

FCC PART 15 SUBPART C TEST REPORT

for

Wireless Desktop Gooseneck Microphone

Model No.: GMW-216

FCC ID: CINGMW-216

of

Applicant: CHIAYO ELECTRONICS CO., LTD.

**Address: No.88, Chung Hsiao Street 2, Chiayi,
Taiwan, R.O.C.**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: 930600

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

A2LA Accredited No.: 2732.01



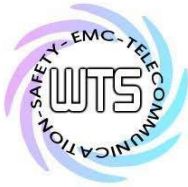
Report No.: W6M21204-12406-C-1

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.

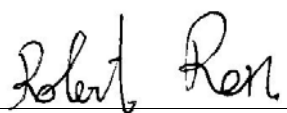
Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications 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.

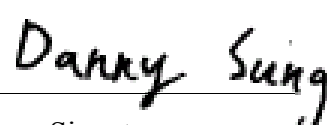
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Tester:

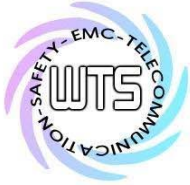
May 02, 2012 Robert Ren 

Date WTS-Lab. Name Signature

Technical responsibility for area of testing:

May 02, 2012 Danny Sung 

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: 2732.01

FCC filed test laboratory Reg. No. 930600

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



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

Name: ./.

Accredited number: ./.

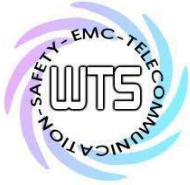
Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.



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1.3 Details of approval holder

Name: CHIAYO ELECTRONICS CO., LTD.
Street: No.88, Chung Hsiao Street 2,
Town: Chiayi,
Country: Taiwan, R.O.C.
Telephone: +886-5-271-1000
Fax: +886-5-276-7611

1.4 Application details

Date of receipt of test sample: April 24, 2012
Date of test: From April 25, 2012 to May 02, 2012

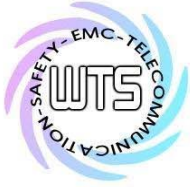
1.5 General information of Test item

Type of test item: Wireless Desktop Gooseneck Microphone
Model Number: GMW-216
Brand Name: CHIAYO
Multi-listing model number: GMW-200
Photos: see Appendix

Technical data

Frequency band :

Frequency(MHz)	TV Band	Used Band
26.100-26.480	<input type="checkbox"/>	<input type="checkbox"/>
54.000-72.000	<input type="checkbox"/>	<input type="checkbox"/>
76.000-88.000	<input type="checkbox"/>	<input type="checkbox"/>
161.625-161.775	<input type="checkbox"/>	<input type="checkbox"/>
174.000-216.000	<input type="checkbox"/>	<input type="checkbox"/>
450.000-451.000	<input type="checkbox"/>	<input type="checkbox"/>
455.000-456.000	<input type="checkbox"/>	<input type="checkbox"/>
470.000-488.000	<input type="checkbox"/>	<input type="checkbox"/>
488.000-494.000	<input type="checkbox"/>	<input type="checkbox"/>
494.000-608.000	<input type="checkbox"/>	<input type="checkbox"/>
614.000-698.000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
944.000-952.000	<input type="checkbox"/>	<input type="checkbox"/>



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Frequency (ch A): 614.1 MHz
Frequency (ch B): 655.95 MHz
Frequency (ch C): 697.8 MHz

Antenna Type: Wire antenna

Antenna Gain: 0 dBi

Power supply: Adapter 1: TECH(I/P: 100-240V~, 47-63Hz, 0.48A, MAX
O/P: 9Vdc, 2.2A, 19.8W, MAX)
Adapter 2: DVE (I/P: 100-240V~, 50-60Hz, 0.3A,
O/P: 12Vdc, 1A)
Battery (1.5 VDC, *2)

Operation modes: Simplex

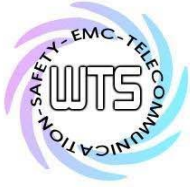
Additional information: The EUT is the portable device. So the EUT was tested on three different axes. The EUT uses the frequency range that are more than 10 MHz, so that was tested on low, middle, and high three different frequencies.

Manufacturer: (if different from approval holder)

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

1.6 Test standards

Technical standard: FCC Part 74 Subpart H , section 74.861 (2010-10)



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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

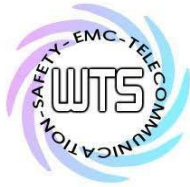
The deviations as specified in 3 were ascertained in the course of the tests performed.

2.2 Test environment

Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86-103 KPa



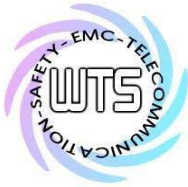
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2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2011/9/2	2012/9/1
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	2011/12/28	2012/12/27
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2011/9/5	2012/9/4
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2012/3/5	2013/3/4
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use	
ETSTW-CE 008	HF-EICHLITUNG 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	2011/7/13	2012/7/12
ETSTW-CE 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2011/9/6	2012/9/5
ETSTW-CE 024	IMPEDANCE STABILIZATION NETWORK	ISN T800	29454	TESEQ	2012/1/4	2013/1/3
ETSTW-CS 004	COUPLING AND DECOUPLING NETWORK	CDN M016	20053	SCHAFFNER	2011/8/12	2012/8/11
ETSTW-CS 005	RF Power Amplifier	100A250A	306547	AR	Function Test	
ETSTW-CS 010	6 dB Attenuator	SA3N1007-06	None	AISI	2011/7/29	2012/7/28
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2011/8/16	2012/8/15
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2011/9/5	2012/9/4
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2011/9/2	2012/9/1
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2011/9/7	2012/9/6
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	2010/10/4	2012/10/3
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2012/4/03	2013/4/02
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2011/7/19	2012/7/18
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	Function Test	
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	Function Test	
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2012/2/21	2013/2/20
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2011/10/4	2012/10/3
ETSTW-RE 033	WaveRunner 6000A Serise Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	Function Test	
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2011/10/4	2012/10/3
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2012/1/10	2013/1/9
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2012/4/13	2013/4/12

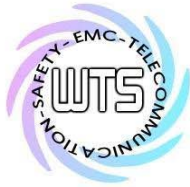


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ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2012/4/06	2013/4/05
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2011/8/29	2012/8/28
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2012/3/23	2013/3/22
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2012/3/3	2013/3/2
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2012/3/3	2013/3/2
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2012/3/3	2013/3/2
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2011/5/30	2012/5/29
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2012/3/3	2013/3/2
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2011/5/18	2012/5/17
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2011/11/29	2012/11/28
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2012/4/6	2013/4/5
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	EMCO	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2011/10/5	2012/10/4
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2012/1/4	2013/1/3
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2012/1/4	2013/1/3
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2011/10/13	2012/10/12
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2012/3/5	2013/3/4
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2012/3/5	2013/3/4
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2011/12/1	2012/11/30
ETSTW-RE 111	TRILOG Super Broadband test Antenna	VULB 9160	9160-3309	Schwarz beck	2011/12/27	2012/12/26
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	None	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2012/1/12	2013/1/11
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2011/7/4	2012/7/3
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2011/8/19	2012/8/18
ETSTW-RE 126	5GHz Notch filter	5NSL11-5800/E221.3-O/O	1	K&L Microwave	2011/8/19	2012/8/18
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2012/3/3	2013/3/2
ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	093	EMC-PARTNER	2011/9/1	2012/8/31
ETSTW-EMS 001	BASELSTRASSE 160 CH-4242 LAUFEN	CN-EFT1000	354	EMC-PARTNER	Function Test	
ETSTW-EMS 002	Frequency Converter	YF-6020	0308014	None	Function Test	
ETSTW-EMS 003	EMC Immunity Test System	TRA2000IN6	579	EMC-PARTNER	2011/11/2	2012/11/1
ETSTW-EMS 009	Magnetic Field Antenna	MF1000-1	104	EMC-PARTNER	Function Test	
ETSTW-EMS 010	Coupling De-coupling Network	CDN-UTP8	014	EMC-PARTNER	Function Test	

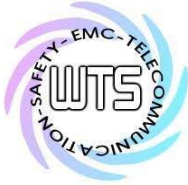


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ETSTW-EMS 012	EM Injection Clamp	F-2031-23MM	476	FCC	2011/6/1	2012/5/31
ETSTW-EMS 016	EMF Tester	1390	071208732	TES	2011/10/6	2012/10/5
ETSTW-EMS 017	Multimeter	DM-1220	518614	HOLA	2011/8/11	2012/8/10
ETSTW-EMS 019	Electrostatic Discharge Simulator	ESS-2002	ESS06Y6300	NoiseKen	2011/10/31	2012/10/30
ETSTW-EMS 020	Humidity Temperature Meter	TES-1366	091011116	TES	2011/12/20	2012/12/19
ETSTW-RS 003	RF Power Amplifier	30S1G3	306933	AR	Function Test	
ETSTW-RS 004	RF Power Amplifier	150W1000	307009	AR	Function Test	
ETSTW-RS 006	SIGNAL GENERATOR	SML03	101551	R&S	2012/2/29	2013/2/28
ETSTW-RS 007	14" COLOR VIDEO MONITOR	HS-CM145A	0512011548	None	Function Test	
ETSTW-RS 009	SIGNAL GENERATOR	8648C	3642U01656	HP	2012/2/20	2013/2/19
ETSTW-RS 010	Broadband Field Meter	NBM-520	C-0195	Narda	2011/9/8	2012/9/7
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2011/10/4	2012/10/3
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2012/1/13	2013/1/12
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2012/1/13	2013/1/12
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2012/1/13	2013/1/12
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2012/1/13	2013/1/12
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2011/9/19	2012/9/18
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104 (S Cable 7)	238093	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104 (S Cable 11)	209953	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2012/3/5	2013/3/4
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.	2012/3/5	2013/3/4
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104 (S Cable 5)	232345	HUBER+SUHNER	Function Test	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2012/3/3	2013/3/2
ETSTW-Cable 022	N TYPE Cable	5006	0002	JYE BAO CO.,LTD.	2012/4/6	2013/4/5
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2012/3/5	2013/3/4
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2012/3/5	2013/3/4
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2011/10/13	2012/10/12
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2011/10/13	2012/10/12
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2012/3/5	2013/3/4
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S Cable 10)	238092	HUBER+SUHNER	2011/11/29	2012/11/28
ETSTW-Cable 032	Microwave Cable	SUCOFLEX 104 (S Cable 12)	237301	HUBER+SUHNER	Function Test	



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ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104 (S_Cable 19)	316739	HUBER+SUHNER	2011/5/18	2012/5/17
ETSTW-Cable 040	Microwave Cable	SUCOFLEX 104 (S_Cable 20)	316738	HUBER+SUHNER	Function Test	
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2011/11/29	2012/11/28
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2011/11/29	2012/11/28
ETSTW-Cable 051	BNC Cable	BNC Cable 6	None	JYE BAO CO.,LTD.	2012/3/30	2013/3/29
ETSTW-Cable 052	BNC Cable	Clamp Cable	None	Schwarz beck	2012/3/30	2013/3/29
ETSTW-Cable 053	N TYPE To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2012/4/6	2013/4/5
ETSTW-Cable 054	BNC To SMA Cable	RG142	None	JYE BAO CO.,LTD.	2012/4/6	2013/4/5
ETSTW-Cable 055	N TYPE Cable	N30N30-JBY240- 80CM	20110621-1.1	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 056	N TYPE Cable	N30N30-JBY240- 80CM	20110621-1.0	JYE BAO CO.,LTD.	Function Test	
ETSTW-Cable 057	N TYPE Cable	N30N30-JBY240- 80CM	20110621-1.1	JYE BAO CO.,LTD.	Function Test	
WTSTW-SW 001	EMI TEST SOFTWARE	Harmonics-1000	None	EMC PARTNER	HARCS Version 4.16 Firmware Version 2.18	
WTSTW-SW 002	EMI TEST SOFTWARE	EZ_EMG	None	Farad	Version ETS-03A1	
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	



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FCC ID: CINGMW-216

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 100 kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

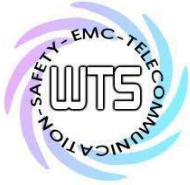
- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, 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 at the registered open field test site located at The Registration Number:

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.



Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

3 Test results (enclosure)

Test case	Para. Number	Required	Test passed	Test failed
RF Power Output	2.1046 (a); 74.861 (e)(1)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Modulation Deviation	2.1047 (b); 74.861 (e)(2)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Audio Frequency Response	2.1047 (a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Occupied Bandwidth / Emission Mask	2.1049 (c)(1); 74.861 (e)(5)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions at Antenna Terminals	2.1051 74.861(e)(6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Spurious Emission	2.1053 74.861(e)(6)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Line Conducted Emissions	15.207	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency Stability vs. Temperature	2.1055 (b); 74.861(e)(4)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frequency Stability vs. Voltage	2.1055 (a)(1); 74.861 (e)(4)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The follows is intended to leave blank.



Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

4 RF Power Output (conducted) , FCC 2.1046 (a) ; 74.861 (e)

4.1 Test procedure

This transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer. Transmitter output was derived with the spectrum analyzer in dBm. The power output at the transmitter antenna port was determined by assign the value of the attenuator to the spectrum analyzer reading.

An HP power meter was also used to measure the RF power.

Tests were performed with an un-modulated carrier at three frequencies (low , middle and high channels) and on all power levels , which can be set-up on the transmitters.

4.2 Test Results

Frequency Channel	Peak Output Power (dBm)
-- MHz	--
-- MHz	--
-- MHz	--

Limits:

LPAS operating in TV bands	
Frequency [MHz]	Conducted output power [mW]
54 – 72 76 – 88 174 - 216	50 (17 dBm)
470 – 608 614 - 698	250 (24 dBm)

LPAS operating in other than TV bands	
Conducted power [W]	1

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

Explanation :This test is not required.

5 Radiated Power

5.1 Test Procedure

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

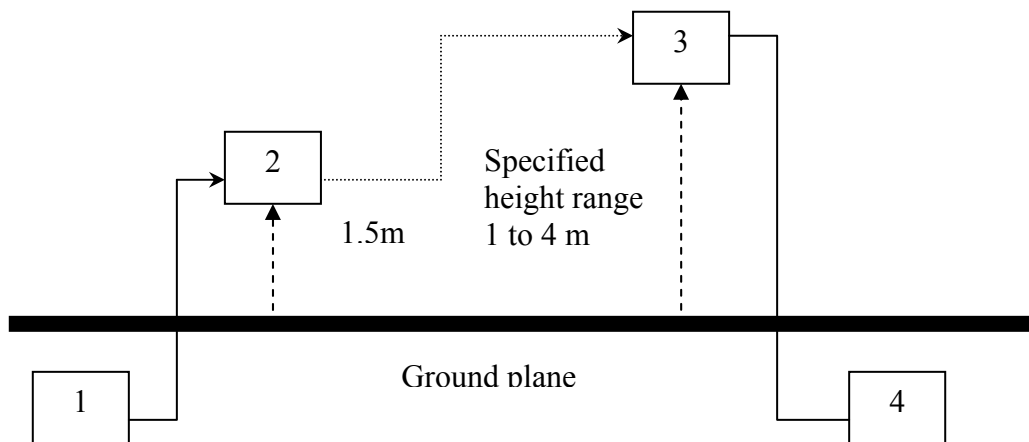
Worst case emission was recorded with the rotation of the turntable and the raising and lowering of the test antenna.

Substitution RF power Measurement at WTS Taiwan

General :

The applied substitution method follows ANSI/TIA/EIA-603, ANSI/TIA/EIA-102.CAAA or the appropriate ETSI rules respectively.

The actual signal generated by the EUT can be determined by means of a substitution measurement in which a known signal source replaces the device to be measured.



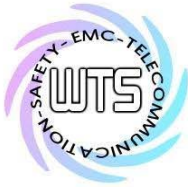
- 1) Signal generator ;
- 2) Substitution antenna ;
- 3) Test antenna ;
- 4) Spectrum analyzer or selective voltmeter.

The substitution antenna replaces the transmitter antenna at the same position and in vertical polarization. The frequency of the signal generator shall be adjusted to the measurement frequency.

The test antenna shall be raised or lowered, if necessary, to ensure that the maximum signal is still received. The input signal to the substitution antenna shall be adjusted in level until an equal or a known related level to that detected from the transmitter is obtained in the measurement receiver.

If a fully anechoic chamber is used as test site in order to provide free space conditions there is no need to change the height of the antenna.

The measurement will be repeated in horizontal position.



Worldwide Testing Services(Taiwan) Co., Ltd.

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Calibration :

In order to make this kind of measurement more effective and to avoid subjective measurement faults ETS has installed automatic computer controlled measurement procedures.

With the above described substitution method a test site is calibrated over the full frequency range which is used in suitable frequency steps. For a certain power level on the substitution antenna the received power over the whole frequency range is documented. All necessary antenna gains, cable losses, filter losses and amplifications of preamplifiers are taken in consideration. The summary of this calibration measurement performs a transducer factor that is related to the considered test site and a certain measurement distance. Differences of the radiated power levels of different test samples are determined by internal attenuation of measurement receiver . The proper function of such test site will be maintained by short term plausibility checks and periodical re-calibration.

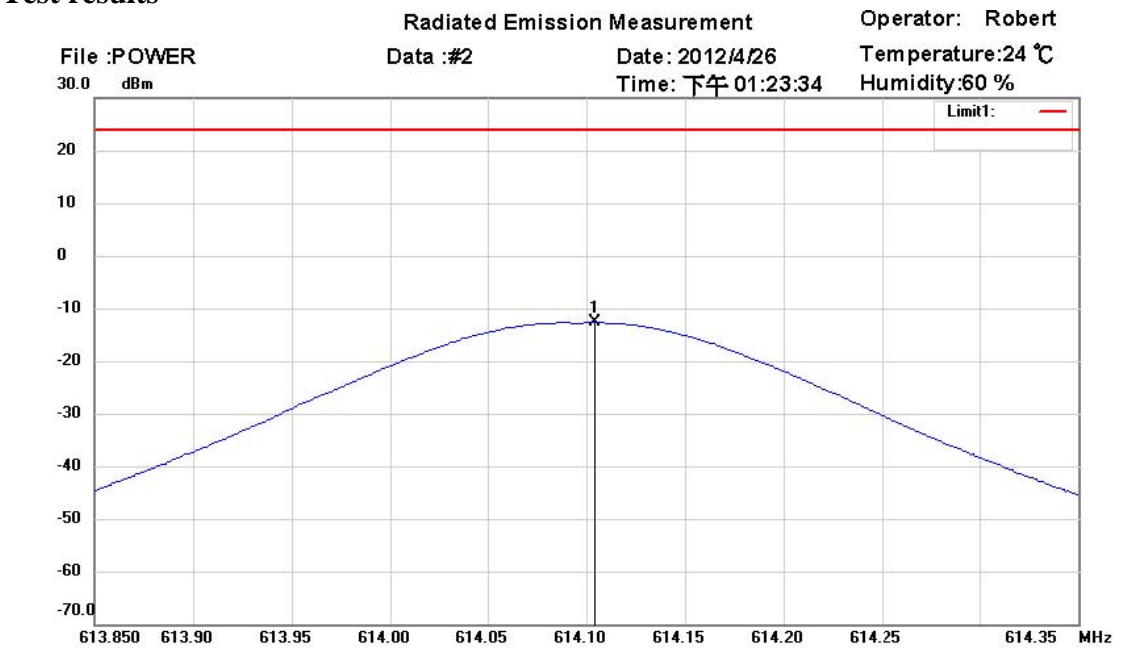
Testing :

Now the test sample will be putted on the table at the defined position and the radiated power will be receiver and documented by the measurement receiver.

On test sites with ground plane the measurement antenna will be lowered and raised to maximum values at significant frequencies.

For peak power measurements the sample is turned by the turntable over 360 degree in order to find the direction with the maximum radiation or to document the max reading with the MAXHOLD function during the rotation.

5.2 Test results



Site : Chamber_01

Condition : FCC 74.861 power(470-608 and 614-698)

Polarization: *Horizontal*

EUT : W6M21204-12406

Power : 3VDC

M/N: GMW-216

Distance: 3m

Test Mode : POWER

Note :

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corrected factor(dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	614.1045	-44.96	peak	32.25	-12.71	24.00	150	360	-36.71	

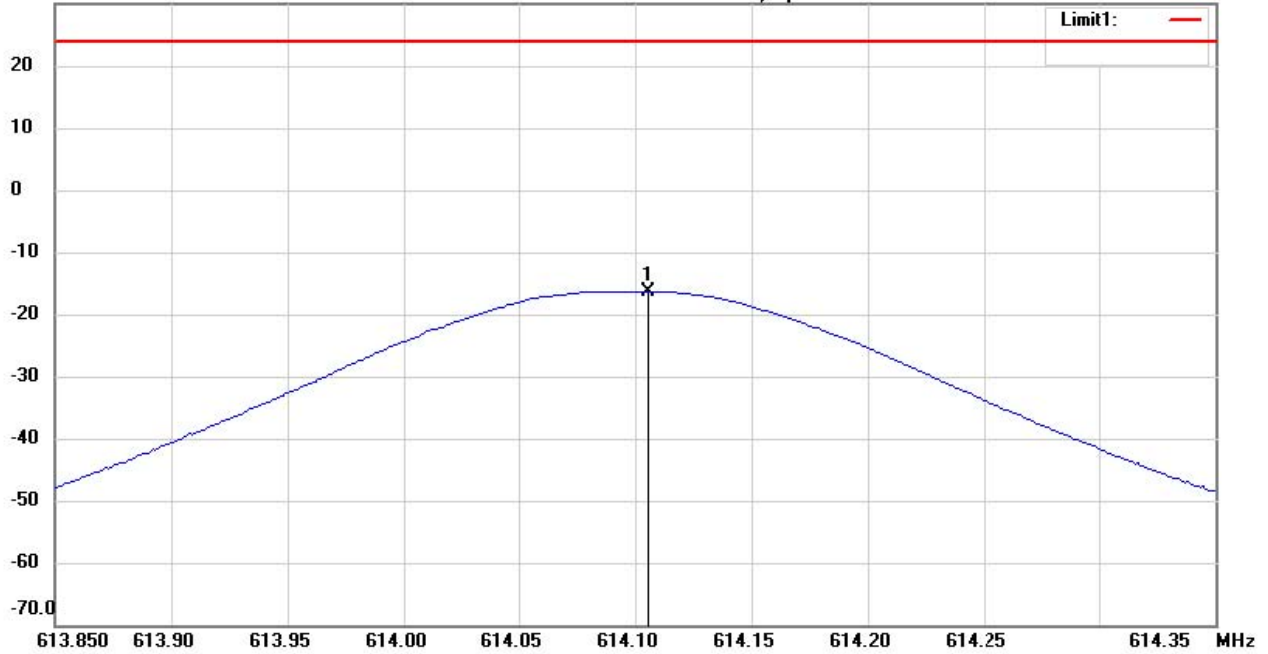


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

Radiated Emission Measurement

File :POWER Data :#1 Date: 2012/4/26 Operator: Robert
 30.0 dBm Time: 下午 01:21:25 Temperature:24 °C Humidity:60 %



Site : Chamber_01 Polarization: *Vertical*
 Condition : FCC 74.861 power(470-608 and 614-698) Power : 3VDC
 EUT : W6M21204-12406 Distance: 3m
 M/N: GMW-216
 Test Mode : POWER
 Note :

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corrected factor(dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	614.1055	-48.09	peak	31.83	-16.26	24.00	150	120	-40.26	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

Radiated Emission Measurement

Operator: Robert

File :power
 30.0 dBm

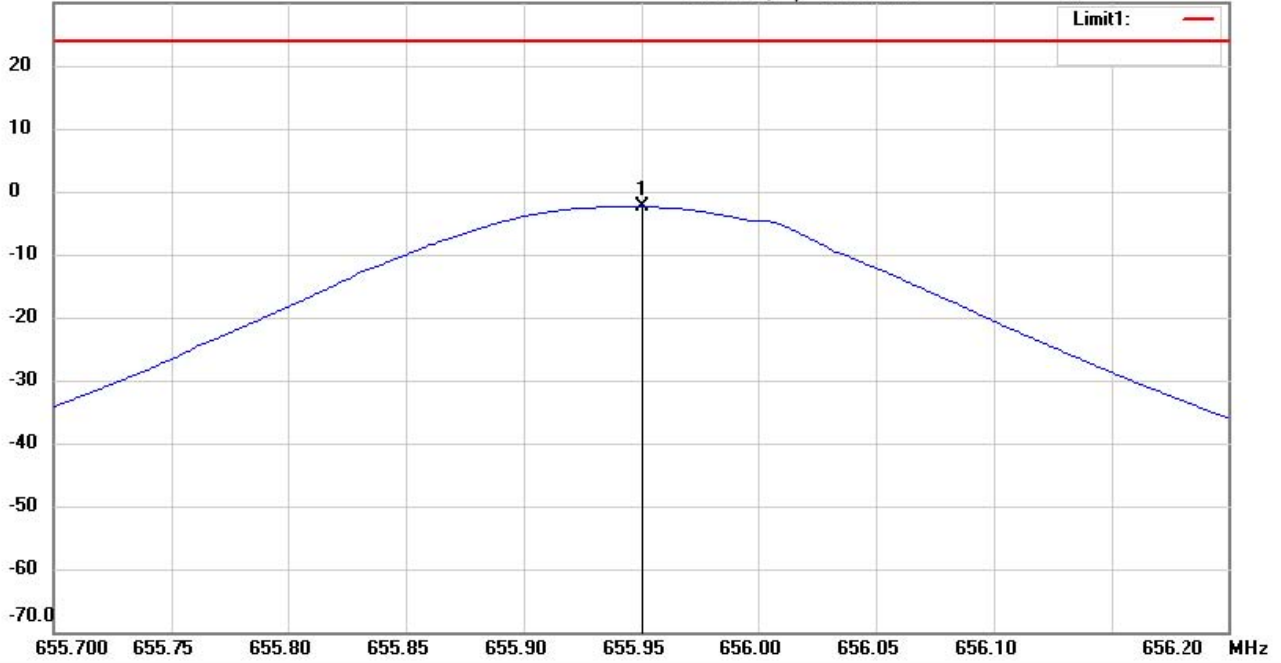
Data :#2

Date: 2012/4/26

Temperature:24 °C

Time: 下午 01:43:37

Humidity:60 %



Site : Chamber_01

Condition : FCC 74.861 power(470-608 and 614-698)

Polarization: *Horizontal*

EUT : W6M21204-12406

Power : 3VDC

M/N: GMW-216

Distance: 3m

Test Mode : power

Note :

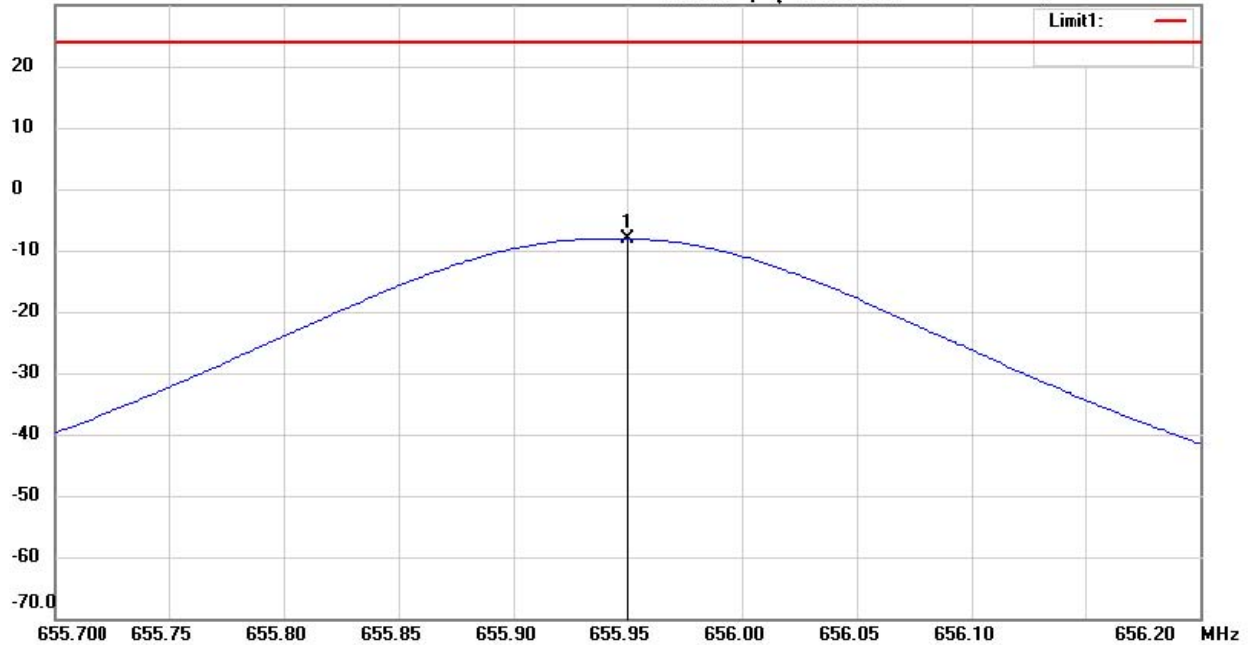
Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corrected factor(dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	655.9505	-37.48	peak	35.00	-2.48	24.00	150	360	-26.48	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

File :power
 30.0 dBm
 Radiated Emission Measurement
 Data :#1
 Date: 2012/4/26
 Time: 下午 01:42:27
 Operator: Robert
 Temperature:24 °C
 Humidity:60 %



Site : Chamber_01

Condition : FCC 74.861 power(470-608 and 614-698)

EUT : W6M21204-12406

M/N: GMW-216

Test Mode : power

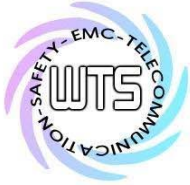
Note :

Polarization: *Vertical*

Power : 3VDC

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corrected factor(dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	655.9505	-40.48	peak	32.29	-8.19	24.00	150	120	-32.19	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

Radiated Emission Measurement

Operator: Robert

File :power
 30.0 dBm

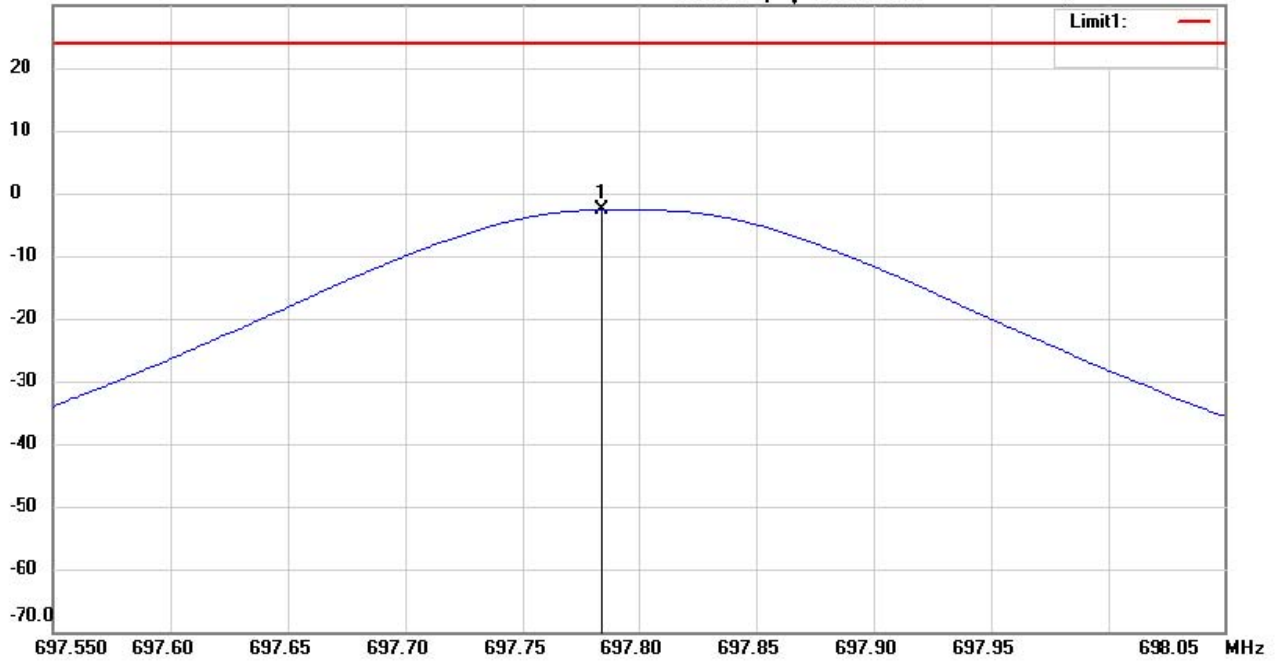
Data :#2

Date: 2012/4/26

Temperature:24 °C

Time: 下午 01:50:22

Humidity:60 %



Site : Chamber_01

Condition : FCC 74.861 power(470-608 and 614-698)

Polarization: *Horizontal*

EUT : W6M21204-12406

Power : 3VDC

M/N: GMW-216

Distance: 3m

Test Mode : power

Note :

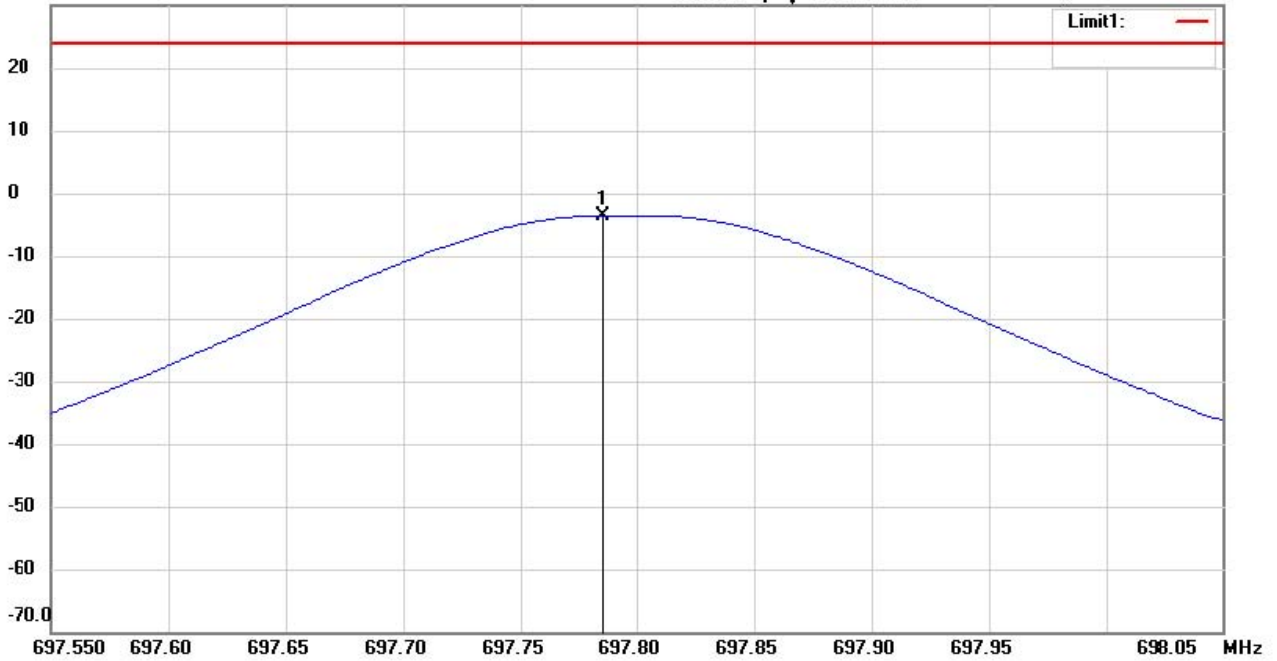
Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corrected factor(dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	697.7844	-37.18	peak	34.57	-2.61	24.00	150	280	-26.61	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

File :power
 Radiated Emission Measurement
 Data :#1
 Date: 2012/4/26
 Time: 下午 01:48:55
 Operator: Robert
 Temperature:24 °C
 Humidity:60 %



Site : Chamber_01
 Condition : FCC 74.861 power(470-608 and 614-698)
 EUT : W6M21204-12406
 M/N: GMW-216
 Test Mode : power
 Note :
 Polarization: *Vertical*
 Power : 3VDC
 Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corrected factor(dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	697.7854	-37.72	peak	34.16	-3.56	24.00	150	320	-27.56	

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 122, ETSTW-RE 042, ETSTW-RE 043



Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

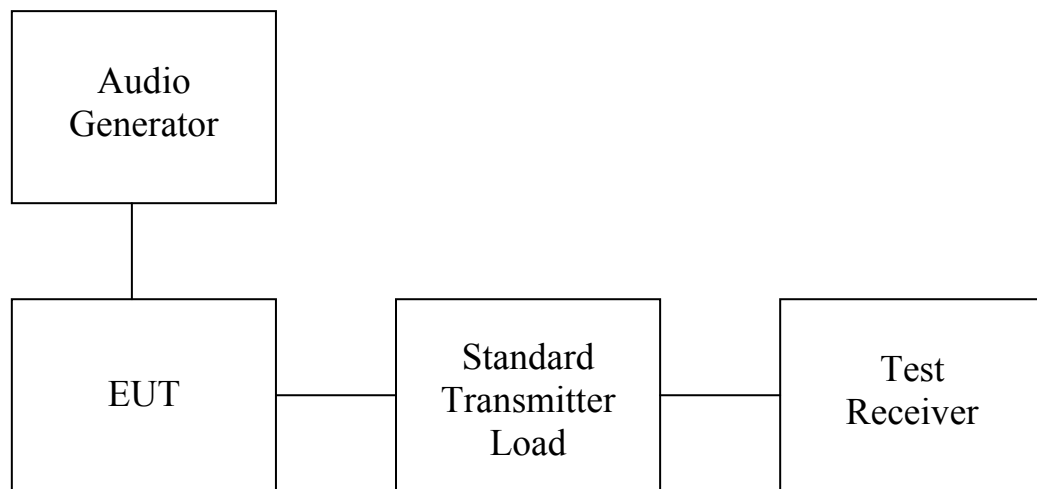
6 Modulation Deviation , FCC 2.1047 (b) ; 74.861(e)

6.1 Test procedure

Modulation limiting is the transmitter circuit's ability to limit the transmitter from producing deviations in excess of rated system deviation.

The audio signal generator is connected to the audio input of the EUT with its full rating.

The modulation response is measured at certain modulation frequencies, related to 1000Hz reference signal. Tests are performed for positive and negative modulation.

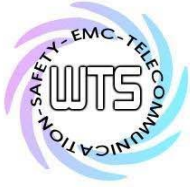


6.2 Test results

Explanation: Please see attached diagrams as appendix.

Limits : ± 75 kHz

Test equipment used: ETSTW-RE 072, ETSTW-RE 055, ETSTW-RE 050



Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

7 Audio frequency response , FCC 2.1047 (a)

7.1 Test procedure

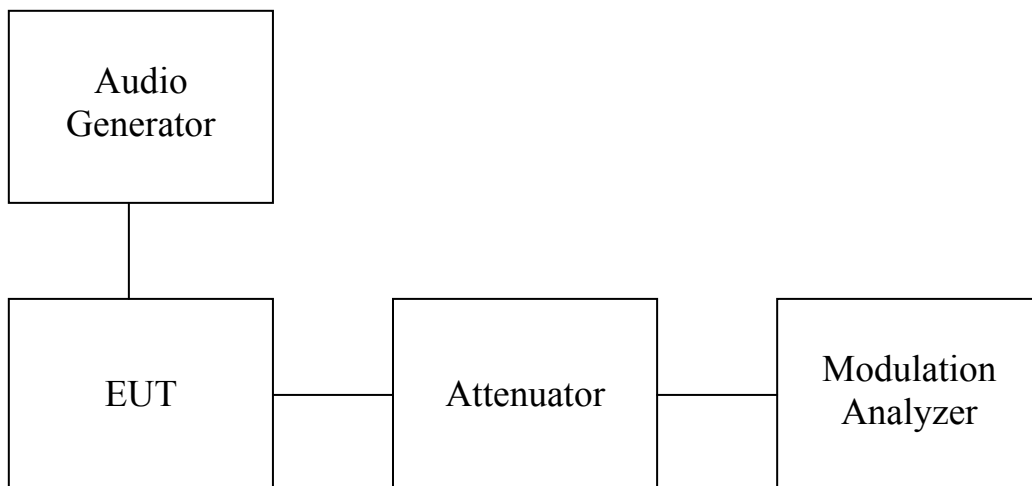
The audio frequency response is the degree of closeness to which the frequency deviation of the transmitter follows a prescribed characteristic.

The frequency response of the audio modulation part is measured over a frequency range of 100 Hz to 5000 Hz.

For 1000 Hz tone reference signal the audio generator level is adjusted to get 20% of the rated system deviation.

The deviations obtained over the frequency range from 100 Hz to 5000 Hz are recorded and compared with the reference deviation as follows :

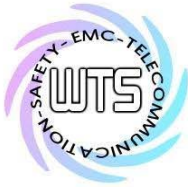
$$\text{Audio Frequency Response} = 20 \log [\text{DEV}_{\text{Freq}} / \text{DEV}_{\text{ref}}].$$



7.2 Test results

Explanation: Please see attached diagrams as appendix.

Test equipment used: ETSTW-RE 072



Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

8 Occupied Bandwidth/Emission Mask, FCC 2.1049 (c) ; 74.861 (e)(5)

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

8.1 Test procedure

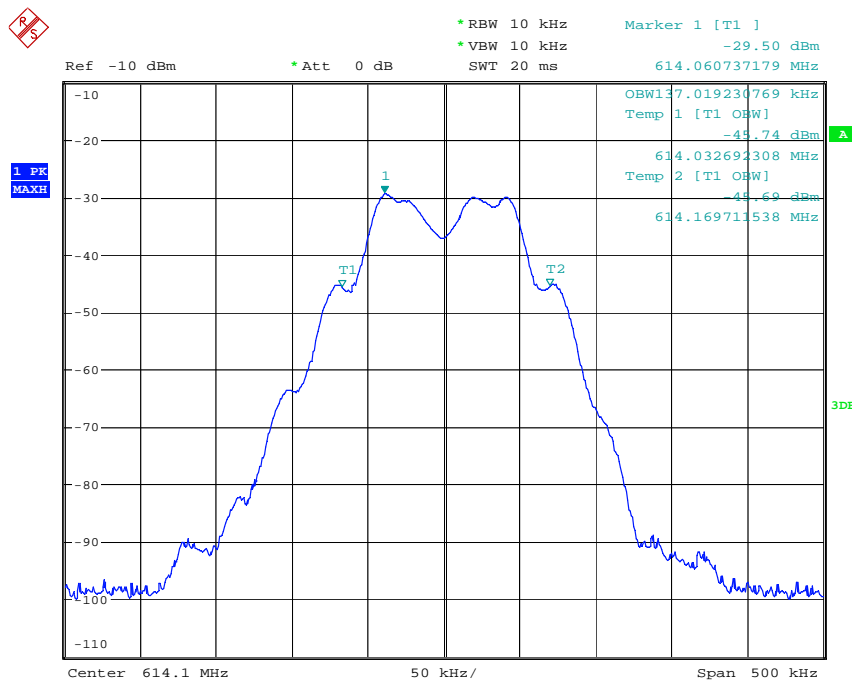
The RF output of the transceiver was connected to the input of the spectrum analyzer through sufficient attenuation.

Occupied Bandwidth was measured with a occupied bandwidth function of the analyzer.

The near the carrier emissions are measured by normal power measurement function of the analyzer.

8.2 Test Results

Occupied Bandwidth



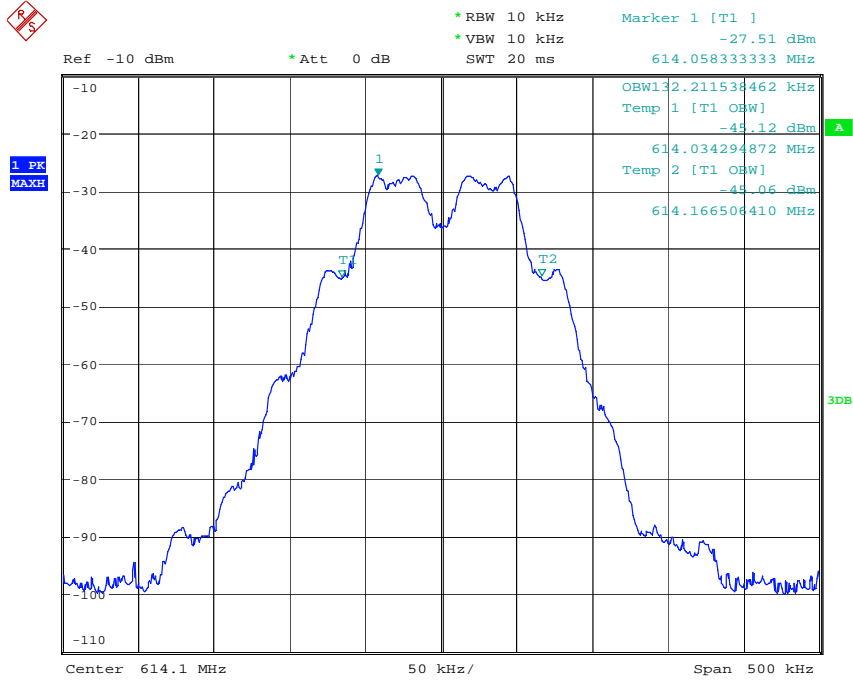
OCCUPIED BANDWIDTH 614.1MHz 2.5kHz

Date: 26.APR.2012 14:40:14

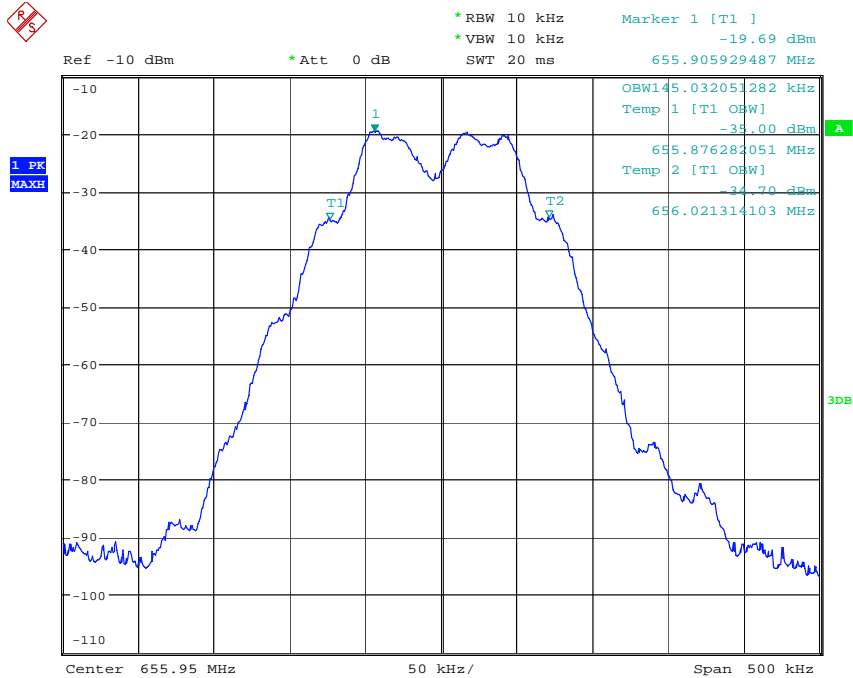


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OCCUPIED BANDWIDTH 614.1MHz 1kHz
 Date: 26.APR.2012 14:40:36



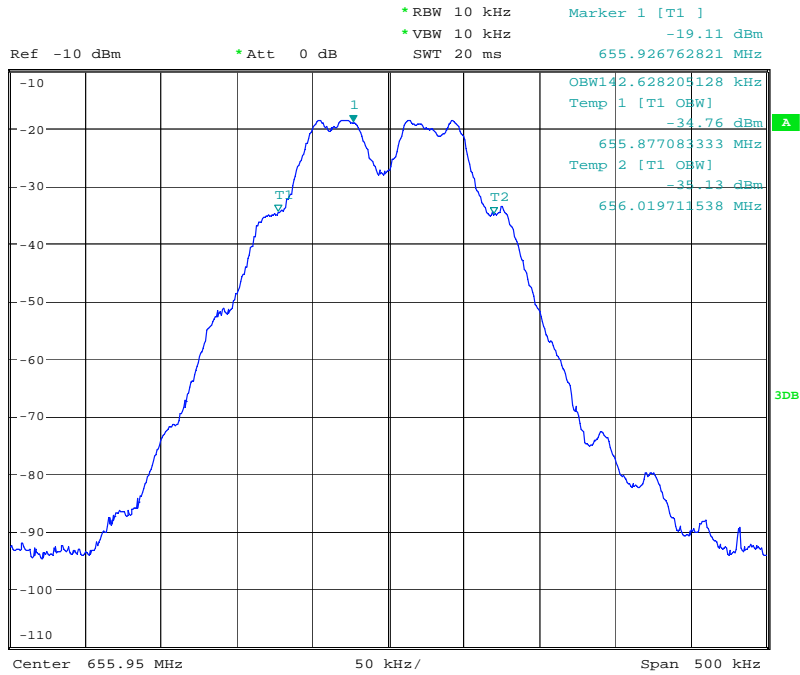
OCCUPIED BANDWIDTH 655.95MHz 2.5kHz
 Date: 26.APR.2012 14:38:41



Worldwide Testing Services(Taiwan) Co., Ltd.

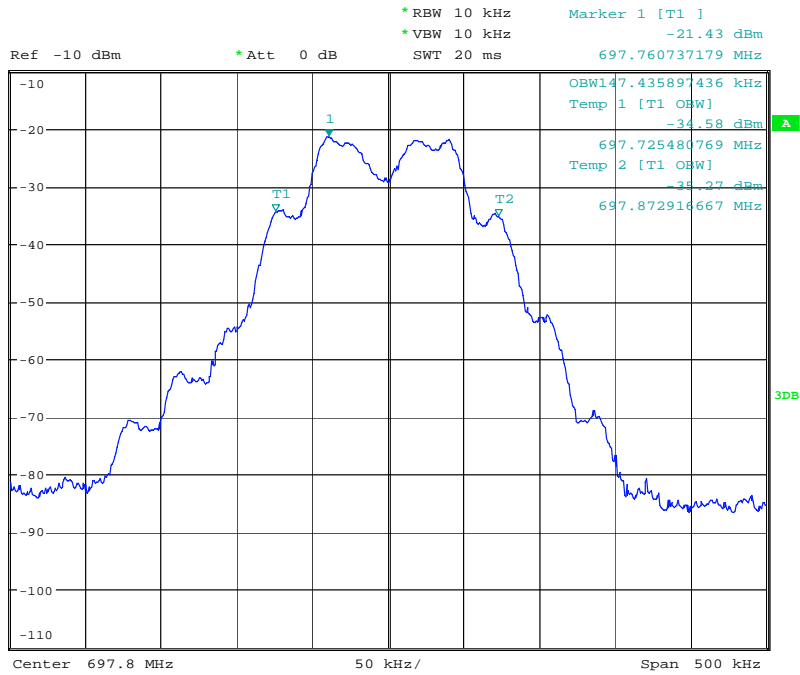
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



OCCUPIED BANDWIDTH 655.95MHz 1kHz

Date: 26.APR.2012 14:36:53

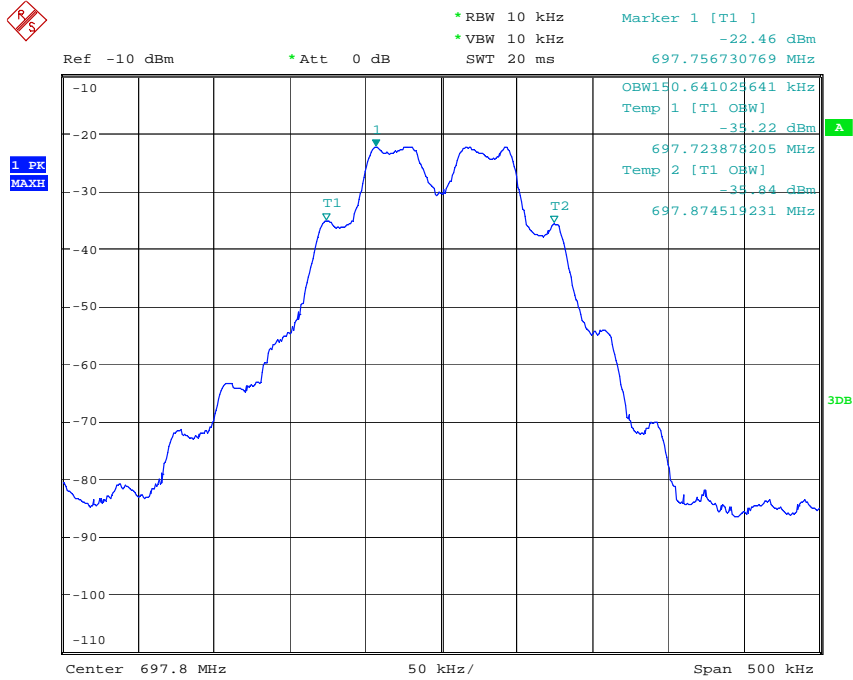


OCCUPIED BANDWIDTH 697.8MHz 2.5kHz

Date: 26.APR.2012 14:43:06

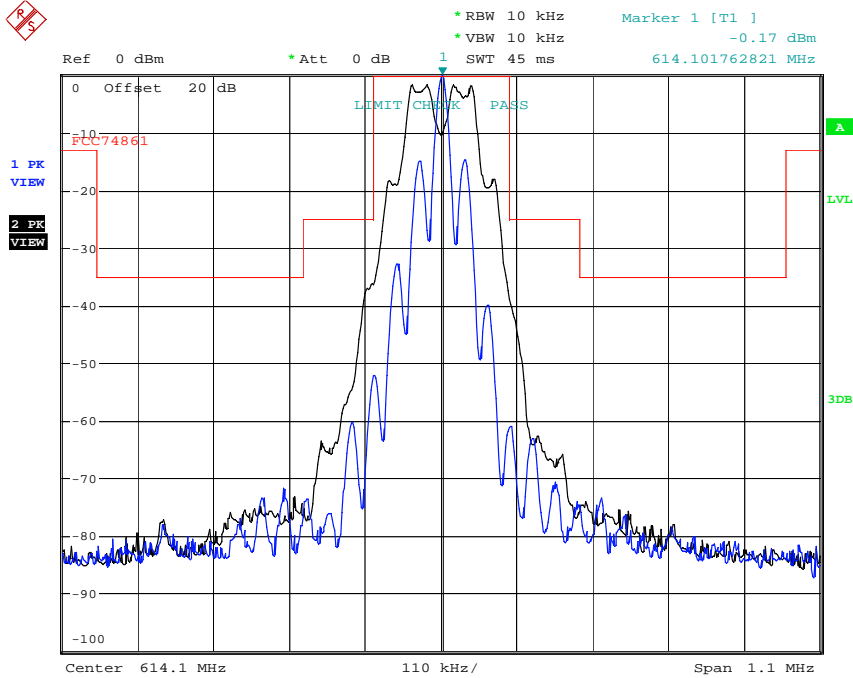


Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216



OCCUPIED BANDWIDTH 697.8MHz 1kHz
 Date: 26.APR.2012 14:42:36

Emission Mask



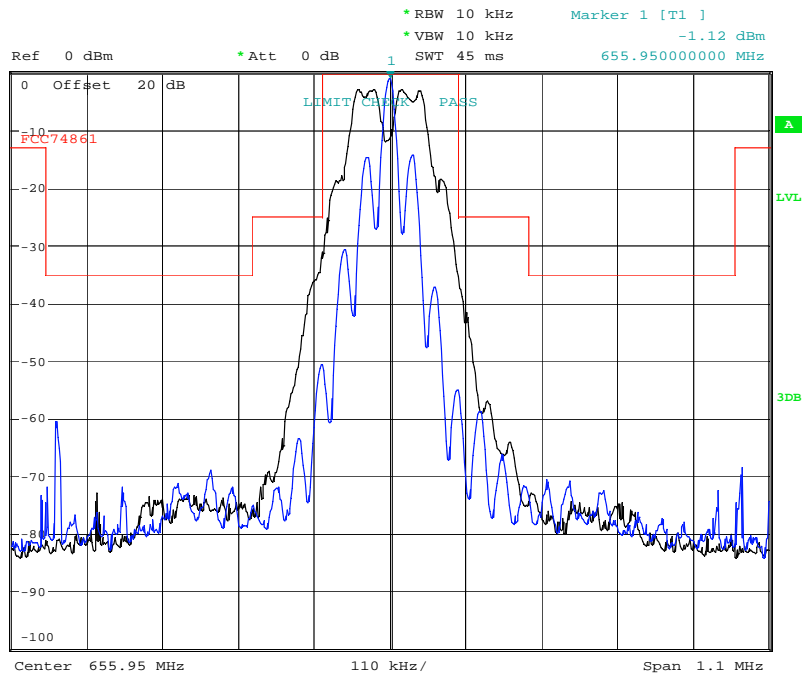
EMISSION MASK 614.1MHz
 Date: 26.APR.2012 14:48:08



Worldwide Testing Services(Taiwan) Co., Ltd.

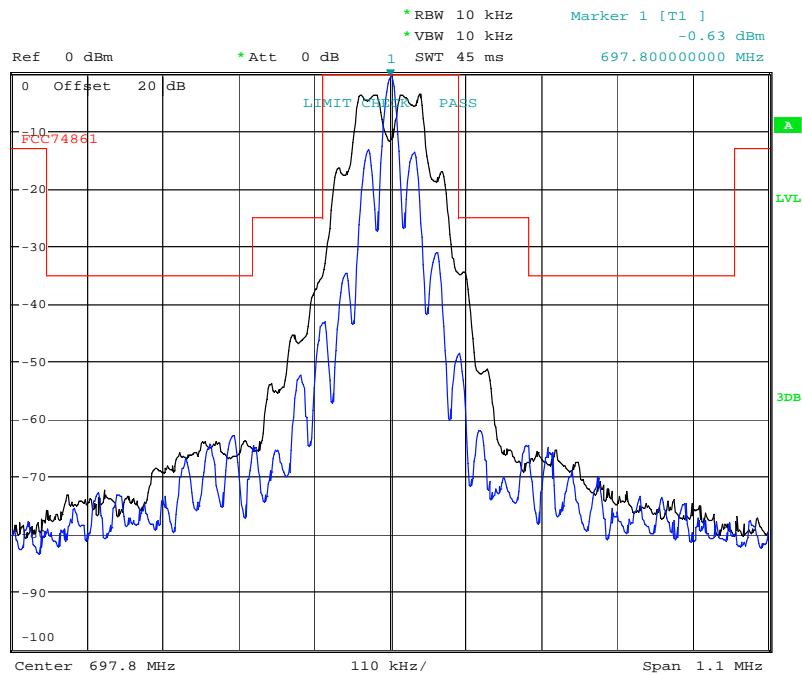
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



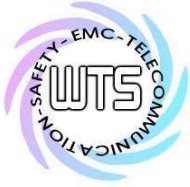
EMISSION MASK 655.95MHz

Date: 26.APR.2012 14:49:28



EMISSION MASK 697.8MHz

Date: 26.APR.2012 14:46:30



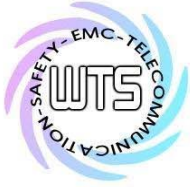
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

8.3 Limit

The operating bandwidth shall not exceed 200 kHz.

Test equipment used: ETSTW-RE 055 , ETSTW-RE 072, ETSTW-RE 050



Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

9 Spurious Emissions at Antenna Terminals FCC2.1051 ; 74.861 (e)

9.1 Test procedure

This transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer. Transmitter output was derived with the spectrum analyzer in dBm.

The Spurious Emissions at Antenna Terminals was measured by the spectrum analyzer with a suitable notch filter and high-pass filter.

Tests were performed with an un-modulated carrier at three frequencies (low , middle and high channels) and on all power levels , which can be set-up on the transmitters.

9.2 Test Results

Summary table with conducted data of the test plots for Carrier Test Frequency

Frequency Marker Indication [MHz]	Indication Power Level [dBm]	Compliance Limit [dBm]	Margin
--	--	--	--
--	--	--	--

9.3 Limit

Compliance with § 74.861 requires that any emission be attenuated below the transmitter power at least $43 + 10 \log_{10} P$ (P = transmitter power in Watts).

The compliance limit was calculated as an example per the following table :

Maximum transmitter output power	-2.48 dBm
Required attenuation	$43 + 10 \log_{10} 0.000565 \text{ W} = 10.52 \text{ dB}$
Maximum transmitter output power <u>Required attenuation</u>	- 2.48 dBm <u>10.52 dB</u>
Compliance limit	-13 dBm

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

Explanation : This test is not applicable.



Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

10 Radiated Spurious Emission , FCC 2.1053 ; 74.861 (e)

10.1 Test procedure

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

10.2 Test Results

The measurements of the spurious emission at the upper , center and lower channel.
 The measurement diagrams show that all significant spurs are well below the limit line.

Summary table with radiated data of the test plots for Carrier Test Frequency

Model: GMW-216 Date: 2012/04/26
 Mode: TX 614.1MHz Temperature: 24 °C Engineer: Robert
 Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
159.7995	-89.83	24.58	-65.25	-13.00	-52.25	200	150
426.0521	-65.71	-6.76	-72.47	-13.00	-59.47	250	150
1228.4570	-46.79	1.35	-45.44	-13.00	-32.44	270	150
2454.9100	-42.24	6.29	-35.95	-13.00	-22.95	140	150
3074.1480	-51.99	9.67	-42.32	-13.00	-29.32	250	150
3687.3750	-56.68	10.78	-45.90	-13.00	-32.90	130	150



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Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
163.8877	-88.98	25.28	-63.70	-13.00	-50.70	290	150
711.4228	-76.44	-1.38	-77.82	-13.00	-64.82	100	150
1228.4570	-50.43	2.16	-48.27	-13.00	-35.27	190	150
2454.9100	-42.70	6.44	-36.26	-13.00	-23.26	140	150
3074.1480	-50.04	9.17	-40.87	-13.00	-27.87	250	150
3687.3750	-49.31	10.98	-38.33	-13.00	-25.33	130	150

Mode: TX 655.95MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
160.8214	-89.97	24.61	-65.36	-13.00	-52.36	240	150
923.0461	-74.28	0.16	-74.12	-13.00	-61.12	260	150
1306.6130	-35.57	2.40	-33.17	-13.00	-20.17	210	150
1967.9360	-49.55	5.33	-44.22	-13.00	-31.22	130	150
2623.2470	-46.70	8.06	-38.64	-13.00	-25.64	190	150
3278.5570	-52.15	9.44	-42.71	-13.00	-29.71	250	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
107.3346	-89.74	24.11	-65.63	-13.00	-52.63	290	150
926.2525	-68.78	-1.44	-70.22	-13.00	-57.22	290	150
1306.6130	-32.96	0.91	-32.05	-13.00	-19.05	210	150
1967.9360	-46.41	4.76	-41.65	-13.00	-28.65	100	150
2623.2470	-42.27	8.42	-33.85	-13.00	-20.85	190	150
3278.5570	-49.43	8.85	-40.58	-13.00	-27.58	250	150



Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216

Mode: TX 697.8MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
90.9820	-89.49	22.93	-66.56	-13.00	-53.56	190	150
921.4430	-74.11	0.16	-73.95	-13.00	-60.95	260	150
1390.7820	-34.47	3.17	-31.30	-13.00	-18.30	210	150
2094.1880	-43.83	4.68	-39.15	-13.00	-26.15	140	150
2791.5830	-44.45	8.52	-35.93	-13.00	-22.93	250	150
3488.9780	-47.17	9.32	-37.85	-13.00	-24.85	130	150

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
163.8877	-88.98	25.28	-63.70	-13.00	-50.70	190	150
953.5070	-72.29	-1.54	-73.83	-13.00	-60.83	200	150
1390.7820	-33.55	0.11	-33.44	-13.00	-20.44	140	150
2094.1880	-39.58	4.25	-35.33	-13.00	-22.33	120	150
2791.5830	-45.45	6.77	-38.68	-13.00	-25.68	150	150
3488.9780	-41.68	10.48	-31.20	-13.00	-18.20	100	150

Note:

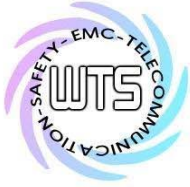
- 1. Correction Factor = Antenna Gain + Cable Loss + Amplifier Gain**
- 2. The formula of measured value as: Test Result = Reading + Correction Factor**
- 3. Detector function in the form : PK = Peak, AV = Average**
- 4. All not in the table noted test results are more than 20 dB below the relevant limits.**
- 5. Measurement uncertainty: 30-300 MHz = ± 1.56 dB, 300-1000 MHz = ± 1.56 dB, 1-18 GHz = ± 2.33 dB; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.**
- 6. See the attached diagram as appendix.**

10.3 Explanation of test result

The measurements of the spurious emissions at the equipment output terminals were performed pursuant to the test procedure above in order to verify that any emissions are below the limits given by § 74.861 (6).

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.



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In the Table being listed the critical peak and average value an exhibit the compliance with the above calculated Limits.

10.4 Limits

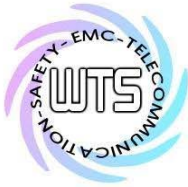
Compliance with § 74.861 requires that any emission be attenuated below the transmitter power at least $43 + 10 \log_{10} P$ (P = transmitter power in Watts).

The compliance limit was calculated as an example per the following table :

Maximum transmitter output power	-2.48 dBm
Required attenuation	$43 + 10 \log_{10} 0.000565 \text{ W} = 10.52 \text{ dB}$
Maximum transmitter output power	- 2.48 dBm
<u>Required attenuation</u>	<u>10.52 dB</u>
Compliance limit	-13 dBm

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 122, ETSTW-RE 030,
ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044

Explanation : See attached diagrams in appendix.



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11 Line Conducted Emission , FCC 15.207

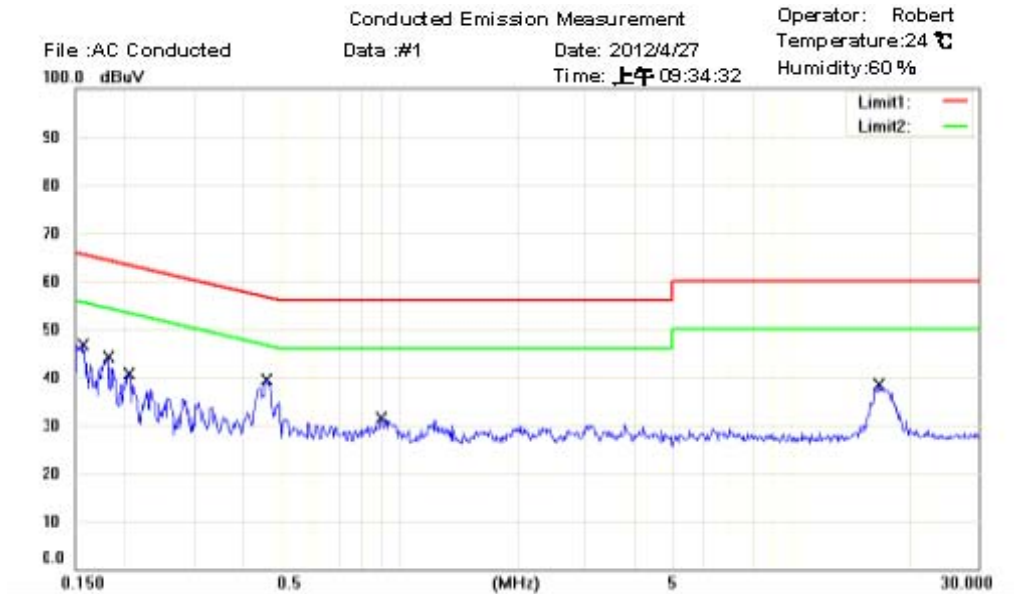
11.1 Test procedure

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.

11.2 Test Results

Adapter_TECH



Site : Chamber_03

Condition : FCC Part 15 Class B Conduction (QP)

Phase: N

EUT : W6M21204-12406

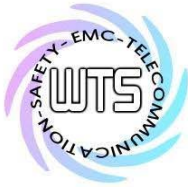
Power : 110VAC

MN: GMW-216

Test Mode :

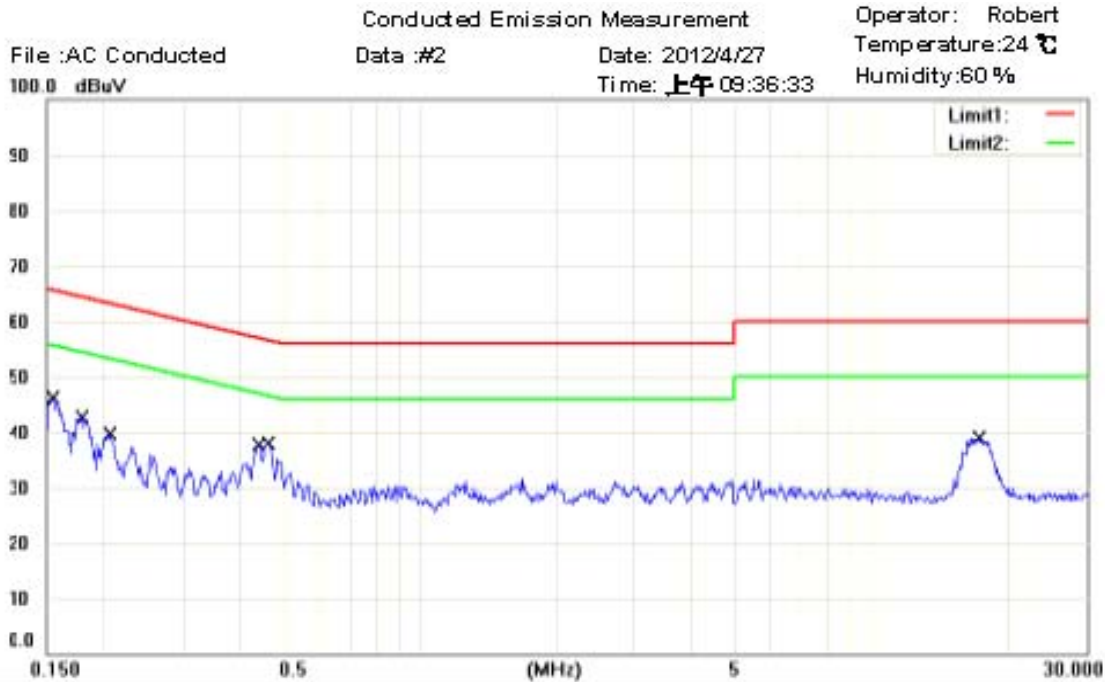
Note :

Mh.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1560	33.55	QP	9.98	43.53	65.67	-22.14	
	0.1560	17.90	AVG	9.98	27.88	55.67	-27.79	
	0.1810	30.78	QP	9.98	40.76	64.44	-23.68	
	0.1810	16.04	AVG	9.98	26.02	54.44	-28.42	
	0.2044	27.00	QP	9.98	36.98	63.43	-26.45	
	0.2044	13.78	AVG	9.98	23.76	53.43	-29.67	
	0.4580	27.04	QP	9.99	37.03	56.73	-19.70	
*	0.4580	22.09	AVG	9.99	32.08	46.73	-14.65	
	0.8960	14.58	QP	9.97	24.55	56.00	-31.45	
	0.8960	10.22	AVG	9.97	20.19	46.00	-25.81	
	16.6875	22.61	QP	10.41	33.02	60.00	-26.98	
	16.6875	15.86	AVG	10.41	26.27	50.00	-23.73	



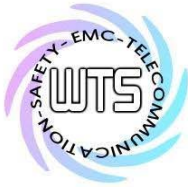
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 FCC ID: CINGMW-216



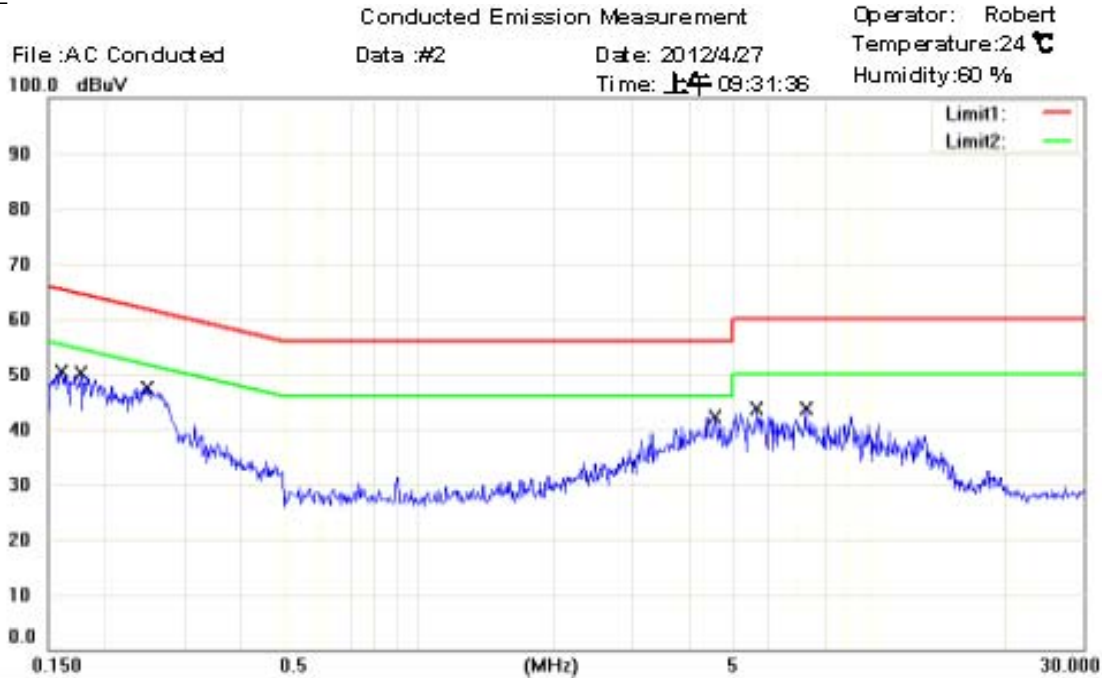
Site : Chamber_03
 Condition : FCC Part 15 Class B Conduction (QP) Phase: L1
 EUT : W6M21204-12406 Power : 110VAC
 MN: GMW-216
 Test Mode :
 Note :

MN.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1544	33.69	QP	10.08	43.77	65.76	-21.99	
	0.1544	18.88	AVG	10.08	28.96	55.76	-26.80	
	0.1794	30.51	QP	10.09	40.60	64.51	-23.91	
	0.1794	16.98	AVG	10.09	27.07	54.51	-27.44	
	0.2058	27.10	QP	10.09	37.19	63.37	-26.18	
	0.2058	14.44	AVG	10.09	24.53	53.37	-28.84	
	0.4380	25.20	QP	10.12	35.32	57.10	-21.78	
*	0.4380	23.68	AVG	10.12	33.80	47.10	-13.30	
	0.4577	24.49	QP	10.12	34.61	56.73	-22.12	
	0.4577	18.11	AVG	10.12	28.23	46.73	-18.50	
	17.2125	22.05	QP	10.79	32.84	60.00	-27.16	
	17.2125	15.15	AVG	10.79	25.94	50.00	-24.06	



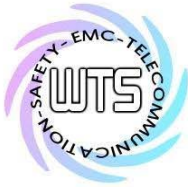
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216
 Adapter_DVE



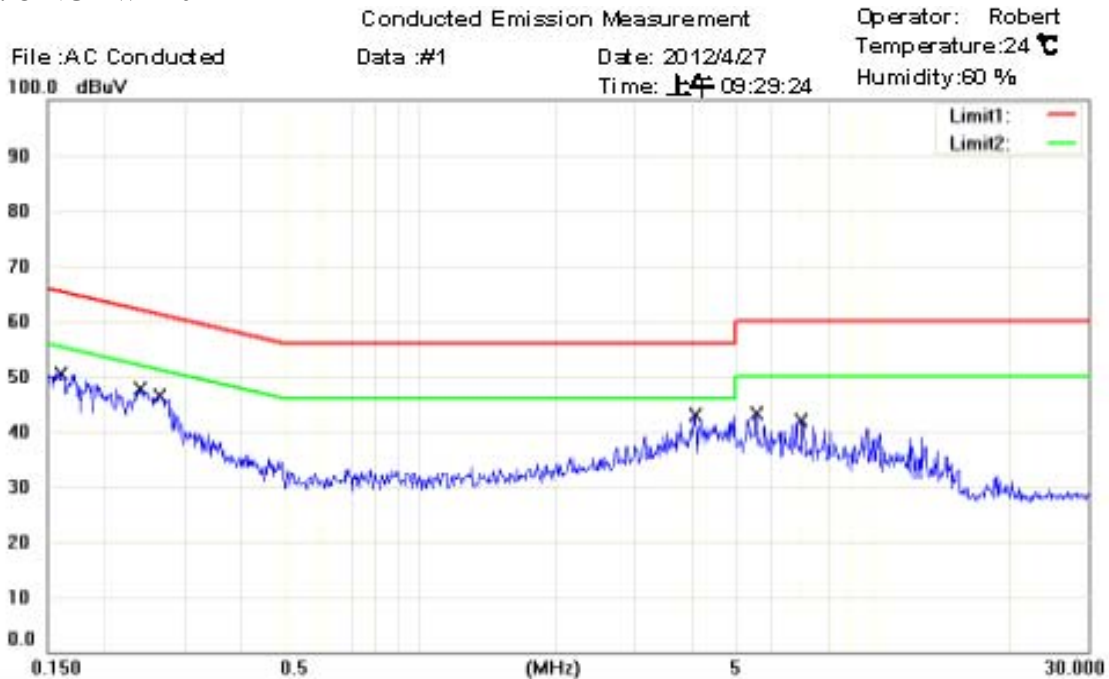
Site : Chamber_03
 Condition : FCC Part 15 Class B Conduction (QP) Phase: N
 EUT : W6M21204-12406 Power : 110VAC
 MN: GMW-216
 Test Mode :
 Note :

Mn.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1604	30.94	QP	9.98	40.92	65.44	-24.52	
	0.1604	10.27	AVG	9.98	20.25	55.44	-35.19	
	0.1768	29.02	QP	9.98	39.00	64.63	-25.63	
	0.1768	8.41	AVG	9.98	18.39	54.63	-36.24	
*	0.2473	29.18	QP	9.98	39.16	61.85	-22.69	
	0.2473	16.05	AVG	9.98	26.03	51.85	-25.82	
	4.5500	21.13	QP	10.07	31.20	56.00	-24.80	
	4.5500	9.69	AVG	10.07	19.76	46.00	-26.24	
	5.6500	19.70	QP	10.08	29.78	60.00	-30.22	
	5.6500	7.40	AVG	10.08	17.48	50.00	-32.52	
	7.2375	17.91	QP	10.11	28.02	60.00	-31.98	
	7.2375	6.06	AVG	10.11	16.17	50.00	-33.83	



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1
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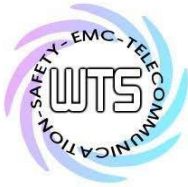
Site : Chamber_03
 Condition : FCC Part 15 Class B Conduction (QP) Phase: L1
 EUT : W6M21204-12406 Power : 110VAC
 M/N : GMW-216
 Test Mode :
 Note :

No.	Frequency (MHz)	Reading (dBuV)	Detector	Correction factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Comment
	0.1600	31.49	QP	10.08	41.57	65.46	-23.89	
	0.1600	9.71	AVG	10.08	19.79	55.46	-35.67	
	0.2396	26.82	QP	10.10	36.92	62.11	-25.19	
	0.2396	13.49	AVG	10.10	23.59	52.11	-28.52	
	0.2643	28.37	QP	10.10	38.47	61.30	-22.83	
*	0.2643	18.38	AVG	10.10	28.48	51.30	-22.82	
	4.0505	22.60	QP	10.30	32.90	56.00	-23.10	
	4.0505	9.39	AVG	10.30	19.69	46.00	-26.31	
	5.5375	20.45	QP	10.34	30.79	60.00	-29.21	
	5.5375	9.05	AVG	10.34	19.39	50.00	-30.61	
	6.9750	21.45	QP	10.37	31.82	60.00	-28.18	
	6.9750	6.95	AVG	10.37	17.32	50.00	-32.68	

Limits:

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

Test equipment used: ETSTW-CE 001, ETSTW-CE 004, ETSTW-CE 006, ETSTW-CE 007



Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

12 Frequency Stability vs. Temperature , FCC 2.1055 , 74.861 (e)

12.1 Test procedure

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

After the temperature stabilized the frequency output was recorded from the counter.

12.2 Test Results

614.1 MHz

°C	Frequency Error (kHz)	Frequency Error (ppm)
-30	2.115	3.445
-20	1.266	2.061
-10	0.929	1.514
0	0.481	0.783
10	0.096	0.157
20	-0.016	-0.026
30	-0.865	-1.409
40	-0.865	-1.409
50	-0.641	-1.044

25°C: 614.101667MHz

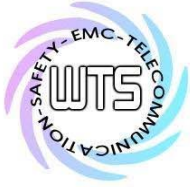
Limit: 30.705 kHz(±0.005%)

655.95 MHz

°C	Frequency Error (kHz)	Frequency Error (ppm)
-30	0.016	0.024
-20	1.554	2.370
-10	1.378	2.101
0	0.689	1.051
10	0.192	0.293
20	-0.048	-0.073
30	-1.170	-1.783
40	-1.362	-2.077
50	-1.042	-1.589

25°C: 655.948510 MHz

Limit: 32.798 kHz(±0.005%)



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697.8 MHz

°C	Frequency Error (kHz)	Frequency Error (ppm)
-30	5.016	7.188
-20	5.016	7.188
-10	3.686	5.282
0	1.282	1.837
10	0.353	0.505
20	-0.048	-0.069
30	-3.221	-4.616
40	-3.253	-4.662
50	-2.003	-2.871

25°C: 697.799952MHz

Limit: 34.890kHz(±0.005%)

Test equipment used: ETSTW-RE 055, ETSTW-CE 009



Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

13 Frequency Stability vs. Voltage , FCC 2.1055 (d) ; 74.861 (e)

13.1 Test procedure

An external variable DC power supply was connected to the battery terminals of the equipment under test.

For hand carried , battery powered equipment primary supply voltage was reduced to the battery operating end point as specified by the manufacturer. The output frequency was recorded for each battery voltage.

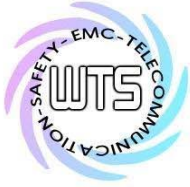
13.2 Test Results

Test voltage: 2.55Vdc

Frequency in Normal Condition (MHz)	Frequency in battery operating end point (MHz)	Frequency Error (kHz)	Frequency Error (ppm)
614.101667	614.101667	0.000	0.000
655.948510	655.948478	-0.032	-0.049
697.799952	697.799952	0.000	0.000

Limit : $\pm 0.005\%$

Test equipment used: ETSTW-RE 055



Appendix

A Measurement diagrams

1. Modulation Deviation and Audio frequency response
2. Radiation Spurious Emission

B Photos

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



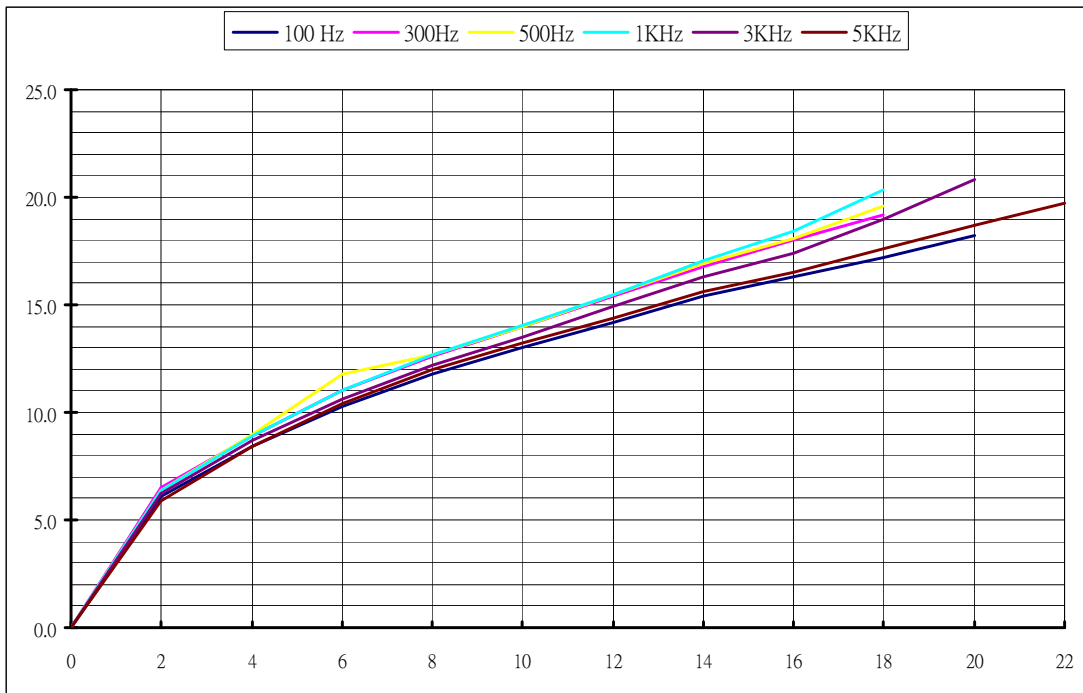
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FCC ID: CINGMW-216

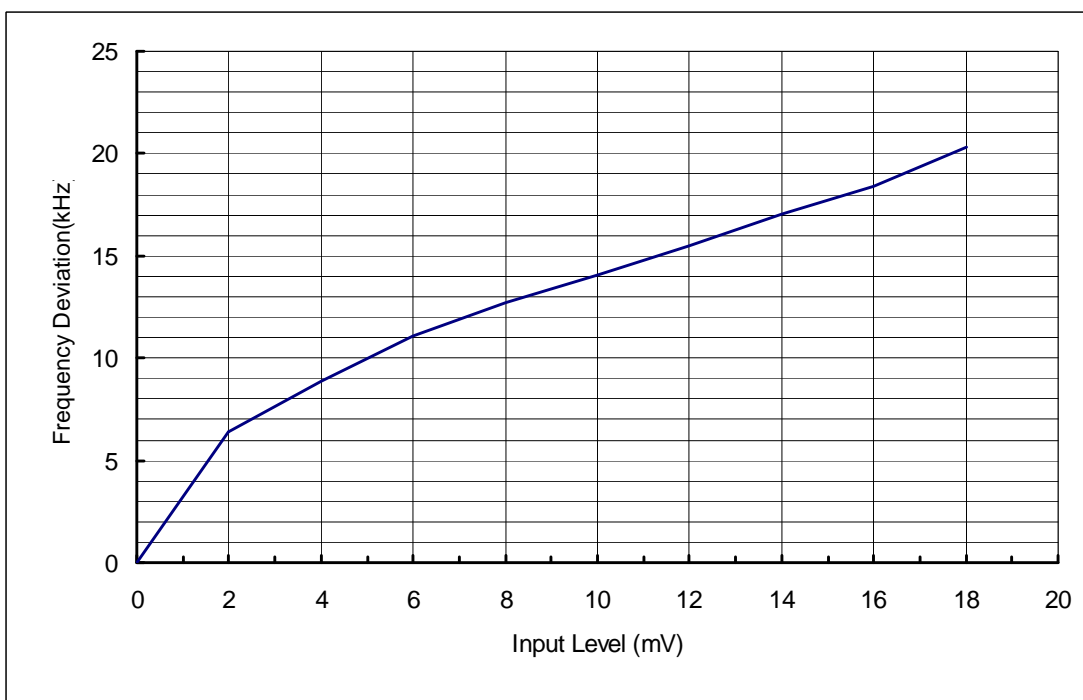
Modulation Deviation and Audio frequency response

614.1MHz

Modulation Characteristics



Frequency Deviation at 1kHz

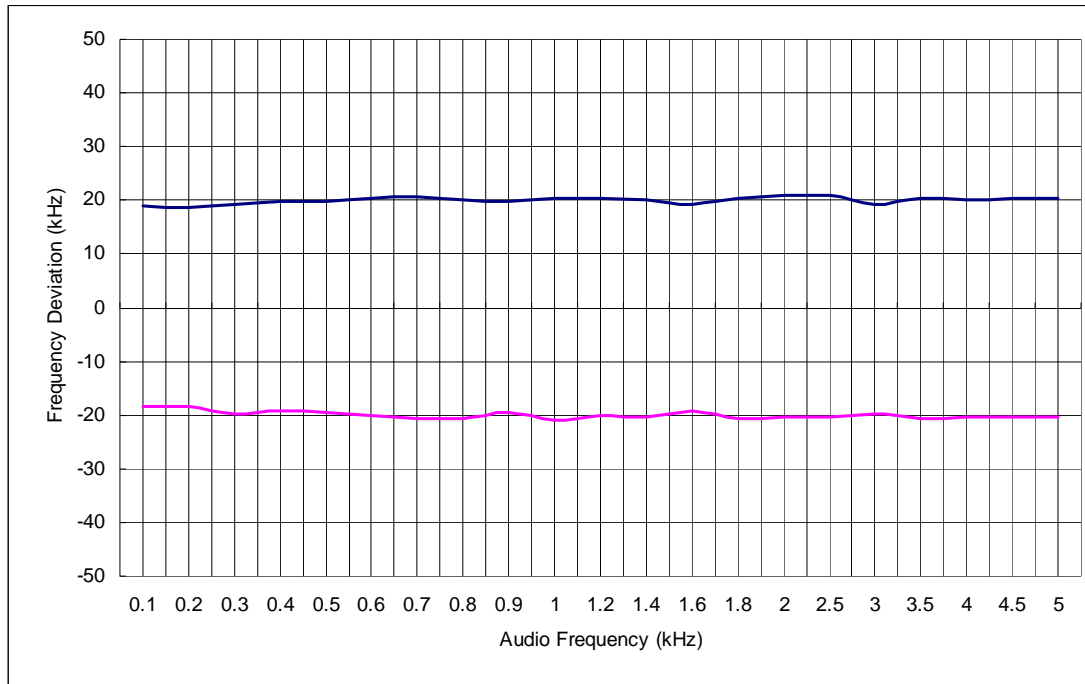




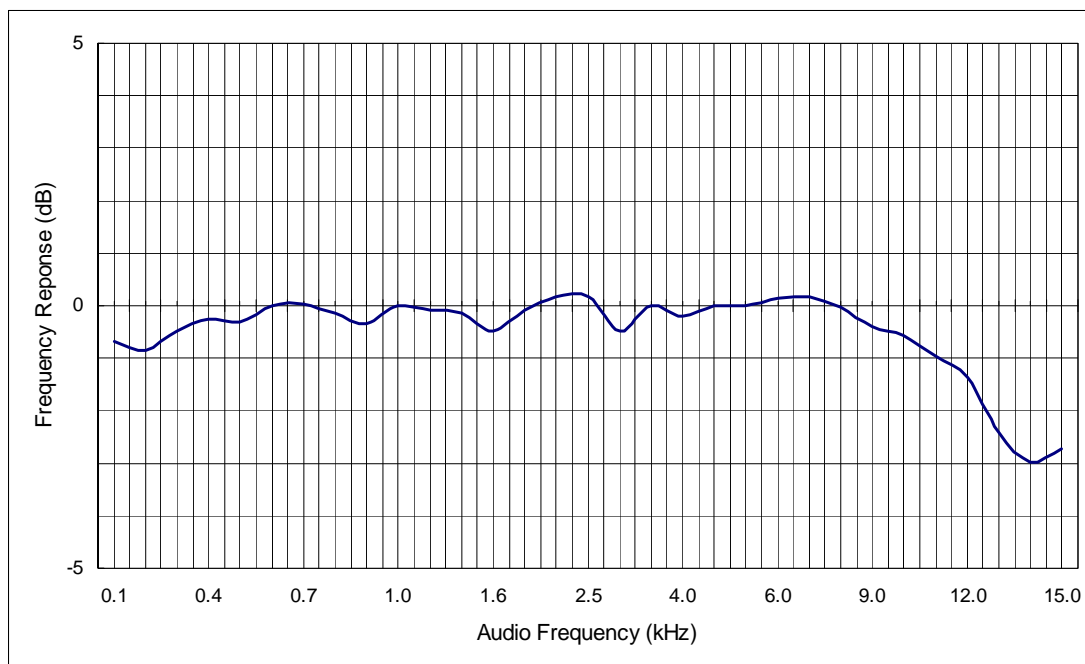
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Frequency Deviation

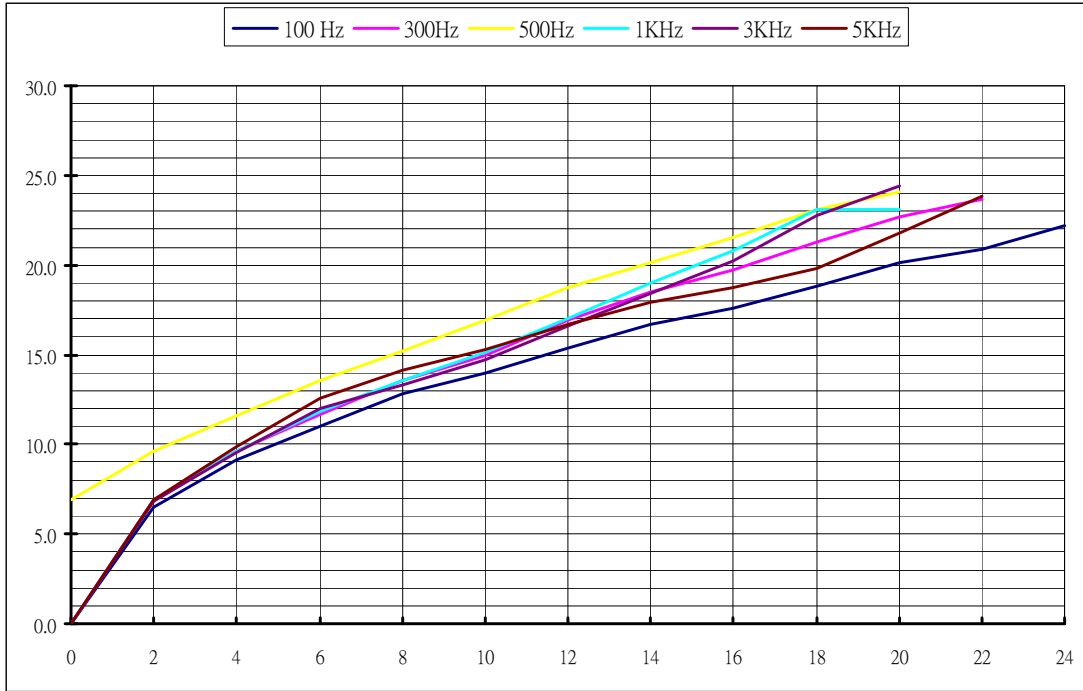


Audio Response

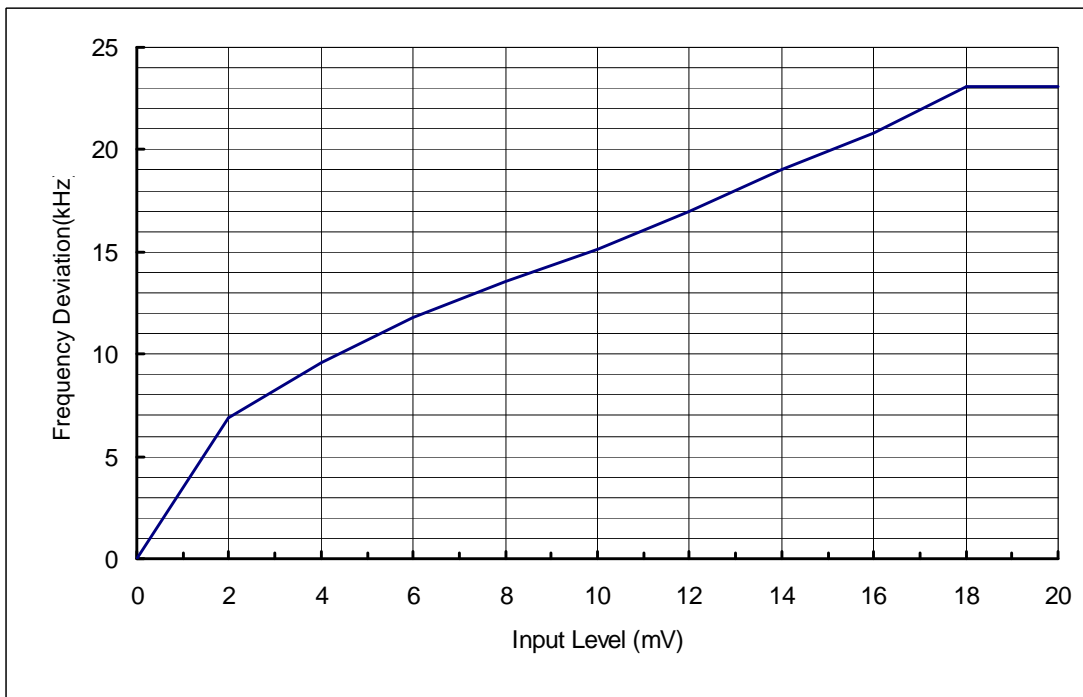




Registration number: W6M21204-12406-C-1
 FCC ID: CINGMW-216
 655.95 MHz
 Modulation Characteristics



Frequency Deviation at 1kHz

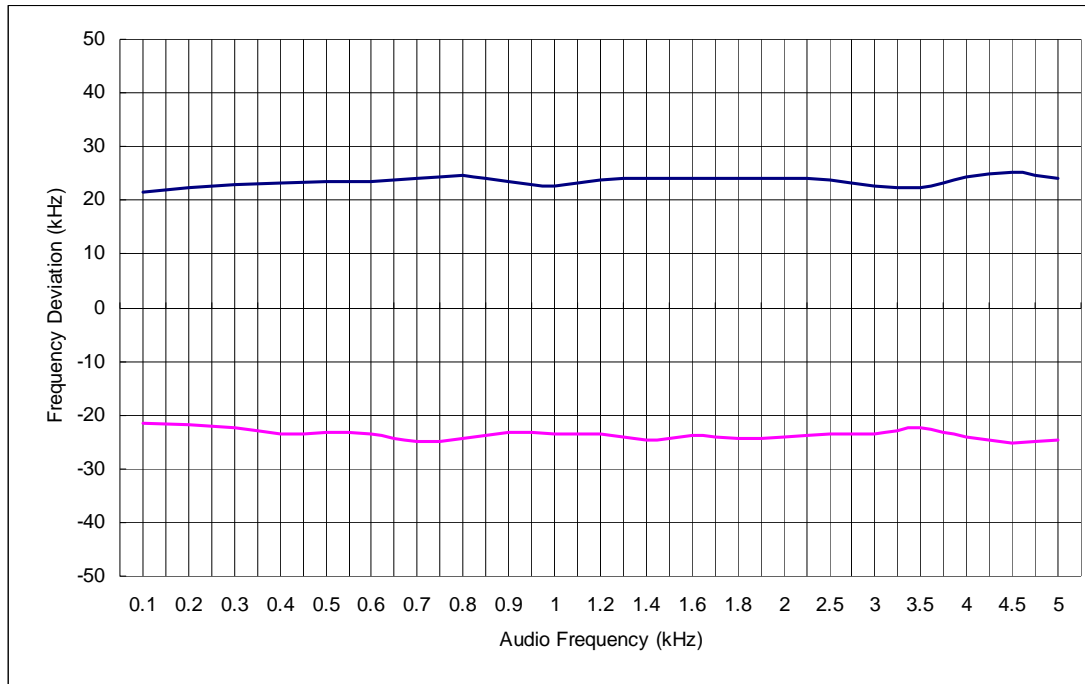




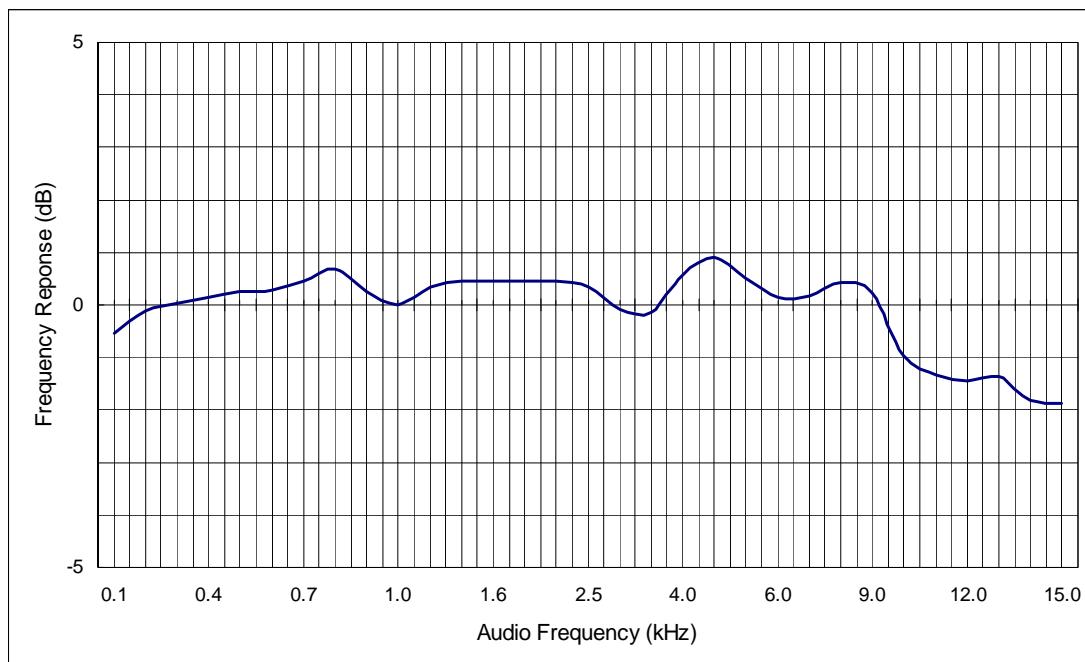
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Frequency Deviation



Audio Response



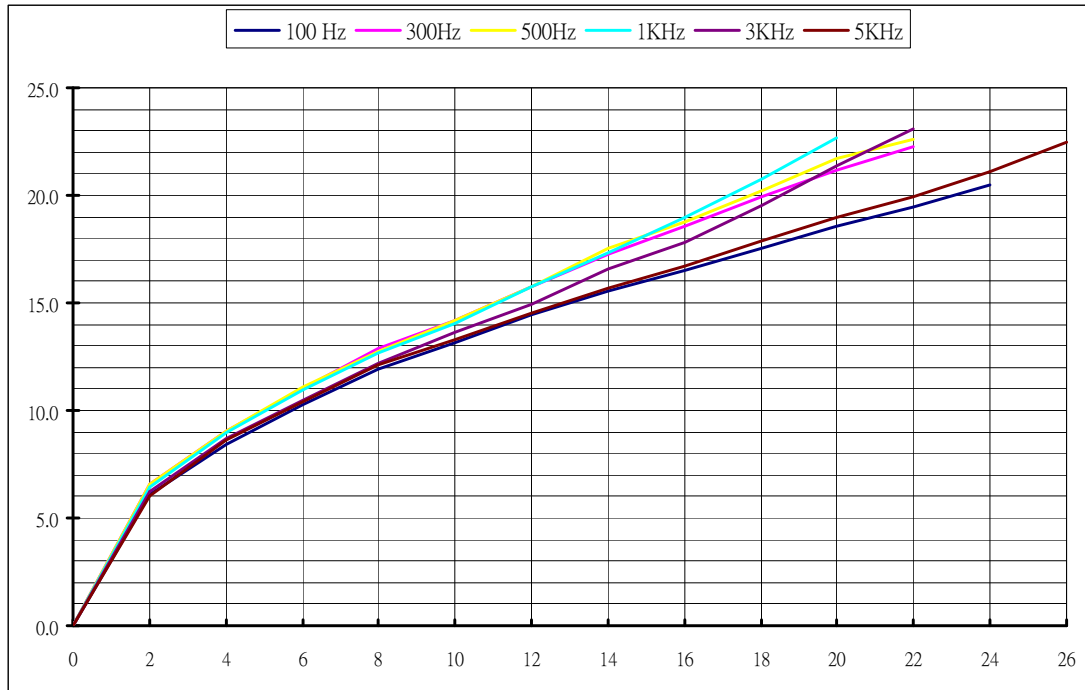


Registration number: W6M21204-12406-C-1

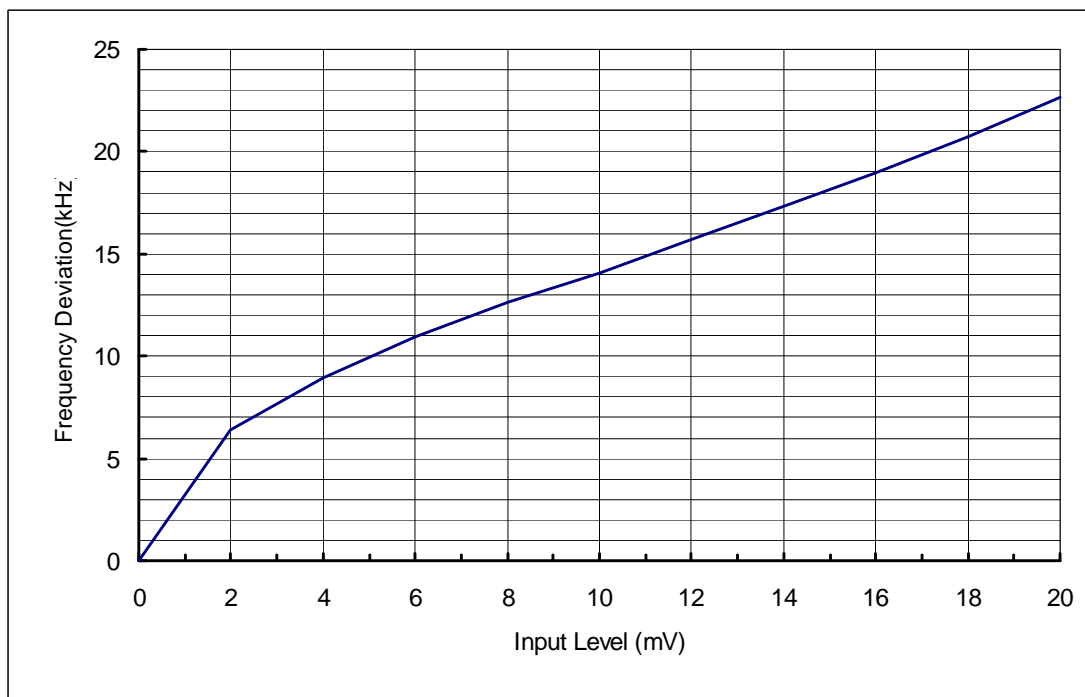
FCC ID: CINGMW-216

697.8 MHz

Modulation Characteristics



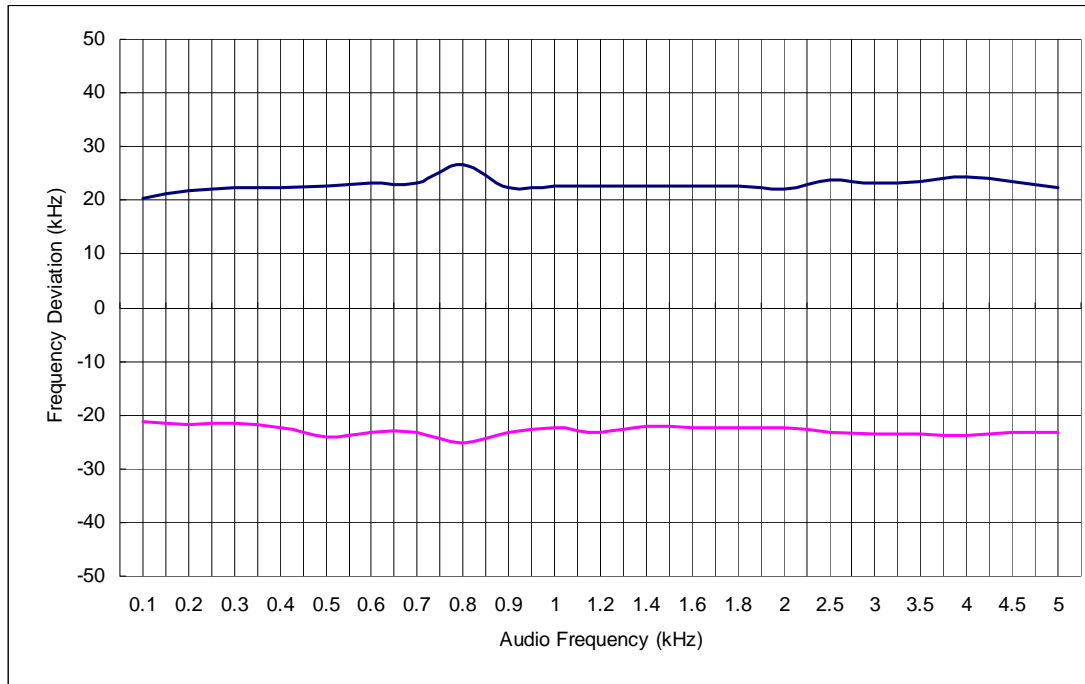
Frequency Deviation at 1kHz



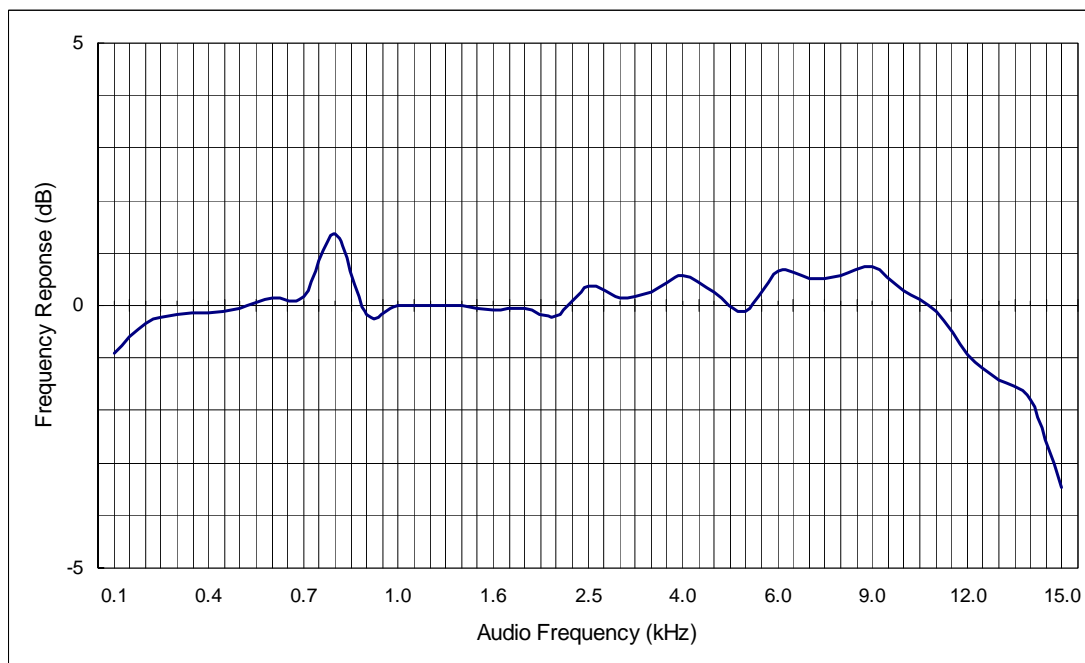


Registration number: W6M21204-12406-C-1
FCC ID: CINGMW-216

Frequency Deviation



Audio Response





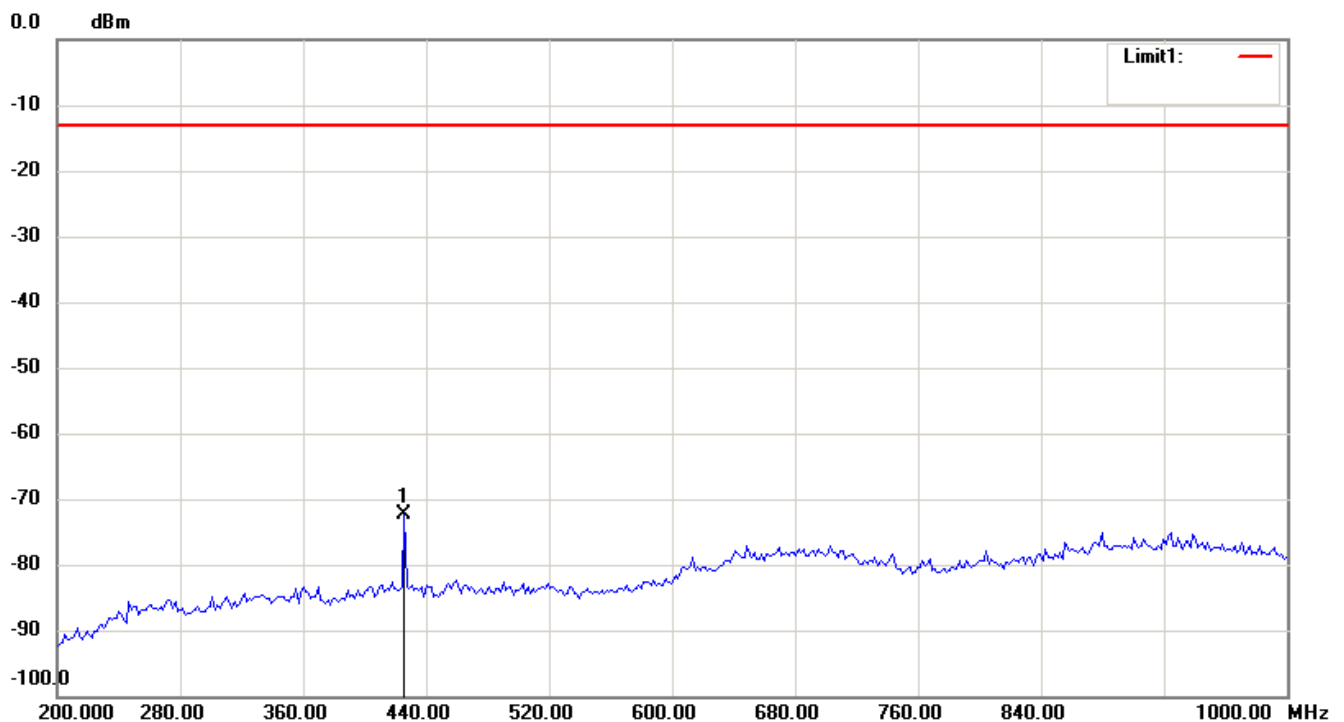
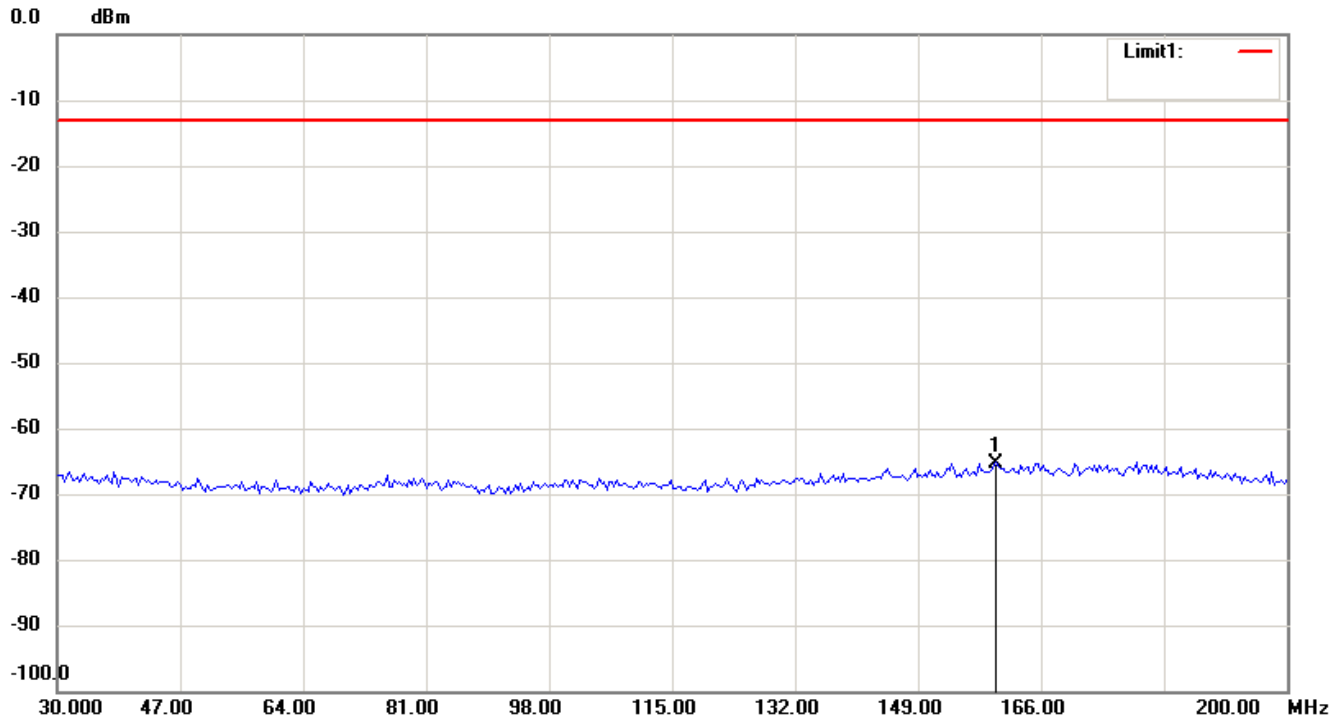
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Radiation Spurious Emission

CH Low_614.1 MHz

Antenna Polarization H



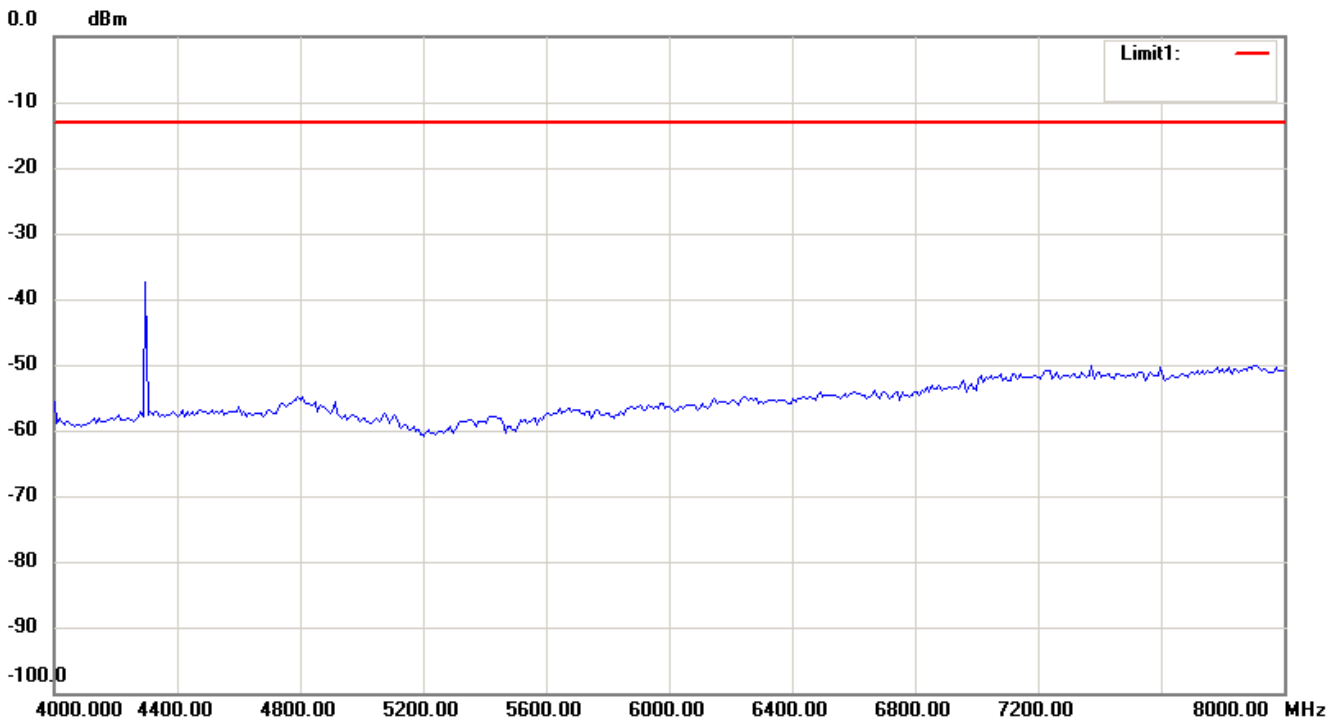
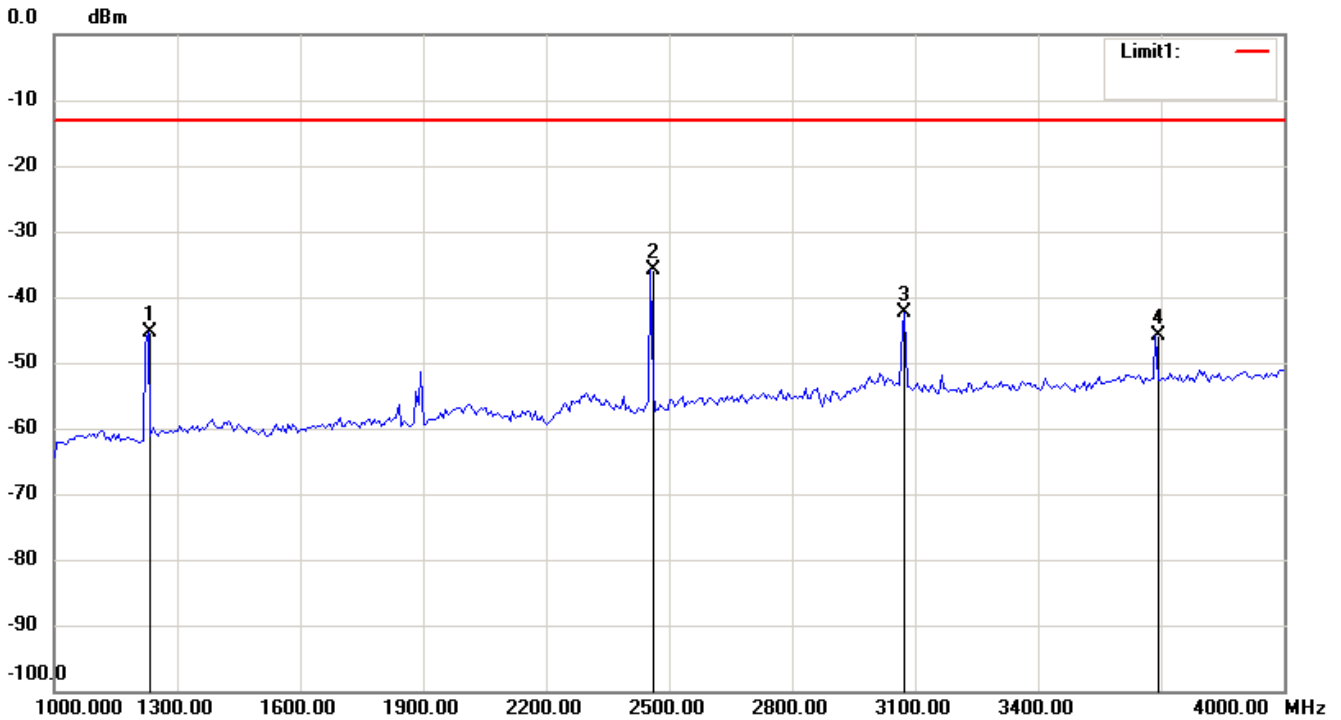
Note:

4. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
5. 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.
6. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



Note:

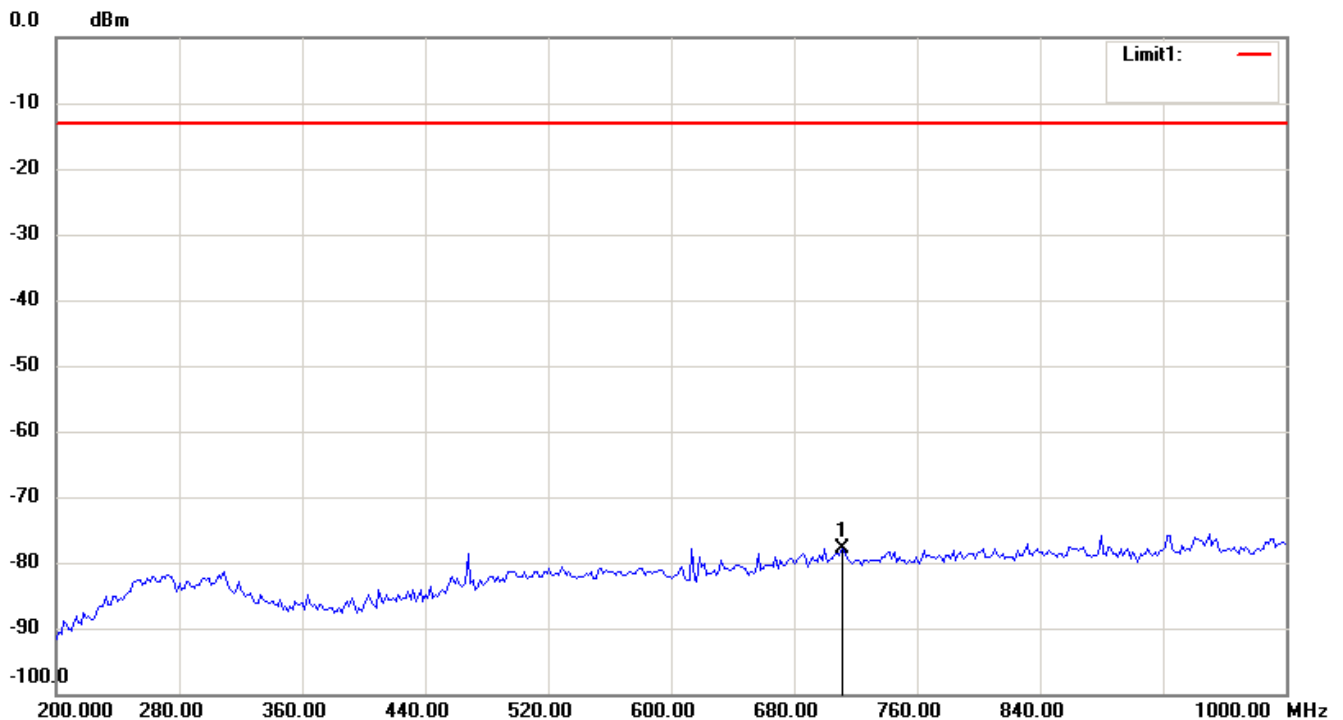
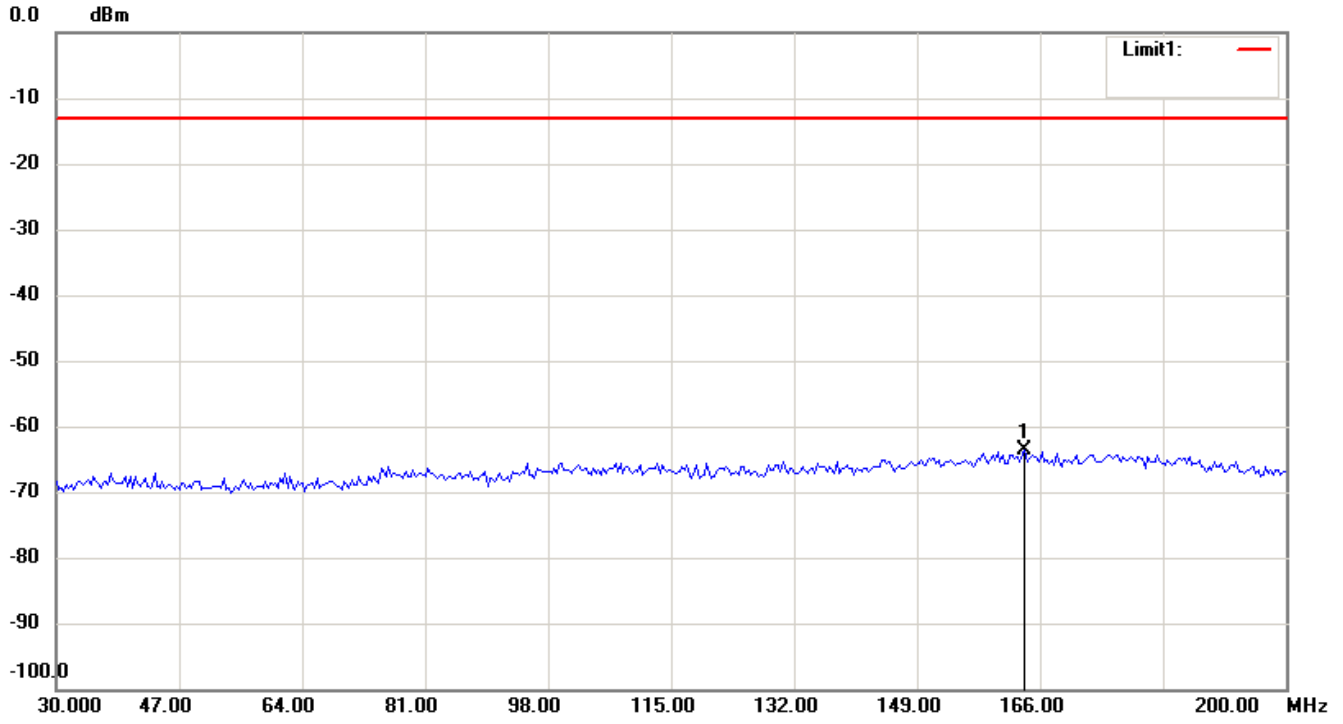
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Antenna Polarization V



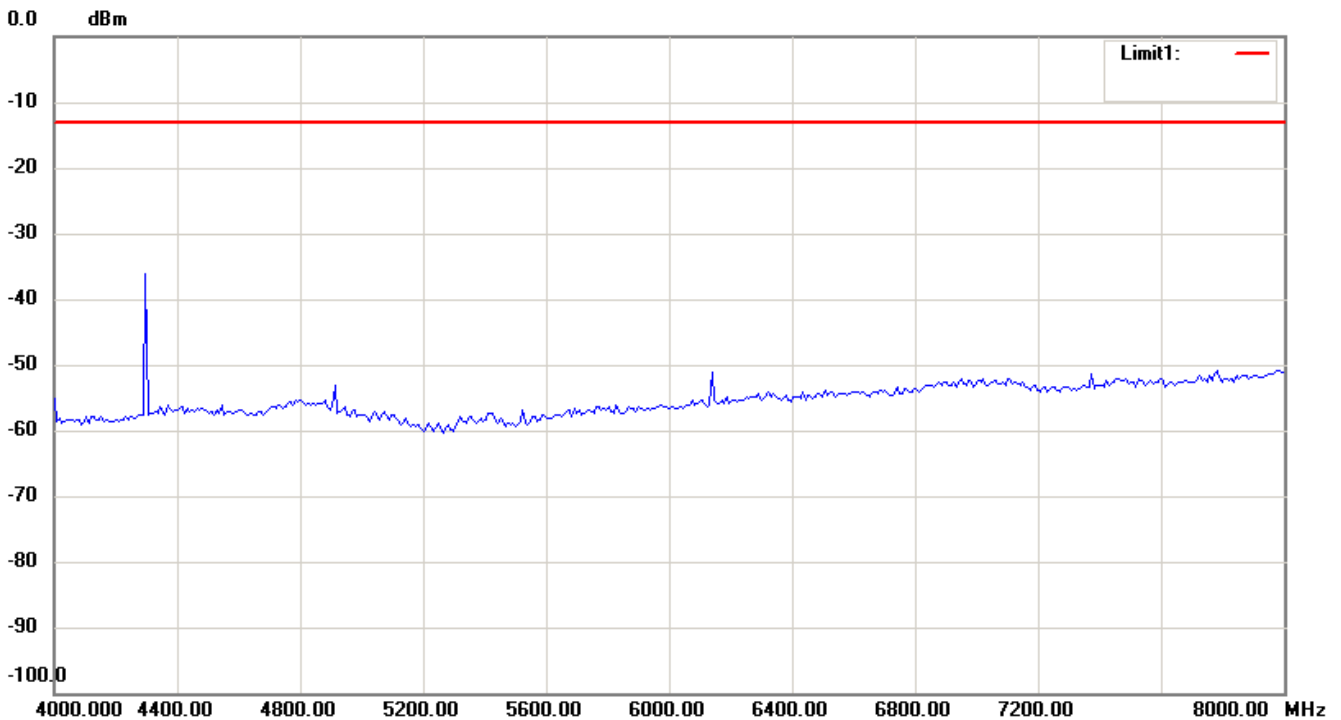
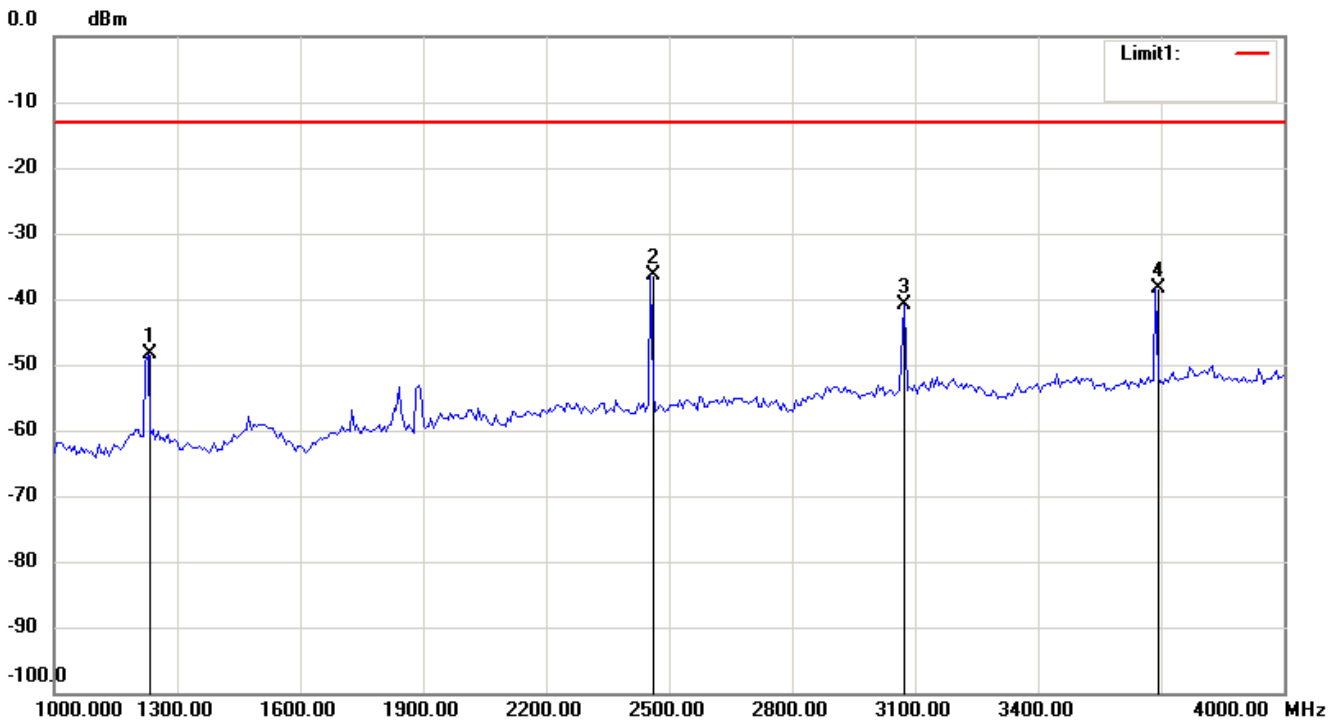
Note:

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.



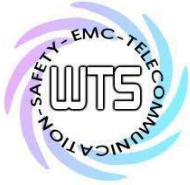
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



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.

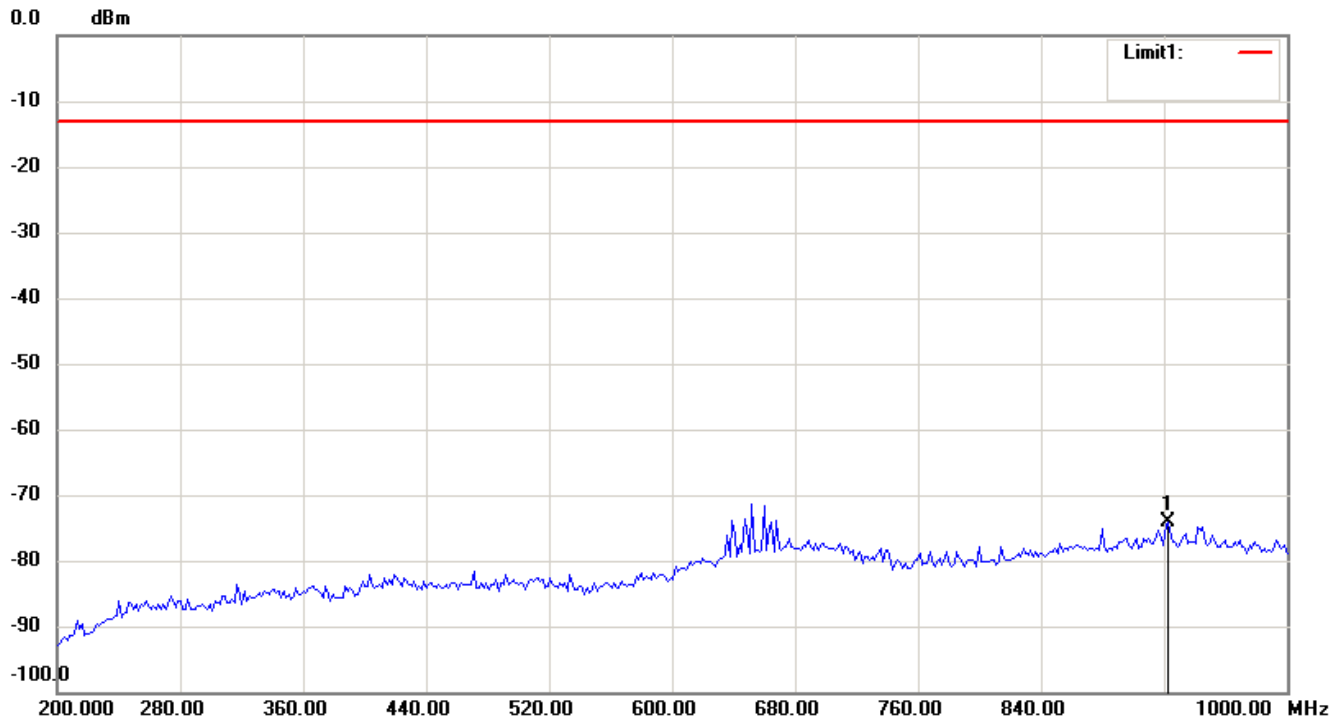
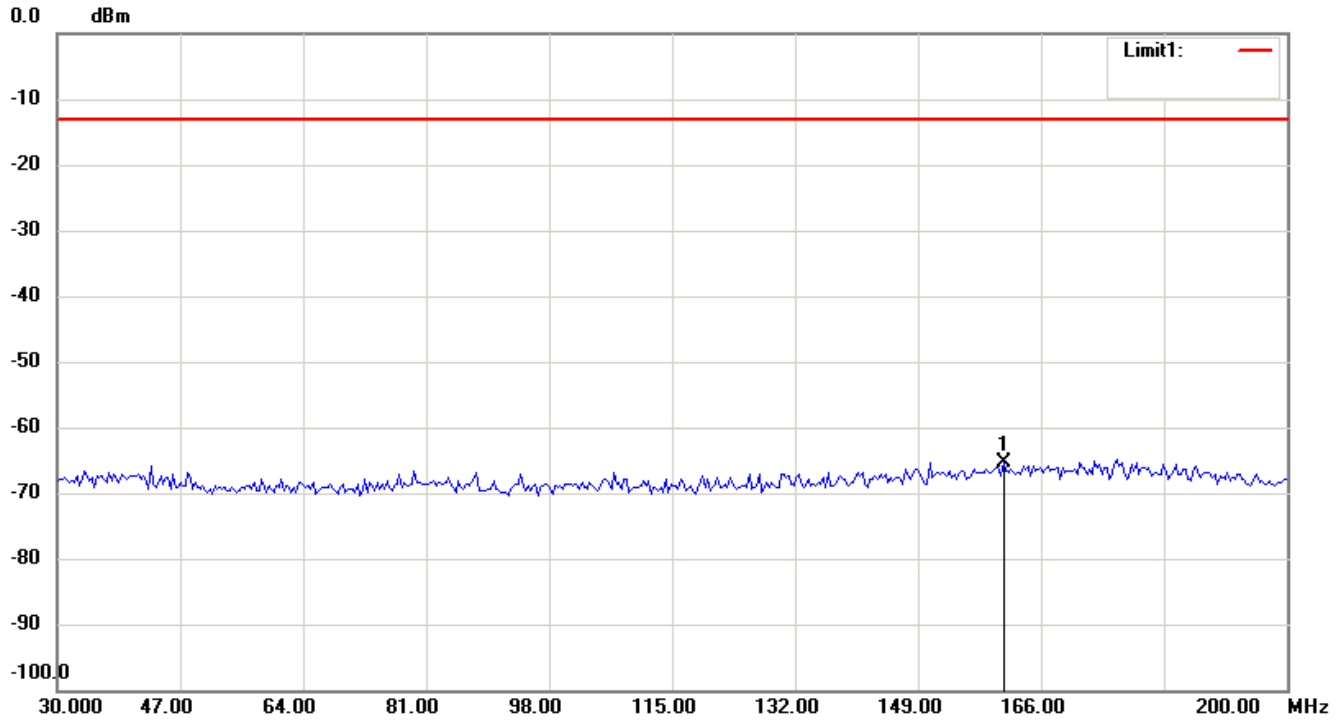


Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

CH Middle_655.95 MHz

Antenna Polarization H



Note:

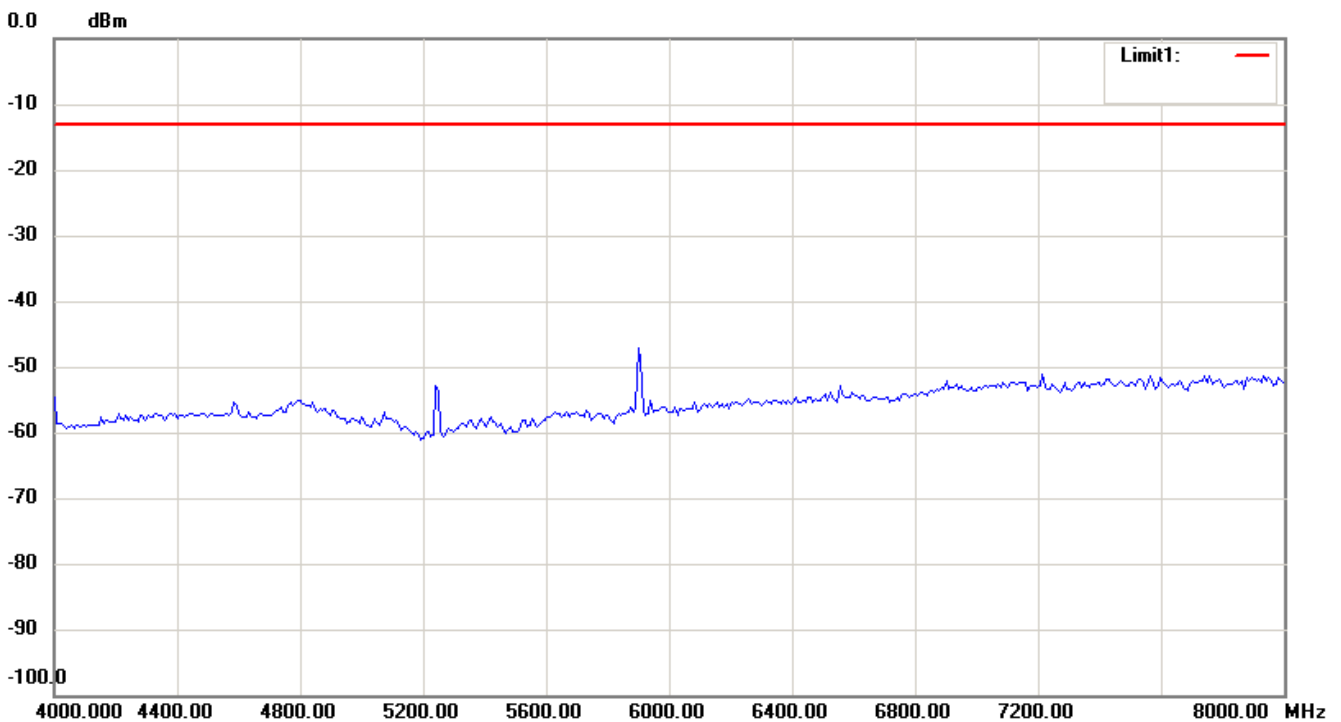
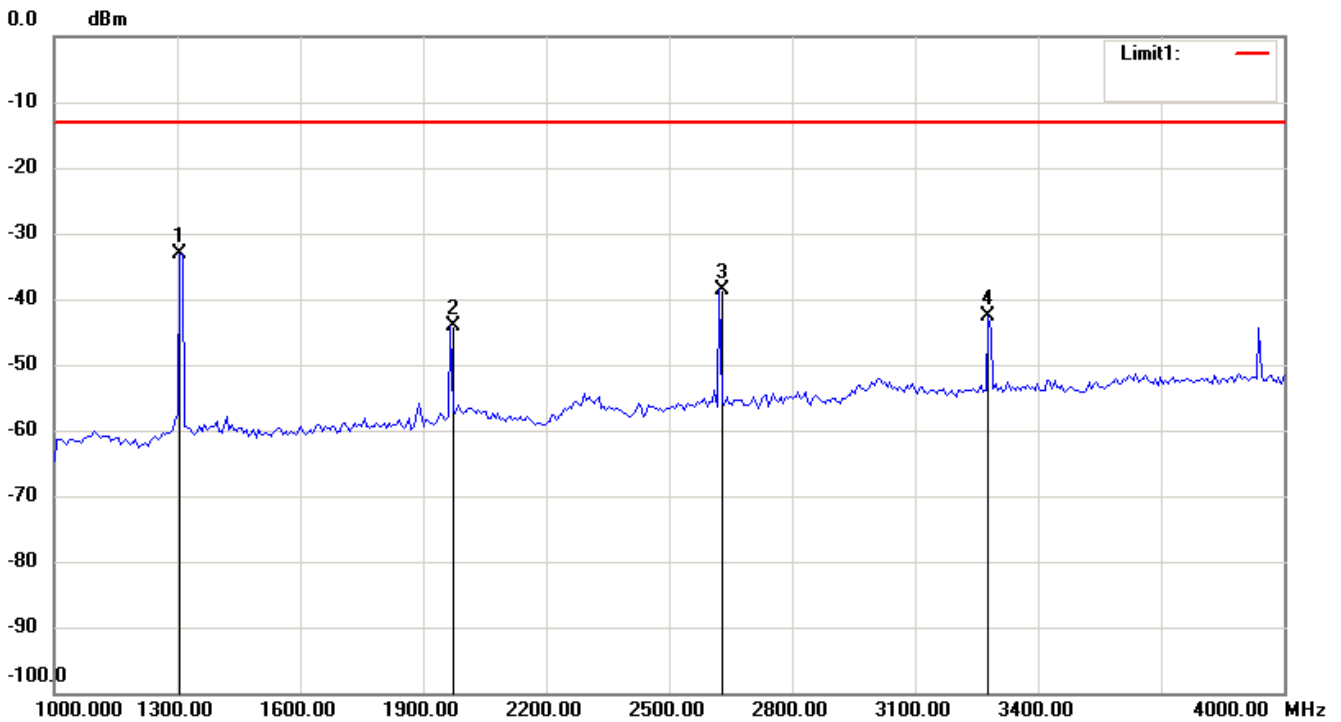
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



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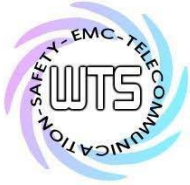
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



Note:

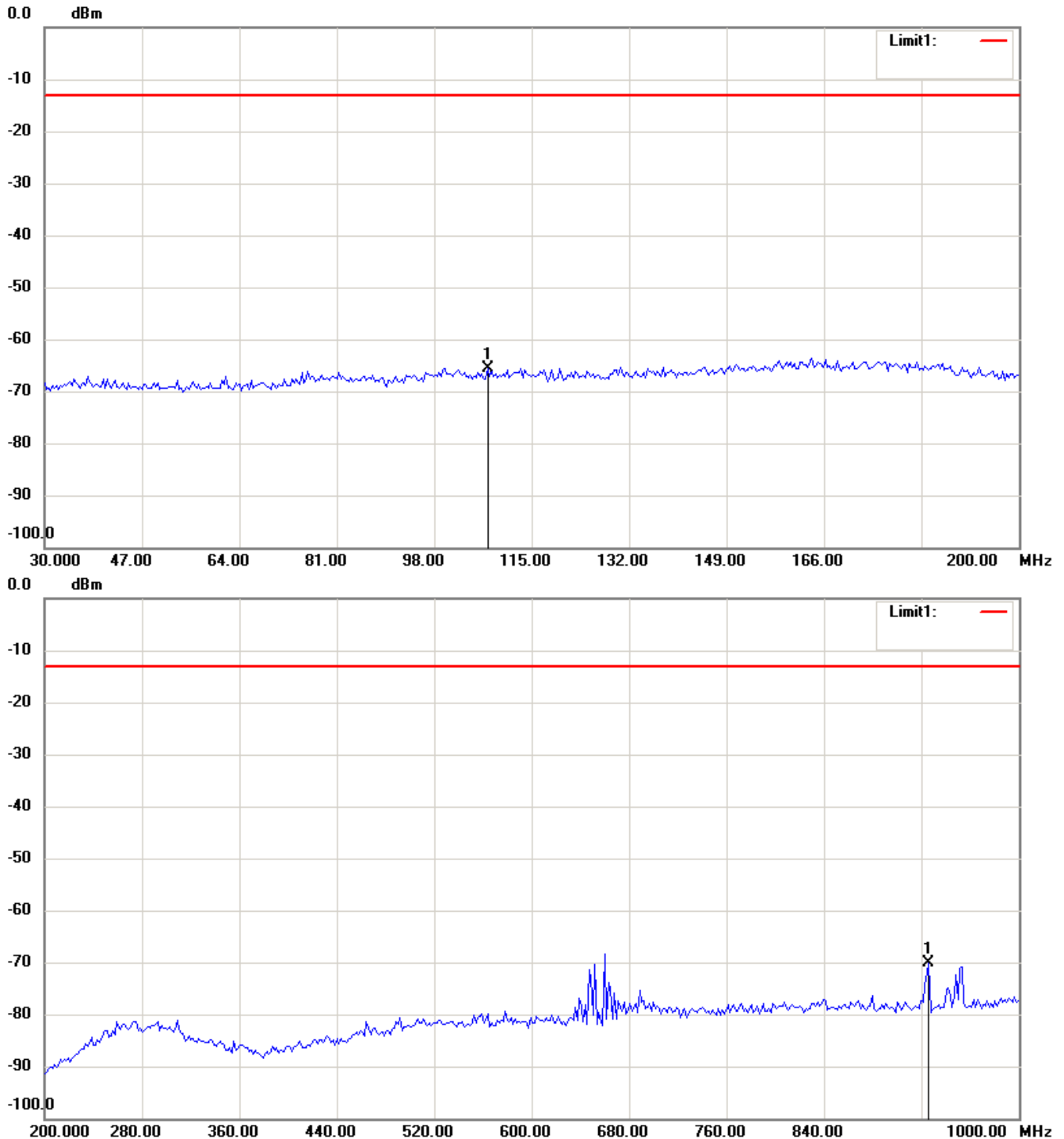
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
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Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Antenna Polarization V



Note:

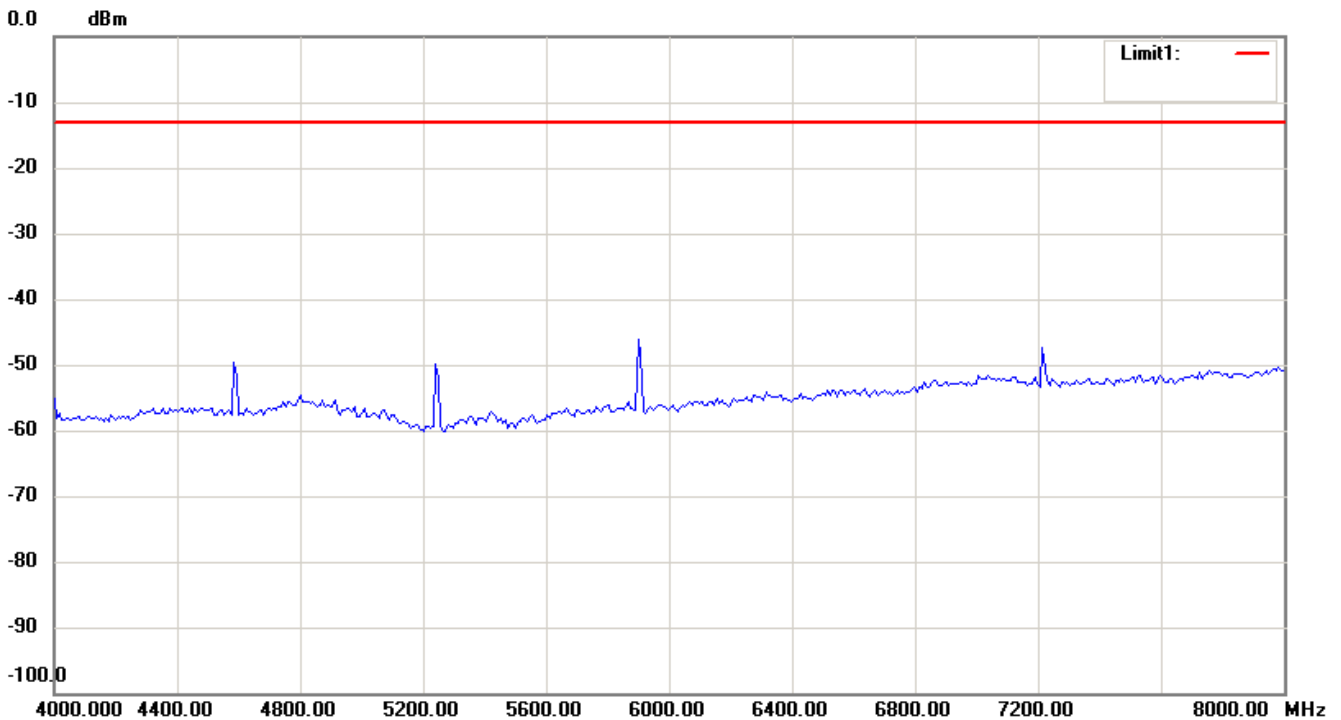
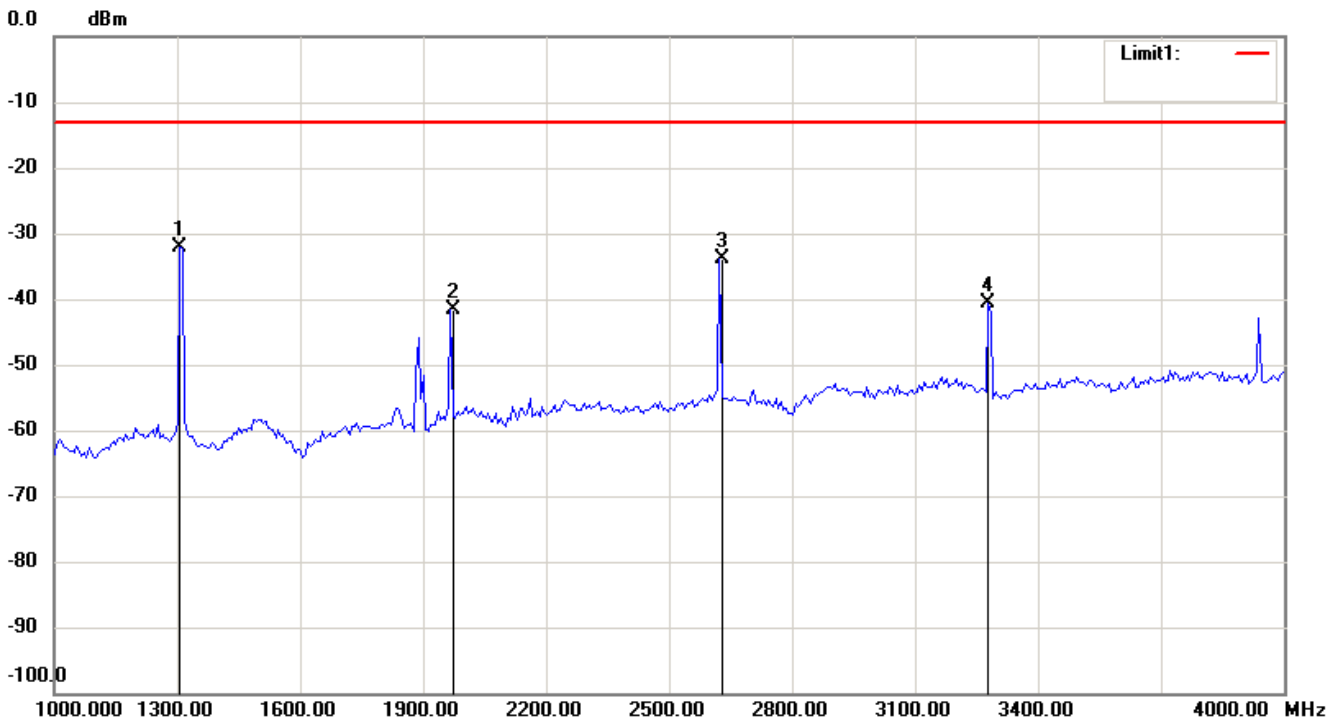
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification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



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Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



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.

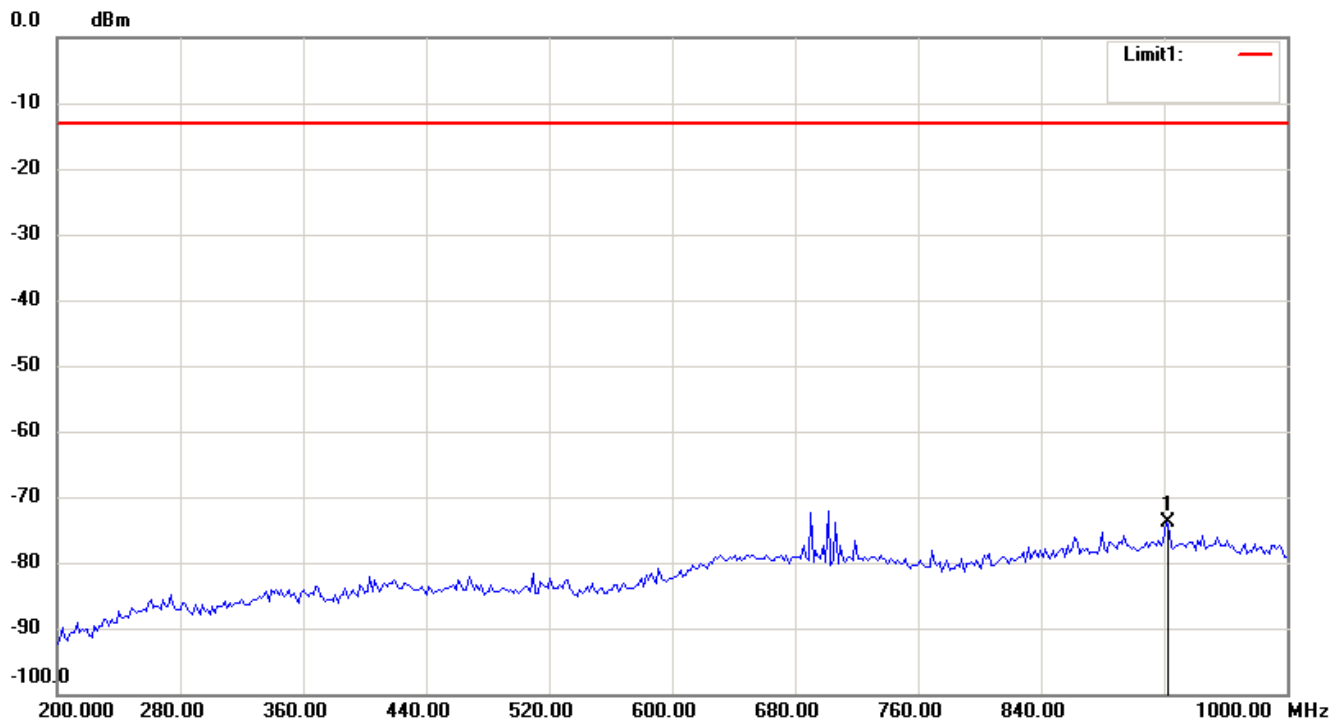
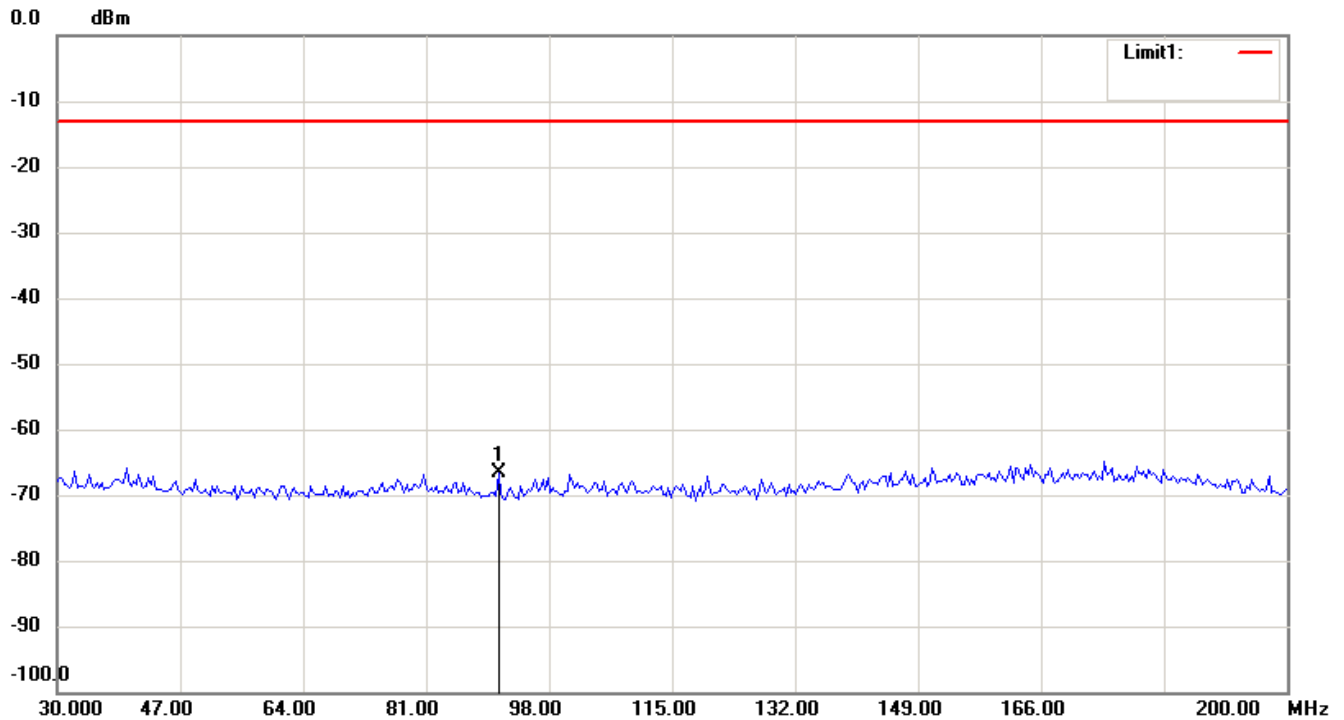


Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

CH High_697.8 MHz

Antenna Polarization H



Note:

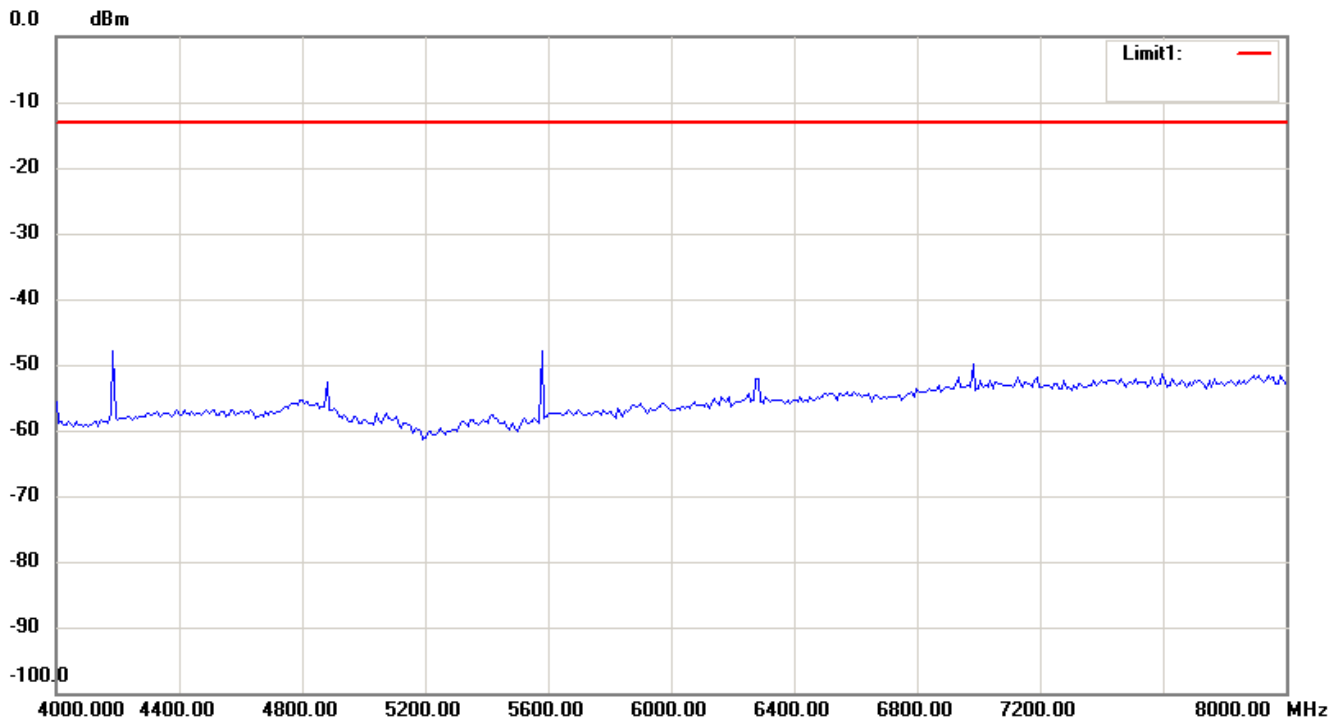
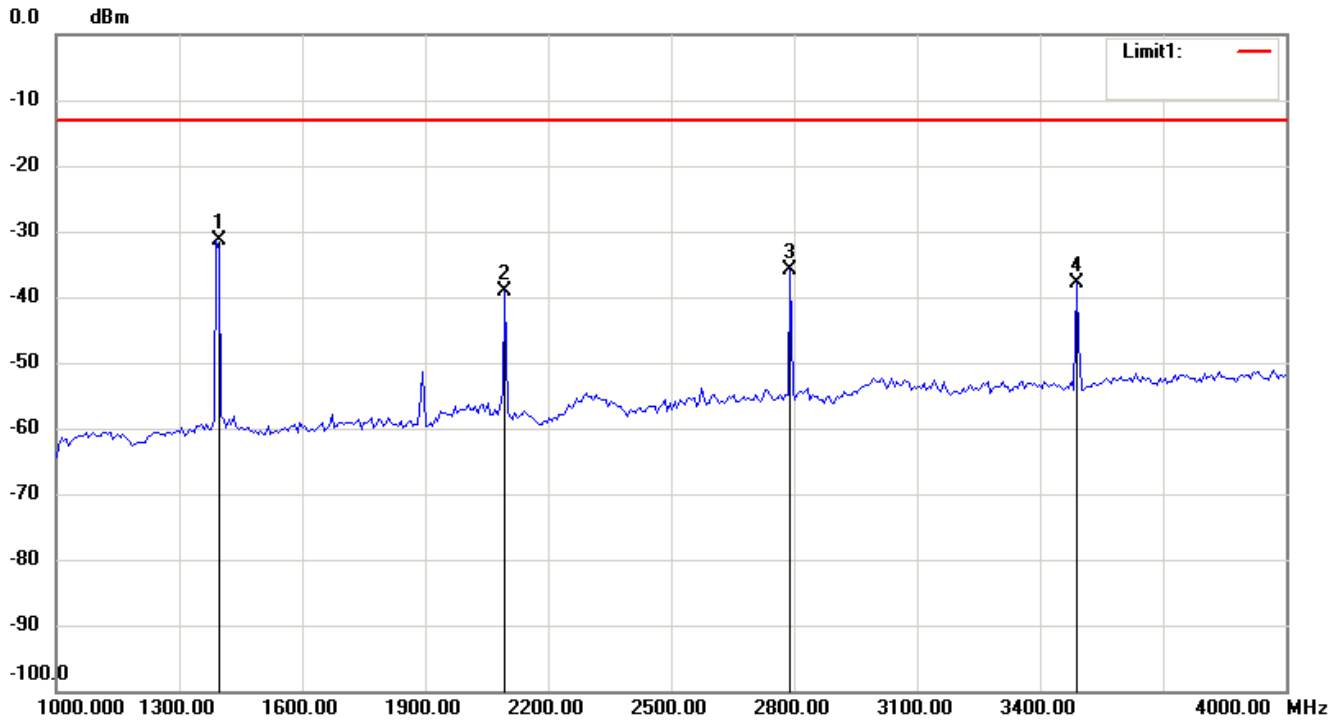
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216



Note:

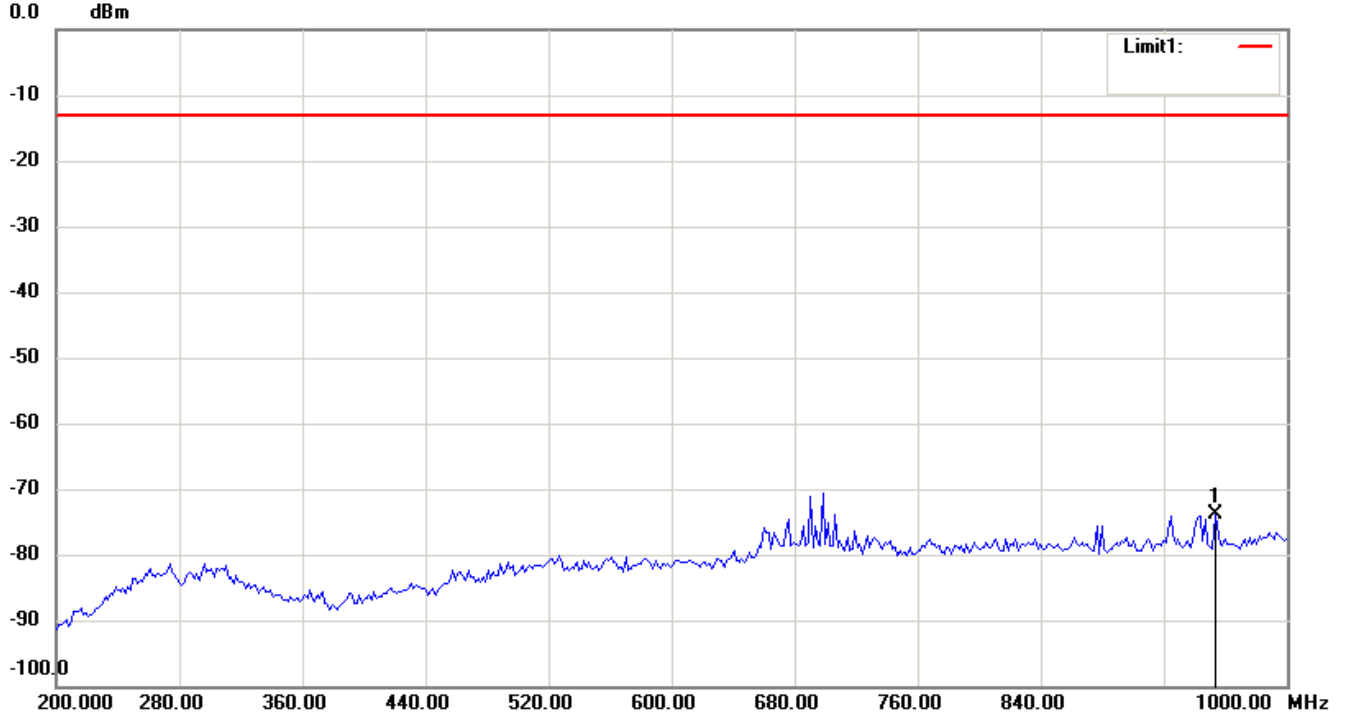
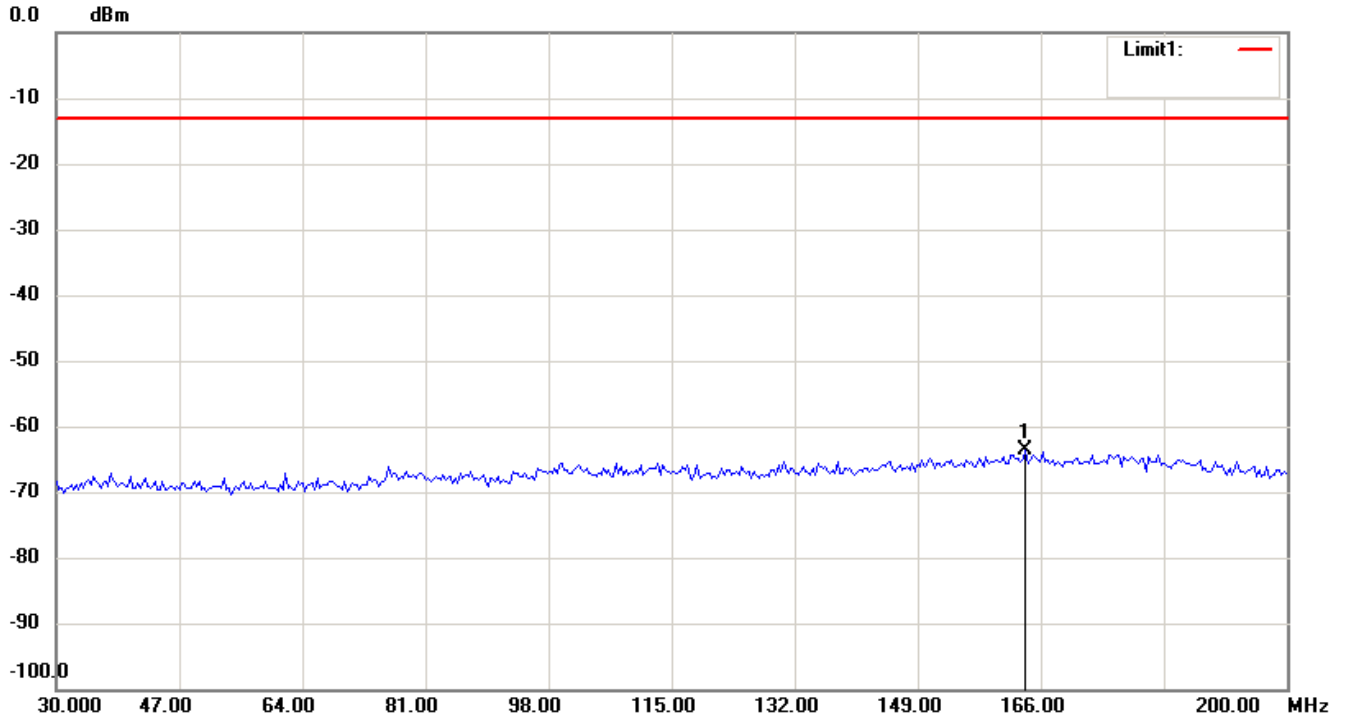
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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Registration number: W6M21204-12406-C-1

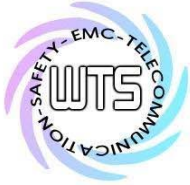
FCC ID: CINGMW-216

Antenna Polarization V



Note:

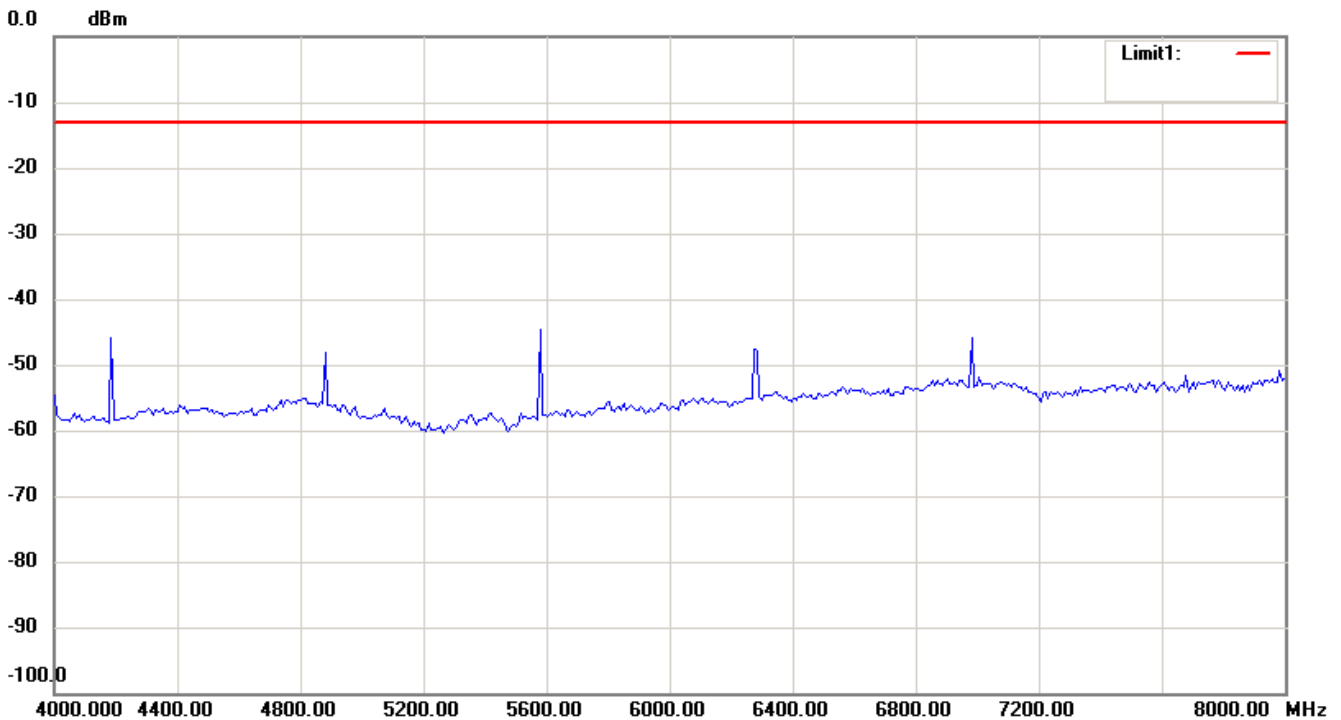
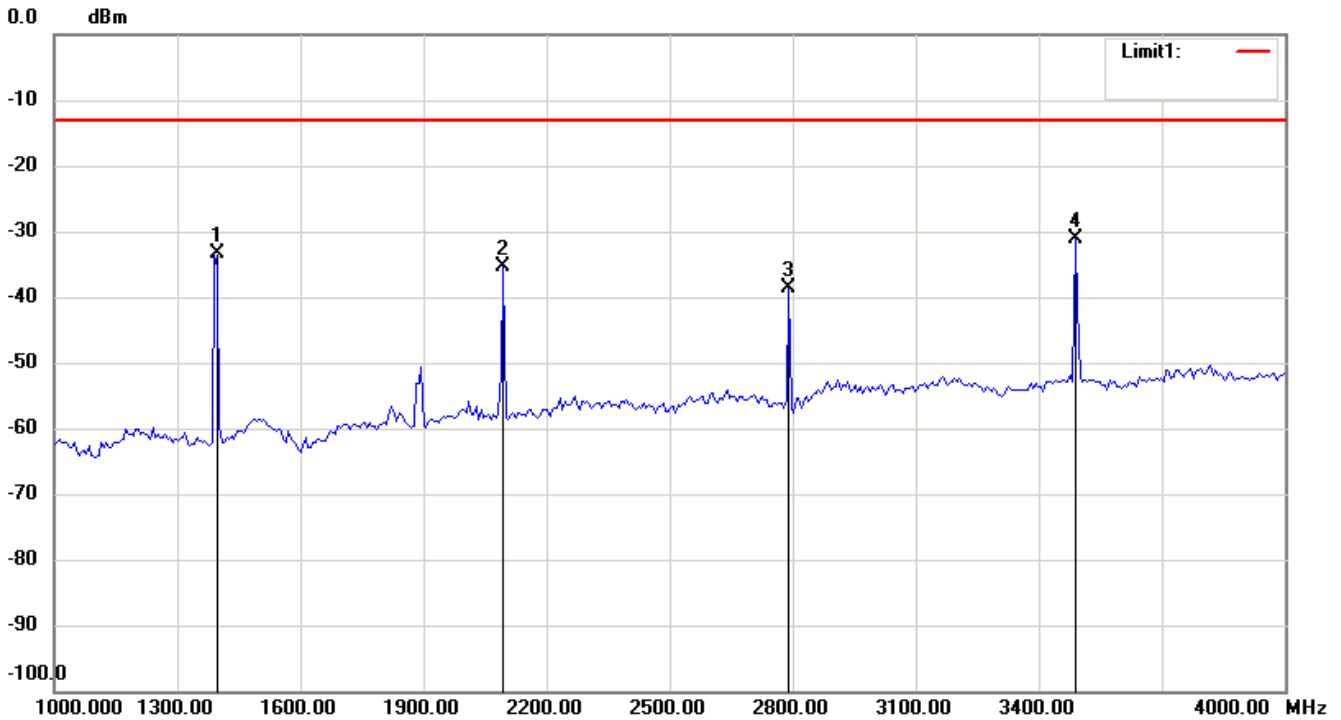
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
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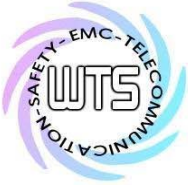
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FCC ID: CINGMW-216



Note:

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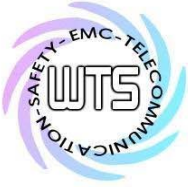
Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

External Photos

Adapter TECH





Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Adapter DVE

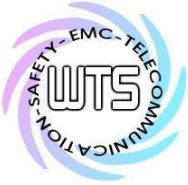




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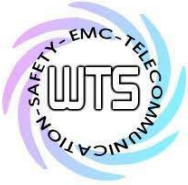




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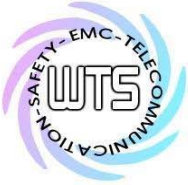


Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1

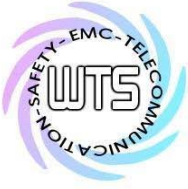
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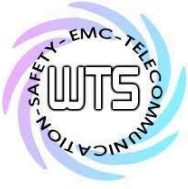
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Registration number: W6M21204-12406-C-1
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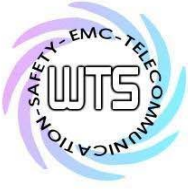




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FCC ID: CINGMW-216





Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Internal Photos



Registration number: W6M21204-12406-C-1

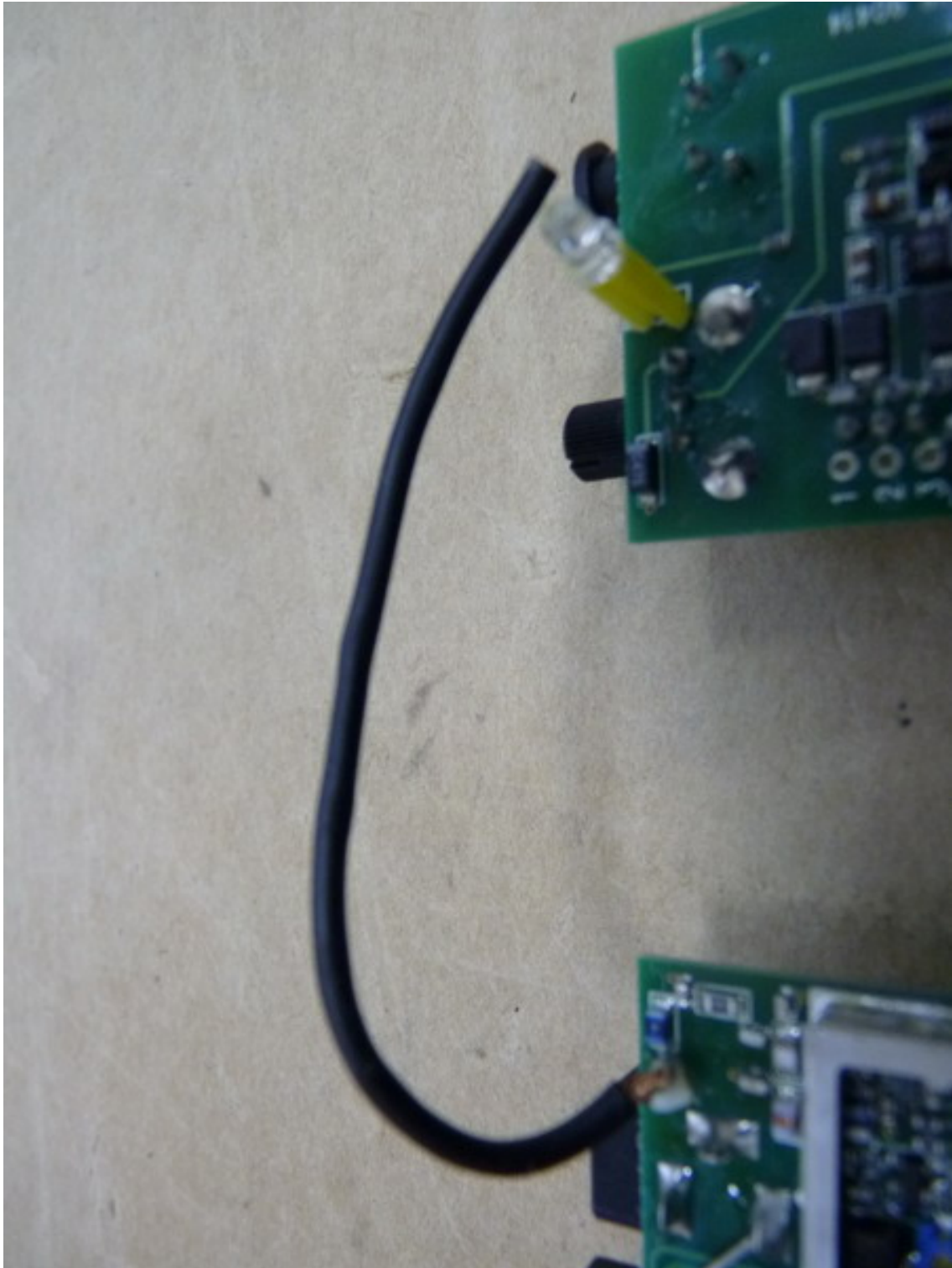
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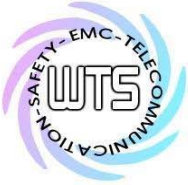




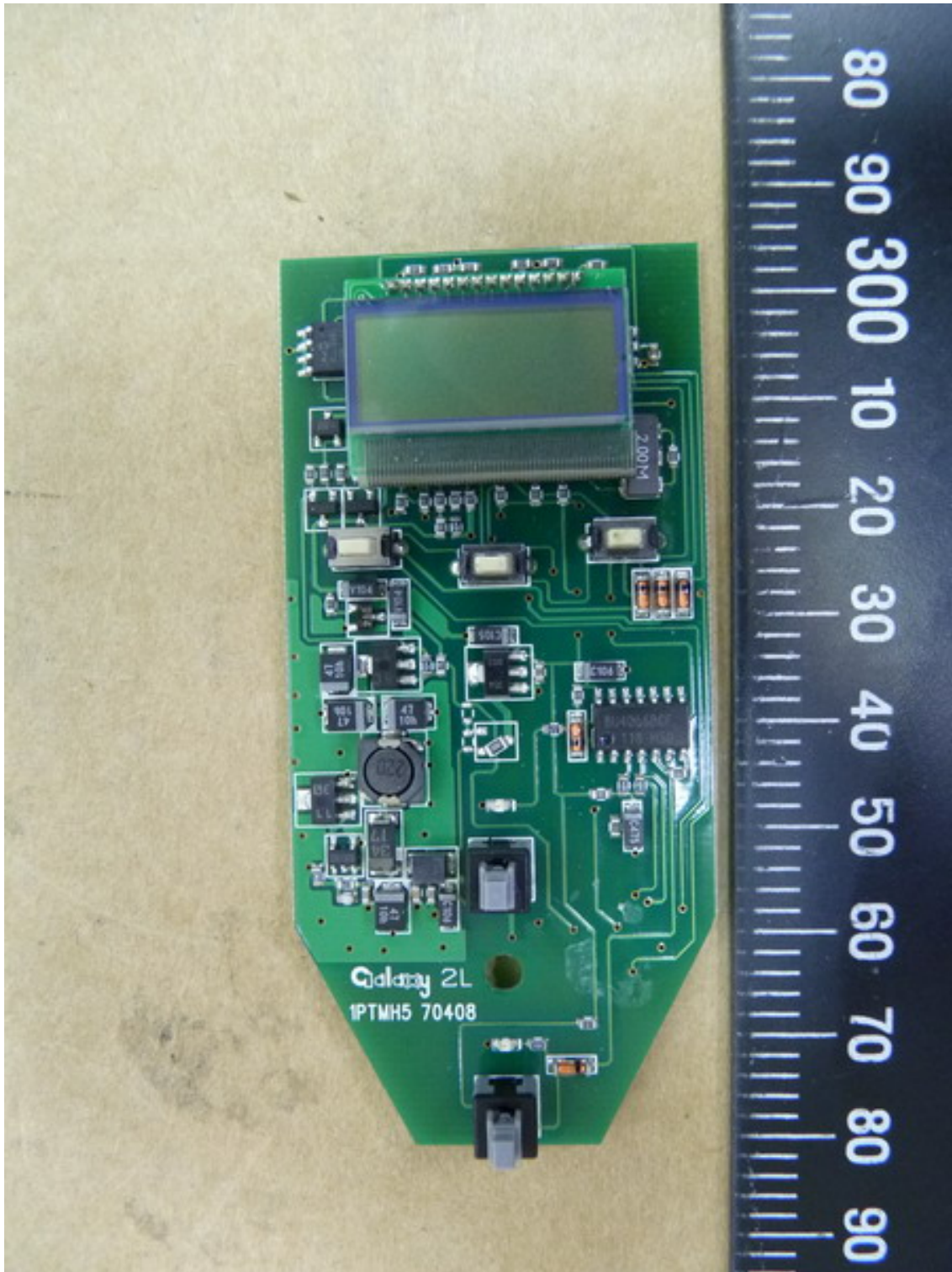
Worldwide Testing Services(Taiwan) Co., Ltd.

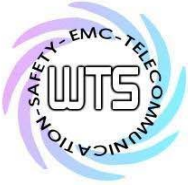
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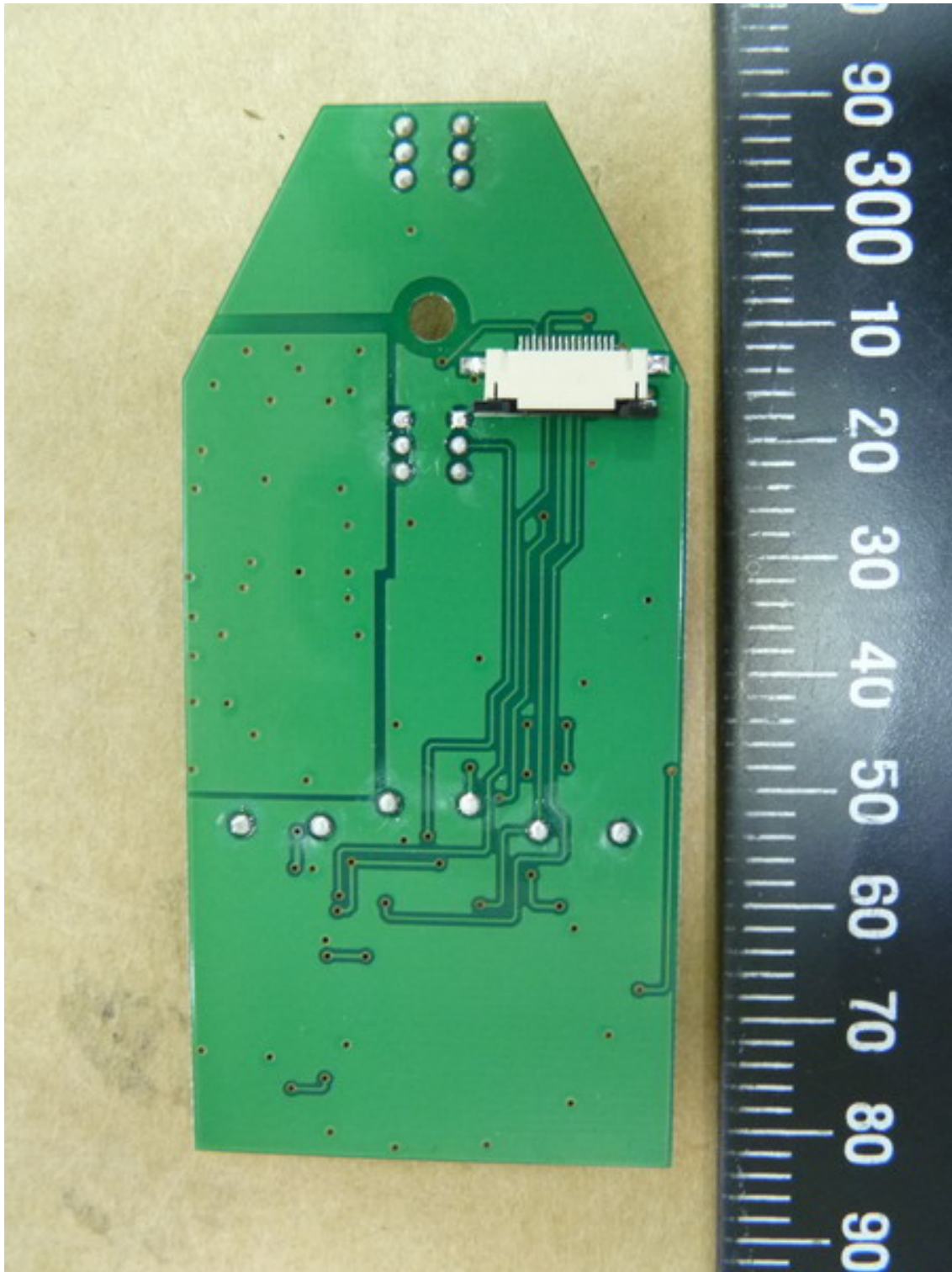


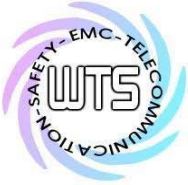
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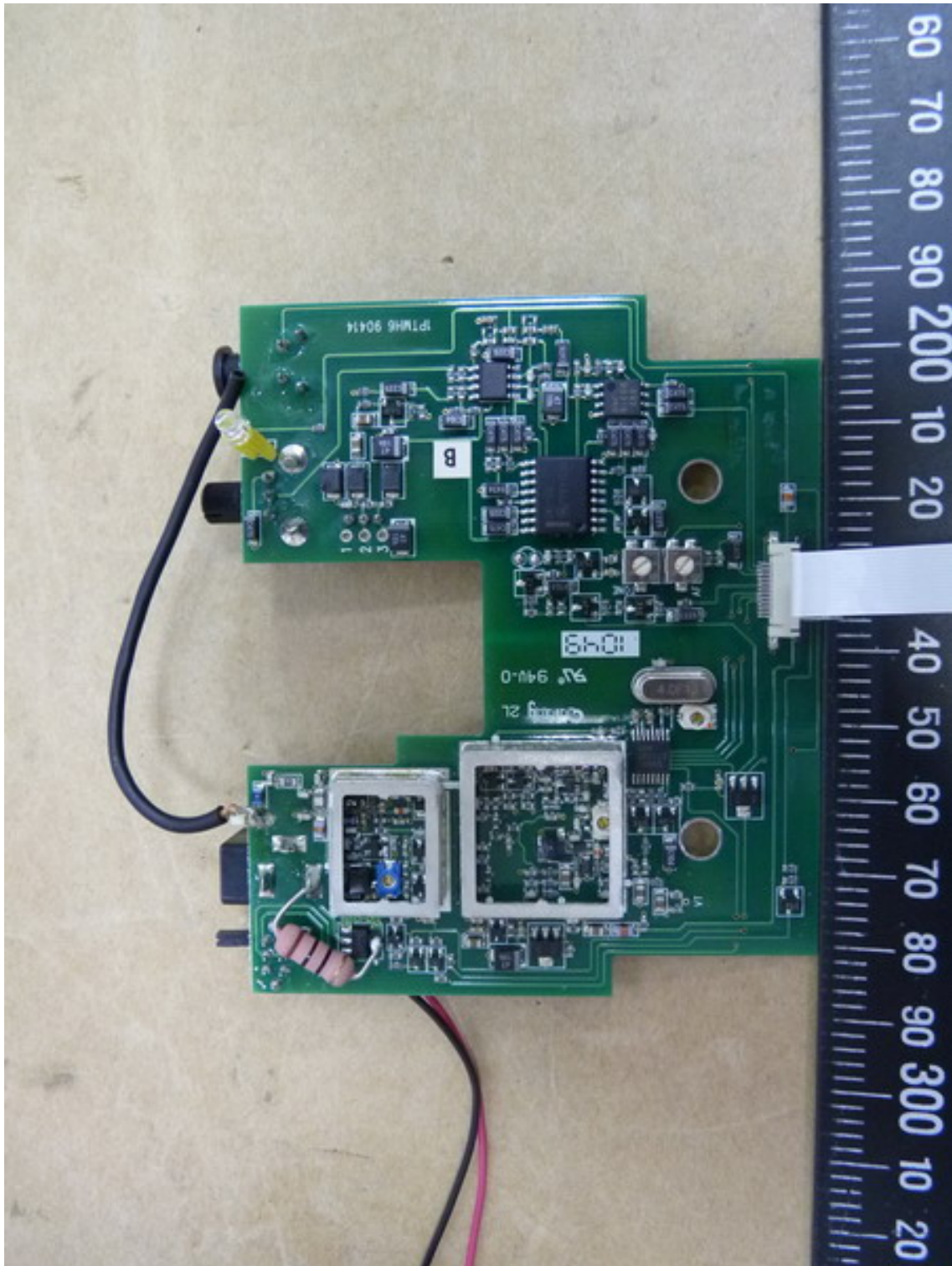


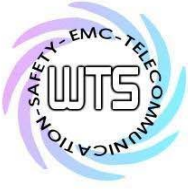
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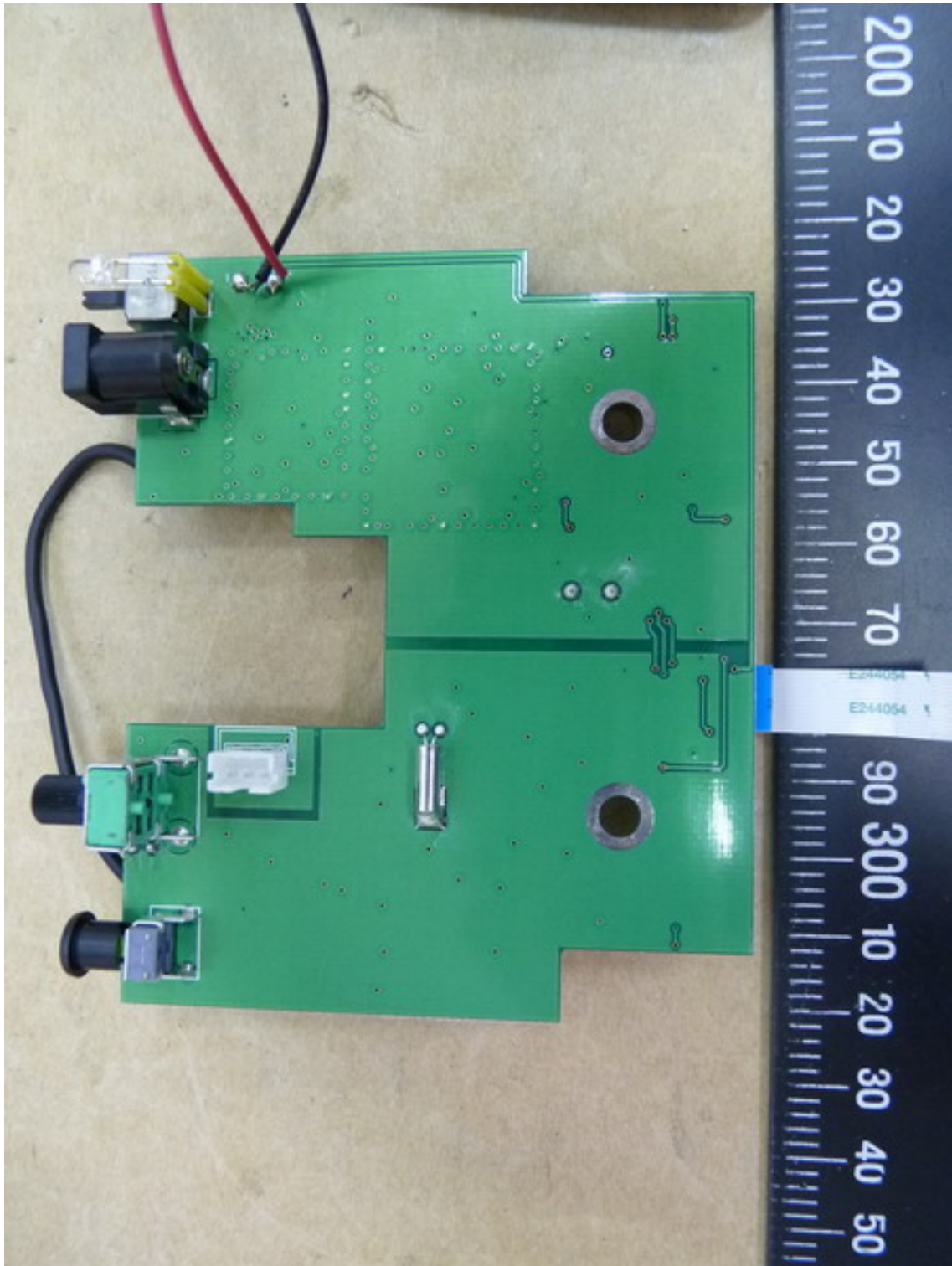




Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1

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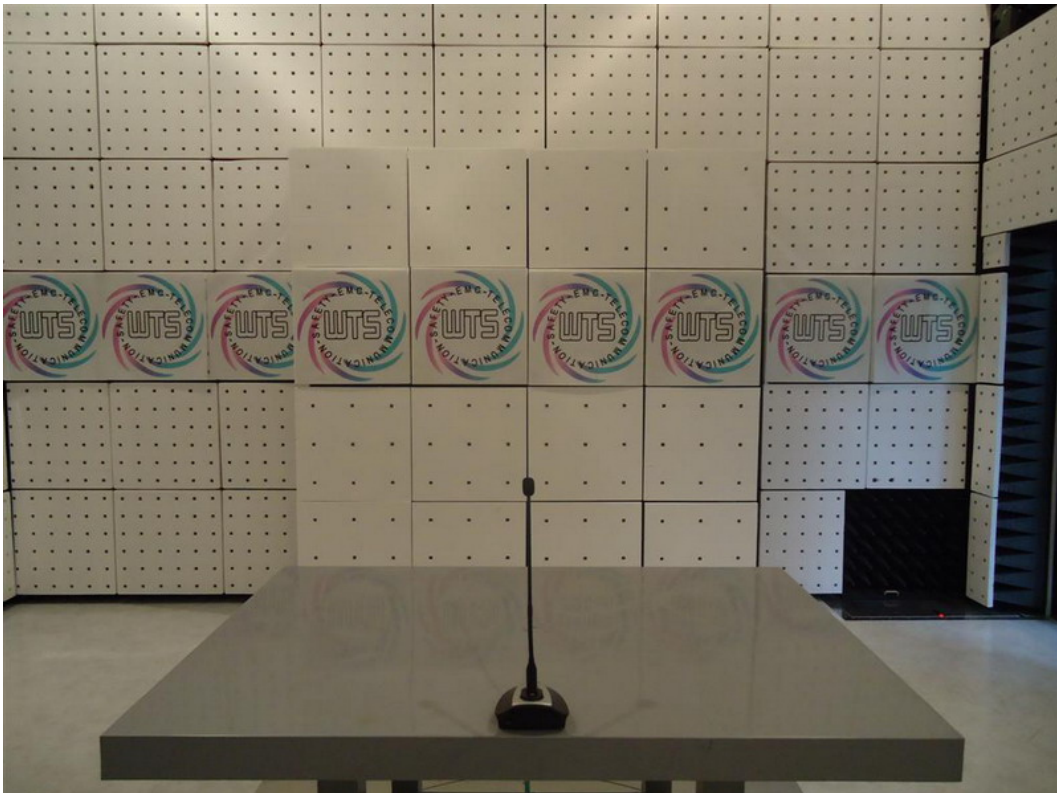


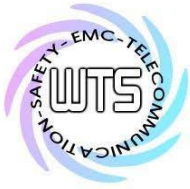


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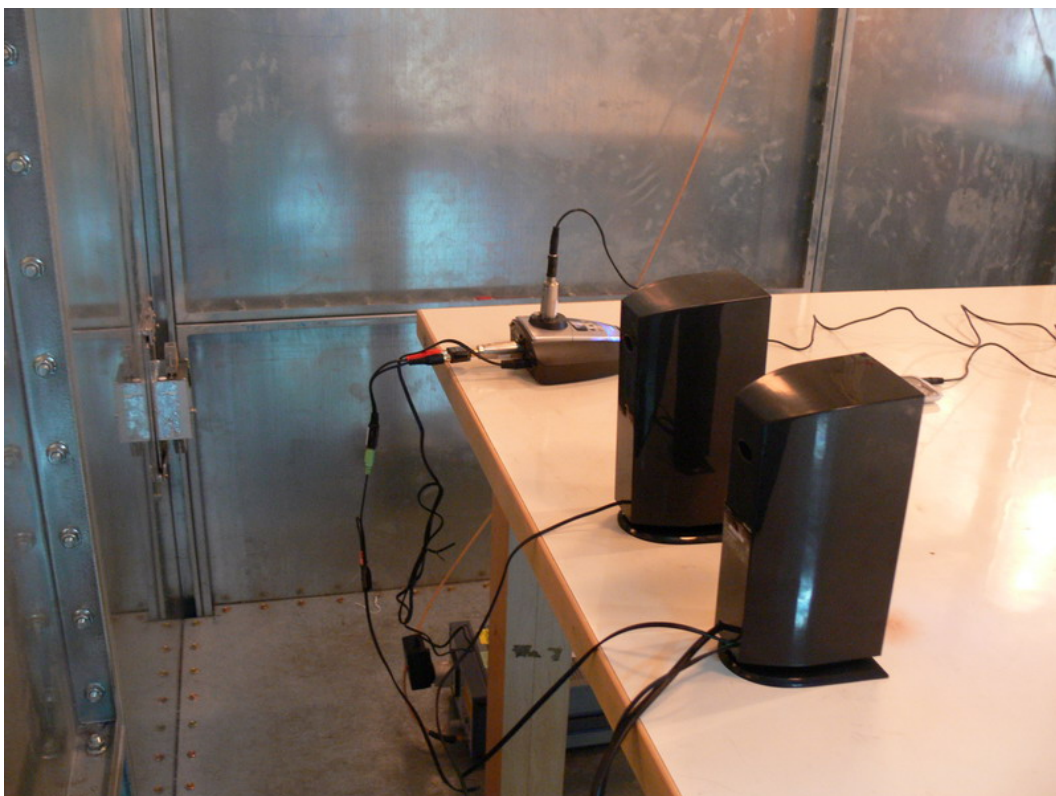
FCC ID: CINGMW-216

Set Up Photo of Radiated Emission





Registration number: W6M21204-12406-C-1
FCC ID: CINGMW-216
Set Up Photo of Conducted Emission
Adapter TECH





Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21204-12406-C-1

FCC ID: CINGMW-216

Adapter DVE

