

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Guangdong (Baoan) Communication Co., Ltd. - MODEL: Bellsouth 33012
FCC ID: NS233012

This report concerns (check one:) Original Grant X Class II Change _____

Equipment Type: Cordless Telephone (example: computer, modem, transmitter, etc.)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No X

If yes, defer until : _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No X

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-1-96 Edition] provision.

Report prepared by:

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Intertek Testing Services.
2/F., Garment Centre,
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INTERTEK TESTING SERVICES

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EXHIBIT 1 GENERAL DESCRIPTION

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1.2 Related Submittal(s) Grants

This is an Application for Certification of a cordless telephone system. Two transmitters are included in this Application. This specific report details the emission characteristics of each transmitter. The receivers are subject to the verification authorization process, in accordance with 15.101(b). A verification report has been prepared for the receiver sections of each device. The device is also subject to Part 68 Registration.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.

EXHIBIT 2
SYSTEM TEST CONFIGURATION

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2.0 System Test Configuration

2.1 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions. The handset was powered by a fully charged battery.

For the measurements, the EUT is attached to a cardboard box and placed on the wooden turntable. If the base unit attaches to peripherals, they are connected and operational (as typical as possible). The handset is remotely located as far from the antenna and the base as possible to ensure full power transmission from the base. Else, the base is wired to transmit full power without modulation.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Detector function is in peak mode. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater. All emissions greater than 20 dB μ V/m are recorded.

Radiated emission measurement were performed from 30 MHz to 1000 MHz.

2.2 EUT Exercising Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

For emissions testing, the units were setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

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2.3 Support Equipment List and Description

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system (included inserted cards, which have grants) are:

HARDWARE:

The unit was operated standalone. An AC adapter (provided with the unit) was used to power the device. Its description is listed below.

- (1) AC adapter with two meter unshielded power cord permanently affixed.

CABLES:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated

OTHERS:

There are no special accessories necessary for compliance of this product.

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2.4 Equipment Modification

Any modifications installed previous to testing by Guangdong (Baoan) Communication Co., Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by ETL Division, Intertek Testing Services Hong Kong Ltd.

All the items listed under section 2.0 of this report are confirmed by:

Confirmed by:

C. K. Lam
Assistant Manager
Intertek Testing Services
Agent for Guangdong (Baoan) Communication Co., Ltd.

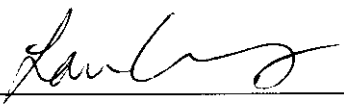
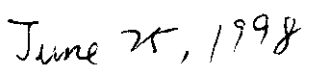
 Signature
 Date

EXHIBIT 3
EMISSION RESULTS

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3.0 **Emission Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

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3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

where FS = Field Strength in $\text{dB}\mu\text{V/m}$
 RA = Receiver Amplitude (including preamplifier) in $\text{dB}\mu\text{V}$
 CF = Cable Attenuation Factor in dB
 AF = Antenna Factor in dB
 AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:-

$$FS = RR + LF$$

where FS = Field Strength in $\text{dB}\mu\text{V/m}$
 RR = $RA - AG$ in $\text{dB}\mu\text{V}$
 LF = $CF + AF$ in dB

Assume a receiver reading of $52.0 \text{ dB}\mu\text{V}$ is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of $32 \text{ dB}\mu\text{V/m}$. This value in $\text{dB}\mu\text{V/m}$ was converted to its corresponding level in $\mu\text{V/m}$.

$$\begin{aligned} RA &= 52.0 \text{ dB}\mu\text{V/m} \\ AF &= 7.4 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ FS &= RR + LF \\ FS &= 23 + 9 = 32 \text{ dB}\mu\text{V/m} \end{aligned} \qquad \begin{aligned} RR &= 23.0 \text{ dB}\mu\text{V} \\ LF &= 9.0 \text{ dB} \end{aligned}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

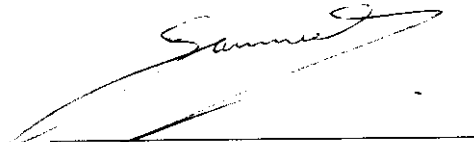
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3.3 Radiated Emission Data - Base Unit

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 11.6 dB

TEST PERSONNEL:



Tester Signature

H. Y. Vu, Engineer
Typed/Printed Name

June 24, 1998
Date

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : TX-Channel 1

Table 1, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	43.721	72.7	10	16	66.7	80.0	-13.3
V	87.443	29.7	9	16	22.7	40.0	-17.3
H	131.164	26.4	13	16	23.4	43.5	-20.1
H	174.883	19.1	19	16	22.1	43.5	-21.4
H	218.604	20.7	17	16	21.7	46.0	-24.3

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : TX-Channel 15

Table 2, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	44.481	73.2	10	16	67.2	80.0	-12.8
H	133.442	26.4	13	16	23.4	43.5	-20.1
H	177.923	18.5	19	16	21.5	43.5	-22.0
H	222.406	20.3	18	16	22.3	46.0	-23.7

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.
Model: Bellsouth 33012
Mode : TX-Channel 25

Date of Test: 12 June, 1998

Table 3, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	46.971	73.4	11	16	68.4	80.0	-11.6
H	140.914	25.4	13	16	22.4	43.5	-21.1
H	187.883	21.8	16	16	21.8	43.5	-21.7
H	234.854	20.1	19	16	23.1	46.0	-22.9

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : Stand by

Table 4, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	39.280	31.3	10	16	25.3	40	-14.7
H	78.560	31.7	6	16	21.7	40	-18.3

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.
Model: Bellsouth 33012
Mode : Charging

Date of Test: 12 June, 1998

Table 5, Base unit

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	39.280	31.3	10	16	25.3	40	-14.7
H	78.560	31.7	6	16	21.7	40	-18.3

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

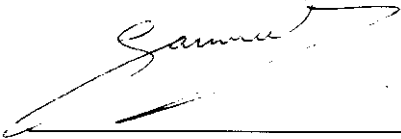
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3.5 Radiated Emission Data - Handset

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 6.3 dB

TEST PERSONNEL:



Tester Signature

H. Y. Vu, Engineer
Typed/Printed Name

June 24, 1998
Date

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : TX-Channel 1

Table 6, Handset

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	48.731	73.0	11	16	68.0	80.0	-12.0
V	97.462	29.5	11	16	24.5	43.5	-19.0
V	146.192	25.3	13	16	22.3	43.5	-21.2
H	194.924	24.6	16	16	24.6	43.5	-18.9
H	243.655	18.7	20	16	22.7	46.0	-23.3

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : TX-Channel 12

Table 7, Handset

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	49.360	77.6	11	16	72.6	80.0	-7.4
V	148.080	26.2	13	16	23.2	43.5	-20.3
H	197.441	23.6	16	16	23.6	43.5	-19.9
V	246.804	20.5	20	16	24.5	46.0	-21.5

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.
Model: Bellsouth 33012
Mode : TX-Channel 24

Date of Test: 12 June, 1998

Table 8, Handset

Radiated Emissions

Polarity	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
V	49.991	78.7	11	16	73.7	80.0	-6.3
V	149.974	26.1	13	16	23.1	43.5	-20.4
V	199.962	22.7	16	16	22.7	43.5	-20.8
H	249.951	17.8	20	16	21.8	46.0	-24.2

NOTES: 1. Peak Detector data

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative signs (-) in the margin column signify levels below the limits.

Test Engineer: H. Y. Vu

INTERTEK TESTING SERVICES

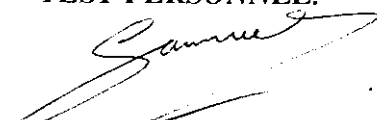
3.7 Line Conducted Emission Configuration Data

The data on the following pages list the significant emission frequencies, the limit, and the margin of compliance.

Judgement : Passed by 11.8 dB

* All readings are peak unless stated otherwise.

TEST PERSONNEL:



Tester Signature

H. Y. Vu, Engineer

Typed/Printed Name

June 24, 1998

Date

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : TX

Graph 1, Base Unit

Conducted Emissions

Report No.: 9804164

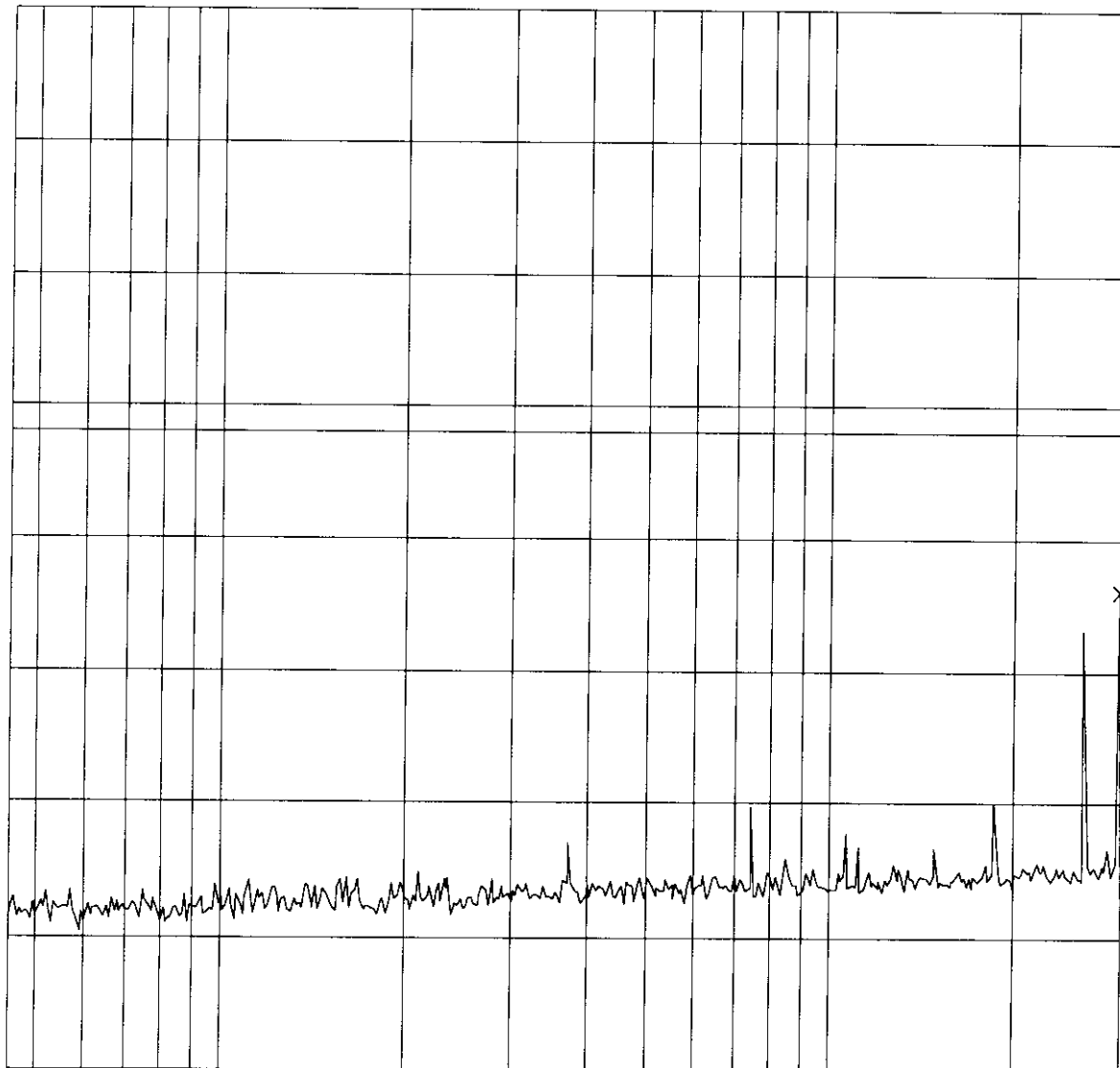
Mode: Transmission

Instrument: Agilent 8557B, Frequency: 100.0 MHz
Date: 04/10/00 Range: 100.0 MHz

Frequency: 100.0 MHz, Power: 10.0 dBm, Modulation: FSK, Data Rate: 1200 bps, Filter: 12 dB, Attenuation: 10.0 dB, Output: 10.0 dBm
Modulation: FSK, Data Rate: 1200 bps, Filter: 12 dB, Attenuation: 10.0 dB, Output: 10.0 dBm

Frequency: 100.0 MHz, Power: 10.0 dBm, Modulation: FSK, Data Rate: 1200 bps, Filter: 12 dB, Attenuation: 10.0 dB, Output: 10.0 dBm
Modulation: FSK, Data Rate: 1200 bps, Filter: 12 dB, Attenuation: 10.0 dB, Output: 10.0 dBm

0.00



100.0 MHz

Ctrl. No.: N/A

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : TX

Table 9, Base Unit

Conducted Emissions

Report No.: 9804164

Mode: Transmission

Tested By: Hong, Report No.: 9804164

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450k	30k	5k	10k	PK	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
29.73500	36.1	48.0
* limit exceeded		

Ctrl. No.: N/A

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Company: Guangdong (Baoan) Communication Co., Ltd.
Model: Bellsouth 33012
Mode : Charging

Date of Test: 12 June, 1998

Graph 2, Base Unit

Conducted Emissions

Mode: Charging

Factor	Mean (standard deviation)	Factor loading	Communality	Mean	Standard deviation
Factor 1	1.00 (0.00)	1.00	1.00	1.00	0.00
Factor 2	1.00 (0.00)	1.00	1.00	1.00	0.00
Factor 3	1.00 (0.00)	1.00	1.00	1.00	0.00



Ctrl. No.: *N/A*

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.
Model: Bellsouth 33012
Mode : Charging

Date of Test: 12 June, 1998

Table 10, Base Unit

Conducted Emissions

Report No.: 9804164

Mode: Charging

Tested By: Hong, Report No.: 9804164

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450k	30M	5k	10k	PK	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

Frequency MHz	QP level dBuV	QP Limit dBuV
18.58500	33.3	48.0
26.02000	29.3	48.0

* limit exceeded

Ctrl. No.: N/A

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : Stand by

Graph 3, Base Unit

Conducted Emissions

INTERTEK TESTING SERVICES

Company: Guangdong (Baoan) Communication Co., Ltd.

Date of Test: 12 June, 1998

Model: Bellsouth 33012

Mode : Stand by

Table 11, Base Unit

Conducted Emissions

Report No.: 9804164

Made: Standby

Tested By: Hong, Report No.: 9804164

Scan Settings (1 Range)

|----- Frequencies -----||----- Receiver Settings -----|

Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450k	30M	5k	10k	PK	20ms	AUTO	LN OFF	60dB

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
29.73500	36.2	48.0

* limit exceeded

Ctrl. No.: N/A

EXHIBIT 4
FREQUENCY DEVIATION

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4.0 Frequency Deviation

Two stability tests were performed -- Frequency stability versus input voltage and frequency stability versus temperature. For both measurements, a 1 GHz frequency counter with temperature controlled time base is used.

The counter is coupled to the transmitter by coiling a pickup wire over the transmitter antenna or directly attaching it to the antenna, assuming a 50 Ω antenna is used.

The frequency stability is measured at room temperature by varying the supply voltage (AC or DC, as required) from 85% through 115% of normal operating voltage. This test is not applicable if the unit uses battery power. For battery powered equipment, the batteries are new and fully charged.

Stability versus temperature testing is carried out with the aid of a Tabai Espec Corp, Model PR-3F(W) environmental chamber. The following procedure is followed during testing:

1. Cool the device to -20°C and allow it to stabilize for 30 minutes. Record the frequency.
2. Heat the oven to +50°C and allow it to stabilize for 30 minutes. Record the frequency of operation.
3. Compare the measurements and a room temperature measurement against the assigned frequency tolerance.

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency.

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4.1.1 Measurement Data - Base Unit

Channel Frequency

Channel	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance %
1	43.72000	43.71994	-0.00014
2	43.74000	43.73994	-0.00014
3	43.82000	43.81994	-0.00014
4	43.84000	43.83994	-0.00014
5	43.92000	43.91994	-0.00014
6	43.96000	43.95994	-0.00014
7	44.12000	44.11994	-0.00014
8	44.16000	44.15994	-0.00014
9	44.18000	44.17994	-0.00014
10	44.20000	44.19994	-0.00014
11	44.32000	44.31994	-0.00014
12	44.36000	44.35994	-0.00014
13	44.40000	44.39994	-0.00014

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4.1.1 Measurement Data - Base Unit (Cont'd...)

Channel Frequency

Channel	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance %
14	44.46000	44.45994	-0.00013
15	44.48000	44.47994	-0.00013
16	46.61000	46.60993	-0.00015
17	46.63000	46.62993	-0.00015
18	46.67000	46.66993	-0.00015
19	46.71000	46.70994	-0.00013
20	46.73000	46.72994	-0.00013
21	46.77000	46.76994	-0.00013
22	46.83000	46.82994	-0.00013
23	46.87000	46.86993	-0.00015
24	46.93000	46.92993	-0.00015
25	46.97000	46.96993	-0.00015

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4.1.2 Measurement Data - Base Unit - Channel 1

Frequency Stability

Frequency Stability versus Source Voltage

	Voltage (Vac)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance % (x 10 ⁻³)
Nominal	120	43,720.00	43,719.94	-0.06	-0.14
85 %	102	43,720.00	43,719.94	-0.06	-0.14
115 %	138	43,720.00	43,719.94	-0.06	-0.14

Frequency Stability versus Temperature

Temperature (°C)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance (%) (x 10 ⁻³)
-20	43,720.00	43,720.37	0.37	0.85
25	43,720.00	43,719.94	-0.06	-0.14
50	43,720.00	43,719.65	-0.35	-0.80

Notes: All readings taken at base of antenna.

Legend (where appropriate)

* No emission was recorded at this environment. Thus, no frequency deviation can be found.

INTERTEK TESTING SERVICES

4.1.2 Measurement Data - Base Unit - Channel 25

Frequency Stability

Frequency Stability versus Source Voltage

	Voltage (Vac)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance % (x 10 ⁻³)
Nominal	120	46,970.00	46,969.93	-0.07	-0.15
85 %	102	46,970.00	46,969.93	-0.07	-0.15
115 %	138	46,970.00	46,969.93	-0.07	-0.15

Frequency Stability versus Temperature

Temperature (°C)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance (%) (x 10 ⁻³)
-20	46,970.00	46,970.38	0.38	0.81
25	46,970.00	46,969.93	-0.07	-0.15
50	46,970.00	46,969.62	-0.38	-0.81

Notes: All readings taken at base of antenna.

Legend (where appropriate)

* No emission was recorded at this environment. Thus, no frequency deviation can be found.

Test Results : From the two sets of tables for Base Unit - channel 1 & channel 25, the largest deviation from nominal frequency was 370 Hz, which was 0.0085% compared to the standard test frequency. The required minimum standard is 0.01 % in §15.233(g)

INTERTEK TESTING SERVICES

4.2.1 Measurement Data - Handset

Channel Frequency

Channel	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance %
1	48.76000	48.75993	-0.00014
2	48.84000	48.83993	-0.00014
3	48.86000	48.85993	-0.00014
4	48.92000	48.91993	-0.00014
5	49.02000	49.01992	-0.00016
6	49.08000	49.07992	-0.00016
7	49.10000	49.09992	-0.00016
8	49.16000	49.15992	-0.00016
9	49.20000	49.19992	-0.00016
10	49.24000	49.23992	-0.00016
11	49.28000	49.27992	-0.00016
12	49.36000	49.35992	-0.00016
13	49.40000	49.39991	-0.00018

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4.1.2 Measurement Data - Handset (Cont'd...)

Channel Frequency

Channel	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance % (x 10 ⁻³)
14	49.46000	49.45991	-0.00018
15	49.50000	49.49992	-0.00016
16	49.67000	49.66991	-0.00018
17	49.84500	49.84491	-0.00018
18	49.86000	49.85991	-0.00018
19	49.77000	49.76991	-0.00018
20	49.87500	49.87491	-0.00018
21	49.83000	49.82991	-0.00018
22	49.89000	49.88991	-0.00018
23	49.93000	49.92991	-0.00018
24	49.99000	49.98991	-0.00018
25	49.97000	49.96991	-0.00018

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4.2.2 Measurement Data - Handset - Channel 1

Frequency Stability

Frequency Stability versus Source Voltage

	Voltage (Vdc)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance % (x 10 ⁻³)
Nominal	3.60	48,760.00	48,759.93	-0.07	-0.14
85 %	3.06	48,760.00	48,759.91	-0.09	-0.18
115 %	4.14	48,760.00	48,759.95	-0.05	-0.10

Frequency Stability versus Temperature

Temperature (°C)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance (%) (x 10 ⁻³)
-20	48,760.00	48,759.82	-0.18	-0.37
25	48,760.00	48,759.93	-0.07	-0.14
50	48,760.00	48,759.90	-0.10	-0.21

Notes: All readings taken at base of antenna.

Legend (where appropriate)

* No emission was recorded at this environment. Thus, no frequency deviation can be found.

INTERTEK TESTING SERVICES

4.2.2 Measurement Data - Handset - Channel 25

Frequency Stability

Frequency Stability versus Source Voltage

	Voltage (Vdc)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance % (x 10 ⁻³)
Nominal	3.60	49,970.00	49,969.91	-0.09	-0.18
85 %	3.06	49,970.00	49,969.91	-0.09	-0.18
115 %	4.14	49,970.00	49,969.95	-0.05	-0.10

Frequency Stability versus Temperature

Temperature (°C)	Assigned Frequency (kHz)	Measured Frequency (kHz)	Frequency deviation (kHz)	Tolerance (%) (x 10 ⁻³)
-20	49,970.00	49,969.84	-0.16	-0.32
25	49,970.00	49,969.91	-0.09	-0.18
50	49,970.00	49,969.89	-0.11	-0.22

Notes: All readings taken at base of antenna.

Legend (where appropriate)

* No emission was recorded at this environment. Thus, no frequency deviation can be found.

Test Results : From the two sets of tables for Handset - channel 1 & channel 25, the largest deviation from nominal frequency was 180 Hz, which was 0.0037% compared to the standard test frequency. The required minimum standard is 0.01% in §15.233(g)

EXHIBIT 5
OPERATING BANDWIDTH

INTERTEK TESTING SERVICES

5.0 Operating Bandwidth

For measurements of bandwidth, the following procedure was followed by the test engineer:

- (1) Set up the equipment such that the antenna is located close enough to give a full scale deflection of the unmodulated carrier.
- (2) Plot the unmodulated carrier. Any residual guard tones should be left in place, as these will be present at all times in actual operation.
- (3) Plot the bandwidth with all alerting tones active. These include ringing and "call" signals from the base, and any intercom functions available in the handset.
- (4) Determine the worst case bandwidth using the following procedure:
 - (a) Disable all internal modulations, if possible.
 - (b) Apply a 2500 Hz signal to the audio input.
 - (c) Vary the input signal level and observe on the spectrum analyzer the waveform. Vary unit until a maximum deflection is observed. Record the input signal level. Record and plot the bandwidth deflection (100% modulation) measured at -26 dBC.
 - (d) **FOR A DEVICE WITH MODULATION LIMITING:**

Apply a 2500 Hz signal with the input level 16 dB greater than the level which produces 50% modulation. Plot and record the bandwidth.
 - (e) **FOR A DEVICE WITHOUT MODULATION LIMITING:**

Apply a 2500 Hz signal with the input level set for 85% modulation. If not possible, maximize the modulation percentage. Plot and record bandwidth.
- (5) Complete the tables on the following pages.

INTERTEK TESTING SERVICES

5.1 Base Unit - Channel 1

Operating Bandwidth

kHz from Carrier	Amplitude Down from Carrier (dB)	Limit (kHz)
-8.37/7.88	26	±10
- 20	64.96	N/A
+ 20	61.09	N/A

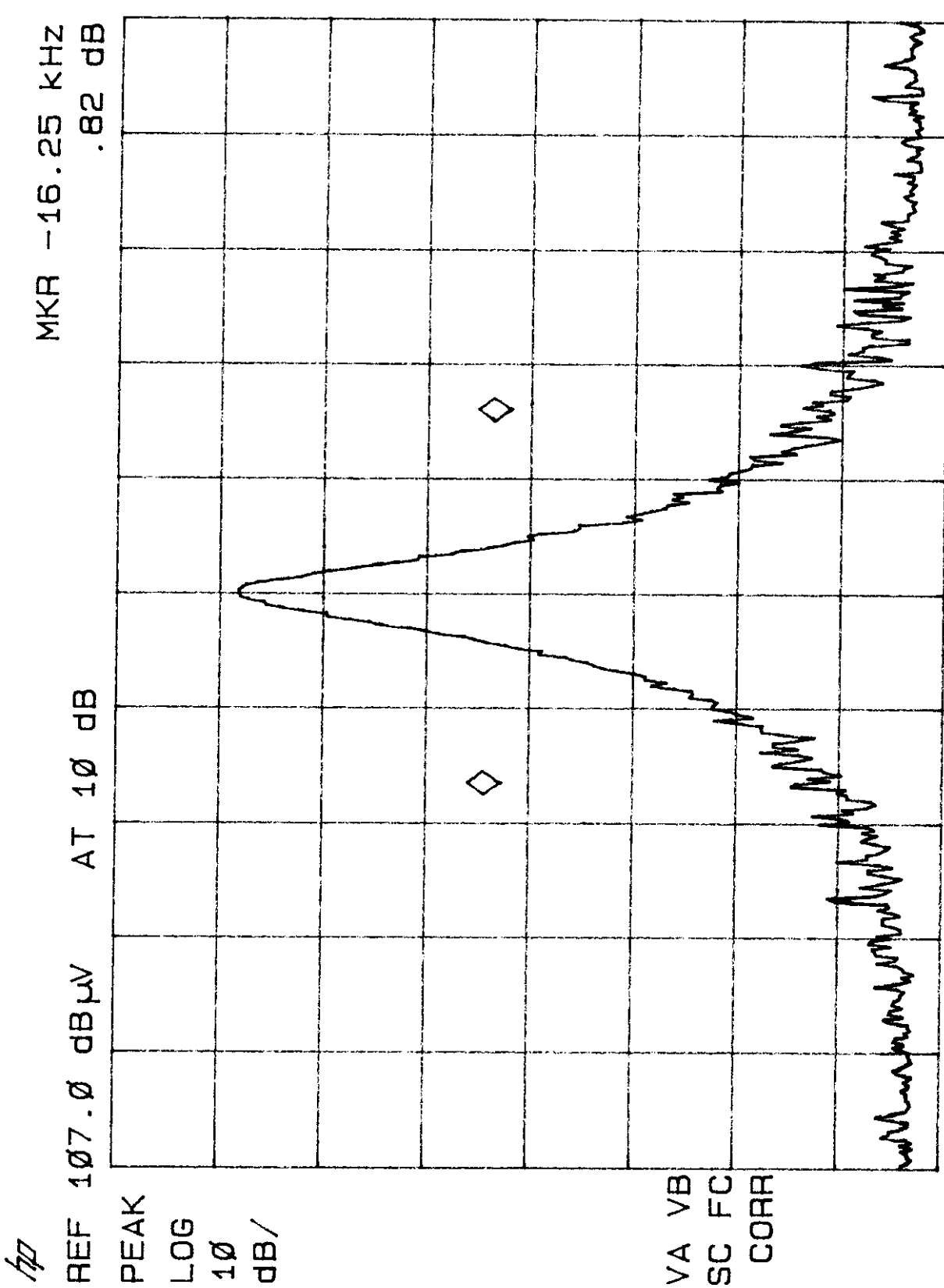
Base Unit - Channel 25

kHz from Carrier	Amplitude Down from Carrier (dB)	Limit (kHz)
-8.38/7.75	26	±10
- 20	64.47	N/A
+ 20	59.62	N/A

Test Result: From the above two tables for Base Unit-channel 1 & channel 25, the modulated signal from base unit closest to band edge was 1.62 kHz above the lower band edge 46.960 MHz according to §15.233(d)

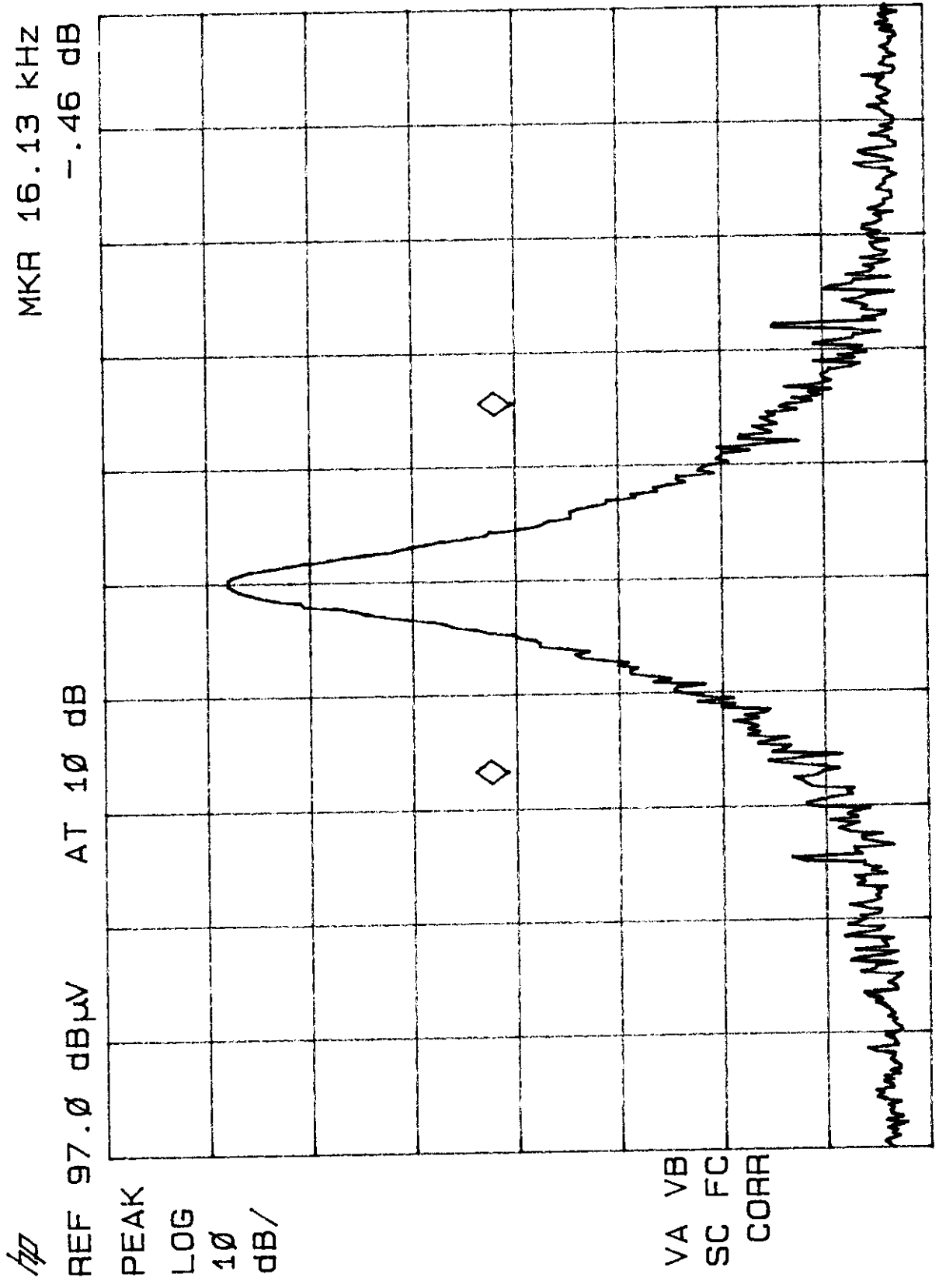
Bandwidth Plot - Base Unit

Base, Channel 1



CENTER 43.72000 MHz #RES BW 1.0 KHZ #VBW 3 MHz SPAN 50.00 KHZ
SWP 300 msec

Base, Channel 25



CENTER 46.97000 MHz
#RES BW 1.0 kHz
SPAN 50.00 kHz
SWP 300 msec
#VBW 3 MHz

INTERTEK TESTING SERVICES

5.2 Handset - Channel 1

Operating Bandwidth

kHz from Carrier	Amplitude Down from Carrier (dB)	Limit (kHz)
-8.25/6.25	26	± 10
- 20	64.08	N/A
+ 20	58.14	N/A

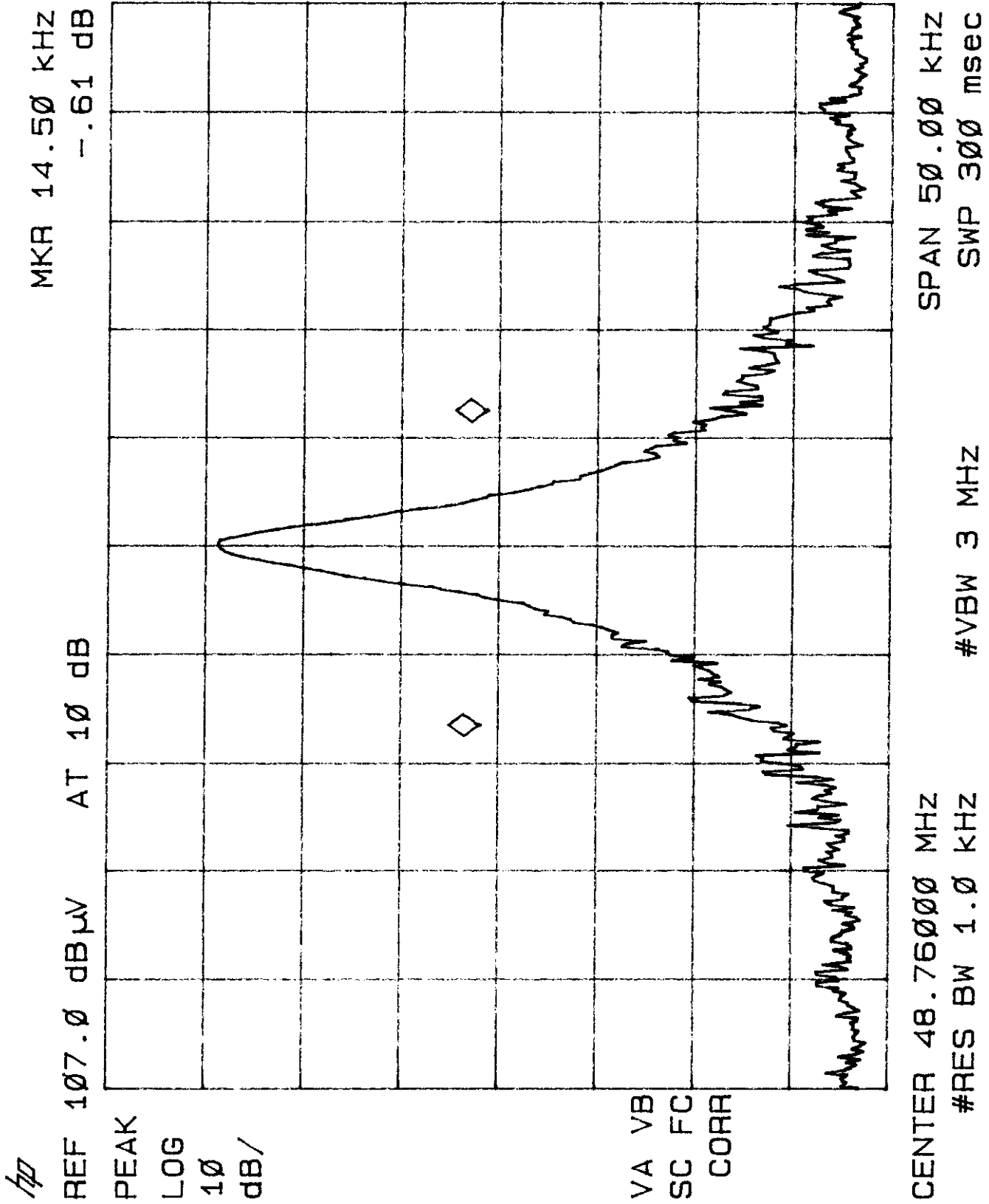
Handset - Channel 25

kHz from Carrier	Amplitude Down from Carrier (dB)	Limit (kHz)
-8.50/6.50	26	± 10
- 20	65.60	N/A
+ 20	59.82	N/A

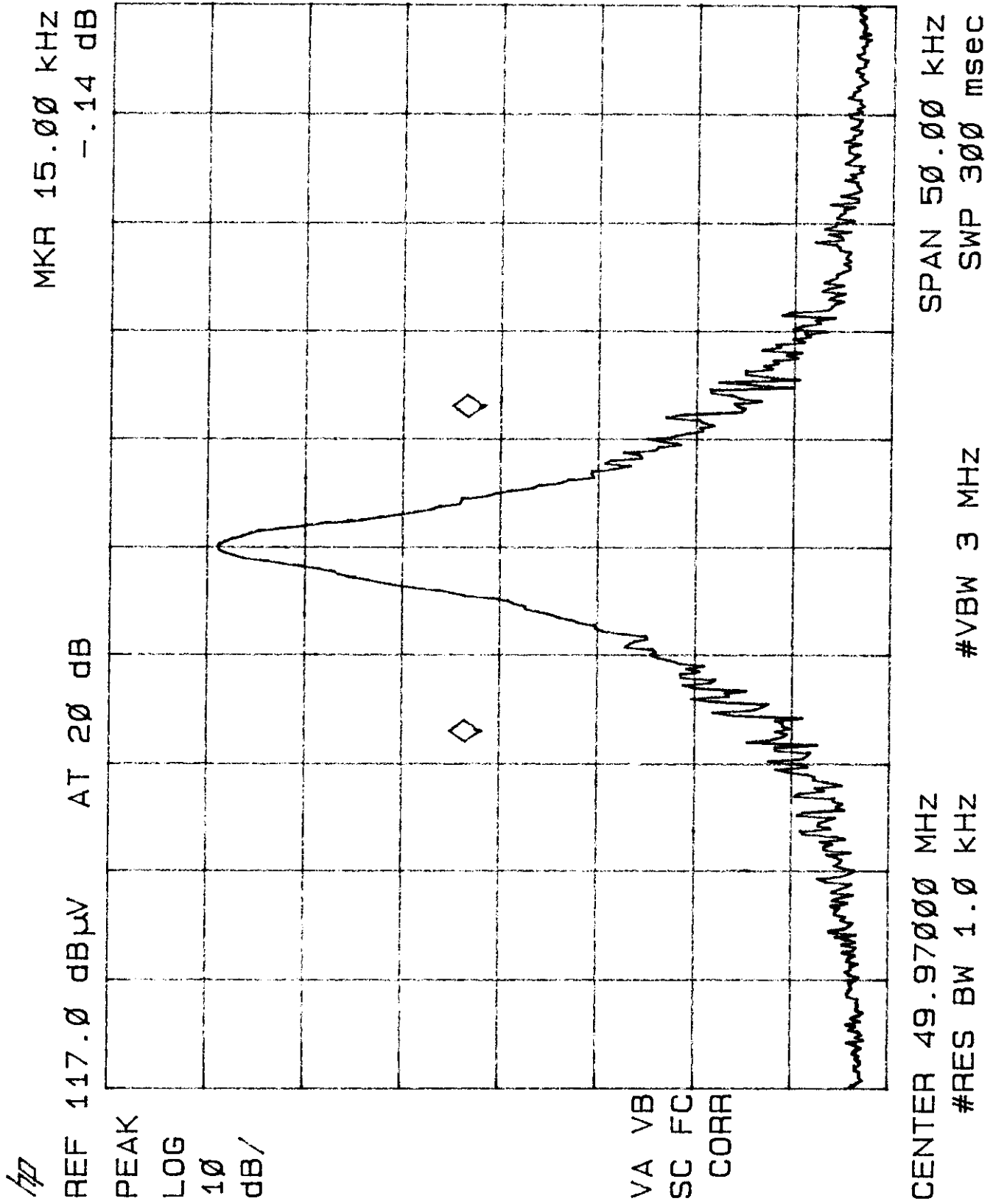
Test Result: From the above two tables for Handset-channel 1 & channel 25, the modulated signal from base unit closest to band edge was 1.5 kHz above the lower band edge 49.960 MHz according to §15.233(d)

Bandwidth Plot - Handset

Handset, Channel 1



Handset, Channel 25



INTERTEK TESTING SERVICES

**EXHIBIT 6
EQUIPMENT PHOTOGRAPHS**

6.0 **Equipment Photographs**

Photographs of the tested EUT are attached.