FCC Part 90

EMI TEST REPORT

of

E.U.T. : Wireless Amplifier

FCC ID. : JX6WMA268B-WTB700

MODEL : WMA-268B

Working Frequency : 169-172 MHz

for

APPLICANT : KAO HUI ELECTRONIC TECHNOLOGY CO., LTD.

ADDRESS : 7F-1, No. 286-6, Shin-Ya Road, Chien-Chen District, Kaohsiung 806, Taiwan, R.O.C.

Test Performed by

ELECTRONICS TESTING CENTER, TAIWAN
NO. 8 LANE 29, WENMIMG ROAD,
LOSHAN TSUN, KWEISHAN HSIANG,
TAOYUAN, TAIWAN, R.O.C.

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Report Number : ET90R-04-070-01

TEST REPORT CIRTIFICATION

Applicant : KAO HUI ELECTRONIC TECHNOLOGY CO., LTD.
7F-1, No. 286-6, Shin-Ya Road, Chien-Chen District, Kaohsiung 806, Taiwan, R.O.C.

Manufacturer : KAO HUI ELECTRONIC TECHNOLOGY CO., LTD.
7F-1, No. 286-6, Shin-Ya Road, Chien-Chen District, Kaohsiung 806, Taiwan, R.O.C.

Description of EUT :

a) Type of EUT	: Wireless Amplifier
b) Trade Name	: Kaotek
c) Model No.	: WMA-268B
d) FCC ID	: JX6WMA268B-WTB700
e) Working Frequency	: 169-172 MHz
f) Power Supply	: DC 9V

Regulation Applied : FCC Rules and Regulations Part 90 Subpart K (1997) & Part 15 Subpart B

I HEREBY CERTIFY THAT; The data shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Issued Date : Jun. 06, 2001

Test Engineer : Jeff Chuang
(Jeff Chuang)

Approve & Authorized Signer : Will Yauo
Will Yauo, Supervisor
EMI Test Site of ELECTRONICS TESTING CENTER, TAIWAN

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1. GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : Wireless Amplifier
b) Trade Name : Kaotek
c) Model No. : WMA-268B
d) FCC ID : JX6WMA268B-WTB700
e) Working Frequency : 169-172 MHz
f) Power Supply : DC 9V

1.2 Characteristics of Device:

The EUT is a frequency modulation Wireless Amplifier with following features:
Operation Frequency Range: 169-172MHz
Type Modulation: FM, 54KF3E.
This Wireless Amplifier Portable is designed for two way communication, the transmitter unit with a microphone can modulate the voice to RF carrier and transmit it to the base unit, and the Receiver receives the RF signals and demodulates the voice to send to any audio devices with an audio input terminal, for example a speaker or stereo.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in chapter 13 of ANSI C63.4. and section 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, and 2.1055 of Part 2 of CFR 47

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at No.34, Lin 5, Ding Fu Tsun, Linkou Hsiang, Taipei Hsien, Taiwan, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Feb. 10, 2000.

2. REQUIREMENTS OF PROVISIONS

2.1 Definition

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Frequencies Available

According to 90.265(b), the following frequencies are available for wireless microphone operations to eligibles in this part, subject to the provisions of this paragraph:

Frequencies (MHz)

169.445	170.245
171.045	171.845
169.505	170.305
171.105	171.905

2.3 Requirements for Radio Equipment on Certification

(1) RF Output Power
For transmitters, the power output shall be measured at the RF output terminals.

(2) Modulation Characteristics
For Voice Modulated Communication Equipment, a curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.

(3) Occupied Bandwidth
For radiotelephone transmitter, other than single sideband or indenpent sideband transmitter, when modulateed by a 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.

(4) Spurious Emissions at Antenna Terminals
The radio frequency voltage or power generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminal when properly loaded with a suitable artificial antenna.

(5) Field Strength of Spurious Emissions

Measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal condition of installation and operation.

(6) Frequencies Tolerance

a) The frequency stability shall be measured with variation of ambient temperature.
b) The frequency stability shall be measured with variation of primary supply voltage.

2.4 Labeling Requirement

Each equipment for which a type acceptance application is filed on or after May 1,1981, shall bear an identification plate or label pursuant to § 2.925（Identification of equipment） and § 2.926（FCC identifier）.

3. OUTPUT POWER MEASUREMENT

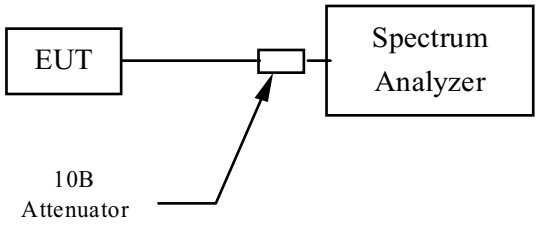
3.1 Provision Applicable

According to § 90.265 (b)(2), the output power shall not exceed 50 milliwatts.

3.2 Measurement Procedure

The maximum peak output power was measured with a spectrum analyzer connected to the antenna terminal (conducted measurement) while EUT was operating in normal situation. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.

Figure 1 : Output power measurement configuration



3.3 Test Data

A. Channel High

Operated mode : Normal
Test Date : Jun. 02, 2001
Temperature : 27 ℃
Humidity : 65 %

Frequency (MHz)	SA Reading (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Output Power (mW)	Limit (mW)
171.873	-10.33	0.5	10	0.17	1.04	50

B. Channel Low

Operated mode : Normal Test Date : Jun. 02, 2001
Temperature : 27 ℃ Humidity : 65 %

Frequency (MHz)	SA Reading (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Output Power (mW)	Limit (mW)
169.445	-10.5	0.5	10	0.0	1.00	50

Please see Appendix 1 for plotted data.

3.3 Result Calculation

The measured result is calculated as following equation :

Result = Reading + Cable Loss + Attenuation of Attenuator

$$mW = \log^{-1}\left[\frac{Result(dBm)}{10}\right]$$

3.4 Output Power Test Equipment

Equipment	Manufacturer	Model No.	Next Cal. Date
RF Test Receiver	R&S	ESBI	05/15/2002
Plotter	HP	7440A	N/A

4. MODULATION CHARACTERISTICS

4.1 Provisions Applicable

According to § 90.287 (a), for Voice Modulated Communication Equipment, the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be measured.

According to § 90.211 (a), for transmitters, the overall frequency response of the audio and modulating circuits may correspond approximately with that required for satisfactory intelligibility.

4.2 Measurement Method

A) Frequency response of audio circuits

1. Position the EUT as shown in figure 2.

2. Vary the modulating frequency from 100 Hz to 5000 Hz with varying the input voltage from 0V to maximum permitted input voltage, and observe the change in output.

B) Modulation Limit

1. Position the EUT as shown in figure 2, adjust the audio input frequency to 100 Hz and the input level from 0V to maximum permitted input voltage with recording each carrier frequency deviation responding to respective input level.

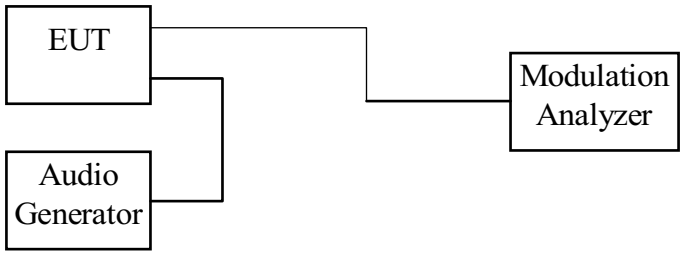
2. Repeat step 1 with changing the input frequency for 200, 500, 1000, 3000, and 5000 Hz in sequence.

C) Frequency response of all circuits

1. Position the EUT as shown in figure 2.

2. Vary the modulating frequency from 100 Hz to 15000 Hz with constant input voltage (derived from 5.4(a) of this test report), and observe the change in output.

Figure 2 : Modulation characteristic measurement configuration

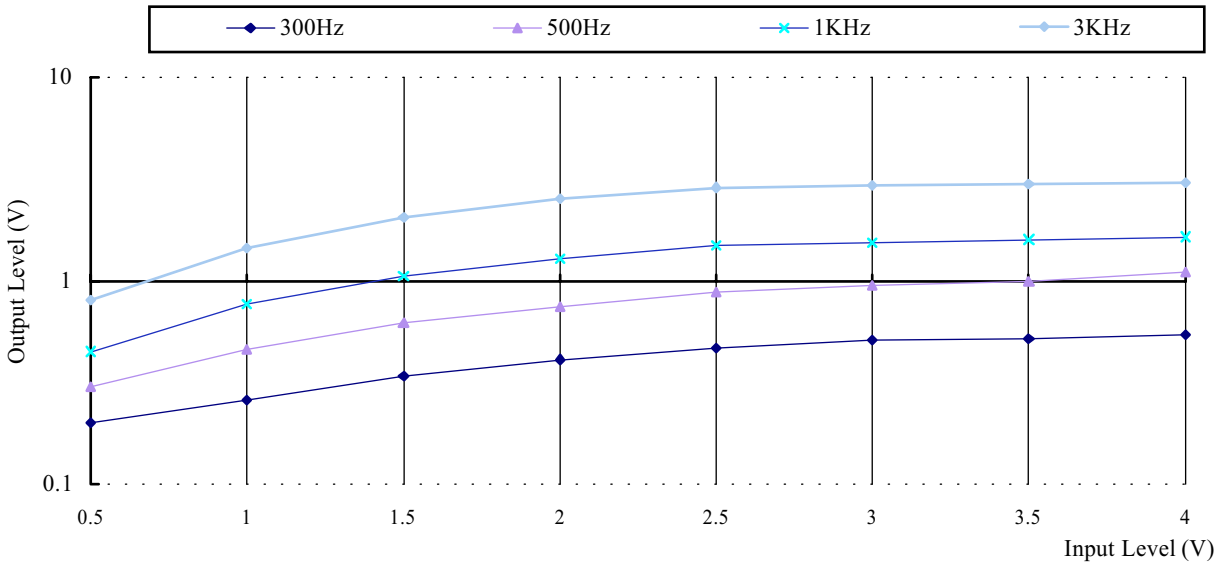


4.3 Measurement Instrument

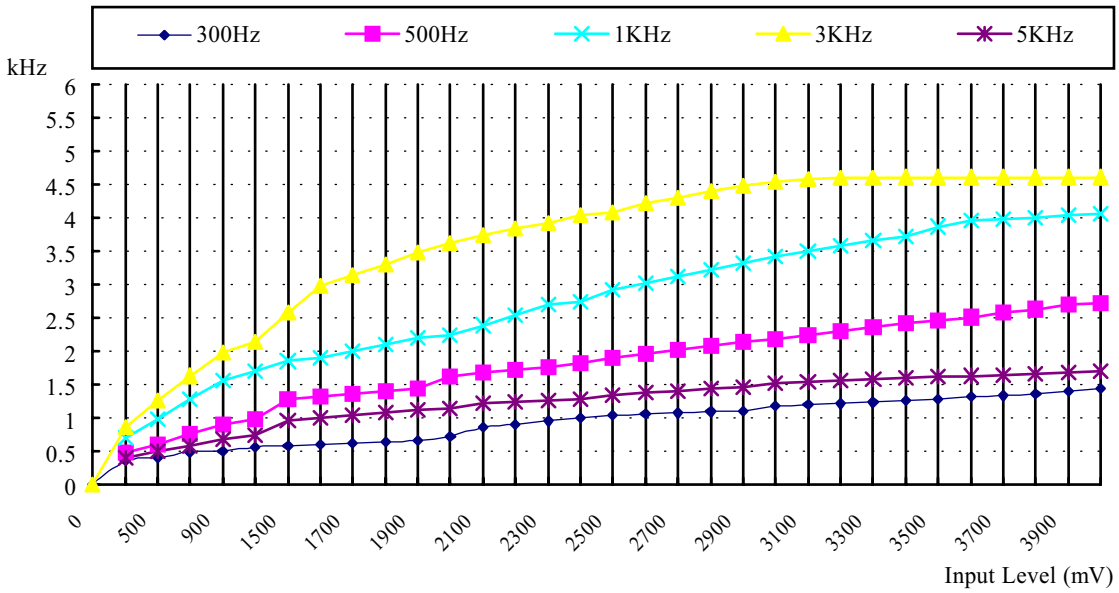
Equipment	Manufacturer	Model No.	Next Cal. Date
Modulation Analyzer	Hewlett-Packard	8901A	12/01/2001
Multifunction Synthesizer	Hewlett-Packard	8904A	11/24/2001
Oscillscope	Lecroy	9350A	12/01/2001

4.4 Measurement Result

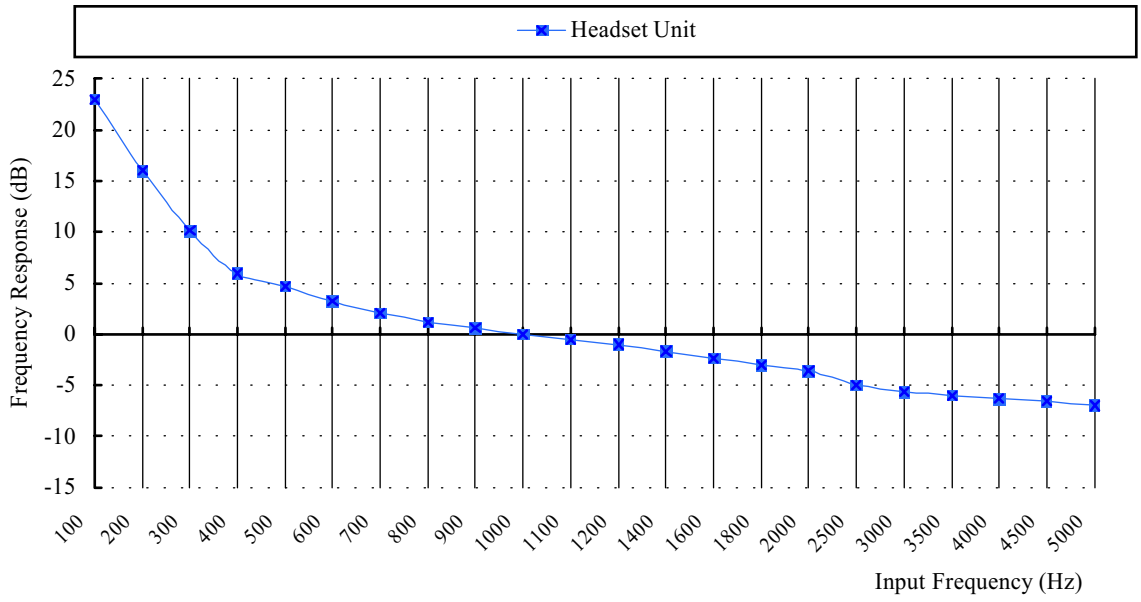
A). Frequency response



B). Modulation Limit



C). Frequency response of all circuits



5. OCCUPIED BANDWIDTH OF EMISSION

5.1 Provisions Applicable

According to § 2.989 (e)(3), For FM transmitter, the occupied bandwidth shall be measured when modulated by a 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 % modulation.
According to § 90.265 (b)(1), the frequency emission bandwidth shall not exceed 54 kHz.

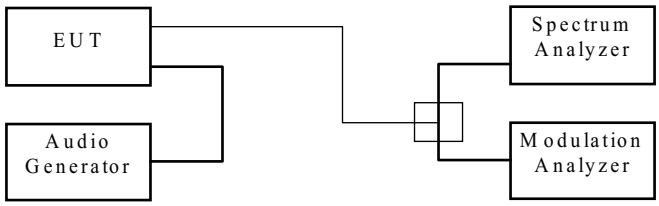
5.2 Measurement Method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

2. Position the EUT as shown in figure 3, and Install new batteries in the EUT. Turn on the EUT ant set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

3. Apply a 2.5 kHz modulation signal to EUT and measure the frequencies of the modulated signal from the EUT where it is the specified number of dB below the reference level set in step 2. This is the occupied bandwidth specified.

Figure 3 : Occupied bandwidth measurement configuration



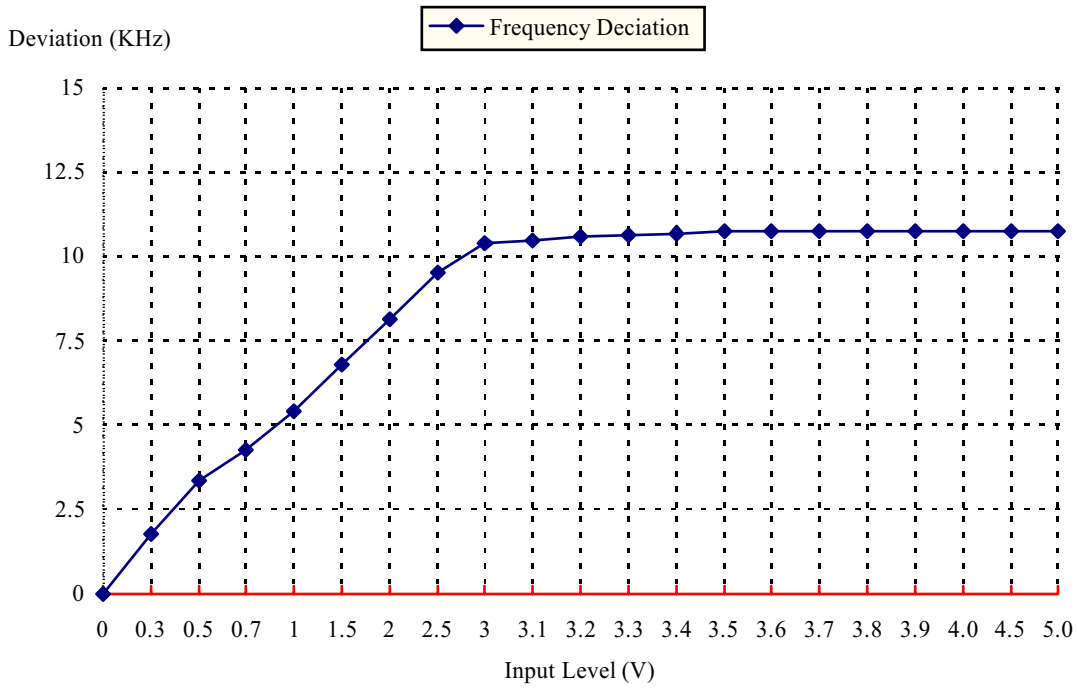
5.3 Occupied Bandwidth Test Equipment

Equipment	Manufacturer	Model No.	Next Cal. Date
Spectrum Analyzer	R&S	ESBI	05/15/2002
Modulation Analyzer	Hewlett-Packard	8901A	12/01/2001
Multifunction Synthesizer	Hewlett-Packard	8904A	11/24/2002
Plotter	Hewlett-Packard	7440A	N/A

5.4 Bandwidth Measured

5.4.1 Input Level Derived

Input Audio Frequency : 2.5 kHz, Sine Wave



The Level input to produce 50% modulation is 1.5V, therefore the magnitude 16 dB greater than it is 9.46 V.

5.4.2 Occupied Bandwidth Plotted

The Channel High 26 dB Bandwidth is 52.2KHz.
The Channel Low 26 dB Bandwidth is 50.1KHz.

Please see appendix 2 for plotted data.

6. SPURIOUS EMISSIONS AT ANTENNA TERMINALS

6.1 Provisions Applicable

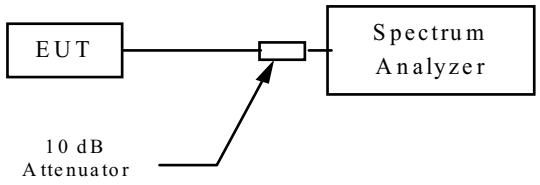
According to § 2.991, the radio frequency voltage or power generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminal when properly loaded with a suitable artificial antenna.

According to § 90.209 (k), all out of band emission shall be kept below the limits specified in§ 90.209 , and per § 90.209 (f)(3), on any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth shall be attenuated below the unmodulated carrier by at least 43 plus 10 Log(output power in watts) dB or 80 dB, whichever is the lesser attenuation.

6.2 Measurement Procedure

1. Setup the configure per figure 4, adjusting the input voltage to produce the maximum power as measured in chapter 3.
2. Adjust the analyzer frequency span from 30 MHz to 1 GHz, record any frequency attenuated less than 20 dB relative to the permitted emission and then adjust the analyzer frequency span from 1 GHz to 2 GHz and record emissions frequency should be measured.
3. Adjust the analyzer for each frequency measured above on a 2 MHz frequency span and 1MHz resolution bandwidth. Record the highest value on spectrum analyzer.

Figure 4 : Conducted spurious emission measurement configuration



6.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Date
RF Test Receiver	R&S	ESBI	05/15/2002
Plotter	Hewlett-Packard	7440A	N/A

6.4 Measurement Data

A. Channel High

Operated mode : Normal
Test Date : Jun. 02, 2001
Temperature : 26 ℃
Humidity : 65 %

Unmodulated carrier power is 0.17 dBm , or 1.04 mW (Conducted).
The limit of spurious or harmonics is 1.72-[43+10log(output power in W)], or -13dBm

Frequency (MHz)	SA Reading (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit (dBm)	Margin (dB)
343.786	-49.7	0.5	10	-39.2	-13.0	-26.2
515.679	-48.6	0.5	10	-38.1	-13.0	-25.1
687.572	-46.5	0.5	10	-36.0	-13.0	-23.0
859.465	-42.3	0.5	10	-31.8	-13.0	-18.8
1031.358	-38.7	0.5	10	-28.2	-13.0	-15.2
1203.251	-36.7	0.5	10	-26.2	-13.0	-13.2
1375.144	-42.0	0.5	10	-31.5	-13.0	-18.5
1547.037	-39.9	0.5	10	-29.4	-13.0	-16.4
1718.930	-44.2	0.5	10	-33.7	-13.0	-20.7

B. Channel Low

Operated mode : Normal
Test Date : Jun. 02, 2001
Temperature : 26 ℃
Humidity : 65 %

Unmodulated carrier power is 0 dBm , or 1 mW (Conducted).
The limit of spurious or harmonics is 1.72-[43+10log(output power in W)], or -13dBm

Frequency (MHz)	SA Reading (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit (dBm)	Margin (dB)
338.862	-53.3	0.5	10	-42.8	-13.0	-29.8
508.293	-50.3	0.5	10	-39.8	-13.0	-26.8
677.724	-52.3	0.5	10	-41.8	-13.0	-28.8
847.155	-47.8	0.5	10	-37.3	-13.0	-24.3
1016.586	-60.7	0.5	10	-50.2	-13.0	-37.2
1186.017	-56.3	0.5	10	-45.8	-13.0	-32.8
1355.448	-50.4	0.5	10	-39.9	-13.0	-26.9
1524.879	-44.2	0.5	10	-33.7	-13.0	-20.7
1694.310	-42.5	0.5	10	-32.0	-13.0	-19.0

7. FIELD STRENGTH OF EMISSION

7.1 Provisions Applicable

According to § 2.1053, measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal condition of installation and operation. Information submitted shall include the relative radiated power of spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from a halfwave dipole antenna.

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According to § 74.861(e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the follwing sceedule:

(i) on any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB.

(ii) on any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB.

(iii) on any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth shall be attenuated below the unmodulated carrier by at least 43 plus 10 Log(output power in watts) dB.

7.2 Measurement Procedure

1. Setup the configuration per figure 5 and 6 for frequencies measured below and above 1 GHz respectively, adjusting the input voltage to produce the maximum power as measured in chapter 3.
2. Adjust the analyzer for each frequency measured in chapter 6 on a 1 MHz frequency span and 100 kHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 °, and record the highest value indicated on spectrum analyzer as reference value.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.

6. Replace the EUT with a tuned dipole antenna (horn antenna for above 1 GHz) relative to each frequency in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the tuned dipole antenna to a standard signal generator (SG) via a low loss cable. Power on the SG and tune the right frequency in measuring as well as set SG at a appreciated output level. Rise and lower the search antenna to get the highest value on spectrum analyzer, and then hold this position. Adjust the SG output to get a identical value derived from step 3 on spectrum analyzer. Record this value for result calculated.

7. Repeat step 6 until all frequencies need to be measured were complete.

8. Repeat step 7 with both dipole antenna (horn antenna for above 1 GHz) and search antenna in vertical polarized orientations.

Figure 5 : Frequencies measured below 1 GHz configuration

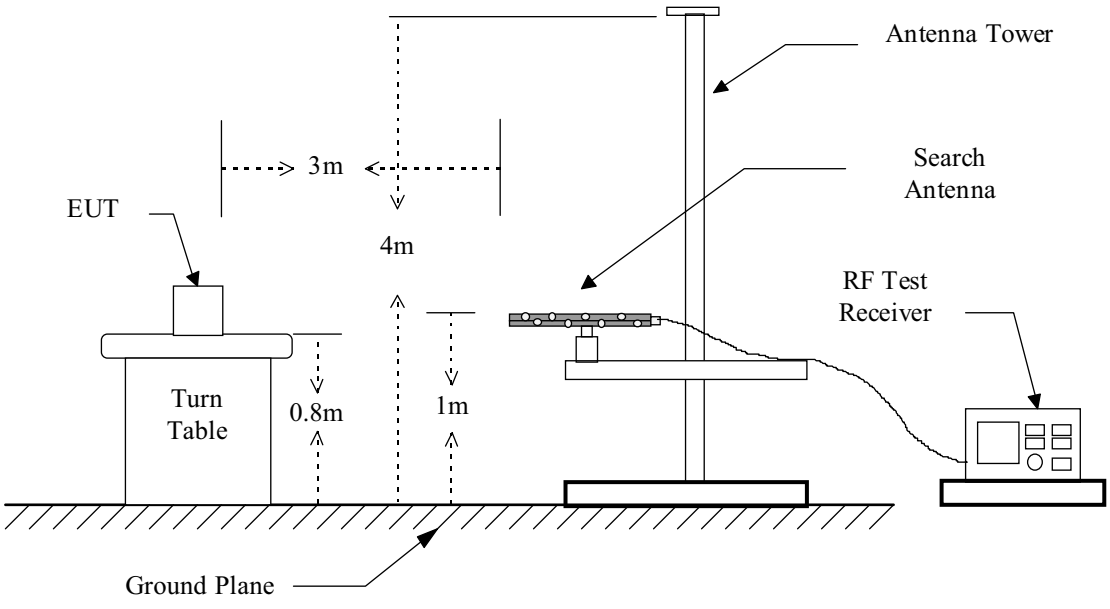
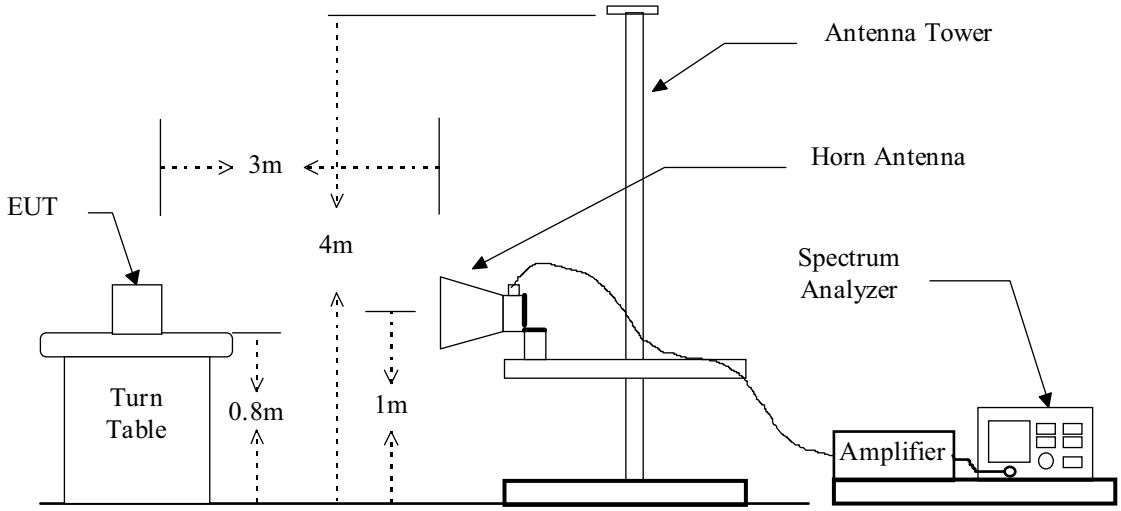


Figure 6 : Frequencies measured above 1 GHz configuration



7.3 Measuring Instrument

Equipment	Manufacturer	Model No.	Next Cal. Date
Spectrum Analyzer	Hewlett-Packard	8568B	12/24/2001
Quasi Peak Detector	Hewlett-Packard	85650A	01/01/2002
Pre-selector	Hewlett-Packard	85685A	01/01/2002
Spectrum Analyzer	Hewlett-Packard	8564E	05/22/2002
Horn Antenna	EMCO	3115	05/14/2002
Log periodic Antenna	EMCO	3146	11/03/2001
Biconical Antenna	EMCO	3110B	11/02/2001
Preamplifier	Hewlett-Packard	8449B	05/10/2002
Preamplifier	Hewlett-Packard	8447D	12/29/2001

Measuring instrument setup in frequency band measured is as following :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz

7.4 Measuring Data

A. Channel High

Operated mode : Normal Test Date : Jun. 02, 2001
Temperature : 23 ℃ Humidity : 60 %

Unmodulated carrier output power is –9.9 dBm , or 0.10 mW (ERP).
The limit of spurious or harmonics is calculated as following :

-18.3-[43+10log(carrier output power in W)], or -13dBm

Frequency (MHz)	Meter Reading (dBuV)		SG Reading (dBm)		Cable Loss (dB)	Result (dBm)		Limit (dBm)	Margin (dB)
171.899	71.6	60.9	-9.4	-17.3	0.5	-9.9	-17.8	50.0	-59.9
343.798	33.5	30.6	-47.5	-48.4	0.9	-48.4	-49.3	-13.0	-35.4
515.697	36.1	33.4	-40.6	-41.0	1.2	-41.8	-42.2	-13.0	-28.8
687.596	33.4	32.0	-39.6	-37.6	2.1	-41.7	-39.7	-13.0	-26.7
859.495	33.2	31.1	-35.9	-35.2	2.1	-38.0	-37.3	-13.0	-24.3
1031.394	63.8	64.5	-51.4	-50.0	1.3	-52.7	-51.3	-13.0	-38.3
1203.293	54.3	55.8	-54.9	-57.5	1.3	-56.2	-58.8	-13.0	-43.2
1375.192	54.3	53.0	-62.0	-59.9	1.3	-63.3	-61.2	-13.0	-48.2
1547.091	62.8	57.3	-51.7	-57.4	1.3	-53.0	-58.7	-13.0	-40.0
1718.990	59.0	59.2	-54.1	-55.3	1.3	-55.4	-56.6	-13.0	-42.4

Note :

1. Remark "--" means that the emission level is too weak to be detected.
2. Result calculation is as following :
   Result = SG Reading + Cable Loss + Antenna Gain Corrected
   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
3. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

B. Channel Low

Operated mode : Normal Test Date : Jun. 02, 2001
Temperature : 23 ℃ Humidity : 60 %

Unmodulated carrier output power is –12.0 dBm , or 0.063 mW (ERP).
The limit of spurious or harmonics is calculated as following :

-18.3-[43+10log(carrier output power in W)], or -13dBm

Frequency (MHz)	Meter Reading (dBuV)		SG Reading (dBm)		Cable Loss (dB)	Result (dBm)		Limit (dBm)	Margin (dB)
169.445	69.5	60.4	-11.5	-17.8	0.5	-12.0	-18.3	50.0	-62.0
338.890	30.4	27.8	-50.6	-51.2	0.9	-51.5	-52.1	-13.0	-38.5
508.335	31.5	32.4	-45.1	-42.0	1.2	-46.3	-43.2	-13.0	-30.2
677.780	28.4	27.8	-34.6	-41.8	2.1	-36.7	-43.9	-13.0	-23.7
847.225	26.7	24.5	-42.4	-41.8	2.1	-44.5	-43.9	-13.0	-30.9
1016.670	54.8	53.1	-60.4	-61.4	1.3	-61.7	-62.7	-13.0	-48.7
1186.115	51.2	50.7	-57.9	-62.6	1.3	-59.2	-63.9	-13.0	-46.2
1355.560	48.9	47.3	-67.4	-65.6	1.3	-68.7	-66.9	-13.0	-53.9
1525.005	53.2	52.8	-61.3	-61.9	1.3	-62.6	-63.2	-13.0	-49.6
1694.450	54.5	54.1	-58.6	-60.4	1.3	-59.9	-61.7	-13.0	-46.9

Note :

1. Remark "--" means that the emission level is too weak to be detected.
2. Result calculation is as following :
   Result = SG Reading + Cable Loss + Antenna Gain Corrected
   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
3. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

The field strength of above table is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where Corrected Factor
= Antenna FACTOR + Cable Loss + High Pass Filter Loss - Amplifier Gain

7.5 Radiated Measurement Photos

Please see Setup Photos in Exhibit F.

8. FREQUENCY STABILITY MEASUREMENT

8.1 Provisions Applicable

According to § 2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30℃ to +50℃ centigrade, and according to § 2.1055 (d)(2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.

According to § 74.861(e)(4), the frequency tolerance of the transmitter shall be 0.005 percent.

8.2 Measurement Procedure

A) Frequency stability versus environmental temperature

1. Setup the configuration per figure 7 for frequencies measured at ambient temperature if it is within 15℃ to 25℃. Otherwise, an environmental chamber set for a temperature of 20℃ shall be used. Install new batteries in the EUT.

2. Turn on EUT and set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. Set the temperature of chamber to 50℃. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.

4. Repeat step 2 with a 10℃ decreased per stage until the lowest temperature -30℃ is measured, record all measurement frequencies.

B) Frequency stability versus input voltage

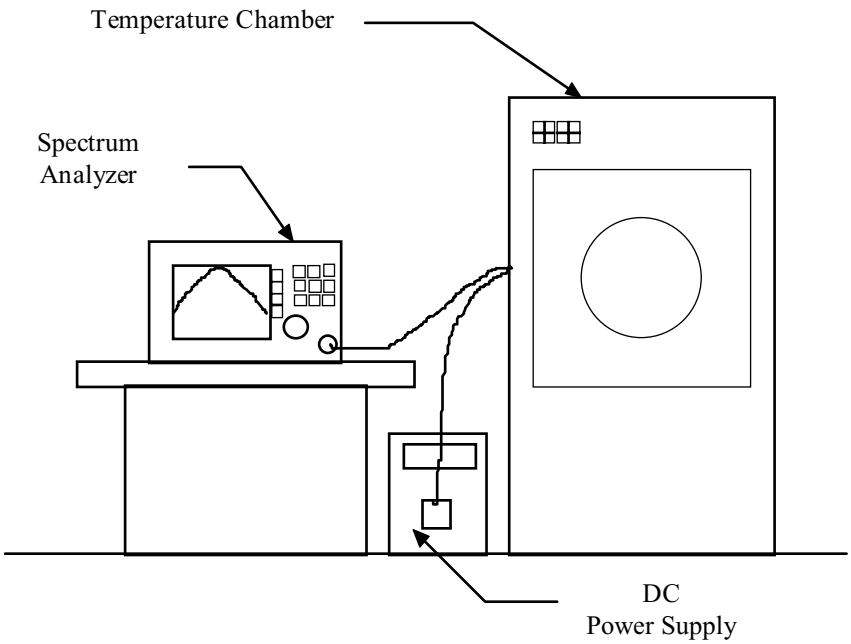
1. Setup the configuration per figure 7 for frequencies measured at ambient temperature if it is within 15℃ to 25℃. Otherwise, an environmental chamber set for a temperature of 20℃ shall be used. Install new batteries in the EUT.

2. Set SA center frequency to the right frequency needs to be measured. Then set SA

RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. For battery operated only device, supply the EUT primary voltage at the battery operating end point which is specified by the manufacturer and record the frequency.

Figure 7 : Frequency stability measurement configuration



8.3 Measurement Instrument

Equipment	Manufacturer	Model No.	Next Cal. Date
Spectrum Analyzer	HP	8564E	05/22/2002
Temperature Chamber	ACS	EOS 200T	01/17/2002

8.4 Measurement Data

1. Frequency stability versus enviroment tempture

Reference Frequency : 171.893 MHz		Limit：0.005%					
Enviroment	Power	Frequency measured with time elapsed					
Tempture	Supplied	2 minute		5 minute		10 minute	
(℃)	(Vdc)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	New Batt.	171.8957	0.00157	171.8953	0.00136	171.8949	0.00109
	New Batt.	171.8908	-0.00125	171.8996	0.00382	171.8977	0.00273
	New Batt.	171.8966	0.00212	171.8877	-0.00308	171.8923	-0.00039
40	New Batt.	171.8914	-0.00093	171.8943	0.00077	171.8916	-0.00083
	New Batt.	171.8868	-0.00363	171.8991	0.00358	171.8872	-0.00337
	New Batt.	171.8892	-0.00221	171.8886	-0.00259	171.8950	0.00114
30	New Batt.	171.8940	0.00059	171.8900	-0.00174	171.8888	-0.00243
	New Batt.	171.8868	-0.00359	171.8910	-0.00115	171.8930	-0.00001
	New Batt.	171.8872	-0.00338	171.8900	-0.00175	171.8988	0.00338
20	New Batt.	171.8913	-0.00097	171.8989	0.00344	171.8942	0.00068
	New Batt.	171.8992	0.00360	171.8887	-0.00251	171.8993	0.00364
	New Batt.	171.8867	-0.00368	171.8874	-0.00325	171.8878	-0.00303
10	New Batt.	171.8974	0.00254	171.8928	-0.00009	171.8910	-0.00114
	New Batt.	171.8912	-0.00104	171.8931	0.00004	171.8962	0.00185
	New Batt.	171.8979	0.00287	171.8918	-0.00072	171.8911	-0.00113
0	New Batt.	171.8990	0.00349	171.8878	-0.00304	171.8922	-0.00048
	New Batt.	171.8989	0.00344	171.8962	0.00189	171.8971	0.00241
	New Batt.	171.8874	-0.00328	171.8947	0.00097	171.8909	-0.00120
-10	New Batt.	171.8985	0.00321	171.8887	-0.00248	171.8959	0.00170
	New Batt.	171.8888	-0.00246	171.8955	0.00147	171.8979	0.00285
	New Batt.	171.8911	-0.00113	171.8918	-0.00072	171.8987	0.00333
-20	New Batt.	171.8941	0.00062	171.8991	0.00357	171.8970	0.00231
	New Batt.	171.8955	0.00145	171.8877	-0.00306	171.8967	0.00217
	New Batt.	171.8928	-0.00014	171.8907	-0.00133	171.8940	0.00057

2. Frequency stability versus end-point supplied voltage (7.8Vdc)

Reference Frequency : 171.893 MHz		Limit：0.005%					
Enviroment	Power	Frequency measured with time elapsed					
Tempture	Supplied	2 minute		5 minute		10 minute	
(℃)	(Vdc)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
25	End-Point	171.8975	0.00259	171.8971	0.00240	171.8940	0.00060

9. CONDUCTED EMISSION MEASUREMENT

9.1 Standard Applicable

This EUT is excused from investigation of conducted emission, for it is powered by battery only. According to § 15.207 (d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

Appendix 1 : Ouput Power Plotted Data

Appendix 2 : Occupied Emission Bandwidth Plotted Data