



December 29, 2007

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Dear Mr. Samson Man:

Enclosed you will find your file copy of a Part 15 Class II Permissive Change Application (FCC ID: EW780-5656-00).

For your reference, TCB will normally take another 15 to 20 days 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,

A handwritten signature in black ink that reads "Ken Sit".

Sit Kim Wai, Ken  
Supervisor

Enclosure



VTech Telecommunications Ltd.

Application  
For  
Permissive Change Class II

5.8GHz/2.4GHz Frequency Hopping Spread Spectrum Cordless Phone  
with Caller ID, Speakerphone, and Digital Answering Machine - Base Unit

**(FCC ID: EW780-5656-00)**

07268171  
TL/ ac  
December 29, 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 Hong Kong Ltd.**

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.  
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INTERTEK TESTING SERVICES

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**MEASUREMENT/TECHNICAL REPORT**

**VTech Telecommunications Ltd.- MODEL: TL74x08, TL74x58, TL78x08**

**FCC ID: EW780-5656-00**

This report concerns (check one) Original Grant \_\_\_\_\_ Class II Change X

Equipment Type: DSS-Part 15 Spread Spectrum Transmitter

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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.

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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.

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Report prepared by:

Sit Kim Wai, Ken  
Intertek Testing Services  
2/F., Garment Centre,  
576 Castle Peak Road,  
Kowloon, Hong Kong.  
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# INTERTEK TESTING SERVICES

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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
Operational Description	Technical Description	descri_TL74208.pdf descri_TL78208.pdf
Cover Letter	Purpose of Application	product change_TL74208.pdf product change_TL78208.pdf
Test Report	Out Band Antenna Conducted Emission Plot	obantcon_TL74208.pdf obantcon_TL78208.pdf
Test Report	Duty Cycle Calculation and Measurement	dcc_TL74208.pdf dcc_TL78208.pdf
Test Setup Photos	Radiated & Conducted Emission for Base	config photos.doc
Test Report	Conducted Emission Test Result	conduct_TL74208.pdf conduct_TL78208.pdf
External Photos	External Photo	external photos_TL74208.doc external photos_TL78208.doc
Internal Photos	Internal Photo	internal photos_TL74208.doc internal photos_TL78208.doc
Block Diagram	Block Diagram	block_TL74208.pdf block_TL78208.pdf
Schematics	Circuit Diagram	circuit_TL74208.pdf circuit_TL78208.pdf
ID Label/Location	Label Artwork and Location	label_TL74208.pdf label_TL78208.pdf
Users Manual	User Manual	manual1_TL74208.pdf, manual2_TL74208.pdf, manual3_TL74208.pdf, manual1_TL78208.pdf, manual2_TL78208.pdf, manual3_TL78208.pdf
Operational Description	Security Code Information	security code information_TL74208.pdf security code information_TL78208.pdf
Cover Letter	Letter of Agency	letter of agency.pdf
Cover Letter	Confidentiality Request	request.pdf

**EXHIBIT 1**  
**SUMMARY OF TEST RESULTS**

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INTERTEK TESTING SERVICES

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1.0 Summary of Test

**VTech Telecommunications Ltd.- MODEL: TL74x08, TL74x58, TL78x08**

**FCC ID: EW780-5656-00**

TEST	REFERENCE	RESULTS
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	Pass
Radiated Emission from Digital Section of Transceiver	15.109	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses a permanently attached antenna which, in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.



**EXHIBIT 2**  
**GENERAL DESCRIPTION**

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## INTERTEK TESTING SERVICES

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### 2.0 **General Description**

#### 2.1 Product Description

The TL74208 is a 5.8GHz/2.4GHz Frequency Hopping Spread Spectrum Cordless Phone with Caller ID, Speakerphone, Digital Answering Machine, and Corded Handset, while TL78208 is 5.8GHz/2.4GHz Frequency Hopping Spread Spectrum Cordless Phone with Caller ID, Speakerphone, and Digital Answering Machine. Their Base Unit and Handset operate at frequency of 5744.736MHz to 5825.952MHz and 2401.056MHz to 2482.272MHz respectively. The Base Unit consists of 95 physical hopping frequencies and 85 logical hopping frequencies, and the Handset consists of 95 physical hopping frequencies and 17 logical hopping frequencies. They are capable of either tone or pulse dialing. Their internal power supply's isolation is accomplished through a power transformer having an adequate dielectric rating. Their circuit wiring is consistent under the requirement of part 68.

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

The Base Unit of the Models: TL74x08 and TL74x58 are one of the Model: TL74208. The Base Unit of the Model: TL78x08 is one of the Model: TL78208. Their individual series is the same in hardware aspect except different number of handsets and chargers in a package as denoted as "x". The difference in model number serves as marketing strategy.

The circuit description is saved with filename: descri\_TL74208.pdf and descri\_TL78208.pdf. The receiver input bandwidth of the model TL74208, provided by the manufacturer is 620kHz. The receiver input bandwidth of the model TL78208, provided by the manufacturer is 624kHz.

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.

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## INTERTEK TESTING SERVICES

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### 2.2 Purpose of Application

The purpose of application is saved with filename: product change\_TL74208.pdf and product change\_TL78208.pdf

The RF module and FHSS algorithm/mechanism of the Base Unit are the same as the previous granted Model: MI6863 CI. Enclosure, baseband circuit and PCB layout are changed. Basic functionality and intended usage remain unchanged.

This is a single application for Certification of a DSS-Part 15 Spread Spectrum Cordless Telephone System. The FCC ID of the associated handset is EW780-5656-01 and has been granted before. A verification report has been prepared for the digital portion. The device is also subject to Part 68 Registration.

### 2.3 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. All other measurements were made in accordance with the procedures in 47 CFR Part 2.

### 2.4 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 3**  
**SYSTEM TEST CONFIGURATION**

### 3.0 **System Test Configuration**

#### 3.1 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 (if any) 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.

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.

#### 3.2 EUT Exercising Software

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

## INTERTEK TESTING SERVICES

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### 3.3 Details of EUT and Description of Peripherals

#### Details of EUT:

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

- (1) Base Unit, Model: TL74208 and TL78208: An AC adaptor (117VAC to 9VDC 600mA, Model: UD090060D)
- (2) Handset: A "Ni-MH" type rechargeable battery pack (3.6V 550mAh)
- (3) Backup Battery for Model: TL74208 - 3 x "AAA" size 1.5VDC battery

#### Description of Peripherals:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated
- (2) Handset, Model: TL78208, FCC ID: EW780-5656-01 (Supplied by Client)

## INTERTEK TESTING SERVICES

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### 3.4 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.

### 3.5 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 3.0 of this report are confirmed by:

*Confirmed by:*

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



\_\_\_\_\_  
Signature

\_\_\_\_\_  
December 29, 2007 Date

**EXHIBIT 4**  
**MEASUREMENT RESULTS**



## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208

Date of Test: November 20-28, 2007

### 4.0 **Measurement Results**

#### 4.1 Out of Band Conducted Emissions, FCC Rule 15.247(d):

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the following plots for out of band conducted emissions data:

Plot B6A1 -B6A2: Low Channel Emissions  
Plot B6B1 -B6B2: Middle Channel Emissions  
Plot B6C1 -B6C3: High Channel Emissions

For electronic filing, the above plots are saved with filenames: obantcon\_TL74208.pdf

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL78208

Date of Test: November 20-28, 2007

### 4.1 Out of Band Conducted Emissions, FCC Rule 15.247(d) - Continue:

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the following plots for out of band conducted emissions data:

Plot B6A1 - B6B2: Low Channel Emissions  
Plot B6B1 - B6B2: Middle Channel Emissions  
Plot B6C1 - B6C2: High Channel Emissions

For electronic filing, the above plots are saved with filenames: obantcon\_TL78208.pdf

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.2 Out of Band Radiated Emissions (for emissions in 4.3 above that are less than 20 dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

- Not required, all emissions more than 20 dB below fundamental
- See attached data sheet

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.3 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

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. All measurements were performed with peak detection unless otherwise specified.

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

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## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.4 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

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

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

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

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

#### Example

Assume a receiver reading of 62.0 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. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

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

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.5 Radiated Emission Configuration Photograph - Base Unit

Worst Case Radiated Emission

at

For TL74208: 4286.372 MHz & 11489.472 MHz

For TL78208: 5444.520 MHz

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

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.6 Radiated Emission Data - Base Unit

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

Judgement -

For TL74208: Passed by 6.2 dB compare with the peak limit

For TL78208: Passed by 6.1 dB compare with the peak limit

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### **TEST PERSONNEL:**



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*Tester Signature*

Melvin Nip, Lead Engineer  
*Typed/Printed Name*

December 29, 2007  
*Date*

## INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.  
 Model: TL74208  
 Mode : TX-Channel 0

Date of Test: November 20-28, 2007

Table 1, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (-dB)	Calculated at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4286.372	66.0	33	34.8	67.8	28.6	39.2	54.0	-14.8
H	*4803.810	62.3	33	34.9	64.2	28.6	35.6	54.0	-18.4
H	*11489.472	60.0	33	40.8	67.8	28.6	39.2	54.0	-14.8
H	*22978.944	44.2	33	38.3	49.5	28.6	20.9	54.0	-33.1

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4286.372	66.0	33	34.8	67.8	74.0	-6.2
H	*4803.810	62.3	33	34.9	64.2	74.0	-9.8
H	*11489.472	60.0	33	40.8	67.8	74.0	-6.2
H	*22978.944	44.2	33	38.3	49.5	74.0	-24.5

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. If 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.
  3. Negative value in the margin column shows emission below limit.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Melvin Nip



## INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.  
 Model: TL74208  
 Mode : TX-Channel 47

Date of Test: November 20-28, 2007

Table 2, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (-dB)	Calculated at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4246.326	62.0	33	34.8	63.8	28.6	35.2	54.0	-18.8
H	*4883.364	62.1	33	34.9	64.0	28.6	35.4	54.0	-18.6
H	*5148.000	58.7	33	35.7	61.4	28.6	32.8	54.0	-21.2
H	*11570.688	60.0	33	40.5	67.5	28.6	38.9	54.0	-15.1

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4246.326	62.0	33	34.8	63.8	74.0	-10.2
H	*4883.364	62.1	33	34.9	64.0	74.0	-10.0
H	*5148.000	58.7	33	35.7	61.4	74.0	-12.6
H	*11570.688	60.0	33	40.5	67.5	74.0	-6.5

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. If 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.
  3. Negative value in the margin column shows emission below limit.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Melvin Nip

## INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.  
 Model: TL74208  
 Mode : TX-Channel 94

Date of Test: November 20-28, 2007

Table 3, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (-dB)	Calculated at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4103.290	63.0	33	34.8	64.8	28.6	36.2	54.0	-17.8
H	*4203.362	64.6	33	34.8	66.4	28.6	37.8	54.0	-16.2
H	*4964.432	62.5	33	34.9	64.4	28.6	35.8	54.0	-18.2
H	*11651.904	59.8	33	40.5	67.3	28.6	38.7	54.0	-15.3

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4103.290	63.0	33	34.8	64.8	74.0	-9.2
H	*4203.362	64.6	33	34.8	66.4	74.0	-7.6
H	*4964.432	62.5	33	34.9	64.4	74.0	-9.6
H	*11651.904	59.8	33	40.5	67.3	74.0	-6.7

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. If 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.
3. Negative value in the margin column shows emission below limit.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Melvin Nip

## INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.  
 Model: TL78208  
 Mode : TX-Channel 0

Date of Test: November 20-28, 2007

Table 4, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (-dB)	Calculated at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4803.810	62.5	33	34.9	64.4	28.6	35.8	54.0	-18.2
H	*5444.520	65.2	33	35.7	67.9	28.6	39.3	54.0	-14.7
H	*11489.472	59.5	33	40.8	67.3	28.6	38.7	54.0	-15.3
H	*22978.944	43.9	33	38.3	49.2	28.6	20.6	54.0	-33.4

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4803.810	62.5	33	34.9	64.4	74.0	-9.6
H	*5444.520	65.2	33	35.7	67.9	74.0	-6.1
H	*11489.472	59.5	33	40.8	67.3	74.0	-6.7
H	*22978.944	43.9	33	38.3	49.2	74.0	-24.8

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. If 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.
3. Negative value in the margin column shows emission below limit.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Melvin Nip

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
 Model: TL78208  
 Mode : TX-Channel 47

Date of Test: November 20-28, 2007

Table 5, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (-dB)	Calculated at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4883.364	62.4	33	34.9	64.3	28.6	35.7	54.0	-18.3
H	*5148.000	58.7	33	35.7	61.4	28.6	32.8	54.0	-21.2
H	*11570.688	59.9	33	40.5	67.4	28.6	38.8	54.0	-15.2

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4883.364	62.4	33	34.9	64.3	74.0	-9.7
H	*5148.000	58.7	33	35.7	61.4	74.0	-12.6
H	*11570.688	59.9	33	40.5	67.4	74.0	-6.6

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. If 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.
3. Negative value in the margin column shows emission below limit.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Melvin Nip

## INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.  
 Model: TL78208  
 Mode : TX-Channel 94

Date of Test: November 20-28, 2007

Table 6, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (-dB)	Calculated at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4103.290	62.7	33	34.8	64.5	28.6	35.9	54.0	-18.1
H	*4964.432	62.9	33	34.9	64.8	28.6	36.2	54.0	-17.8
H	*11651.904	59.6	33	40.5	67.1	28.6	38.5	54.0	-15.5

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4103.290	62.7	33	34.8	64.5	74.0	-9.5
H	*4964.432	62.9	33	34.9	64.8	74.0	-9.2
H	*11651.904	59.6	33	40.5	67.1	74.0	-6.9

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. If 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.
3. Negative value in the margin column shows emission below limit.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Test Engineer: Melvin Nip

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

4.7 AC Line Conducted Emission, FCC Rule 15.207:

Not required; battery operation only

Test data attached

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.8 AC Line Conducted Configuration Photograph - Base Unit

Worst Case Line-Conducted Configuration

at

For TL74208: 29.625 MHz

For TL78208: 7.115 MHz

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

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

### 4.9 AC 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 -

For TL74208: Passed by 8.2 dB margin

For TL78208: Passed by 7.1 dB margin

For electronic filing, the worst case line conducted emission data are saved with filename: conduct\_TL74208.pdf and conduct\_TL78208.pdf

### **TEST PERSONNEL:**



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*Tester Signature*

Melvin Nip, Lead Engineer  
*Typed/Printed Name*

December 29, 2007  
*Date*



## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208, TL78208

Date of Test: November 20-28, 2007

4.10 Radiated Emissions from Digital Section of Transceiver (Transmitter), FCC Ref:  
15.109

Not required - No digital part

Test results are attached

Included in the separated DOC report.

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## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208  
Mode: Talk

Date of Test: November 20-28, 2007

Table 7, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	30.946	45.5	16	10.0	39.5	40.0	-0.5
V	41.314	38.4	16	10.0	32.4	40.0	-7.6
H	82.800	42.0	16	7.0	33.0	40.0	-7.0
H	165.528	31.6	16	17.0	32.6	43.5	-10.9
H	207.737	31.4	16	17.0	32.4	43.5	-11.1
H	248.210	29.6	16	20.0	33.6	46.0	-12.4
H	290.826	28.2	16	22.0	34.2	46.0	-11.8
H	343.074	30.7	16	24.0	38.7	46.0	-7.3
H	398.062	26.4	16	25.0	35.4	46.0	-10.6

- NOTES:
1. Quasi-peak detector is used for the emission below or equal to 1000 MHz.
  2. All measurements were made at 3 meters. If 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.
  3. Negative value in the margin column shows emission below limit.

Test Engineer: Melvin Nip

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## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL78208  
Mode: Talk

Date of Test: November 20-28, 2007

Table 8, Base Unit

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	30.456	43.2	16	10.0	37.2	40.0	-2.8
V	41.537	38.6	16	10.0	32.6	40.0	-7.4
V	82.606	41.8	16	7.0	32.8	40.0	-7.2
H	165.736	32.4	16	17.0	33.4	43.5	-10.1
H	207.249	33.2	16	17.0	34.2	43.5	-9.3
H	248.537	31.6	16	20.0	35.6	46.0	-10.4
H	290.606	29.7	16	22.0	35.7	46.0	-10.3
H	343.748	30.6	16	24.0	38.6	46.0	-7.4
H	398.346	25.8	16	25.0	34.8	46.0	-11.2

- NOTES: 1. Quasi-peak detector is used for the emission below or equal to 1000 MHz.
2. All measurements were made at 3 meters. If 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.
3. Negative value in the margin column shows emission below limit.

Test Engineer: Melvin Nip

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL74208

Date of Test: November 20-28, 2007

### 4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEEP function on the analyzer was set to ZERO SPAN. The transmitter ON time was determined from the resultant time-amplitude display:

$$\begin{aligned} \text{Duty cycle (DC)} &= \text{Maximum ON time in } 100\text{ms}/100\text{ms} \\ &= (0.920\text{ms} \times 4)/100\text{ms} \text{ for 4 handsets operation} \end{aligned}$$

$$\begin{aligned} \text{Duty cycle correction, dB} &= 20 * \log (\text{DC}) \\ &= 20 * \log (0.0368) \\ &= -28.6 \text{ dB} \end{aligned}$$

X	See attached spectrum analyzer chart (s) for transmitter timing Base Unit: Plots B7A
	See transmitter timing diagram provided by manufacturer
	Not applicable, duty cycle was not used.

For electronic filing, the above plots are saved with filenames: dcc\_TL74208.pdf

## INTERTEK TESTING SERVICES

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Company: VTech Telecommunications Ltd.  
Model: TL78208

Date of Test: November 20-28, 2007

### 4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c) - Continue

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEEP function on the analyzer was set to ZERO SPAN. The transmitter ON time was determined from the resultant time-amplitude display:

$$\begin{aligned} \text{Duty cycle (DC)} &= \text{Maximum ON time in 100ms/100ms} \\ &= (0.920\text{ms} \times 4)/100\text{ms for 4 handsets operation} \end{aligned}$$

$$\begin{aligned} \text{Duty cycle correction, dB} &= 20 * \log (\text{DC}) \\ &= 20 * \log (0.0368) \\ &= -28.6 \text{ dB} \end{aligned}$$

X	See attached spectrum analyzer chart (s) for transmitter timing Base Unit: Plot B7B
	See transmitter timing diagram provided by manufacturer
	Not applicable, duty cycle was not used.

For electronic filing, the above plots are saved with filenames: dcc\_TL78208.pdf

**EXHIBIT 5  
EQUIPMENT PHOTOGRAPHS**

5.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos\_TL74208.doc, external photos\_TL78208.doc, internal photos\_TL74208.doc, and internal photos\_TL78208.doc.

**EXHIBIT 6**  
**PRODUCT LABELLING**



6.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and location is saved with filename:  
label\_TL74208.pdf and label\_TL78208.pdf

**EXHIBIT 7**  
**TECHNICAL SPECIFICATIONS**

7.0 **Technical Specifications**

For electronic filing, the block diagram and circuit diagram are saved with filename: block\_TL74208.pdf, block\_TL78208.pdf, circuit\_TL74208.pdf, and circuit\_TL78208.pdf respectively.

**EXHIBIT 8**  
**INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 8.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual1\_TL74208.pdf, manual2\_TL74208.pdf, manual3\_TL74208.pdf and manual1\_TL78208.pdf, manual2\_TL78208.pdf, manual3\_TL78208.pdf

Please note that the required FCC Information to the User is on P.63 of Instruction Manual.

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

**EXHIBIT 9**  
**SECURITY CODE INFORMATION**

### 9.0 **Security Code Information**

For electronic filing, a copy of the security code information is saved with filename: security code information\_TL74208.pdf and security code information\_TL78208.pdf

**EXHIBIT 10**  
**LETTER OF AGENCY**



10.0 **Letter of Agency**

A copy of the Letter of Agency is saved as filename: letter of agency.pdf

**EXHIBIT 11**  
**CONFIDENTIALITY REQUEST**

11.0 **Confidentiality Request**

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