TEST REPORT

Report Number: HK10051677-1

Application
for
Original Grant
of 47 CFR Part 15 Certification

433MHz ASK Superheterodyne Bed Shaker

FCC ID: VNN-CB1000SHAKER

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GENERAL INFORMATION

Applicant Name:	Global China Technology Limited
Applicant Address:	Room 308, 3/F., Kwong Sang Hong Centre, 151-153 Hoi Bun Road, Kwun Tong, Hong Kong.
FCC Specification Standard:	FCC Part 15: 2008
FCC ID:	VNN-CB1000SHAKER
FCC Model(s):	CB1010GHR0, CB1000GNR0, TCL 200, TCL 100
Type of EUT:	Superheterodyne Receiver
Description of EUT:	433MHz ASK Superheterodyne Bed Shaker
Serial Number:	N/A
Sample Receipt Date:	May 31, 2010
Date of Test:	July 29-August 16, 2010
Report Date:	November 09, 2010
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

Table of Contents

1.0 Summary of Test Results 3

2.0 General Description 5
2.1 Product Description 5
2.2 Test Methodology 6
2.3 Test Facility 6

3.0 System Test Configuration 8
3.1 Justification 8
3.2 EUT Exercising Software 9
3.3 Details of EUT and Description of Accessories 10
3.4 Measurement Uncertainty 10
3.5 Equipment Modification 10

4.0 Test Results 12
4.1 Field Strength Calculation 12
4.2 Radiated Emissions from Receiver 13
4.2.1 Radiated Emission Configuration Photograph 13
4.2.2 Radiated Emission Data 13
4.3 AC Power Line Conducted Emission 16
4.3.1 AC Power Line Conducted Emission Configuration Photograph 16
4.3.2 AC Power Line Conducted Emission Data 16

5.0 Equipment List 17

Appendix – Exhibits for Application of Certification

1.0 **Summary of Test Results**

Test Items	FCC Part 15 Section	Results	Details see section
Radiated Emission from Receiver	15.109	Pass	4.2
AC Power Line Conducted Emission	15.107	Pass	4.3

EXHIBIT 2
GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The CB1010GHR0 is a 433MHz ASK Superheterodyne Bed Shaker. It operates at frequency of 433.92MHz. The Bed Shaker is powered by a "Ni-MH" type rechargeable battery pack (3.6V 800mAh).

The antenna used in bed shaker is integral, and the test sample is a prototype.

The Model(s): CB1000GNR0, TCL 200 and TCL 100 are the same as the Model: CB1010GHR0 in electronics/electrical designs, including software & firmware, PCB layout and construction design/physical design/enclosure. The only differences between these models are brand name, model number and packing configuration to be sold for marketing purpose.

The circuit description is attached in the Appendix and saved with filename: descri.pdf.

2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Preliminary radiated scans and all radiated measurements were performed in Open Area Test Sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

2.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data and conducted data are located at Roof Top and 2nd Floor respectively of 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 3
SYSTEM TEST CONFIGURATION

3.0 System Test Configuration

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to receive continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The bed shaker was powered by a fully charged battery.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT attached to peripherals, they were connected and operational to simulate typical use.

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

A typical signal or an unmodulated CW signal at the operating frequency of the EUT had been supplied to the EUT for all measurements. Such a signal was supplied by a signal generator and an antenna in close proximity to the EUT. The signal level was sufficient to stabilize the local oscillator of the EUT.

For receiver radiated measurement, the spectrum analyzer resolution bandwidth was 1MHz for measurement above 1GHz while 100kHz for measurement from 30MHz to 1GHz.

Radiated emission measurement for receiver was performed from 30MHz to 2GHz.

Emission that are directly caused by digital circuits in the receive path and receiver portion were measured, and the limit are according to FCC Part 15 Section 15.109.

3.1 Justification - Cont'd

Detector function for radiated emissions is in peak mode.

For AC line conducted emission test, the EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring instrument. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

All relevant operation modes have been tested, and the worst case data is included in this report.

3.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it receives the RF signal continuously.

3.3 Details of EUT and Description of Accessories

Details of EUT:

An AC adaptor and/or a battery (provided with the unit) were used to power the device. Their description are listed below.

(1) Bed Shaker: A "Ni-MH" type rechargeable battery pack (3.6V 800mAh) (Supplied by Client)

Description of Peripherals:

(1) Telephone Line Simulator, Model: TLS-5D-01, S/N: 151101 (Supplied by Intertek)

(2) 3m Telephone Line (Supplied by Intertek)

(3) Alarm Clock, Model: CB1010GHR0, FCC ID: VNN-CB1000 (Supplied by Client)

(4) Charging Cable, 36.5cm long (Supplied by Client)

(5) Alarm Clock: An AC adaptor (100-240VAC to 12VDC 670mA, Model: S008CU1200067) (Supplied by Client)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

3.5 Equipment Modification

Any modifications installed previous to testing by Global China Technology Limited will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Commercial & Electrical Division, Intertek Testing Services Hong Kong Ltd.

EXHIBIT 4
TEST RESULTS

4.0 **Test 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.

4.1 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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV/m
RR = RA - AG in dBμV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
FS = RR + LF
FS = 23 + 9 = 32 dBμV/m

RR = 23.0 dBμV
LF = 9.0 dB

Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

4.2 Radiated Emissions from Receiver

4.2.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

32.850 MHz

The worst case radiated emission configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.2.2 Radiated Emission Data

The data in tables 1-2 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 7.9 dB margin

Mode: Rx with Charging

Table 1

Radiated Emissions Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	435.280	22.5	16	26.0	32.5	46.0	-13.5
V	870.560	16.6	16	32.0	32.6	46.0	-13.4
V	1305.840	40.3	33	26.1	33.4	54.0	-20.6
V	1741.120	40.8	33	27.2	35.0	54.0	-19.0

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

Mode: Rx with Charging

Table 2

Radiated Emissions Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	32.850	38.1	16	10.0	32.1	40.0	-7.9
V	38.420	37.6	16	10.0	31.6	40.0	-8.4
V	43.105	37.3	16	10.0	31.3	40.0	-8.7
V	47.105	35.8	16	11.0	30.8	40.0	-9.2
V	53.010	35.0	16	11.0	30.0	40.0	-10.0
V	58.109	34.6	16	11.0	29.6	40.0	-10.4

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

4.3 AC Power Line Conducted Emission

[ ] Not applicable – EUT is only powered by battery for operation.

[×] EUT connects to AC power line through alarm clock. Emission Data is listed in following pages.

[ ] Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

4.3.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

1.640 MHz

The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.3.2 AC Power Line Conducted Emission Data

The conducted emission test result is attached in the Appendix and saved with filename: conduct.pdf

Judgement -

Passed by 6.4 dB margin compare with quasi-peak limit

5.0 **Equipment List**

1) Radiated Emissions Test

Equipment	Signal Generator	Biconical Antenna	Log Periodic Antenna
Registration No.	EW-0423	EW-0954	EW-0446
Manufacturer	IFR	EMCO	EMCO
Model No.	2023B	3104C	3146
Calibration Date	Apr 20, 2010	Apr. 14, 2010	Apr. 26, 2010
Calibration Due Date	Apr. 20, 2011	Apr. 14, 2011	Oct. 26, 2011

Equipment	Spectrum Analyzer	EMI Test Receiver	Double Ridged Guide Antenna
Registration No.	EW-2188	EW-2251	EW-1015
Manufacturer	AGILENTTECH	R&S	EMCO
Model No.	E4407B	ESCI	3115
Calibration Date	Dec. 25, 2009	Oct. 22, 2009	Feb. 09, 2010
Calibration Due Date	Dec. 31, 2010	Oct. 22, 2010	Aug. 09, 2011

2) Conducted Emissions Test

Equipment	Signal Generator	EMI Test Receiver	LISN	Pulse Limiter
Registration No.	EW-0423	EW-2251	EW-0090	EW-0698
Manufacturer	IFR	R&S	R&S	R&S
Model No.	2023B	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	Apr 20, 2010	Oct. 22, 2009	Feb. 05, 2010	Mar. 01, 2010
Calibration Due Date	Apr. 20, 2011	Oct. 22, 2010	Feb. 05, 2011	Mar. 01, 2011

END OF TEST REPORT