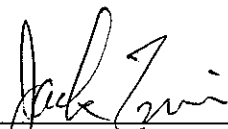
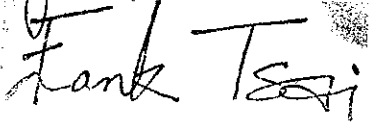


EXHIBIT B

Test Report

Report No.	E1474969	
Specifications	FCC Part 74 – Certification	
Test Method	ANSI C63.4 1992	
Applicant address	4F, No. 11, Lane 125, Sec. 1, Kuo Kwang Rd., Ta Li City, Taichung Hsien, Taiwan, R.O.C.	
Applicant	E-J ELECTRONICS CO., LTD.	
Items tested	Wireless Microphone	
Model No.	EJ2LT, EJ-3LT (Sample # E14969)	
Results	Compliance (As detailed within this report)	
Date	07/10/2000 (month / day / year) (Sample received) 08/03/2000 (month / day / year) (Test)	
Prepared by		Project Engineer
Authorized by		General Manager (Frank Tsai)
Issue date	August 11, 2000	(month / day / year)
Modifications	None	
Tested by	Training Research Co., Ltd.	
Office at	2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan	
Anechoic Chamber at	2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, 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 nay agency of U.S. Government.**

★ **FCC ID : NTMEJ-2LT3LT**

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Chapter 0 Application for Certification

- 2.983 (a) : **E-J ELECTRONICS CO., LTD.**— applicant and manufacturer
- 2.983 (b) : The equipment is a transmitter, wireless microphone
Model No.: EJ2LT, EJ-3LT
- 2.983 (c) : Quantity production is planned
- 2.983 (d) (1) : Type of emission – F3E- FM Modulation
- 2.983 (d) (2) : 100Hz ~ 21.22KHz
- 2.983 (d) (3) : 14.766 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 : 3V, UM-3*2
- 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 *E-J 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 :

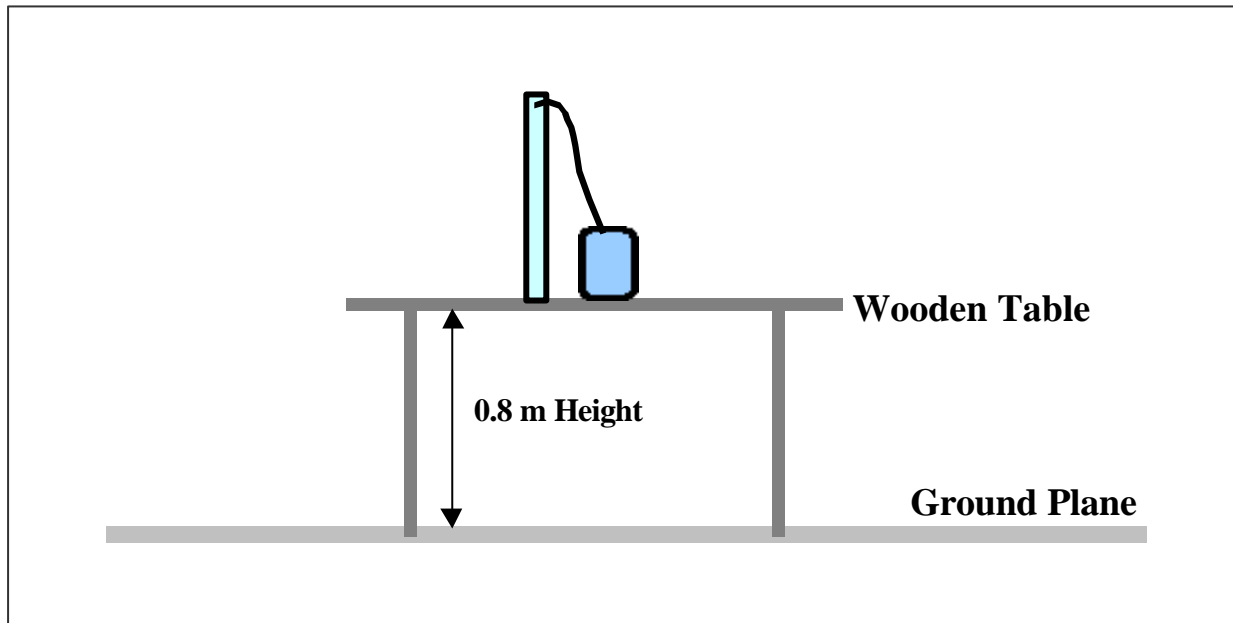
EUT	:	WIRELESS MICROPHONE
Model No.	:	EJ2LT, EJ-3LT
Carrier Frequency Range	:	174.5 ~214.75 MHz
RF Power Output	:	14.766 mW
Supply Voltage	:	DC 3V
Supply Current	:	46.7 mA
Frequency Response	:	100Hz ~ 21.22KHz
Frequency Stability	:	0.005%
Operating Temperature	:	- 30 to + 50 degree centigrade

Wireless microphone is a transmitter which operates in the frequency range of 174.5 ~ 214.75 MHz. (174.5MHz, 202.5MHz and 214.75MHz tested) This microphone is worn by a performer and other participants in a program, filming, reporting ...etc.

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, anechoic chamber at test site maintained by **Training Research Co., Ltd.**, 2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan. 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 (Registration Number: 93906) 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 mW.

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 SCHAFFNER 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 micro volt (dBμV) into field intensity in Watt.
 - (1) The actual field intensity in decibels referenced to 1 micro volt per meter (dBμV/m) is determined by algebraically adding the measured reading in dBμV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.
 - (2) The field intensity in Volt can then be determined by the following equation:

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

$$FI_a(\text{dBmV}/\text{m}) = FI_r(\text{dBmV}) - \text{Corrected (dB)}$$

$$\text{Corrected (dB)} = AF(\text{dB}) + [CL(\text{dB}) - \text{Amplitude Gain}]$$

FI_a : Actual Field Intensity

FI_r : Reading of the Field Intensity

AF : Antenna Factor

CL : Cable Loss

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

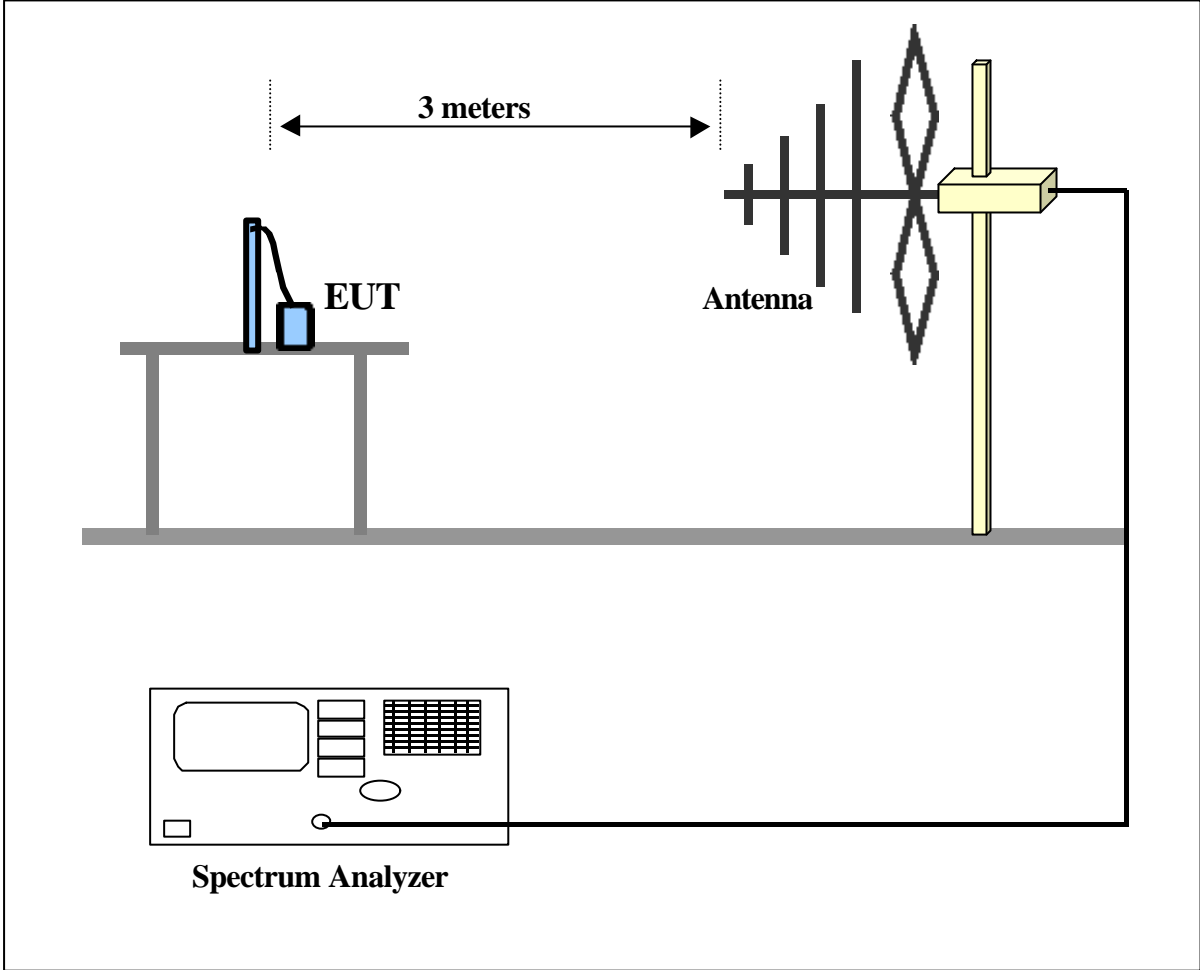
D : Measurement Distance (3 m)

2.3 List of test Instrument :

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Serial No.</u>	<u>Calibration Date</u>	
				<u>Last time</u>	<u>Next time</u>
EMI Receiver	8546A	H P	3520A00242	10/01/99	10/01/00
RF Filter Section	85460A	H P	3448A00217	10/01/99	10/01/00
LISN (EUT)	LISN-01	TRC	9912-03,04	12/09/99	12/09/00
LISN (Support E.)	LISN-01	TRC	9912-05	01/04/00	01/04/01
Switch/Control Unit (< 30MHz)	3488A	HP	N/A	11/20/99	11/20/00
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	11/20/99	11/20/00

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) Frequency: 174.5 MHz

$$\begin{aligned} \text{Corrected (dB)} &= \text{AF(dB)} + [\text{CL(dB)} - \text{Amplitude Gain}] \\ &= -13.04 \text{ dB/m} \end{aligned}$$

$$\begin{aligned} \text{FI}_a \text{ (dBmV/m)} &= \text{FI}_r \text{ (DbmV)} - \text{Corrected (dB)} \\ &= 87.31 - (-13.04) \\ &= 100.35 \text{ dB}\mu\text{V/m} \end{aligned}$$

The maximum field measured is 100.35 dB μ V/m

$$\text{FI (Volt)} = 10^{100.35/20} \times 10^{-6} = 0.10411 \text{ V}$$

$$\text{FI (mW)} = (0.10411 \times 3)^2 / 49.2 = 1.982793 \text{ mW}$$

(2) Frequency: 202.5 MHz

$$\begin{aligned} \text{Corrected (dB)} &= \text{AF(dB)} + [\text{CL(dB)} - \text{Amplitude Gain}] \\ &= -13.58 \text{ dB/m} \end{aligned}$$

$$\begin{aligned} \text{FI}_a \text{ (dBmV/m)} &= \text{FI}_r \text{ (DbmV)} - \text{Corrected (dB)} \\ &= 91.16 - (-13.58) \\ &= 104.74 \text{ dB}\mu\text{V/m} \end{aligned}$$

The maximum field measured is 104.74 dB μ V/m

$$\text{FI (Volt)} = 10^{104.74/20} \times 10^{-6} = 0.17258 \text{ V}$$

$$\text{FI (mW)} = (0.17258 \times 3)^2 / 49.2 = 5.448506 \text{ mW}$$

(3) Frequency: 214.75 MHz

$$\begin{aligned} \text{Corrected (dB)} &= \text{AF(dB)} + [\text{CL(dB)} - \text{Amplitude Gain}] \\ &= -14.53 \text{ dB/m} \end{aligned}$$

$$\begin{aligned} \text{FI}_a \text{ (dBmV/m)} &= \text{FI}_r \text{ (DbmV)} - \text{Corrected (dB)} \\ &= 94.54 - (-14.53) \\ &= 109.07 \text{ dB}\mu\text{V/m} \end{aligned}$$

The maximum field measured is 109.07 dB μ V/m

$$\text{FI (Volt)} = 10^{109.07/20} \times 10^{-6} = 0.28412 \text{ V}$$

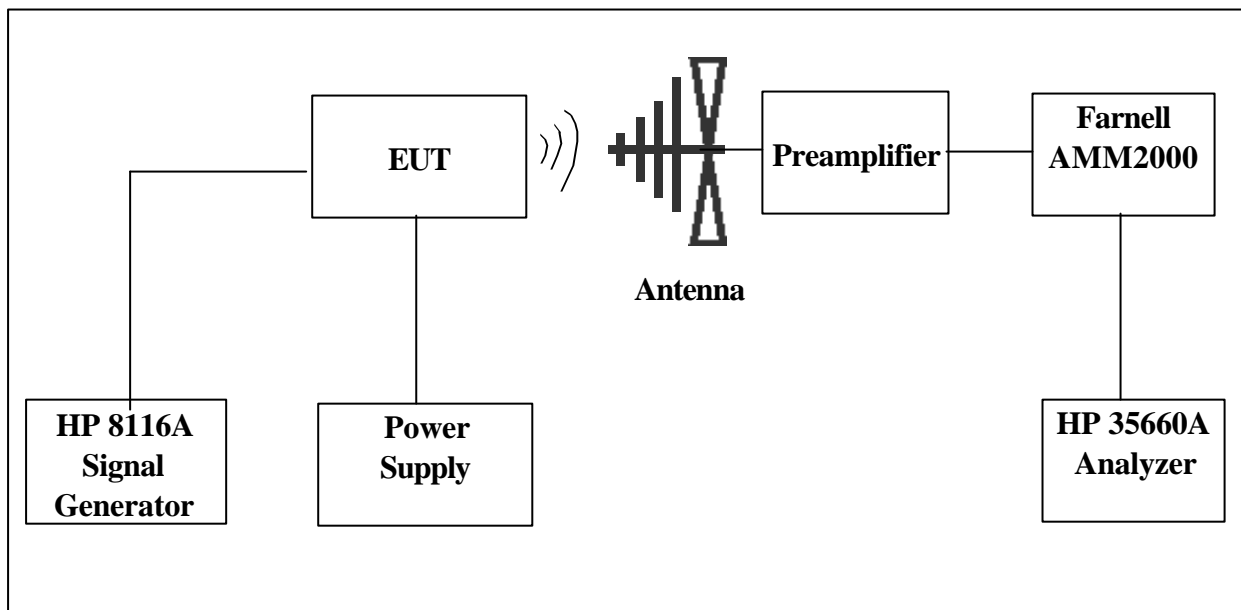
$$\text{FI (mW)} = (0.28412 \times 3)^2 / 49.2 = 14.766494 \text{ mW}$$

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 No.	Input Impedance
HP	Dynamic Signal Analyzer	HP35660A	50
HP	Signal Generator 50 MHz	HP8116A	50
SCHAFFNER	Bi-log Antenna	CBL6141A	50
Farnell	Modulation Meter	AMM2000	50
TRC	Preamplifier	TRC001	50

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.

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 1KHz to 102.5KHz.
3. The response in dBVrms relative to 1kHz was then measured, using the HP 35660A Dynamic Signal Analyzer as follow page.

3.5 Modulation Limiting Measurement Condition & Setup

1. The Plus/Function generator was connected to the audio input circuit/microphone of the EUT.
2. The modulation response was measured for each of four frequencies: 100Hz, 1KHz, 13.156KHz, 17.892KHz and 21.22KHz.
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

Offset: OFF

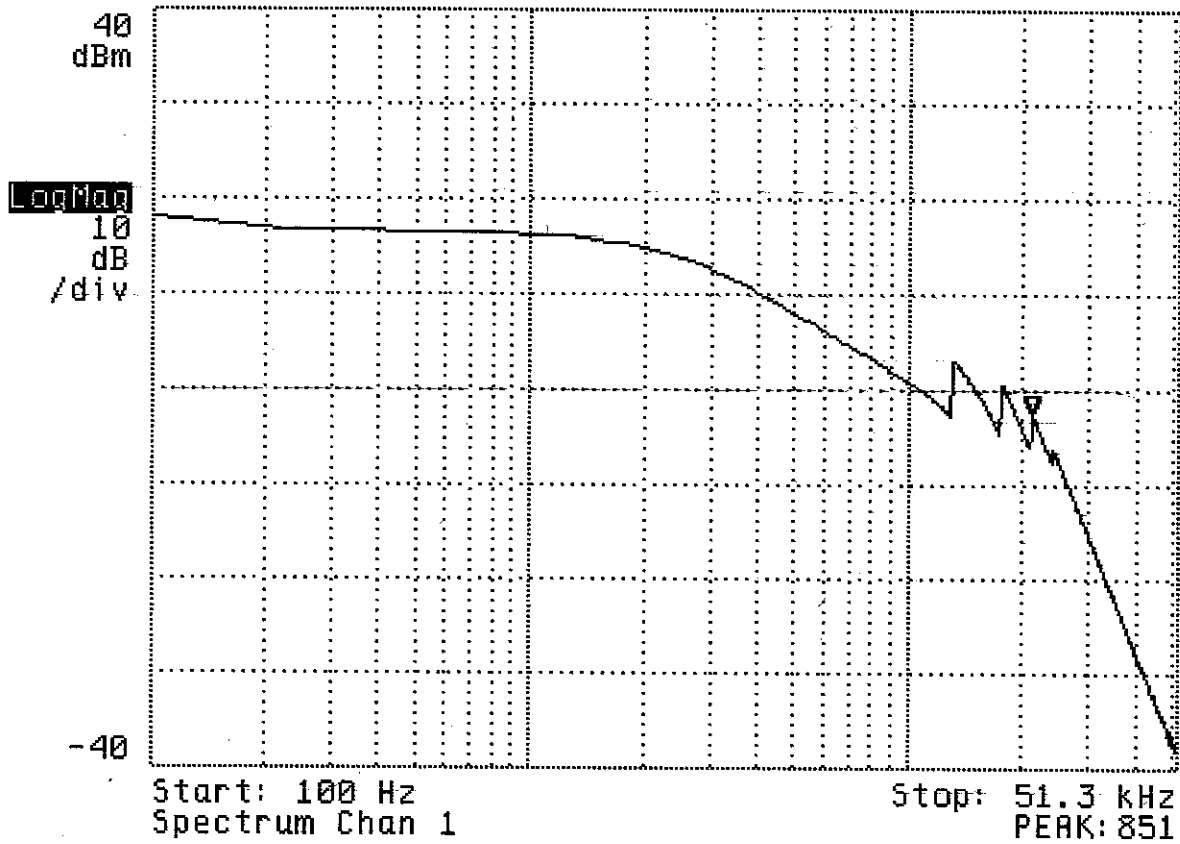
X Ref: 51.2 kHz

Y Ref: -26.99 dBm

AVERAGE IN PROGRESS

Meas

Marker X: 21.22 kHz Y: -2.801 dBm



Test Report

Offset: OFF

X Ref: 51.2 kHz

Y Ref: -26.99 dBm

Meas

AVERAGE IN PROGRESS

Marker X: 21.348 kHz Y: -2.922 dBm

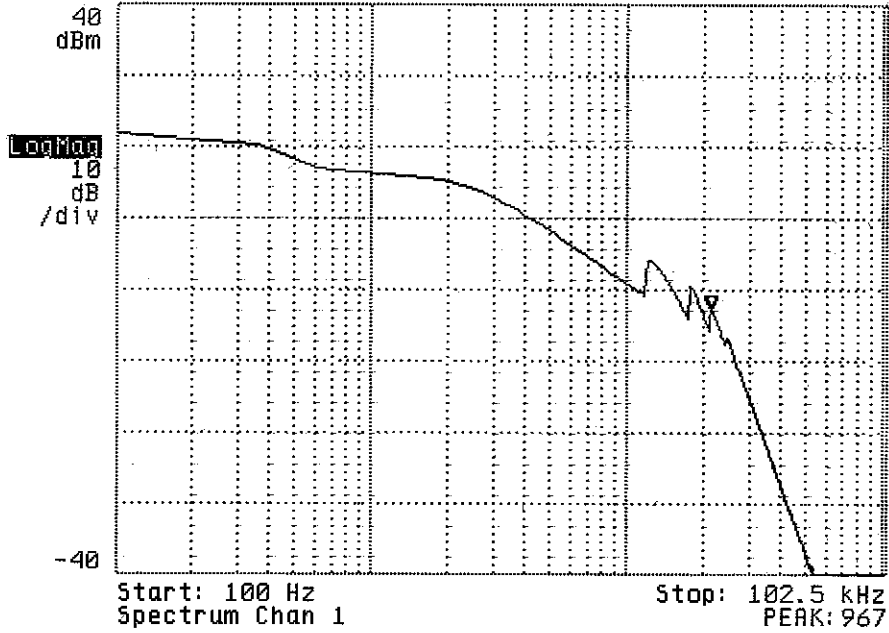


Chart 3.1 Modulation Limiting Measurement Negative

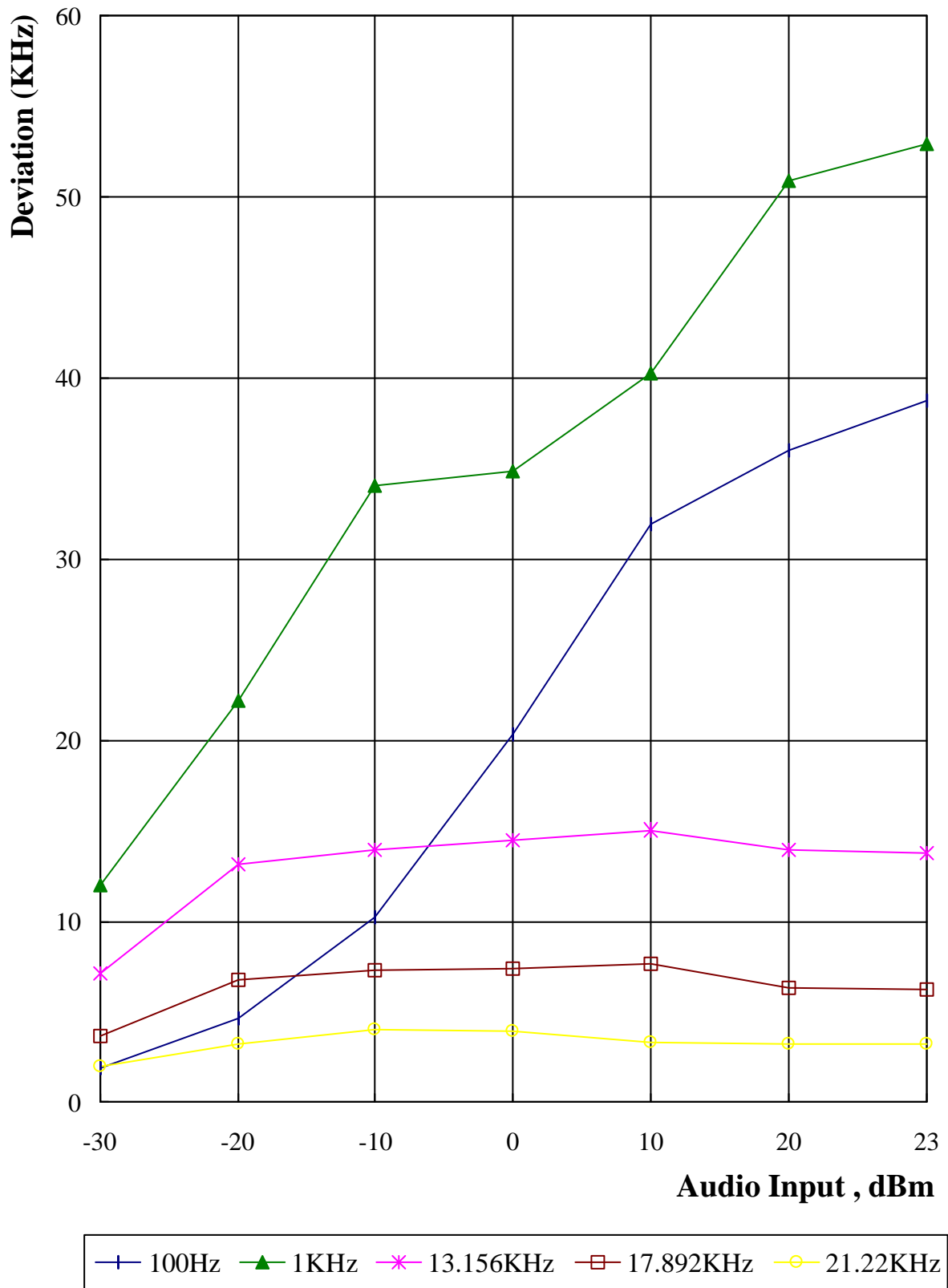
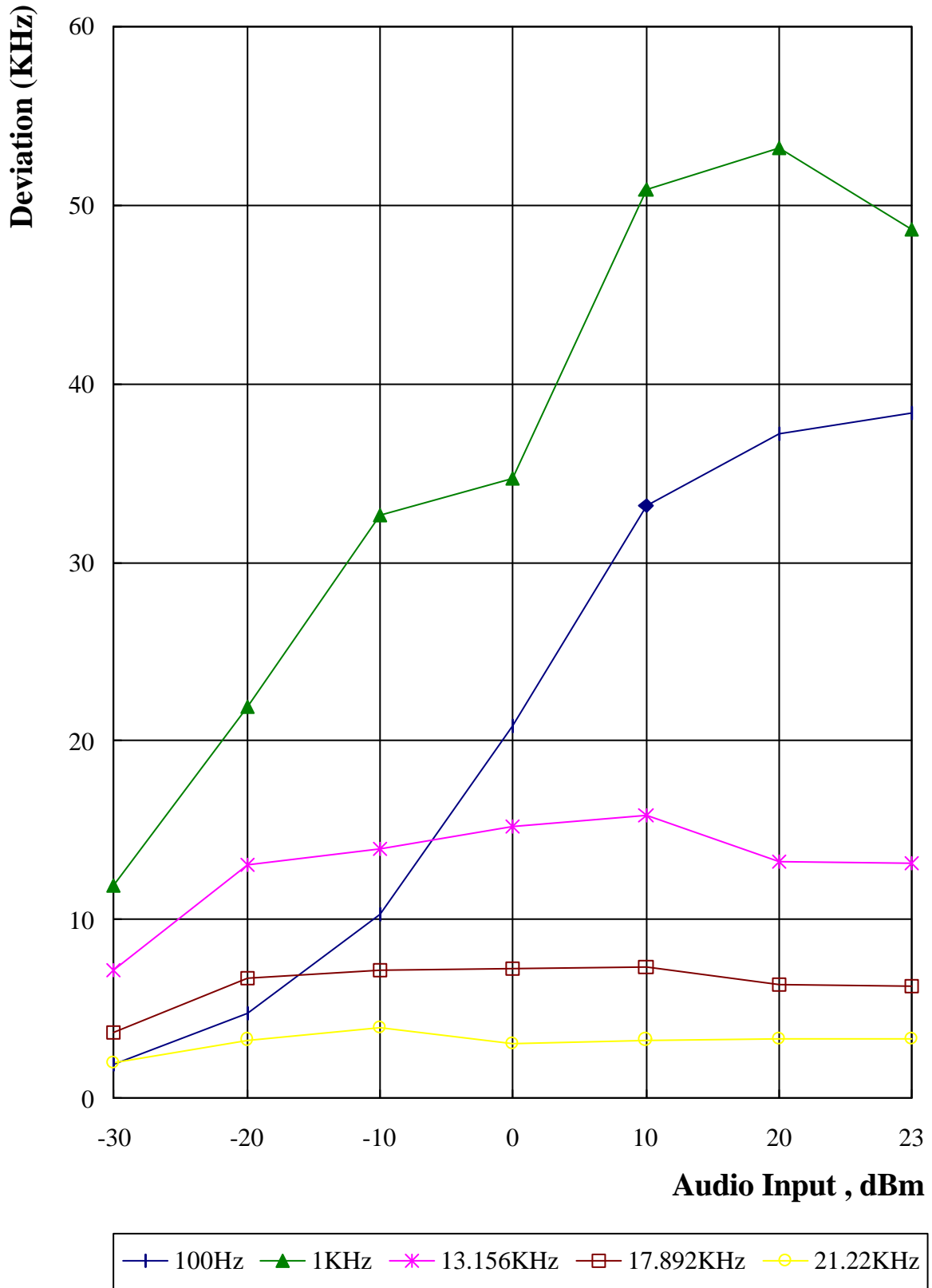


Chart 3.2 Modulation Limiting Measurement Positive



Chapter 4 Occupied Bandwidth Measurement

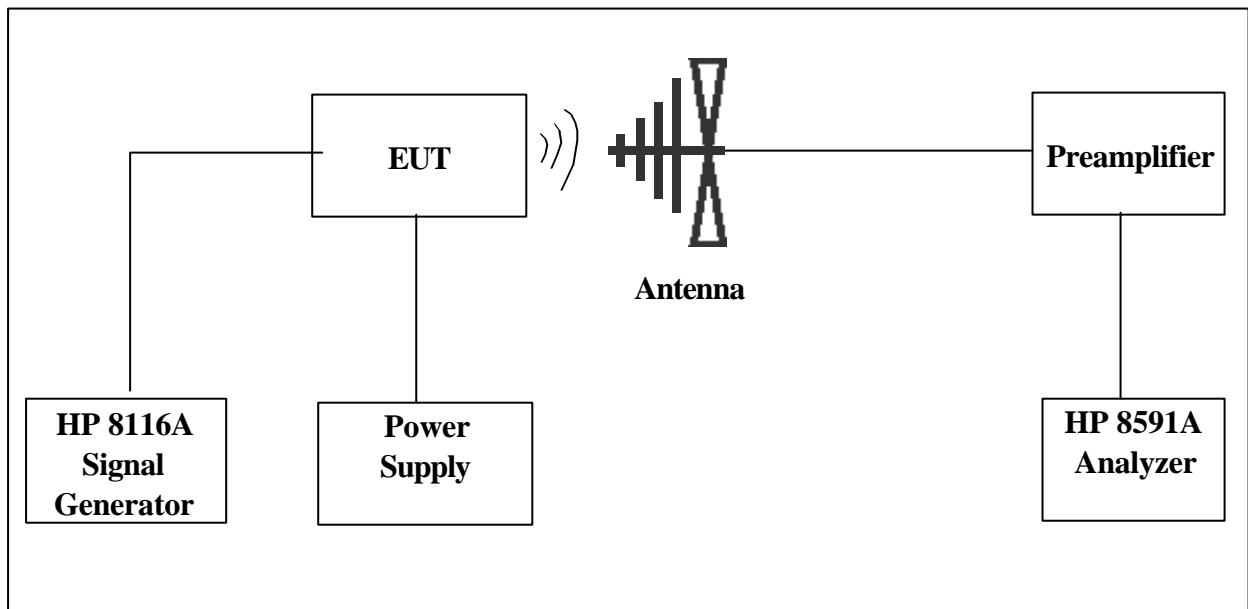
4.1 Rules and Specification Limits

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 :

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Input Impedance</u>
Spectrum analyzer (9K~1.8GHz)	8591A	HP	50
Pre-amplifier (30MHz~1GHz)	TRC001	TRC	50
Signal Generator 50 MHz	HP8116A	HP	50
Bi-log Antenna	CBL6141A	SCHAFFNER	50

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 100Hz, 1KHz and 13.156KHz, 17.892KHz and 21.22KHz. 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 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)

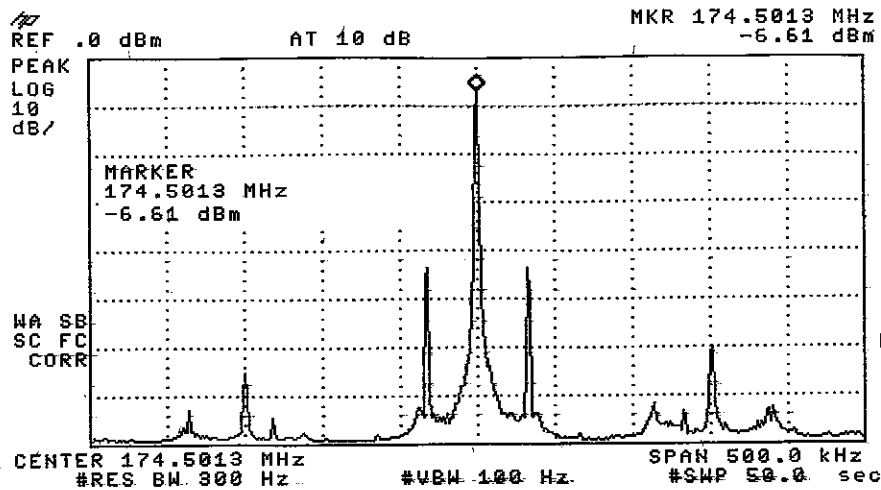
$$B_n = 2M + 2D$$

$$M = \text{Max. Modulation Frequency} = 21.22\text{KHz}$$

$$D = \text{Peak Frequency Deviation} = 42.44\text{KHz} \text{ (Chart 3-1)}$$

$$K = 1$$

$$B_n = 148.80\text{KHz}$$



Unmodulation

MARKER NORMAL

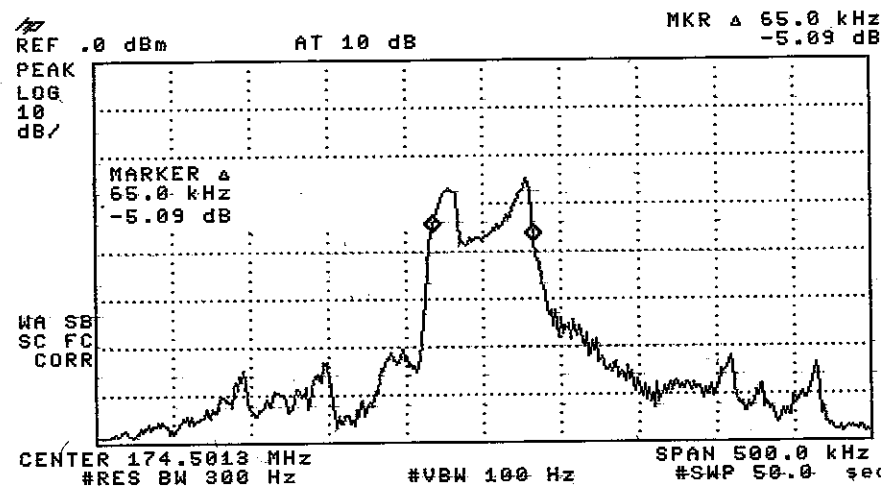
MARKER Δ

MARKER AMPTD

SELECT 1 2 3 4

MARKER 1 ON OFF

More 1 of 2



100Hz

MARKER NORMAL

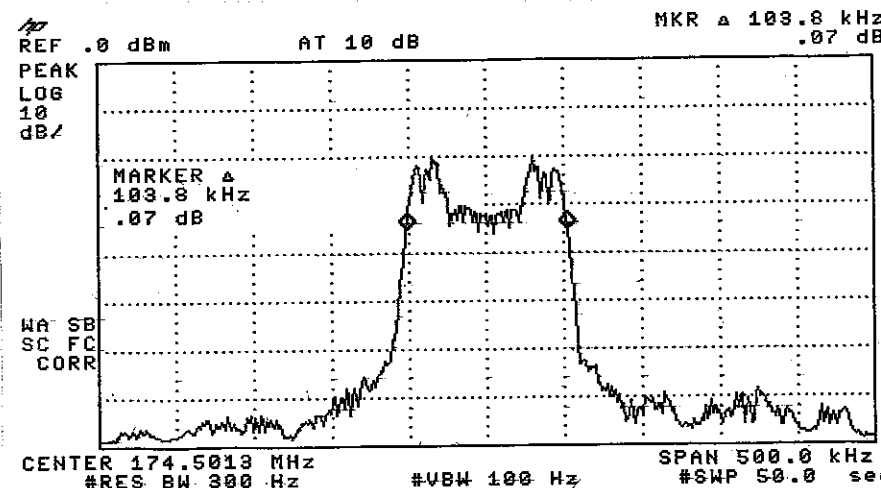
MARKER Δ

MARKER AMPTD

SELECT 1 2 3 4

MARKER 1 ON OFF

More 1 of 2



1KHz

MARKER NORMAL

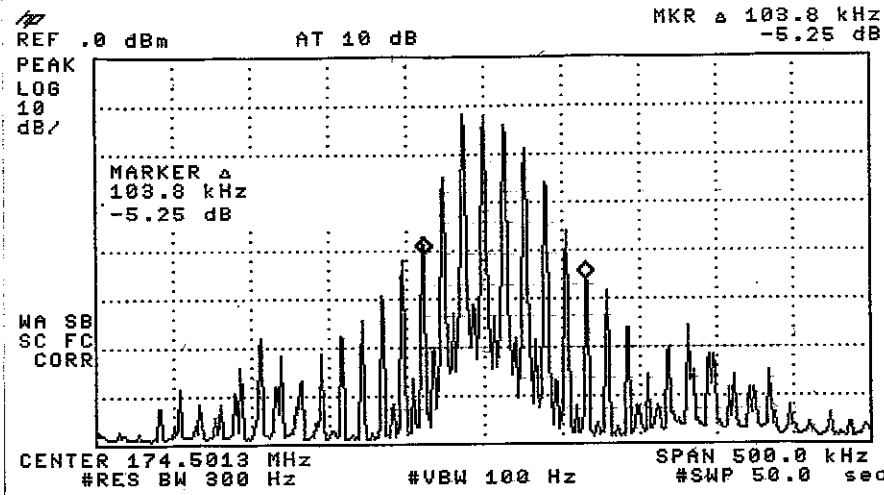
MARKER Δ

MARKER AMPTD

SELECT 1 2 3 4

MARKER 1 ON OFF

More 1 of 2



MARKER NORMAL

13.156KHz

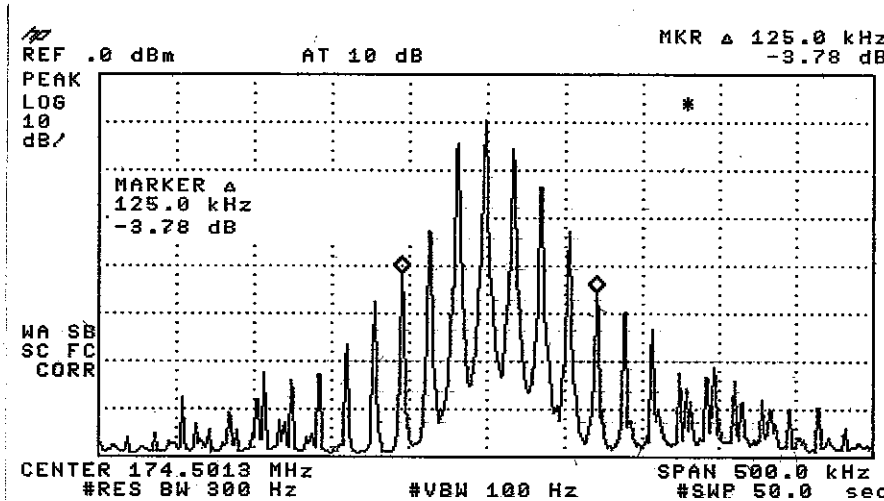
MARKER

MARKER AMPTD

SELECT 1 2 3 4

MARKER 1 ON OFF

More 1 of 2



MARKER NORMAL

17.892KHz

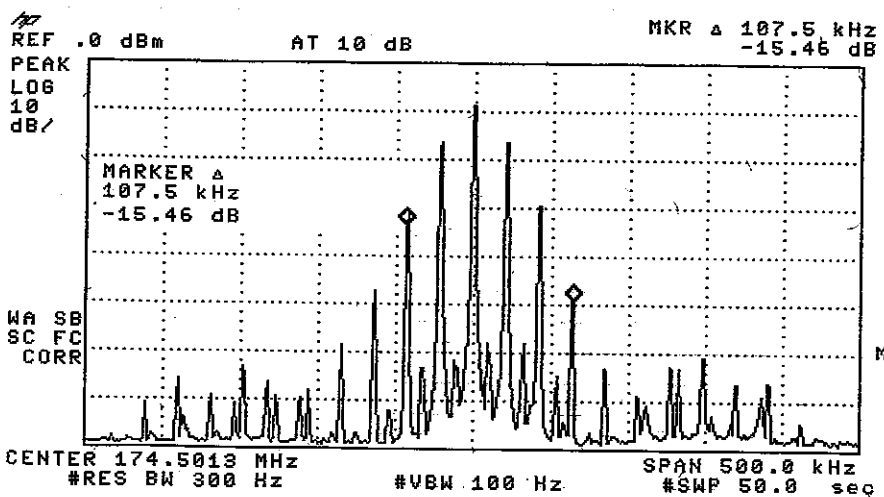
MARKER

MARKER AMPTD

SELECT 1 2 3 4

MARKER 1 ON OFF

More 1 of 2



MARKER NORMAL

21.22KHz

MARKER

MARKER AMPTD

SELECT 1 2 3 4

MARKER 1 ON OFF

More 1 of 2

Chapter 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 : The EUT is placed in a anechoic chamber, 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, anechoic chamber**. The EUT is placed on a nonconductive table, which is 0.8m 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 SCHAFFNER and EMCO whole range Antenna is used to measure frequency from 30 MHz to 18 GHz. The final test is used the spectrum HP 8546A, HP 85460A and 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 tester will recheck the data and the corrected data will be written in the test data sheet. If the emission is just within the ambient, the data from anechoic will be taken as the final data.

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

(1) Band of Frequency: (30M Hz ~ 1G Hz)

$$FI_a \text{ (dB}\mu\text{V/m)} = FI_r \text{ (dB}\mu\text{V)} - \text{Corrected (dB)}$$

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

FI_a : Actual Field Intensity

FI_r : Reading of the Field Intensity

AF : Antenna Factor

CL : Cable Loss

(2) Band of Frequency: (1G Hz ~ 18 G Hz)

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

FI_a : Actual Field Intensity

FI_r : Reading of the Field Intensity

AF : Antenna Factor

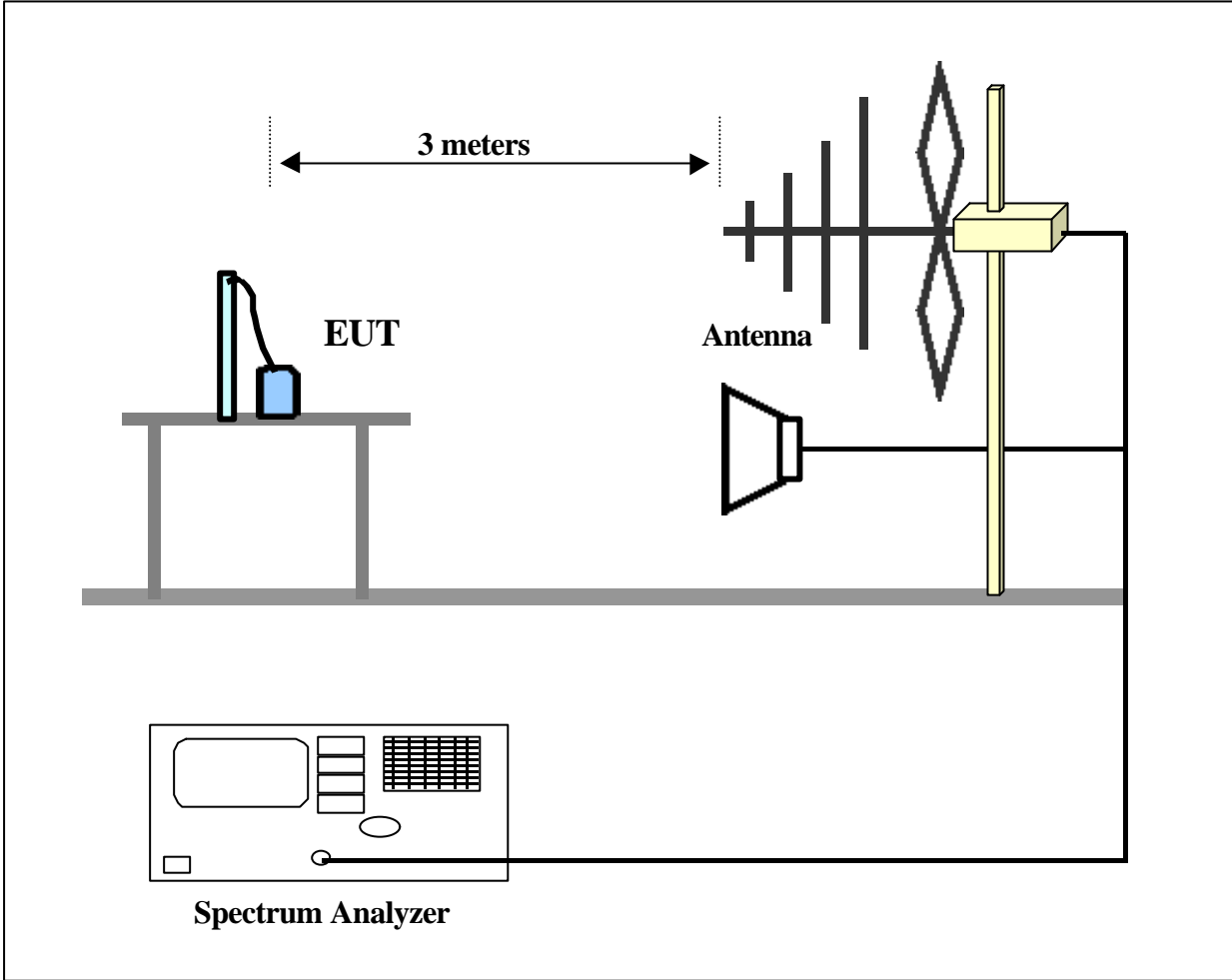
CL : Cable Loss

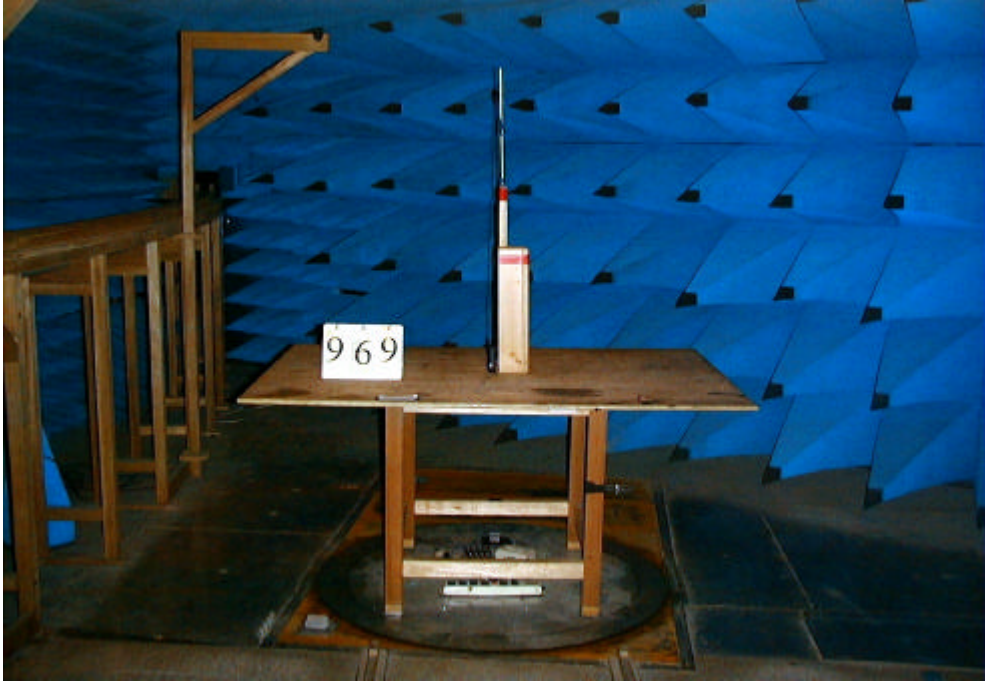
5.3 List of Measurement Instruments

Instrument Name	Model No.	Brand	Serial No.	Calibration Date	
				Last time	Next time
EMI Receiver	8546A	H P	3520A00242	10/01/99	10/01/00
RF Filter Section	85460A	H P	3448A00217	10/01/99	10/01/00
Bi-log Antenna	CBL6141A	Schaffner	4151	05/20/00	05/20/01
Switch/Control Unit	3488A	HP	N/A	11/20/99	11/20/00
(> 30MHz)					
Auto Switch Box	ASB-01	TRC	9904-01	11/20/99	11/20/00
(> 30MHz)					
Anechoic Chamber & cable calibrated together				05/20/00	05/20/01

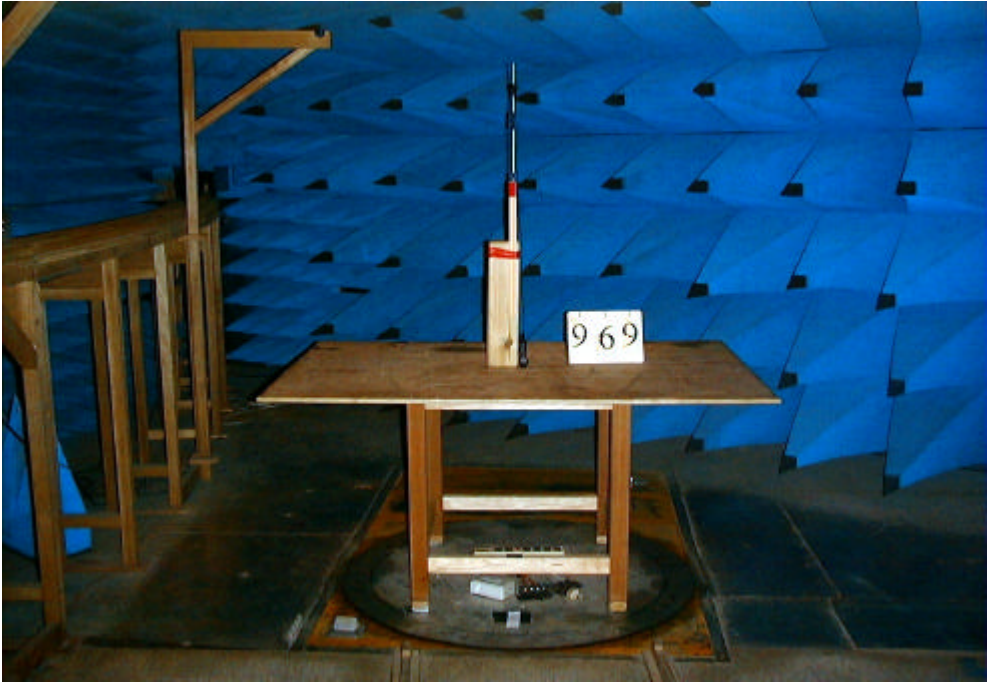
The level of confidence of 95%, the uncertainty of measurement of radiated emission is ± 4.96 dB.

5.4 Measurement Configuration





Pic 1 Front View of Test Configuration



Pic 2 Rear View of the Test Configuration

5.5 Measurement Result:

(Test Frequency: 174.5MHz , Horizontal , 30 MHz ~ 1 GHz)

Test Conditions:

Testing room : Temperature : 26 °C Humidity : 73 % RH

Testing site : Temperature : 31 °C Humidity : 75 % RH

<i>Frequency</i>	<i>Reading Amplitude</i>	<i>Ant. Height</i>	<i>Table</i>	<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Limit</i>	<i>Margin</i>
MHz	dBµV	m	degree	dB/m	dBµV/m	dBµV/m	dB

189.051	51.33	1.00	23	-12.71	64.04	84.38	-20.34
203.593	47.04	1.00	9	-13.65	60.69	84.38	-23.69
218.133	64.18	1.00	80	-15.07	79.25	84.38	-5.13
261.760	51.70	1.00	1	-15.72	67.42	84.38	-16.96
349.011	39.44	1.00	9	-18.17	57.61	84.38	-26.77

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 Amplitude = 15.5 – (-15.26) = 30.76 dB/m)
4. Attenuation required = 43 + 10 log (0.001983 mW) = 15.97
 Limit = 100.35 – (15.97) = 84.38

Measurement Result:

(Test Frequency: 174.5MHz , Horizontal , 1GHz ~ 18GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBμV/m)	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBμV/m)	Ant. H. (cm)	Table (°)	(dB)		Limit (dBμV/m)	Margin (dB)

1.221	50.30	1.00	42	-8.67	41.63	84.38	-42.75
1.613	51.96	1.00	116	-8.67	43.29	84.38	-41.09
1.659	54.80	1.00	97	-8.67	46.13	84.38	-38.25
1.832	50.96	1.00	304	-8.67	42.29	84.38	-42.09
2.136	45.80	1.00	182	-8.67	37.13	84.38	-47.25
2.181	46.63	1.00	90	-8.67	37.96	84.38	-46.42

Note:

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

Radiated Emission Test Result:

(Test Frequency: 174.5MHz , Vertical , 30MHz ~ 1GHz)

<i>Frequency</i>	<i>Reading Amplitude</i>	<i>Ant. Height</i>	<i>Table</i>	<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Limit</i>	<i>Margin</i>
MHz	dBµV	m	degree	dB/m	dBµV/m	dBµV/m	dB

189.051	45.18	2.47	56	-12.74	57.92	84.38	-26.46
203.593	40.15	2.47	4	-13.87	54.02	84.38	-30.36
218.135	55.78	1.00	74	-14.98	70.76	84.38	-13.62
261.761	48.27	2.47	69	-16.16	64.43	84.38	-19.95
349.012	30.20	1.00	135	-17.80	48.00	84.38	-36.38

Radiated Emission Test Result:
 (Test Frequency: 174.5MHz , Vertical , 1GHz ~ 18GHz)

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i> (dBμV/m)	<i>FCC Class B (3 m)</i>	
<i>Frequency</i> (GHz)	<i>Amplitude</i> (dBμV/m)	<i>Ant. H.</i> (cm)	<i>Table</i> (°)	(dB)		<i>Limit</i> (dBμV/m)	<i>Margin</i> (dB)

1.221	51.79	1.00	142	-8.67	43.12	84.38	-41.26
1.613	39.29	1.00	6	-8.67	30.62	84.38	-53.76
1.659	44.95	1.00	40	-8.67	36.28	84.38	-48.10
1.832	46.29	1.00	118	-8.67	37.62	84.38	-46.76
2.136	51.62	1.00	208	-8.67	42.95	84.38	-41.43
2.181	52.62	1.00	134	-8.67	43.95	84.38	-40.43

Measurement Result:

(Test Frequency: 202.5MHz , Horizontal , 30MHz ~ 1GHz)

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

151.00	41.73	2.44	62	-14.56	56.29	84.38	-28.09
185.00	46.57	1.00	72	-12.64	59.21	84.38	-25.17
219.382	50.42	1.00	79	-15.28	65.70	84.38	-18.68
253.133	50.69	1.00	4	-15.63	66.32	84.38	-18.06
405.007	38.50	1.00	92	-19.29	57.79	84.38	-26.59
810.013	35.38	1.00	63	-26.05	61.43	84.38	-22.95

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) = 30.76 dB/m)
4. Attenuation required = 43 + 10 log (0.005449 mW) = 20.36
Limit = 104.74 – (20.36) = 84.38

Measurement Result:

(Test Frequency: 202.5MHz , Horizontal , 1GHz ~ 18GHz)

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i> (dBμV/m)	<i>FCC Class B (3 m)</i>	
<i>Frequency</i> (GHz)	<i>Amplitude</i> (dBμV/m)	<i>Ant. H.</i> (cm)	<i>Table</i> (°)	(dB)		<i>Limit</i> (dBμV/m)	<i>Margin</i> (dB)

1.011	54.80	1.00	335	-8.67	46.13	84.38	-38.25
1.216	54.13	1.00	271	-8.67	45.46	84.38	-38.92
1.416	55.80	1.00	94	-8.67	47.13	84.38	-37.25
1.621	68.63	1.00	61	-8.67	59.96	84.38	-24.42
1.821	57.96	1.00	207	-8.67	49.29	84.38	-35.09
2.227	54.63	1.00	33	-8.67	45.96	84.38	-38.42
2.429	50.13	1.00	247	-8.67	41.46	84.38	-42.92

Radiated Emission Test Result:

(Test Frequency: 202.5MHz , Vertical , 30MHz ~ 1GHz)

<i>Frequency</i>	<i>Reading Amplitude</i>	<i>Ant. Height</i>	<i>Table</i>	<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Limit</i>	<i>Margin</i>
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB

101.252	42.07	1.00	86	-11.58	53.65	84.38	-30.73
219.382	42.71	1.00	67	-15.10	57.81	84.38	-26.57
235.132	46.89	2.46	154	-15.79	62.68	84.38	-21.70
405.009	41.16	1.00	95	-19.49	60.65	84.38	-23.73
810.013	33.07	2.46	113	-26.63	59.70	84.38	-24.68

Radiated Emission Test Result:
 (Test Frequency: 202.5MHz , Vertical , 1GHz ~ 18GHz)

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i> (dBμV/m)	<i>FCC Class B (3 m)</i>	
<i>Frequency</i> (GHz)	<i>Amplitude</i> (dBμV/m)	<i>Ant. H.</i> (cm)	<i>Table</i> (°)	(dB)		<i>Limit</i> (dBμV/m)	<i>Margin</i> (dB)

1.011	52.79	1.00	5	-8.67	44.12	84.38	-40.26
1.216	51.95	1.00	201	-8.67	43.28	84.38	-41.10
1.416	55.95	1.00	331	-8.67	47.28	84.38	-37.10
1.621	60.62	1.00	51	-8.67	51.95	84.38	-32.43
1.821	54.62	1.00	107	-8.67	45.95	84.38	-38.43
2.227	64.29	1.00	64	-8.67	55.62	84.38	-28.76
2.429	52.29	1.00	209	-8.67	43.62	84.38	-40.76

Measurement Result:

(Test Frequency: 214.75MHz , Horizontal , 30MHz ~ 1GHz)

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

107.383	42.66	2.48	5	-13.15	55.81	84.38	-28.57
161.071	55.66	2.48	21	-14.19	69.85	84.38	-14.53
196.863	54.57	1.00	60	-13.32	67.89	84.38	-16.49
232.655	43.50	1.00	4	-14.89	58.39	84.38	-25.99
268.448	38.25	1.00	81	-15.56	53.81	84.38	-30.57
859.019	32.41	1.00	65	-27.11	59.52	84.38	-24.86

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) = 30.76 dB/m)
4. Attenuation required = 43 + 10 log (0.014766 mW) = 24.69
Limit = 109.07 – (24.69) = 84.38

Measurement Result:

(Test Frequency: 214.75MHz , Horizontal , 1GHz ~ 18GHz)

Radiated Emission				Correction Factors	Corrected Amplitude (dBμV/m)	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBμV/m)	Ant. H. (cm)	Table (°)	(dB)		Limit (dBμV/m)	Margin (dB)

1.075	54.96	1.00	331	-8.67	46.29	84.38	-38.09
1.288	53.63	1.00	41	-8.67	44.96	84.38	-39.42
1.504	59.96	1.00	148	-8.67	51.29	84.38	-33.09
1.611	47.80	1.00	204	-8.67	39.13	84.38	-45.25
1.933	55.63	1.00	219	-8.67	46.96	84.38	-37.42
2.147	50.80	1.00	66	-8.67	42.13	84.38	-42.25
2.363	50.63	1.00	117	-8.67	41.96	84.38	-42.42
2.576	47.63	1.00	210	-8.67	38.96	84.38	-45.42

Radiated Emission Test Result:

(Test Frequency: 214.75MHz , Vertical , 30MHz ~ 1GHz)

<i>Frequency</i>	<i>Reading Amplitude</i>	<i>Ant. Height</i>	<i>Table</i>	<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Limit</i>	<i>Margin</i>
MHz	dBµV	m	degree	dB/m	dBµV/m	dBµV/m	dB

107.382	47.80	1.00	75	-12.10	59.90	84.38	-24.48
161.071	53.22	2.45	106	-13.35	66.57	84.38	-17.81
196.864	48.79	2.45	105	-13.40	62.19	84.38	-22.19
232.656	38.64	2.45	138	-14.80	53.44	84.38	-30.94
268.448	35.06	2.45	91	-16.04	51.10	84.38	-33.28
859.020	26.01	1.00	83	-27.50	53.51	84.38	-30.87

Radiated Emission Test Result:

(Test Frequency: 214.75MHz , Vertical , 1GHz ~ 18GHz)

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i> (dBμV/m)	<i>FCC Class B (3 m)</i>	
<i>Frequency</i> (GHz)	<i>Amplitude</i> (dBμV/m)	<i>Ant. H.</i> (cm)	<i>Table</i> (°)	(dB)		<i>Limit</i> (dBμV/m)	<i>Margin</i> (dB)

1.075	53.79	1.00	251	-8.67	45.12	84.38	-39.26
1.288	51.29	1.00	207	-8.67	42.62	84.38	-41.76
1.504	52.79	1.00	44	-8.67	44.12	84.38	-40.26
1.611	39.29	1.00	318	-8.67	30.62	84.38	-53.76
1.933	53.95	1.00	104	-8.67	45.28	84.38	-39.10
2.147	56.45	1.00	34	-8.67	47.78	84.38	-36.60
2.363	58.62	1.00	218	-8.67	49.95	84.38	-34.43
2.576	52.45	1.00	120	-8.67	43.78	84.38	-40.60

Chapter 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.

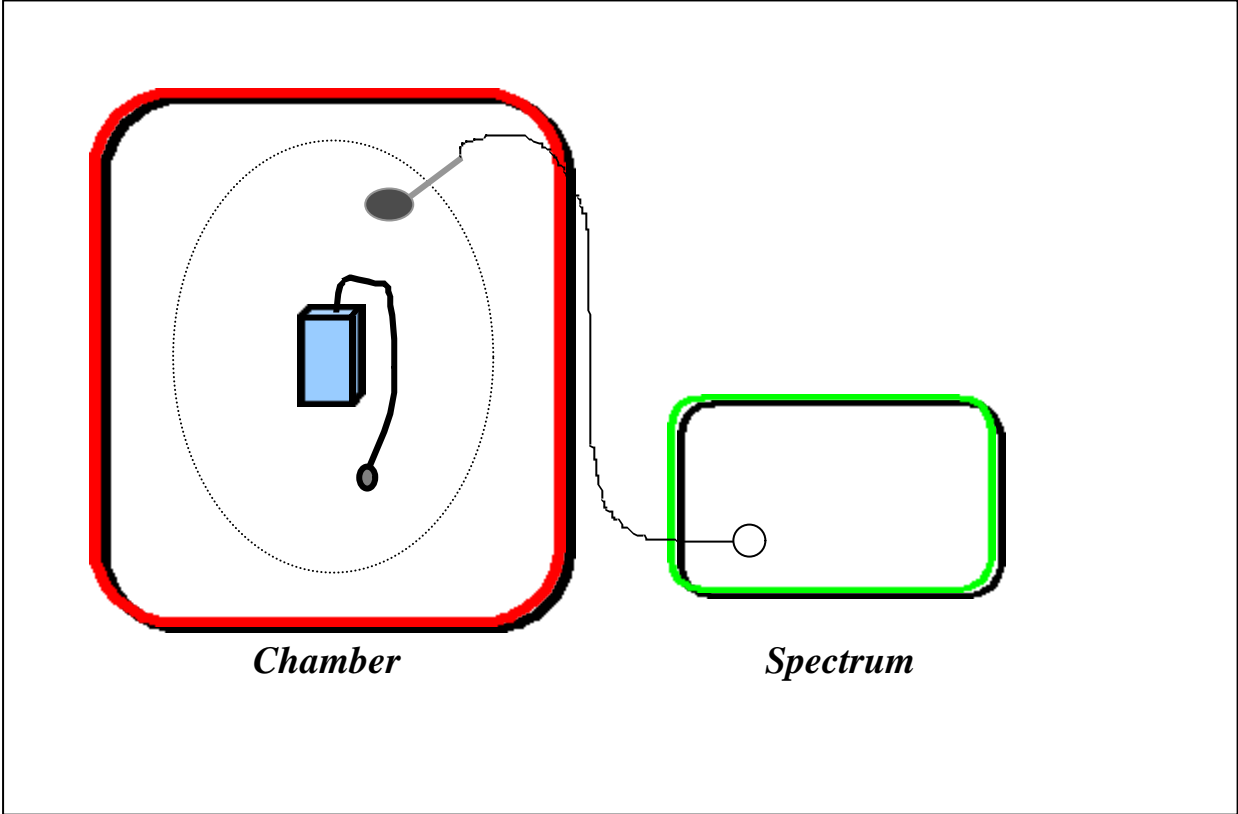
6.2 Measurement Condition & Setup with Temperature Variation

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 intervals of 10 degree.

6.3 List of Measurement Instruments with Temperature Variation List of test Instrument :

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Remark</u>
Spectrum Analyzer	8591A	H P	1.8GHz
Temperature Chamber	THS-MV2	King Son	
Near field Probe	7405-901	EMCO	
Power Supply	GPR-6030	Good Will	
Auto Transformer	Powerstat	Supprior Elec. Co.	

6.4 Measurement Configuration of Temperature Variation Test:



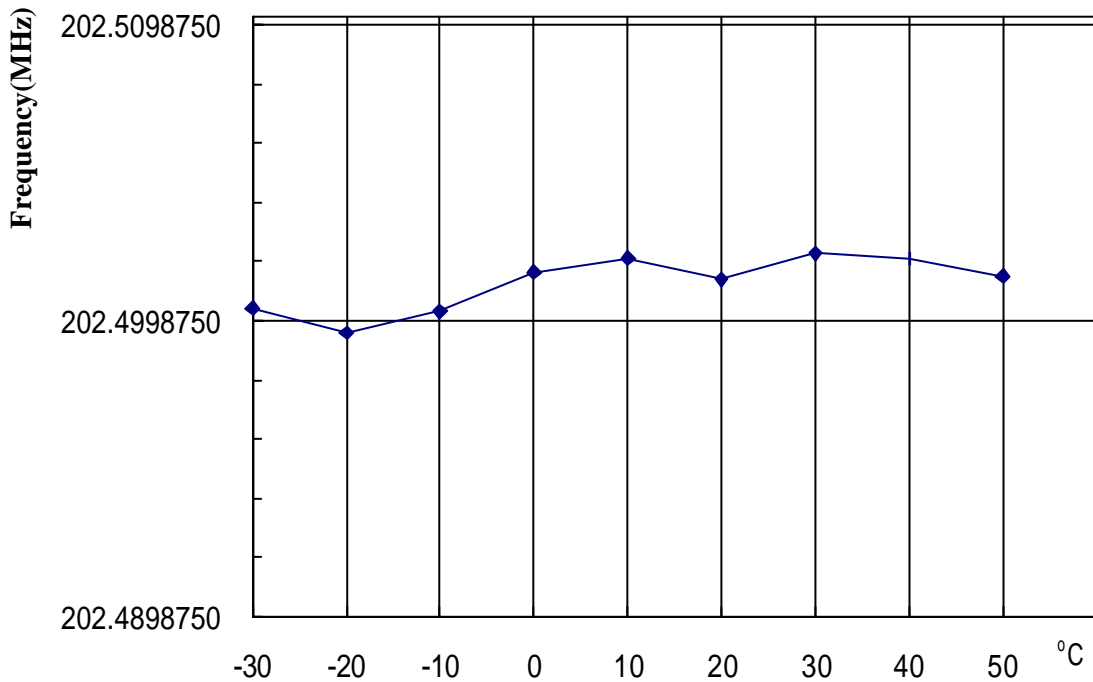
6.5 Measurement Result with Temperature Variation

A plot and table is presented which illustrates compliance with the rule where the center frequency is 202.5MHz.

Temperature Variation Table

<i>Temperature (Centigrade)</i>	<i>Frequency (MHz)</i>	<i>Tolerance (MHz)</i>
-30	202.5002990	202.4898750 ~ 202.5101250
-20	202.4994710	202.4898750 ~ 202.5101250
-10	202.5001825	202.4898750 ~ 202.5101250
0	202.5015123	202.4898750 ~ 202.5101250
10	202.5019925	202.4898750 ~ 202.5101250
20	202.5012670	202.4898750 ~ 202.5101250
30	202.5021490	202.4898750 ~ 202.5101250
40	202.5019796	202.4898750 ~ 202.5101250
50	202.5013976	202.4898750 ~ 202.5101250

Temperatuer Variation Vs. Frequency Chart



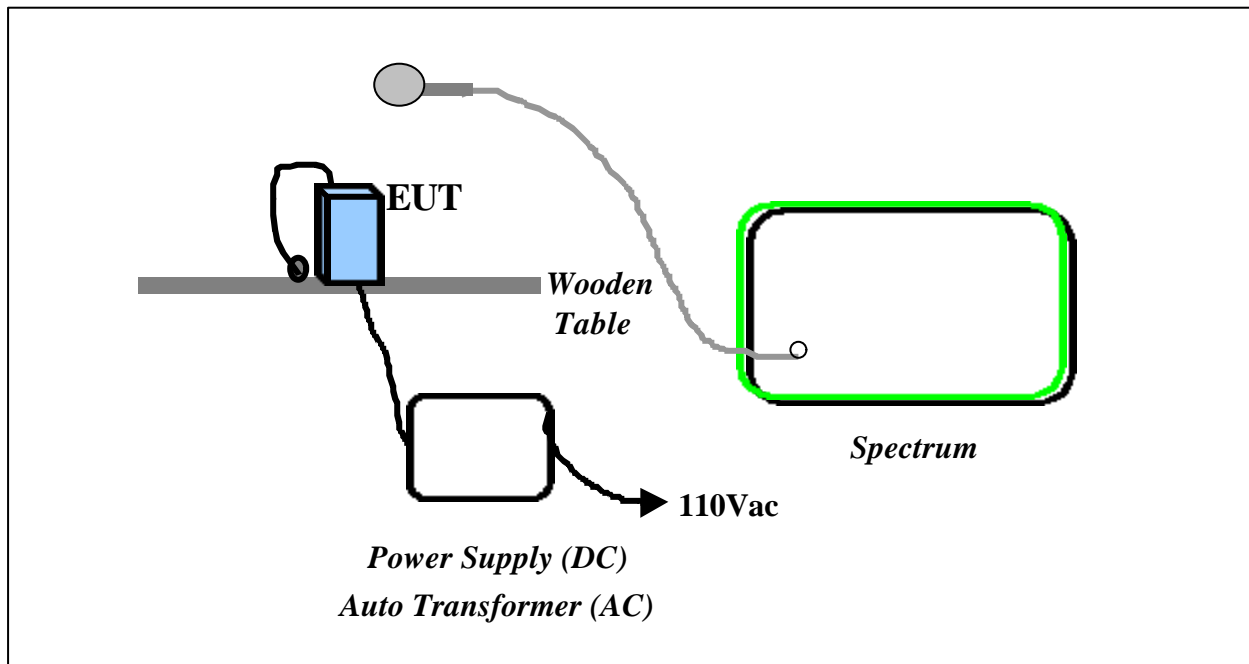
6.6 Measurement Condition & Setup with Voltage Variation

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 :

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Remark</u>
Spectrum Analyzer	8591A	H P	1.8GHz
Temperature Chamber	THS-MV2	King Son	
Near field Probe	7405-901	EMCO	
Power Supply	GPR-6030	Good Will	
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

<i>Supply Voltage (Volt)</i>	<i>Frequency (MHz)</i>	<i>Tolerance (MHz)</i>
2.55 (85%)	202.5021213	202.4898750 ~ 202.5101250
3 (100%)	202.5021220	202.4898750 ~ 202.5101250
3.45 (115%)	202.5021064	202.4898750 ~ 202.5101250
Endpoint-Voltage: 1.52V		

Voltage Variation Vs. Frequency Chart

