

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

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TEST REPORT

Report Number: 13010771HKG-002

Application
for
Original Grant of 47 CFR Part 15 Certification
Single New of RSS-210 Issue 8 Equipment Certification

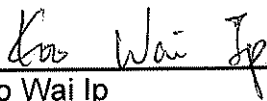
1.9GHz Digital Modulation Cordless Phone with Caller ID and Widex
(Handset Widex Portion)

FCC: EW780-8938-00

IC: 1135B-80893800

Prepared and Checked by:

Approved by:



Koo Wai Ip
Senior Lead Engineer



Nip Ming Fung, Melvin
Assistant Manager
April 02, 2013

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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-etlsemko.com

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GENERAL INFORMATION

Applicant Name:	VTech Telecommunications Ltd.
Applicant Address:	23/F., Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, N.T., Hong Kong.
FCC Specification Standard:	FCC Part 15, October 1, 2011 Edition
FCC:	EW780-8938-00
FCC Model(s):	PHONE-DEX USC
IC Specification Standard:	RSS-210 Issue 8, December 2010 RSS-Gen Issue 3, December 2010
IC:	1135B-80893800
IC Model(s):	PHONE-DEX USC
Type of EUT:	Transmitter
Description of EUT:	1.9GHz Digital Modulation Cordless Phone with Caller ID and Widex (Handset Widex Portion)
Serial Number:	N/A
Sample Receipt Date:	January 22, 2013
Date of Test:	February 05, 2013
Report Date:	April 02, 2013
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

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EXHIBIT 1
TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

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1.0 Test Results Summary & Statement of Compliance

1.1 Summary of Test Results

Test Items	FCC Part 15 Section	RSS-210/ RSS-Gen [#] / RSS-310 [^] Section	Results	Details see section
Antenna Requirement	15.203	7.1.2 [#]	Pass	2.1
Security Code Information	15.214(d)	2.4	Pass	2.1
Radiated Emission	15.209	2.5	Pass	4.2
Radiated Emission in Restricted Bands	15.205	2.2	Pass	4.2
AC Power Line Conducted Emission	15.207	7.2.4 [#]	N/A	4.3

Note: Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

1.2 Statement of Compliance

The equipment under test is found to be complying with the following standards:

FCC Part 15, October 1, 2011 Edition
RSS-210 Issue 8, December 2010
RSS-Gen Issue 3, December 2010

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EXHIBIT 2
GENERAL DESCRIPTION

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2.0 General Description

2.1 Product Description

The PHONE-DEX USC is a 1.9GHz Digital Modulation Cordless Phone with Caller ID and Widex (Handset Widex Portion). It operates at 10.600MHz. With the wireless Widex hearing aids, the audio signal from the handset is transmitted directly into the corresponding hearing aid. The Handset is powered by a Ni-MH type rechargeable battery pack (2.4V, 500mAh).

The Widex antenna used in handset is integral, and the test sample is a prototype.

The circuit description is saved with filename: descri.pdf.

2.2 Test Methodology

Radiated emission measurements was performed according to the procedures in ANSI C63.4 (2009). Preliminary radiated scans and all radiated measurements were performed in Open Area Test Sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

2.3 Test Facility

The open area test site facility used to collect the radiated data is at Roof Top of Intertek Testing Services Hong Kong Ltd., which 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 the Industry Canada.

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EXHIBIT 3
SYSTEM TEST CONFIGURATION

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3.0 System Test Configuration

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The handset was powered by a fully charged battery.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT attached to peripherals, they were connected and operational to simulate typical use.

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. Radiated emissions were 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 transmitter radiated measurement, the spectrum analyzer resolution bandwidth was 100 kHz for frequencies below 1000 MHz.

Radiated emission measurement for transmitter was 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.

The DECT module was put into transmission mode when taking radiated emission data for determining worst-case spurious emission.

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3.1 Justification - Cont'd

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 4.2.3.

Pulse desensitization is not applicable for this device. Since the transmitter transmits the RF signal continuously.

All relevant operation modes have been tested, and the worst case data was included in this report.

3.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

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3.3 Details of EUT and Description of Accessories

Details of EUT:

A battery (provided with the unit) was used to power the device. Their description are listed below.

- (1) Handset: A "Ni-MH" type rechargeable battery pack (2.4V, 500mAh), Model: BT164342/BT264342, Brand: GP (Supplied by Client)

Description of Accessories:

- (1) Base Unit, Model: PHONE-DEX US, FCC ID: EW780-8938-00 (Supplied by Client)

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.

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EXHIBIT 4
TEST RESULTS

4.0 Test 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.

4.1 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 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 μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

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

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

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

$$AG = 29 \text{ dB}$$

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

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

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

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

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4.2 Radiated Emissions

4.2.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

Handset: 75.600 MHz

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

4.2.2 Radiated Emission Data

The data in table 1 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Handset: Passed by 5.1 dB margin

Mode: TX

Table 1, Base Unit

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Distance Factor (dB)	Calculated at 30m (dB μ V/m)	Limit at 30m (dB μ V/m)	Margin (dB)
V	10.600	37.1	0	9.3	46.4	40.0	6.4	29.5	-23.1
V	8.710	35.8	0	9.5	45.3	40.0	5.3	29.5	-24.2
V	17.420	36.4	0	8.7	45.1	40.0	5.1	29.5	-24.4
V	21.640	22.9	0	21.9	44.8	40.0	4.8	29.5	-24.7
V	26.354	33.7	16	15.4	33.1	40.0	-6.9	29.5	-36.4

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	43.200	39.6	16	10.0	33.6	40.0	-6.4
V	54.000	39.1	16	11.0	34.1	40.0	-5.9
H	75.600	44.9	16	6.0	34.9	40.0	-5.1
H	86.400	42.5	16	8.0	34.5	40.0	-5.5
H	108.000	36.2	16	14.0	34.2	43.5	-9.3

- 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. Loop antenna is used for the emission below 30MHz.
5. Emission (the row indicated by **bold italic**) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-210 Section 2.2.

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4.2.3 Transmitter Duty Cycle Calculation

The average factor is not applicable for this device as the transmitted signal is a continuously signal.

4.3 AC Power Line Conducted Emission

- [×] 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.

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**EXHIBIT 5
EQUIPMENT LIST**

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5.0 Equipment List

1) Radiated Emissions Test

Equipment	Biconical Antenna 20MHz to 200MHz	Active Loop H-field (9kHz to 30MHz)
Registration No.	EW-2512	EW-2313
Manufacturer	EMCO	ELECTROMETRI
Model No.	3104C	EM-6876
Calibration Date	Nov. 15, 2011	Oct. 14, 2011
Calibration Due Date	May. 15, 2013	Apr. 14, 2013

Equipment	Spectrum Analyzer	EMI Test Receiver
Registration No.	EW-2188	EW-2500
Manufacturer	AGILENTTECH	R&S
Model No.	E4407B	ESCI
Calibration Date	Nov. 05, 2012	Feb. 24, 2012
Calibration Due Date	Nov. 05, 2013	Feb. 24, 2013

END OF TEST REPORT