



**VTech Telecommunications Ltd.**

Application  
For  
Permissive Change Class II

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

**(FCC ID: EW780-5735-02)**

07148431

TL/ ac

September 10, 2007

- The evaluation data of the report will be kept for 3 years from the date of issuance.
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# INTERTEK TESTING SERVICES

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## LIST OF EXHIBITS

### *INTRODUCTION*

<i>EXHIBIT 1:</i>	General Description
<i>EXHIBIT 2:</i>	System Test Configuration
<i>EXHIBIT 3:</i>	Emission Results
<i>EXHIBIT 4:</i>	Equipment Photographs
<i>EXHIBIT 5:</i>	Product Labelling
<i>EXHIBIT 6:</i>	Technical Specifications
<i>EXHIBIT 7:</i>	Instruction Manual
<i>EXHIBIT 8:</i>	Security Code Information
<i>EXHIBIT 9:</i>	Confidentiality Request

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## MEASUREMENT/TECHNICAL REPORT

**VTech Telecommunications Ltd. - Model: IA5863**  
**FCC ID: EW780-5735-02**

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

Equipment Type : DXX - Low Power Transmitter (example: computer, printer, modem, etc.)

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

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

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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## Table of Contents

<b>1.0 General Description</b> .....	2
1.1 Product Description .....	2
1.2 Purpose of Application.....	2
1.3 Test Methodology.....	3
1.4 Test Facility.....	3
<b>2.0 System Test Configuration</b> .....	5
2.1 Justification .....	5
2.2 EUT Exercising Software.....	5
2.3 Details of EUT and Description of Peripherals .....	6
2.4 Measurement Uncertainty .....	7
2.5 Equipment Modification .....	7
<b>3.0 Emission Results</b> .....	9
3.1 Field Strength Calculation.....	10
3.2 Radiated Emission Configuration Photograph - Base Unit.....	11
3.3 Radiated Emission Data - Base Unit.....	12
3.4 Radiated Emission on the Bandedge.....	15
3.5 Line Conducted Configuration Photograph - Base Unit .....	16
3.6 Line Conducted Emission Data.....	17
<b>4.0 Equipment Photographs</b> .....	20
<b>5.0 Product Labelling</b> .....	22
<b>6.0 Technical Specifications</b> .....	24
<b>7.0 Instruction Manual</b> .....	26
<b>8.0 Security Code Information</b> .....	28
<b>9.0 Confidentiality Request</b> .....	30

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## INTERTEK TESTING SERVICES

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List of attached file

Exhibit type	File Description	filename
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
Security Code Information	Security Code Information	security code information.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Request	request.pdf

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## **EXHIBIT 1 GENERAL DESCRIPTION**

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## 1.0 General Description

### 1.1 Product Description

The IA5863 is a 900MHz/5.8GHz 30 Channel Analog Modulation Cordless Phone with Caller ID and Digital Answering Machine - Base Unit. Base Unit and Handset Unit operate at frequency of 912.750MHz to 917.100MHz and 5863.800MHz to 5872.500MHz respectively. The unit is capable of either tone or pulse dialing. The internal power supply's isolation is accomplished through a power transformer having an adequate dielectric rating. The circuit wiring is consistent under the requirement of part 68.

The handset unit consists of a keypad with twelve standard keys (0,...9,\*,#), five function keys (CID/Vol-, Phonebook/Vol+, Select, Prog, Redial/Pause), and one channel switch key. A Talk key and a OFF key are provided to control pick and release telephone line in a toggle base.

The base unit has a page key, which is used to page the handset unit, together with answer machine control keys.

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

The circuit description is saved with filename: descri.pdf

Connection between the device 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

As confirmed by the client, this modified model IA5863 is the altering previous model of IA5863 that the previous model is tested by Nemko Canada Inc. as a Class I permissive change. The purpose of application is saved with filename: product change.pdf

This is a single application for Certification of Base Unit of a cordless telephone system. The FCC ID of the associated handset is EW780-5735-03 and has been granted by Nemko Canada Inc. This specific report details the emission characteristics of each transmitter. The device is also subject to Part 68 Registration.

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### 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.

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**EXHIBIT 2  
SYSTEM TEST CONFIGURATION**

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## 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 were manipulated to produce worst case emissions.

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.

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### 2.3 Details of EUT and Description of Peripherals

#### Details of EUT:

An AC adaptor (provided with the unit) was used to power the device. Their description are listed below.

- (1) Base Unit: An AC adaptor (117VAC to 9VDC 300mA, Model: U090030D1201)

#### Description of Peripherals:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated
- (2) A headset for telephone use with 1.2m unshielded cable permanently affixed. (Supplied by Intertek)
- (3) Handset, Model: IA5863, FCC ID: EW780-5735-03 (Supplied by Client)
- (4) Handset: A "Ni-Cd" type rechargeable battery (3.6V 400mAh)

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### 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:*

*Leung Wai Leung, Tommy  
Manager  
Intertek Testing Services  
Agent for VTech Telecommunications Ltd.*



\_\_\_\_\_  
Signature

September 10, 2007

\_\_\_\_\_  
Date

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**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 dB $\mu$ V/m  
                    RA = Receiver Amplitude (including preamplifier) in dB $\mu$ 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 dB $\mu$ V/m  
                    RR = RA - AG in dB $\mu$ V  
                    LF = CF + AF in dB

Assume a receiver reading of 52.0 dB $\mu$ 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 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA = 52.0 dB $\mu$ V  
AF = 7.4 dB  
CF = 1.6 dB  
AG = 29.0 dB  
FS = RR + LF  
FS = 23 + 9 = 32 dB $\mu$ V/m

RR = 23.0 dB $\mu$ V  
LF = 9.0 dB

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

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### 3.2 Radiated Emission Configuration Photograph - Base Unit

Worst Case Radiated Emission

at 4563.750 MHz

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

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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 6.5 dB margin

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**TEST PERSONNEL:**



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*Tester Signature*

Jess Tang, Lead Engineer  
*Typed/Printed Name*

September 10, 2007  
*Date*

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: IA5863  
Mode : TX Channel 0

Date of Test: July 5-August 28, 2007

Table 1, Base unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre- Amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	912.750	70.0	16	33	87.0	94	-7.0
V	1825.500	49.7	33	27.2	43.9	54	-10.1
H	*2738.250	45.2	33	30.4	42.6	54	-11.4
H	*3651.000	44.3	33	33.3	44.6	54	-9.4
V	*4563.750	45.6	33	34.9	47.5	54	-6.5
H	5476.500	40.1	33	35.7	42.8	54	-11.2

- 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

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: IA5863  
Mode : TX Channel 29

Date of Test: July 5-August 28, 2007

Table 2, Base unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre- Amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	917.100	69.8	16	33.0	86.8	94	-7.2
V	1834.200	49.6	33	27.2	43.8	54	-10.2
H	*2751.300	45.7	33	30.4	43.1	54	-10.9
H	*3668.400	44.5	33	33.3	44.8	54	-9.2
V	*4585.500	45.3	33	34.9	47.2	54	-6.8
H	5502.600	38.9	33	36.6	42.5	54	-11.5

- 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

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### 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

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### 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

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### 3.6 Line Conducted Emission Data

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:**



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*Tester Signature*

Jess Tang, Lead Engineer  
*Typed/Printed Name*

September 10, 2007  

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*Date*

## **INTERTEK TESTING SERVICES**

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Company: VTech Telecommunications Ltd.  
Model: IA5863

Date of Test: July 5-August 28, 2007

### **Conducted Emissions**

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

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**EXHIBIT 4  
EQUIPMENT PHOTOGRAPHS**

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### 4.0 Equipment Photographs

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

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**EXHIBIT 5  
PRODUCT LABELLING**

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### 5.0 Product Labelling

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

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**EXHIBIT 6  
TECHNICAL SPECIFICATIONS**

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### 6.0 Technical Specifications

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

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## **EXHIBIT 7 INSTRUCTION MANUAL**

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### 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.49 of the Instruction Manual.

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

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**EXHIBIT 8  
SECURITY CODE INFORMATION**

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### 8.0 Security Code Information

For electronic filing, a Security Code Information is saved with filename: security code information.pdf

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**EXHIBIT 9  
CONFIDENTIALITY REQUEST**

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### 9.0 Confidentiality Request

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