ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 90 REQUIREMENTS

OF

INTERPHONE

MODEL No.: T-97SE

BRAND NAME: N/A

FCC ID: SCUMICROLABT-004

REPORT NO:SZE0503046

ISSUE DATE: April 25, 2005

Prepared for

**MICROLAB TECHNOLOGY COMPANY LIMITED
HUACHANG INDUSTRIAL AREA, DALANG, LONGHUA COUNTRY, BAOAN DISTRICT,SHENZHEN, CHINA**

Prepared by

COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC.

d.b.a.

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VERIFICATION OF COMPLIANCE

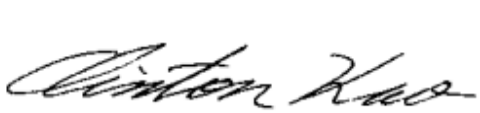
Applicant:	MICROLAB TECHNOLOGY COMPANY LIMITED Huachang Industrial Area, Dalang, Longhua Country, Baoan District, Shenzhen, China
Product Description:	Interphone
Brand Name:	N/A
Model Number:	T-97SE
Serial Number:	N/A
File Number:	SZE0503046
Date of Test:	March 25,2005 ~ April 24, 2005

We hereby certify that:

The above equipment was tested by COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C 63.4:2001 and the sample tested as described in this report is in compliance with the FCC Rules Part 90.

The test results of this report relate only to the tested sample identified in this report.

Approved By ***Reviewed By***



Clinton Kao / Q.A. Manager
COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC.

Jimmy
COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC.

Table of Contents

1. GENERAL INFORMATION

1.1 Product Description

The Microlab Technology company limited, Model: T-97SE (referred to as the EUT in this report). The EUT is a 16-channel Interphone designed for voice communication only. It is designed by way of utilizing the FM modulation achieves the system operating.

A major technical descriptions of EUT is described as following:

A). Frequency Tolerance: 0.00018% (0.00025%)
B). Communication Type: Voice/Tone only
C). Modulation: FM
D). Emission type: F3E
E). Emission designator: 9KF3E (2M+2D, M=2, D=2.5, Necessary Bandwidth =9 KHz)
F). Emission Bandwidth: 11 KHz (Limit: 12.5 KHz)
G).Peak Frequency Deviation: 1.5 KHz at 0 dB reference (Limit<±2.5 KHz)
H).Audio Frequency Response: 2 KHz (Limit<3.125 KHz)
G). Maximum Transmitter Power: 2.443W
H). Output power Modification: Fixed can't be changed
I). Unwanted Radiation:

1). At least 10 (Limit 0 dB) On any frequency removed from the center of the authorized bandwidth f_o to 5.625 KHz removed from f_o: Zero dB

2). At least 15 (Limit 7.27 dB) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz)f_o of more than 5.625 KHz but no more than 12.5 KHz: At least 7.27dB

3). At least 80 (Limit 53.88 dB) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz) f_o of more than 12.5 KHz: At least 50+10 log(P) dB or 70 dB, which ever is lesser attenuation.

J). Antenna Designation: Detachable
K). Power Supply: 7.2 V dc by battery
L). DC Voltage= 6.0 V and DC Current= 180 mA into the final stage for normal operation over the power range
M). Battery Endpoint: DC 6.0 V
N). Operating Frequency Range and Channels
Frequency Range: 450.125 ~ 469.987MHz
Total 16 channels:

CH 01 ---- 450.125 MHz	CH 02 ---- 460.125 MHz
CH 03 ---- 469.987 MHz	CH 04 ---- 455.050 MHz
CH 05 ---- 459.900 MHz	CH 06 ---- 459.800 MHz
CH 07 ---- 459.700 MHz	CH 08 ---- 459.600 MHz
CH 09 ---- 459.500 MHz	CH 10 ---- 459.400 MHz
CH 11 ---- 459.300 MHz	CH 12 ---- 459.200 MHz
CH 13 ---- 459.100 MHz	CH 14 ---- 469.950 MHz
CH 15 ---- 459.987 MHz	CH 16 ---- 460.450 MHz

O). Effective distance: Nominal 3 miles, with 2.443 W power output

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: SCUMICROLABT-004 filing to comply with the FCC Part 90 requirements

1.3 Test Methodology

The radiated emission testing was performed according to the procedures of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

1.4 Test Facility

The open area test site used to collect the radiated data is located on the address of COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC. No. 6, Jinao industrial park, No.35 Jukeng Road, Dashuikeng Village, Guanlan Town, Baoan District, Shenzhen, China. The Open Area Test Site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2001 and CISPR 22/EN 55022 requirements.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. the TX frequency was fixed which was for the purpose of the measurements.

2.3 GENERAL TECHNICAL REQUIREMENTS

a). Section 90.205: Maximum ERP is dependent upon the station's antenna HAAT and required service area

b). Section 90.207: Modulation Characteristic

c). Section 90.209: Occupied Bandwidth

d). Section 90.210: Emission Mask

e). Section 90.213: Frequency Tolerance

f). Section 90.214: Transmitter Frequency Behavior

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

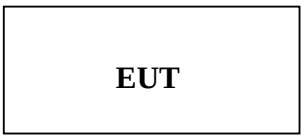


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Interphone	N/A	T-97SE	SCUMICROLABT-004	N/A	***EUT***

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§ 90.205	Maximum Transmitter Power	Compliant
§ 90.207	Modulation Characteristic	Compliant
§ 90.209	Occupied Bandwidth	Compliant
§ 90.210	Emission Mask	Compliant
§ 90.213	Frequency Tolerance	Compliant
§ 90.214	Transmitter Frequency Behavior	Compliant

4. DESCRIPTION OF TEST MODES

The EUT (Interphone) has been tested under normal operating condition. Three channels are chosen for testing.

5. FREQUENCY TOLERANCE

5.1 PROVISIONS APPLICABLE

a). According to FCC Part 2 Section 2.1055(a)(1), the frequency stability shall be measured with variation of ambient temperature from –30℃ to +50℃ centigrade.
b). According to FCC Part 2 Section 2.1055(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 FCC Part 90 Section 90.213, the frequency tolerance must be maintained within 0.00025%.

5.2 MEASUREMENT PROCEDURE

5.2.1 Frequency stability versus environmental temperature

1. Setup the configuration per figure 1 for frequencies measurement inside an environment 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 1KHz and Video Resolution Bandwidth to 1KHz and Frequency Span to 50KHz.Record this frequency as reference frequency.

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

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

5.2.2 Frequency stability versus input voltage

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

2. Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1KHz and Video Resolution Bandwidth to 1KHz. 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.

5.3 TEST SETUP BLOCK DIAGRAM(block diagram of configuration)

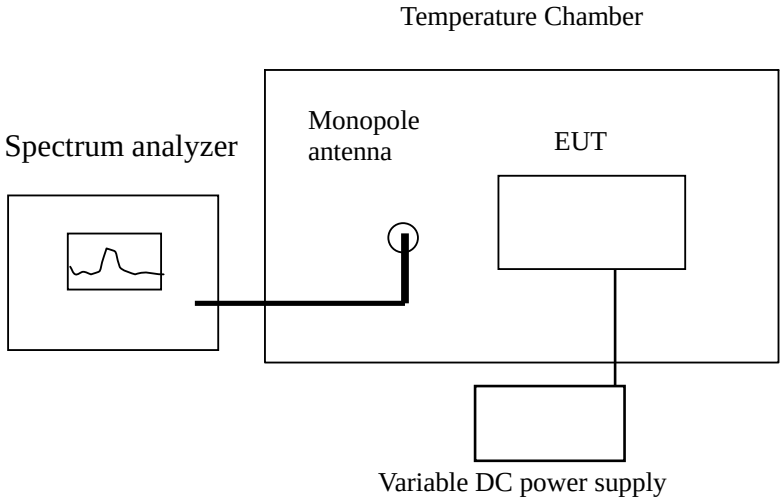


Figure 1

5.4 Test equipment used:

Equipment	Model No.	Serial No.	Cal. Due.
Advantest Spectrum Analyzer	R3132	120901472	06/28/2005
Shihin Temperature Chamber	BM50-CB	908	06/29/2005
DC Power Supply	WYK-605	N/A	05/29/2005
Huber + suhner low loss cable	N/A	N/A	06/07/2005
Monopole Antenna	N/A	N/A	N/A

5.5 TEST RESULT

a. Frequency stability versus input voltage (battery operation end point voltage is 6.0 V)

Channel	Reference Frequency (MHz)	Frequency Measured at end point voltage	Frequency Deviation (%)	Limit (%)
01	450.12500	450.124190	-0.00018	0.00025
02	460.12500	460.124540	-0.00010	0.00025
03	469.98700	469.987047	0.00001	0.00025

b. Frequency stability versus ambient temperature

Channel 01

Reference Frequency: 450.12500 MHz		Limit: ±0.00025%	
Environment Temperature (℃)	Power Supply	Frequency deviation measured with time Elapse (10 minutes)	
		(MHz)	%
50	New Battery	450.124280	-0.00016
40	New Battery	450.124415	-0.00013
30	New Battery	450.124505	-0.00011
20	New Battery	450.124505	-0.00011
10	New Battery	450.124595	-0.00009
0	New Battery	450.124685	-0.00007
-10	New Battery	450.124775	-0.00005
-20	New Battery	450.124820	-0.00004
-30	New Battery	450.124865	-0.00003

Channel 02

Reference Frequency: 460.12500 MHz		Limit: ±0.00025%	
Environment Temperature (℃)	Power Supply	Frequency deviation measured with time Elapse (10 minutes)	
		(MHz)	%
50	New Battery	460.124632	-0.00008
40	New Battery	460.124724	-0.00006
30	New Battery	460.124816	-0.00004
20	New Battery	460.124816	-0.00004
10	New Battery	460.124908	-0.00002
0	New Battery	460.125000	0.00000
-10	New Battery	460.125092	0.00002
-20	New Battery	460.125138	0.00003
-30	New Battery	460.125184	0.00004

Channel 03

Reference Frequency: 469.98700 MHz			**Limit: ±0.00025%**
Environment Temperature (℃)	**Power Supply**	**Frequency deviation measured with time Elapse (10 minutes)**	
		(MHz)	**%**
50	New Battery	469.987188	0.00004
40	New Battery	469.987329	0.00007
30	New Battery	469.987423	0.00009
20	New Battery	469.987423	0.00009
10	New Battery	469.987517	0.00011
0	New Battery	469.987611	0.00013
-10	New Battery	469.987705	0.00015
-20	New Battery	469.987752	0.00016
-30	New Battery	469.987799	0.00017

6. EMISSION BANDWIDTH

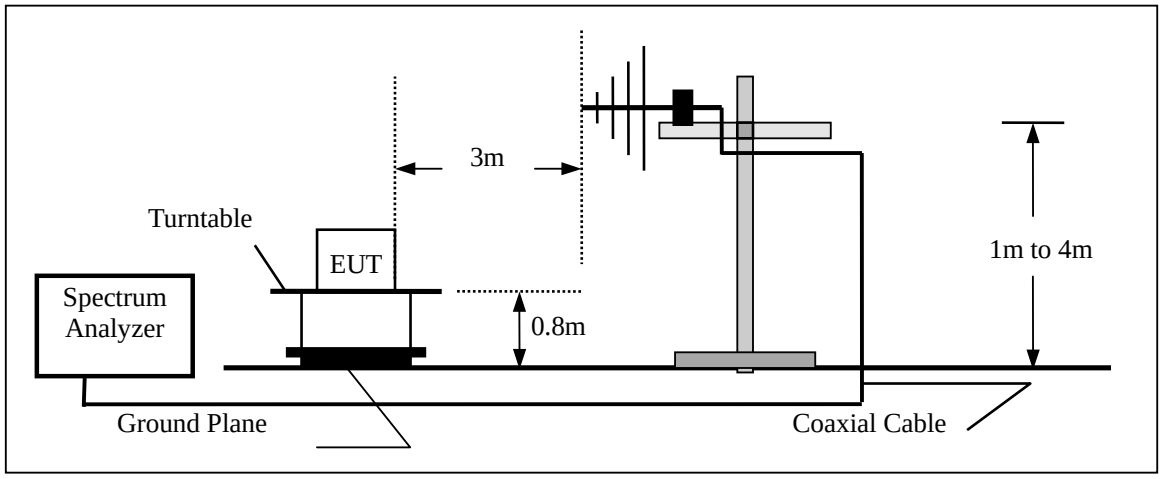
6.1 PROVISIONS APPLICABLE

According to FCC Part 90 Section 90.209: The authorized bandwidth shall be 12.5 KHz.

6.2 MEASUREMENT PROCEDURE

1). The EUT was placed on a turn table which is 0.8m above ground plane.
2). Set EUT as normal operation
3). Set SPA Center Frequency = fundamental frequency , RBW=100 Hz, VBW= 1KHz, Span =100KHz.
4). Set SPA Max hold. Mark peak, -26dB.

6.3 TEST SETUP BLOCK DIAGRAM (Block Diagram of Configuration)



6.4 MEASUREMENT EQUIPMENT USED:

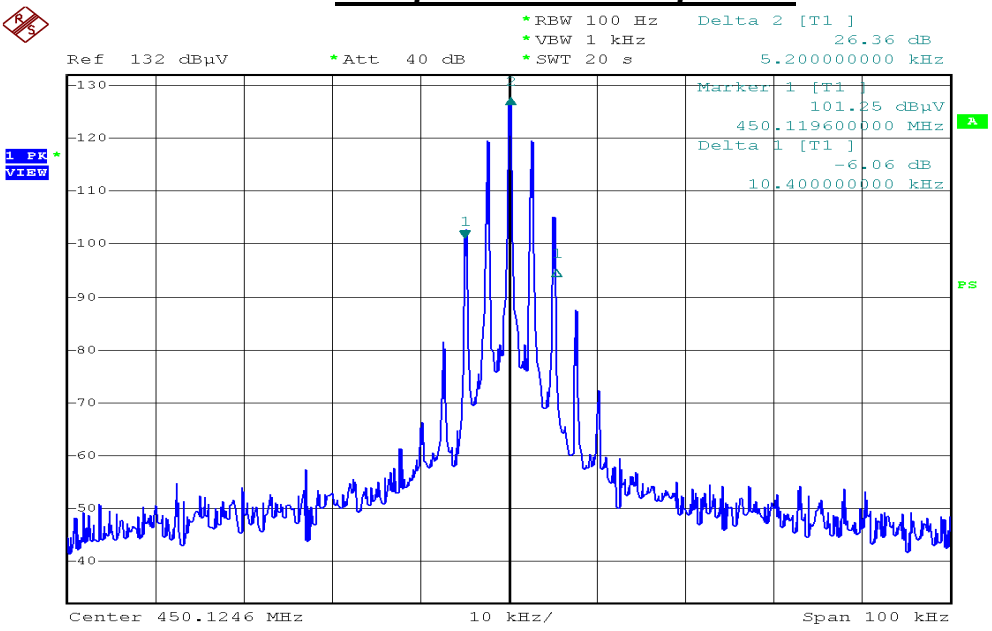
Open Area Test Site # 3					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3132	120901472	06/29/2004	06/28/2005
EMI Test Receiver	HP	8546A	3448A00232	06/29/2004	06/28/2005
Pre-Amplifier	HP	8447D	2944A07999	06/08/2004	06/07/2005
Bi-log Antenna	EMCO	3142	9910-1436	05/30/2004	05/29/2005

6.5 MEASUREMENT RESULT:

26dB bandwidth = 11 KHz

Referred as the attached plot hereinafter

Occupied Bandwidth of CH 01



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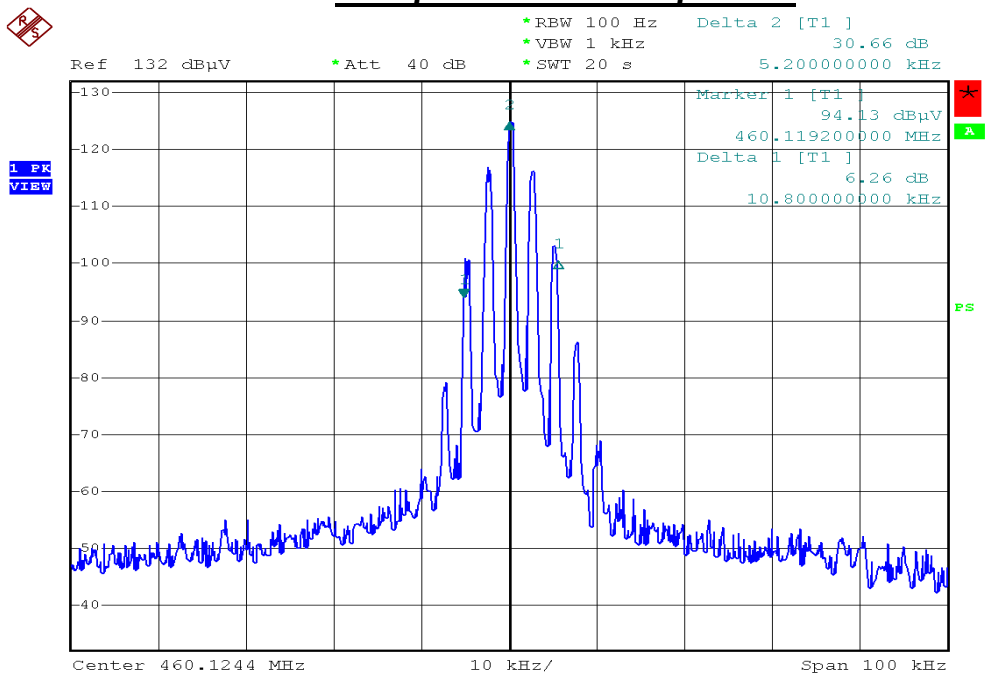
Occupied Bandwidth of CH 02



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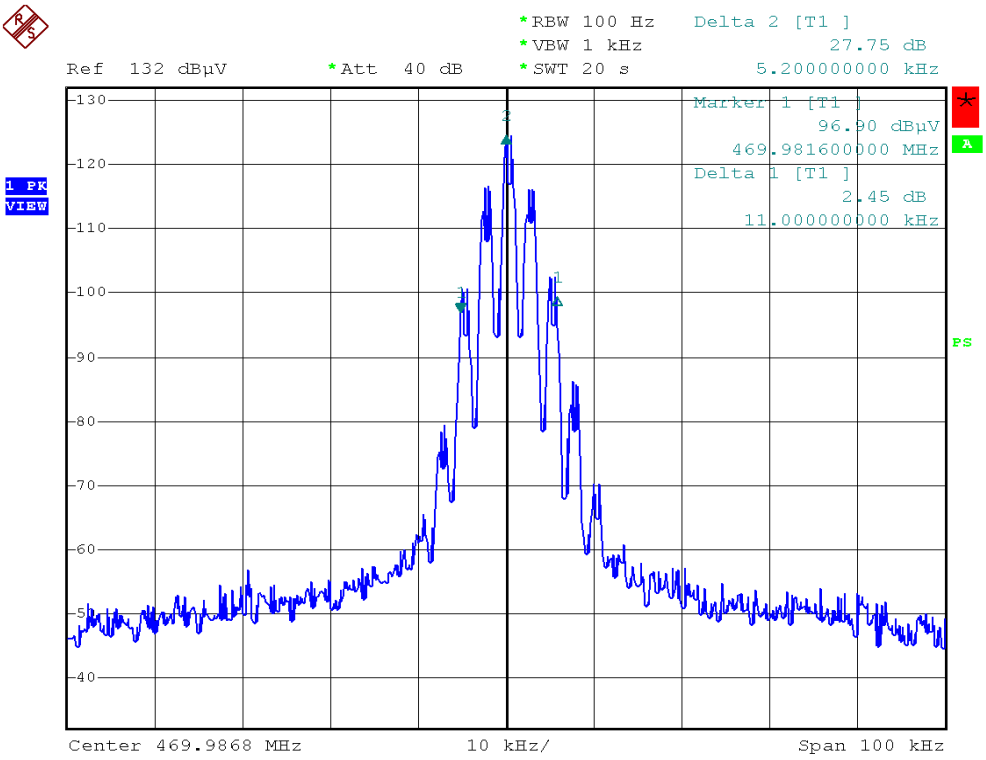
Occupied Bandwidth of CH 03



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7. UNWANTED RADIATION

7.1 PROVISIONS APPLICABLE

According to Section 90.210, the power of each unwanted emission shall be less than Transmitted Power as specified below for transmitters designed to operate with 12.5 KHz channel bandwidth:

1).On any frequency removed from the center of the authorized bandwidth f_o to 5.625 KHz removed from f_o: Zero dB

2). On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz)f_o of more than 5.625 KHz but no more than 12.5 KHz: At least 7.27dB

3). On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in KHz)f_o of more than 12.5 KHz: At least 50+10 log(P) dB or 70 dB, which ever is lesser attenuation.

7.2 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 transmitter.

3). The output of the 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 the measuring receiver detects a maximum signal level.

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 the measuring receiver detects a maximum signal level.

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.

10). Replace the antenna with a proper Antenna (substitution antenna).

11). 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 transmitting.

12). The substitution antenna shall be connected to a calibrated signal generator.
13). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

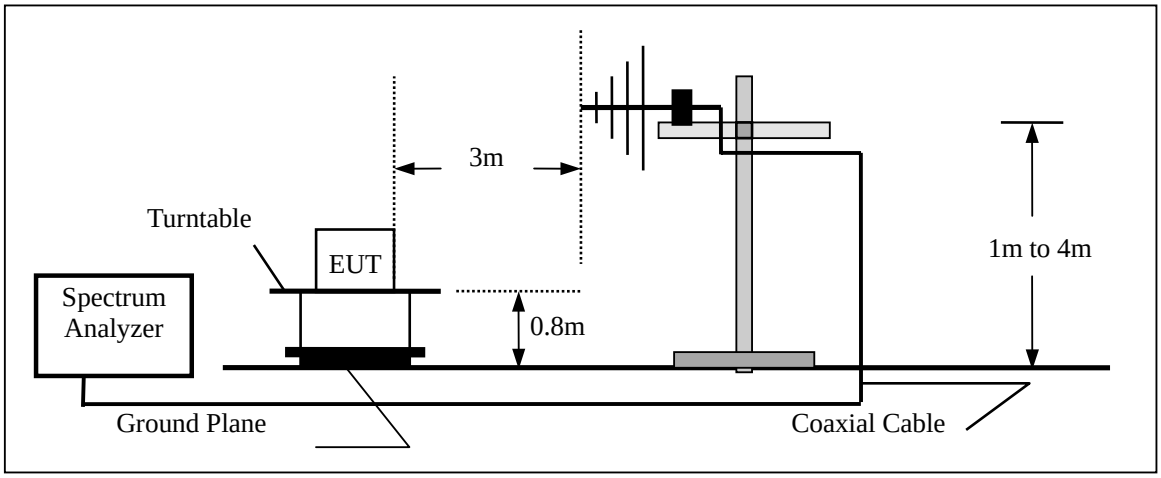
14). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

15). The input signal to 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.

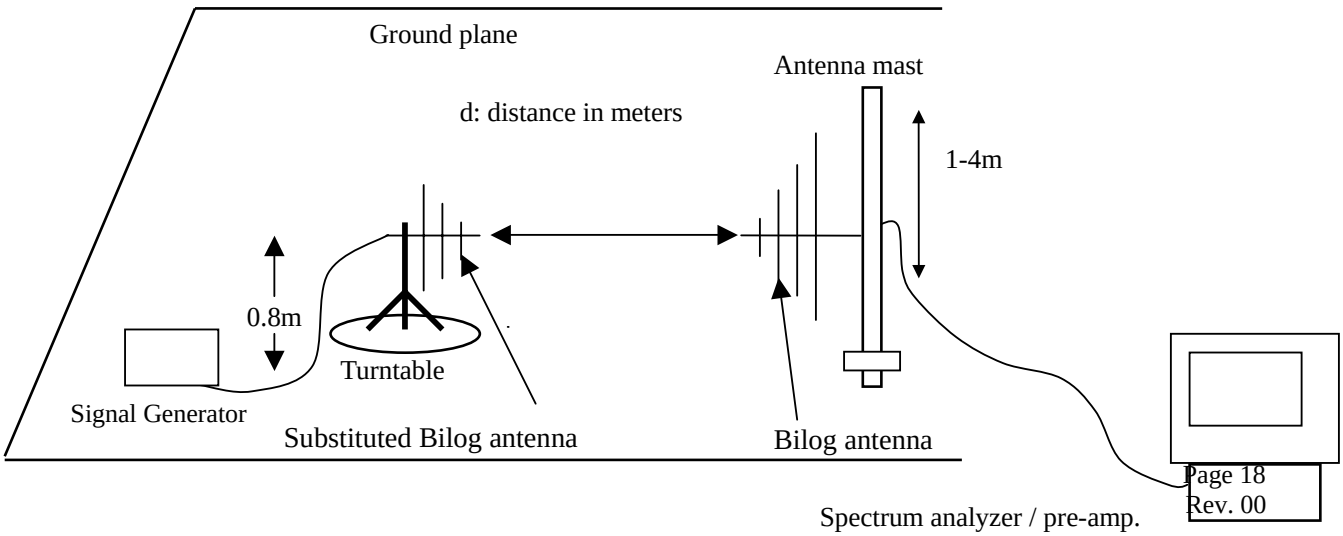
16). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

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

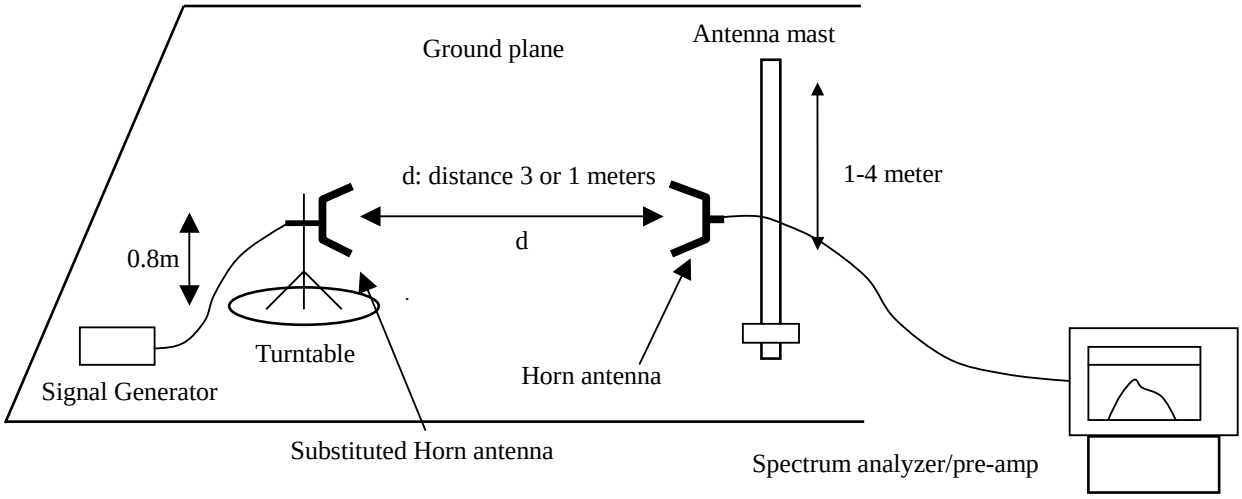
7.3 TEST SETUP BLOCK DIAGRAM (block diagram of configuration)



Radiation below 1GHz



Radiation above 1GHz



7.4MEASUREMENT EQUIPMENT USED:

Open Area Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NO.**	**SERIAL NO.**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3132	N/A	06/29/2004	06/28/2005
EMI Test Receiver	HP	8546A	3448A00232	06/29/2004	06/28/2005
Pre-Amplifier	HP	8447D	2944A07999	06/08/2004	06/07/2005
Bi-Log Antenna	EMCO	3142	9910-1436	05/30/2004	05/29/2005
Bi-Log Antenna	SCHAFFNER	CBL6143	5082	06/08/2004	06/07/2005
CABLE	TIME MICROWAVE	LMR-400	N-TYPE04	06/29/2004	06/28/2005
Horn Antenna	ARA	DRG-118/A	104	06/08/2004	06/07/2005

7.5 MEASUREMENT RESULTS:

Calculation: Limit (dBm)= EL-50-10log10 (TP)

Notes: EL is the emission level of the Output Power expressed in dBm,, in this application, the EL is 33.88 dBm.

Limit (dBm)=33.88-50-10log $_{10}$ (2.443) = -20

Channel 01

Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Correction (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
***							-20	

Channel 02

Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Correction (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
***							-20	

Channel 03

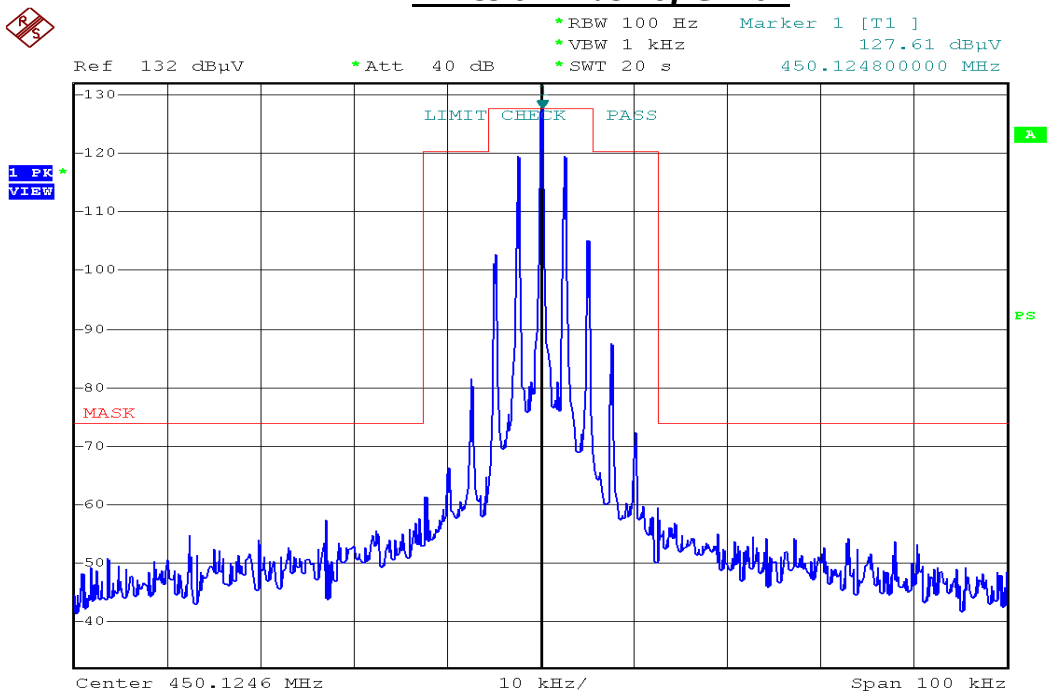
Frequency (MHz)	Reading level (dBuV)	Antenna Polarization	S.G. (dBm)	Cable loss (dB)	Correction (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
***							-20	

***Notes:**

***** means that the emission level is too low to be measured or at least 20 dB down than the limit.**

7.6 Emission Mask Plot

Emission Mask of CH 01



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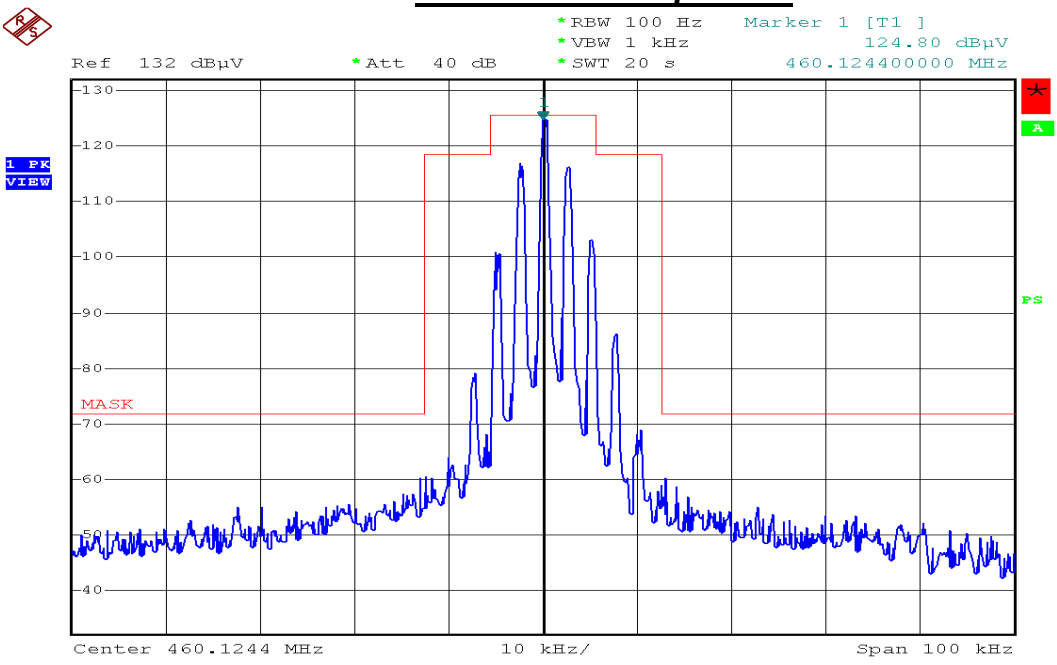
Emission Mask of CH 02



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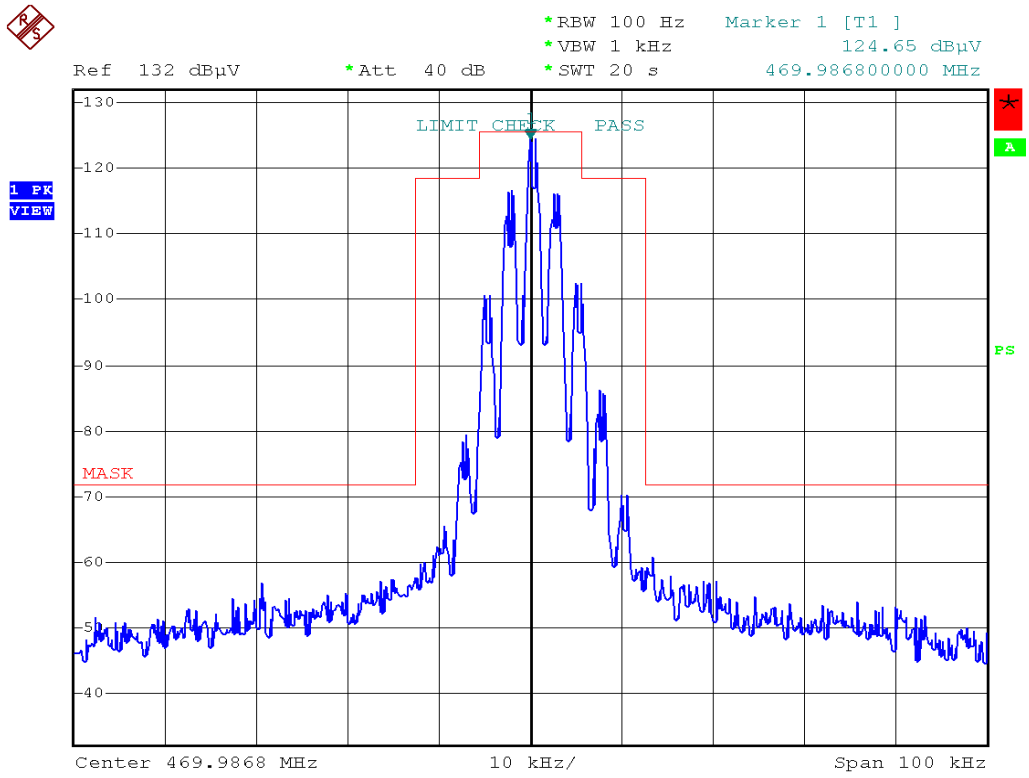
Emission Mask of CH 03



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8. MODULATION CHARACTERISTICS

8.1 PROVISIONS APPLICABLE

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

8.2 MEASUREMENT METHOD

8.2.1 Modulation Limit

1). Configure the EUT as shown in figure 1, adjust the audio input for 60% of rated system deviation at 1KHz using this level as a reference (0dB) and vary the input level from –20 to +20dB. Record the frequency deviation obtained as a function of the input level.

2). Repeat step 1 with input frequency changing to 300,1004, and 2500Hz in sequence.

8.2.2 Audio Frequency Response

1). Configure the EUT as shown in figure 1.

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 = $20\log_{10}$ (Deviation of test frequency/Deviation of 1KHz reference).

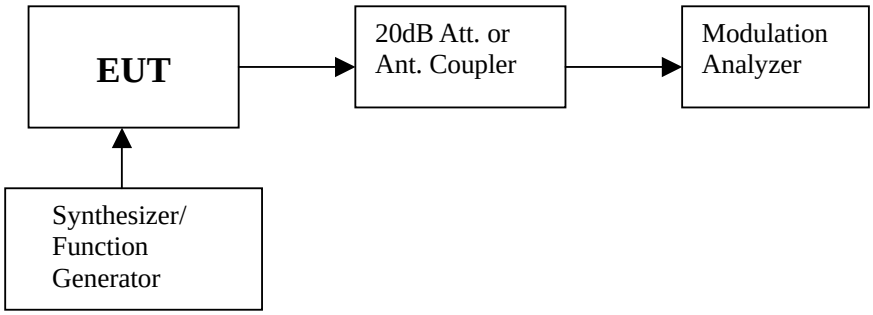


Figure 1: Modulation characteristic measurement configuration

8.3 MEASUREMENT INSTRUMENTS

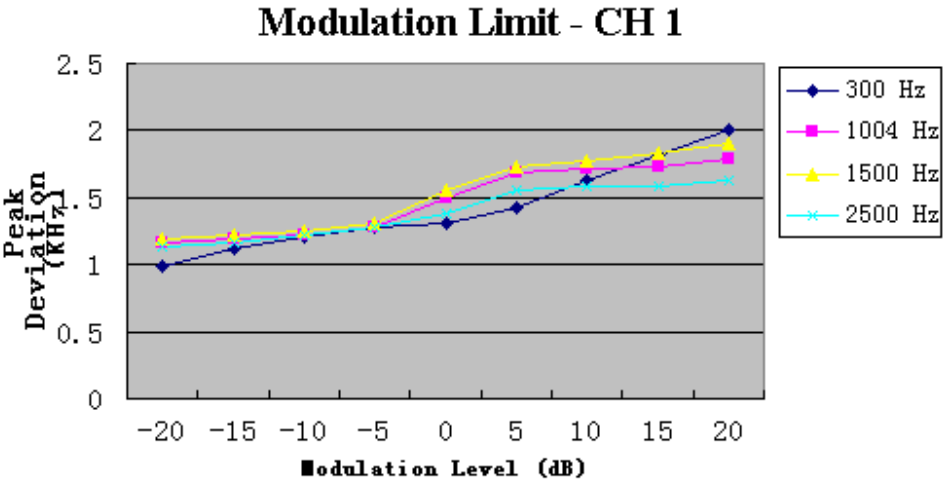
EQUIPMENT TYPE	MFR	MODEL NUMBER	LAST CAL.	CAL DUE.
Audio Signal Generator	HP	3325A	06/08/2004	06/07/2005
Modulation Analyzer	HP	8920B	12/30/2004	12/29/2005
Attenuator	MINI CIRCUITS	MCL BW-S20W2	12/30/2004	12/29/2005

8.4 MEASUREMENT RESULT

a). Modulation Limit:

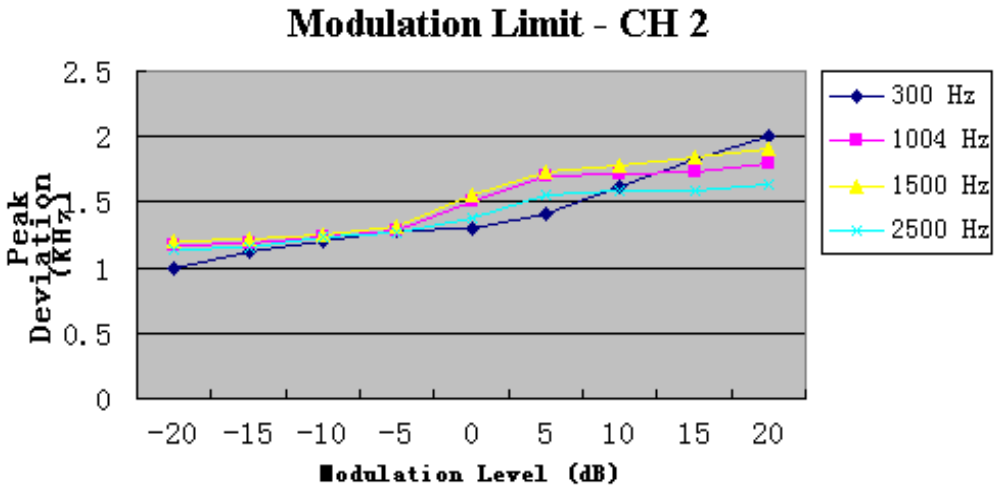
Channel 01

Modulation Level (dB)	Peak Freq. Deviation At 300 Hz (KHz)	Peak Freq. Deviation At 1004 Hz (KHz)	Peak Freq. Deviation At 1500 Hz (KHz)	Peak Freq. Deviation At 2500 Hz (KHz)
-20	0.990	1.163	1.192	1.130
-15	1.114	1.189	1.221	1.162
-10	1.203	1.225	1.246	1.227
-5	1.281	1.281	1.314	1.275
0	1.302	1.500	1.558	1.372
+5	1.418	1.691	1.726	1.555
+10	1.627	1.820	1.905	1.678
+15	1.823	1.934	2.032	1.826
+20	2.005	2.108	2.191	2.038



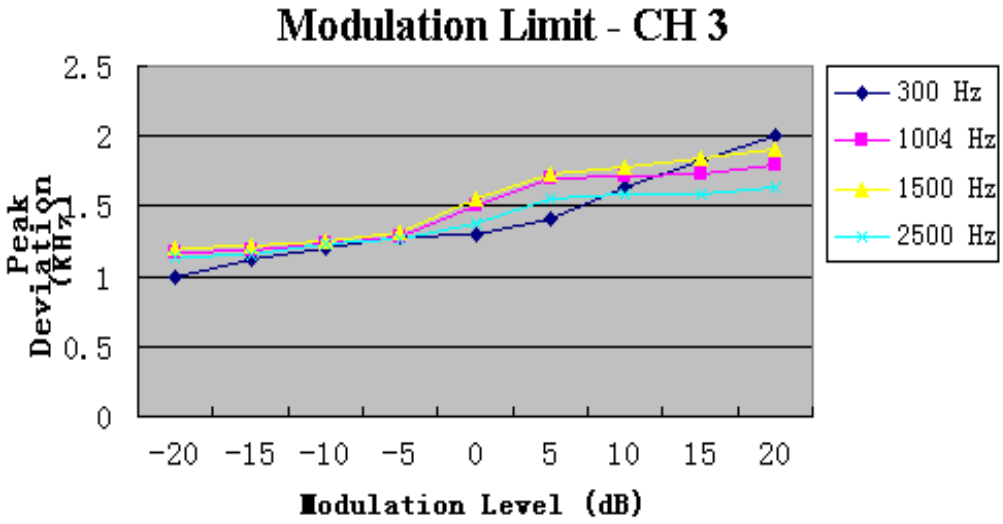
Channel 02

Modulation Level (dB)	Peak Freq. Deviation At 300 Hz (KHz)	Peak Freq. Deviation At 1004 Hz (KHz)	Peak Freq. Deviation At 1500 Hz (KHz)	Peak Freq. Deviation At 2500 Hz (KHz)
-20	0.992	1.164	1.193	1.131
-15	1.115	1.190	1.223	1.161
-10	1.202	1.227	1.248	1.228
-5	1.280	1.282	1.311	1.274
0	1.303	1.500	1.557	1.374
+5	1.416	1.692	1.728	1.556
+10	1.625	1.822	1.902	1.679
+15	1.824	1.933	2.037	1.825
+20	2.001	2.109	2.194	2.035



Channel 03

Modulation Level (dB)	Peak Freq. Deviation At 300 Hz (KHz)	Peak Freq. Deviation At 1004 Hz (KHz)	Peak Freq. Deviation At 1500 Hz (KHz)	Peak Freq. Deviation At 2500 Hz (KHz)
-20	0.991	1.161	1.190	1.135
-15	1.116	1.194	1.225	1.163
-10	1.205	1.225	1.244	1.227
-5	1.283	1.286	1.315	1.276
0	1.300	1.500	1.553	1.372
+5	1.413	1.697	1.729	1.553
+10	1.628	1.820	1.904	1.676
+15	1.829	1.931	2.035	1.827
+20	2.006	2.112	2.197	2.038

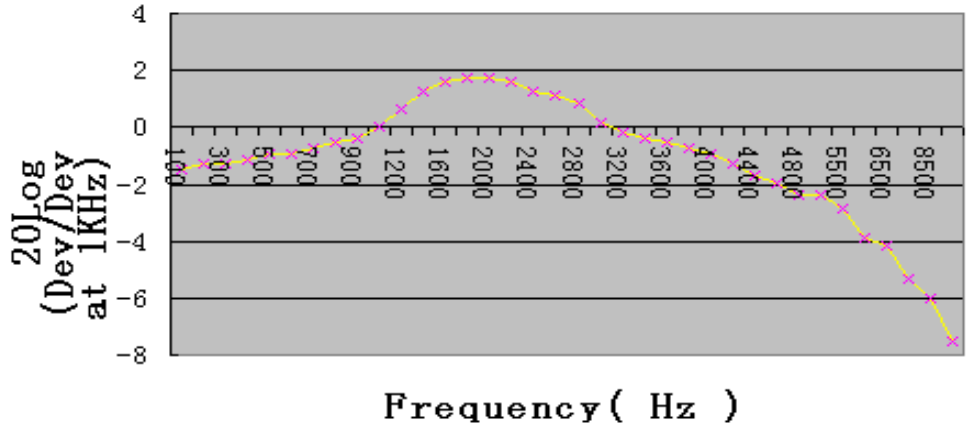


b). Audio Frequency Response:

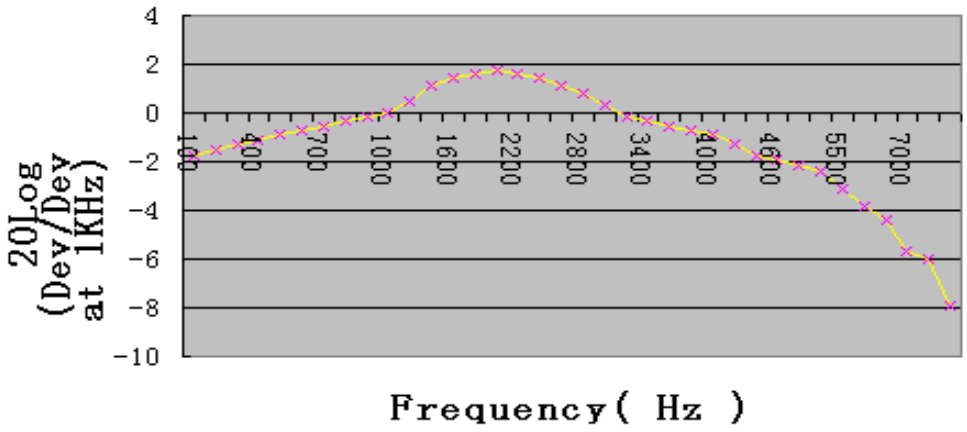
Channel 01

Frequency (Hz)	Deviation (KHz)
100	0.42
200	0.43
300	0.43
400	0.44
500	0.45
600	0.45
700	0.46
800	0.47
900	0.48
1000	0.50
1200	0.54
1400	0.58
1600	0.60
1800	0.61
2000	0.61
2200	0.60
2400	0.58
2600	0.57
2800	0.55
3000	0.51
3200	0.49
3400	0.48
3600	0.47
3800	0.46
4000	0.45
4200	0.43
4400	0.41
4600	0.40
4800	0.38
5000	0.38
5500	0.36
6000	0.32
6500	0.31
7000	0.27
8500	0.25
10000	0.21

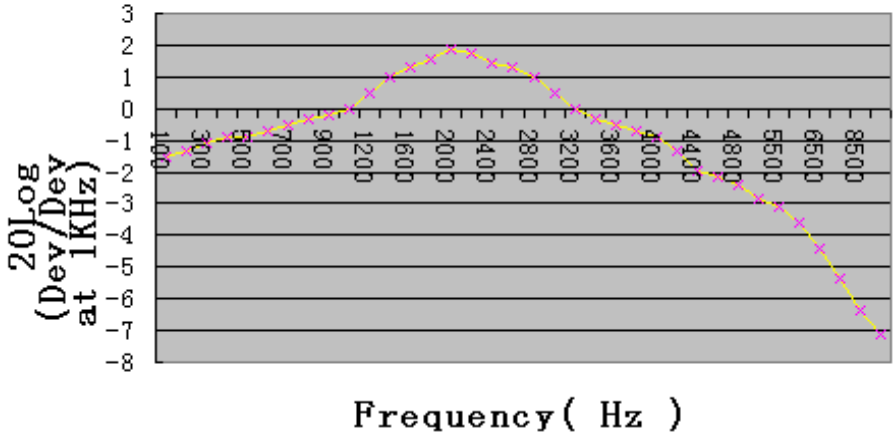
Audio Frequency Response - CH 01



Audio Frequency Response - CH 02



Audio Frequency Response - CH 03



Channel 02

Frequency (Hz)	Deviation (KHz)
100	0.41
200	0.42
300	0.43
400	0.44
500	0.45
600	0.46
700	0.47
800	0.48
900	0.49
1000	0.50
1200	0.53
1400	0.57
1600	0.59
1800	0.60
2000	0.61
2200	0.60
2400	0.59
2600	0.57
2800	0.55
3000	0.52
3200	0.49
3400	0.48
3600	0.47
3800	0.46
4000	0.45
4200	0.43
4400	0.41
4600	0.40
4800	0.39
5000	0.38
5500	0.35
6000	0.32
6500	0.30
7000	0.26
8500	0.25
10000	0.20

Channel 03

Frequency (Hz)	Deviation (KHz)
100	0.42
200	0.43
300	0.44
400	0.45
500	0.45
600	0.46
700	0.47
800	0.48
900	0.49
1000	0.50
1200	0.53
1400	0.56
1600	0.58
1800	0.60
2000	0.62
2200	0.61
2400	0.59
2600	0.58
2800	0.56
3000	0.53
3200	0.50
3400	0.48
3600	0.47
3800	0.46
4000	0.45
4200	0.43
4400	0.40
4600	0.39
4800	0.38
5000	0.36
5500	0.35
6000	0.33
6500	0.30
7000	0.27
8500	0.24
10000	0.22

9. MAXIMUMN TRANSMITTER POWER

9.1 PROVISIONS APPLICABLE

According to FCC Part 90 Section 90.205, the maximum ERP is dependent upon the station's antenna HAAT and required service area

9.2 MEASUREMENT PROCEDURE

Notes: The instrument setting used during the measurement procedure is as follow.

HP 8546A: RW=120KHz, VBW=300KHz, C.F.=fundamental frequency, SPAN 5MHz, A trace MAX HOLD, B trace CLEAR WRIT

ADVANTEST: RW=100KHz, VBW=100KHz, C.F.=Maximum peak Frequency, SPAN 0,TG ON

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 transmitter.

3). The output of the 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 the measuring receiver detects a maximum signal level.

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 the measuring receiver detects a maximum signal level.

8). The maximum signal level detected by the measuring receiver shall be noted.

9). Replace the antenna with a proper Antenna (substitution antenna).

10). 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 transmitting.

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 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.

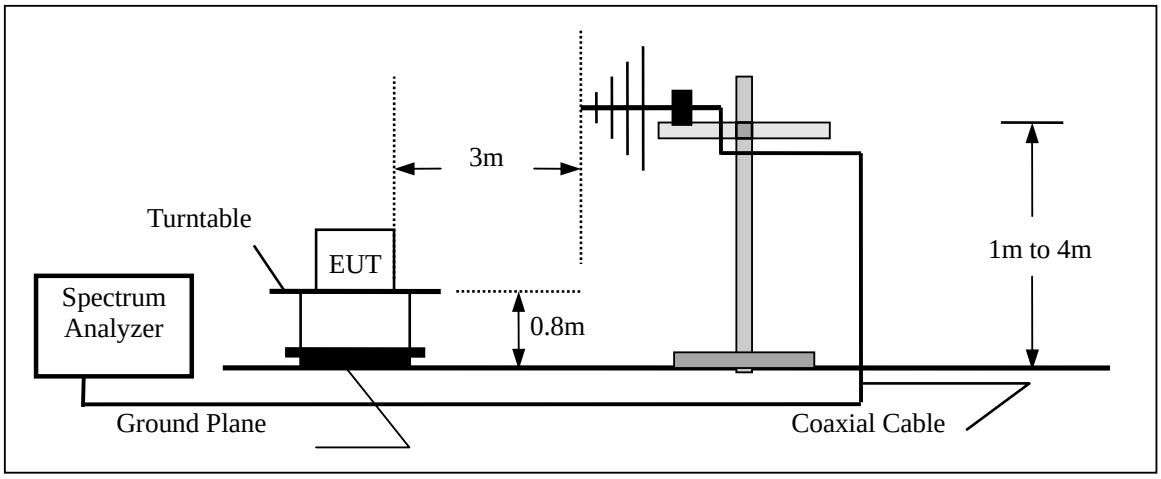
15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

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

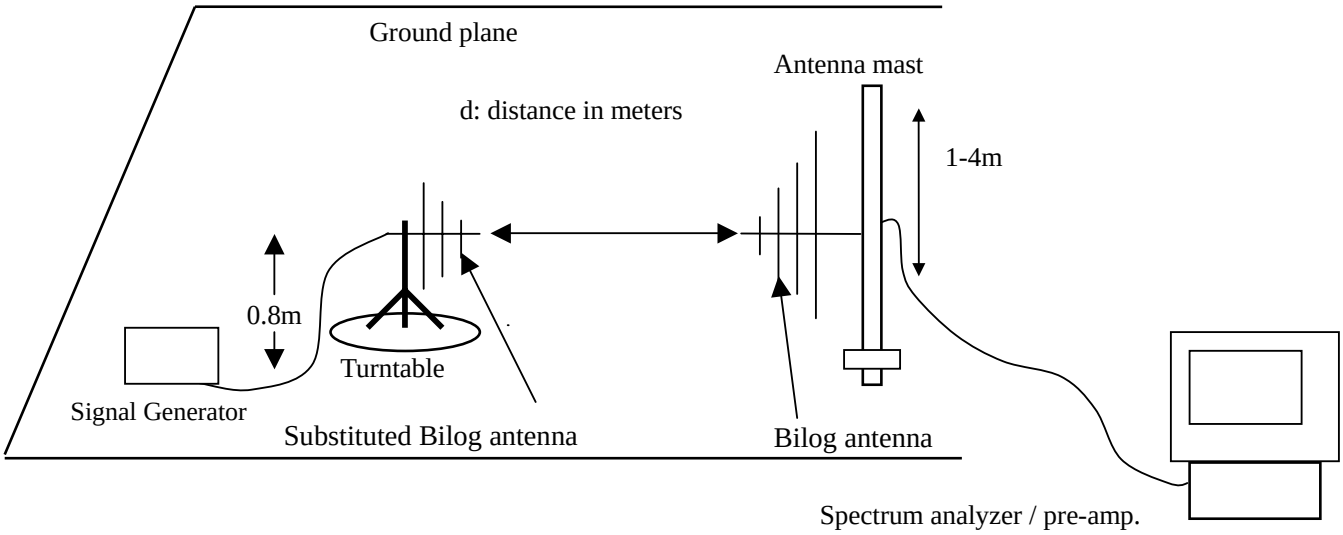
17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

9.3 TEST SETUP BLOCK DIAGRAM(setup block diagram of configuration)

TEST SETUP:



SUBSTITUTION METHOD:



9.4 MEASUREMENT EQUIPMENT USED:

Open Area Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NO.**	**SERIAL NO.**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3132	N/A	06/29/2004	06/28/2005
EMI Test Receiver	HP	8546A	3448A00232	06/29/2004	06/28/2005
Pre-Amplifier	HP	8447D	2944A07999	06/08/2004	06/07/2005
Bi-Log Antenna	EMCO	3142	9910-1436	05/30/2004	05/29/2005
Bi-Log Antenna	SCHAFFNER	CBL6143	5082	06/08/2004	06/07/2005
CABLE	TIME MICROWAVE	LMR-400	N-TYPE04	06/29/2004	06/28/2005

9.5 TEST RESULT

The Output Power of Interphone

Freq. (MHz)	Antenna Polarity	Reading (dBuV)	SG O/P (dBuV)	Ant. Gain (dB)	Correction Factor (dB)	Cable (dB)	Corrected Power	
							(dBm)	(mW)
450.125	V	116.08	133.52	5.3	-	1.8	30.02	1004.62
450.125	H	115.32	131.65	5.3	-	1.8	28.15	653.13
460.125	V	115.86	133.48	5.3	-	1.8	29.98	995.41
460.125	H	114.92	131.43	5.3	-	1.8	27.93	620.87
469.987	V	115.65	133.37	5.3	-	1.8	29.87	970.51
469.987	H	114.71	131.39	5.3	-	1.8	27.89	615.18

10 CONDUCTED OUTPUT POWER

10.1 Provisions Applicable

Per FCC §2.1046 and §90.205: Maximum ERP is dependent upon the station's antenna HAAT and required service area.

10.2 Test Procedure

The RF output of transceiver was conducted to a spectrum analyzer through an appropriate attenuator.

10.3 Test Instruments

Open Area Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NO.**	**SERIAL NO.**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3132	N/A	06/29/2004	06/28/2005
Attenuator	R&S	50FH-010-30	N/A	12/18/2004	12/17/2005

10.4 Test Result

The maximum Conducted Power (CP) is 2.443W

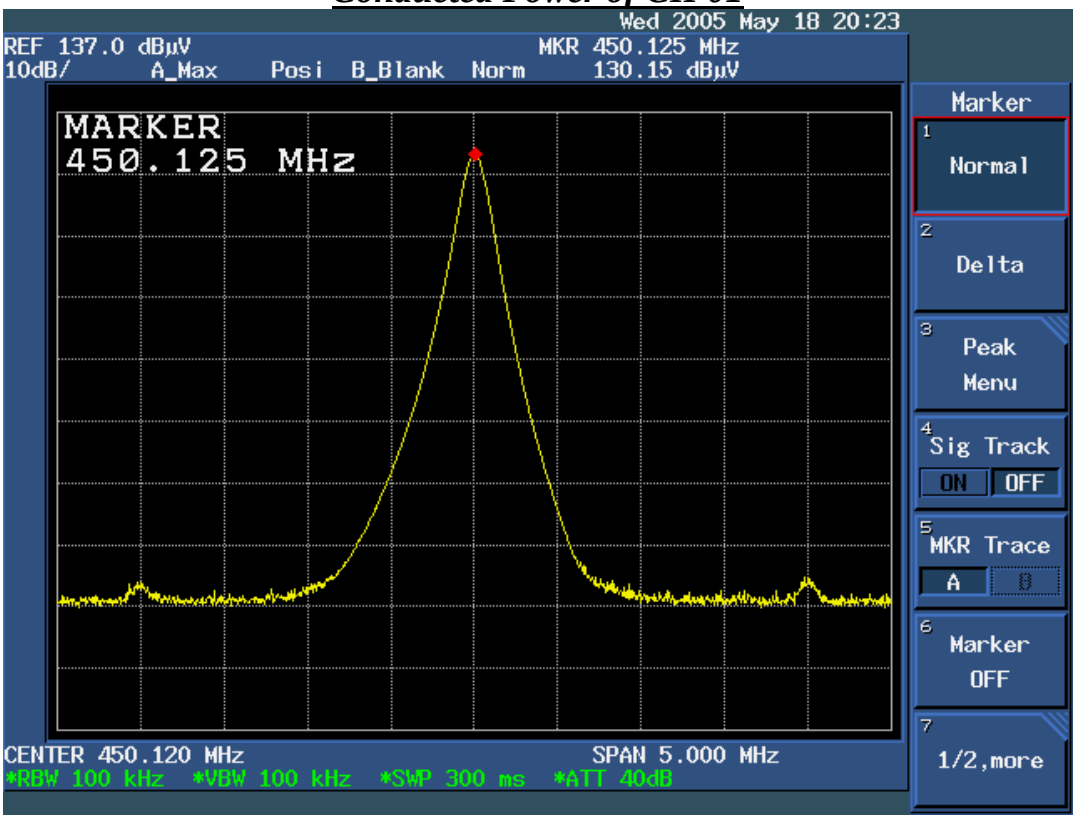
Calculation Formula: CP = R + A + L

***** Note:

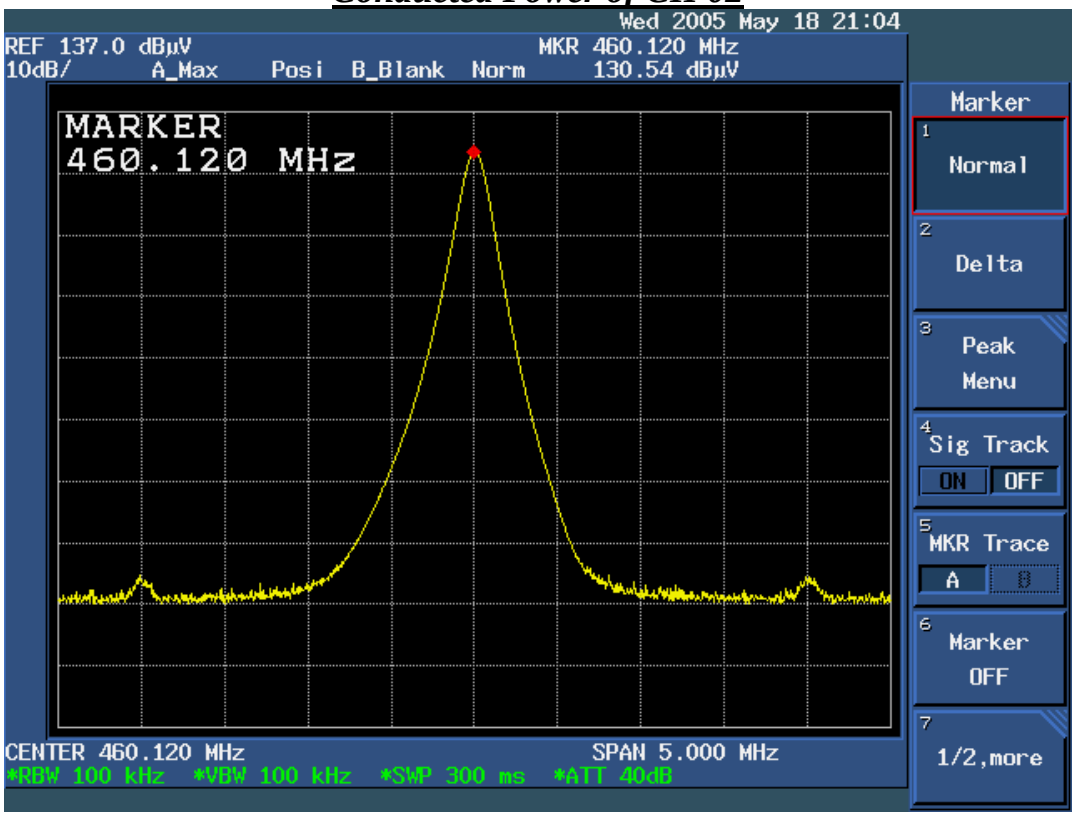
CP: The final Conducted Power
R : The reading value from spectrum analyzer
A : The attenuation value of the used attenuator
L : The loss of all connection cables

In the test: A= 10 dB, L=0.13 dB and the maximum R= 130.91 dBuv,
So CP = 130.91 + 9.84 + 0.13 = 140.88 dBuv = 2.443W

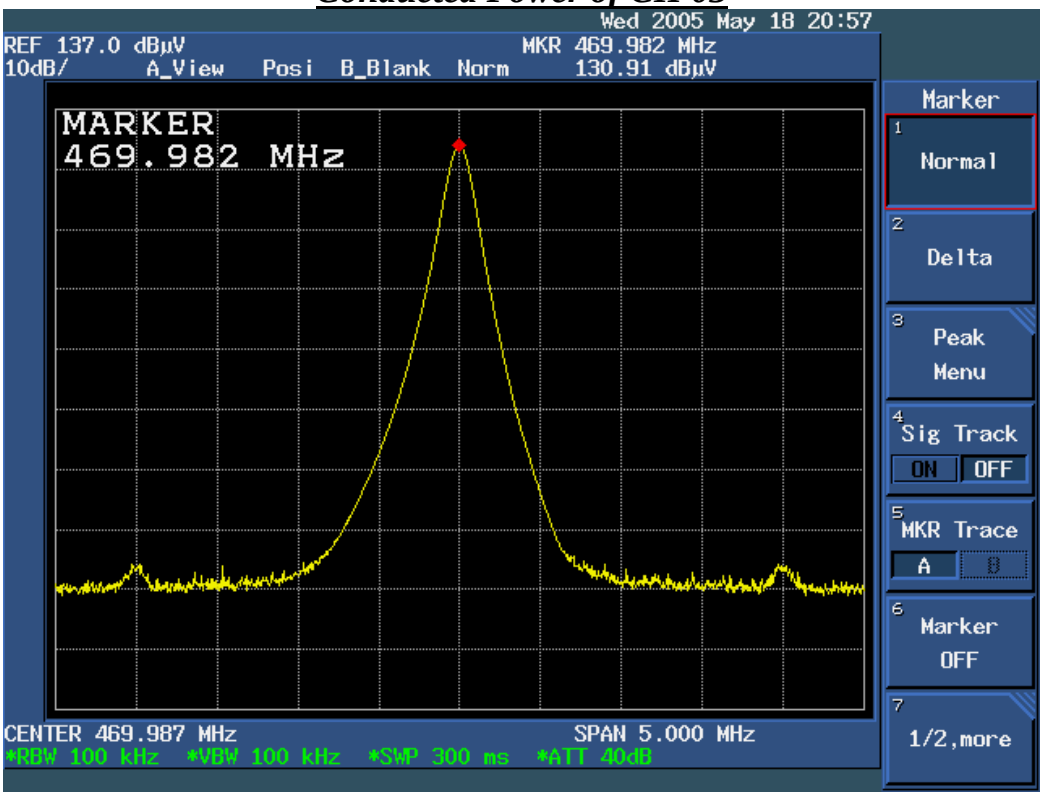
Conducted Power of CH 01



Conducted Power of CH 02

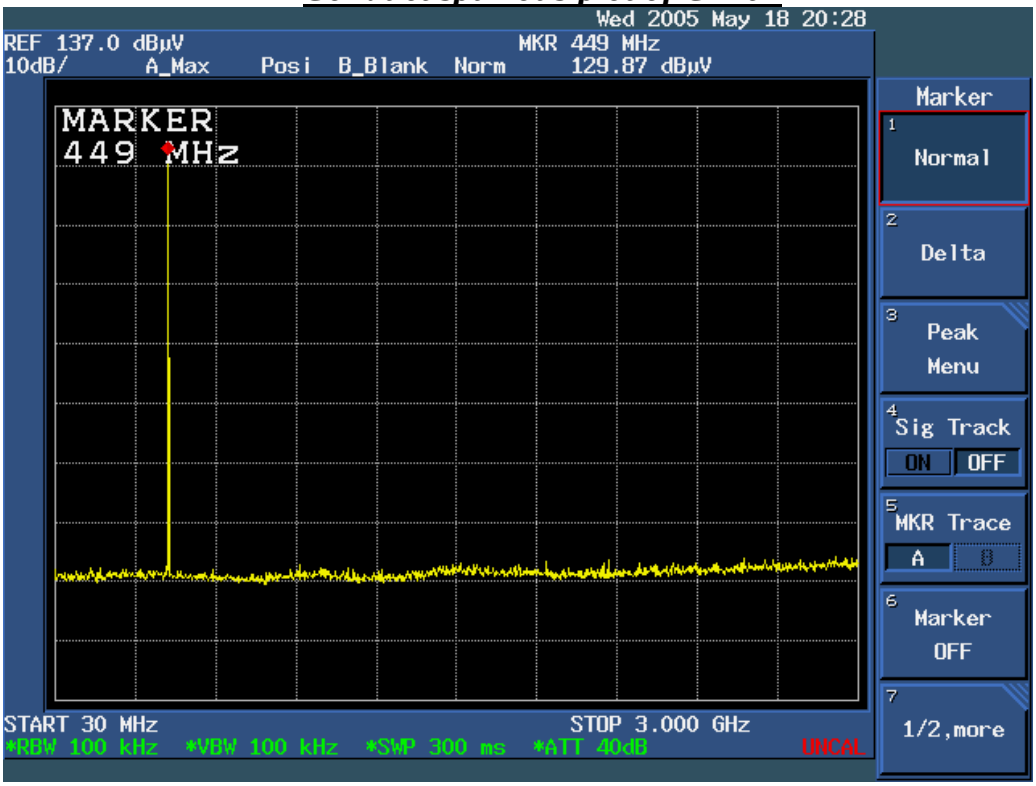


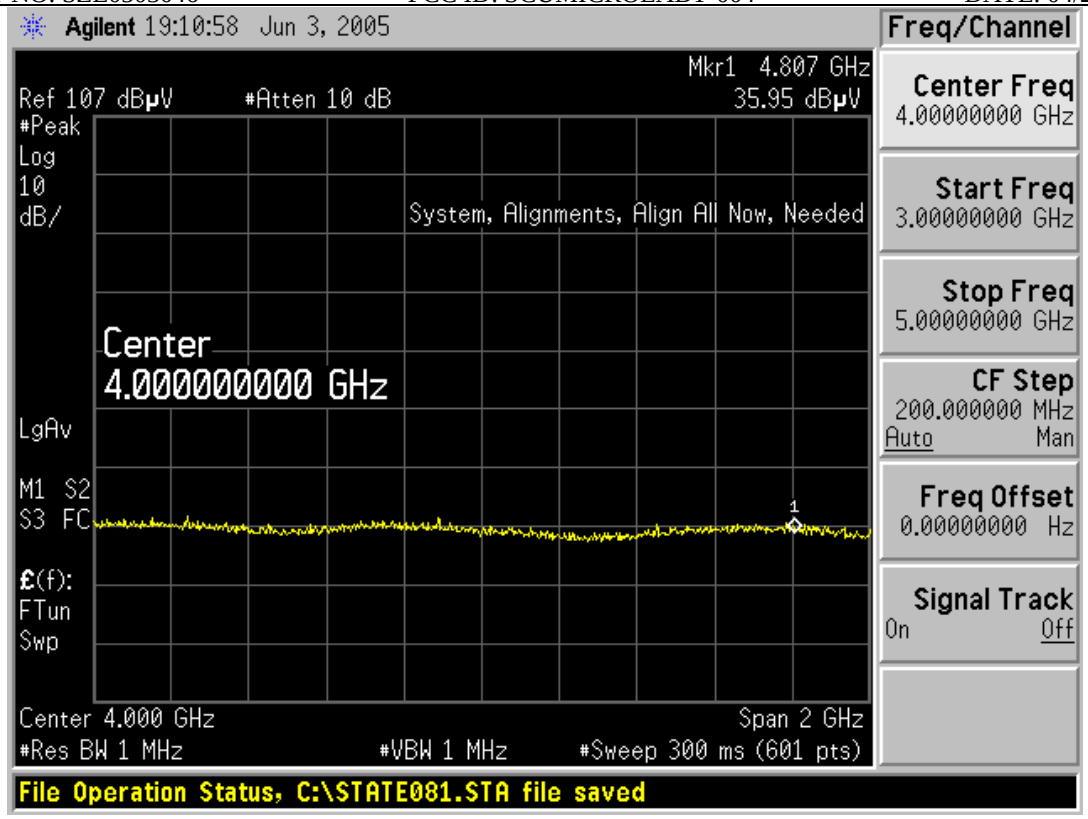
Conducted Power of CH 03



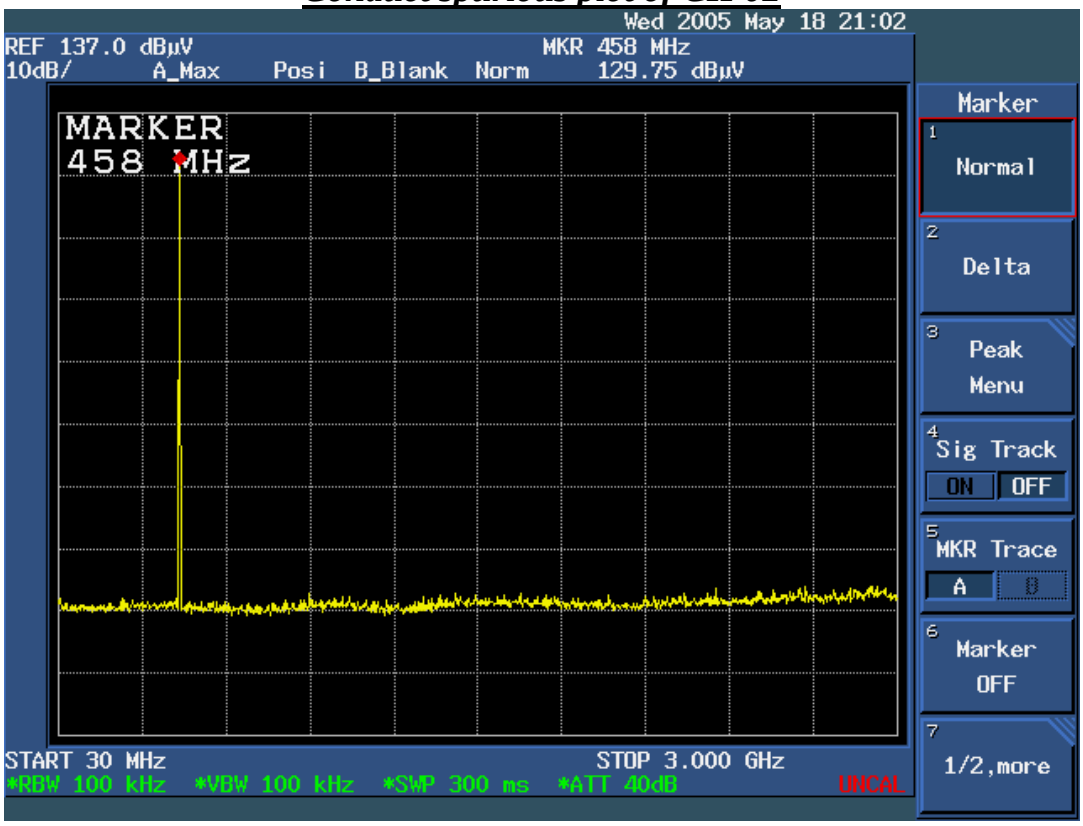
10.5 Conduct spurious plot

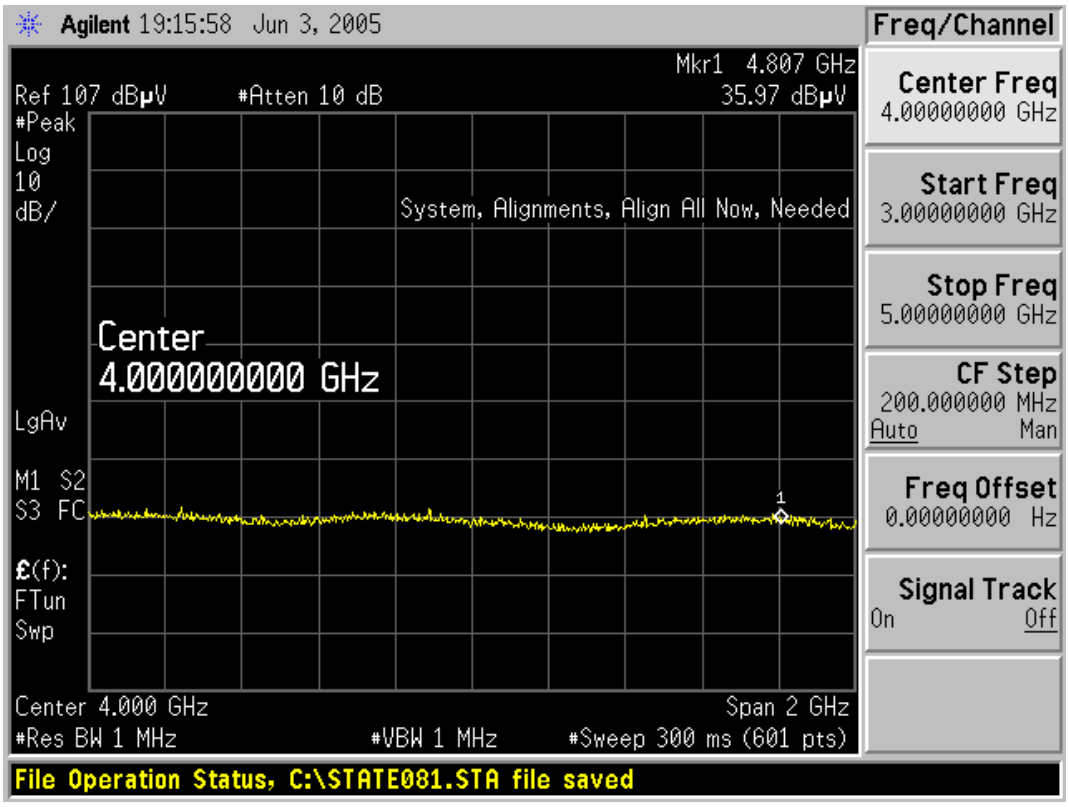
Conduct spurious plot of CH 01



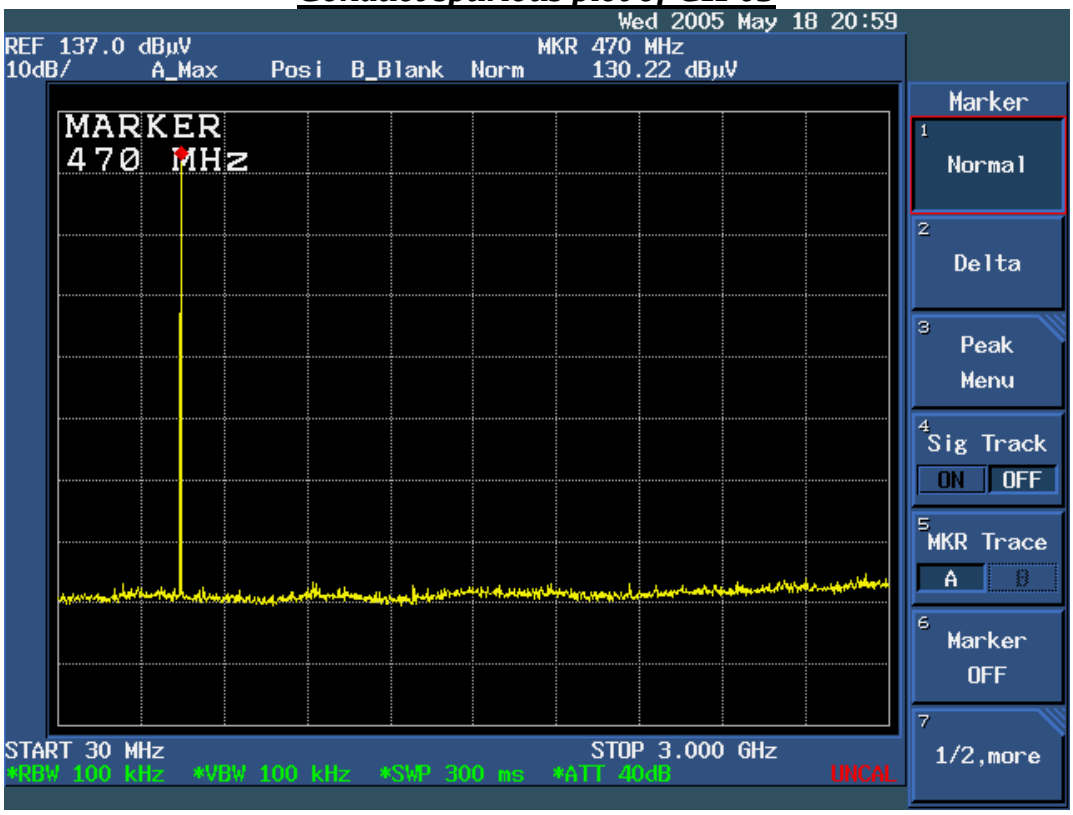


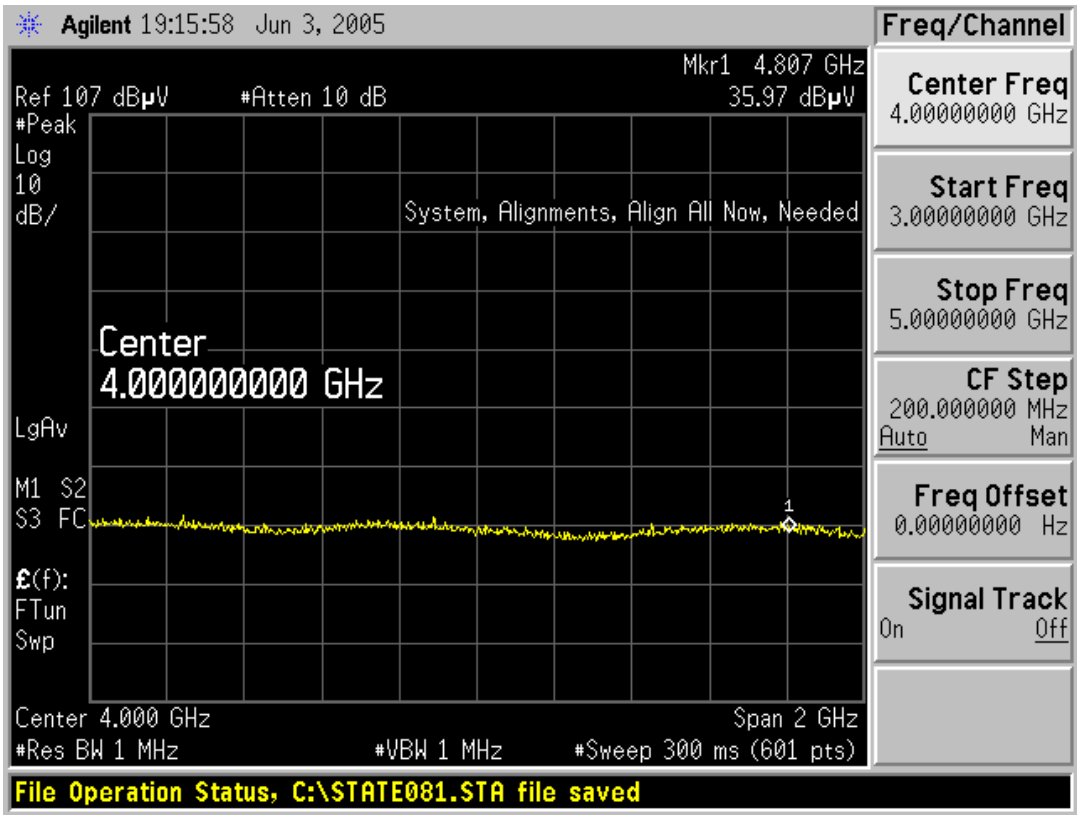
Conduct spurious plot of CH 02





Conduct spurious plot of CH 03




Agilent 19:15:58 Jun 3, 2005
Freq/Channel
Mkr1 4.807 GHz
Ref 107 dBµV
#Atten 10 dB
35.97 dBµV
#Peak
Log
10
dB/
System, Alignments, Align All Now, Needed
Center
4.000000000 GHz
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Center 4.000 GHz
Span 2 GHz
#Res BW 1 MHz
#VBW 1 MHz
#Sweep 300 ms (601 pts)
Center Freq
4.00000000 GHz
Start Freq
3.00000000 GHz
Stop Freq
5.00000000 GHz
CF Step
200.000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
File Operation Status, C:\STATE081.STA file saved

11 TRANSMITTER FREQUENCY BEHAVIOR

11.1 Provisions Applicable

Section 90.214

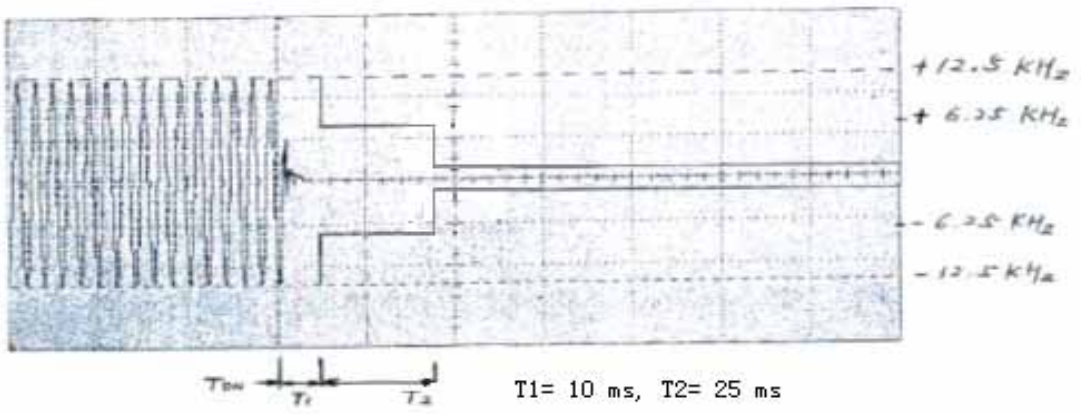
11.2 Test Method

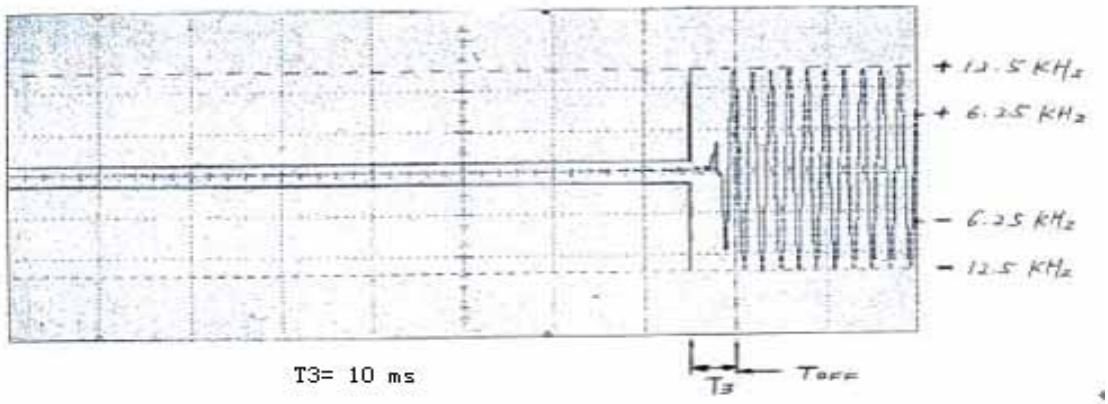
TIA/EIA-603 2.2.19

11.3 Test Instruments

EQUIPMENT TYPE	MFR	MODEL NUMBER	LAST CAL.	CAL DUE.
Audio Signal Generator	HP	3325A	06/08/2004	06/07/2005
Modulation Analyzer	HP	8920B	12/30/2004	12/29/2005

11.4 Measure Result





APPENDIX 1

PHOTOGRAPHS OF EUT

Front View of TX

Back View of TX

Top View of TX

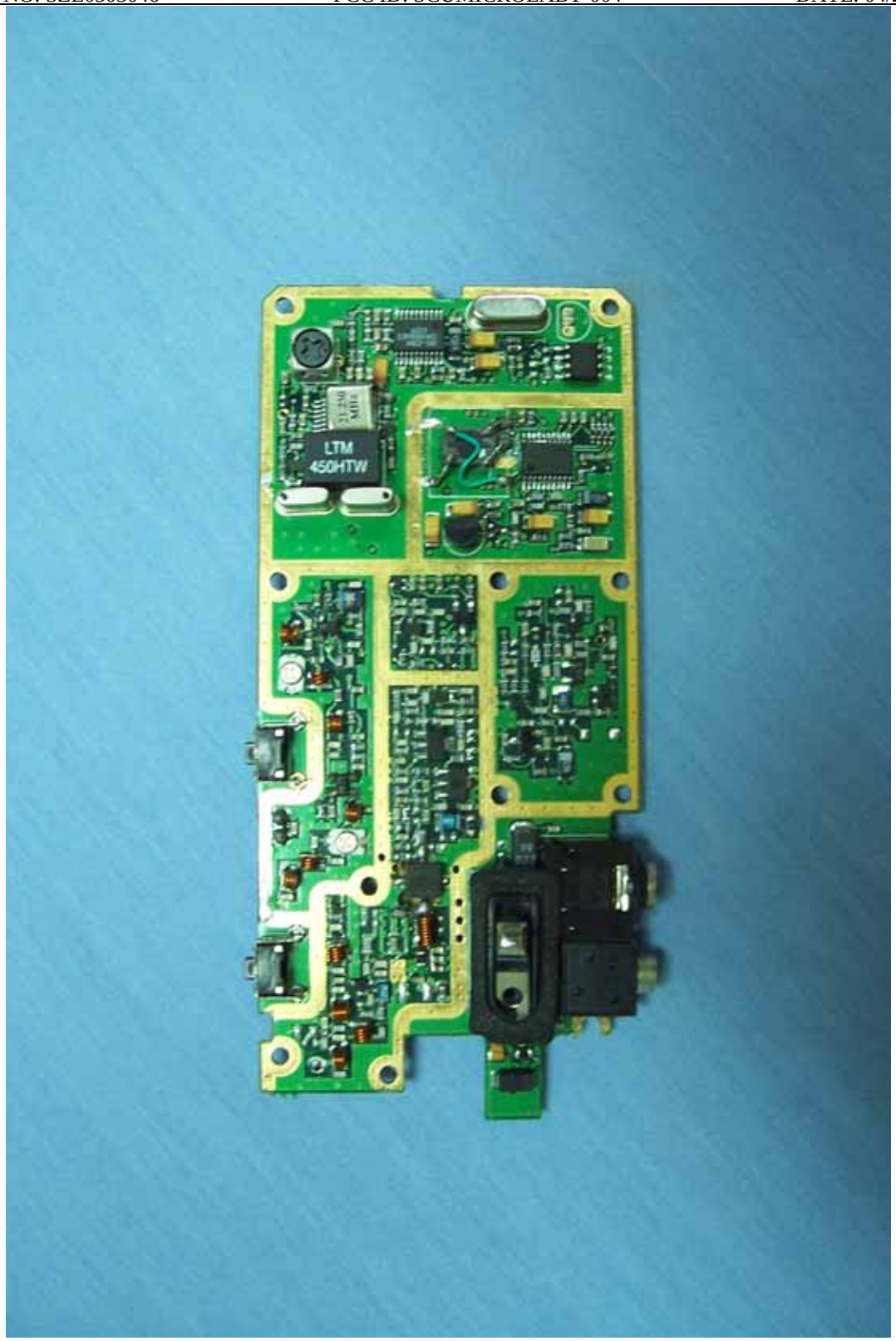
Bottom View of TX

Left View of TX

Right View of TX

Internal of TX– 1

Internal of TX– 2


LTM
450HTW