

VTech Telecommunications Ltd.

Application

For

47 CFR Part 15 Certification – Permissive Change Class II

&

RSS-213 – Permissive Change Class I

Unlicensed Personal Communication Service Devices/
2 GHz License-exempt Personal Communications Service Devices

(Base Unit)

FCC ID: EW780-6948-00

Model: EL52xy9

IC: 1135B-80694800

Model: EL52409

Test Report Number: HK09031165-1

Issue Date: May 09, 2009

KS/cl

- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Intertek Testing Services Hong Kong Ltd.

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-ettsemko.com

INTERTEK TESTING SERVICES

Table of Contents

1.0 Summary of Test Results	4
2.0 General Description	6
2.1 Product Description	6
2.2 Technical Description	6
2.3 Purpose of Applicable.....	7
2.4 Test Methodology.....	7
2.5 Test Facility.....	7
3.0 System Test Configuration	9
3.1 Justification	9
3.2 EUT Exercising Software.....	9
3.3 Details of EUT and Description of Peripherals	10
3.4 Measurement Uncertainty	11
3.5 Equipment Modification	11
4.0 Measurement Results	13
4.1 Antenna Requirement	13
4.2 Directional Gain of the Antenna	13
4.3 Emissions Outside the Sub-Band	14
4.3.1 Radiated Emissions Configuration Photographs	15
4.3.2 Radiated Emissions Data	15
4.3.3 Field Strength Calculation.....	21
4.3.4 Average Factor Calculation and Transmitter ON Time Measurements	22
4.4 Radiated Emissions from Receiver	23
4.4.1 Radiated Emissions Configuration Photographs	24
4.4.2 Radiated Emissions Data	24
4.5 AC Power Lines Conducted Emissions from Transmitter portion of EUT	26
4.5.1 AC Power Lines Conducted Emissions Configuration Photographs.....	27
4.5.2 AC Power Line Conducted Emissions Data	27
4.6 Radio Frequency Radiation Exposure	28
4.7 Radio Frequency Exposure Compliance.....	28
4.8 Monitoring Antenna	29
5.0 Equipment List	30
Appendix – Exhibits of Application for Certification	

**EXHIBIT 1
SUMMARY OF TEST RESULTS**

INTERTEK TESTING SERVICES

1.0 Summary of Test Results

VTech Telecommunications Ltd.

FCC ID: EW780-6948-00

MODEL: EL52xy9

IC: 1135B-80694800

MODEL: EL52109, EL52409

Technical Requirements					
Test Items	RSS-213 / RSS-Gen [#] Clause	FCC Part 15 Section	Test Procedure ANSI C63.17 / ANSI C63.4 *	Results	Details see section
Antenna Requirement	7.1.4 [#]	15.317	---	Pass	4.1
Directional Gain of the Antenna	4.1(e)	15.319(e)	4.3.1	Pass	4.2
Emissions Outside the Sub-Band	6.7.1	15.323(d)	6.1.6.2	Pass	4.3
AC Power Lines Conducted Emissions from EUT	6.3	15.315	7 *	Pass	4.4
Radiated Emissions from Receiver Portion of EUT	6.8	---	8 *	Pass	4.5
Radio Frequency Radiation Exposure	RSS-102	15.319(i)	---	Pass	4.6
Monitoring Antenna	4.3.4(b8)	15.323(c)(8)	4	Pass	4.8

Test Engineer:



Simple Shum
Engineer

Date: May 09, 2009

Approved By:



Sit Kim Wai, Ken
Assistant Manager

Date: May 09, 2009

**EXHIBIT 2
GENERAL DESCRIPTION**

INTERTEK TESTING SERVICES

2.0 General Description

2.1 Product Description

The EL52109 is a 1.9GHz Digital Modulation Cordless Phone with Caller ID, with Speakerphone and Digital Answering Machine - Base Unit. It operates at frequency range of 1921.536 MHz to 1928.448 MHz with 5 channels (1921.536MHz, 1923.264MHz, 1924.992MHz, 1926.720MHz and 1928.448MHz). The Base Unit is powered by AC adaptor; Brand: Ten Pao 100-120VAC to 6VDC 400mA.

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

The Model: EL52xy9 is the one of the Model: EL52109, and the Model: EL52409 is the same as the Model: EL52109 in hardware aspect. Suffix (xy) indicates different number of handset and packaging. The difference in model number serves as marketing strategy.

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.

2.2 Technical Description

The circuit description and digital modulation techniques description are saved as filename: descri.pdf.

INTERTEK TESTING SERVICES

2.3 Purpose of Applicable

The purpose of change is saved as filename: product change.pdf

This is an application for Certification of a PUB - Part 15 Unlicensed PCS Base Station. A Verification has been prepared for the digital portion.

2.4 Test Methodology

The radiated emission measurements for unintentional radiator (if any) and AC power line-conducted emission measurements were performed according to the test procedures specified in ANSI C63.4 (2003). The radiated emission measurements for intentional radiator contained in UPCS device, were performed according to the test procedures specified in ANSI C63.17 (2006). All radiated 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 / RSS-Gen Issue 2 (2007).

2.5 Test Facility

The open area test site and conducted measurement facility used to collect the emission 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 and Industry Canada.

**EXHIBIT 3
SYSTEM TEST CONFIGURATION**

INTERTEK TESTING SERVICES

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) was setup to transmit continuously in burst mode with pseudo-random data 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 (if any) 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 base unit attached to peripherals, they were connected and operational (as typical as possible).

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. Detector function was in peak mode. Radiated emissions are 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.

For UPCS transmitter radiated measurement, the spectrum analyzer resolution bandwidth was approximately 1% of EUT emission bandwidth, unless otherwise specified.

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

Radiated emission measurements for UPCS transmitter were performed from 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. Receiver was performed from 30 MHz to the fifth harmonic of the highest frequency or 40 GHz, whichever is lower.

RF module for base unit of EL52109 is the same with original granted model CS6229-2. Therefore conducted emission measurement for emission bandwidth, peak transmit power, power spectral density, emissions inside the sub-bands, frame repetition stability, frame period and jitter, carrier stability and listen before transmit requirements for EL52109 are skipped.

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

3.3 Details of EUT and Description of Peripherals

Details of EUT:

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

- (1) AC adaptor (100-120VAC to 6VDC 400mA, Brand: Ten Pao, Model: S005IU0600040) (Supplied by Client)

Description of Peripherals:

- (1) Handset, Model: EL52109, FCC ID: EW780-6948-00 (Supplied by Client)
- (2) Handset: "Ni-MH" type rechargeable battery pack (2.4V 450mAh, 500mAh, 550mAh, 750mAh) (Supplied by Client)
- (3) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)

INTERTEK TESTING SERVICES

3.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty 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.

3.6 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/Canada.

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

**EXHIBIT 4
MEASUREMENT RESULTS**

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.0 **Measurement Results**

4.1 Antenna Requirement, FCC Rule 15.317 / RSS-Gen Clause 7.1.4:

EUT must meet the antenna requirement of FCC Rule 15.203 / RSS-Gen Clause 7.1.4.

- ☒ EUT uses a permanently attached antenna which is considered sufficient to comply with the provisions of this rule. Please refer to internal photos.pdf for more details.
- ☐ EUT uses a unique antenna jack or electrical connector which is considered sufficient to comply with the provisions of this rule. Please refer to internal photos.pdf for more details.

4.2 Directional Gain of the Antenna, FCC Rule FCC 15.319(e) / RSS-213 Clause 4.1(e):

The peak transmit power shall be reduced by the amount in dB that the maximum directional gain of the antenna exceeds 3 dBi.

The requirements are made in accordance with ANSI C63.17 sub-clause 4.3.1 / RSS-213 Clause 4.1(e).

- ☒ Manufacturer declares that the directional gain of the antenna is less than or equal to 3dBi. No peak transmit power reduction is required.
- ☐ Manufacturer declares that the directional gain of the antenna is greater than 3dBi. The peak transmit power shall be reduced by _____ dB.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.3 Emissions Outside the Sub-Band, FCC Rule 15.323(d) / RSS-213 Clause 6.7.1:

Emissions outside the sub-band shall be attenuated below a reference power of 112 mW (20.5 dBm) as follows:

1. 30 dB between the band edge and 1.25 MHz above or below the band;
2. 50 dB between 1.25 and 2.5 MHz above or below the band; and
3. 60 dB at 2.5 MHz or greater above or below the band, or shall meet the requirement of FCC Rule 15.319(g) which shall not exceed the limits of FCC Rule 15.209 / RSS-210 Clause 2.6.

Example: Calculation of Limit for emissions between the band edge and 1.25 MHz (1920.000 – 1918.750 MHz)

The emissions shall not exceed the Limit: 20.5 dBm – 30 dB = -9.5 dBm

Measurements are made in accordance with ANSI C63.17 sub-clause 6.1.6.2. As EUT has non-detachable antenna(s), radiated emissions test method is used for out-of-band emissions tests. Emissions that are directly caused by digital circuits in the transmit path and transmitter portion are measured. Test setup and procedures are described in section 3.2 Figure 3.2.1.

Test Results:

Channel	Carrier Frequency (MHz)	Measured Band (MHz)	Limit (dBm)	Results
Lowest	1921.536	1920.000 - 1918.750	-9.5	Pass
		1918.750 - 1917.500	-29.5	Pass
		0.009 - 1917.500 & 1932.500 - 19300.000	-39.5 / FCC Rule 15.209 / RSS-210 Clause 2.6	Pass
Highest	1928.448	1930.000 - 1931.250	-9.5	Pass
		1931.250 - 1932.500	-29.5	Pass
		0.009 - 1917.500 & 1932.500 - 19300.000	-39.5/ FCC Rule 15.209 / RSS-210 Clause 2.6	Pass

Please refer to the section 4.1.1 to 4.1.4 for more details.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Transmission

Date of Test: March 31-April 30, 2009

4.3.1 Radiated Emissions Configuration Photographs:

Worst Case Radiated Emission
at

7713.792 MHz

The worst case radiated emission configuration photographs are saved as filename: config photos.pdf

4.3.2 Radiated Emissions Data:

Data are 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 in table 1-5 list the significant emission frequencies, the limit and the margin of compliance.

Judgement:

Passed by 0.2 dB margin compare with the average limit

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Transmission

Date of Test: March 31-April 30, 2009

Table 1

Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1
Emissions Requirements

Lowest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	1917.026	-52.0	-39.5	-12.5
V	1918.254	-49.4	-29.5	-19.9
V	1919.086	-46.6	-9.5	-37.1

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Transmission

Date of Test: March 31-April 30, 2009

Table 2

Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.209 / RSS-210 Clause 2.6
Emissions Requirements

Lowest Channel

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (dB)	Calculated at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
V	3843.072	60.1	33	33.3	60.4	15.6	44.8	54.0	-9.2
H	5764.608	63.0	33	36.6	66.6	15.6	51.0	54.0	-3.0
H	7686.144	63.3	33	38.9	69.2	15.6	53.6	54.0	-0.4
H	9607.680	58.9	33	40.4	66.3	15.6	50.7	54.0	-3.3
H	11529.216	52.9	33	40.5	60.4	15.6	44.8	54.0	-9.2

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
V	3843.072	60.1	33	33.3	60.4	74.0	-13.6
H	5764.608	63.0	33	36.6	66.6	74.0	-7.4
H	7686.144	63.5	33	38.9	69.4	74.0	-4.6
H	9607.680	58.9	33	40.4	66.3	74.0	-7.7
H	11529.216	52.9	33	40.5	60.4	74.0	-13.6

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Transmission

Date of Test: March 31-April 30, 2009

Table 3

Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1
Emissions Requirements

Highest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	1930.125	-46.7	-9.5	-37.2
V	1931.452	-50.3	-29.5	-20.8
V	1933.086	-51.8	-39.5	-12.3

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Transmission

Date of Test: March 31-April 30, 2009

Table 4

Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.209 / RSS-210 Clause 2.6
Emissions Requirements

Highest Channel

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (dB)	Calculated at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
V	3856.896	60.5	33	33.3	60.8	15.6	45.2	54.0	-8.8
H	5785.344	62.6	33	36.6	66.2	15.6	50.6	54.0	-3.4
H	7713.792	63.5	33	38.9	69.4	15.6	53.8	54.0	-0.2
H	9642.240	58.9	33	40.4	66.3	15.6	50.7	54.0	-3.3
H	11570.688	52.7	33	40.5	60.2	15.6	44.6	54.0	-9.4

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
V	3856.896	60.5	33	33.3	60.8	74.0	-13.2
H	5785.344	62.6	33	36.6	66.2	74.0	-7.8
H	7713.792	63.7	33	38.9	69.6	74.0	-4.4
H	9642.240	58.9	33	40.4	66.3	74.0	-7.7
H	11570.688	52.7	33	40.5	60.2	74.0	-13.8

NOTES:

- 1 Peak detector is used for the emission measurement.
- 2 All measurements were made at 3 meters.
- 3 Negative value in the margin column shows emission below limit.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Base Talk Mode

Date of Test: March 31-April 30, 2009

Table 5

Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1
Emissions Requirements

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	55.300	-61.6	-39.5	-22.1
V	82.950	-61.4	-39.5	-21.9
H	110.600	-61.4	-39.5	-21.9
H	138.250	-61.0	-39.5	-21.5
H	165.900	-61.1	-39.5	-21.6
H	193.550	-61.7	-39.5	-22.2
H	221.120	-62.8	-39.5	-23.3
H	276.500	-63.0	-39.5	-23.5

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.3.3 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 μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ 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 μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dB μ V/m. This value in dB μ V/m is converted to its corresponding level in μ V/m.

RA = 62.0 dB μ V
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10 dB

$$FS = 62.0 + 7.4 + 1.6 - 29.0 + 0.0 + (-10.0) = 32.0 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm } [(32.0 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.3.4 Average Factor Calculation and Transmitter ON Time Measurements, FCC Rule 15.35(b, c) / RSS-Gen cl 4.5

Base Unit: (For 4 handsets, single-slot operation with dummy)

Duty Cycle (DC) = Maximum ON time in 10ms/10ms
= (4 x 1 x 0.388ms + 0.102ms)/10ms

Average Factor (AF) = 20 log (DC)
= 20* log (0.1654)
= -15.6 dB

[x] 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 SPAN function on the analyzer was set to ZERO. The transmitter ON time was determined from the resultant time-amplitude display:

Please refer to the attached plots for more details:

The plots of Transmitter ON Time Measurements are saved as filename: dcc.pdf

[] Please refer to the attached transmitter timing diagram that are provided by manufacturer

[] Not applicable - No average factor is required.

[] Please refer to Technical Description (descri.pdf) for more details

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.4 Radiated Emissions from Receiver, RSS-213 Clause 6.8

The receiver portion is subject to the requirements of RSS-Gen Clause 7.2.3.2 and the radiated emission shall not exceed the limits of Table 1 in RSS-Gen Clause 6 (a).

Measurements are made in accordance with ANSI C63.4 sub-clause 8. Radiated emissions shall be measured with EUT operating in typical operation modes.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Base Unit Receiving

Date of Test: March 31-April 30, 2009

4.4.1 Radiated Emissions Configuration Photographs:

Worst Case Radiated Emission
at

2565.504 MHz

The worst case radiated emission configuration photographs are saved as filename:
config photos.pdf

4.4.2 Radiated Emissions Data:

Data are 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 in table 6 list the significant emission frequencies, the limit and the margin of compliance.

Judgement:

Passed by 0.6 dB Margin

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Base Unit Receiving

Date of Test: March 31-April 30, 2009

Table 6

Radiated Emissions Data Pursuant To RSS-213 Clause 6.8 Emissions Requirements

Middle Channel

Polarization	Frequency (MHz)	Reading (dB μ V/m)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	1282.752	50.5	33	26.1	43.6	54.0	-10.4
V	2565.504	56.0	33	30.4	53.4	54.0	-0.6
H	3848.256	43.5	33	33.3	43.8	54.0	-10.2
H	5131.008	41.9	33	35.7	44.6	54.0	-9.4
H	7696.512	36.9	33	38.9	42.8	54.0	-11.2
H	10262.016	34.6	33	40.5	42.1	54.0	-11.9

NOTES:

1. Peak detector is used for the emission measurement.
2. The resolution bandwidth of the spectrum analyzer shall be 100kHz for spurious emission measurements below 1.0GHz and 1.0MHz for measurements above 1.0GHz.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.5 AC Power Lines Conducted Emissions from Transmitter portion of EUT, FCC Rule 15.315 / RSS-213 Clause 6.3:

The AC power lines conducted emission shall not exceed the limits of FCC Rule 15.207 / Table 2 in RSS-Gen Clause 7.2.2.

Measurements are made in accordance with ANSI C63.4 sub-clause 7. Emissions that are directly caused by digital circuits in the transmit path and transmitter portion are measured.

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

☒ EUT connects to AC power lines. Emission Data are listed in following pages. Please refer to the section 4.3.1 to 4.3.2 for more details.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109
Mode: Talk

Date of Test: March 31-April 30, 2009

4.5.1 AC Power Lines Conducted Emissions Configuration Photographs:

Worst Case AC Power Line Conducted Emission

The worst case AC power Line conducted emission configuration photographs are saved as filename: config photos.pdf

4.5.2 AC Power Line Conducted Emissions Data:

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

Judgment:

Passed by more than 20 dB margin

The worst case AC power line conducted emission data are saved as filename: conduct.pdf

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.6 Radio Frequency Radiation Exposure, FCC Rule 15.319(i):

EUT is subject to the radio frequency exposure requirements specified in FCC Rule §§ 1.1307(b), 2.1091 and 2.1093. It shall be considered to operate in a “general population / uncontrolled” environment.

[] 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. A SAR test report was submitted at same time and saved as SAR Report.pdf.

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

4.7 Radio Frequency Exposure Compliance, RSS-102:

The Routine RF Exposure Evaluation, Routine SAR Evaluation and Declaration of RF Exposure Compliance are saved as filename: RF exposure.pdf

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: EL52109

Date of Test: March 31-April 30, 2009

4.8 Monitoring Antenna, FCC Rule 15.323(c)(8) / RSS-213 Clause 4.3.4(b)(8):

The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.

- ☒ EUT uses the same antenna used for transmission and monitoring that is in compliance meet above provision.
- ☐ EUT uses difference antenna used for transmission and monitoring. It must be verified that the monitoring antenna provides coverage equivalent to that of the transmitting antenna. Measurements are made in accordance with ANSI C63.17 sub-clause 4.

INTERTEK TESTING SERVICES

5.0 Equipment List

1) Radiated Emissions Test

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0954	EW-0446	EW-1015
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	Sep. 30, 2008	Oct. 02, 2008	Jul. 28, 2008
Calibration Due Date	Mar. 30, 2010	Apr. 02, 2010	Jan. 28, 2010

Equipment	EMI Test Receiver	Spectrum Analyzer	RF Pre-Amplifier
Registration No.	EW-0014	EW-2188	EW-1779a
Manufacturer	R&S	AGILENTTECH	MITEQ
Model No.	ESVS30	E4407B	AMF-4D-001120-34-13P
Calibration Date	May 09, 2008	Dec. 18, 2008	Jul. 05, 2008
Calibration Due Date	May 09, 2009	Dec. 18, 2009	Aug. 01, 2009

2) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN	Pulse Limiter
Registration No.	EW-2251	EW-0192	EW-0700
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	Oct. 28, 2008	Nov. 12, 2008	Dec. 04, 2007
Calibration Due Date	Oct. 28, 2009	Nov. 12, 2009	Jun. 04, 2009