FCC PART 15 Subpart C

EMI MEASUREMENT AND TEST REPORT

For

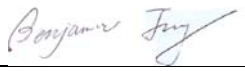
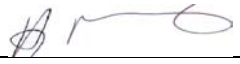
Lionda Technology Co., Ltd.

Block 2 Laodong 2nd Industrial Area, Xixiang, Baoan,
Shenzhen, Guangdong, P.R.China 518102

FCC ID: O63XG2200ALD03

2003-05-05

This Report Concerns:	Equipment Type:
☒ Permissive II Change Report	2.4GHz Cordless Telephone

Test Engineer:	Ming Jing / 
Report No.:	R0304164
Test Date:	2003-04-21
Reviewed By:	Hans Mellberg / 
Prepared By:	Bay Area Compliance Laboratory Corporation 230 Commercial Street Sunnyvale, CA 94085 Tel (408) 732-9162 Fax (408) 732-9164

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1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Lionda Technology Co., Ltd.'s XG2201/Mini1*or the "EUT" as referred to in this report is a 2.4GHz cordless telephone. EUT was composed of two parts, one is a Handset which is measured approximately 5.25" L x 1.8" W x 1.2"H, and the other is a Base which measures about 6.15"L x 3.15"W x 3.15"H.

The EUT was supplied with Bell South AC/DC adapter, M/N: U090030D12.

** The test data gathered is from typical production samples provided by the manufacturer.*

1.2 Objective

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992.

The EUT is electronically identical to the original device expect the size of the handset has been reduced due to marketing purposes. The followings is the comparison between original model (model:XG2200) and current EUT (model:XG2201/Mini):

XG2200 (FCC ID:O632200ALD03) v.s. XG2201/Mini1	Remarks
Handset PCB Layout	Same, but the size is reduced
Handset Cabinet	Same, but the size is reduced

The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by FCC Title 47, Part 15, Subpart C, section 15.205, 15.207, and 15.249.

1.3 Related Submittal(s)/Grant(s)

The EUT was originally granted on 2003-03-04, please refer to BACL's report, R302034, for details.

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4 –1992, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.5 Test Facility

The Open Area Test site used by Bay Area Compliance Laboratory Corporation to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-1992.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corporation is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, IEC/CISPR 22: 1998, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Date
HP	Spectrum Analyzer	8568B	2517A01610	2003-10-30
HP	Spectrum Analyzer	8593A	29190A00242	2004-05-01
HP	Amplifier	8447E	1937A01054	2004-05-01
HP	Quasi-Peak Adapter	85650A	2521A00718	2004-05-01
Com-Power	Biconical Antenna	AB-100	14012	2004-05-01
Com-Power	LISN	LI-200	12005	2004-03-28
Com-Power	LISN	LI-200	12008	2004-03-28
Com-Power	Log Periodic Antenna	AL-100	16091	2004-05-01
Com-Power	Log Periodic Antenna	AB-900	15049	2004-05-01
Rohde & Schwarz	EMI Test Receiver	ESPI	1147 8007 07	2003-12-03
Agilent	Spectrum Analyzer (9KHz – 40GHz)	8564E	08303	2003-08-01
Agilent	Spectrum Analyzer (9KHz – 50GHz)	8565EC	06042	2004-05-03
HP	Amplifier (1-26.5GHz)	8449B	3147A00400	2004-03-14
A.H.System	Horn Antenna (700MHz-18GHz)	SAS-200/571	261	2003-05-31

***Statement of Traceability: Bay Area Compliance Laboratory Corp.** Certifies that all calibration has been performed using suitable standards traceable to the NATIONAL INSTITUTE of STANDARDS and TECHNOLOGY.

1.8 Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Southern Telecom	Telephone	None	None	None
Teltone Corp	Simulator	TLS-3B-01	80071	None

1.9 External I/O Cabling List and Details

Cable Description	Length (M)	Port/From	To
Unshielded RJ 11 telephone cable	2.0	Simulator RJ 11 Port	EUT
Unshielded RJ 11 telephone cable	2.0	Simulator RJ 11 Port	Telephone

2 - SYSTEM TEST CONFIGURATION

2.1 Description of Test Configuration

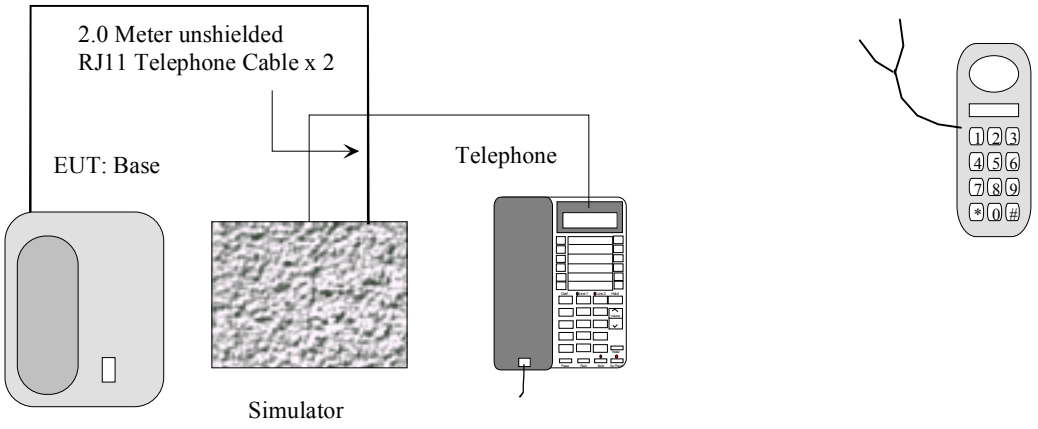
The EUT was configured for testing in a typical fashion (as normally used by a typical user).

Handset being tested: The Handset unit was placed on the wooden table and tested in three orthogonal axis. The handset was connected to the headset via its headset port. The Low and high channels were tested. The handset was transmitting to and receiving from the Base unit. The EUT was investigated for emissions while off hook. The radiated data was taken in this mode of operation. All initial and final investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the 2.3.

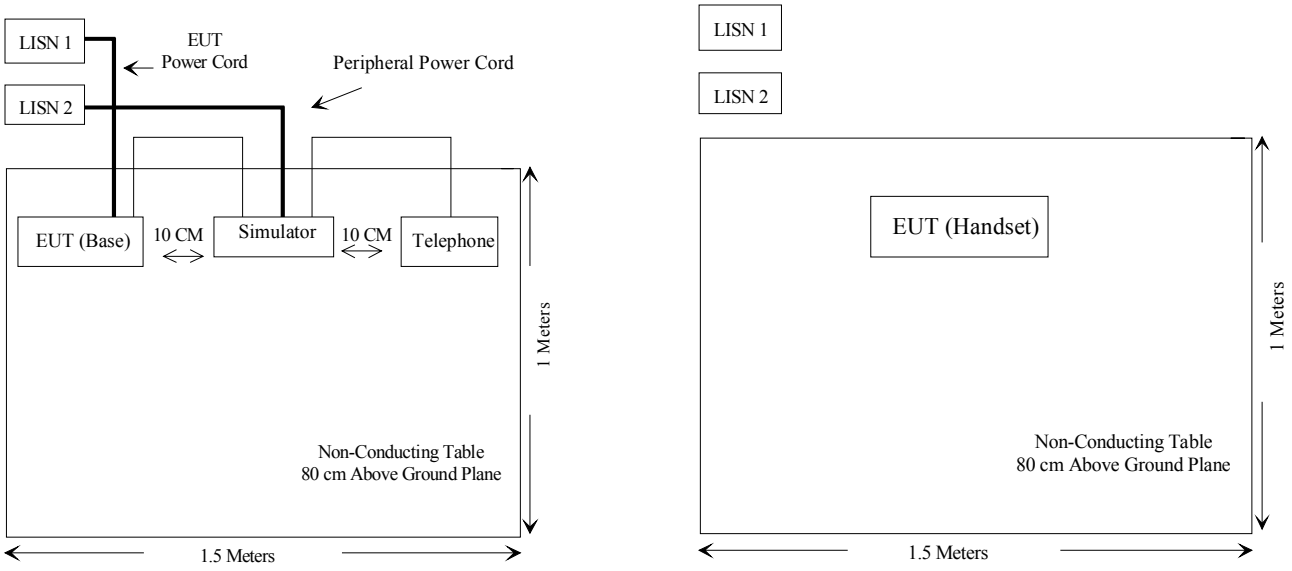
Base being tested: The Base unit was placed on the wooden table. The Low and high channels were tested. The base was connected to the line simulator and an AC adapter via its Tel Line and power ports, respectively. The base was transmitting and receiving from the Handset. The conducted as well as radiated data was taken in this mode of operation. All initial and final investigations were performed with the EMI receiver in manual mode scanning the frequency range continuously. The cables were bundled and routed as shown in the 2.3.

2.2 Configuration of Test System (Base)

Base Handset



2.3 Test Setup Block Diagram



2.4 Equipment Modifications

No modification(s) to the EUT were made by BACL to comply with the applicable limits.

3 - CONDUCTED EMISSIONS TEST DATA

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is $\pm$2.4 dB.

3.2 EUT Setup

The measurement was performed in the shield room, using the same setup per ANSI C63.4 - 1992 measurement procedure. Specification used was with the FCC Class B limits.

The Base unit of EUT was connected to a DC power source which was connected to 120 VAC / 60 Hz power source.

The spacing between the peripherals was 10 centimeters.

External Input / Output cables were draped over edge of the test table and bundle when necessary.

3.3 Spectrum Analyzer Setup

The spectrum analyzer was set with the following configurations during the conducted emission test:

Start Frequency	150 kHz
Stop Frequency	30 MHz
Sweep Speed	Auto
IF Bandwidth	10 kHz
Video Bandwidth	10 kHz
Quasi-Peak Adapter Bandwidth	9 kHz
Quasi-Peak Adapter Mode	Normal

3.4 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first LISN with all support equipment power cords connected to the second.

The EUT was tested to represent worst-case results for the final qualification test. Therefore, these results were used for final test data recorded in the table listed under section 3.6 of this report.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination. All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within -4 dB of specification limit). Quasi-peak readings are distinguished with a "**Qp**".

3.5 Equipment List

Rohde & Schwarz, EMI Test Receiver, Cal. Due Date:2003-12-03
Com-Power, LISN, Cal. Due Date:2004-03-28
Com-Power, LISN, Cal. Due Date:2004-03-28

3.6 Summary of Test Results

According to the data in section 3.6, the EUT complied with the FCC Conducted margin for a Class B device and these test results is deemed satisfactory evidence of compliance with RSS-210 of the Canadian Interference-Causing Equipment Regulations, with the *worst* margin reading of:

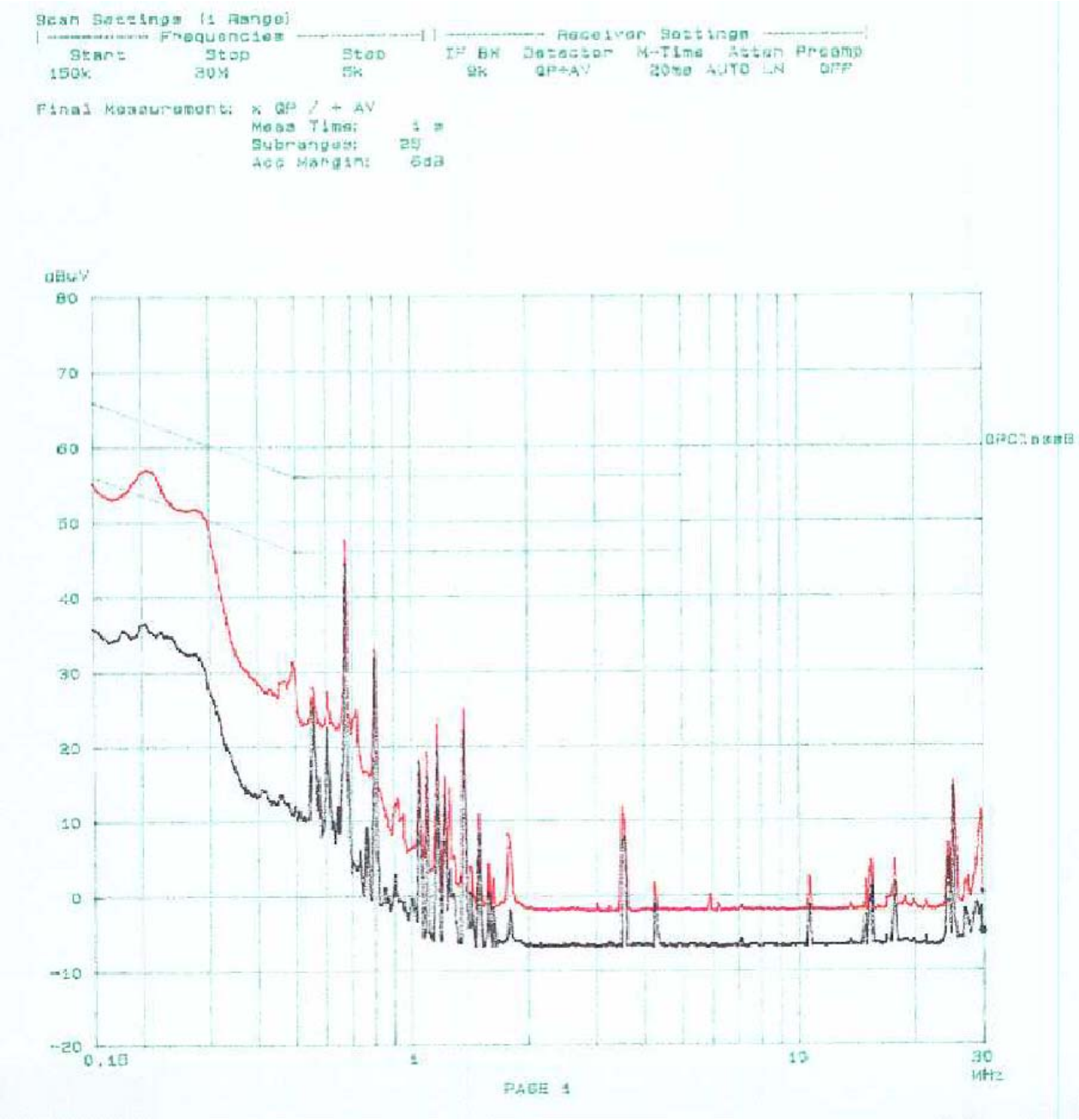
-1.4 dBμV at **0.680 MHz** in the **Line** mode.

3.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC CLASS B	
Frequency MHz	Amplitude dBμV	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.680	44.6	Ave	Line	46	-1.4
0.680	43.8	Ave	Neutral	46	-2.2
0.210	57.0	QP	Line	63	-6.2
0.680	47.6	QP	Line	56	-8.4
0.680	46.0	QP	Neutral	56	-10.0
0.810	32.3	Ave	Neutral	46	-13.7
0.210	35.6	Ave	Line	53	-17.4
1.370	25.6	Ave	Neutral	46	-20.4
0.810	34.9	QP	Neutral	56	-21.1
0.810	32.9	QP	Line	56	-23.1
1.370	22.0	Ave	Line	46	-24.0
1.370	29.0	QP	Neutral	56	-27.0

3.8 Plot of Conducted Emissions Test Data

Plots of Conducted Emissions test data is presented hereinafter as reference.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Stop
30M
Step
5k
Receiver Settings
IF BW
9k
Detector
QP+AV
M-Time
20ms
Atten
AUTO
Preamp
LN
OFF
Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB
dBuV
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70
60
50
40
30
20
10
0
-10
-20
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30
MHz
QPCLmmB
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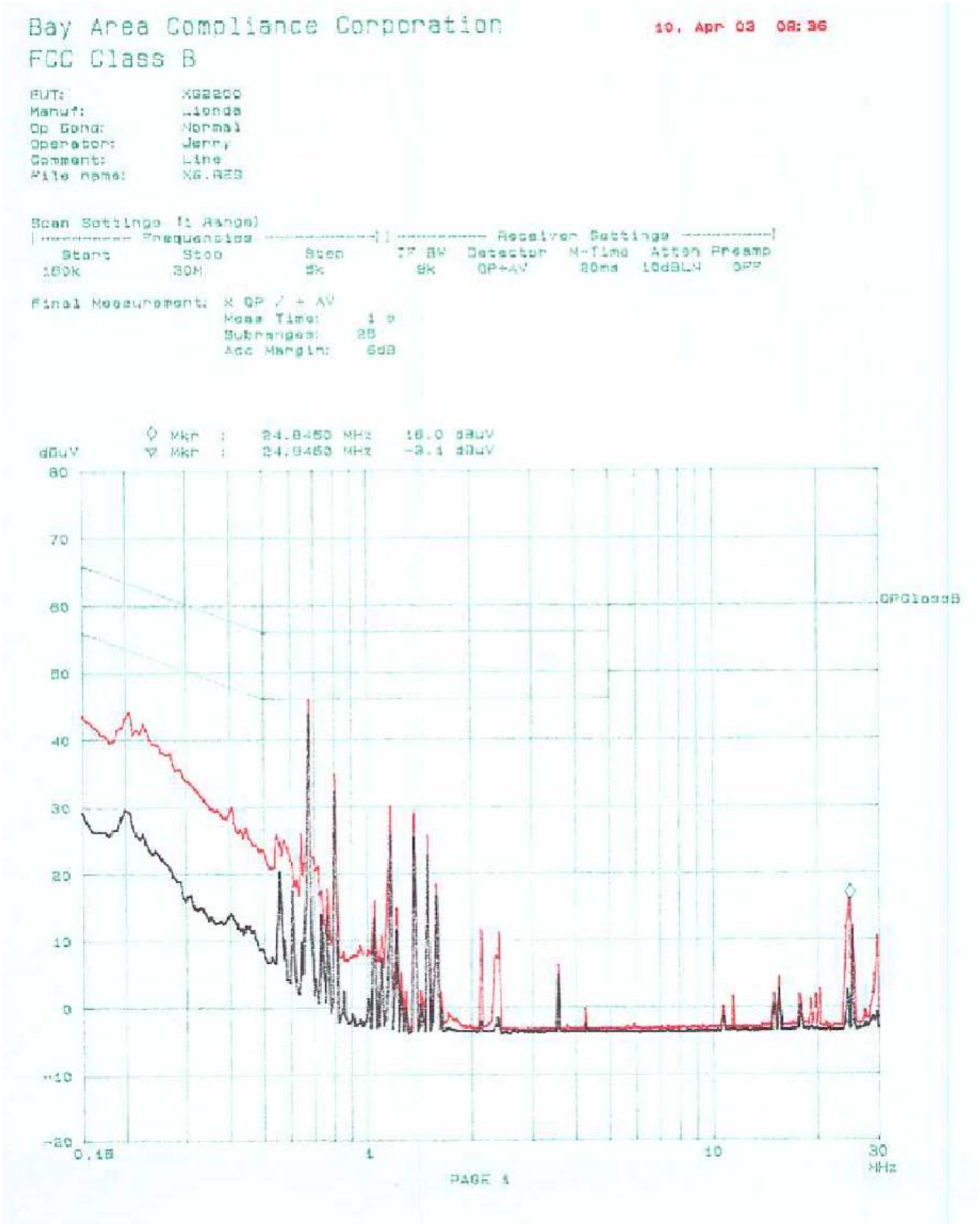
Bay Area Compliance Corporation
19. Apr 03 08:36
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Manuf: Lionda
Op Cond: Normal
Operator: Jerry
Comment: Line
File name: XG.RES
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Frequencies
Start Stop Step
150k 30M 9k
Receiver Settings
IF BW Detector M-Time Atten Preamp
9k QP+AV 20ms 10dBLN OFF
Final Measurement: X QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB
Mkr : 24.8450 MHz 18.0 dBuV
Mkr : 24.8450 MHz -3.1 dBuV
dBuV
80
70
60
50
40
30
20
10
0
-10
-20
0.15
1
10
30
MHz
QPClassB
PAGE 1

4 - RADIATED EMISSION DATA

4.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is $\pm$4.0 dB.

4.2 EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup in accordance with the ANSI C63.4 - 1992. The specification used was the FCC 15 Subpart C limits.

The Base of EUT was connected to a 120 VAC / 60 Hz power source and it was placed center and the back edge of the test table. The simulator was placed on one side of the EUT base, and the telephone was placed on the other side the EUT base. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.

The spacing between the peripherals was 10 centimeters.

The external Input / Output cables were draped over edge of the test table and bundle when necessary.

4.3 Spectrum Analyzer Setup

According to FCC Rules, 47 CFR 15.33 (a) (1), the system was tested to 25GHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Start Frequency	30 MHz
Stop Frequency	25GHz
Sweep Speed	Auto
IF Bandwidth	1 MHz
Video Bandwidth	1 MHz
Quasi-Peak Adapter Bandwidth	120 kHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	1MHz

4.4 Test Procedure

For the radiated emissions test, both the EUT and all support equipment power cords were connected to the AC floor outlet since the power supply (U090030D12) used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**Qp**" in the data table.

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - Class B Limit

4.6 Equipment List

HP, Amplifier, Cal Due Date: 2004-05-01
Com-Power, Log Periodic Antenna, Cal. Due Date: 2004-05-01

4.7 Summary of Test Results

According to the data in section 4.7, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207, and 15.249 after tested to 10th harmonics as required by FCC and had the worst margin of:

For Base:

-10.7 dBμV at **3310.83 MHz** in the **Horizontal** polarization at Low Frequency, **30 to 25GHz, 3 meters**

-7.72 dBμV at **2483.29 MHz** in the **Horizontal** polarization at High Frequency, **30 to 25GHz, 3 meters**

-6.0 dBμV at **960.01 MHz** in the **Horizontal** polarization at High Frequency, **30 to 25GHz, 3 meters**

For Handset:

-4.5 dBμV at **2472.22 MHz** in the **Vertical** polarization at Low Frequency, **30 to 25GHz, 3 meters**

-4.7 dBμV at **2476.94 MHz** in the **Vertical** polarization at High Frequency, **30 to 25GHz, 3 meters**

-10.3 dBμV at **66.78 MHz** in the **Vertical** polarization at High Frequency, **30 to 25GHz, 3 meters**

4.8 Radiated Emissions Test Result Data

Base Unit, 30 MHz to 25GHz, 3 meters

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Frequency											
3310.830	39.0	AVE	45	2.5	H	30.3	4.0	30	43.3	54.0	-10.7
2400.592	81.7	AVE	30	1.8	V	28.1	3.4	30	83.1	94.0	-10.9
2400.592	81.1	AVE	180	1.0	H	28.1	3.3	30	82.6	94.0	-11.5
4801.120	31.8	AVE	120	1.5	V	32.5	4.9	30	39.2	54.0	-14.8
3310.830	33.8	AVE	0	1.8	V	30.3	4.0	30	38.1	54.0	-15.9
3310.830	43.8	PEAK	45	2.5	H	30.3	4.0	30	48.1	74.0	-25.9
2400.590	86.5	PEAK	330	1.8	V	28.1	3.4	30	87.9	114.0	-26.1
3310.830	43.2	PEAK	0	1.8	V	30.3	4.0	30	47.5	74.0	-26.5
2400.592	84.2	PEAK	180	1.0	H	28.1	3.4	30	85.7	114.0	-28.4
4801.120	35.2	PEAK	120	1.5	V	32.5	4.9	30	42.6	74.0	-31.4
4801.120	32.9	PEAK	270	1.0	H	32.5	4.9	30	40.3	74.0	-33.7
4801.120	28.1	AVE	270	1.0	H	32.5	4.9	30	35.5	74.0	-38.5
High Frequency											
2483.29	44.8	AVE	0	1.8	H	28.1	3.4	30	46.28	54.0	-7.72
4810.6	32.1	AVE	90	1.5	H	32.5	4.9	30	39.51	54.0	-14.49
2405.315	77.7	AVE	30	2	H	28.1	3.4	30	79.12	94.0	-14.88
3316.8	34.7	AVE	120	2	V	30.3	4.0	30	38.98	54.0	-15.02
4810.6	31.3	AVE	0	1.8	V	32.5	4.9	30	38.71	54.0	-15.29
2405.315	76.2	AVE	90	2	V	28.1	3.4	30	77.62	94.0	-16.38
3316.8	30.1	AVE	330	1.2	H	30.3	4.0	30	34.41	54.0	-19.59
2487.29	52.3	PEAK	0	1.8	H	28.1	3.4	30	53.78	74.0	-20.22
3316.8	41.2	PEAK	120	2	V	30.3	4.0	30	45.48	74.0	-28.52
4810.6	38.0	PEAK	0	1.8	V	32.5	4.9	30	45.41	74.0	-28.59
4810.6	37.8	PEAK	90	1.5	H	32.5	4.9	30	45.24	74.0	-28.76
3316.8	38.0	PEAK	330	1.2	H	30.3	4.0	30	42.31	74.0	-31.69
2405.315	80.7	PEAK	30	2	H	28.1	3.4	30	82.12	114.0	-31.88
2405.32	79.2	PEAK	90	2	V	28.1	3.4	30	80.62	114.0	-33.38

Note: The EUT was tested in all three orthogonal positions.

Base Unit, 30 MHz to 25GHz, 3 meters

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Unintentional Emission, 30MHz to 1000MHz											
960.010	37.2		300	2.0	H	23.5	4.3	25	40	46.0	-6.0
245.670	48.1		45	2.0	H	13.8	2.2	25	39.1	46.0	-6.9
375.020	43.7		90	2.5	H	15.3	2.4	25	36.4	46.0	-9.6
360.120	41.1		180	1.2	V	15.5	2.4	25	34.0	46.0	-12.0
250.000	38.2		90	1.0	V	13.3	2.2	25	28.7	46.0	-17.3
959.20	38.2		90	1.2	V	23.3	4.3	25	40.84	46.0	-5.16
124.19	47.2		180	1.2	V	11.7	1.6	25	35.47	43.5	-8.03
234.02	42.7		180	2	H	12.6	2.2	25	32.47	46.0	-13.53
120.08	40.6		0	2.5	H	11.7	1.6	25	28.87	43.5	-14.63
140.4	38.7		200	1.2	V	12.4	1.6	25	27.73	43.5	-15.77
234.01	39.8		200	1.5	V	12.6	2.2	25	29.57	46.0	-16.43

Note: The EUT was tested in all three orthogonal positions.

Handset Unit, 30 MHz to 25GHz, 3 meters

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Frequency											
2472.22	88.1	AVE.	180	2.2	V	28.1	3.4	30.0	89.6	94.0	-4.5
2472.22	85.3	AVE	120	1.5	H	28.1	3.4	30.0	86.8	94.0	-7.3
4944.43	33.5	AVE	260	1.5	H	32.5	4.9	30.0	40.9	54.0	-13.1
7416.66	30.1	AVE.	45	1.2	H	35.1	5.6	30.0	40.8	54.0	-13.2
7416.66	28.8	AVE.	0	1.5	V	35.1	5.6	30.0	39.5	54.0	-14.5
4944.43	29.4	AVE.	30	1.8	V	32.5	4.9	30.0	36.8	54.0	-17.2
2472.22	88.5	PEAK	180	2.2	V	28.1	3.4	30.0	90.0	114.0	-24.1
4944.43	39.7	PEAK	260	1.5	H	32.5	4.9	30.0	47.1	74.0	-26.9
2472.22	85.6	PEAK	120	1.5	H	28.1	3.4	30.0	87.1	114.0	-27.0
7416.66	35.2	PEAK	45	1.2	H	35.1	5.6	30.0	45.9	74.0	-28.1
4944.43	37.6	PEAK	30	1.8	V	32.5	4.9	30.0	45.0	74.0	-29.0
7416.66	33.4	PEAK	0	1.5	V	35.1	5.6	30.0	44.1	74.0	-29.9

Note: The EUT was tested in all three orthogonal positions.

Handset Unit, 30 MHz to 25GHz, 3 meters

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
High Frequency											
2476.94	87.9	AVE.	15	1.2	V	28.1	3.4	30.0	89.4	94.0	-4.7
2476.94	85.1	AVE	160	1.5	H	28.1	3.4	30.0	86.6	94.0	-7.5
4953.88	33.4	AVE	110	1.5	H	32.5	4.9	30.0	40.8	54.0	-13.2
7430.82	29.7	AVE	45	1.5	H	35.1	5.6	30.0	40.4	54.0	-13.6
7430.82	28.6	AVE.	90	1.2	V	35.1	5.6	30.0	39.3	54.0	-14.7
4953.88	29.2	AVE.	60	1.8	V	32.5	4.9	30.0	36.6	54.0	-17.4
2476.94	88.3	PEAK	15	1.2	V	28.1	3.4	30.0	89.8	114.0	-24.3
2476.94	85.4	PEAK	160	1.5	H	28.1	3.4	30.0	86.9	114.0	-27.2
4953.88	39.1	PEAK	110	1.5	H	32.5	4.9	30.0	46.5	74.0	-27.5
7430.82	34.7	PEAK	45	1.5	H	35.1	5.6	30.0	45.4	74.0	-28.6
4953.88	37.2	PEAK	60	1.8	V	32.5	4.9	30.0	44.6	74.0	-29.4
7430.82	32.8	PEAK	90	1.2	V	35.1	5.6	30.0	43.5	74.0	-30.5
Unintentional Emission, 30MHz to 1000MHz											
66.78	44.2		15	1.5	V	9.3	1.2	25.0	29.7	40.0	-10.3
420.85	40.3		250	1.5	H	16.5	2.7	25.0	34.5	46.0	-11.5
111.90	43.9		270	2.0	V	11.3	1.5	25.0	31.7	43.5	-11.8
82.12	41.6		0	1.2	V	9.5	1.2	25.0	27.3	40.0	-12.7
237.08	43.2		15	1.2	V	12.6	2.2	25.0	33.0	46.0	-13.0
150.00	40.8		120	1.8	H	12.7	1.7	25.0	30.2	43.5	-13.3

Note: The EUT was tested in all three orthogonal positions.

5 - BAND EDGES TESTING

Requirements: FCC 15.249 (c), the emission power at the START and STOP frequencies shall be at least 50 dB below the level of the fundamental or to the general radiated emission limits in FCC 15.209, whichever is the lesser attenuation.

5.1 Test Procedure

The antenna was removed and a low loss RF cable was connected to the transmitter output. The other end of cable was connected to a spectrum analyzer with the START and STOP frequencies set to the operation band. Transmitter output was read off the spectrum analyzer in dBm. The power output at the transmitter was determined by adding the value of the attenuator to the spectrum analyzer reading.

The test was performed for handset and the base respectively.

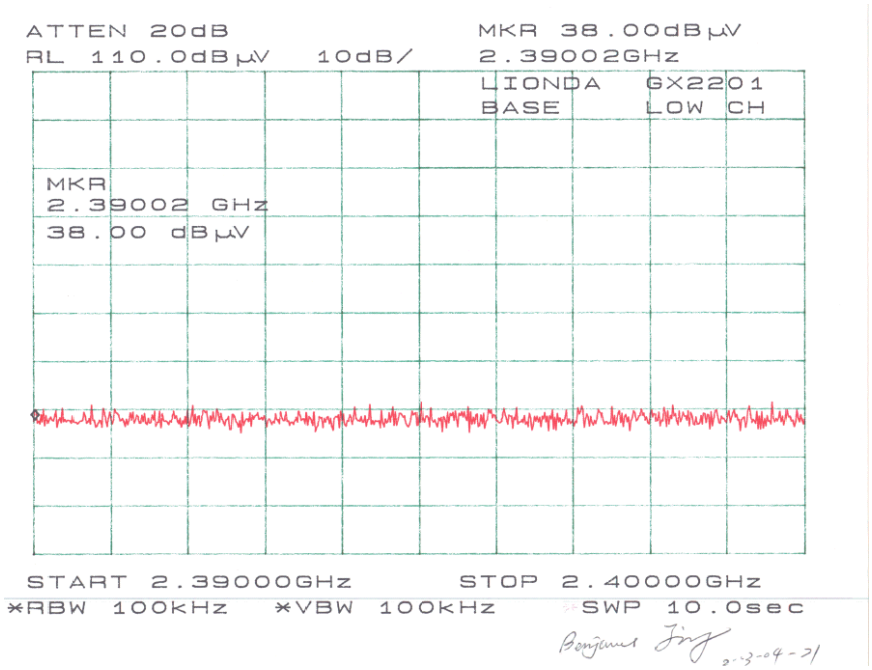
5.2 Test Equipment

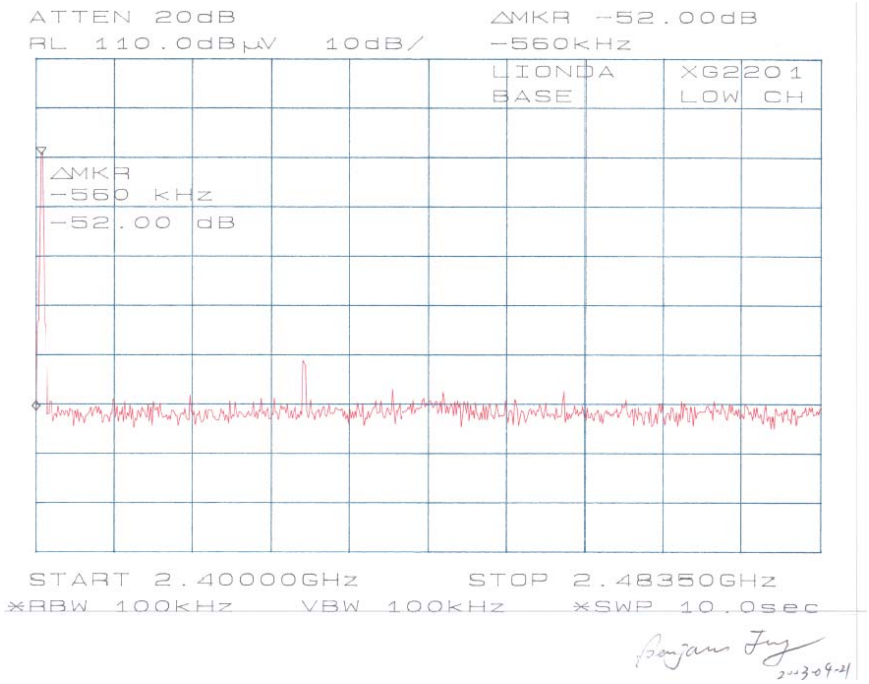
HP 8564E Spectrum Analyzer, Cal. Due Date: 2003-08-01
HP 7470A Plotter, Not Required.

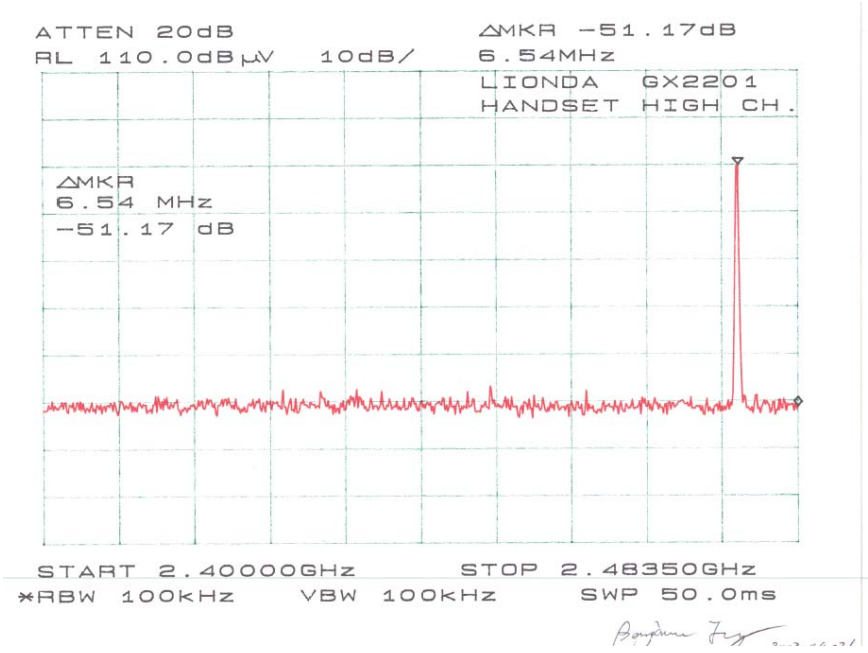
5.3 Test Results

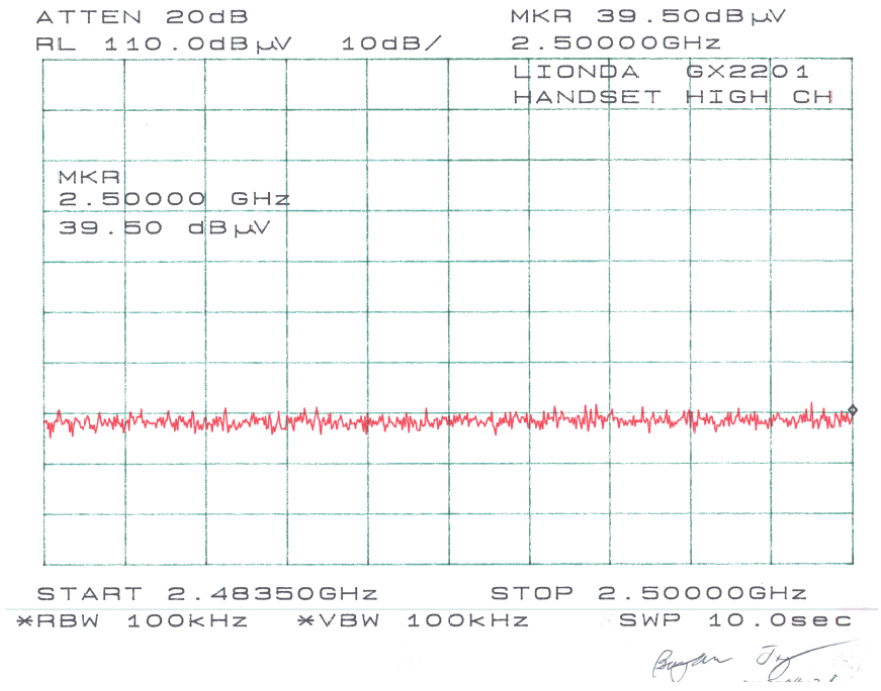
Refer to the attached plots.

Base - Low Frequency
Handset - High Frequency


ATTEN 20dB
RL 110.0dBμV 10dB/
MKR 38.00dBμV
2.39002GHz
LIONDA GX2201
BASE LOW CH
MKR
2.39002 GHz
38.00 dBμV
START 2.39000GHz
STOP 2.40000GHz
*RBW 100kHz *VBW 100kHz
*SWP 10.0sec


ATTEN 20dB
RL 110.0dBμV 10dB/
ΔMKR -52.00dB
-560kHz
LIONDA XG2201
BASE LOW CH
ΔMKR
-560 kHz
-52.00 dB
START 2.40000GHz
STOP 2.48350GHz
*RBW 100kHz VBW 100kHz
*SWP 10.0sec


ATTEN 20dB
RL 110.0dBμV 10dB/
ΔMKR −51.17dB
6.54MHz
LIONDA GX2201
HANDSET HIGH CH.
ΔMKR
6.54 MHz
−51.17 dB
START 2.40000GHz
STOP 2.48350GHz
*RBW 100kHz
VBW 100kHz
SWP 50.0ms


ATTEN 20dB
RL 110.0dBμV 10dB/
MKR 39.50dBμV
2.50000GHz
LIONDA GX2201
HANDSET HIGH CH
MKR
2.50000 GHz
39.50 dBμV
START 2.48350GHz
STOP 2.50000GHz
*RBW 100kHz
*VBW 100kHz
SWP 10.0sec