



FCC CFR47 PART 95 REQUIREMENT

CERTIFICATION REPORT

FOR

WIRELESS DIRECTIONAL MICROPHONE ARRAY

MODEL NUMBER: PE-871T

BRAND NAME: LEXIS

FCC ID: BRG-871T

REPORT NUMBER: 02U1683-1

ISSUE DATE: DECEMBER 30, 2002

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1. TEST RESULT CERTIFICATION

COMPANY NAME: PHONIC EAR, INC.

BRAND NAME: LEXIS

MODEL NO.: PE-871T

DATE OF TEST: DECEMBER 17 – 19, 2002

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 95	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document.

Approved & Released For CCS By:

Tested By:



MICHAEL HECKROTTE
CHIEF ENGINEER
COMPLIANCE CERTIFICATION SERVICES

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

1.1 EUT DESCRIPTION

- a). Equipment Type: Low Power Radio Service
- b). Brand Name: LEXIS
- c). Model No: PE-871T
- d). FCC ID: BRG-871T
- e). Working Frequency: 20 Channels within frequency band from 216.025 – 216.975 MHz.
- f). Power Supply: 3V dc (2xAAA)

2. GENERAL INFORMATION

2.1 METHODOLOGY

Both conducted and radiated testing were performed according to the procedures documented in chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

2.2 TEST FACILITY AND ACCREDITATION

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.







All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

Radiated Emission measurements were performed at the Apple Computer 10 meter semi-anechoic Test Site (Evelyn 1), located at 123 East Evelyn Ave., Mountain View, California. Conducted Emissions were performed at the Apple Computer EMC compliance lab located at 20650 Valley Green Drive, Cupertino, California

2.3 ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2)).

2.4. TABLE OF ACCREDITATIONS AND LISTING

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	FCC Part 15, CISPR 22, AS/NZS 3548, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, CNS 13438	 200065-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	 1300
Japan	VCCI	CISPR 22 Two OATS and one conducted Site	VCCI R-1014, R-619, C-640
Norway	NEMKO	EN50081-1, EN50081-2, EN50082-1, EN50082-2, IEC61000-6-1, IEC61000-6-2, EN50083-2, EN50091-2, EN50130-4, EN55011, EN55013, EN55014-1, EN55104, EN55015, EN61547, EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60945, EN61326-1	 ELA 117
Norway	NEMKO	EN60601-1-2 and IEC 60601-1-2, the Collateral Standards for Electro-Medical Products. MDD, 93/42/EEC, AIMD 90/385/EEC	 ELA-171
Taiwan	BSMI	CNS 13438	 SL2-IN-E-1012
Canada	Industry Canada	RSS210 Low Power Transmitter and Receiver	 IC2324 A,B,C, and F

2.5. MEASURING INSTRUMENT CALIBRATION

The measurement instruments utilized to perform the tests documented in this report have been calibrated in accordance with the manufacturer's recommendations, and are traceable to national standards.

2.6. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Radiated Emission	
30MHz – 200 MHz	+/- 3.3dB
200MHz – 1000MHz	+4.5/-2.9dB
1000MHz – 2000MHz	+4.6/-2.2dB
Power Line Conducted Emission	
150kHz – 30MHz	+/-2.9

Any results falling within the above values are deemed to be marginal.

2. REQUIREMENTS OF PROVISION

2.1. GENERAL TECHNICAL REQUIREMENTS

- a). Section 95.1013 – Microphone & Ear Phone Cable – used as antenna.
- a). Section 95.629 – 20 Channels within frequency band from 216.025 – 216.975 MHz.
- b). Section 95.631 – Emission Type shall be F3E
- c). Section 95.633 – Emission Bandwidth shall less than 50 KHz
- d). Section 95.635 – Unwanted Radiation
According to CFR 47 section 95.635(c)(2), the power of each unwanted emission shall be less than Transmitted Power as specified below:
 - i). Emissions 25KHz to 35KHz from the channel center frequency: at least 30dB; and
 - ii). Emissions more than 35KHz away from the channel center frequency: at least 43dB + 10log(carrier power in watts) dB.
- e). Section 95.637 – Modulation Standards
- f). Section 95.639 – Maximum Power is 100mW (20dBm)
- g). Section 95.629 – Frequency Stability within 50 parts per million

2.2. 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 section 2.925 (Identification of equipment) and section 2.926 (FCC Identifier).

2.3. USER INFORMATION

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for the compliance could void the user's authority to operate the equipment.

3. OUTPUT POWER MEASUREMENT

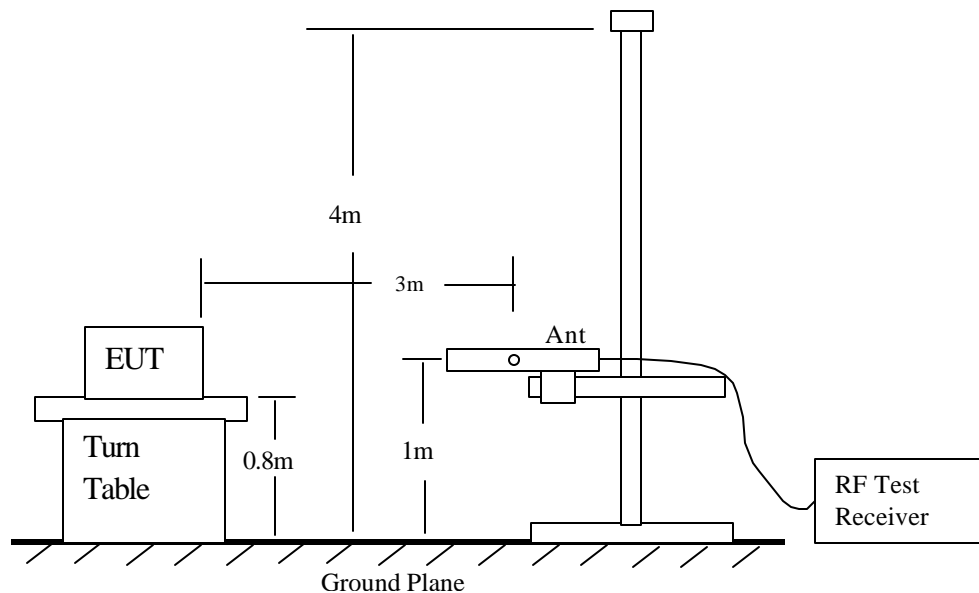
3.1. PROVISION APPLICABLE

According to section 95.639(c) 7 95.1013(a), the maximum allowable ERP for a station in the LPRS is 100mW (20dBm).

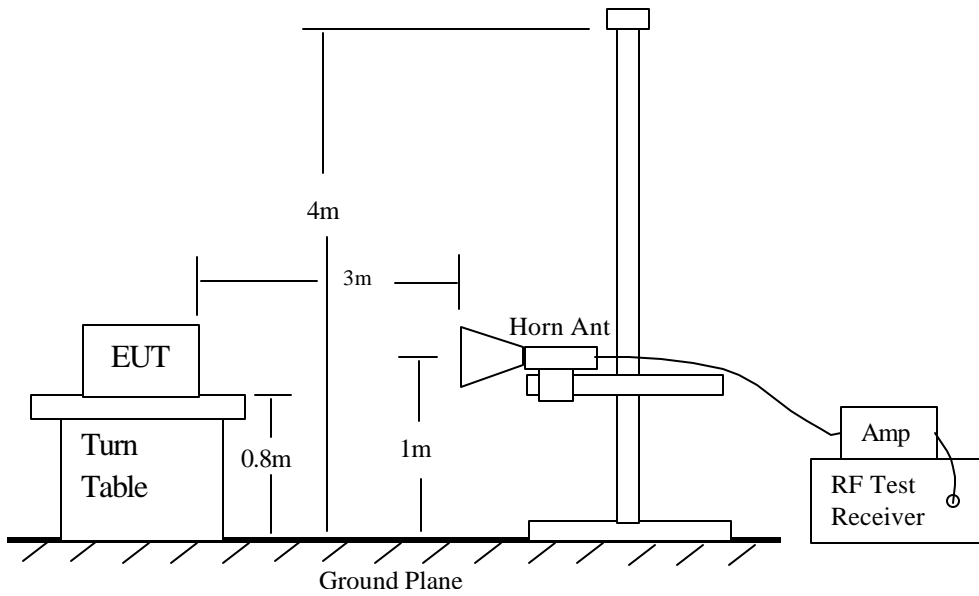
MEASUREMENT PROCEDURE

- 1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
- 2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the frequency of the transmitter.
- 3). The output of the test antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- 4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 6). The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 8). The maximum signal level detected by the measuring receiver shall be noted.
- 9). The transmitter shall be replaced by a tuned dipole (substitution antenna).
- 10). The substitution antenna shall be oriented for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- 11). The substitution antenna shall be connected to a calibrated signal generator.
- 12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

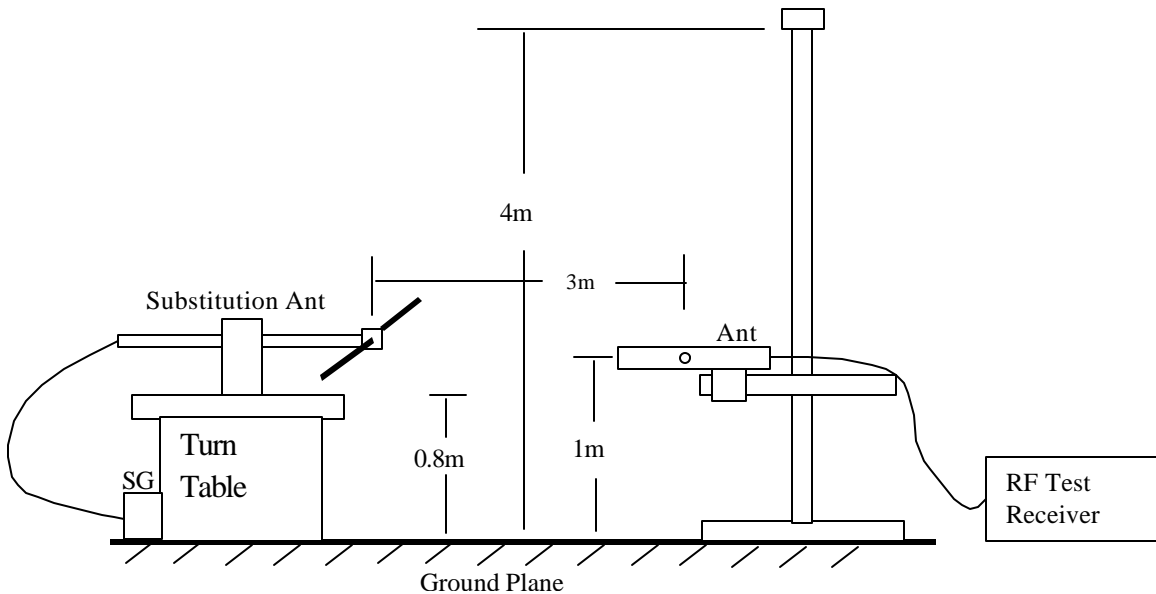
- 13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- 14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- 15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- 16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
- 17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.



Radiated Emission Measurement 30 to 1000 MHz



Radiated Emission Above 1000 MHz



Radiated Emission – Substitution Method setup



3.2. OUTPUT POWER TEST EQUIPMENT

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/11/03
LP Antenna	EMCO	3146	8/22/03
Dipole Antenna	COMPLIANCE DESIGN	ROBERTS	5/8/03
Signal Generator	R & S	SMP04	5/25/03

3.3. MEASUREMENT RESULT

Freq. (MHz)	SA Reading (dBuV)	SG Setting (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP Result (dBm)	Limit (dBm)	Margin (dBm)	Pol (H/V)
Fundamental measurement:								
216.53	86.80	0.00	0.00	0.30	-0.30	20.00	-20.30	3mH
216.53	84.60	5.00	0.00	0.30	4.70	20.00	-15.30	3mV

Maximum Output Power (ERP): 4.7dBm = 0.00295 W

4. MODULATION CHARACTERISTICS

4.1. PROVISIONS APPLICABLE

According to CFR 47 section 2.1047 (a), for Voice Modulated Communication Equipment, the frequency response of the audio modulation circuit over a range of 100 to 5000 Hz shall be measured.

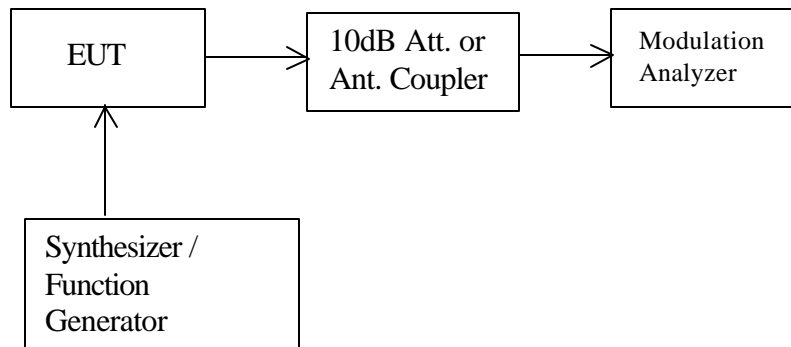
4.2. MEASUREMENT METHOD

4.2.1. Modulation Limit

- 1). Configure the EUT as shown below, adjust the audio input for 60% of rated system deviation at 1 KHz using this level as a reference (0 dB) and vary the input level from -20 to +20 dB. Record the frequency deviation obtained as a function of the input level.
- 2). Repeat step 1 with input frequency changing to 300, 1004, and 2500 Hz in sequence.

4.2.2. Audio Frequency Response

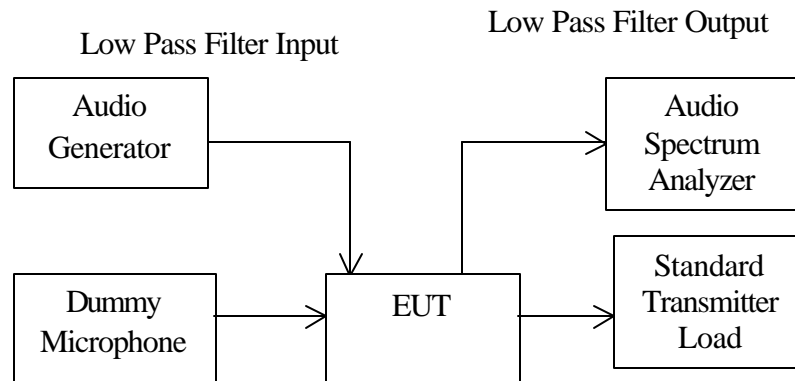
- 1). Configure the EUT as shown below.
- 2). Adjust the audio input for 20% of rated system deviation at 1 KHz using this level as a reference (0 dB).
- 3). Vary the Audio frequency from 100 Hz to 10 KHz and record the frequency deviation.
- 4). Audio Frequency Response = $20 \log_{10} (\text{Deviation of test frequency} / \text{Deviation of 1KHz reference})$.



Modulation characteristic measurement configuration

4.2.3. Audio Low Pass Filter Response

- 1). Configure the EUT as shown below.
- 2). Connect the audio frequency generator as close as possible the input of the post limiter low pass filter within the transmitter under test.
- 3). Connect the audio spectrum analyzer to the output of the post limiter low pass filter within the transmitter under test.
- 4). Apply 1000 Hz tone from the audio frequency generator and adjust the level per manufacturer's specifications.
- 5). Record the dB level of the 1000 Hz spectral line on the audio spectrum analyzer as LEV_{REF} .
- 6). Set the audio frequency generator to the desired test frequency between 3000 Hz and the upper low pass filter limit.
- 7). Record audio spectrum analyzer levels, at the frequency in step 6).
- 8). Record the dB level on the audio spectrum analyzer as LEV_{FREQ} .
- 9). Calculate the audio frequency response at the test frequency as:
$$\text{low pass filter response} = LEV_{FREQ} - LEV_{REF}$$
- 10). Repeat the 6) through 9) for all the desired test frequencies.



Audio low pass filter response measurement configuration

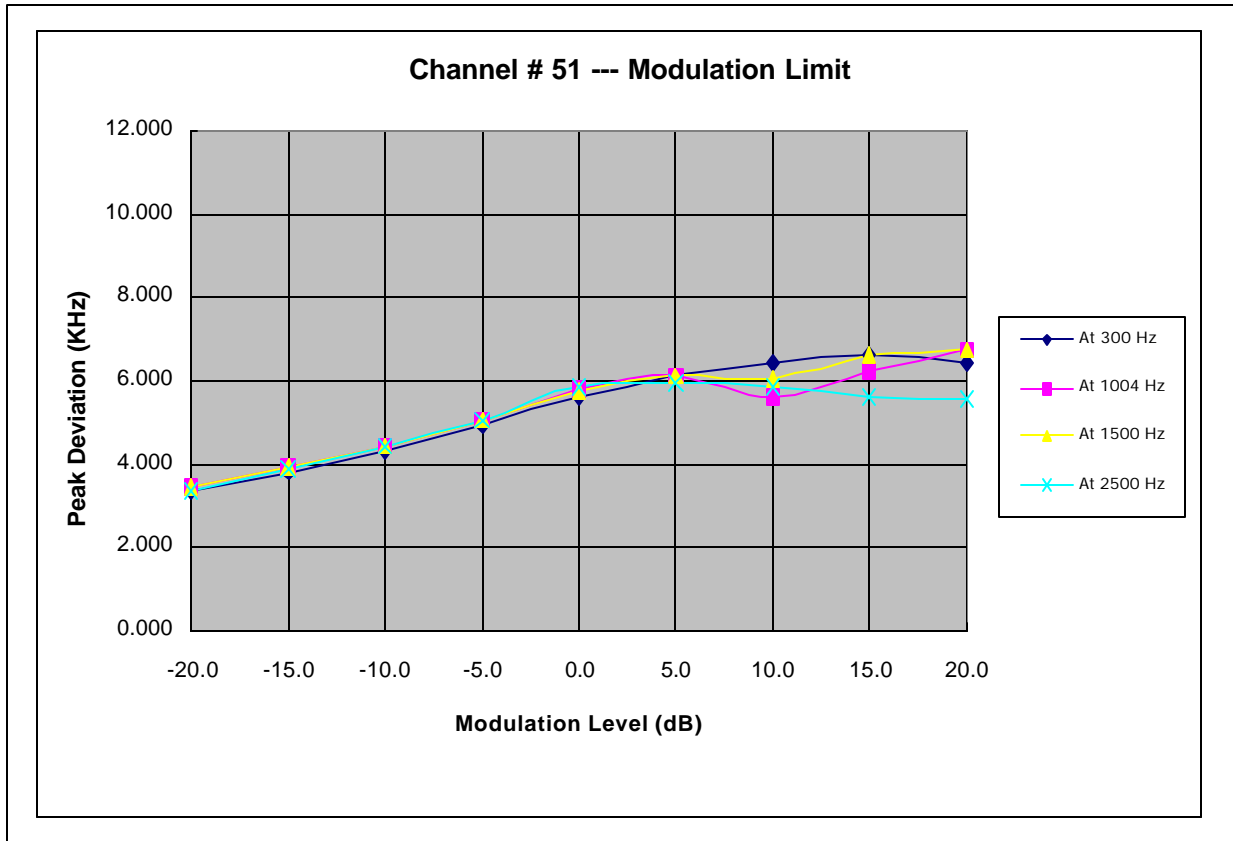


4.3. MEASUREMENT INSTRUMENT

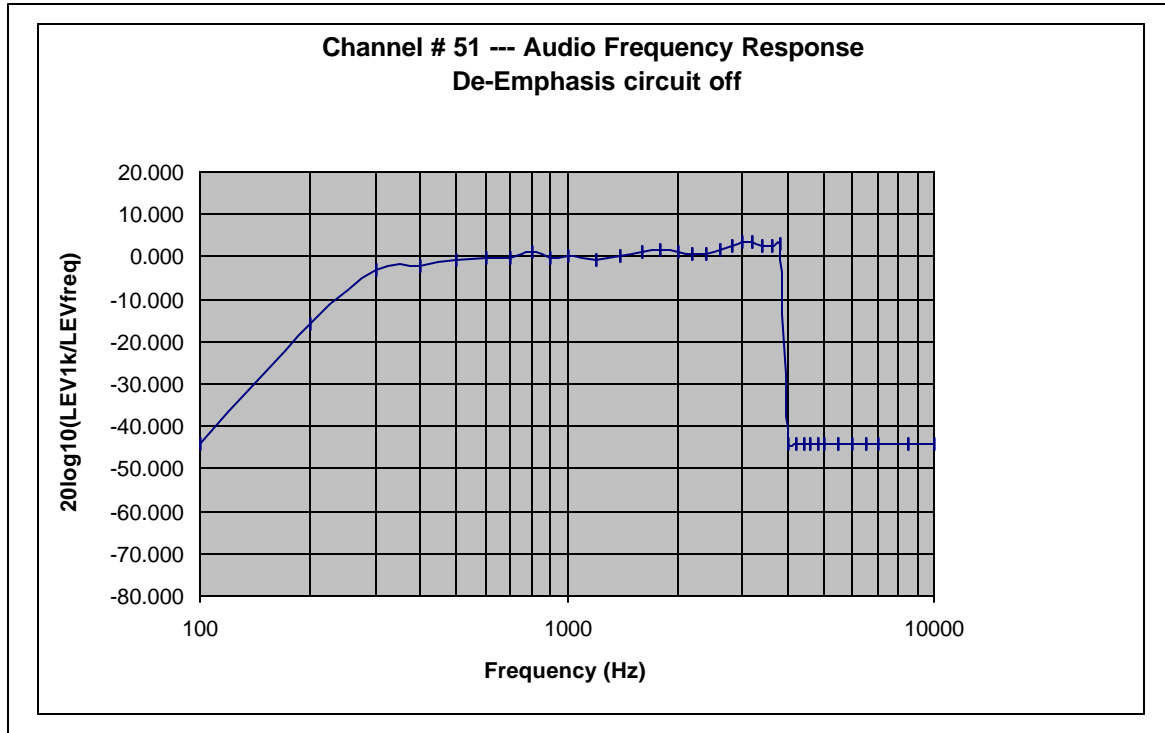
EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Modulation Analyzer	HP	8901b	5/30/02
Attenuator	MINI CIRCUITS	MCL BW-S10W2	N/A
Audio Signal Generator	HP	3325A	2/1/03

4.4. MEASUREMENT RESULT

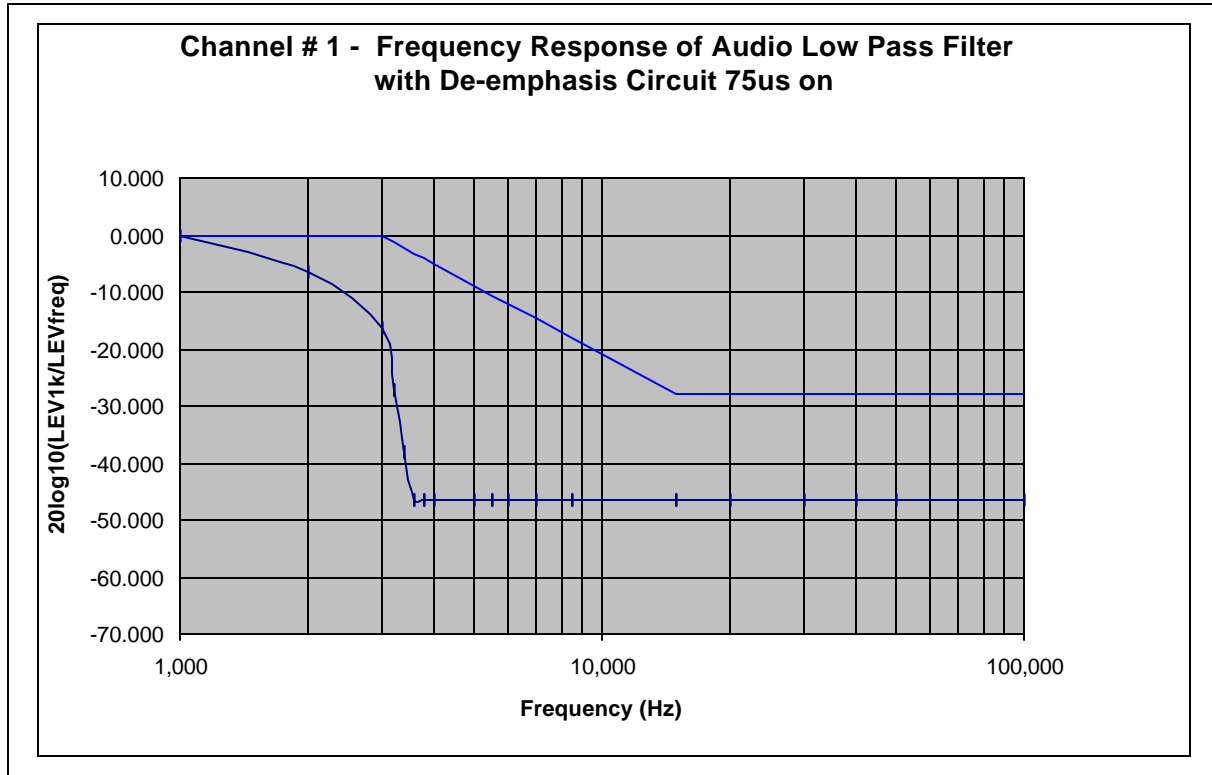
a). Modulation Limit:



b). Audio Frequency Response:



c). Audio low pass filter response:



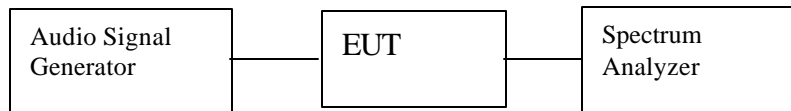
5. EMISSION BANDWIDTH

5.1. PROVISIONS APPLICABLE

According to CFR 47 section 95.633, the authorized bandwidth for emission type is F3E and the channel bandwidth for extra band frequencies is 50KHz

5.2. MEASUREMENT METHOD

- Check the calibration of the measurement instrument using either an internal calibrator or a known signal from an external generator.
- Set-up the test equipments as shown below.



Emission Bandwidth measurement configuration

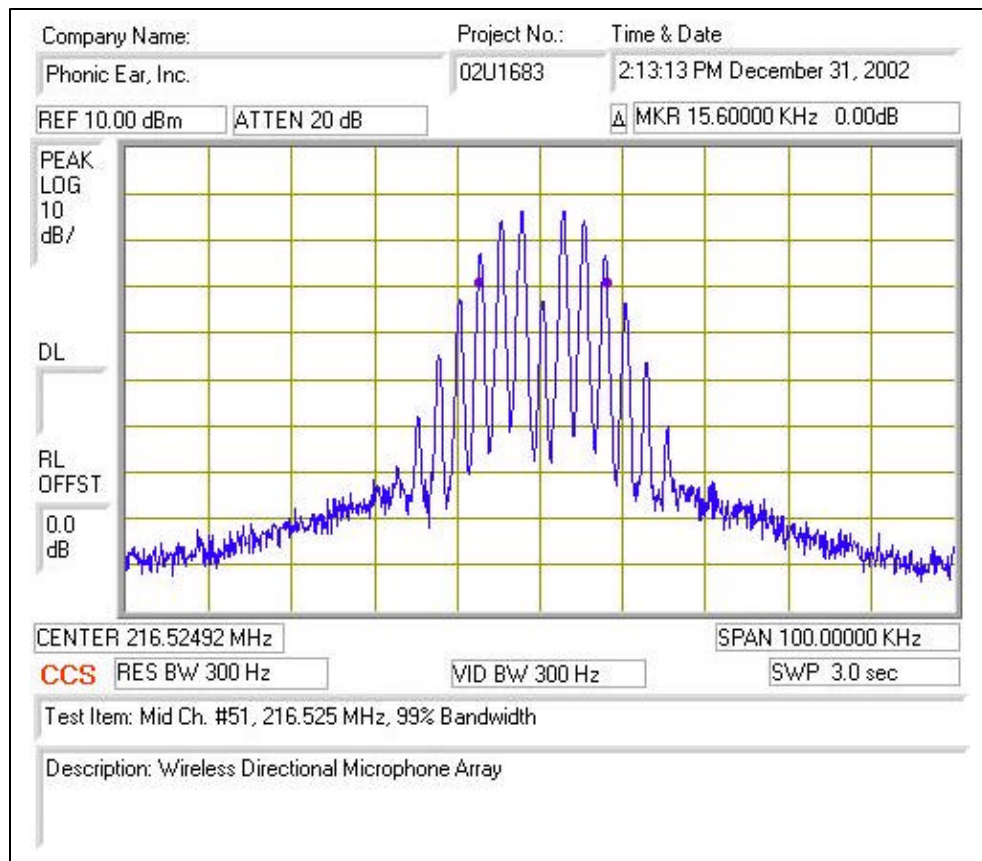
- Set the level of audio signal generator to obtain 16 dB greater than required for the rated 50% modulation.
- The occupied bandwidth is measured with the spectrum analyzer set at 10 KHz/div scan and 10 dB/div.

5.3. MEASUREMENT INSTRUMENT

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/11/03
Modulation Analyzer	HP	8901B	6/12/03
Audio Signal Generator	HP	3325A	2/1/03

5.4. MEASUREMENT RESULT

The Occupied Bandwidth is 15.6 KHz.



7. FIELD STRENGTH OF SPURIOUS EMISSION

7.1. PROVISIONS APPLICABLE

According to CFR47 section 2.1053(a), Measurement shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads or intermediate circuit element 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,

According to CFR 47 section 95.635(c)(2), the power of each unwanted emission shall be less than Transmitted Power as specified below:

- i). Emissions 25KHz to 35KHz from the channel center frequency: at least 30dB; and
- ii). Emissions more than 35KHz away from the channel center frequency: at least 43dB + 10log(carrier power in watts) dB.

7.2. MEASUREMENT PROCEDURE

--- For Frequency Range From 30 to 1000 MHz ---

- 1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
- 2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the frequency of the transmitter.
- 3). The output of the test antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- 4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 8). The maximum signal level detected by the measuring receiver shall be noted.

9). The measurement shall be repeated with the test antenna set to horizontal polarization.

--- For Frequency Above 1000 MHz ---

10). Repeat procedures 1 to 9 with a proper Antenna (i.e. Horn antenna for 1 to 26 GHz)

11). After down with step 10. Replace the transmitter with a proper Antenna (substitution antenna).

12). The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.

13). The substitution antenna shall be connected to a calibrated signal generator.

14). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

15). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

16). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured in step 10, corrected for the change of input attenuation setting of the measuring receiver.

17). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

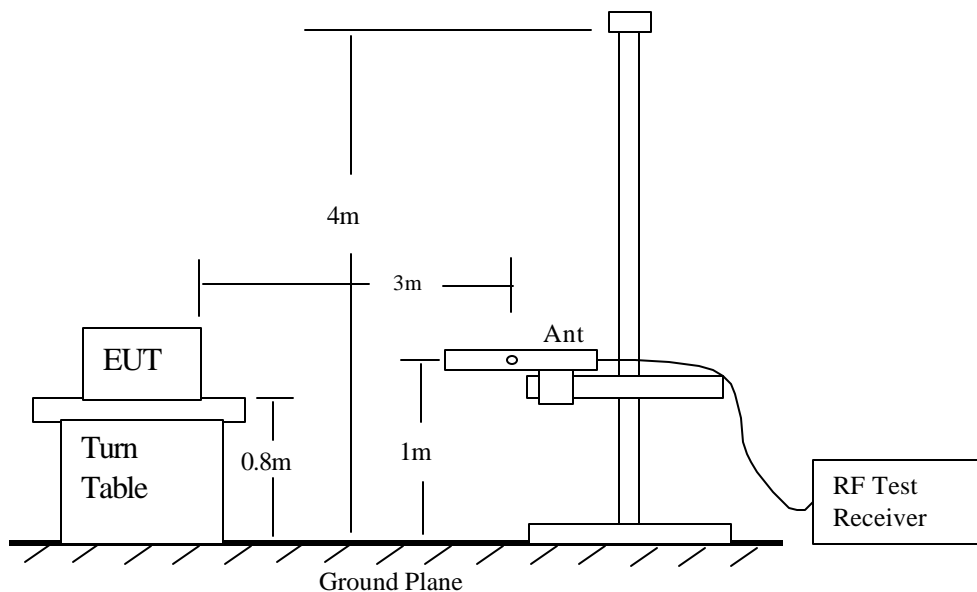
18). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

7.3. MEASUREMENT INSTRUMENT

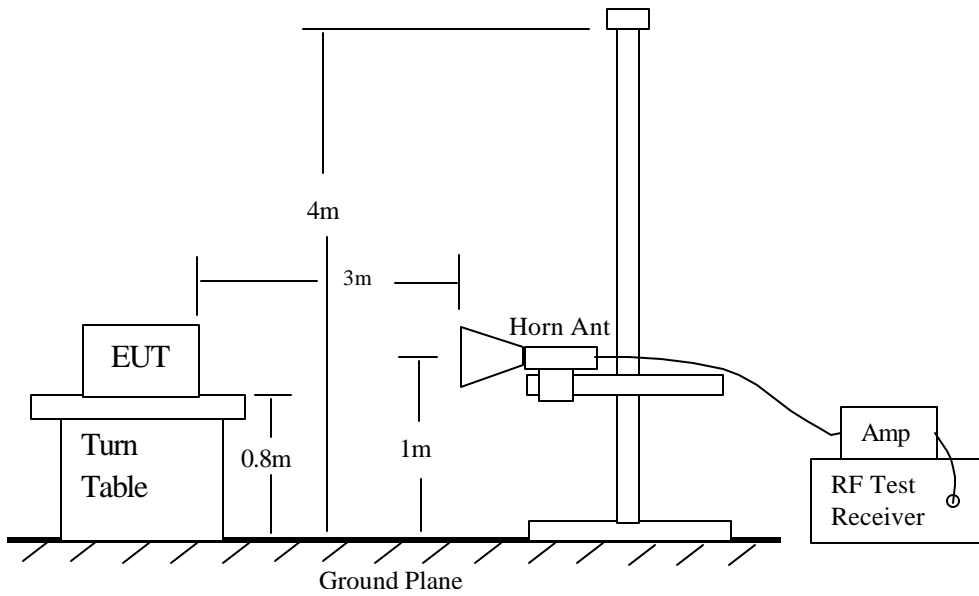
EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/11/03
RF Synthesizer	HP	83732B	3/29/03
Amplifier	MITEQ	NSP2600-44	4/26/03
LP Antenna	EMCO	3146	8/22/03
Horn Antenna	EMCO	3115 SN: 6739	1/31/03
Horn Antenna	EMCO	3115 SN: 6717	1/31/03
Dipole Antenna	COMPLIANCE DESIGN	ROBERTS	5/5/03

Detector Function Setting of Test Receiver

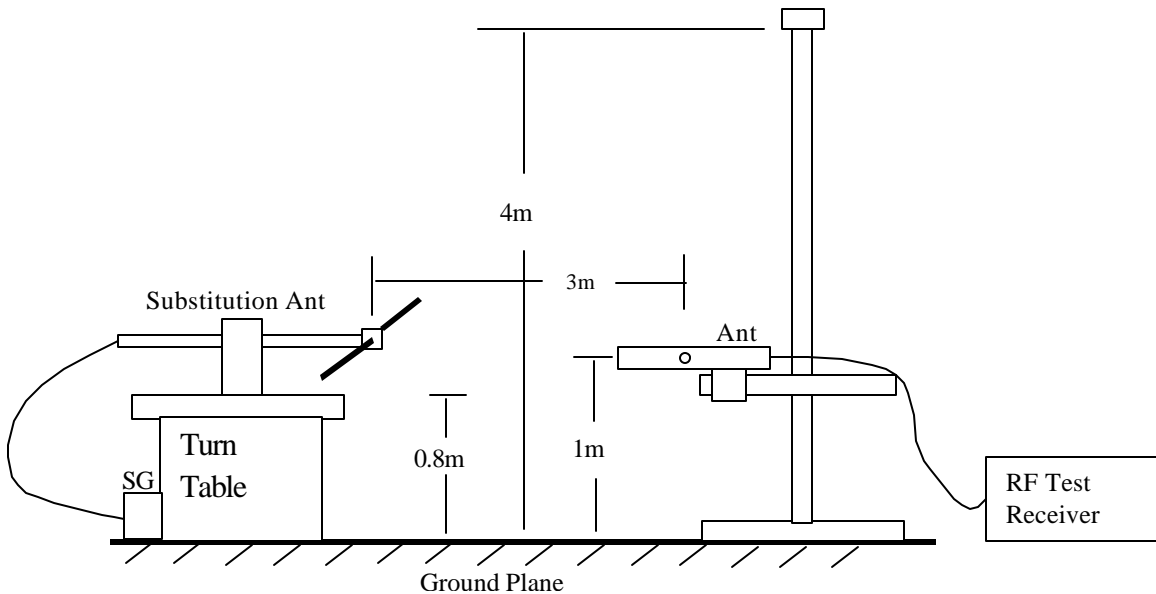
Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	Quasi Peak/Peak	120 KHz/100 KHz	120 KHz/100 KHz
Above 1000	Average/ Peak	1 MHz	1 MHz



Radiated Emission Measurement 30 to 1000 MHz



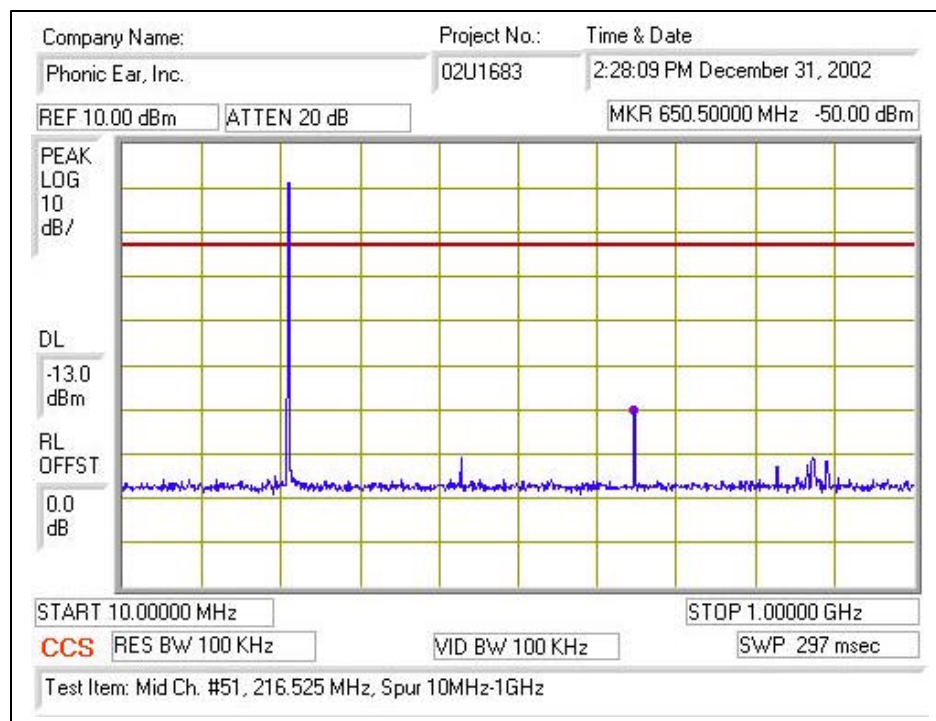
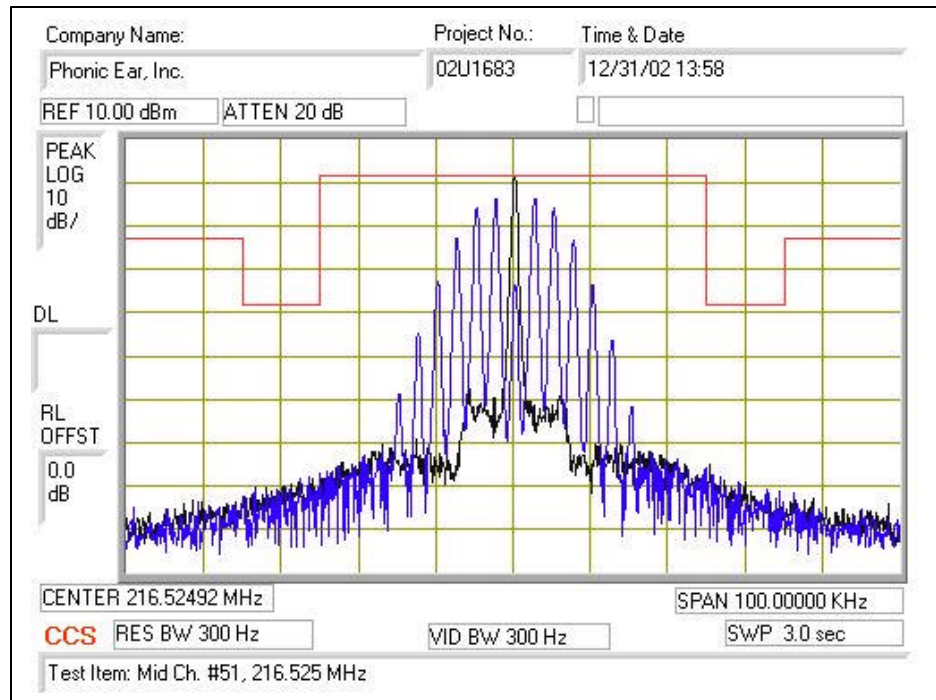
Radiated Emission Above 1000 MHz

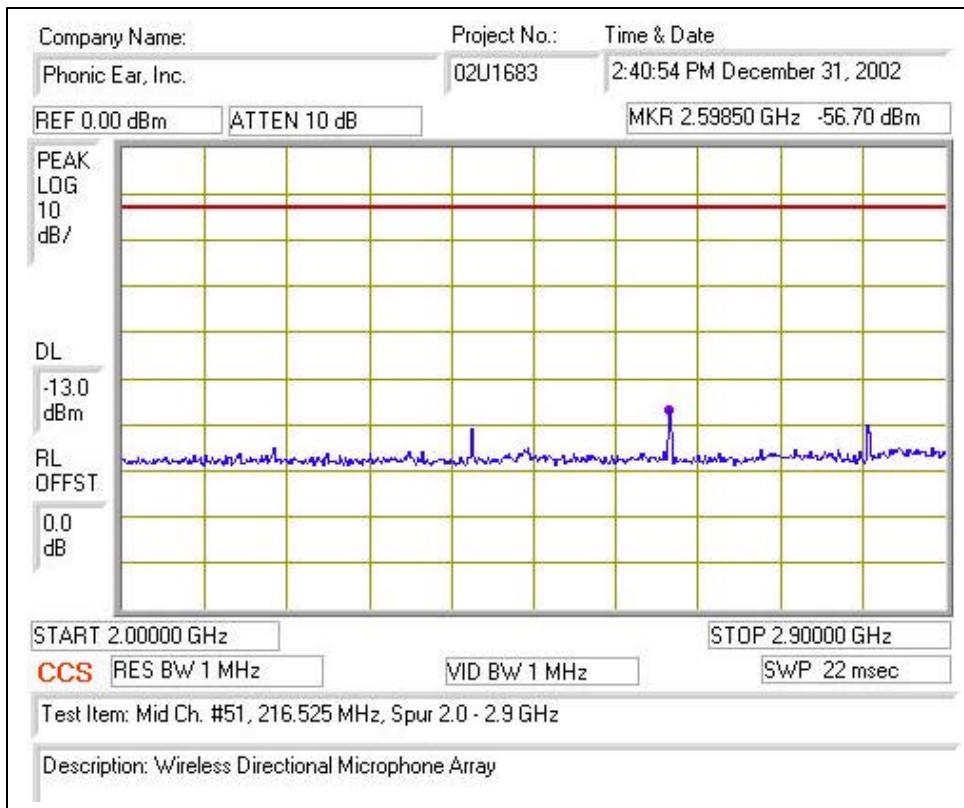
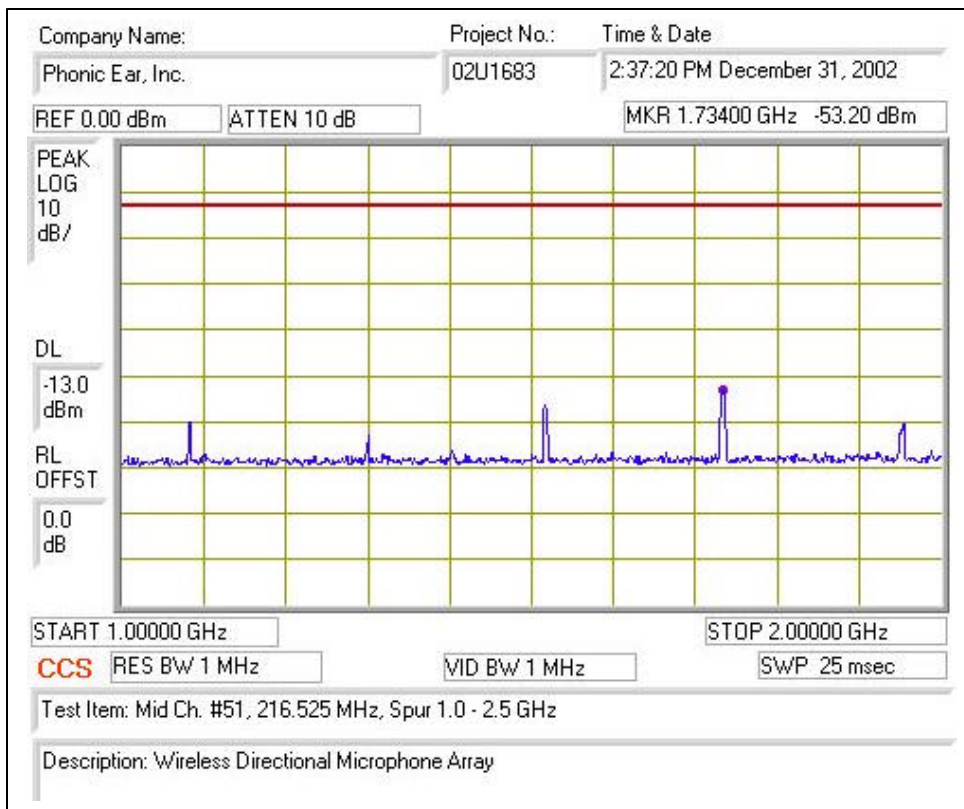


Radiated Emission – Substitution Method setup



7.4. MEASUREMENT RESULT





Freq.	SA	SG	Ant	Dipole	Cable	ERP	Limit	Margin	Pol
(MHz)	Reading	Setting	Gain	Gain	Loss	Result	(dBm)	(dBm)	(H/V)
(dBuV)	(dBm)	(dBi)	(dBd)	(dB)	(dBm)	(dBm)	(dBm)	(dBm)	(H/V)
Fundamental measurement:									
216.53	86.80	0.00		0.00	0.30	-0.30	20.00	-20.30	3mH
216.53	84.60	5.00		0.00	0.30	4.70	20.00	-15.30	3mV
Spurious Emissions:									
433.05	65.00	-43.10		0.00	0.50	-43.60	-13.00	-30.60	3mH
649.58	59.10	-46.90		0.00	0.70	-47.60	-13.00	-34.60	3mH
866.10	47.70	-55.60		0.00	0.80	-56.40	-13.00	-43.40	3mH
1082.63	42.30	-54.40	5.80	3.65	1.00	-53.25	-13.00	-40.25	3mH
433.05	66.60	-41.30		0.00	0.50	-41.80	-13.00	-28.80	3mV
649.58	59.20	-44.80		0.00	0.70	-45.50	-13.00	-32.50	3mV
1082.63	45.80	-50.20	5.80	3.65	0.80	-48.85	-13.00	-35.85	3mV
V.2c									

8. FREQUENCY STABILITY MEASUREMENT

8.1. PROVISIONS APPLICABLE

- a). According to CFR 47 section 1055(a)(1), the frequency stability shall be measured with variation of ambient temperature from -30°C to $+50^{\circ}\text{C}$ centigrade.
- b). According to CFR 47 section 1055(d)(2), for hand carried battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
- c). According to CFR 47 section 95.629, the unit must be maintained within a Frequency Stability of 50 parts per million

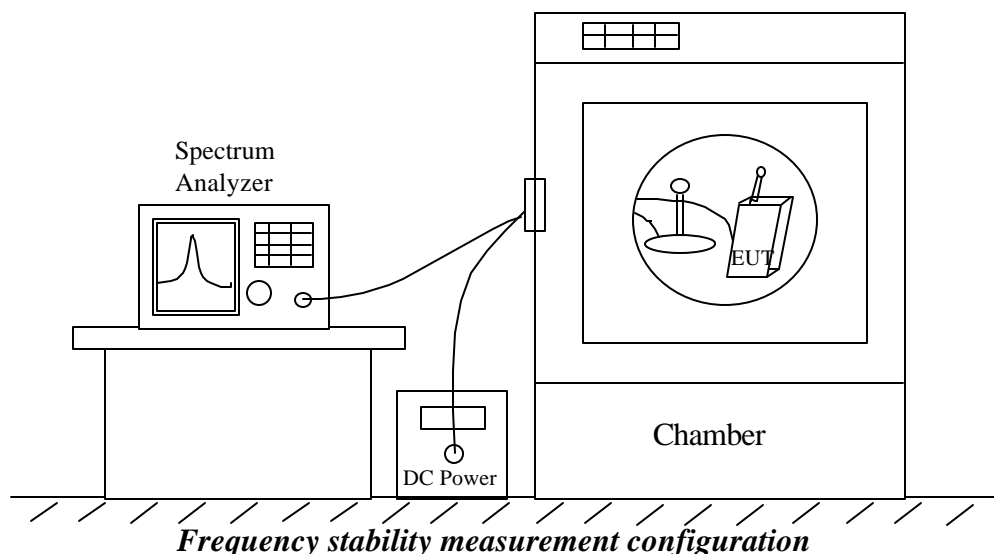
8.2. MEASUREMENT METHOD

8.2.1. Frequency stability versus environmental temperature

- 1). Setup the configuration as shown below for frequencies measurement inside an environmental chamber. Install new battery in the EUT.
- 2). Turn on EUT and set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 10 KHz and Video Resolution Bandwidth to 100 KHz and Frequency Span to 100 KHz. Record this frequency as reference frequency.
- 3). Set the temperature of chamber to 50°C . 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°C decreased per stage until the lowest temperature -30°C is measured, record all measured frequencies on each temperature step.

8.2.2. Frequency stability versus input voltage

- 1). Setup the configuration as shown below for frequencies measured at temperature if it is within 15°C to 25°C . Otherwise, an environmental chamber set for a temperature of 20°C shall be used. Install new battery in the EUT.
- 2). Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 10 KHz and Video Resolution Bandwidth to 100 KHz and Frequency Span to 100 KHz. Record this frequency as reference frequency.
- 3). For battery operated only device, supply the EUT primary voltage at the operating end point which is specified by manufacturer and record the frequency.



8.3. MEASUREMENT INSTRUMENT

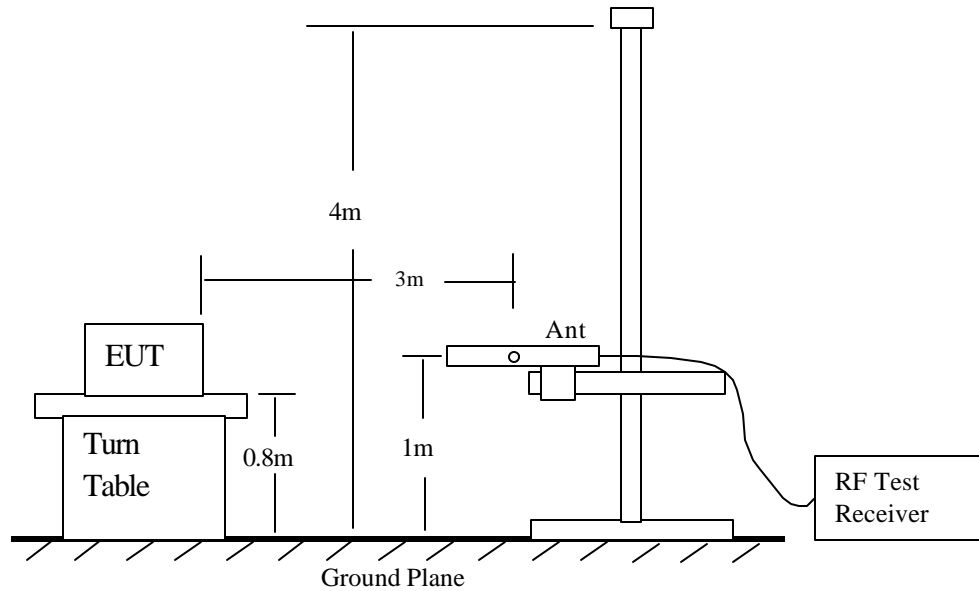
EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/11/03
Attenuator	MINI CIRCUITS	MCL BW-S10W2	NA
Environmental Chamber	Thermotron	SE600-10-10	4/26/03

8.4. MEASUREMENT RESULT

Reference Frequency: Mid Channel 216.525335MHz @ 25°C				
Limit: to stay ± 50 ppm = 10826.267 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.00	50	216.523955	0.319	± 50
3.00	40	216.524675	0.152	± 50
3.00	30	216.525205	0.030	± 50
3.00	25	216.525335	0	± 50
3.00	20	216.525625	-0.067	± 50
3.00	10	216.528885	-0.820	± 50
3.00	0	216.526055	-0.166	± 50
3.00	-10	216.525965	-0.145	± 50
3.00	-20	216.525425	-0.021	± 50
3.00	-30	216.524448	0.205	± 50
2.55	25	216.525235	0.023	± 50
3.45	25	216.525255	0.018	± 50
2.14 (end point)	25	216.525235	0.023	± 50

9. RADIATED EMISSION: Part 15.209

9.1. MEASUREMENT METHOD



Radiated Emission Measurement 30 to 1000 MHz

9.2. MEASUREMENT SETUP

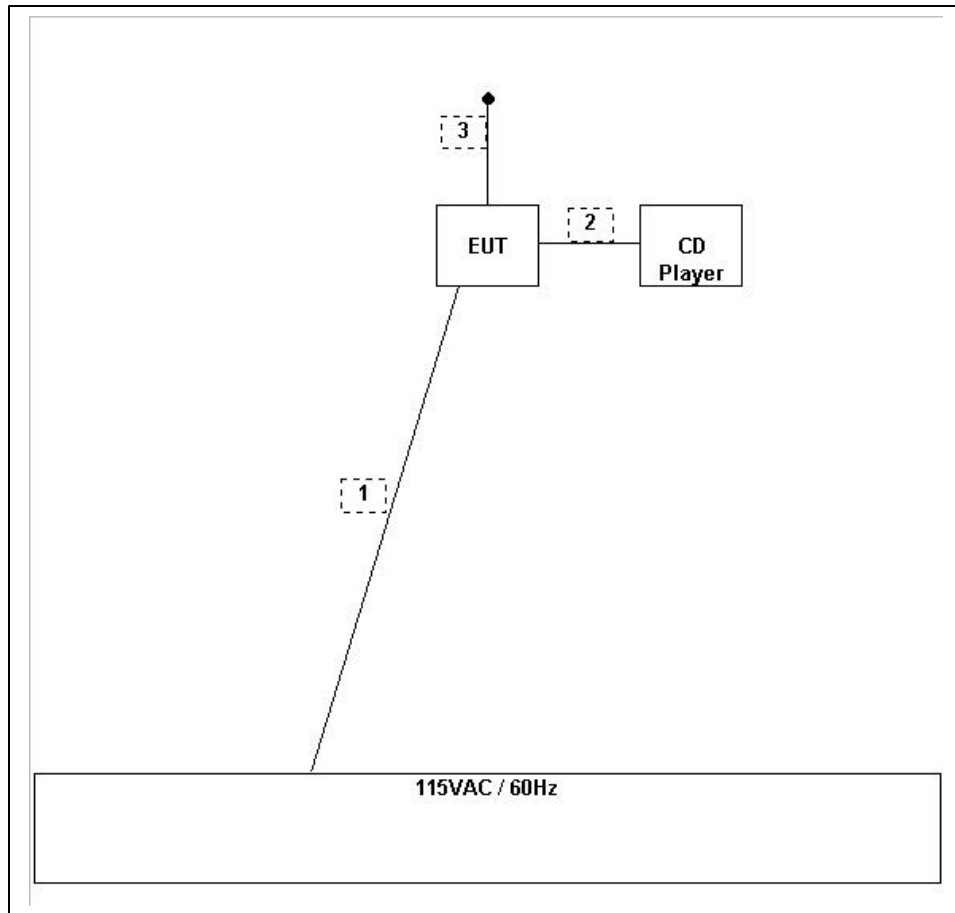
EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/11/03
Amplifier	HP	8447D	4/26/03
Bicon Antenna	Eaton	94455-1	3/30/03
LP Antenna	EMCO	3146	3/30/03

Detector Function Setting of Test Receiver


Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
below 1000	<input checked="" type="checkbox"/> Peak <input type="checkbox"/> Average	<input checked="" type="checkbox"/> 120 KHz <input type="checkbox"/> 1 MHz	<input checked="" type="checkbox"/> 120 KHz <input type="checkbox"/> 10 Hz

TEST PERIPHERALS				
Device Type	Manufacturer	Model Number	Serial Number	FCC ID
CD Player	Panasonic	SL-S120	N/A	N/A

TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	1	US 115V	Un-shielded	2m	No	Yes	Bundle on LC test only
2	Line Out	1	Din	Un-shielded	2m	Yes	No	N/A
3	Antenna	1	Din	Un-shielded	1.5m	Yes	No	N/A



9.3. MEASUREMENT RESULT

						Project #: 02U1683-1 Report #: 021218C1 Date & Time: 12/18/02 1:51 PM Test Engr: William Zhuang					
FCC, VCCI, CISPR, CE, AUSTEL, UL, CSA, TUV, BSMI, DHHS, NVLAI 561F MONTEREY ROAD, SAN JOSE, CA 95037-90 PHONE: (408) 463-0888 FAX: (408) 463-0888											
Company: Phonic Ear Inc. EUT Description: Wireless Directional Microphone Array (216 - 217MHz) Test Configuration : EUT/Support Peripherals Type of Test: FCC Class B Mode of Operation: Transmitting											
<input checked="" type="radio"/> A-Site		<input checked="" type="radio"/> B-Site		<input type="radio"/> C-Site		<input type="radio"/> F-Site		6 Worst Data		Descending	
Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
100.00	51.00	10.15	2.40	28.45	35.10	43.50	-8.40	3mH	0.00	1.50	P
300.00	45.00	12.96	4.21	27.90	34.27	46.00	-11.73	3mH	0.00	1.20	P
140.00	49.00	11.01	2.84	28.31	34.54	43.50	-8.96	3mV	0.00	1.00	P
100.00	51.00	10.15	2.40	28.45	35.10	43.50	-8.40	3mV	0.00	1.00	P
300.00	43.00	12.96	4.21	27.90	32.27	46.00	-13.73	3mV	0.00	1.00	P
400.00	42.00	15.85	4.96	28.53	34.28	46.00	-11.72	3mV	0.00	1.00	P
Total data #: 6											
V.2b											



10. POWER LINE CONDUCTED EMISSION: Part 15.207

10.1. MEASUREMENT METHOD

1. The EUT was placed on a wooden table 80 cm above the horizontal ground plane and 40 cm away from the vertical ground plane. The EUT was set to transmit / receive in a continuous mode.
2. Conducted disturbance was measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.150 - 30 MHz was investigated.

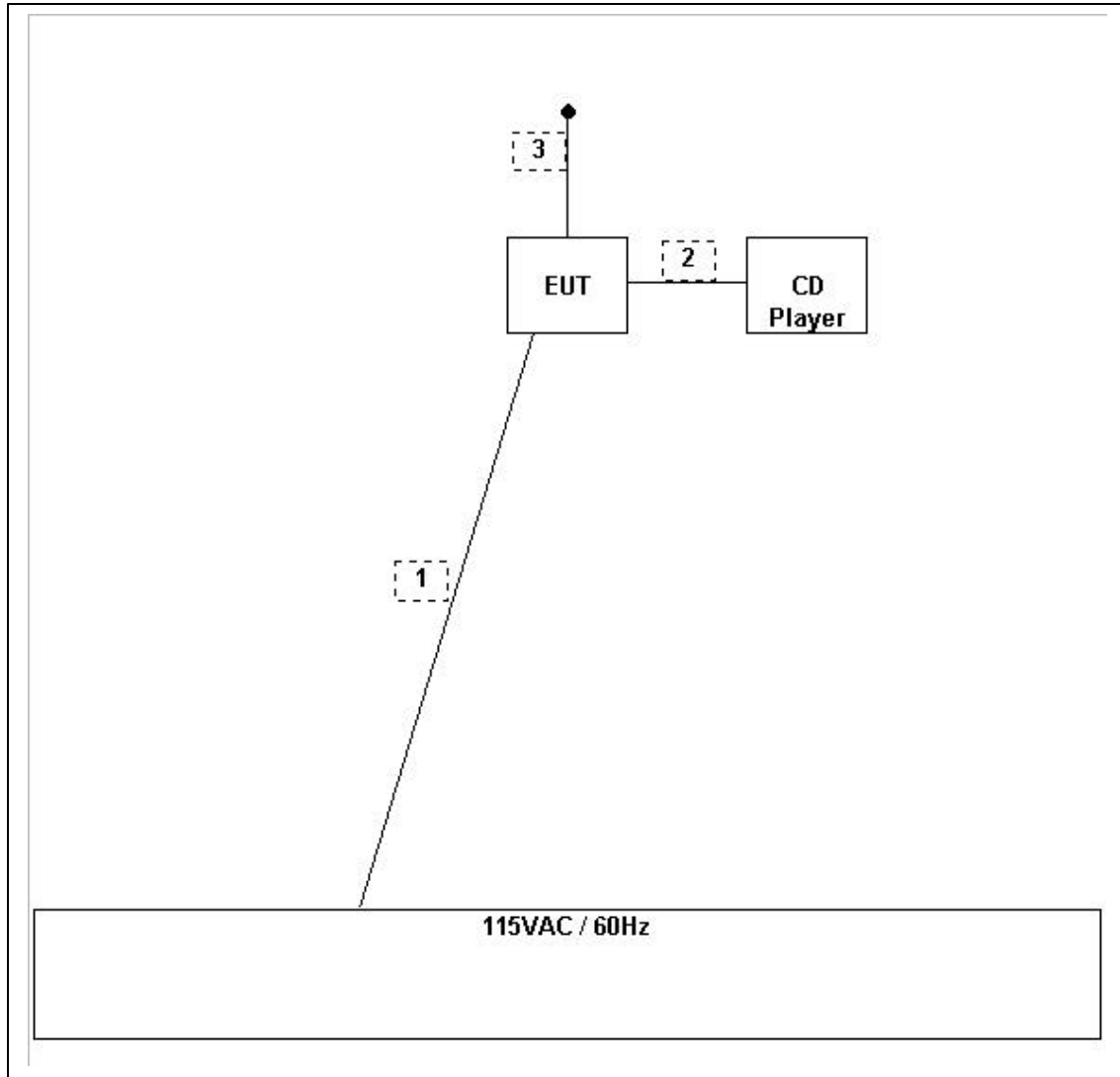
10.2. MEASUREMENT SETUP

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
150 KHz to 30 MHz	<input checked="" type="checkbox"/> Peak & Ave <input type="checkbox"/> Quasi Peak & Ave	<input checked="" type="checkbox"/> 10 KHz	<input checked="" type="checkbox"/> 10 KHz

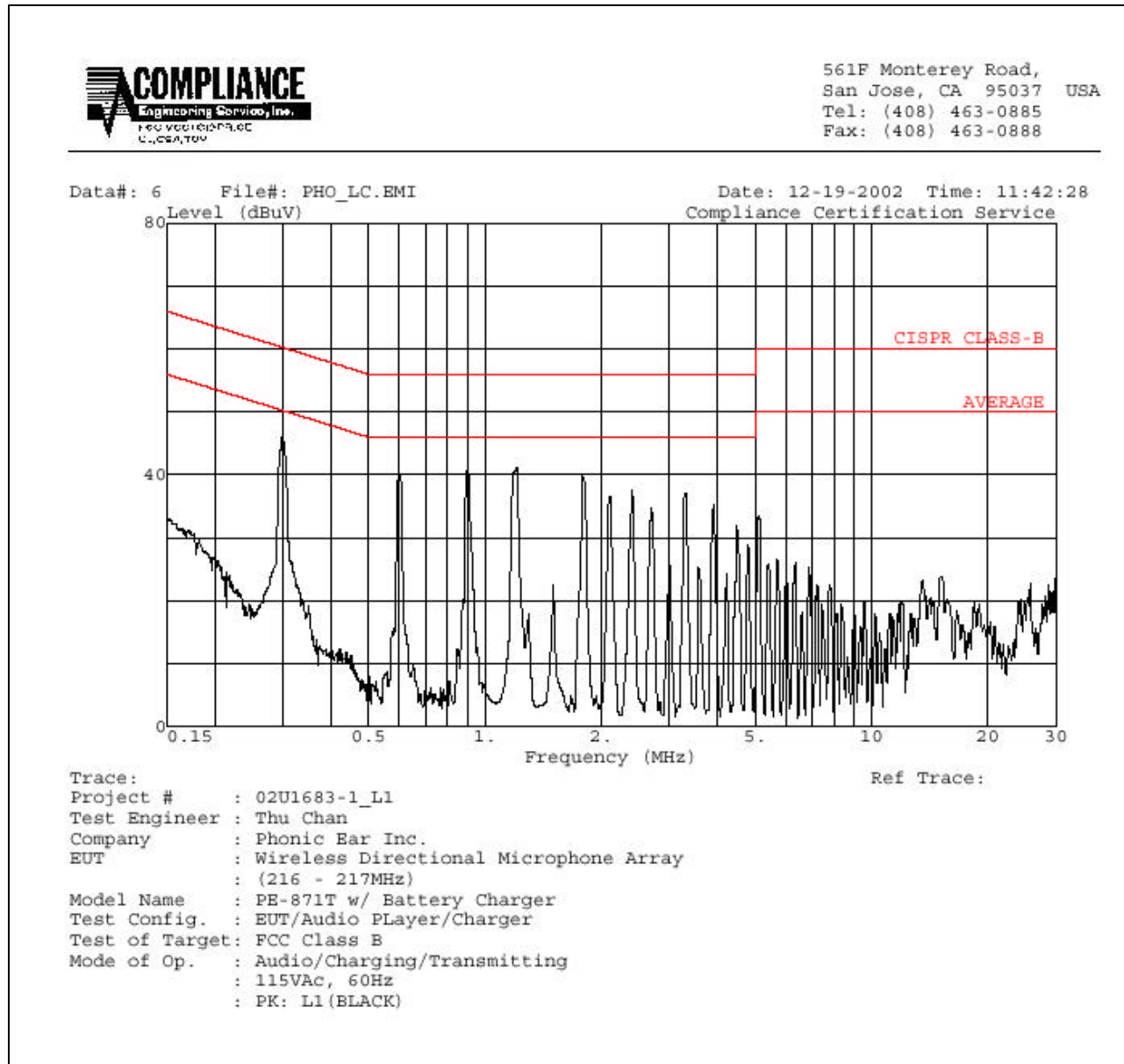
TEST PERIPHERALS				
Device Type	Manufacturer	Model Number	Serial Number	FCC ID
CD Player	Panasonic	SL-S120	N/A	N/A

TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	1	US 115V	Un-shielded	2m	No	Yes	Bundle on LC test only
2	Line Out	1	Din	Un-shielded	2m	Yes	No	N/A
3	Antenna	1	Din	Un-shielded	1.5m	Yes	No	N/A



10.3. MEASUREMENT RESULT

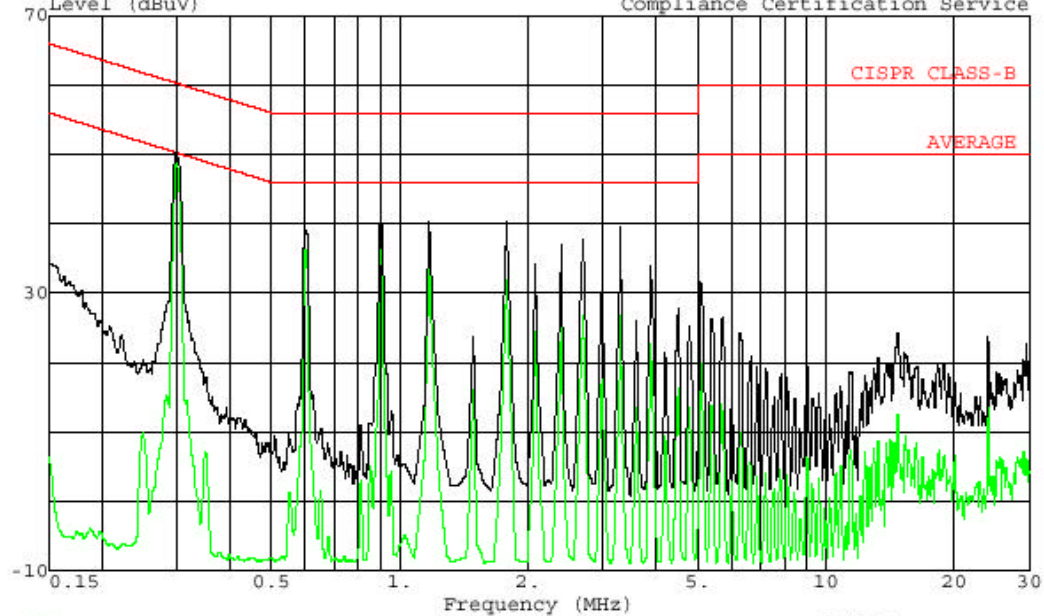
No non-compliance noted. See Line Conduction plot





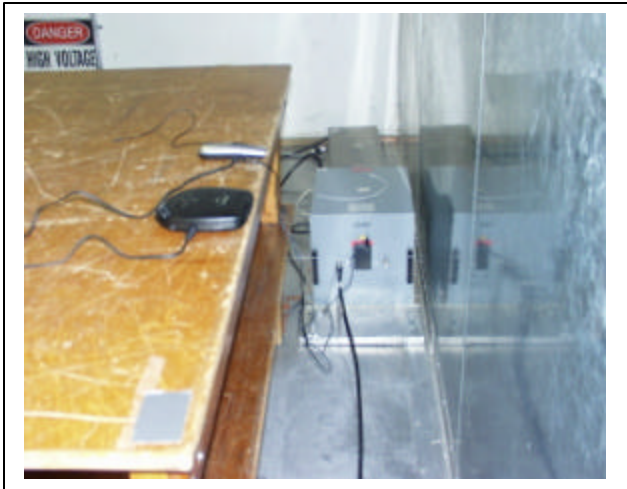
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 17 File#: PHO_LC.EMI Date: 12-19-2002 Time: 13:49:36
Level (dBuV) Compliance Certification Service



Trace: 15
Project # : 02U1683-1_L2 P&A
Test Engineer : Thu Chan
Company : Phonic Ear Inc.
EUT : Wireless Directional Microphone Array
EUT : (216 - 217MHz)
Model Name : PE-871T w/ Battery Charger
Test Config. : EUT/Audio Player/Charger
Test of Target: FCC Class B
Mode of Op. : Audio/Charging/Transmitting
Mode of Op. : 115VAc, 60Hz
Mode of Op. : L2: Pk(Black), Ave(Green)

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.30	46.12	--	--	0.00	61.71	51.71	-15.59	-5.59	L1
0.99	40.68	--	--	0.00	56.00	46.00	-15.32	-5.32	L1
1.21	41.06	--	--	0.00	56.00	46.00	-14.94	-4.94	L1
0.30	50.40	--	48.77	0.00	61.71	51.71	-11.31	-2.94	L2
1.17	40.32	--	--	0.00	56.00	46.00	-15.68	-5.68	L2
3.29	39.52	--	--	0.00	56.00	46.00	-16.48	-6.48	L2
6 Worst Data									



11. APPENDIX

EXHIBIT 1:	User Manual
EXHIBIT 2:	EUT External Photos
EXHIBIT 3:	EUT Internal Photos
EXHIBIT 4:	Schematic
EXHIBIT 5:	Block Diagram
EXHIBIT 6:	Operational Description
EXHIBIT 7:	Report of Measurements
EXHIBIT 8:	Setup photo
EXHIBIT 9:	Labeling

END OF REPORT