

VTech Telecommunications Ltd.

Application
For
47 CFR Part 15 Certification Class II Permissive Change
Unlicensed Personal Communication Service Devices
(Base Unit)

FCC ID: EW780-7285-00
Model: CL81XY0

Test Report Number: HK09120022-1

Issue Date: December 22, 2009

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MEASUREMENT/TECHNICAL REPORT

VTech Telecommunications Ltd. - Model: CL81XY0
FCC ID: EW780-7285-00

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

Equipment Type : PUB - Part 15 Unlicensed PCS Base Station

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 D for Unlicensed Personal Communication Service Device - the new 47 CFR [10-01-08 Edition] Provision.

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**EXHIBIT 1
SUMMARY OF TEST RESULTS**

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1.0 Summary of Test Results

VTech Telecommunications Ltd.

FCC ID: EW780-7285-00

MODEL: CL81XY0

General Technical Requirements				
Test Items	FCC Part 15 Section	Test Procedure ANSI C63.17 / ANSI C63.4 *	Results	Details see section
Antenna Requirement	15.317	---	Pass	4.1
Directional Gain of the Antenna	15.319(e)	4.3.1	Pass	4.2
AC Power Lines Conducted Emissions from EUT	15.315	7 *	Pass	4.4
Emissions Outside the Sub-Band	15.323(d)	6.1.6.2	Pass	4.3
Monitoring Antenna	15.323(c)(8)	4	Pass	4.5

Test Engineer:



Simple Shum
Engineer

Date: December 22, 2009

Approved By:



Sit Kim Wai, Ken
Manager

Date: December 22, 2009

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**EXHIBIT 2
GENERAL DESCRIPTION**

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2.0 General Description

2.1 Product Description

The Model: CL81200 is a 1.9GHz Modulation Cordless Phone with Caller ID and Speakerphone. It operates at frequency range of 1921.536MHz to 1928.448MHz with 5 channels (1921.536MHz, 1923.264MHz, 1924.992MHz, 1926.720MHz and 1928.448MHz).

Base Unit CL81200 is powered by an AC adaptor: 117VAC to 6VAC 300mA, Model: U060030A12V.

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

The Model series: CL81XY0 are the same as the Model: CL81200 in hardware aspect. Suffix (X) indicates different number of handset, suffix (Y) indicates different color and packages material. The difference in model number serves as the marketing strategy.

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.

2.2 Purpose of Application

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

2.3 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.

2.4 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.

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**EXHIBIT 3
SYSTEM TEST CONFIGURATION**

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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.

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.

RF module for base unit of CL81200 is the same with original granted model CL82200. Therefore conducted emission measurement for CL81200 are skipped.

As the base unit has 2 antennas, both have been checked. While conducting the test on one of antennas, another one was being disable its transmission. The data in this report represented the worst-case.

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.

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3.3 Details of EUT and Description of Peripherals

Details of EUT:

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

- (1) Base Unit: An AC adaptor (117VAC to 6VAC, 300mA, Model: U060030A12V) (Supplied by Client)

Description of Peripherals:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)
- (2) Handset: A "Ni-MH" type rechargeable battery pack (2.4V, 400mAh) (Supplied by Client)
- (3) Telephone Line Simulator, Model :TLS-5D-01, S/N: 151101 (Supplied by Intertek)
- (4) Handset, Model: CL82200, FCC ID: EW780-7285-00 (Supplied by Client)
- (5) 3m Telephone Line (Supplied by Intertek)

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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 Commercial & Electrical Division, Intertek Testing Services Hong Kong Ltd.

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**EXHIBIT 4
MEASUREMENT RESULTS**

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Company: VTech Telecommunications Ltd.
Model: CL81200

Date of Test: December 08-10, 2009

4.0 **Measurement Results**

4.1 Antenna Requirement, FCC Rule 15.317:

EUT must meet the antenna requirement of FCC Rule 15.203.

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):

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.

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: CL81200

Date of Test: December 08-10, 2009

4.3 Emissions Outside the Sub-Band, FCC Rule 15.323(d):

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.

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 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	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	Pass

Please refer to the section 4.3.1 to 4.3.4 for more details.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.

Date of Test: December 08-10, 2009

Model: CL81200

Mode: Transmission

4.3.1 Radiated Emissions Configuration Photographs:

Worst Case Radiated Emission
at

3856.896 MHz and 3843.072 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 1-3 list the significant emission frequencies, the limit and the margin of compliance.

Judgement:

Passed by 0.8 dB margin

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: CL81200
Mode: Transmission

Date of Test: December 08-10, 2009

Table 1, Base Unit

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d)
Emissions Requirements**

Lowest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	1919.850	-35.6	-9.5	-26.1
V	1917.869	-45.8	-29.5	-16.3
V	1917.101	-52.4	-39.5	-12.9
H	3843.072	-40.3	-39.5	-0.8
H	5764.608	-40.6	-39.5	-1.1
H	7686.144	-40.5	-39.5	-1.0
H	9607.680	-45.0	-39.5	-5.5
H	11529.216	-45.2	-39.5	-5.7

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: CL81200
Mode: Transmission

Date of Test: December 08-10, 2009

Table 2, Base Unit

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d)
Emissions Requirements**

Highest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	1930.013	-35.8	-9.5	-26.3
V	1931.686	-46.0	-29.5	-16.5
V	1933.471	-52.7	-39.5	-13.2
H	3856.896	-40.3	-39.5	-0.8
H	5785.344	-40.6	-39.5	-1.1
H	7713.792	-40.4	-39.5	-0.9
H	9642.240	-45.0	-39.5	-5.5
H	11570.688	-45.2	-39.5	-5.7

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.

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Company: VTech Telecommunications Ltd.

Date of Test: December 08-10, 2009

Model: CL81200

Mode: Talk

Table 3, Base Unit

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d)
Emissions Requirements**

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	55.300	-63.3	-39.5	-23.8
V	82.950	-63.4	-39.5	-23.9
V	110.600	-64.0	-39.5	-24.5
H	138.250	-63.2	-39.5	-23.7
H	193.550	-63.9	-39.5	-24.4
H	221.200	-65.0	-39.5	-25.5

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.

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Company: VTech Telecommunications Ltd.
Model: CL81200

Date of Test: December 08-10, 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

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

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

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: CL81200

Date of Test: December 08-10, 2009

4.3.4 Average Factor Calculation and Transmitter ON Time 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 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: txon.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

4.4 AC Power Line Conducted Emissions from Transmitter portion of EUT, FCC Rule 15.315:

The AC power line conducted emission shall not exceed the limits of FCC Rule 15.207.

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 line. Emission Data is listed in following pages.

- Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

INTERTEK TESTING SERVICES

Company: VTech Telecommunications Ltd.
Model: CL81200
Mode: Talk

Date of Test: December 08-10, 2009

4.4.1 AC Power Line 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

4.4.2 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: CL81200

Date of Test: December 08-10, 2009

4.5 Monitoring Antenna, FCC Rule 15.323(c)(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.

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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	Broad-Band Horn Antenna
Registration No.	EW-0014	EW-2188	EW-1679
Manufacturer	R&S	AGILENTTECH	SCHWARZBECK
Model No.	ESVS30	E4407B	BBHA9170
Calibration Date	Jun. 01, 2009	Dec. 18, 2008	Feb. 10, 2009
Calibration Due Date	Jun. 01, 2010	Dec. 18, 2009	Feb. 10, 2010

2) Conducted Emissions Test

Equipment	EMI Test Receiver	Artificial Mains	Pulse Limiter
Registration No.	EW-0017	EW-0090	EW-0700
Manufacturer	R&S	R&S	R&S
Model No.	ESHS30	ESH3-Z5	ESH3-Z2
Calibration Date	Jun. 01, 2009	Jan. 20, 2009	Jun. 08, 2009
Calibration Due Date	Jun. 01, 2010	Jan. 20, 2010	Dec. 08, 2010