Dec 01, 2010

Z.T.S. International Industrial Co., Ltd.
12 BC, Jinrun Building, Chegongmiao, Shennan Road,
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Dear Mr.Guocai Wu:

Enclosed you will find your file copy of an Original Grant of Part 22 and Part 24 Certification report (FCC ID: YROG333). Model: G333.

For your reference, TCB will normally take another 2 weeks for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

Leung Wai Leung, Tommy
Deputy General Manager

Enclosure

List of Exhibits

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Operational Description	Technical Description	descri.pdf
Test Report	Bandwidth Plot	99% bw.pdf
Test Report	Spurious Emissions	cspurious.pdf
Test Report	Blockedge Plot	be.pdf
RF Exposure Info	SAR Report	sar report 1 of 2.pdf sar report 2 of 2.pdf
RF Exposure Info	SAR Justification	sar justification.pdf
External Photos	External Photo	external photos.pdf
Internal Photos	Internal Photo	internal photos.pdf
ID Label/Location Info	Label Artwork and Location	label.pdf
Cover Letter	Label Location Justification	justification.pdf
Schematics	Circuit Diagram	circuit.pdf
User Manual	User Manual	manual.pdf
Part List/Tune Up Info	Tune Up Procedure	tuneup.pdf
Part List/Tune Up Info	Part List	partlist.pdf
Cover Letter	Letter of Agency	letter of agency.pdf
Cover Letter	Confidentiality Request	request.pdf

TEST REPORT

Report Number: SZ10110157-3

Application
for
Original Grant
of 47 CFR Part 22 and Part 24 Certification

Mobile Phone with Bluetooth

FCC ID: YROG333

Prepared and Checked by:	Approved by:
	
Billy Li Project Engineer Dec 01, 2010	Leung Wai Leung, Tommy Deputy General Manager Dec 01, 2010

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GENERAL INFORMATION

Applicant Name:	Z.T.S. International Industrial Co., Ltd
Applicant Address:	12 BC, Jinrun Building, Chegongmiao, Shennan Road,
FCC Specification Standard:	FCC Part 22: 2009 FCC Part 24: 2009
FCC ID:	YROG333
FCC Model(s):	G333
Type of EUT:	GSM 850/900/1800/1900 Transceiver with Bluetooth
Description of EUT:	Mobile Phone
Serial Number:	N/A
Sample Receipt Date:	Nov 08, 2010
Date of Test:	Nov 20, 2010
Report Date:	Dec 01, 2010
Environmental Conditions:	Temperature: 25 ± 10°C Humidity: 10 to 90%

Table of Contents

1.0 **Summary of Test Results**

Test Items	FCC Section	Results	Details see section
Channels for Cellular and Broadband PCS Services	22.905 24.229	Pass	4.1
RF Output Power	2.1046 22.913 24.232	Pass	4.2
Occupied Bandwidth	2.1049	Pass	4.3
Spurious Emissions at Antenna Terminals	2.1051 2.1057 22.917 24.238	Pass	4.4
Power of Spurious Emissions	2.1053 2.1057 22.917 24.238	Pass	4.5
Blockedge at antenna terminal	22.917 24.238	Pass	4.6
Frequency Stability	2.1055 22.355 24.235	Pass	4.7
RF Exposure	1.1307 2.1093	Pass	4.8

1.1 Statement of Compliance

The equipment under test is found to be complying with the applicable requirements of following standards:

FCC Part 22: 2009
FCC Part 24: 2009

2.0 **General Description**

2.1 Product Description

The G333 is a Mobile Phone with Bluetooth supports 850/900/1800 and 1900 MHz with GSM/GPRS.

The Cellular radiotelephone service and personal communications services frequency ranges of the EUT are as below:
GSM 850MHz:
Tx: 824.20 - 848.80MHz (at intervals of 200kHz)
Rx: 869.20 - 893.80MHz (at intervals of 200kHz)

GSM 1900MHz:
Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz)
Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz)

The EUT is powered by a Lithium type rechargeable battery pack (3.7VDC).

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

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

2.3 Test Methodology

Preliminary radiated scans and all radiated measurements were performed in semi-anechoic chamber. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All measurements were made in accordance with the procedures in 47 CFR Part 2, Part 22, Part 24 and TIA-603-C.

2.4 Test Facility

The facilities used to collect the radiated data and conducted data are in **Interterk Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC.

3.0 System Test Configuration

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was controlled by communication tester to produce maximum power. 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 EUT was powered by a Lithium type rechargeable battery (3.7VDC, 800mAh)

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

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna polarization are varied during the search for maximum signal level. Only the worst-case polarization is reported. For each spurious, raise and lower the test antenna from 1m to 4m to obtain a maximum reading on the spectrum analyzer. Radiated emissions are taken at three meters. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

The power level of EUT is set by the communication tester as follows:
850MHz band: Power Control Level (PCL) = 5 (Power class 4)
1900MHz band: Power Control Level (PCL) = 0 (Power class 1)
Which are the maximum power levels emitted by the EUT.

For the 850MHz band, according to 22.917, compliance with the rule is based on the use of instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.3 is used for calculating the resolution bandwidth.

For the 1900MHz band, according to 24.238, compliance with the rule is based on the use of instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.3 is used for calculating the resolution bandwidth.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion are 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.

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

Simultaneous transmission (Bluetooth in this case) was investigated and no new emissions were found.

3.2 Details of EUT and Description of Accessories

Details of EUT:

A battery (provided with the unit) was used to power the device. Their description are listed below.

(1) Handset: A Lithium type rechargeable battery (3.7VDC, 800mAh) (Supplied by Client).

Description of Accessories:

(1) A headset for telephone use with 1.2m unshielded cable (Supplied by Client).
(2) Charger: An AC adaptor (100-240VAC to 5.0 VDC, 500mA, Model: CN-02B5-500) (Supplied by Client).

3.3 Measurement Uncertainty

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

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.4 Equipment Modification

Any modifications installed previous to testing by Z.T.S. International Industrial Co., Ltd will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

4.0 **Test Results**

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

4.1 Channels for Cellular and Broadband PCS Services (FCC Part 22.905, Part 24.229)

The following frequency bands are allocated for assignment to service providers in the Cellular Radiotelephone and Broadband PCS Services by FCC:

850MHz band
(a) Channel Block A:
869 - 880 MHz paired with 824 - 835 MHz
890 - 891.5 MHz paired with 845 - 846.5 MHz
(b) Channel Block B:
880 - 890 MHz paired with 835 - 845 MHz
891.5 - 894 MHz paired with 846 - 849 MHz

1900MHz band
The following frequency blocks are available for assignment on a Major Trading Areas (MTA) basis:
Block A: 1850 - 1865 MHz paired with 1930 - 1945 MHz; and
Block B: 1870 - 1885 MHz paired with 1950 - 1965 MHz.

The following frequency blocks are available for assignment on a Basic Trading Areas (BTA) basis:
Block C: 1895 - 1910 MHz paired with 1975 - 1990 MHz
Block D: 1865 - 1870 MHz paired with 1945 - 1950 MHz
Block E: 1885 - 1890 MHz paired with 1965 - 1970 MHz
Block F: 1890 - 1895 MHz paired with 1970 - 1975 MHz

The frequency range of the EUT is as below:
GSM 850MHz:
Tx: 824.20 - 848.80MHz (at intervals of 200kHz)
Rx: 869.20 - 893.80MHz (at intervals of 200kHz)

GSM 1900MHz:
Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz)
Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz)

As a result, the frequency range of the EUT fits into the allocated frequency blocks.

4.2 RF Power Output (FCC Part 2.1046, 22.913 & 24.232)

The RF power output is measured at the RF output terminal. The limit is as follows:
Part 22.913 (for 850MHz band):

[ ] ≤ 500W ERP (57dBm) for base stations and cellular repeaters

[√] ≤ 7W ERP (38.5dBm) for mobile and auxiliary test transmitters

Part 24.232 (for 1900MHz band):

[ ] ≤ 1640W e.i.r.p. (62.1dBm) for base stations up to 300m HAAT;

[√] ≤ 2W e.i.r.p. (33dBm) peak output power for portable mobile

Test results:

Band	ARFCN	Frequency (MHz)	Antenna Gain (dBi)	Measured output power(dBm)	*ERP (dBm)	Limit (dBm)	Verdict
GSM 850MHz	190	836.6	1.0	31.40	30.25	38.5	PASS
GPRS 850MHz	190	836.6	1.0	31.31	30.16	38.5	PASS

Band	ARFCN	Frequency (MHz)	Antenna Gain (dBi)	Measured output power(dBm)	#EIRP (dBm)	Limit (dBm)	Verdict
GSM 1900MHz	661	1880.0	1.0	28.20	29.20	33.0	PASS
GPRS 1900MHz	661	1880.0	1.0	28.08	29.08	33.0	PASS

*ERP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi) - 2.15dB

#EIRP (dBm) = Conducted Power (dBm) + Antenna Gain (dBi)

4.3 Occupied Bandwidth (FCC Part 2.1049)

From 2.1049, occupied bandwidth is defined as the measured spectral width of an emission. The measurement determines occupied bandwidth as the difference between upper and lower frequencies where 0.5% of the emission power is above the upper frequency and 0.5% of the emission power is below the lower frequency.

The 26dB bandwidth is also recorded to determine the resolution bandwidth used in measurements, as specified in 22.917 and 24.238.

Test results:

Band	ARFCN	Frequency (MHz)	99% Bandwidth (kHz)	26dB Bandwidth (kHz)	Verdict
GSM 850MHz	190	836.6	242.00	316.00	PASS
GSM 1900MHz	661	1880.0	244.00	318.00	PASS
GPRS 850MHz	190	836.6	242.00	320.00	PASS
GPRS 1900MHz	661	1880.0	240.00	316.00	PASS

The plots of 99% bandwidth are saved in the file 99% bw.pdf.

4.4 Spurious Emissions at Antenna Terminals (FCC Part 2.1051, 2.1057, 22.917, 24.238)

The conducted spurious emissions is measured from 9kHz up to the 10th harmonic of fundamental emission.

According to 22.917 and 24.238, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB, i.e. at or below -13dBm.

Test results:

Band	ARFCN	Channel Frequency (MHz)	Verdict
GSM 850MHz	190	836.6	PASS
GSM 1900MHz	661	1880.0	PASS
GPRS 850MHz	190	836.6	PASS
GPRS 1900MHz	661	1880.0	PASS

The plots are saved in the file cspurious.pdf.

4.5 Power of Spurious Emissions (FCC Part 2.1053, 2.1057, 22.917, 24.238)

The radiated spurious emissions are measured from 30MHz up to the 10th harmonic of fundamental emission.

According to 22.917, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB, i.e. at or below -13dBm.

The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value are not reported.

Note : Data of GPRS 850 is not reported as which are more than 20dB below the permissible value.

Test results:

GSM 850MHz (ARFCN = 190, Channel frequency = 836.6MHz):

Polariaztion	Frequency (MHz)	Measured ERP (dBm)	Limit EIRP (dBm)	Verdict
H	1670.500	-32.60	-13	PASS

GSM 1900MHz (ARFCN = 661, Channel frequency = 1880.0MHz):

Polariaztion	Frequency (MHz)	Measured ERP (dBm)	*Calculated EIRP (dBm)	Limit EIRP (dBm)	Verdict
H	13910.500	-31.92	-29.77	-13	PASS
V	13996.000	-30.48	-28.33	-13	PASS
H	15164.500	-31.29	-29.14	-13	PASS
V	17454.000	-31.41	-29.26	-13	PASS

*EIRP = ERP+2.15dB

GPRS 1900MHz (ARFCN = 661, Channel frequency = 1880.0MHz):

Polariaztion	Frequency (MHz)	Measured ERP (dBm)	*Calculated EIRP (dBm)	Limit EIRP (dBm)	Verdict
V	13948.500	-31.13	-28.98	-13	PASS
H	13958.000	-32.01	-29.86	-13	PASS
H	14955.500	-31.97	-29.82	-13	PASS
V	17292.500	-31.35	-29.20	-13	PASS
H	17767.500	-32.32	-30.17	-13	PASS

*EIRP = ERP+2.15dB

4.6 Blockedge at Antenna Terminals (FCC Part 22.917, 24.238)

In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter is employed. The 26dB emission bandwidth taken in section 4.4 is used for calculating the resolution bandwidth.

The power of any emission at the blockedge must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB, i.e. at or below -13dBm.

Test results:

Band	ARFCN	Channel Frequency (MHz)	Worst case bandedge emission (dBm)	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-16.80	-13	PASS
	251	848.8	-14.60	-13	PASS
GSM 1900MHz	512	1850.2	-15.29	-13	PASS
	810	1909.8	-16.43	-13	PASS
GPRS 850MHz	128	824.2	-13.90	-13	PASS
	251	848.8	-13.79	-13	PASS
GPRS 1900MHz	512	1850.2	-16.27	-13	PASS
	810	1909.8	-17.69	-13	PASS

The plots are saved in the file be.pdf.

4.7 Frequency Stability (FCC Part 2.1055, 22.355, 24.235)

The frequency stability is measured with the temperature variation range of -30˚C to +50˚C (10˚C increment), and voltage supply variation range of 85% to 115% of nominal AC supply voltage, and/or nominal to battery end points for hand-carried battery-powered supplies.

[ ] AC nominal supply voltage: 120VAC
[√] Battery nominal voltage: ___3.7___VDC; End point: __3.6__ VDC

20˚C is taken as temperature in normal condition.

For the 850MHz band, according to 22.355, the stability requirements are: ±1.5ppm for mobile units and ±2.5ppm for portable units.

For the 1900MHz band, according to 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test results:

GSM 850MHz (AFRCN = 190, Channel frequency = 836.6MHz):

Input voltage (VDC)	Temperature (˚C)	Frequency deviation (Hz)	Limit (Hz)	Verdict
3.7	-30	-17	±2091.5	PASS
	-20	-13		PASS
	-10	-14		PASS
	0	-9		PASS
	10	-9		PASS
	20	-10		PASS
	30	-9		PASS
	40	-12		PASS
	50	-16		PASS
3.6	20	-11		PASS

GSM 1900MHz (AFRCN = 512, Channel frequency = 1850.2MHz)

Input voltage (VDC)	Temperature (˚C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
3.7	-30	1850.200013	1850-1910	PASS
	-20	1850.200012		PASS
	-10	1850.200014		PASS
	0	1850.200011		PASS
	10	1850.200010		PASS
	20	1850.200012		PASS
	30	1850.200013		PASS
	40	1850.200014		PASS
	50	1850.200017		PASS
3.6	20	1850.200011		PASS

GSM 1900MHz (AFRCN = 810, Channel frequency = 1909.8MHz):

Input voltage (VDC)	Temperature (˚C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
3.7	-30	1909.800016	1850-1910	PASS
	-20	1909.800016		PASS
	-10	1909.800015		PASS
	0	1909.800013		PASS
	10	1909.800014		PASS
	20	1909.800013		PASS
	30	1909.800014		PASS
	40	1909.800013		PASS
	50	1909.800017		PASS
3.6	20	1909.800014		PASS

GPRS 850MHz (AFRCN = 190, Channel frequency = 836.6MHz):

Input voltage (VDC)	Temperature (˚C)	Frequency deviation (Hz)	Limit (Hz)	Verdict
3.7	-30	16	±2091.5	PASS
	-20	14		PASS
	-10	15		PASS
	0	14		PASS
	10	13		PASS
	20	13		PASS
	30	14		PASS
	40	15		PASS
	50	17		PASS
3.6	20	14		PASS

GPRS 1900MHz (AFRCN = 512, Channel frequency = 1850.2MHz):

Input voltage (VDC)	Temperature (˚C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
3.7	-30	1850.200019	1850-1910	PASS
	-20	1850.200017		PASS
	-10	1850.200014		PASS
	0	1850.200015		PASS
	10	1850.200009		PASS
	20	1850.200010		PASS
	30	1850.200017		PASS
	40	1850.200015		PASS
	50	1850.200014		PASS
3.6	20	1850.200014		PASS

GPRS 1900MHz (AFRCN = 810, Channel frequency = 1909.8MHz):

Input voltage (VDC)	Temperature (˚C)	Measured Frequency (MHz)	Limit (MHz)	Verdict
3.7	-30	1909.800012	1850-1910	PASS
	-20	1909.800011		PASS
	-10	1909.800012		PASS
	0	1909.800009		PASS
	10	1909.800007		PASS
	20	1909.800010		PASS
	30	1909.800011		PASS
	40	1909.800014		PASS
	50	1909.800017		PASS
3.6	20	1909.800012		PASS

4.8 Radio Frequency Exposure Compliance

EUT is subject to the radio frequency exposure requirements specified in FCC Rule §§ 1.1307(b), 2.1093. It shall be considered to operate in a “general population / uncontrolled” environment.

[×] Portable unit: EUT was evaluated for Specific Absorption Rate (SAR) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). It is in compliance with the SAR evaluation requirements. The caution statement is saved as filename: RF exposure info.pdf. A SAR test report was submitted at same time and saved as SAR Report.pdf.

[ ] Mobile unit: EUT was evaluated for Maximum Permissible Exposure (MPE) evaluation compliance according to OET Bulletin 65(Edition 97-01). The evaluation calculation results are saved as filename: RF exposure info.pdf.

5.0 **Equipment List**

Equipment	BiConLog Antenna	Horn Antenna	EMI Test Receiver
Registration No.	SZ061-03	SZ061-08	SZ185-02
Manufacturer	ETS	ETS	R&S
Model No.	3142C	3115	ESCI
Calibration Date	Nov. 25, 2009	Mar. 15, 2010	Nov. 23, 2009
Calibration Due Date	May. 25, 2011	Sep. 15, 2011	Nov. 23, 2010

Equipment	EMI Test Receiver	Spectrum Analyzer	Universal Radio Communication Tester
Registration No.	SZ185-01	SZ056-03	SZ065-1
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	FSP30	CMU200
Calibration Date	Mar 08, 2010	Mar 18, 2010	May 09, 2010
Calibration Due Date	Mar 08, 2011	Mar 18, 2011	May 09, 2011

Equipment	RF Power Meter	Temperature & Humidity Chamber	Roberts Antennas
Registration No.	SZ182-01	SZ016-01	EW-0160
Manufacturer	BOONTON	Dongzhix	CDI
Model No.	4232A	WGD/SJ-415-A	A100
Calibration Date	Mar 08, 2010	Nov 23, 2009	May 26, 2009
Calibration Due Date	Mar 08, 2011	Nov 23, 2010	Nov 26, 2010

END OF TEST REPORT

APPENDIX
EXHIBITS OF APPLICATION FOR CERTIFICATION