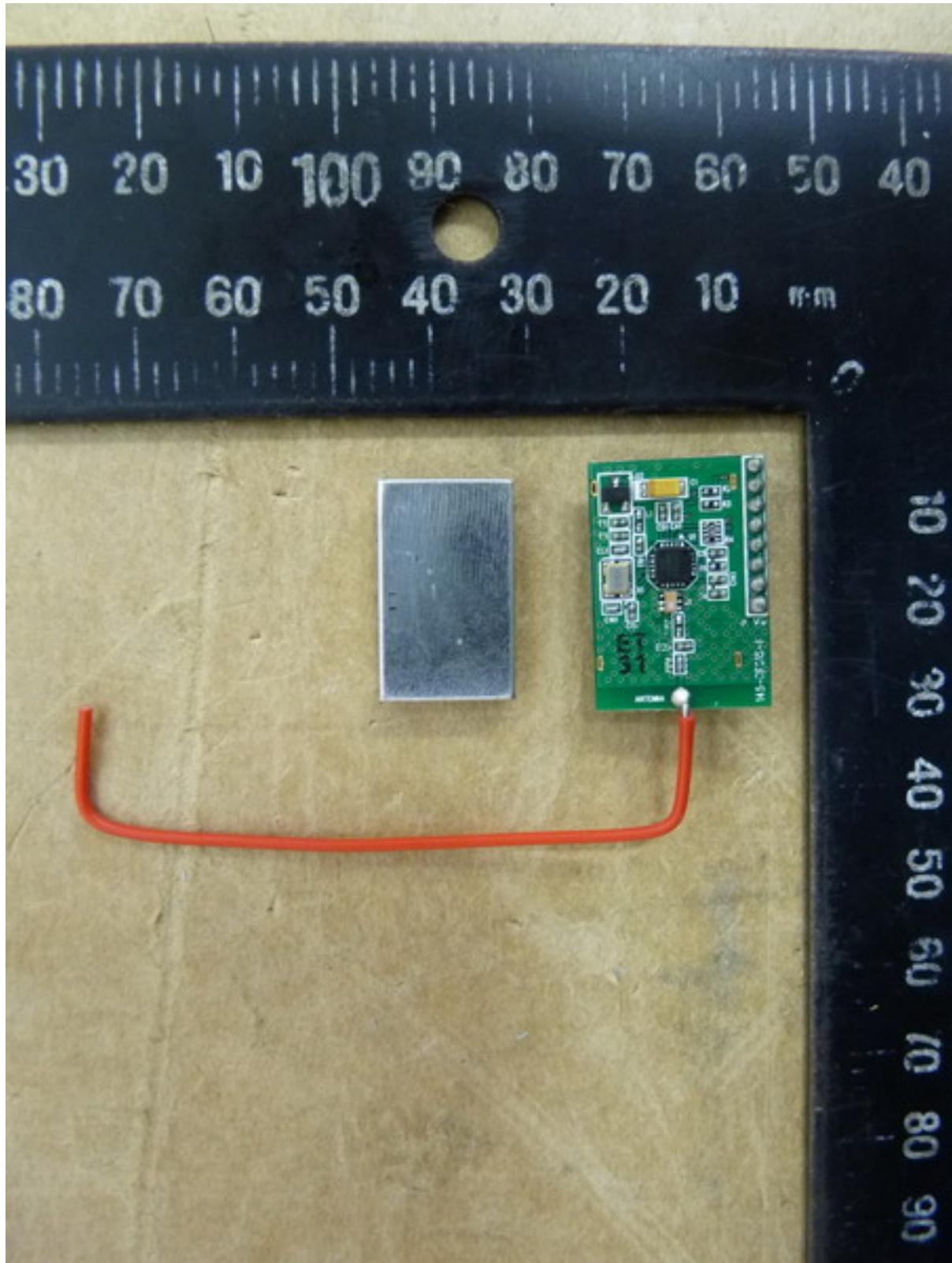
FCC ID: VEARF915A

EUT Photos

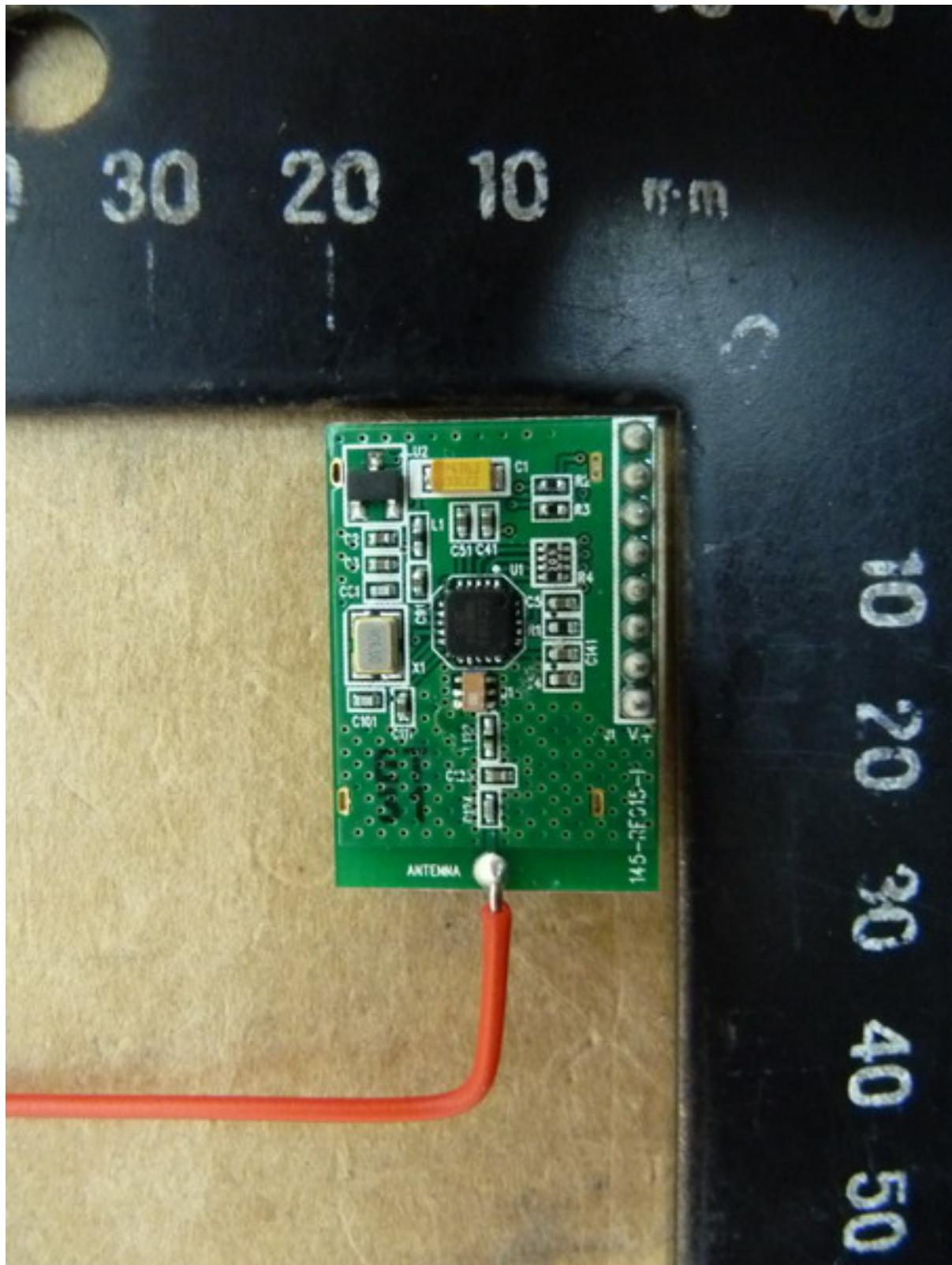


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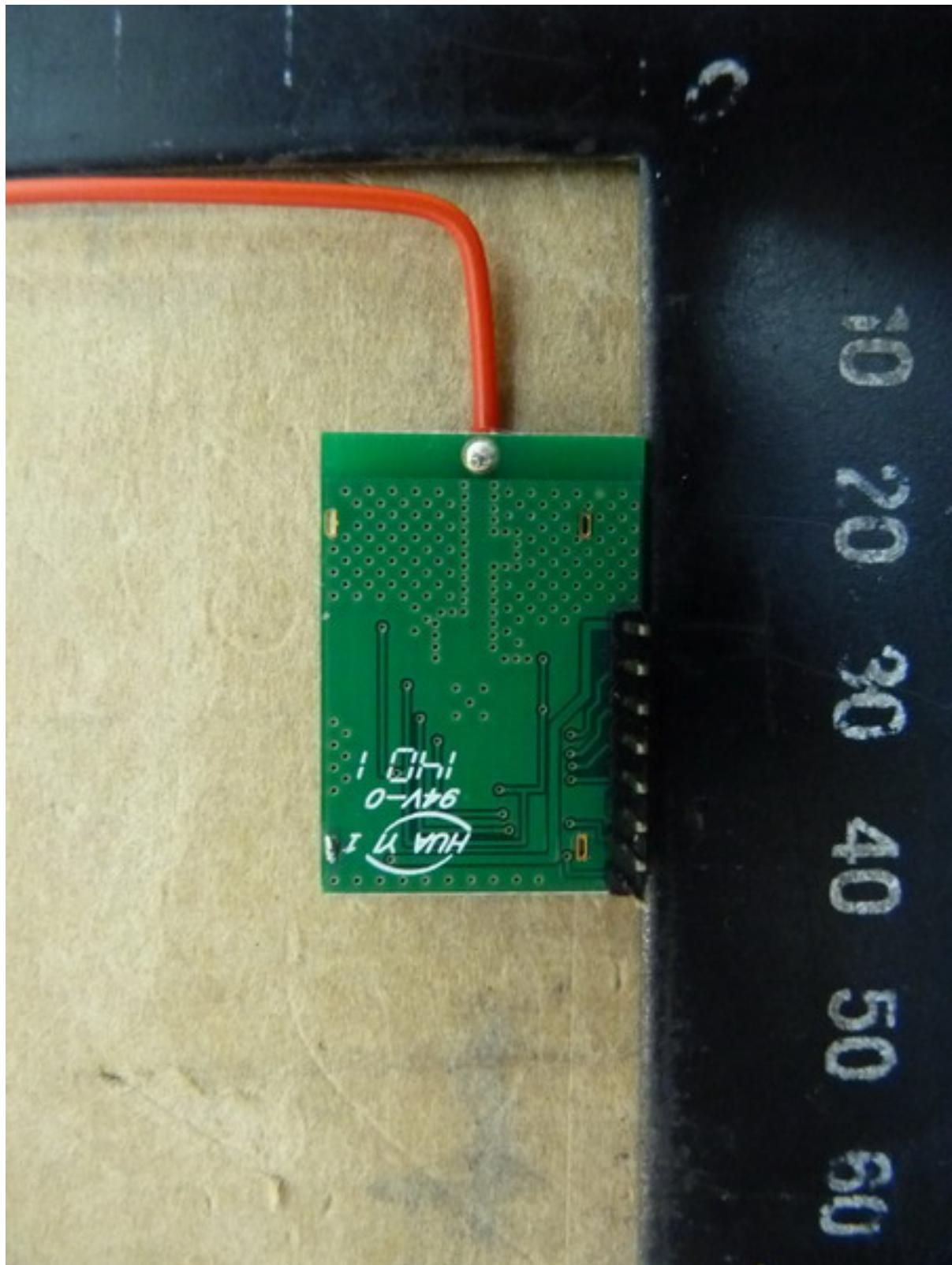


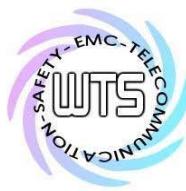
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Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: VEARF915A

Set Up Photo of Radiated Emission

