

FCC PART 15 SUBPART C TEST REPORT

for

Radio Light DIR II US

Model No.: RF-9714

FCC ID: U94RFS05DIR08

of

Applicant: ADEC & Partner AG

Address: Staldenbachstrasse 30 CH-8808 Pfaeffikon Switzerland

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.: W6M20811-9447-P-15

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Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
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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.

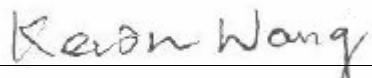
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Tester:

December 17, 2008

Kevin Wang



Date

WTS-Lab.

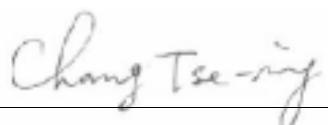
Name

Signature

Technical responsibility for area of testing:

December 17, 2008

Chang Tse-Ming

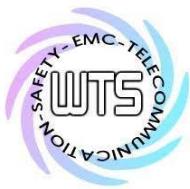


Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)

Company

Worldwide Testing Services(Taiwan) Co., Ltd.

6F, NO. 58, LANE 188, RUEY-KUANG RD.

NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

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1.2.2 Details of accreditation status

Accredited testing laboratory

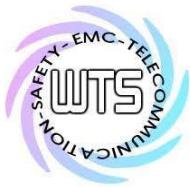
A2LA accredited number: 2732.01

FCC filed test laboratory Reg. No. 930600

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

1.3 Details of approval holder

Name:	ADEC & Partner AG
Street:	Staldenbachstrasse 30 CH-8808
Town:	Pfaeffikon
Country:	Switzerland
Telephone:	+41 55 420 4828 to 29
Fax:	+41 55 420 4830
Teletex:	./.



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1.4 Application details

Date of receipt of test item: November 21, 2008

Date of test: From November 24, 2008 to December 12, 2008

1.5 General information of Test item

Type of test item: Radio Light DIR II US

Model Number: RF-9714

Brand Name: HUMANTECHNIK

Multi-listing model number: without

Photos: see Annex

Technical data

Frequency band: 916.25 - 917.75 MHz

Operating frequency: 916.25, 916.75, 917.75 MHz

Operation modes: simplex

Modulation Type: FM

Antenna type: Integral antenna

Power supply: TX: Adaptor (I/P: AC 100-240 V / 50-60 Hz / 180 mA,
O/P: 12 Vdc / 300 mA)

RX: Battery (2.4 Vdc)

Manufacturer: (if different from applicant)

Name: GAMMA INC.

Street: FL.7, No. 129, Sec. 2, Chung Shan N. Rd.

Town: Taipei

Country: Taiwan R.O.C.

Additional information: ./.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART C § 15.249 (2008-07)



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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

Details Power supply:
TX: Adaptor (I/P: AC 100-240 V / 50-60 Hz / 180 mA,
O/P: 12 Vdc / 300 mA)
RX: Battery (2.4 Vdc)

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	2008/9/18	2009/9/17
ETSTW-CE 002	PREREULATOR MODE DC POWER SUPPLY	None	None		Function Test	
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2008/9/15	2009/9/14
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2008/9/15	2009/9/14
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2008/5/10	2009/5/09
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2008/9/18	2009/9/17
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2008/7/25	2009/7/24
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2008/9/22	2009/9/21
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2008/9/24	2009/9/23
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2008/10/8	2009/10/7
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2008/9/22	2009/9/21
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2008/9/18	2009/9/17
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function Test	
ETSTW-RE 017	Log-Periodic Antenna	HL025	352886/001	R&S	2008/5/5	2009/5/4
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2008/10/27	2009/10/26
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2008/8/27	2009/8/26
ETSTW-RE 028	Log-Periodic DipoleArray Antenna	3148	34429	EMCO	2008/4/23	2009/4/22
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2008/4/23	2009/4/22
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2008/3/26	2009/3/25
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2008/9/1	2009/8/31
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2008/6/27	2009/6/26
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2008/9/1	2009/8/31
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2007/1/11	2009/1/10
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2008/5/2	2009/5/1
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2008/5/22	2009/5/21
ETSTW-RE 047	ESA-E SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	2008/6/26	2009/6/25
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2008/9/1	2009/8/31
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2007/5/2	2009/5/1
ETSTW-RE 055	SPECTRUM ANALYZER	FSU-26	200074	R&S	2008/7/1	2009/6/30
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	2008/9/1	2009/8/31



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ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2008/10/28	2009/10/27
ETSTW-RE 105	Match Pad	MDCS1500	None	WOKEN	2008/10/9	2009/10/8
ETSTW-RE 106	Match Pad	MDCS1510	None	WOKEN	2008/10/9	2009/10/8
ETSTW-GSM 02	Universal Radio Communication Tester	CMU 200	109439	R&S	2008/9/23	2009/9/22
ETSTW-GSM 23	SPLITTER	4901.19.A	None	SUHNER	2008/9/22	2009/9/21



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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 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 C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of 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 C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the center 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, Shuang Sing Village, LiShuei Rd., Wanli Township, Taipei County 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.

ANTENNA & GROUND:

This unit uses integral antenna (see photo).



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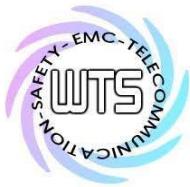
Registration number: W6M20811-9447-P-15

FCC ID: U94RFS05DIR08

3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.249 (b)	<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The follows is intended to leave 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:	RF-9714	Date:	2008/11/27
Mode:	Tx-916.25MHz	Temperature:	26 °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)
916.259	63.70	peak	26.62	90.32	94.00	-3.68	230	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
916.251	58.28	peak	26.62	84.90	94.00	-9.10	230	150

Mode: Tx-917.75MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
917.759	63.94	peak	26.65	90.59	94.00	-3.41	150	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
917.737	57.68	peak	26.65	84.33	94.00	-9.67	122	150

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028, ETSTW-RE 030, ETSTW-RE 043, ETSTW-RE 044

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



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3.2 Equivalent isotropic radiated power

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

3.2.1 Transmitter

Integral Antenna:

At the transmitter the measurement was transacted with the modulation declared by the manufacturer and the maximum available output power of the EUT.

In this arrangement the EUT fulfils the requirements of the FCC rules § 15.249, subpart C, This unit uses permanent antenna. There is no provision for an external antenna (see photo).

3.3 RF Exposure Compliance Requirements

Not applicable for this Radio Light DIR II US for the low power level.

3.4 Out of Band Radiated Emissions

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

Emission 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 (microvolt/meter)	Field Strength (dB microvolt/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).

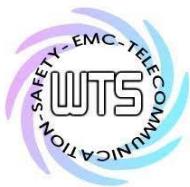
Limit + 20 dB $54.0 \text{ dB}\mu\text{V/m} + 20 \text{ dB} = 74 \text{ dB}\mu\text{V/m}$

Or

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

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 017,
ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 042, ETSTW-RE 043

Explanation: see attached diagram



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3.5 Spurious emission (tx)

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

Emission 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:	RF-9714	Date:	2008/11/27
Mode:	Tx-916.25MHz	Temperature:	26 °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)
132.806	19.69	peak	14.29	33.98	43.50	-9.52	210	150
215.591	24.08	peak	12.44	36.52	43.50	-6.98	240	150
762.926	12.49	peak	24.72	37.21	46.00	-8.79	160	150

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.			
1832.500	42.09	--	-8.37	33.72	--	74.00	54.00	-40.28	120	150
2749.499	46.40	--	-3.85	42.55	--	74.00	54.00	-31.45	155	150
3665.000	40.59	--	-0.18	40.41	--	74.00	54.00	-33.59	164	150
4581.250	41.08	--	-1.77	39.31	--	74.00	54.00	-34.69	214	150
5497.500	38.47	--	2.68	41.15	--	74.00	54.00	-32.85	252	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
132.806	21.14	peak	14.29	35.43	43.50	-8.07	120	150
149.038	23.34	peak	15.34	38.68	43.50	-4.82	160	150
347.695	14.53	peak	16.48	31.01	46.00	-14.99	210	150



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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.		Peak	Ave.	Peak	Ave.			
1832.500	41.41	--	-8.37	33.04	--	74.00	54.00	-40.96	155	150
2749.499	45.38	--	-3.85	41.53	--	74.00	54.00	-32.47	180	150
3665.000	41.17	--	-0.18	40.99	--	74.00	54.00	-33.01	216	150
4581.250	40.85	--	-1.77	39.08	--	74.00	54.00	-34.92	147	150
5497.500	38.38	--	2.68	41.06	--	74.00	54.00	-32.94	215	150

Mode: Tx-917.75MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
116.032	18.07	peak	13.00	31.07	43.50	-12.43	125	150
215.591	23.85	peak	12.44	36.29	43.50	-7.21	180	150
415.030	13.79	peak	18.10	31.89	46.00	-14.11	215	150
762.926	12.68	peak	24.72	37.40	46.00	-8.60	310	150

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.			
1835.500	41.96	--	-8.36	33.60	--	74.00	54.00	-40.40	125	150
2755.511	45.22	--	-3.82	41.40	--	74.00	54.00	-32.60	166	150
3671.000	40.63	--	-0.12	40.51	--	74.00	54.00	-33.49	200	150
4588.750	41.13	--	-1.74	39.39	--	74.00	54.00	-34.61	110	150
5506.500	40.25	--	2.71	42.96	--	74.00	54.00	-31.04	140	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
132.806	20.52	peak	14.29	34.81	43.50	-8.69	160	150
149.038	22.92	peak	15.34	38.26	43.50	-5.24	180	150
347.695	14.47	peak	16.48	30.95	46.00	-15.05	125	150
942.485	8.91	peak	27.12	36.03	46.00	-9.97	130	150



Worldwide Testing Services(Taiwan) Co., Ltd.

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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)
1835.500	43.71	--	-8.36	35.35	--	74.00	54.00	-38.65	111	150
2755.511	45.77	--	-3.82	41.95	--	74.00	54.00	-32.05	220	150
3671.000	40.85	--	-0.12	40.73	--	74.00	54.00	-33.27	320	150
4588.750	40.93	--	-1.74	39.19	--	74.00	54.00	-34.81	125	150
5506.500	39.81	--	2.71	42.52	--	74.00	54.00	-31.48	145	150

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

Note

1. Correction Factor = Antenna factor + Cable loss - Preamplifier
2. The formula of measured value as: Test Result = Corrected Reading + Correction Factor
3. Detector function in the form : P = Peak, QP = Quasi Peak, AV = Average
4. All not in the table noted test results are more than 20 dB below the relevant limits.
5. See the attached diagram as appendix.

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028
ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043,
ETSTW-RE 044

Explanation: see attached diagrams in Appendix.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08

3.6 Radiated Emission from Digital Part

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

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

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044

Explanation: The test results are listed in the separated test report no.: W6M20811-9447-P-15B.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15

FCC ID: U94RFS05DIR08

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 (2.4 GHz). It meets the requirement of section 15.249(d).

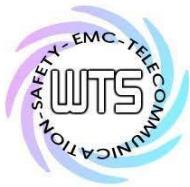
Test conditions T _{nom} = --°C, V _{nom} = --V Frequency [MHz]	Transmitter field strength of Radiated Emission		Transmitter field strength of Radiated Emission (Average Detector) [dB μ V/m]	
	(Peak Detector)			
--	--		--	
--	--		--	

Limit:

Frequency Range (MHz)	Limit (dB μ V/m)	
	Peak	Average
902 – 928		
2400 – 2483.5		
5725 – 5875	74	54
24000 - 24250		

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 028,
ETSTW-RE 030, ETSTW-RE 043, ETSTW-RE 044

Explanation: This test is not required. The frequency of the EUT is far away from limit and bandwidth is 240.385 kHz. Please see attached diagram as Appendix.



Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: U94RFS05DIR08

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 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.

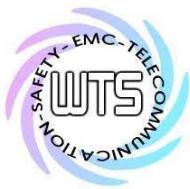
This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Model: RF-9714 Date: 2008/12/1
Mode: AV Mode Temperature: 24 °C Engineer: Kevin
Polarization: N Humidity: 50 %

Frequency (MHz)	Reading (dBuV) QP Ave.		Factor (dB) Corr.	Result (dBuV) QP Ave.		Limit (dBuV) QP Ave.		Margin (dB)
0.1516	3.98	1.08	10.19	14.17	11.27	65.91	55.91	-44.64
0.4213	34.32	26.39	10.10	44.42	36.49	57.42	47.42	-10.93
0.7219	28.86	18.54	10.14	39.00	28.68	56.00	46.00	-17.00
1.0812	27.95	19.09	10.10	38.05	29.19	56.00	46.00	-16.81
2.7050	29.60	21.08	10.06	39.66	31.14	56.00	46.00	-14.86
6.1287	14.23	2.13	10.19	24.42	12.32	60.00	50.00	-35.58

Polarization: L1

Frequency (MHz)	Reading (dBuV) QP Ave.		Factor (dB) Corr.	Result (dBuV) QP Ave.		Limit (dBuV) QP Ave.		Margin (dB)
0.1539	-0.52	-7.55	10.18	9.66	2.63	65.79	55.79	-53.16
0.3017	33.69	30.52	10.00	43.69	40.52	60.20	50.20	-9.68
0.4209	32.89	29.54	10.09	42.98	39.63	57.43	47.43	-7.80
0.7209	30.17	23.32	10.14	40.31	33.46	56.00	46.00	-12.54
2.8255	28.66	22.94	10.06	38.72	33.00	56.00	46.00	-13.00
5.6526	20.59	12.85	10.15	30.74	23.00	60.00	50.00	-27.00



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08

Mode: MIC Mode

Polarization: N

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.3005	36.14	28.23	10.00	46.14	38.23	60.23	50.23	-12.00
0.4207	33.75	25.22	10.09	43.84	35.31	57.43	47.43	-12.12
0.6625	29.80	21.12	10.15	39.95	31.27	56.00	46.00	-14.73
2.7624	28.98	17.14	10.06	39.04	27.20	56.00	46.00	-16.96
5.2257	16.29	2.62	10.12	26.41	12.74	60.00	50.00	-33.59
24.8312	18.11	7.17	10.60	28.71	17.77	60.00	50.00	-31.29

Polarization: L1

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1807	27.52	20.35	10.12	37.64	30.47	64.45	54.45	-23.98
0.3017	35.92	32.17	10.00	45.92	42.17	60.20	50.20	-8.03
0.6600	31.62	26.20	10.15	41.77	36.35	56.00	46.00	-9.65
1.0850	29.74	22.71	10.10	39.84	32.81	56.00	46.00	-13.19
2.7643	29.52	23.14	10.06	39.58	33.20	56.00	46.00	-12.80
6.4269	20.03	10.84	10.23	30.26	21.07	60.00	50.00	-28.93

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 003, ETSTW-CE 004, ETSTW-CE 006

Explanation: See attached diagram in Appendix..



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08

Appendix

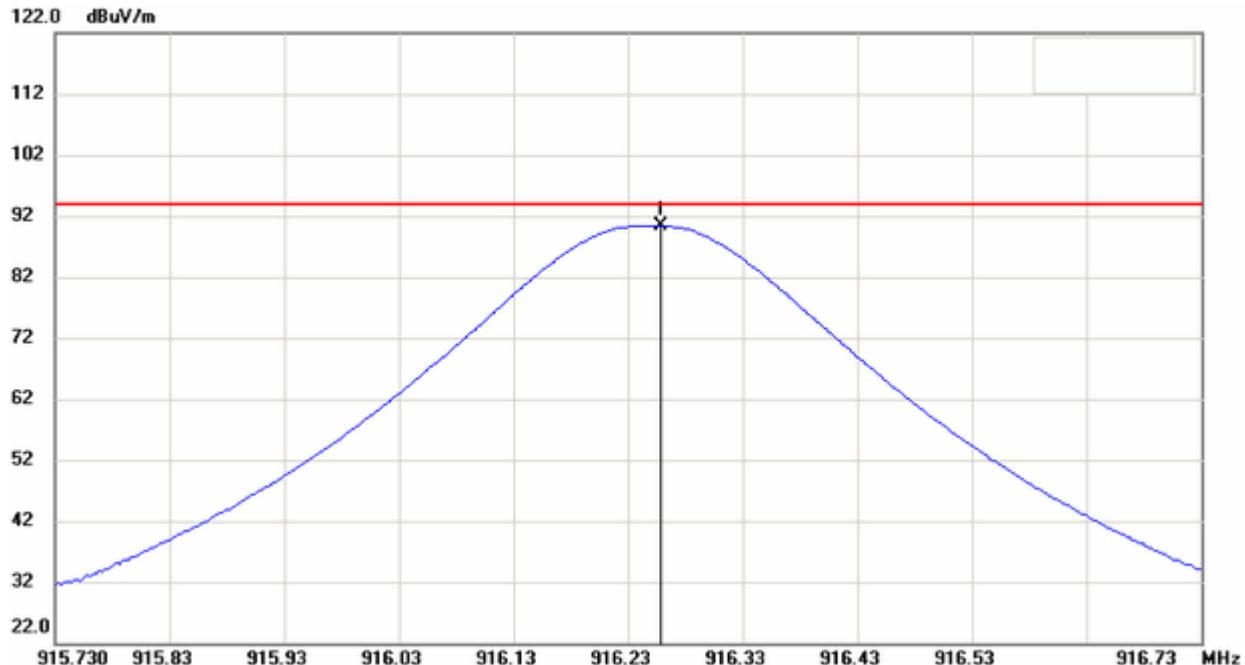
Measurement diagrams

1. Fundamental Field Strength
2. Spurious Emissions radiated
3. Bandwidth
4. Power Line Conducted Emission

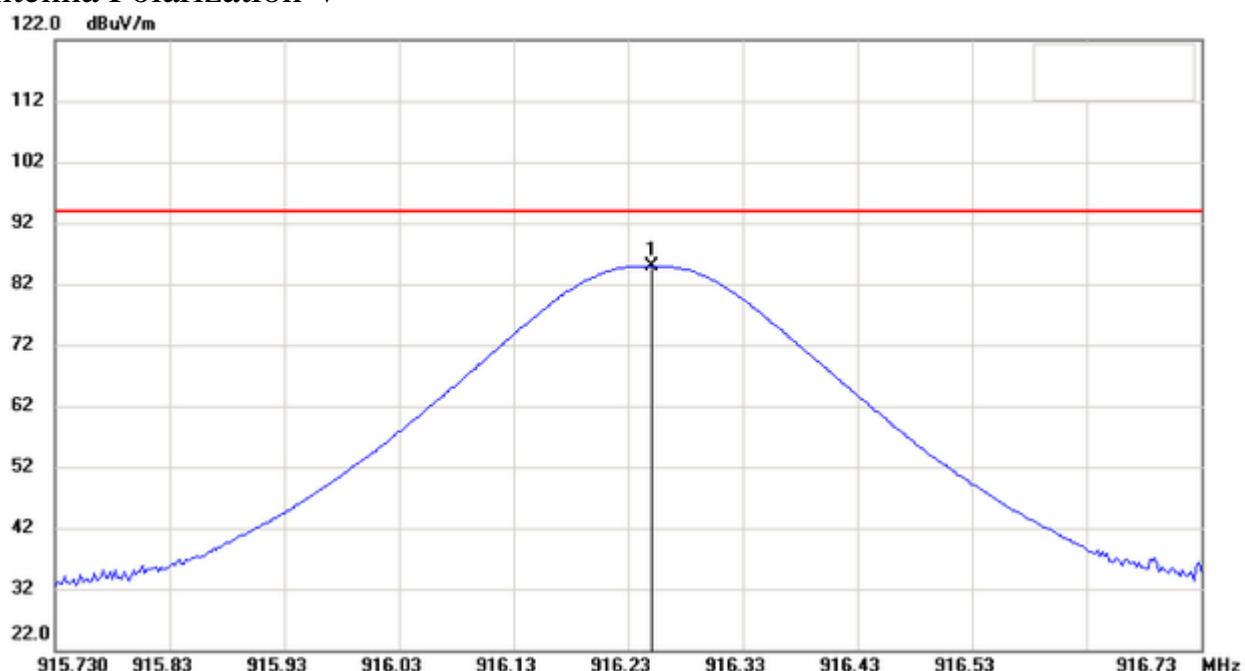
Registration number: W6M20811-9447-P-15

FCC ID: U94RFS05DIR08

Fundamental Field Strength Channel A_Antenna Polarization H



Antenna Polarization V



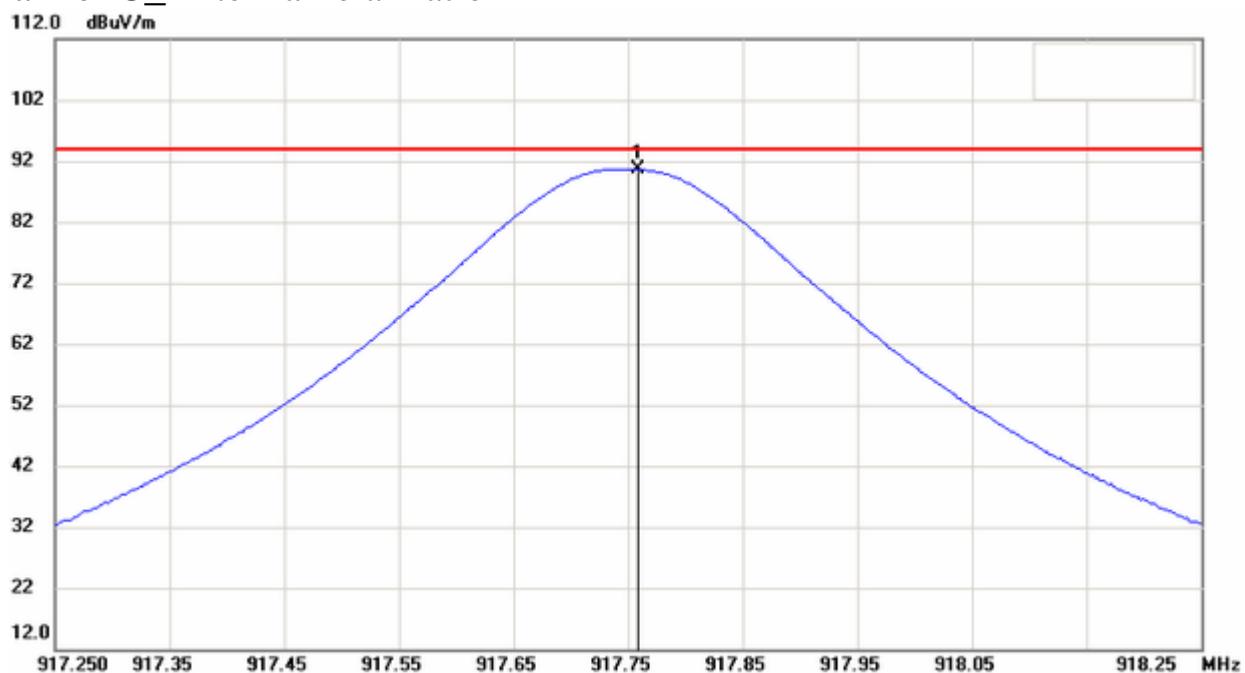
Note:

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

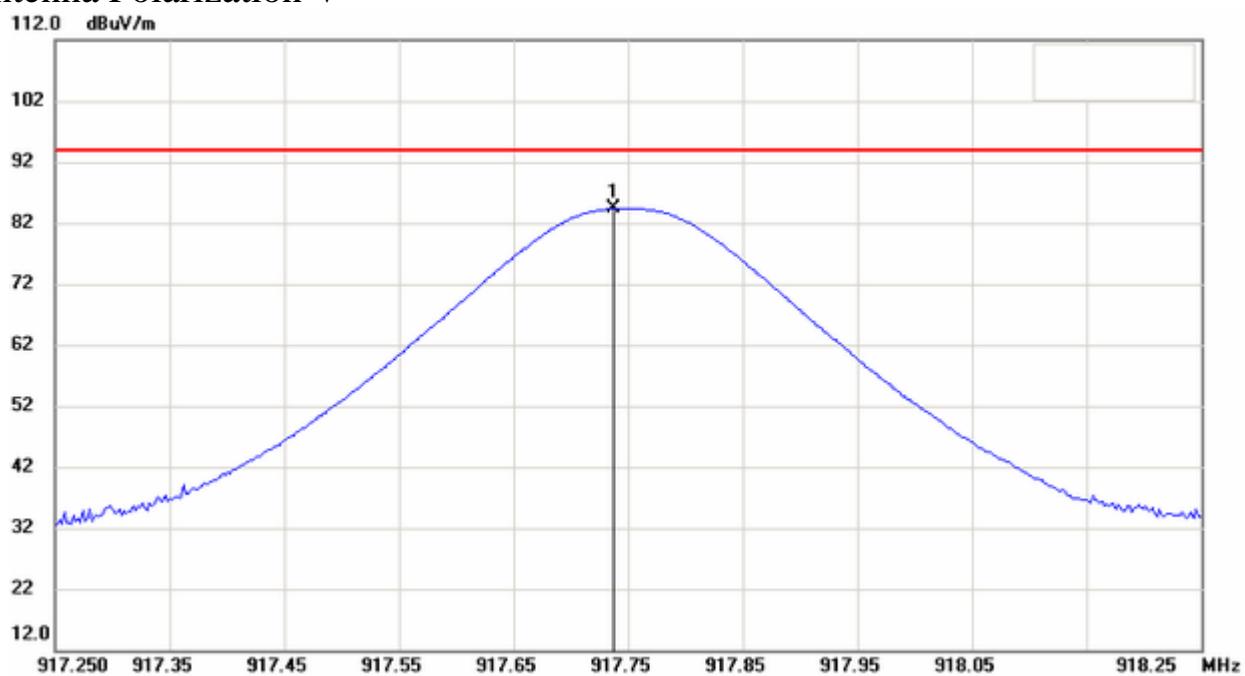
Registration number: W6M20811-9447-P-15

FCC ID: U94RFS05DIR08

Channel C_Antenna Polarization H



Antenna Polarization V



Note:

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



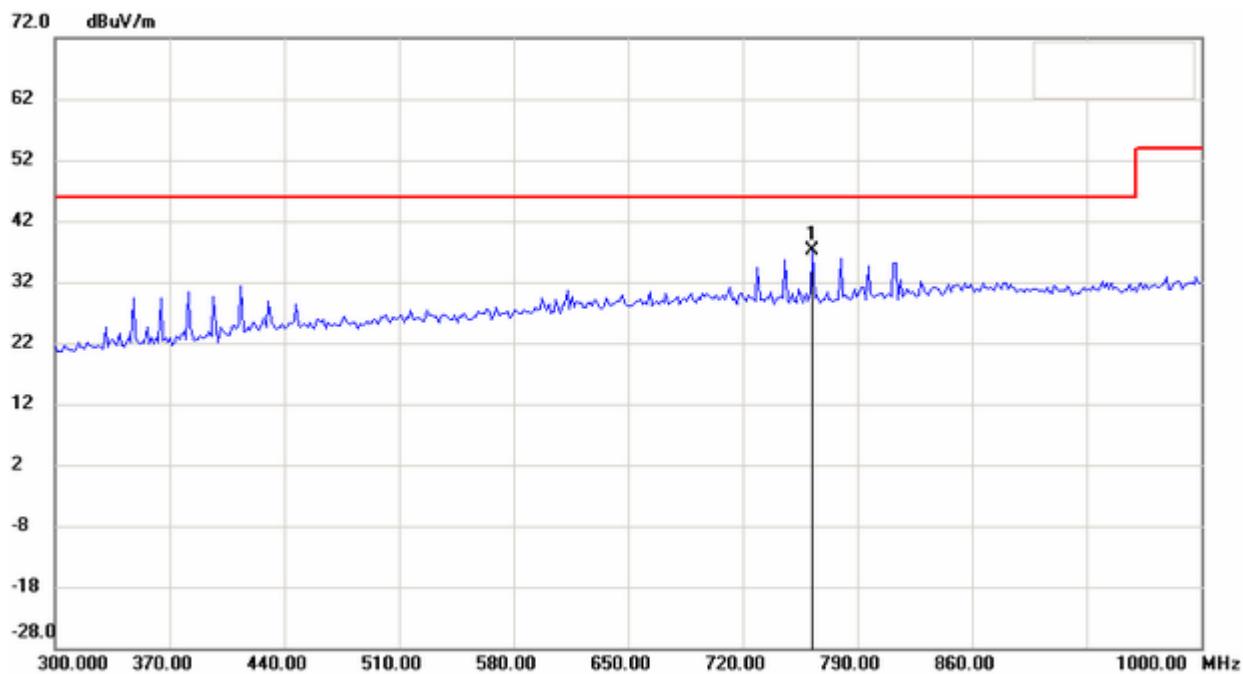
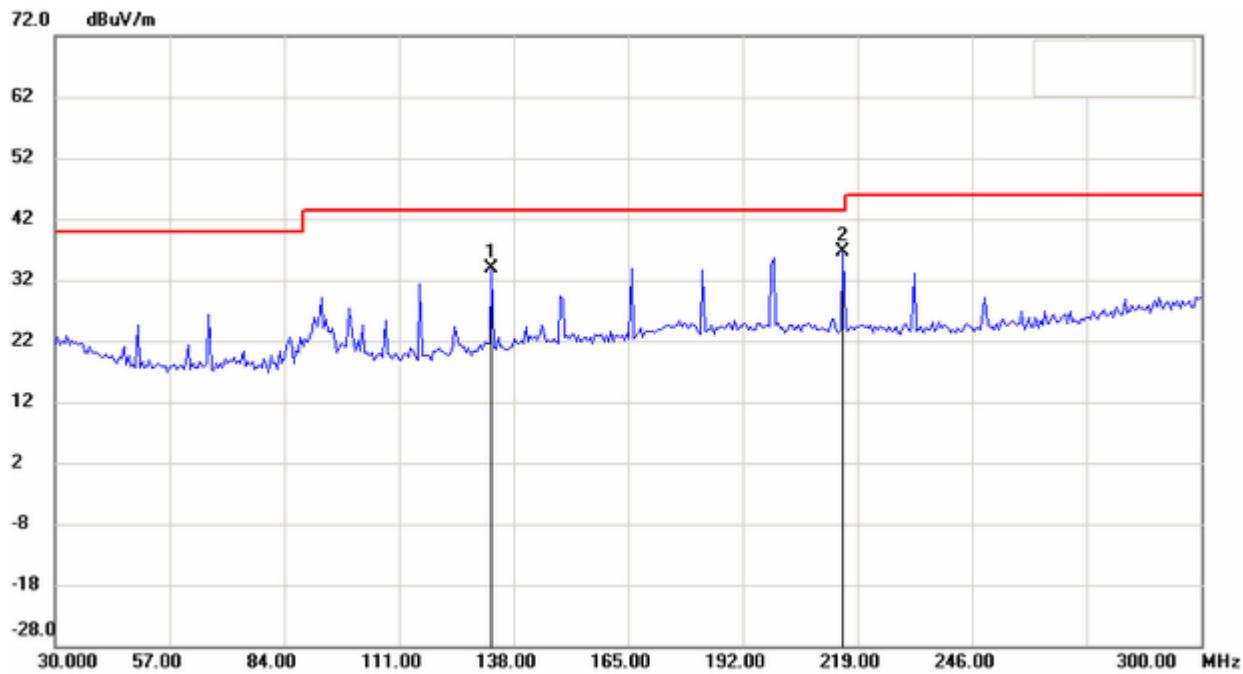
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08

Spurious Emissions radiated

Transmitter_Channel A

Antenna Polarization H



Up Line: Peak Limit Line

Down Line: Ave Limit Line

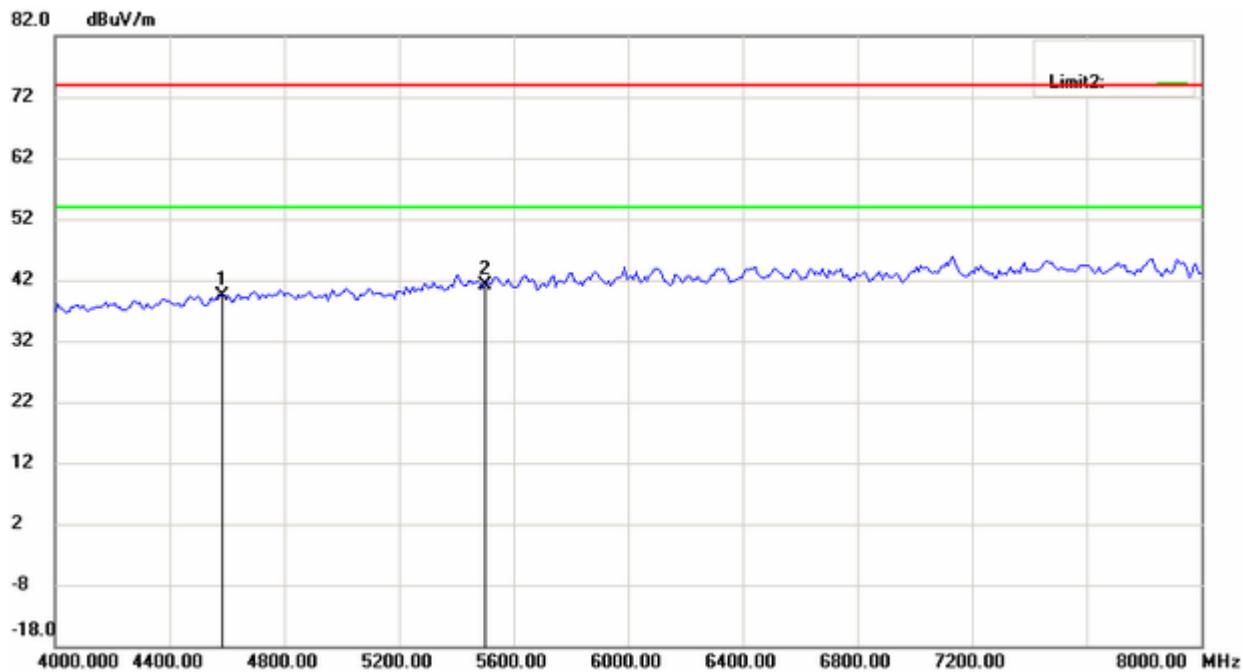
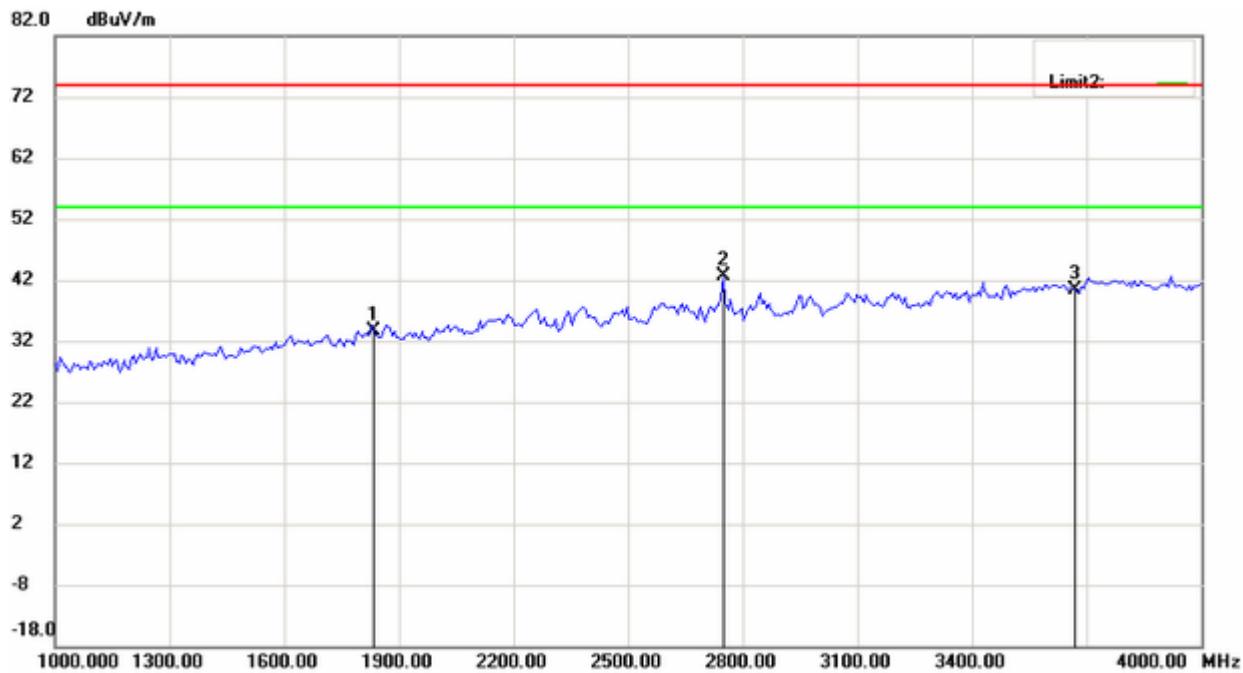
Note:

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.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08



Up Line: Peak Limit Line

Down Line: Ave Limit Line

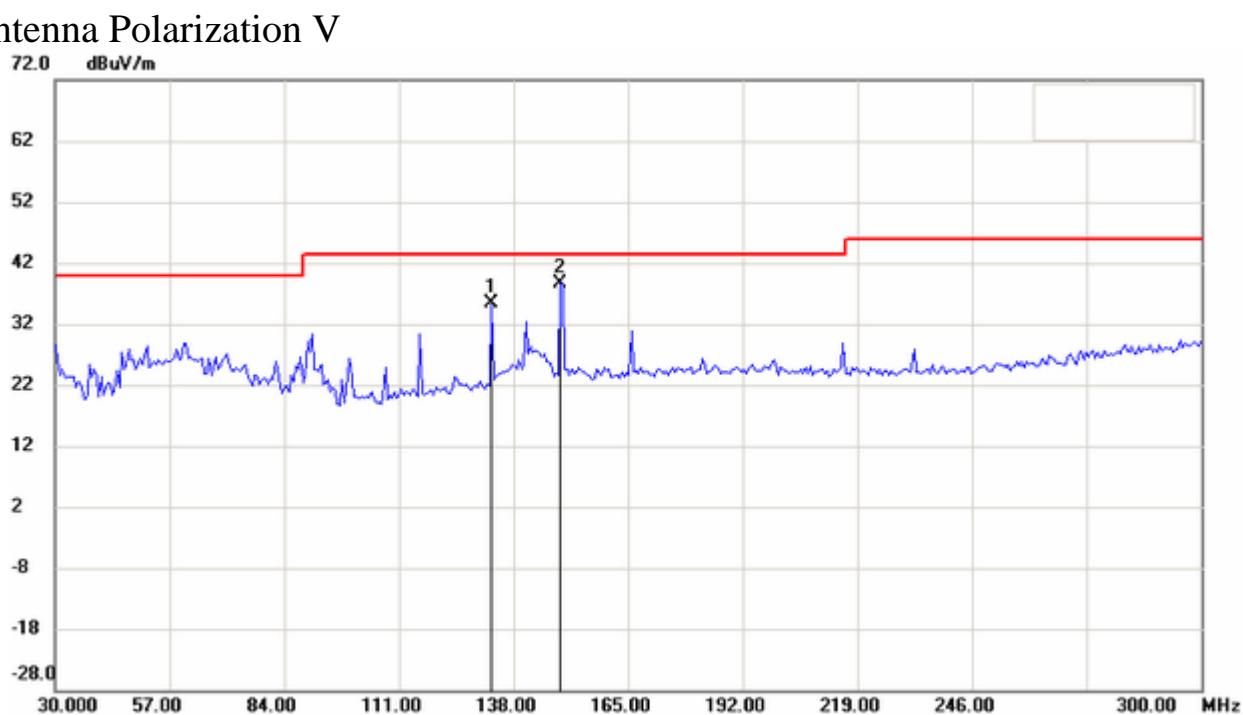
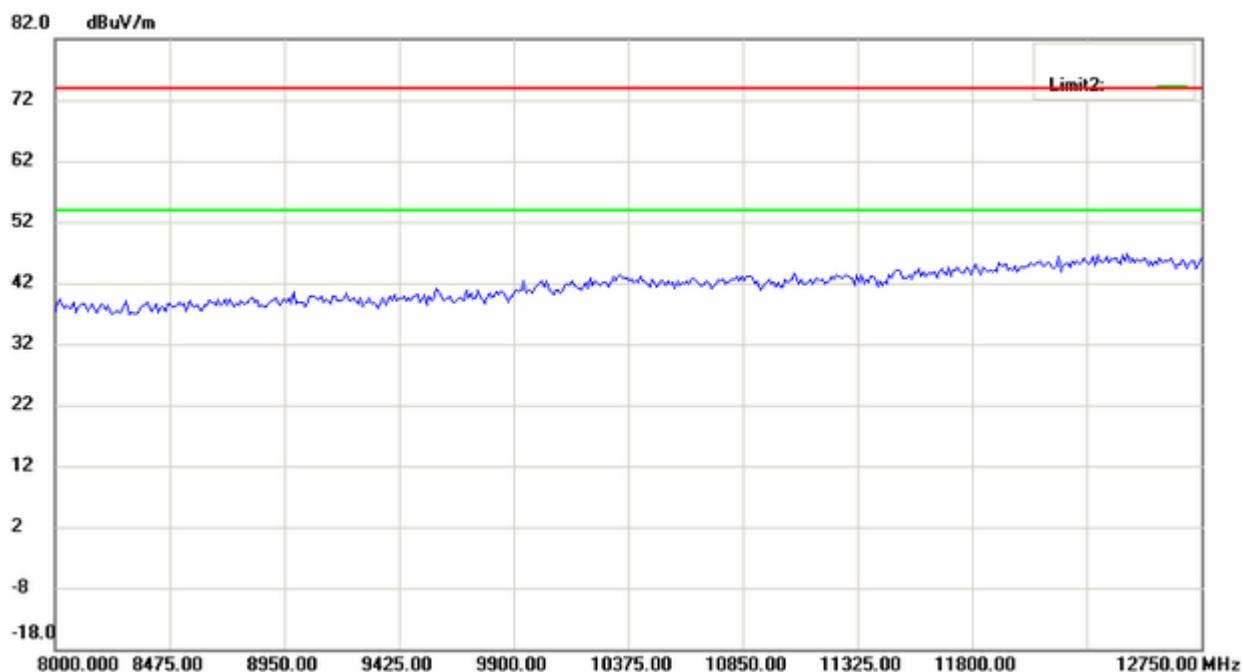
Note:

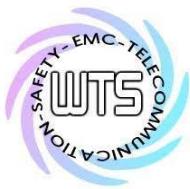
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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

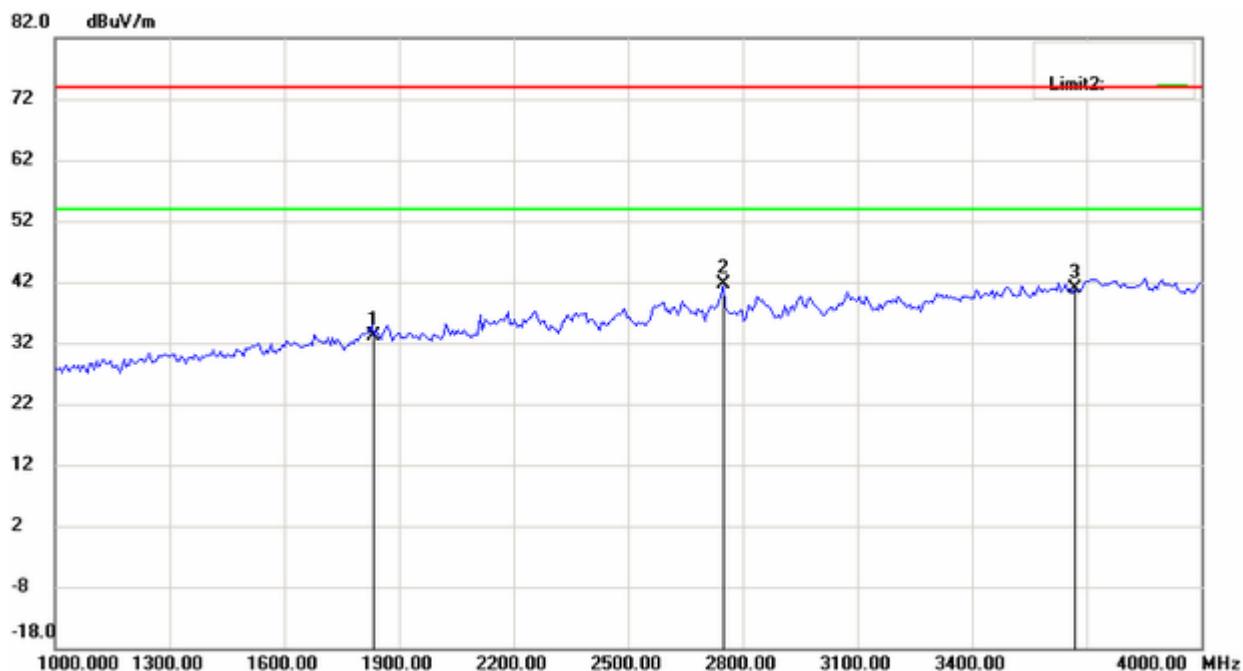
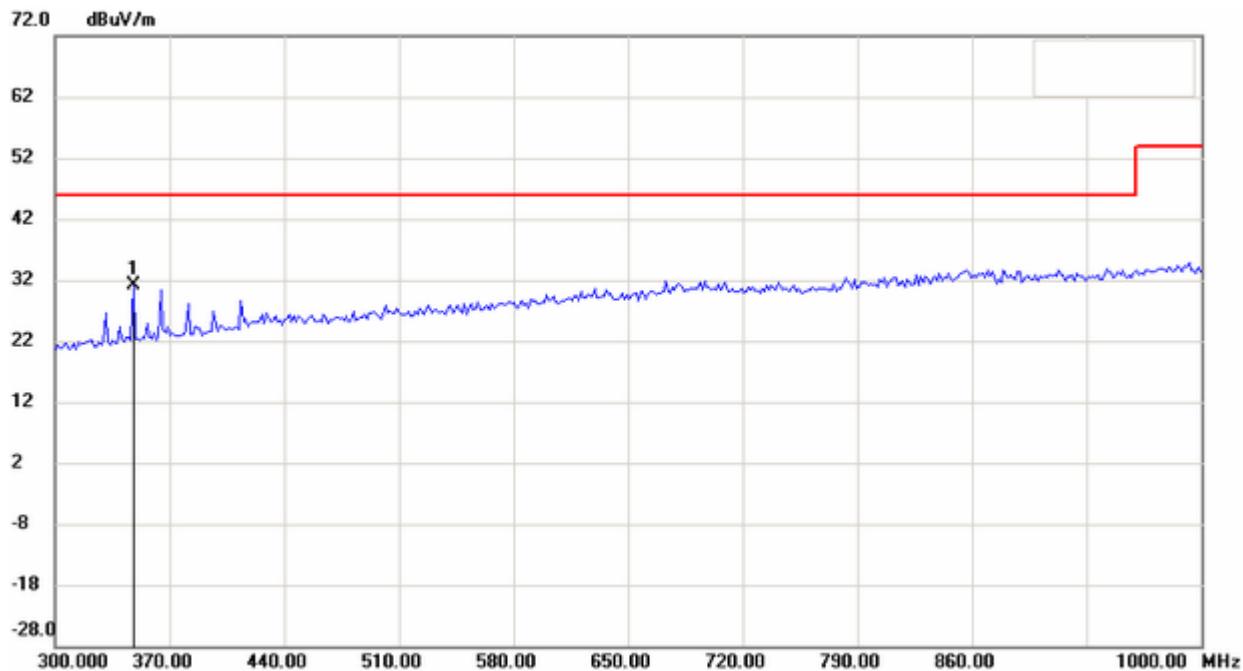
Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08





Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08



Up Line: Peak Limit Line

Down Line: Ave Limit Line

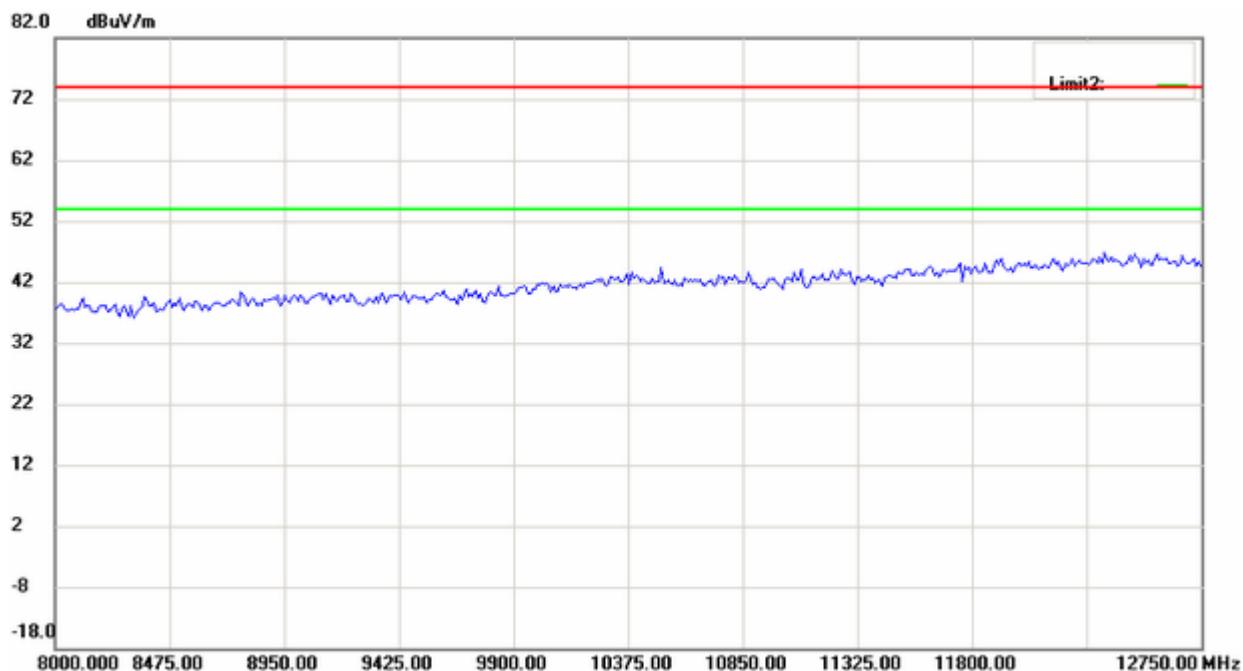
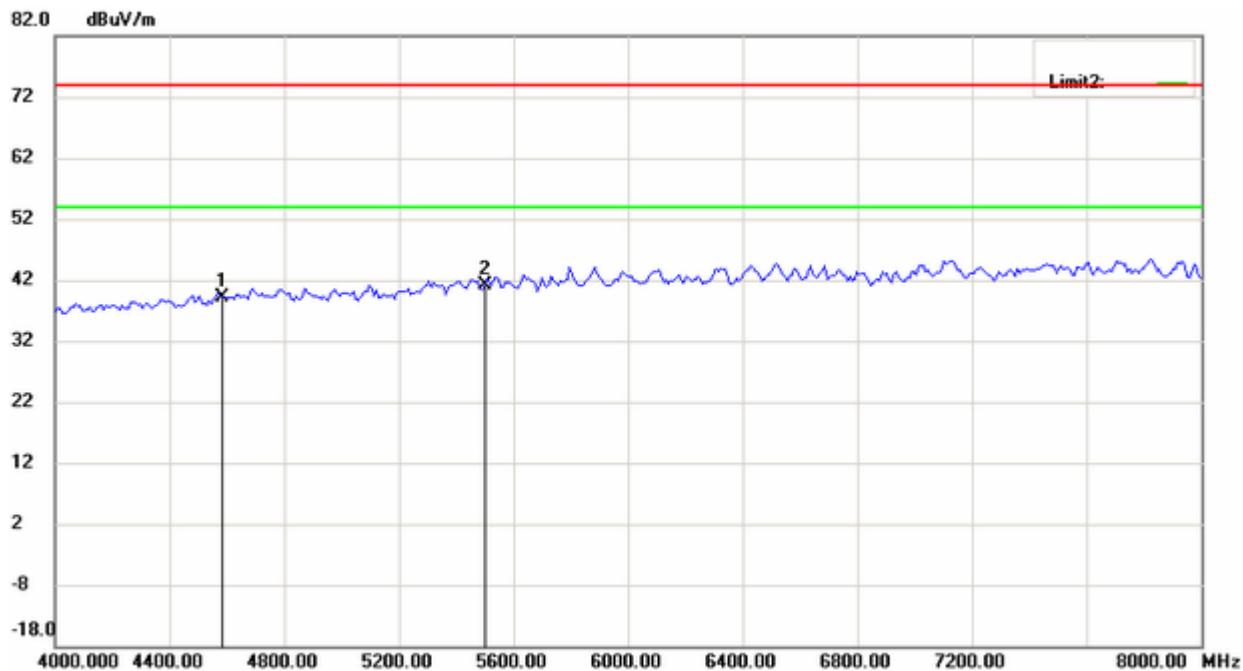
Note:

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: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08

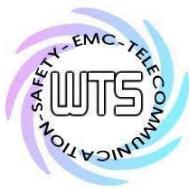


Up Line: Peak Limit Line

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.

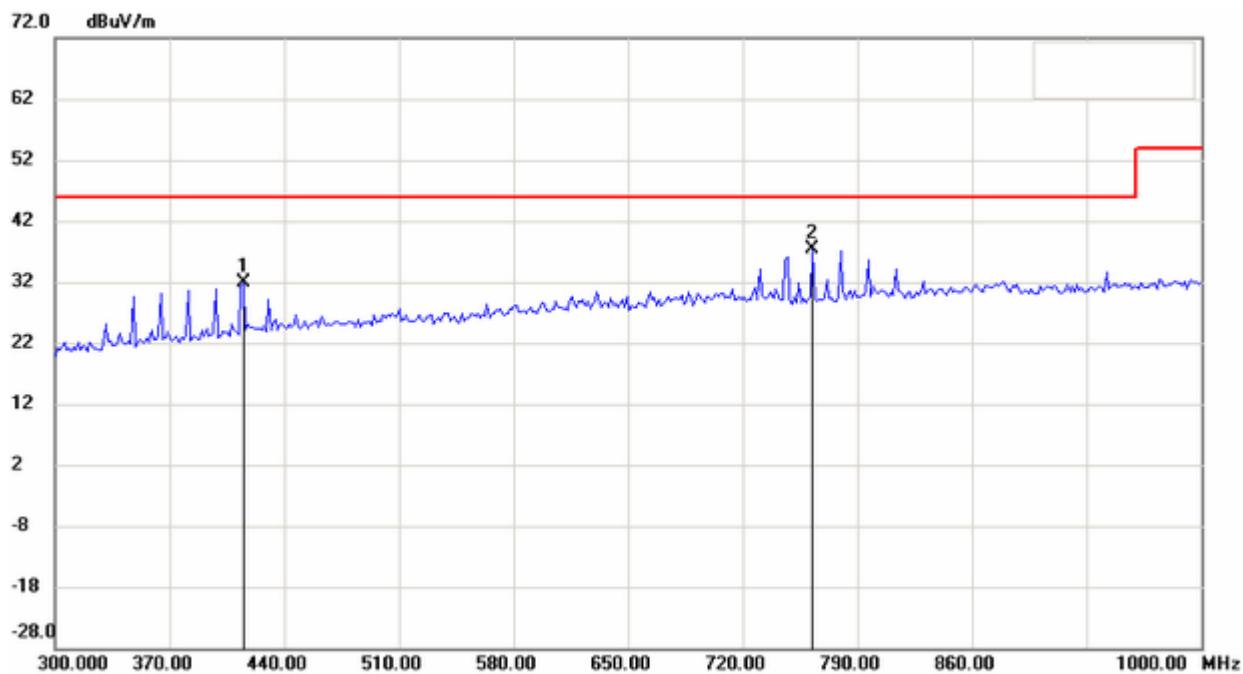
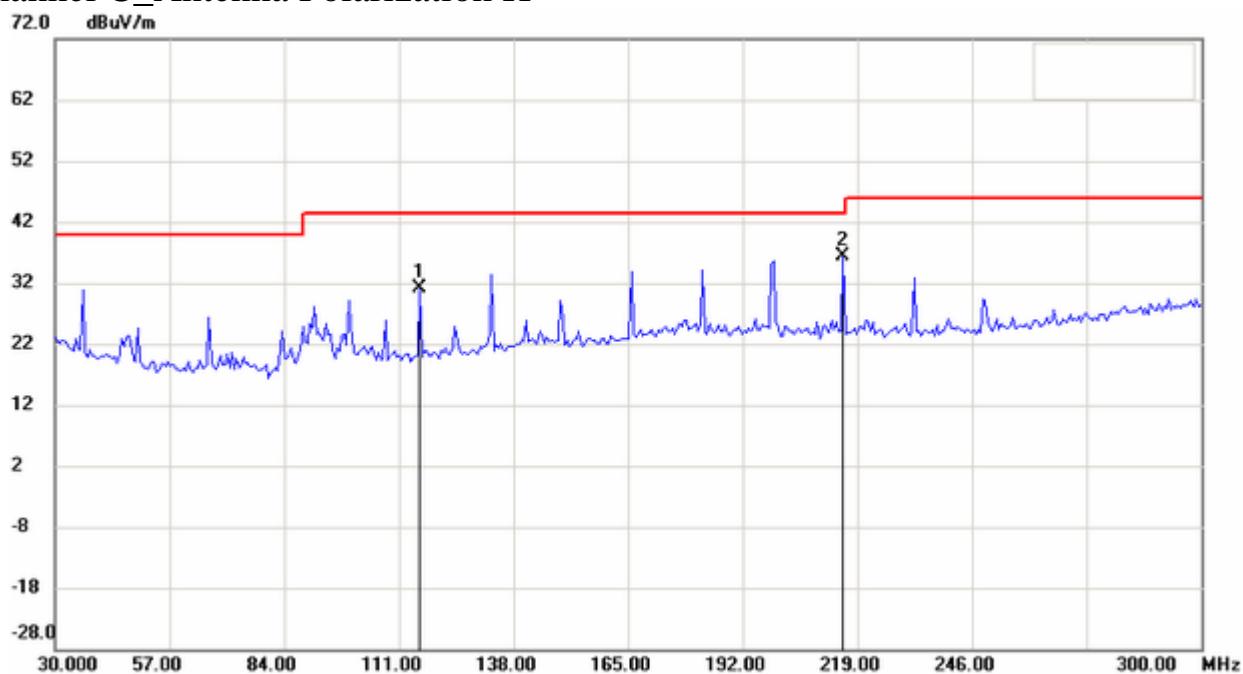


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15

FCC ID: U94RFS05DIR08

Channel C_Antenna Polarization H

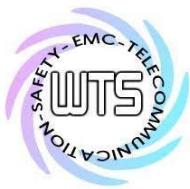


Up Line: Peak Limit Line

Down Line: Ave Limit Line

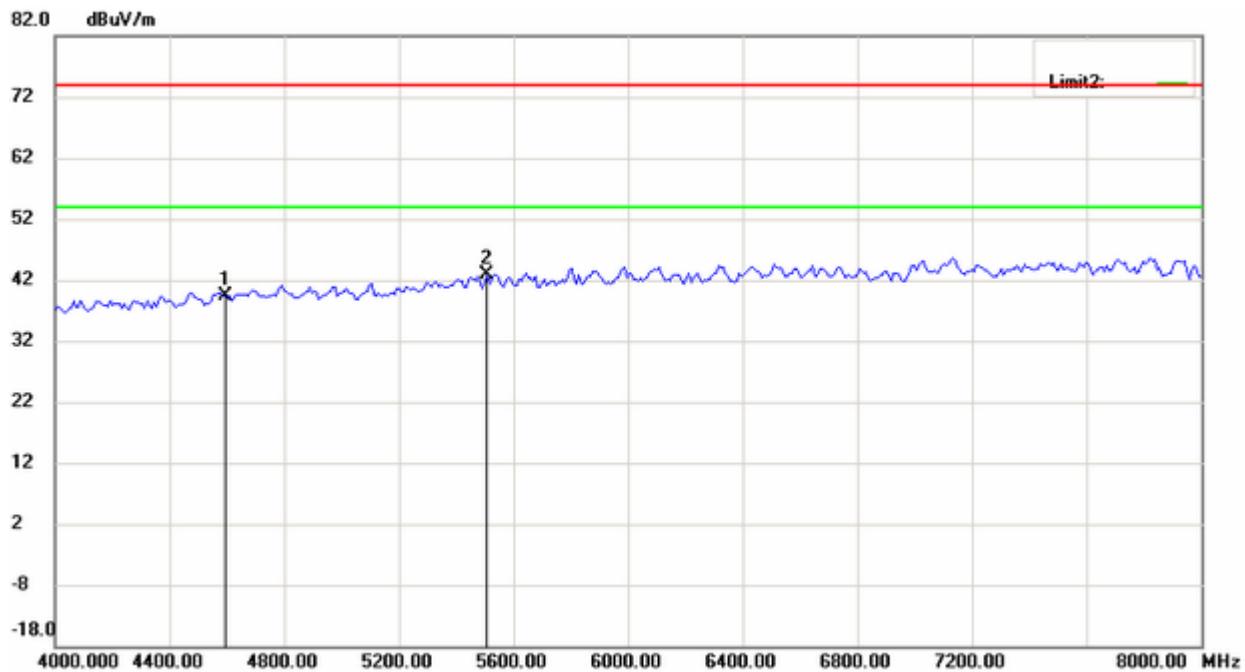
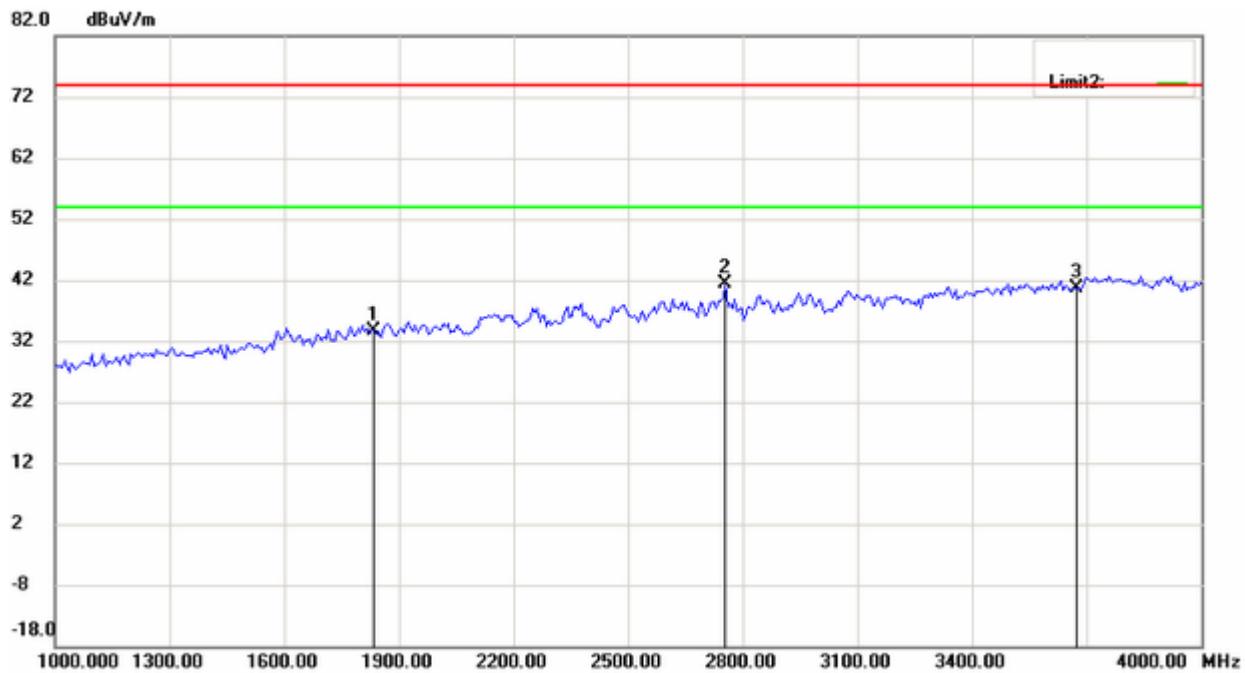
Note:

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.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08

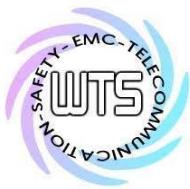


Up Line: Peak Limit Line

Down Line: Ave Limit Line

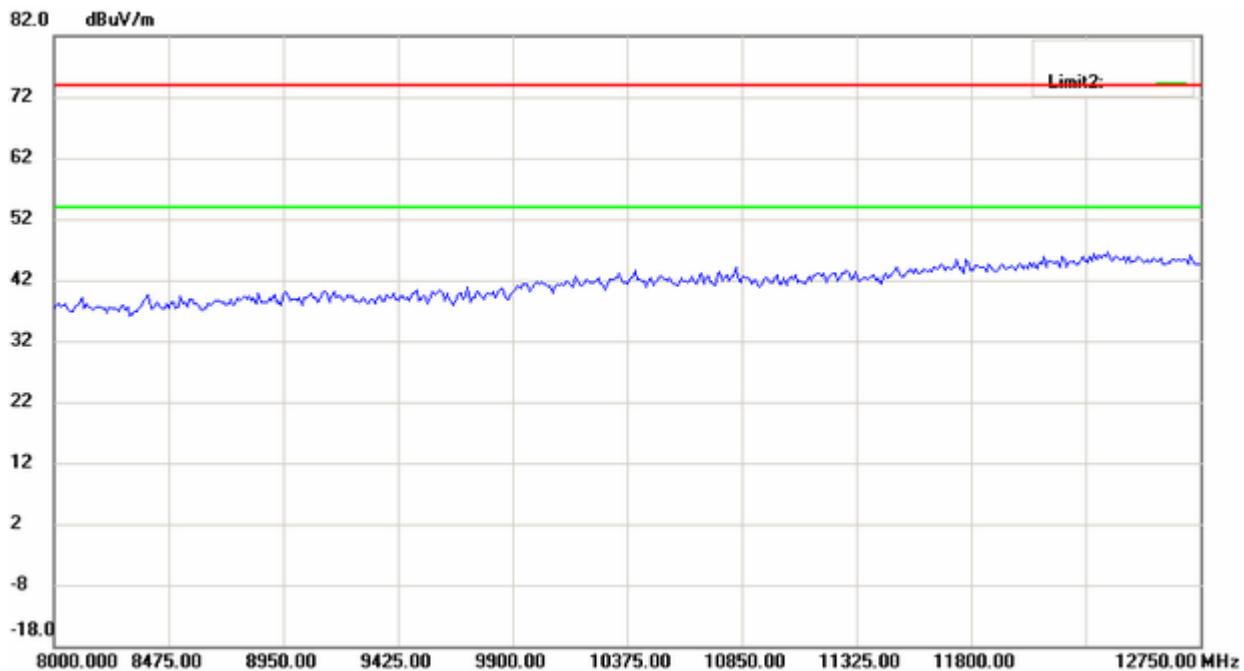
Note:

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.

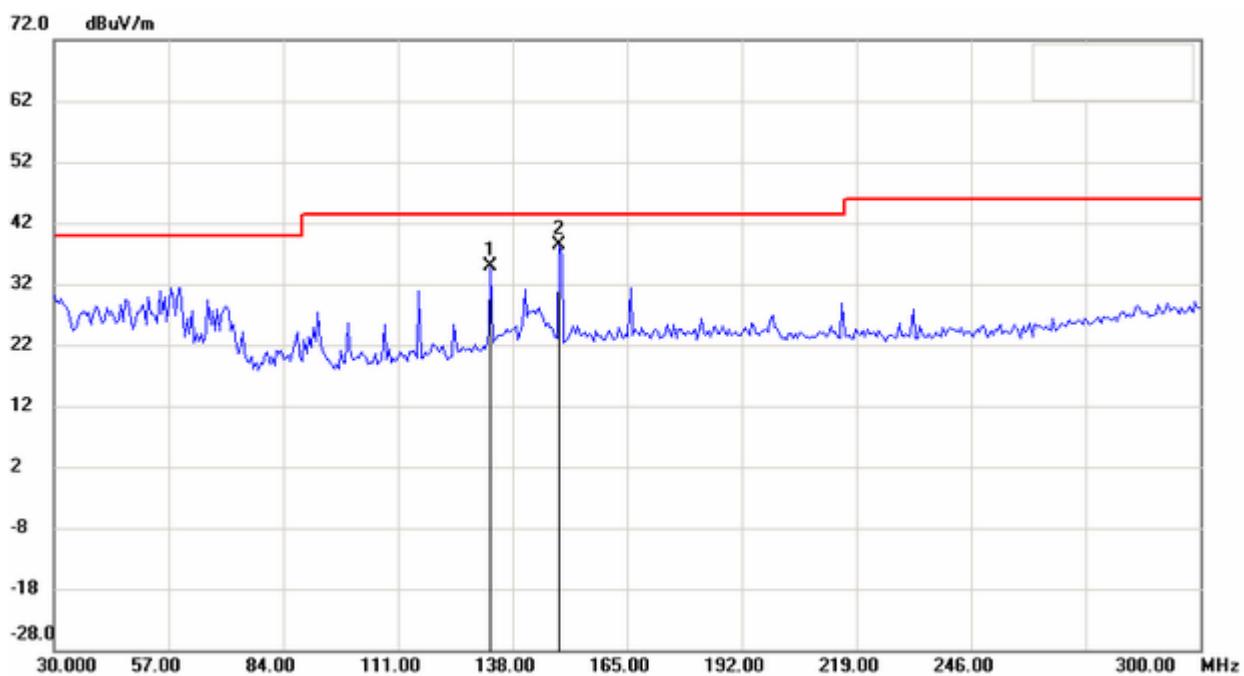


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08



Antenna Polarization V



Up Line: Peak Limit Line

Down Line: Ave Limit Line

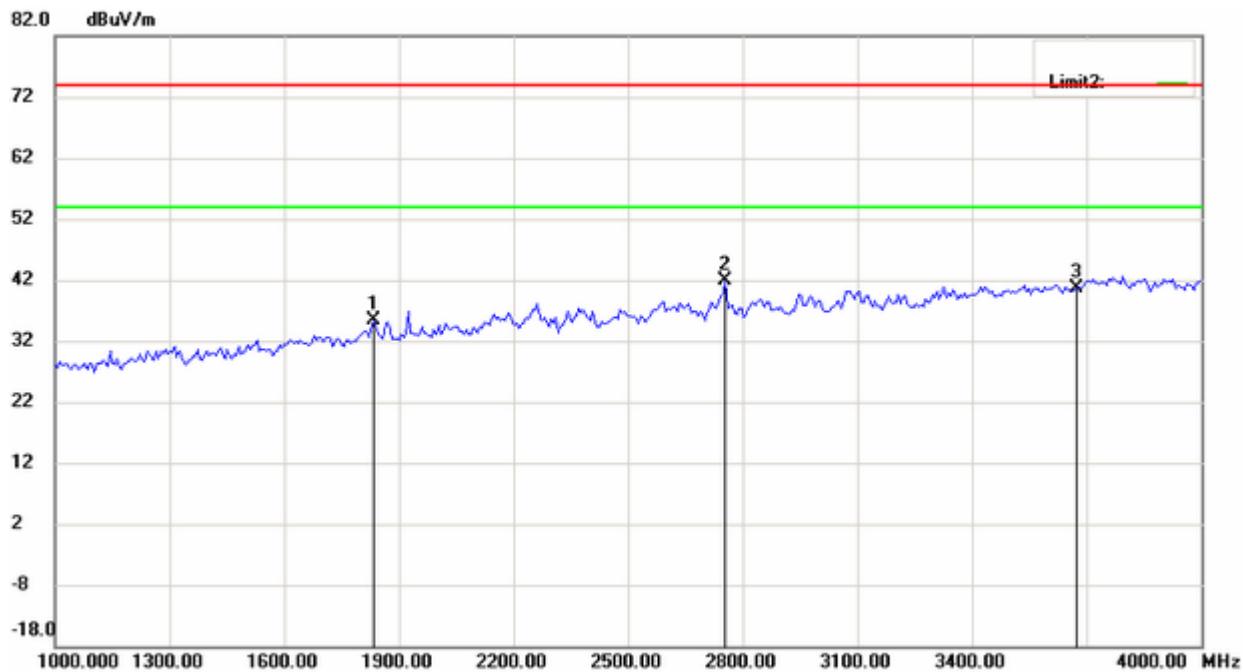
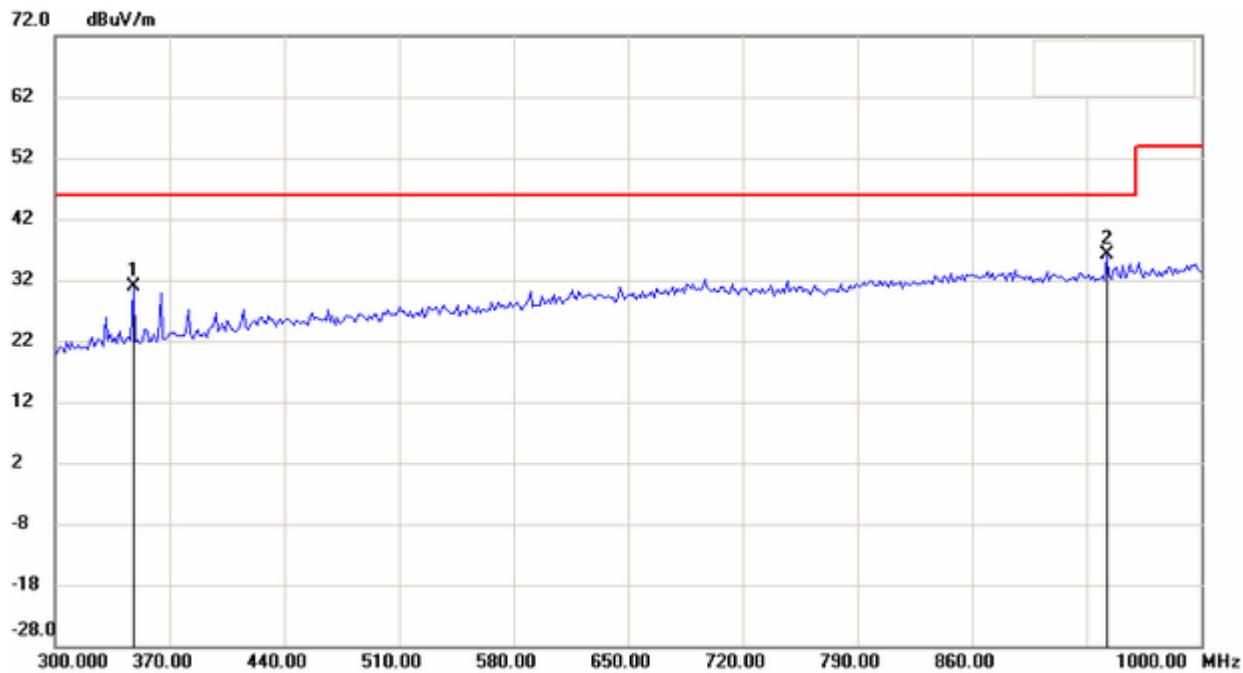
Note:

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.



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08



Up Line: Peak Limit Line

Down Line: Ave Limit Line

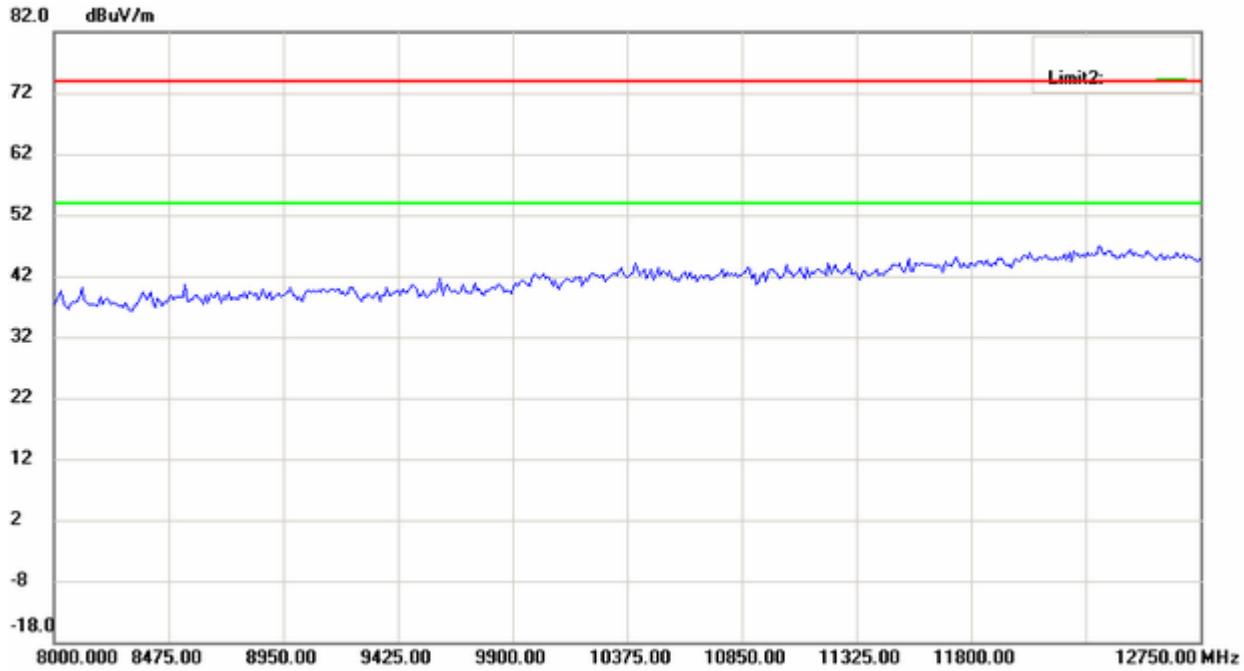
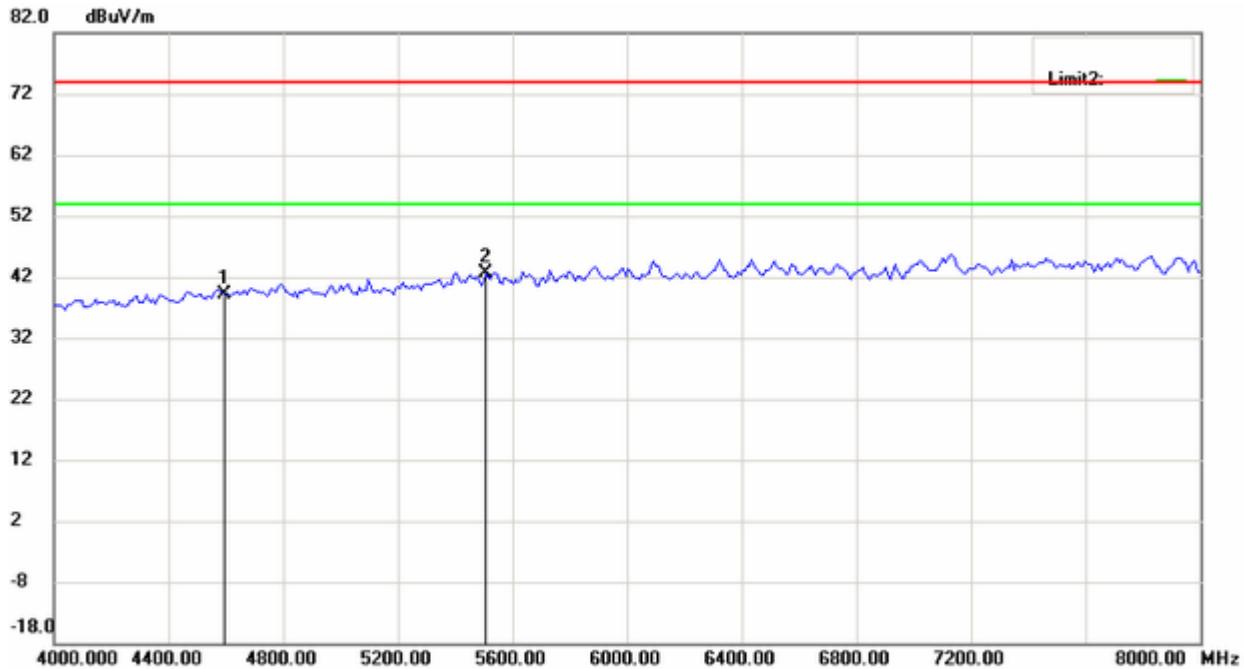
Note:

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: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08



Up Line: Peak Limit Line

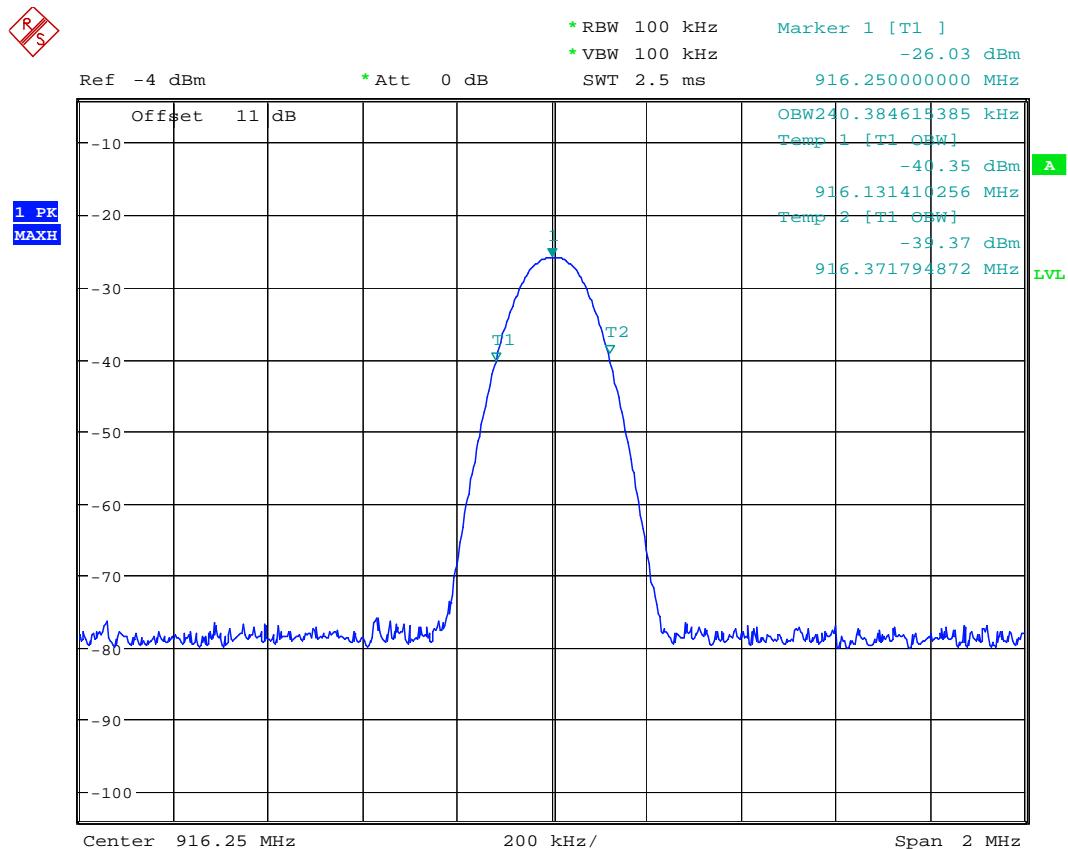
Down Line: Ave Limit Line

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: W6M20811-9447-P-15
 FCC ID: U94RFS05DIR08

Bandwidth



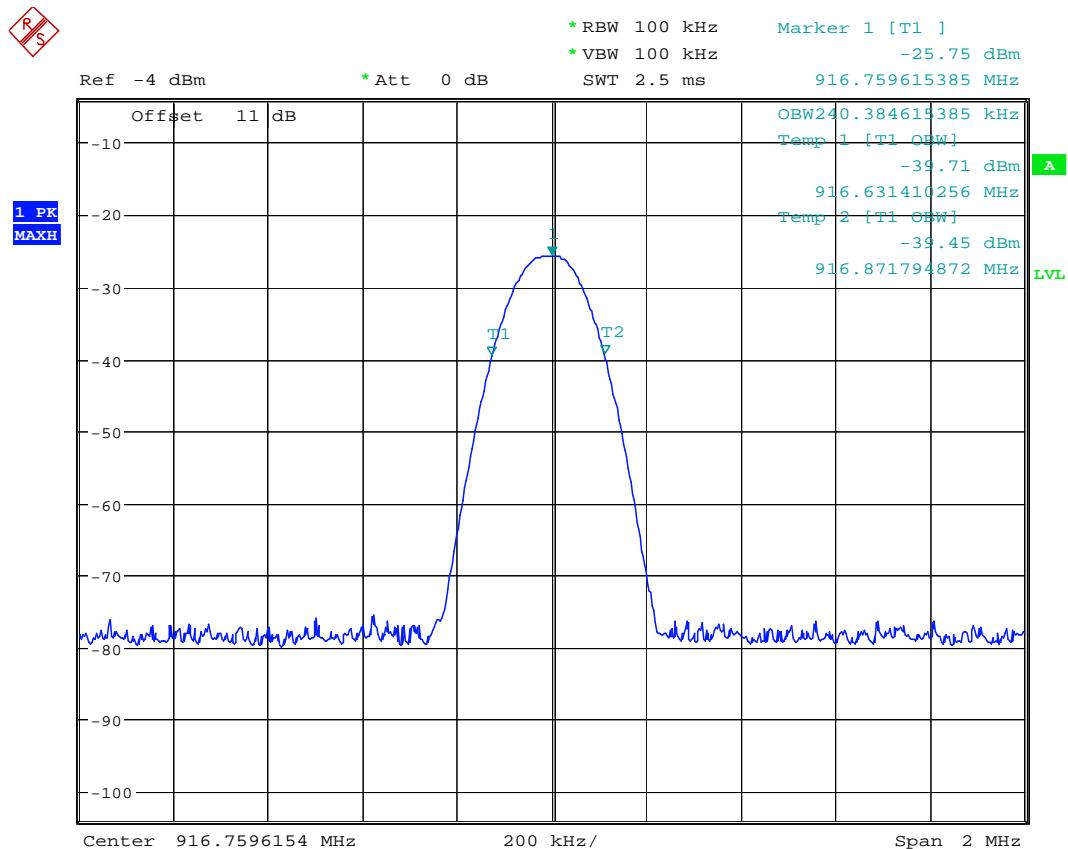
Channel A

Date: 1.DEC.2008 12:28:34



Worldwide Testing Services(Taiwan) Co., Ltd.

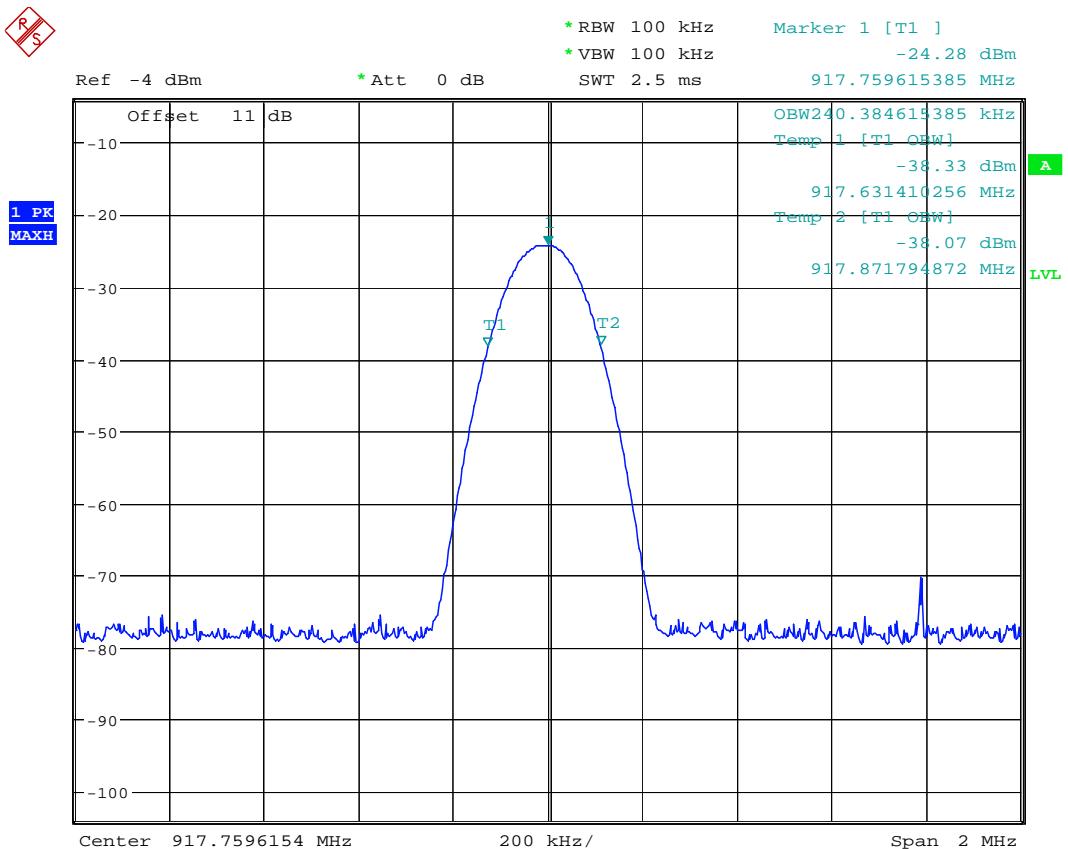
Registration number: W6M20811-9447-P-15
FCC ID: U94RFS05DIR08



Channel B

Date: 1.DEC.2008 12:28:03

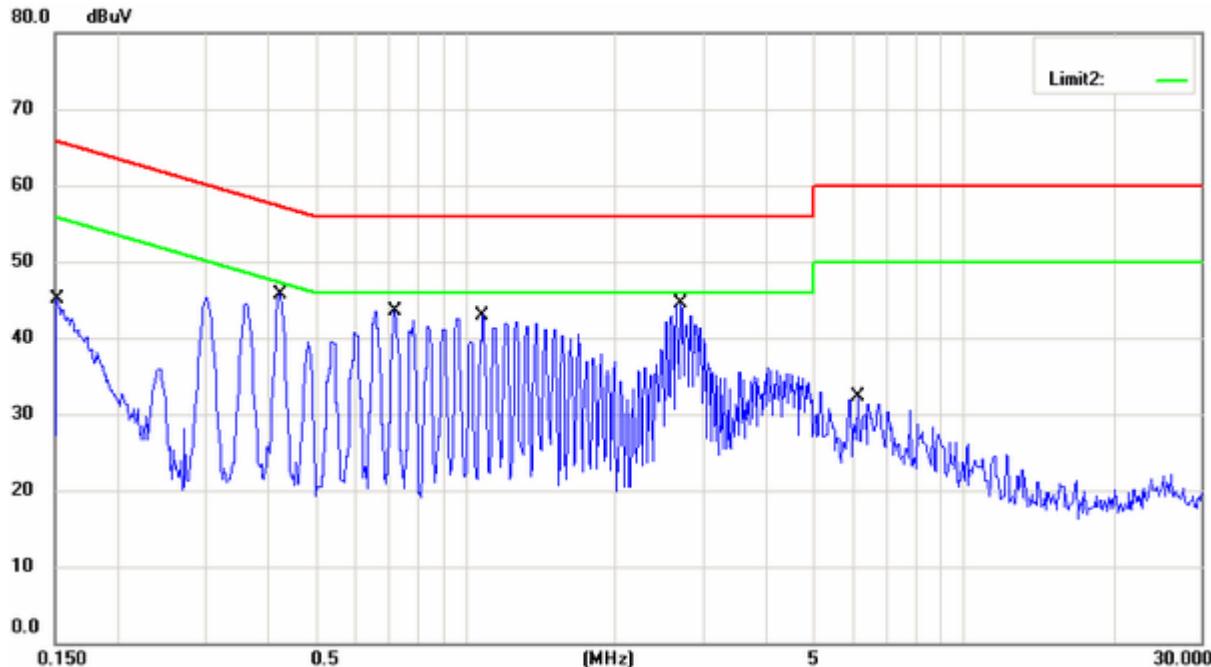
Registration number: W6M20811-9447-P-15
 FCC ID: U94RFS05DIR08



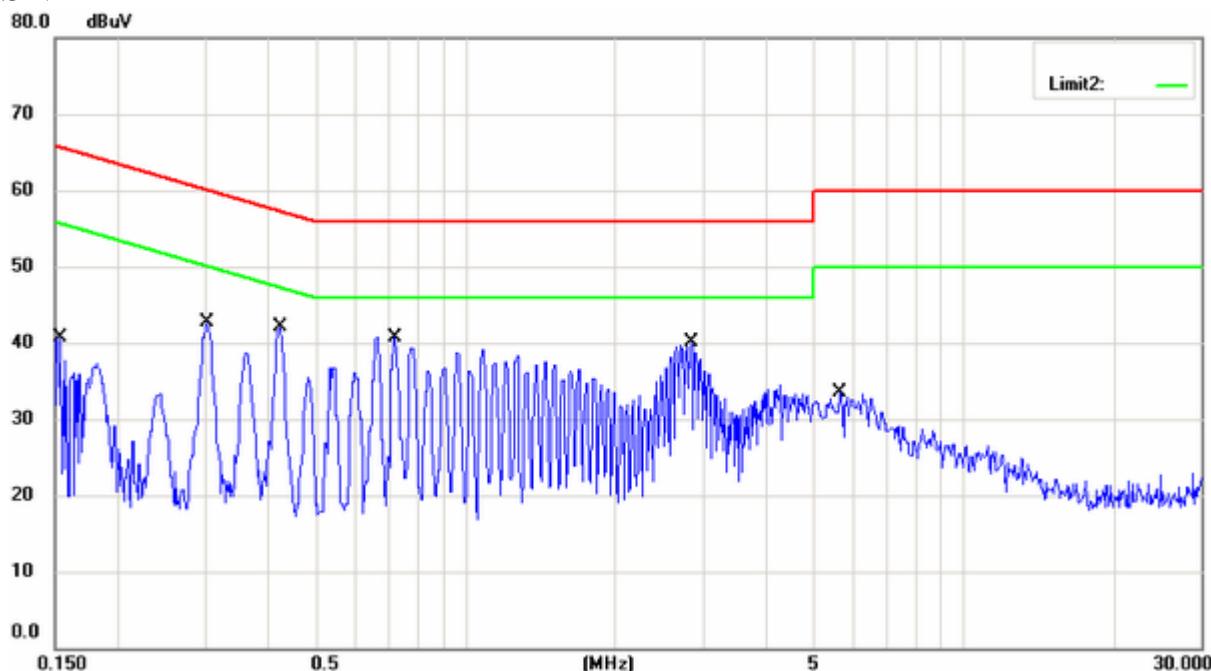
Channel C
 Date: 1.DEC.2008 12:27:24

Registration number: W6M20811-9447-P-15
 FCC ID: U94RFS05DIR08

Power Line Conducted Emission AV Mode_LISN N



LISN L1



Up Line: QP Limit Line

Down Line: Ave Limit Line

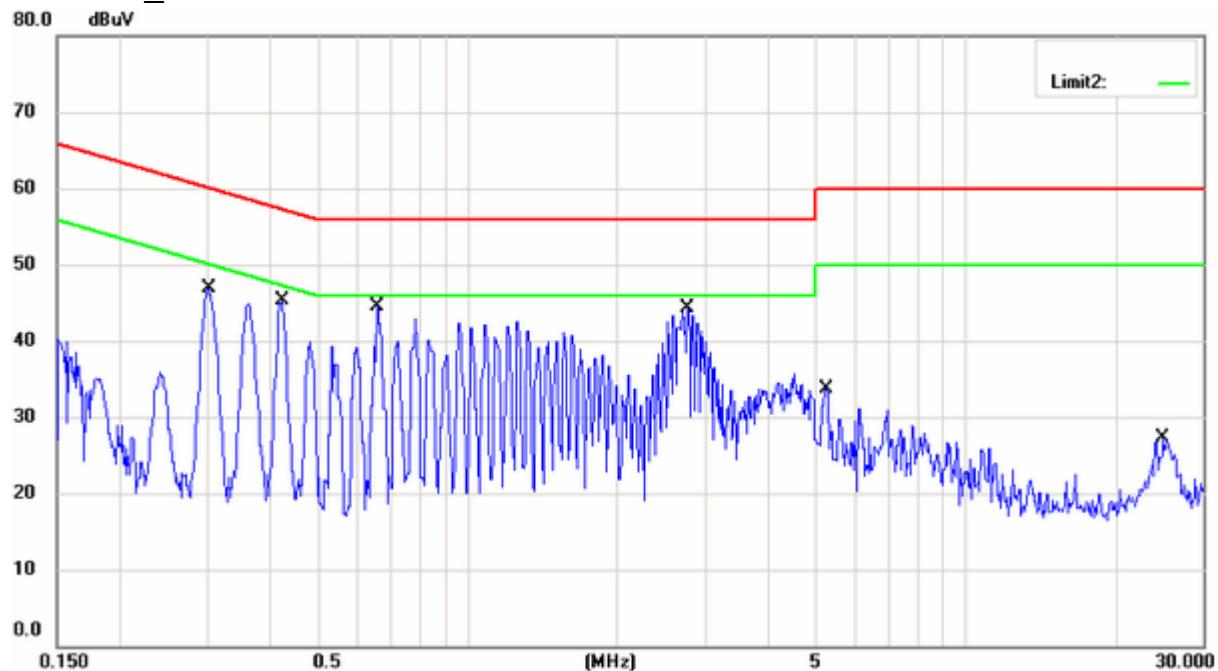
Note:

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 AC conducted test data of this test report.

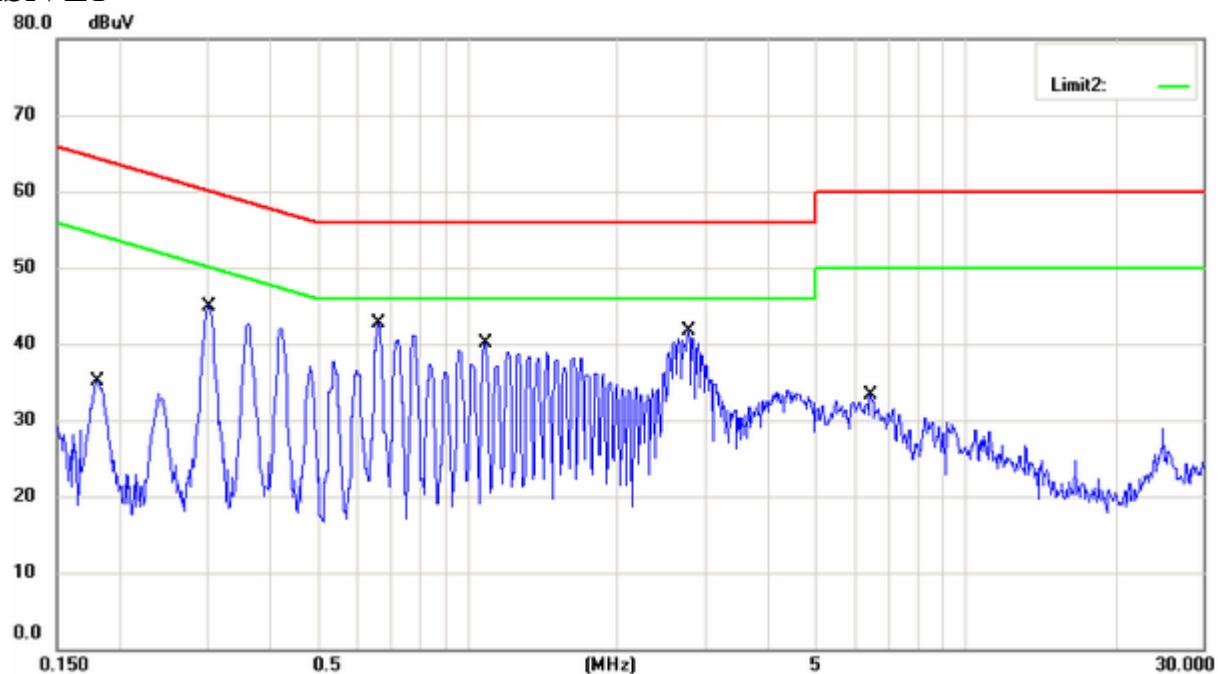
Registration number: W6M20811-9447-P-15

FCC ID: U94RFS05DIR08

MIC Mode_LISN N



LISN L1



Up Line: QP 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 AC conducted test data of this test report.