VTech Telecommunications Ltd.

Application
For
Permissive Change Class II

900MHz/5.8GHz 30 Channel Analog Modulation Cordless Phone with Caller ID - Base Unit

(FCC ID: EW780-5735-02)

07243191
KS/ ac
November 21, 2007

Intertek Testing Services Hong Kong Ltd.
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LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

VTech Telecommunications Ltd. - Model: EL41108, EL41208, EL41308, EL41408

FCC ID: EW780-5735-02

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

Equipment Type : DXX - Pt 15 Low Pwr Com. Device TX

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 [05-04-07 Edition] Provision.

Report prepared by:

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Cover Letter	Confidentiality Request	request.pdf
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Cover Letter	Purpose of Application	product change.pdf
Test Setup Photo	Radiated & Conducted Emission	config photos.doc
Test Report	Emission Plot	emission.pdf
Test Report	Conducted Emission Test Result	conduct.pdf
External Photo	External Photo	external photos.doc
Internal Photo	Internal Photo	internal photos.doc
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
Operational Description	Security Code Information	security code information.pdf
User Manual	User Manual	manual.pdf

EXHIBIT 1
GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The EL41108 is a 900MHz/5.8GHz 30 Channel Analog Modulation Cordless Phone with Caller ID. Operating frequencies of Base Unit and Handset are from 912.750MHz to 917.100MHz, and from 5857.200MHz to 5865.900MHz respectively. The unit is capable of either tone or pulse dialing. An AC adaptor 117VAC to 7.5VAC 200mA was used to power the device. The circuit wiring is consistent under the requirement of part 68.

The antennas used in base unit and handset are integral, and the tested sample is a prototype.

The Model: EL41208, EL41308 and EL41408 are the same as the Model: EL41108 in hardware aspect except number of handset in the packing. The difference in model number serves as marketing strategy.

The circuit description is saved with filename: descri.pdf

Connection between the base unit and the telephone network is accomplished through the use of USOC RJ11C in the 2-wire loop calling central office line.

1.2 Purpose of Application

The purpose of application is saved with filename: product change.pdf

The RF module of the Base Unit is the same as the previous granted Model: IA5863. Enclosure, base band circuit and PCB layout are changed.

This is an Application for Certification of a Base Unit of a cordless telephone system. The FCC ID of the associated Handset is EW780-5735-05 and has been filed at the same time as this application. A verification report has been prepared for the digital portion. 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 (2003). 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. 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 and conducted data are 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

2.0 System Test Configuration

2.1 Justification

For emissions testing, the equipment under test (EUT) was setup to transmit 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 handset was powered by a fully charged battery.

For the measurements, the EUT is attached to a plastic stand if necessary 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. 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.

Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

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.

2.3 Details of EUT and Description of Peripherals

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) Base Unit: An AC adaptor (117VAC to 7.5VAC 200mA, Model: U075020A12) (Supplied by Client)
(2) Handset Operated Battery: A "Ni-Cd" type rechargeable battery (3.6V 400mAh) (Supplied by Client)

Description of Peripherals:

(1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)
(2) Handset, Model: EL42108, FCC ID: EW780-5735-05 (Supplied by Client)

2.4 Measurement Uncertainty

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

2.5 Equipment Modification

Any modifications installed previous to testing by VTech Telecommunications 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:

Sit Kim Wai, Ken
Supervisor
Intertek Testing Services
Agent for VTech Telecommunications Ltd.

Signature

November 21, 2007

Date

EXHIBIT 3
EMISSION RESULTS

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.

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 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

3.2 Radiated Emission Configuration Photograph - Base Unit

Worst Case Radiated Emission

at 3668.400 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: config photos.doc

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 7.2 dB margin

****

TEST PERSONNEL:

Tester Signature

Jess Tang, Lead Engineer
Typed/Printed Name

November 21, 2007
Date

Company: VTech Telecommunications Ltd. Date of Test: October 20-November 12, 2007
Model: EL41108
Mode : TX-Channel 00

Table 1, Base unit

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	912.750	67.1	16	33.0	84.1	94.0	-9.9
H	1825.500	52.2	33	27.2	46.4	54.0	-7.6
H	*2738.250	48.8	33	30.4	46.2	54.0	-7.8
H	*3651.000	45.6	33	33.3	45.9	54.0	-8.1
H	*4563.750	43.3	33	34.9	45.2	54.0	-8.8
H	5476.500	41.6	33	35.7	44.3	54.0	-9.7

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.

5. Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Jess Tang

Company: VTech Telecommunications Ltd. Date of Test: October 20-November 12, 2007
Model: EL41108
Mode : TX-Channel 29

Table 2, Base unit

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	917.100	67.2	16	33.0	84.2	94.0	-9.8
H	1834.200	51.7	33	27.2	45.9	54.0	-8.1
H	*2751.300	48.7	33	30.4	46.1	54.0	-7.9
H	*3668.400	46.5	33	33.3	46.8	54.0	-7.2
H	*4585.500	43.4	33	34.9	45.3	54.0	-8.7
H	5502.600	40.8	33	36.6	44.4	54.0	-9.6

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.

5. Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Jess Tang

3.4 Radiated Emission on the Bandedge

From the following plots, they show that the fundamental emissions are confined in the specified band (902MHz and 928MHz). In case of the fundamental emissions are within two standard bandwidths from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.4 (2003) for frequency being measured.

Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

Please refer to the following plots for radiated emission on the bandedge:

Plot B1A: Base Unit - Low Channel Emissions
Plot B1B: Base Unit - High Channel Emissions

For electronic filing, the above plots are saved with filename: emission.pdf

3.5 Line Conducted Configuration Photograph - Base Unit

Worst Case Line-Conducted Configuration

For electronic filing, the worst case line conducted configuration photographs are saved with filename: config photos.doc

3.6 Line Conducted 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 more than 20 dB margin

TEST PERSONNEL:

Tester Signature

Jess Tang, Lead Engineer
Typed/Printed Name

November 21, 2007

Date

Company: VTech Telecommunications Ltd. Date of Test: October 20-November 12, 2007
Model: EL41108

Conducted Emissions

For electronic filing, the conducted emission test result is saved with filename: conduct.pdf

EXHIBIT 4
EQUIPMENT PHOTOGRAPHS

4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.doc

EXHIBIT 5
PRODUCT LABELLING

5.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf

EXHIBIT 6
TECHNICAL SPECIFICATIONS

6.0 **Technical Specifications**

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7
INSTRUCTION MANUAL

7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf

The required FCC Information to the User is stated on P.43 of the Instruction Manual.

This manual will be provided to the end-user with each unit sold/leased in the United States.

EXHIBIT 8
SECURITY CODE INFORMATION

8.0 **Security Code Information**

For electronic filing, a copy of the security code information is saved with filename: security code information.pdf

EXHIBIT 9
CONFIDENTIALITY REQUEST

9.0 **Confidentiality Request**

For electronic filing, a preliminary copy of the Confidentiality Request is saved with filename: request.pdf