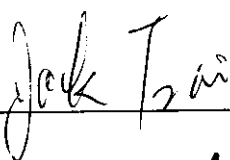
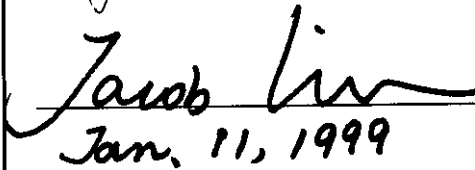


EXHIBIT B

Test Report

Report No.	V0374908
Specifications	FCC Part 74
Test Method	ANSI C63.4 1992
Applicant address	11F, No. 29, Lane 169, Kang-Ning Street, Hsi-Chih, Tahu Science Industrial Park, Taipei Hsien, Taiwan, R.O.C.
Applicant Items tested Model No.	Voice-Craft Electronics Co., Ltd. Wireless Microphone Transmitter WM-925
Results	As detailed within this report
Sample received date	10/12/1998 (month / day / year)
Prepared by	 project engineer
Authorized by	 Vice General Manager (Jacob Lin) Jan. 11, 1999 (month / day / year)
Modifications	None
Tested by	Training Research Co., Ltd.
Office at	2F, No. 571, Chung Hsiao E. Road, Sec.7, Taipei, Taiwan
Open site at	No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec.4, Taipei Taiwan

Conditions of issue:

- (1) This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.
- (2) This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.

★ FCC ID : K97WM-925

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Chapter 0 Application for Certification

- 2.983 (a) : Voice-craft Electronics Co., Ltd. –applicant and manufacturer
- 2.983 (b) : The equipment is a transmitter, wireless microphone
Model : WM-925
- 2.983 (c) : Quantity production is planned
- 2.983 (d) (1) : Type of emission – F3E- FM Modulation
- 2.983 (d) (2) : 100 Hz – 13.924 KHz
- 2.983 (d) (3) : 0.608 mW
- 2.983 (d) (4) : Specification of 250 mW is met by the equipment in the applicable part 74.861 (e)(1)
- 2.983 (d) (5) : Final RF amplifier stage current : 70mA, 1.5V*2 Batteries
- 2.983 (d) (6) : Description follows
- 2.983 (d) (7) : Complete circuit diagrams are included . No modification was made.
- 2.983 (d) (8) : Instruction sheet to user included.
- 2.983 (d) (9) : Tune up procedure follows
- 2.983 (d) (11) : Description follows
- 2.983 (d) (12) : N/A

Chapter 1 GENERAL

1.1 Introduction :

The following measurement report is submitted on behalf of *Voice-craft Electronics Co., Ltd.* in support of a wireless microphone certification in accordance with FCC Rules. 2.981 through 2.999 and 74.861.

Description of EUT :

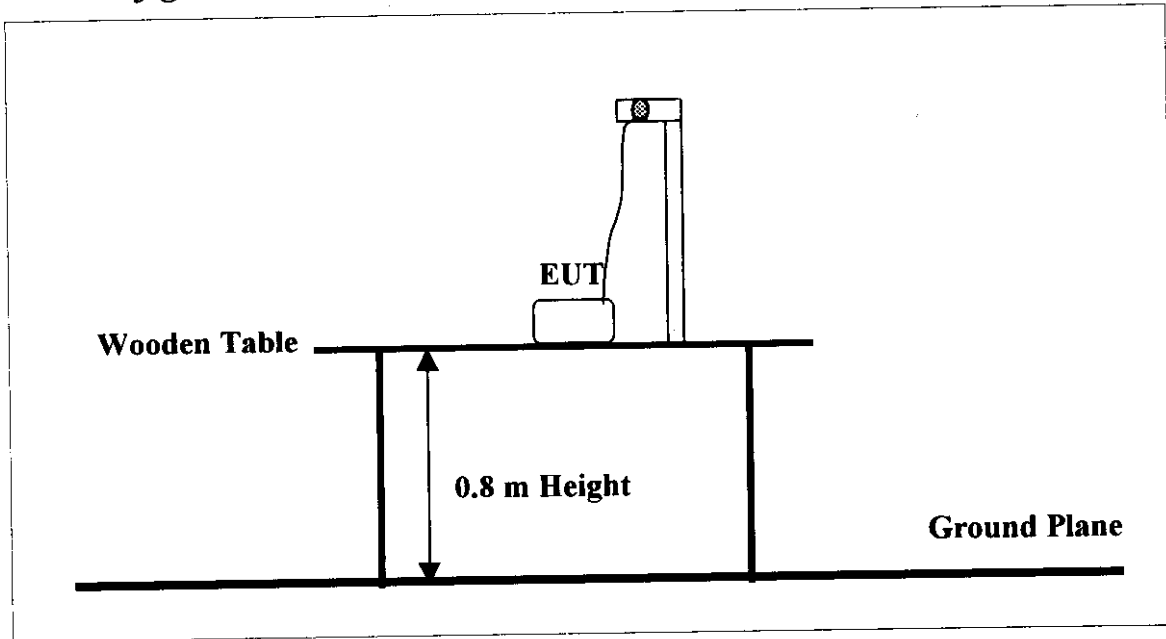
EUT	:	WIRELESS MICROPHONE TRANSMITTER
Model	:	WM-925
Carrier Frequency Range	:	174 ~ 216 MHz
RF Power Output	:	0.608 mW
Supply Voltage	:	DC 3V
Supply Current	:	70 mA
Frequency Response	:	100 Hz ~ 13.924 KHz
Frequency Stability	:	0.005%
Operating Temperature	:	-30 to +50 degree centigrade

Wireless microphone is a transmitter which operates in the frequency range of 174 ~ 216 MHz. (174.23MHz, 180.14MHz, 215.40MHz tested) This microphone is worn by a performer and other participants in a program, filming, reporting ...etc. The relative receiver of this microphone's Model No. : WPA-800 (Doc Approved) is in applying.

1.2 Description of Support Equipment :

N/A

1.3 Configuration of test setup



1.4 Location of the Measurement Site :

The radiated emissions measurements required by the Rules were performed on the Three-meter, open-field test site maintained by Training Research CO., Ltd., No. 5-3, Lane 21, Yen-Chiu-Yuan Rd., Sec. 4, Taipei, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the Commission. The conducted power line Emissions tests were performed in a shielded enclosure also located at the above facility.

Training Research Co., Ltd. is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.5 General Test Condition :

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests was chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated.

Chapter 2 Power Output Measurement

2.1 Rules and Specification Limits

2.985

74.861 (e) (1) : The power of the measured unmodulated carrier power at output of the transmitter power amplifier (antenna input power) may not exceed the following :

1. 54 – 72, 76 – 88 and 174 – 216 MHz band 50 mW.
2. 470 – 608 AND 614 – 806 MHz BAND 250 W.

2.2 Test condition and setup :

1. Measurement was made on open-field test site. The EUT system was placed on non-conductive turntable which is 0.8 meters height, top surface 1.0 X 1.5 meter. The EUT was placed in three direction of the space in order to obtain maximum emission.
2. A EMCO whole range antenna with horizontal and vertical polarization was raised from 1 – 4 meter as well as the turntable was rotate from 0 to 360 degree to search for the maximum Field Strength Spectrum where the spectrum analyzer was operated in the quasi-peak detection mode. Recorded all the values which measured under horizontal and vertical position for the biconical antenna.
3. The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in Watt.
 - (1) The actual field intensity in decibels referenced to 1 micro volt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

$$FI_a(\text{dBuV/m}) = FI_r(\text{dBuV}) + \text{Corrected (dB)}$$

$$\text{Corrected (dB)} = AF(\text{dB}) + CL(\text{dB})$$

FI_a : Actual Field Intensity

FI_r : Reading of the Field Intensity

AF : Antenna Factor

CL : Cable Loss

- (2) The field intensity in Volt can then be determined by the following equation:

$$FI(\text{Volt}) = 10^{FI(\text{dBuV/m}) / 20} \times 10^{-6}$$

The field intensity in Watt can then be determined by the following equation :

$$P(\text{watt}) = FI^2(\text{Volt}) \times d^2(\text{meter}) / 49.2$$

P : Power in Watt

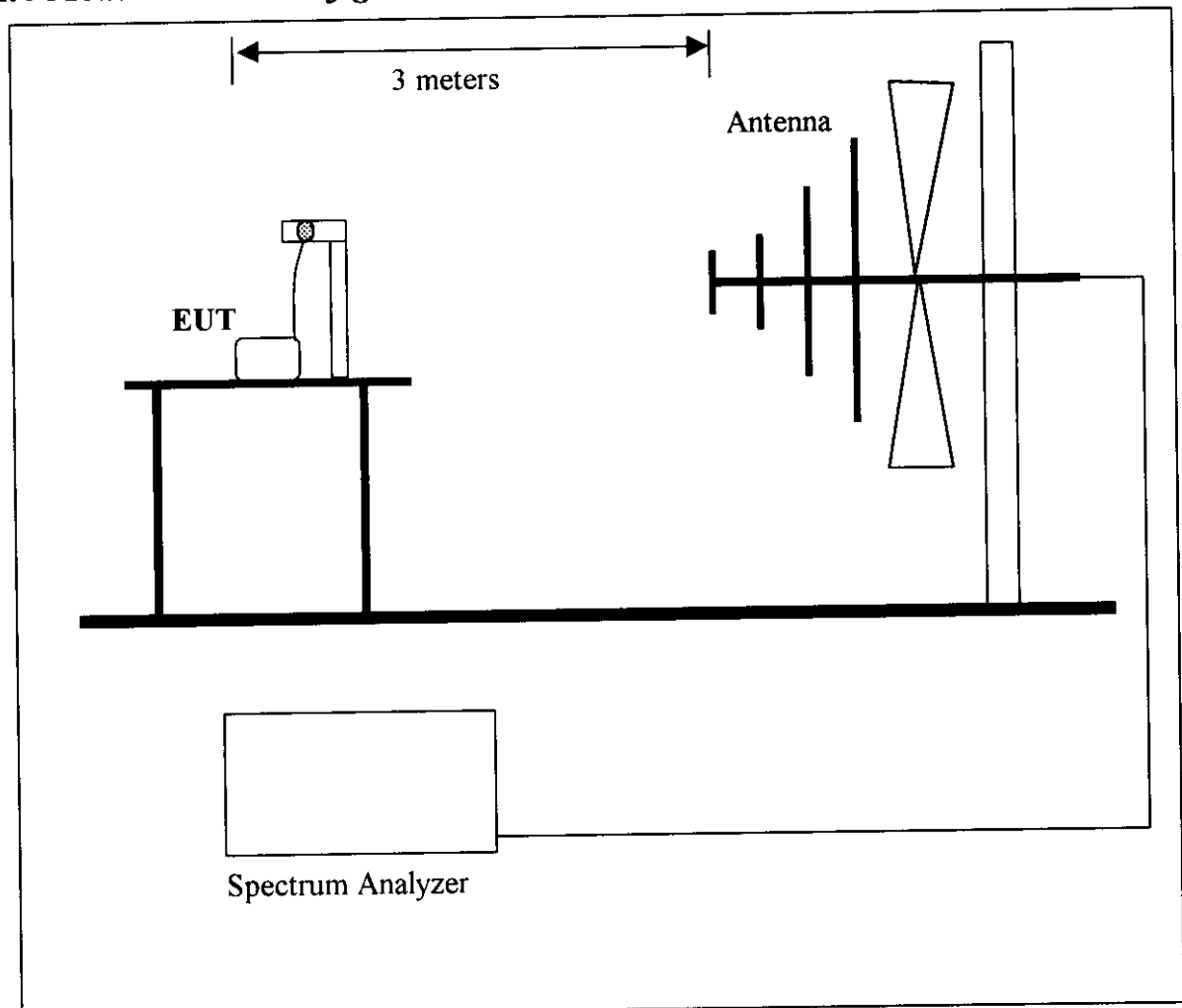
D : Measurement Distance (3 M)

2.3 List of test Instrument :

Instrument name	Model No.	Brand	Serial No.	Calibration Date	
				Last	Next
Spectrum analyzer	8568B	H P	3004A18617	05/15/98	05/15/99
Quasi-peak Adapter	85650A	H P	2521A00984	05/15/98	05/15/99
RF Pre-selector	85685A	H P	2947A01011	05/15/98	05/15/99
Spectrum analyzer	8591A	H P	2919A00263	01/07/98	01/07/99
Antenna (30M-2G Hz)	3142	EMCO	1296	06/10/98	06/10/99
Open test side (Antenna, Amplify, cable calibrated together)				05/15/98	05/15/99

The level of confidence of 95%, the uncertainty of measurement of radiated emission is ± 4.96 dB.

2.4 Measurement Configuration



2.5 Measurement Result

1. Carrier Frequency : 174.23 MHz

$$\text{Corrected (dB)} = \text{AF(dB)} + \text{CL(dB)} = -13.45 \text{ dB/m}$$

$$\text{FI}_a(\text{dBuV/m}) = \text{FI}_r(\text{dBuV}) + \text{Corrected (dB)} = 76.70 - 13.45 = 63.25 \text{ dBuV/m}$$

The maximum field measured is 63.25 dBuV/m

$$\text{FI (Volt)} = 10^{63.25/20} \times 10^{-6} = 0.00145 \text{ V}$$

$$\text{FI (mW)} = (0.00145 \times 3)^2 / 49.2 = 0.386 \text{ uW}$$

2. Carrier Frequency : 180.13 MHz

$$\text{Corrected (dB)} = \text{AF(dB)} + \text{CL(dB)} = -13.09 \text{ dB/m}$$

$$\text{FI}_a(\text{dBuV/m}) = \text{FI}_r(\text{dBuV}) + \text{Corrected (dB)} = 97.70 - 13.09 = 84.61 \text{ dBuV/m}$$

The maximum field measured is 84.61 dBuV/m

$$\text{FI (Volt)} = 10^{84.61/20} \times 10^{-6} = 0.01700 \text{ V}$$

$$\text{FI (mW)} = (0.01700 \times 3)^2 / 49.2 = 0.052 \text{ mW}$$

3. Carrier Frequency : 215.40 MHz

$$\text{Corrected (dB)} = \text{AF(dB)} + \text{CL(dB)} = -11.58 \text{ dB/m}$$

$$\text{FI}_a(\text{dBuV/m}) = \text{FI}_r(\text{dBuV}) + \text{Corrected (dB)} = 106.80 - 11.58 = 95.22 \text{ dBuV/m}$$

The maximum field measured is 95.22 dBuV/m

$$\text{FI (Volt)} = 10^{95.22/20} \times 10^{-6} = 0.05767 \text{ V}$$

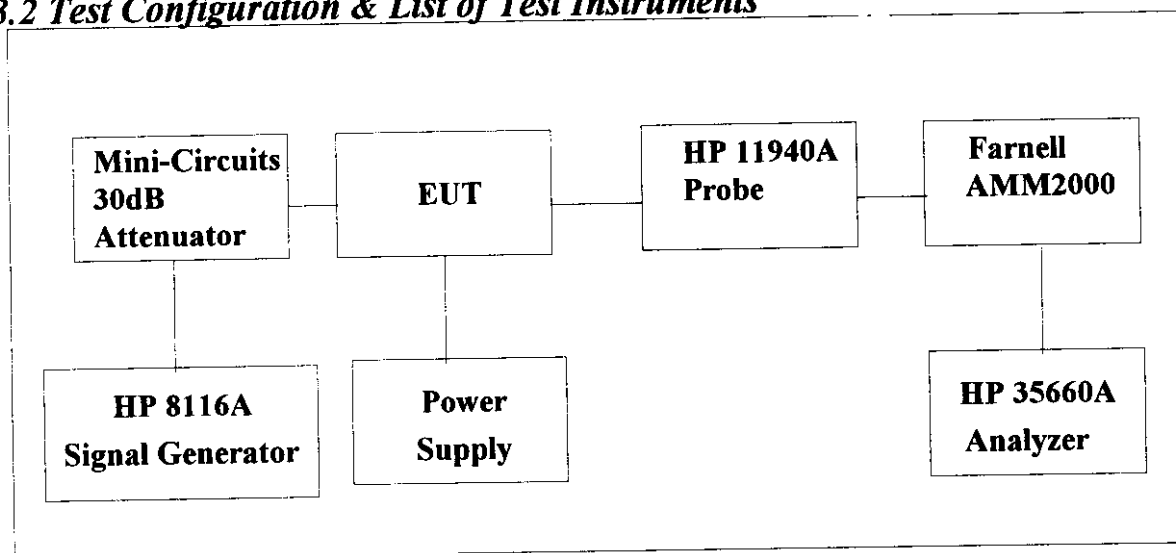
$$\text{FI (mW)} = (0.05767 \times 3)^2 / 49.2 = 0.608 \text{ mW}$$

Chapter 3 Modulation Characteristics Measurement

3.1 Rules and Specification Limits

2. 987(a) Voice modulated communication equipment
4. 987(b) Equipment which employs modulation limiting

3.2 Test Configuration & List of Test Instruments



List of test instrument :

Manufacturer	Device	Model	Input Impedance
HP	Dynamic Signal Analyzer	HP35660A	50
HP	Signal Generator 50 MHz	HP8116A	50
Farnell	Modulation Meter	AMM2000	---
HP	Close-Field Probe 30M~1GHz	11940A	---

3.3 Frequency Response of Audio Modulation Circuit Measurement Condition & Setup

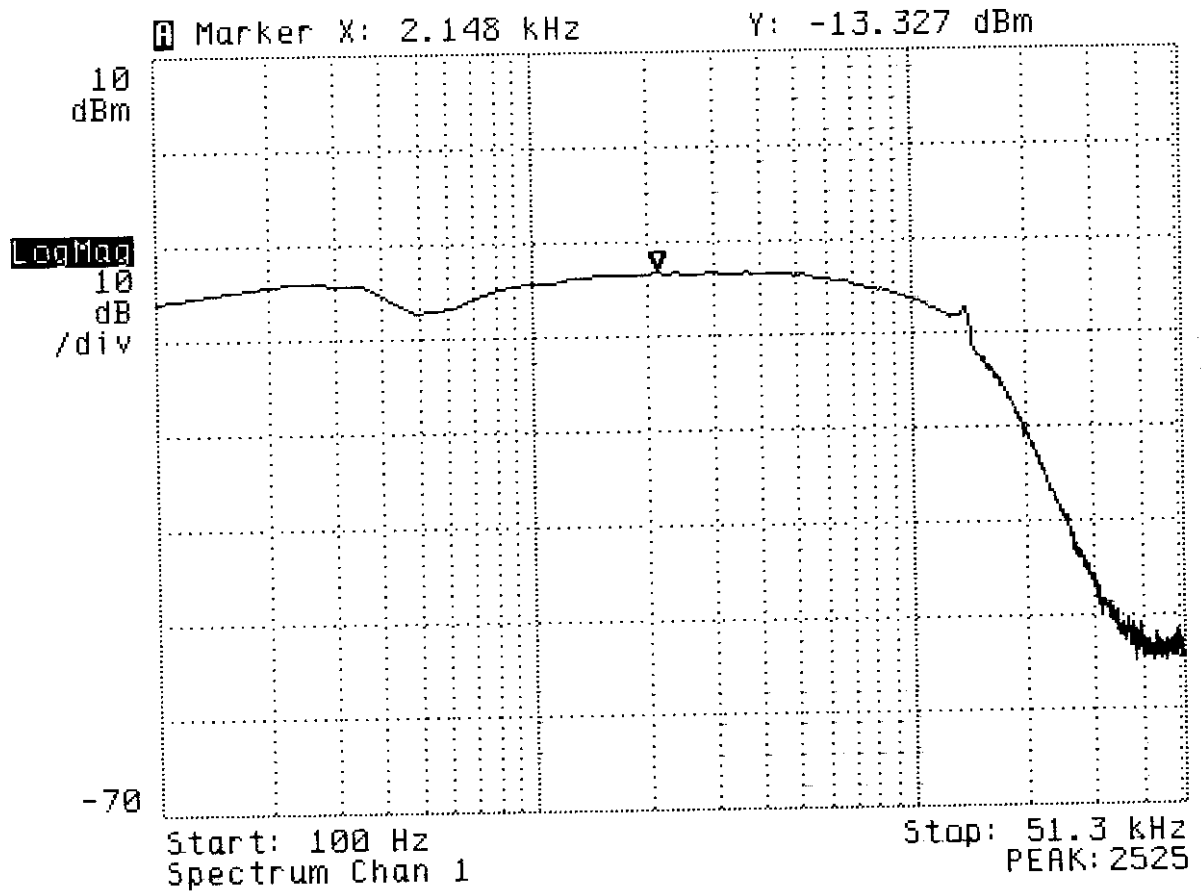
2.987 (a)

1. The EUT and test equipment were set up as shown on the Section 4.2 .
2. The Plus/Function generator was connected to the audio input circuit/microphone of the EUT.
3. The audio signal input was adjusted to obtain 50% modulation at 1 KHz.
4. With input levels held constant and below limiting at all frequencies, the generator was varied from 100 Hz to 51.3 kHz.
5. The response in dBVrms relative to 1kHz was then measured, using the HP 35660A Dynamic Signal Analyzer as follow page that have no page number.

Offset: OFF
X Ref: 51.2 kHz

Y Ref: -26.99 dBm

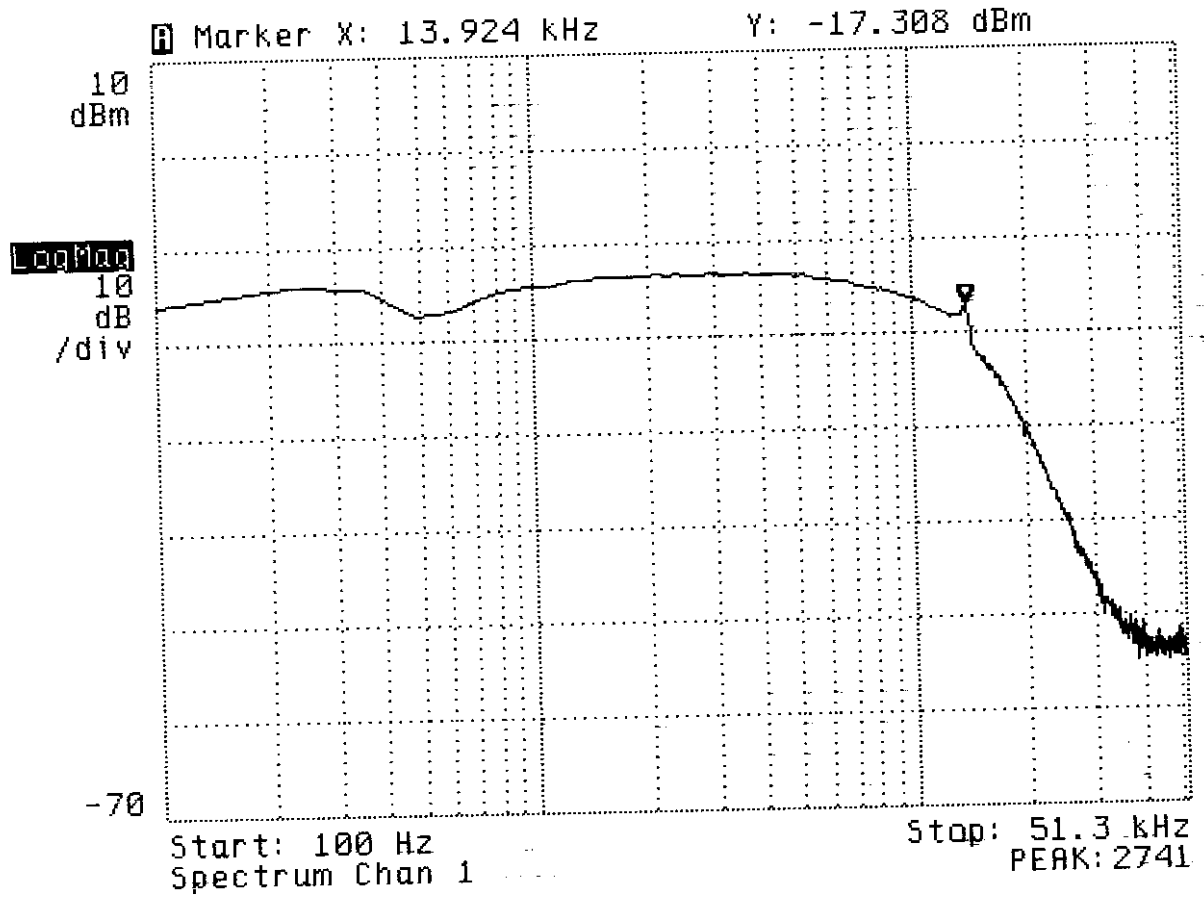
Meas



Offset: OFF
X Ref: 51.2 kHz

Y Ref: -26.99 dBm

Meas



3.4 Frequency Response of Audio Low Pass Filter Measurement Condition & Setup

1. The measurement condition and setup as Section 3.3 .
2. With input levels held constant and below limiting at all frequencies , the generator was varied from 100Hz to 102.5kHz .
3. The response in dBVrms relative to 1kHz was then measured, using the HP 35660A Dynamic Signal Analyzer as follow page that have no page number.

3.5 Modulation Limiting Measurement Condition & Setup

1. The signal generator was connected to the input of the EUT as for “Frequency Response of the Modulating Circuit”.
2. The modulation response was measured for each of three frequencies : 100Hz, 2.148KHz and 13.924KHz .
3. The input level was varied from 30% modulation to at least 20 dB higher than the saturation point .
4. Measurements were performed for both negative and positive modulation and the respective results were recorded .
5. Measurement results as Chart 3.1 to 3.2

Number: 10

Update Rate: 5

Overlap: 0%

AVERAGE IN PROGRESS

Meas

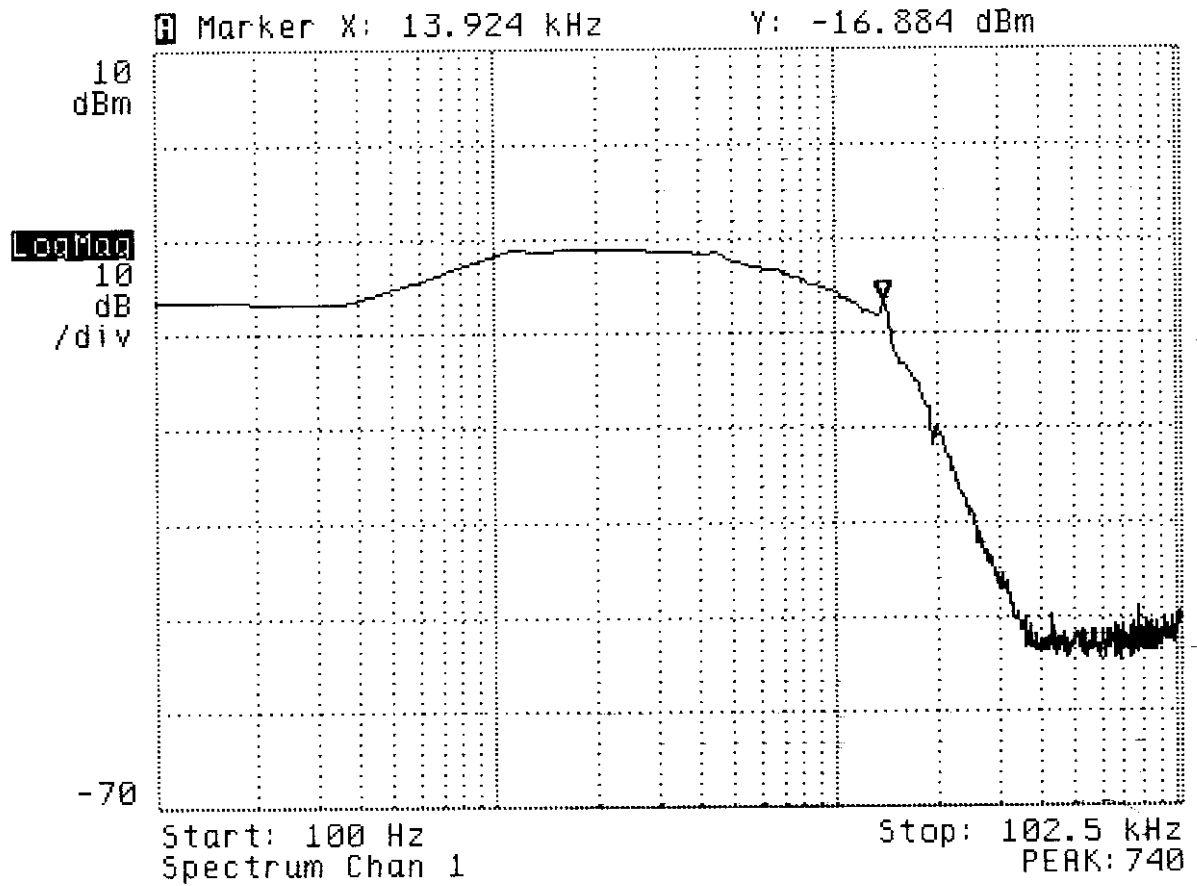


Chart 3.1 Modulation Limiting Measurement Negative

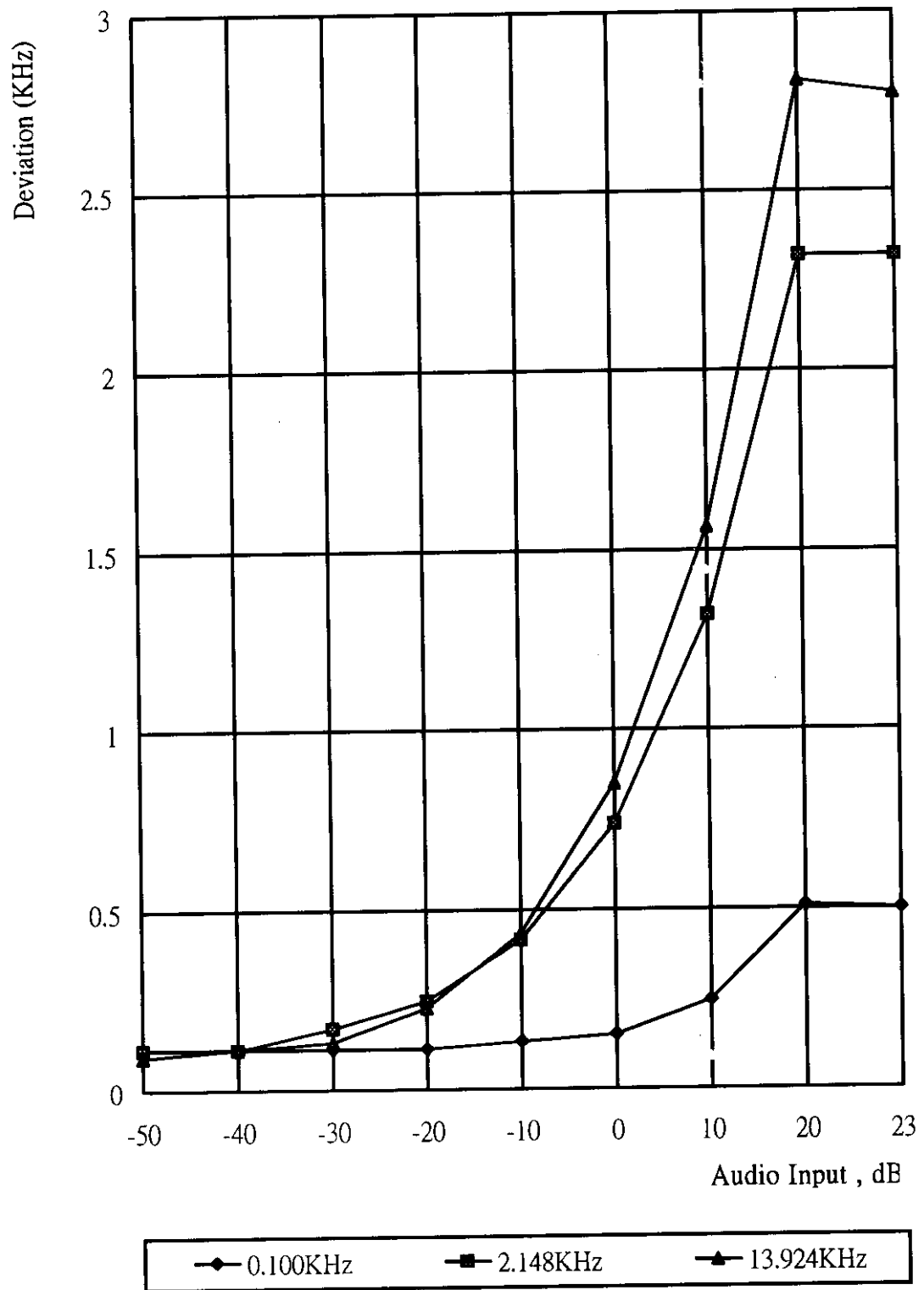


Chart 3.2 Modulation Limiting Measurement Positive

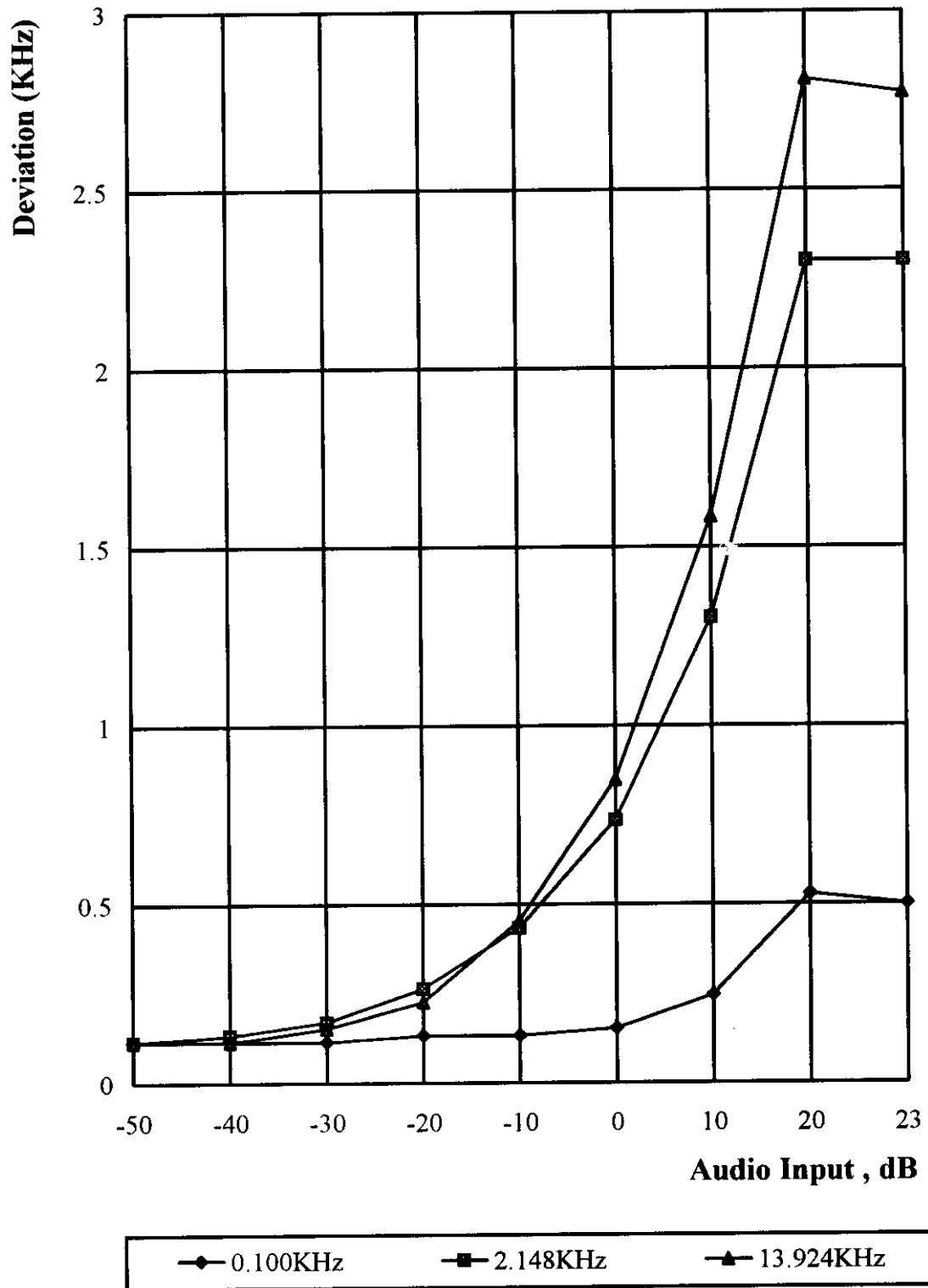


Chart 4 Occupied Bandwidth Measurement

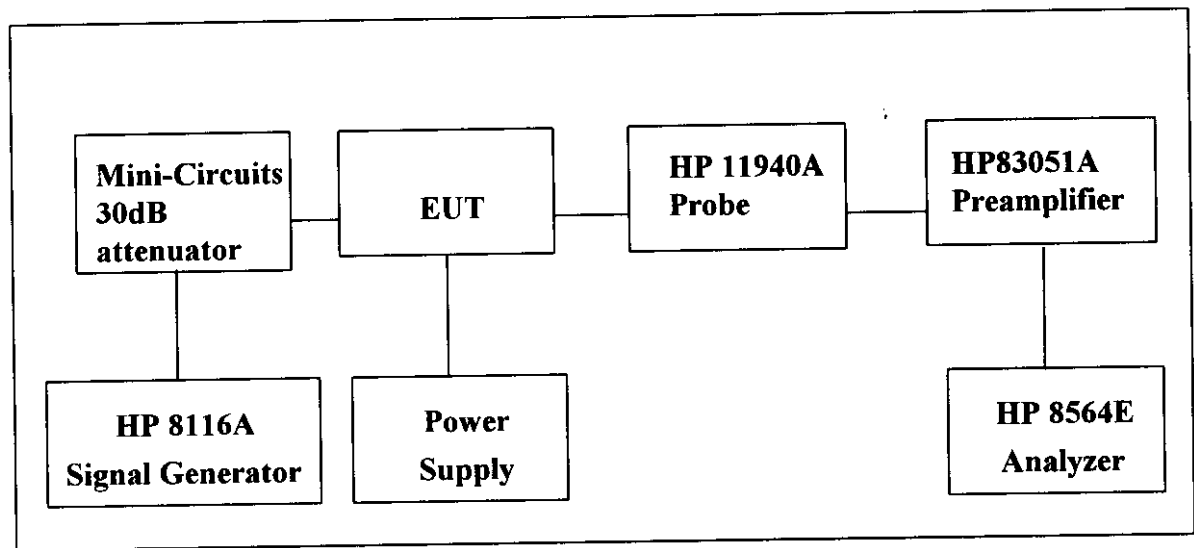
4.1 Rules and Specification Limits

2.989 .

74.861 (e) (3) : Any form of modulation may be used . A maximum deviation of ± 75 KHz is permitted when frequency modulation is employed.

74.861 (e) (5) : The operation bandwidth shall not exceed 200 KHz .

4.2 Test Configuration & List of Test Instruments



List of test Instrument :

Instrument name	Model No.	Brand	Serial No.
Spectrum analyzer (9K~40GHz)	8564E	HP	
Preamplifier (45M~50GHz)	83051A	HP	VS36433002
Close-Field Probe 30M~1GHz	11940A	HP	---

4.3 Measurement Procedure

1. Connect the EUT as Section 4.2 .
2. Plot the unmodulated chart shows on spectrum.
3. Set the output of the signal generator to 100 Hz, 2.148KHz and 13.924KHz. Increase the amplitude of the signal, while monitoring the modulation meter. Until modulation is max. Measure the bandwidth under 26 dB compared to the unmodulated fundamental carrier peak level of the modulated signal displayed on the spectrum analyzer.
4. The occupied Bandwidth was measured as follow two pages.

4.4 Measurement Result

The occupied bandwidth's plot is presented on following pager which illustrates compliance with the rules.

Calculation of Necessary Bandwidth (Bn)

$$B_n = 2M + 2D$$

$$M = \text{Max. Modulation Frequency} = 13.924 \text{ KHz}$$

$$D = \text{Peak Frequency Deviation} = 2.810 \text{ KHz} \quad (\text{Chart 3-1})$$

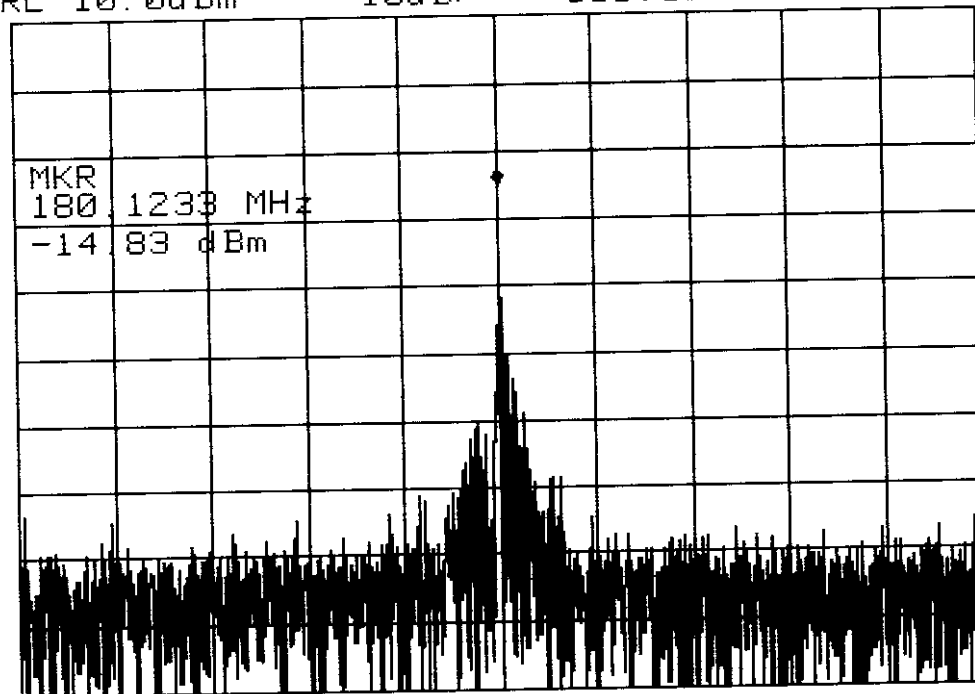
$$K = 1$$

$$B_n = 33.468 \text{ KHz}$$

*ATTEN 40dB
RL 10.0dBm

10dB/

MKR -14.83dBm
180.1233MHz

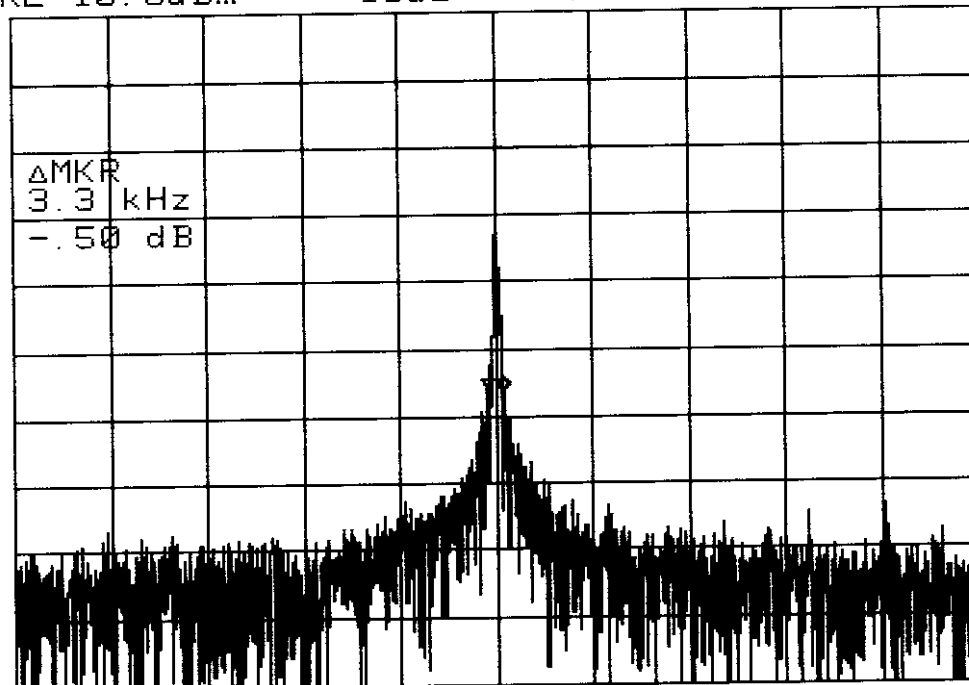


CENTER 180.1230MHz SPAN 200.0kHz
*RBW 100Hz *VBW 100Hz SWP 16.0sec

*ATTEN 40dB
RL 10.0dBm

10dB/

ΔMKR -.50dB
3.3kHz



CENTER 180.1230MHz SPAN 200.0kHz
*RBW 100Hz *VBW 100Hz SWP 16.0sec

100Hz

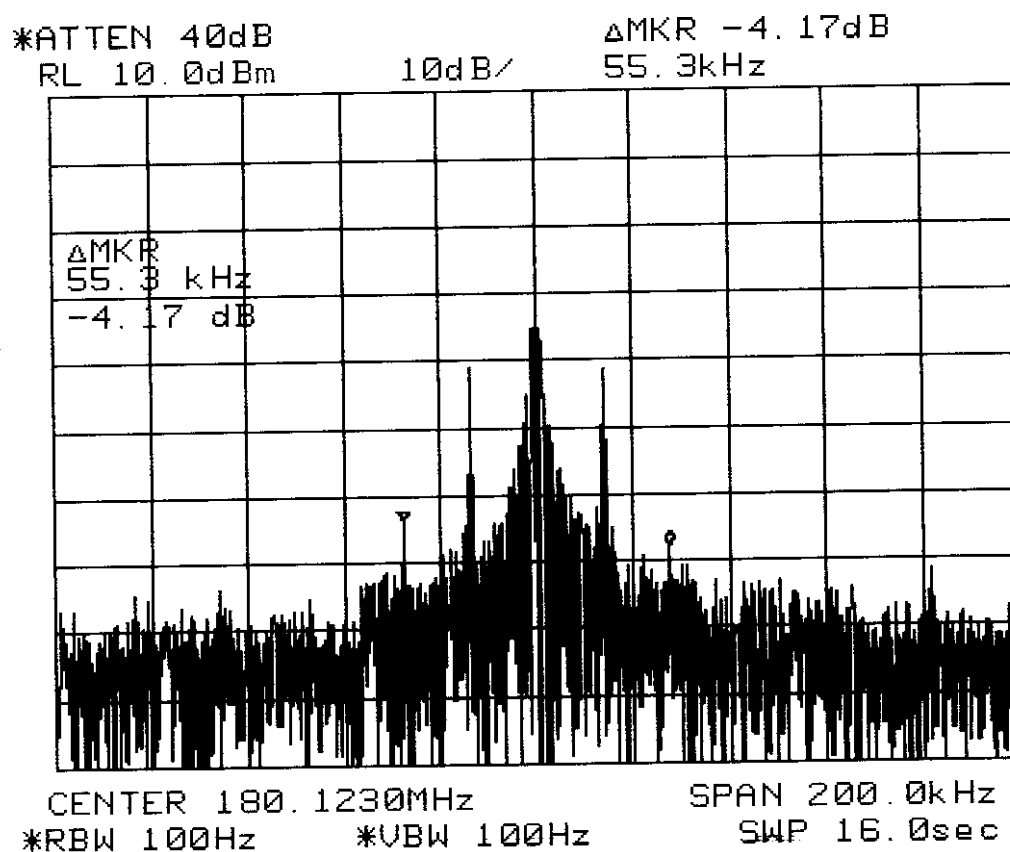
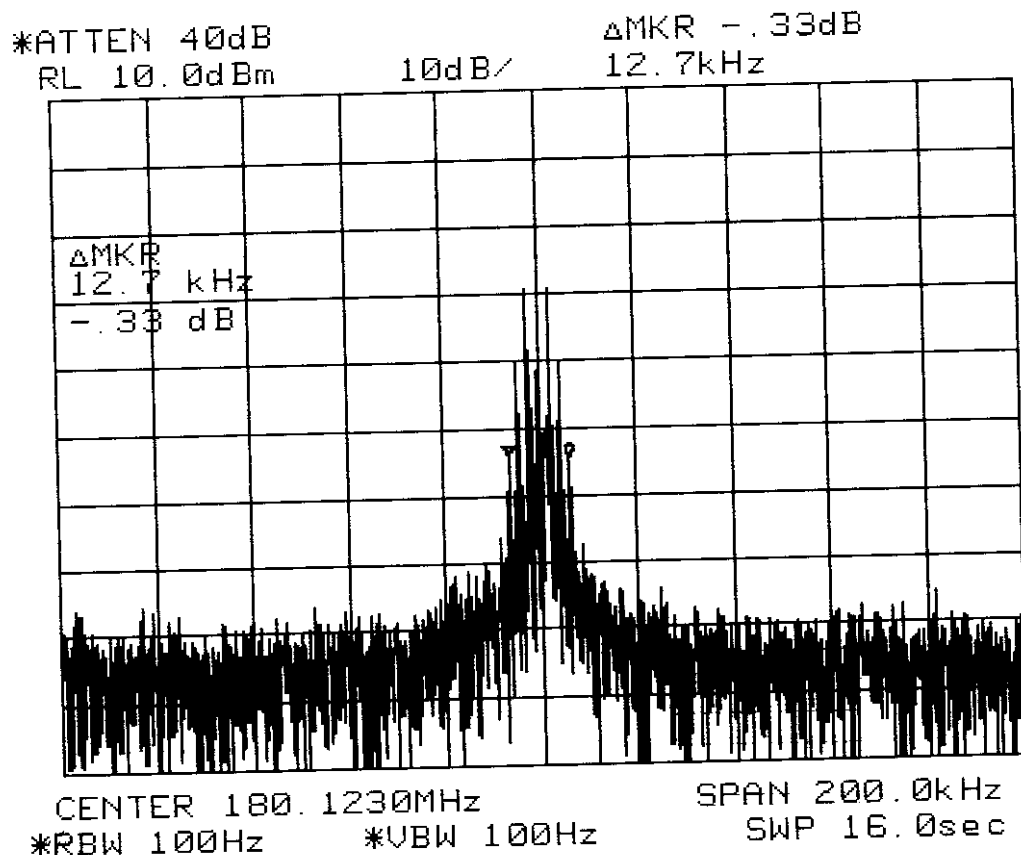


Chart 5 Field Strength of Spurious Radiation Measurement

5.1 Rules and Specification Limits

2.993 (a) : Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, Power leads, or intermediate circuit elements under normal conditions of installation and operation.

74.861(e)(b)(iii) : Spurious and harmonics must be at least $43 + 10 \log (\text{Output Power})$ below the Carrier peak

2.997 : In all measurements set forth , the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency.

5.2 Measurement Condition & Setup

Pretest : Prior to the final test (OATS test) ,the EUT is placed in a shielded enclosure ,GTEM, and scan from 30MHz to 1GHz. This is done to ensure the radiation exactly emits form the EUT.

Final test : Final radiation measurements is made on a **3 - meter**, open-field test site. The EUT is placed on a nonconductive table which is 0.8 m height, the top surface is 1.0 x 1.5 meter. All the placement is according to ANSI C63.4 - 1992.

The spectrum is examined from 30 MHz to 18 GHz measured by HP spectrum.

The EMCO whole range Antenna is used to measure frequency from 30 MHz to 18 GHz. The final test is used the spectrum HP 8591A & HP 8564E.

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency . The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meter to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 K Hz , and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the data will be rechecked by the tester and the corrected data will be written in the test data sheet. If the emission is just within the ambient ,the data from GTEM will be taken as the final data.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV , the antenna factor (dB) and cable loss (dB) at the appropriate frequency .

$$FI_a (\text{ dBuV/m}) = FI_r (\text{ dBuV}) + AF (\text{ dB }) + CL(\text{dB})$$

FI_a : Actual Field Intensity

FI_r : Reading of the Field Intensity

AF : Antenna Factor

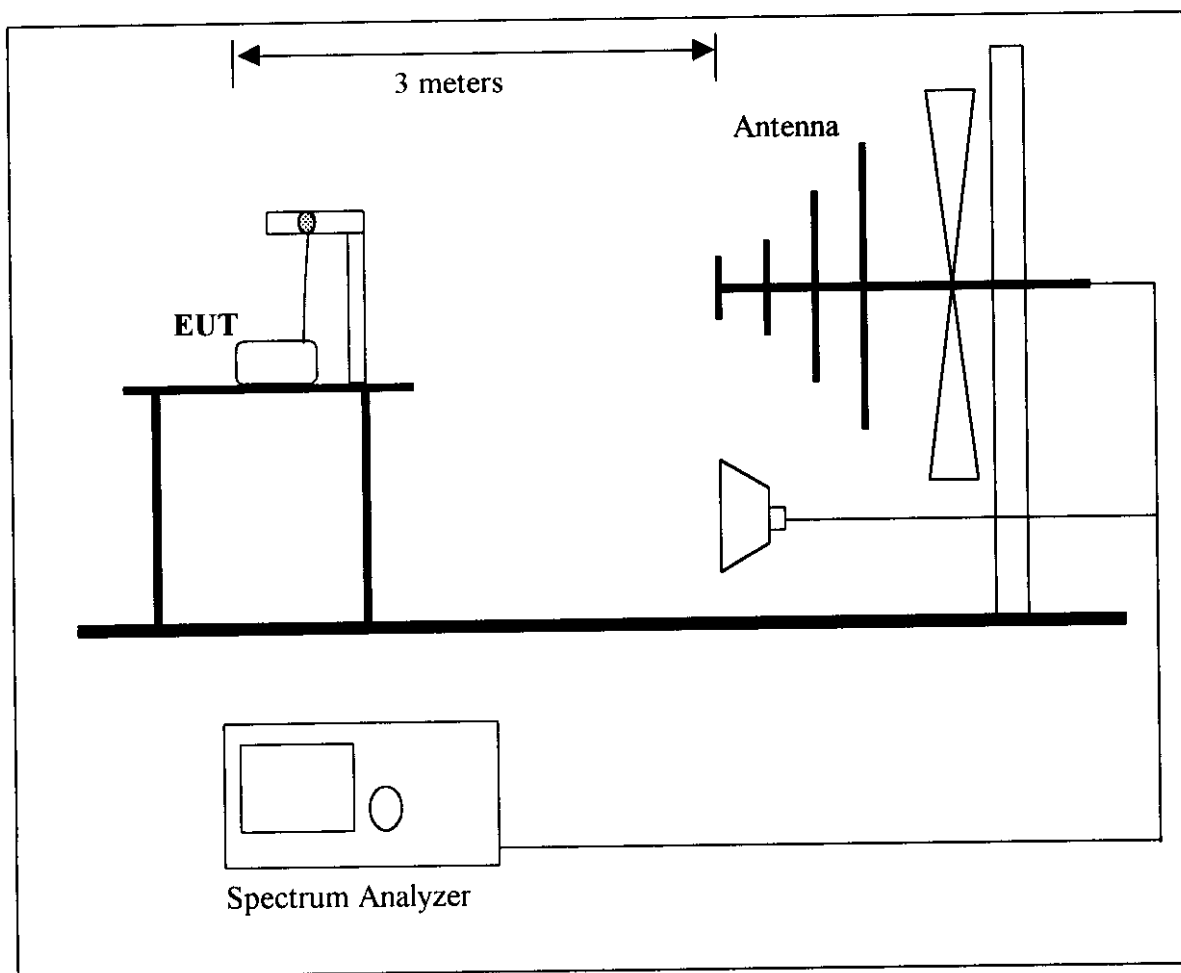
CL : Cable Loss

5.3 List of Measurement Instruments

Instrument name	Model No.	Brand	Serial No.	Calibration Date	
				Last	Next
Spectrum analyzer	8568B	H P	3004A18617	05/15/98	05/15/99
Quasi-peak Adapter	85650A	H P	2521A00984	05/15/98	05/15/99
RF Pre-selector	85685A	H P	2947A01011	05/15/98	05/15/99
Spectrum analyzer	8591A	H P	2919A00263	01/07/98	01/07/99
Spectrum analyzer	8564E	H P	US36433002	08/09/98	08/09/99
Antenna(30M-2G Hz)	3142	EMCO	1296	06/10/98	06/10/99
Antenna(1G-18G Hz)	3142	EMCO	5178	08/09/98	08/09/99
Open test side (Antenna, Amplify, cable calibrated together)				05/15/98	05/15/99

The level of confidence of 95% , the uncertainty of measurement of radiated emission is ± 4.96 dB.

5.4 Measurement Configuration



5.5 Measurement Result (174.23MHz) : (Horizontal for 30 MHz ~ 1 GHz)

Test Conditions:

Testing room : Temperature : 25 °C Humidity : 69 % RH
 Testing site : Temperature : 28 °C Humidity : 85 % RH

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

116.150	41.50	1.00	41	-15.41	26.09	84.38	-58.29
130.670	43.30	1.00	266	-15.55	27.75	84.38	-56.63
159.710	52.20	1.00	190	-13.91	38.29	84.38	-46.09
348.460	43.60	1.00	91	-5.96	37.64	84.38	-46.74
522.680	38.70	1.00	106	-0.76	37.94	84.38	-46.44
871.140	41.20	1.00	41	7.48	48.68	84.38	-35.70

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude - Correction Factors
3. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)
 (For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)
4. Attenuation required = $43 + 10 \log (3.86613 \times 10^{-7} \text{ W}) = -21.13$
 Limit = $63.25 - (-21.13) = 84.38$

Measurement Result (174.23MHz) : (Horizontal for 1 GHz ~ 18 GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (GHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table ()	(dB)		Limit (dBuV/m)	Margin (dB)
1.045	50.80	100.00	161	-8.67	42.13	54	-11.87
1.205	48.46	100.00	199	-8.67	39.79	54	-14.21
1.220	53.63	100.00	32	-8.67	44.96	54	-9.04
1.395	49.96	100.00	327	-8.67	41.29	54	-12.71
1.568	45.30	100.00	169	-8.67	36.63	54	-17.37
1.808	41.46	100.00	316	-8.67	32.79	54	-21.21

Note:

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factor = Corrected

Measurement Result (174.23MHz) : (Vertical for 30 MHz ~ 1 GHz)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

116.150	48.90	1.00	99	-15.41	33.49	84.38	-50.89
130.670	46.10	1.00	173	-15.55	30.55	84.38	-53.83
159.710	52.20	1.00	20	-13.91	38.29	84.38	-46.09
348.460	45.00	1.00	178	-5.96	39.04	84.38	-45.34
522.680	49.60	1.00	139	-0.76	48.84	84.38	-35.54
871.140	40.70	1.00	291	7.48	48.18	84.38	-36.20

Measurement Result (174.23MHz) : (Vertical for 1 GHz ~ 18 GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (GHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
1.045	53.63	100.00	171	-8.67	44.96	54	-9.04
1.205	53.13	100.00	329	-8.67	44.46	54	-9.54
1.220	60.46	100.00	126	-8.67	51.79	54	-2.21
1.395	54.13	100.00	22	-8.67	45.46	54	-8.54
1.568	50.80	100.00	195	-8.67	42.13	54	-11.87
1.808	46.13	100.00	148	-8.67	37.46	54	-16.54

Measurement Result (180.13MHz) : (Horizontal for 30 MHz ~ 1 GHz)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

135.090	76.90	1.00	55	-15.24	61.66	84.38	-22.72
150.100	59.40	1.00	105	-14.39	45.01	84.38	-39.37
165.110	67.40	1.00	60	-13.80	53.60	84.38	-30.78
195.130	64.40	1.00	90	-12.30	52.10	84.38	-32.28
360.250	57.80	1.00	0	-5.45	52.35	84.38	-32.03
540.370	45.40	1.00	49	-0.25	45.15	84.38	-39.23
720.490	47.50	1.00	98	3.91	51.41	84.38	-32.97

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude - Correction Factors
3. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)
(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)
4. Attenuation required = $43 + 10 \log (5.28782 \times 10^{-5} \text{ W}) = 0.23$
Limit = $84.61 - 0.23 = 84.38$

Measurement Result (180.13MHz) : (Horizontal for 1 GHz ~ 18 GHz)

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 M)	
Frequency (GHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)	(dBuV/m)	Limit (dBuV/m)	Margin (dB)
1.082	47.46	100.00	22	-8.67	38.79	54	-15.21
1.216	46.63	100.00	159	-8.67	37.96	54	-16.04
1.577	50.63	100.00	132	-8.67	41.96	54	-12.04
1.665	59.63	100.00	351	-8.67	50.96	54	-3.04
1.712	56.96	100.00	88	-8.67	48.29	54	-5.71
1.757	53.46	100.00	297	-8.67	44.79	54	-9.21
1.800	47.96	100.00	291	-8.67	39.29	54	-14.71

Measurement Result (180.13MHz) : (Vertical for 30 MHz ~ 1 GHz)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

135.090	69.20	1.00	261	-15.24	53.96	84.38	-30.42
150.100	44.50	1.00	73	-14.39	30.11	84.38	-54.27
165.110	55.10	1.00	61	-13.80	41.30	84.38	-43.08
195.130	60.00	1.00	204	-12.30	47.70	84.38	-36.68
360.250	55.60	1.00	126	-5.45	50.15	84.38	-34.23
540.370	44.90	1.00	16	-0.25	44.65	84.38	-39.73
720.490	43.50	1.00	113	3.91	47.41	84.38	-36.97

Measurement Result (180.13MHz) : (Vertical for 1 GHz ~ 18 GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (GHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table ()	(dB)		Limit (dBuV/m)	Margin (dB)
1.082	49.63	100.00	72	-8.67	40.96	54	-13.04
1.216	51.80	100.00	98	-8.67	43.13	54	-10.87
1.577	51.96	100.00	163	-8.67	43.29	54	-10.71
1.665	60.13	100.00	318	-8.67	51.46	54	-2.54
1.712	55.30	100.00	81	-8.67	46.63	54	-7.37
1.757	52.80	100.00	227	-8.67	44.13	54	-9.87
1.800	51.96	100.00	129	-8.67	43.29	54	-10.71

Measurement Result (215.40MHz) : (Horizontal for 30 MHz ~ 1 GHz)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

197.440	54.90	1.00	92	-12.25	42.65	84.38	-41.73
233.340	63.80	1.00	13	-10.63	53.17	84.38	-31.21
269.240	53.20	1.00	3	-8.88	44.32	84.38	-40.06
430.790	52.30	1.00	137	-3.58	48.72	84.38	-35.66
646.180	35.10	1.00	261	1.80	36.90	84.38	-47.48
663.250	36.00	1.00	13	2.56	38.56	84.38	-45.82
700.030	35.20	1.00	197	3.40	38.60	84.38	-45.78
861.570	32.60	1.00	163	7.09	39.69	84.38	-44.69

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude - Correction Factors
3. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)
(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)
4. Attenuation required = $43 + 10 \log (6.08523 \times 10^{-4} \text{ W}) = 10.84$
Limit = 95.22 - 10.84 = 84.38

Measurement Result (215.40MHz) : (Horizontal for 1 GHz ~ 18 GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (GHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
1.023	59.12	100.00	261	-8.67	50.45	54	-3.55
1.077	51.29	100.00	197	-8.67	42.62	54	-11.38
1.291	50.29	100.00	34	-8.67	41.62	54	-12.38
1.506	53.45	100.00	232	-8.67	44.78	54	-9.22
1.560	57.29	100.00	12	-8.67	48.62	54	-5.38
1.617	61.12	100.00	317	-8.67	52.45	54	-1.55
1.667	57.45	100.00	271	-8.67	48.78	54	-5.22
1.686	55.95	100.00	275	-8.67	47.28	54	-6.72
1.705	56.79	100.00	189	-8.67	48.12	54	-5.88
1.725	60.12	100.00	258	-8.67	51.45	54	-2.55
1.778	54.62	100.00	174	-8.67	45.95	54	-8.05
1.813	53.79	100.00	197	-8.67	45.12	54	-8.88

Measurement Result (215.40MHz) : (Vertical for 30 MHz ~ 1 GHz)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

197.440	54.90	1.00	92	-12.25	42.65	84.38	-41.73
233.340	63.80	1.00	13	-10.63	53.17	84.38	-31.21
269.240	53.20	1.00	3	-8.88	44.32	84.38	-40.06
430.790	52.30	1.00	137	-3.58	48.72	84.38	-35.66
646.180	35.10	1.00	261	1.80	36.90	84.38	-47.48
663.250	36.00	1.00	13	2.56	38.56	84.38	-45.82
700.030	35.20	1.00	197	3.40	38.60	84.38	-45.78
861.570	32.60	1.00	163	7.09	39.69	84.38	-44.69

Measurement Result (215.40MHz) : (Vertical for 1 GHz ~ 18 GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBuV/m)	FCC Class B (3 M)	
Frequency (GHz)	Amplitude (dBuV/m)	Ant.H. (cm)	Table (°)	(dB)		Limit (dBuV/m)	Margin (dB)
1.023	54.95	100.00	261	-8.67	46.28	54	-7.72
1.077	54.62	100.00	197	-8.67	45.95	54	-8.05
1.291	49.45	100.00	34	-8.67	40.78	54	-13.22
1.506	52.62	100.00	232	-8.67	43.95	54	-10.05
1.560	51.29	100.00	12	-8.67	42.62	54	-11.38
1.617	56.79	100.00	317	-8.67	48.12	54	-5.88
1.667	56.29	100.00	271	-8.67	47.62	54	-6.38
1.686	53.29	100.00	275	-8.67	44.62	54	-9.38
1.705	52.62	100.00	189	-8.67	43.95	54	-10.05
1.725	57.29	100.00	258	-8.67	48.62	54	-5.38
1.778	48.62	100.00	174	-8.67	39.95	54	-14.05
1.813	51.95	100.00	197	-8.67	43.28	54	-10.72

Chart 6 Frequency Stability Tolerance Measurement

6.1 Rules and Specification Limits

2.995

74.861(e)(4): The frequency tolerance of the transmitter shall be 0.005 percent.

6.2 Measurement Condition & Setup with Temperature Variation

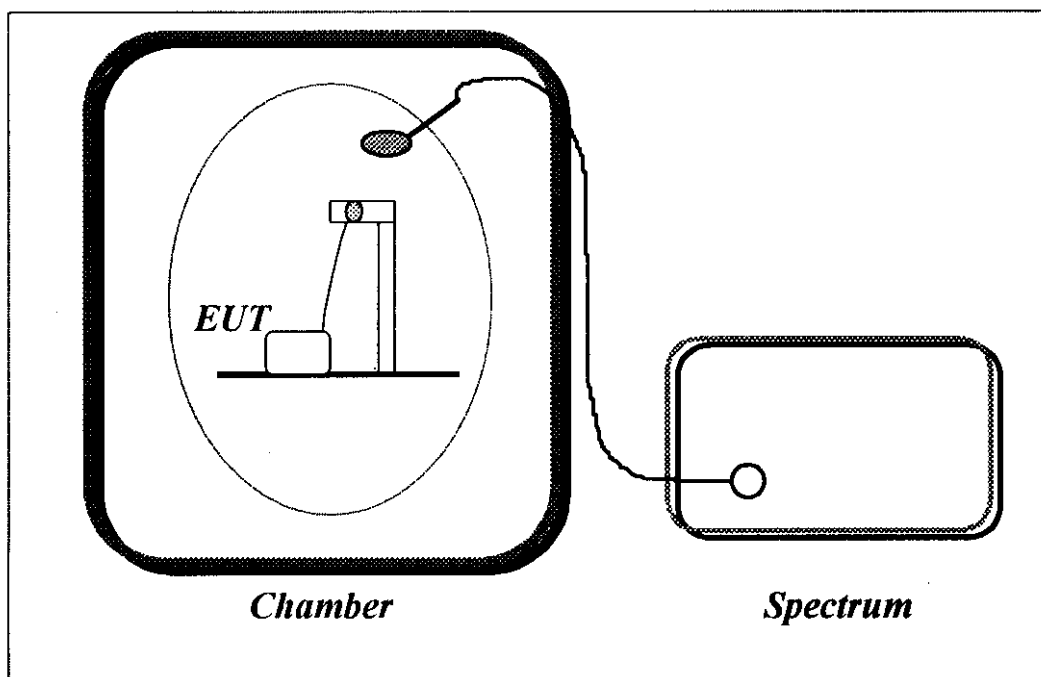
1. Place the EUT in the chamber, powered in its normal operation.
2. Set the temperature of the chamber -30 degree Centigrade. Allow the equipment to stabilize at that temperature.
3. Measured the carrier frequency using preamplifier and frequency counter.
4. Repeated procedures 1 to 3 from -20 to 50 degree Centigrade at internals of 10 degree.

6.3 List of Measurement Instruments with Temperature Variation

List of test Instrument :

Instrument name	Model No.	Brand	Remark
Spectrum Analyzer	8591A	H P	1.8GHz
Temperature Chamber	THS-MV2	King Son	
Near field Probe	7405-901	EMCO	
Power Supply			
Auto Transformer	Powerstat	Supprior Elec. Co.	

6.4 Measurement Configuration of Temperature variation test :



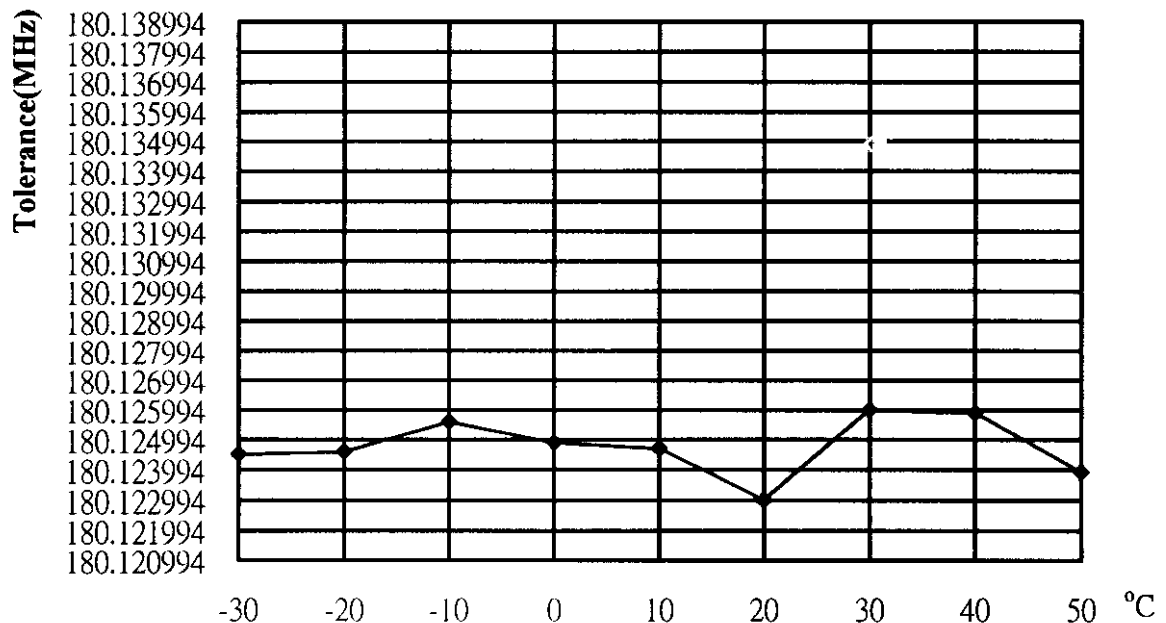
6.5 Measurement Result with Temperature Variation

A plot and table is presented which illustrates compliance with the rule where the center frequency is 180.13 MHz.

Temperature Variation Table

Temperature (Centigrade)	Frequency (MHz)	Tolerance (MHz)
-30	180.124500	180.1209935~180.1390065
-20	180.124600	180.1209935~180.1390065
-10	180.125600	180.1209935~180.1390065
0	180.124900	180.1209935~180.1390065
10	180.124700	180.1209935~180.1390065
20	180.123000	180.1209935~180.1390065
30	180.126000	180.1209935~180.1390065
40	180.125900	180.1209935~180.1390065
50	180.123900	180.1209935~180.1390065

Temperatuer Variation Vs. Frequency Chart



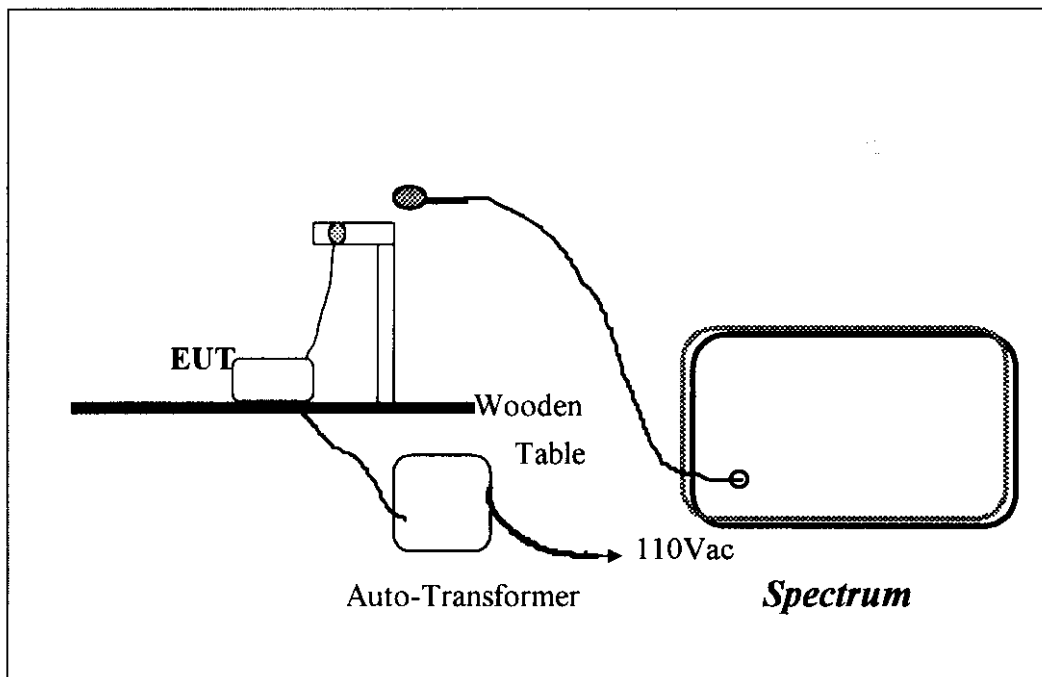
6.6 Measurement Condition & Setup with Voltage Variation

1. Attached the power line of the power supply to the battery position of the EUT.
2. Tuned the output power level to battery end point , 85 % , 100%, 115% of the normal operation power of EUT.
3. Recorded the frequency with a frequency counter.

6.7 List of test Instrument :

Instrument name	Model No.	Brand	Remark
Spectrum Analyzer	8591A	H P	1.8GHz
Temperature Chamber	THS-MV2	King Son	
Near field Probe	7405-901	EMCO	
Power Supply			
Auto Transformer	Powerstat	Supprior Elec. Co.	

6.8 Configuration of Voltage variation test :



6.9 Measurement Result with Voltage Variation

Frequency Stability of Voltage Variation Measurement Table

Supply Voltage (Volt)	Frequency (MHz)	Tolerance (MHz)
2.55 (85%)	180.124100	180.1209935~180.1390065
3.00 (100%)	180.123000	180.1209935~180.1390065
3.45 (115%)	180.124300	180.1209935~180.1390065
Endpoint-Voltage : 1.6V		

Voltage Variation Vs. Frequency Chart

