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TEST REPORT

Report Number: 15030001HKG-002

Application
for
Original Grant of 47 CFR Part 15 Certification

SIP Wireless Conference - Base Unit

FCC ID: EW780-9754-00

Prepared and Checked by:

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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, Hong Kong.
FCC Specification Standard:	FCC Part 15, October 1, 2013 Edition
FCC ID:	EW780-9754-00
FCC Model(s):	VCS754
Type of EUT:	Class B Personal Computers and Peripherals
Description of EUT:	SIP Wireless Conference - Base Unit
Serial Number:	N/A
Sample Receipt Date:	March 02, 2015
Date of Test:	March 10 - April 17, 2015
Report Date:	April 27, 2015
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	Results	Details see section
Radiated Emission from Class B Personal Computers and Peripherals	15.109	Pass	4.2
AC Power Line Conducted Emission	15.107	Pass	4.3

1.2 Statement of Compliance

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

FCC Part 15, October 1, 2013 Edition

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**EXHIBIT 2
GENERAL DESCRIPTION**

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2.0 General Description

2.1 Product Description

The VCS754 is a SIP Wireless Conference - Base Unit. 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). The Base Unit is powered by an adaptor 100-240VAC to 9VDC 1500mA .

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

2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). Preliminary radiated scans and all radiated measurements were performed in radiated emission test site. 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 radiated emission test site and AC power line conducted measurement facility used to collect the radiated data and AC Power Line conducted data are at Intertek Testing Services Hong Kong Ltd., which is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong. This test facility and site measurement data have been fully placed on file with FCC.

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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 normal mode 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 Base Unit was powered by a 100-240VAC to 9VDC 1500mA adaptor.

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

Radiated emission measurement was performed from the frequency 30MHz to 1GHz.

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3.1 Justification - Cont'd

Detector function for radiated emissions is in peak mode.

For AC line conducted emission test, the EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring instrument. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

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

3.2 EUT Exercising Software

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

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3.3 Details of EUT and Description of Accessories

Details of EUT:

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

- (1) Base Unit: An AC adaptor (100-200VAC to 9VDC 1500mA, Model: S018AGP0900150, Brand: Ten Pao) (Supplied by Client)

Description of Accessories:

- (1) Buffalo Broad Band Router, Model: BBR-4HG, DoC Product (Supplied by Intertek)
- (2) HP Notebook, Model: CPQNC2400, S/N: CNF638276D, DoC Product (Supplied by Intertek)
- (3) Smart-Drive External Hard Disk, Model: HD3-SU2FW, S/N: 0800261, DoC Product (Supplied by Intertek)
- (4) 1 x USB Cable with 1 meter long (Supplied by Intertek)
- (5) 1 x CAT5 LAN unshielded Cable with 1 meter long (Supplied by Intertek)
- (6) 1 x CAT5 LAN unshielded Cable with 2 meter long (Supplied by Client)
- (7) USB cable to micro USB with 1 meter long (Provided by client)

Description of Special Accessories:

- (1) LAN shielded cable with ferrite with 1 meter long (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**

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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

Base Unit: 249.002 & 455.133 MHz

The worst case radiated emission configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.2.2 Radiated Emission Data

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

Judgement -

Base Unit: Passed by 1.2 dB margin

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Mode: USB Audio

Table 1, Mic

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.109
Emissions Requirements**

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	52.884	41.0	16	11.0	36.0	40.0	-4.0
H	81.200	46.4	16	7.0	37.4	40.0	-2.6
V	100.001	42.2	16	12.0	38.2	43.5	-5.3
V	151.422	40.8	16	15.0	39.8	43.5	-3.7
H	249.002	40.8	16	20.0	44.8	46.0	-1.2
H	292.501	36.4	16	22.0	42.4	46.0	-3.6
V	332.136	32.6	16	24.0	40.6	46.0	-5.4
V	415.700	30.4	16	25.0	39.4	46.0	-6.6
H	455.133	34.8	16	26.0	44.8	46.0	-1.2
V	498.850	30.1	16	26.0	40.1	46.0	-5.9
V	602.845	24.4	16	29.0	37.4	46.0	-8.6
H	728.129	26.3	16	30.0	40.3	46.0	-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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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.

4.3.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

393 kHz

The worst case line conducted configuration photographs are saved with filename: config photos.pdf

4.3.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance

Passed by 6.05 dB margin compare with quasi-peak limit

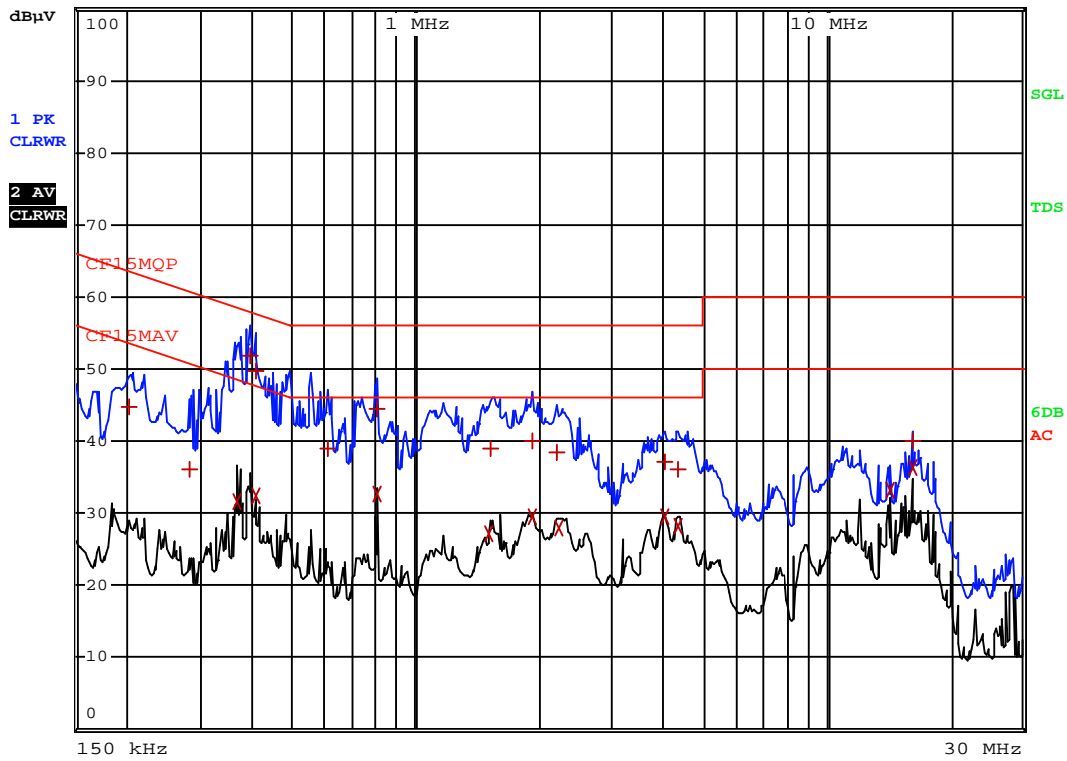
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Worst Case: USB Audio



RBW 9 kHz
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 16.APR.2015 12:06:04

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Worst Case: USB Audio

EDIT PEAK LIST (Final Measurement Results)					
Trace1:	CF15MQP				
Trace2:	CF15MAV				
Trace3:	---				
TRACE	FREQUENCY	LEVEL	dB μ V		DELTA LIMIT dB
1 Quasi Peak	204 kHz	44.62	L1		-18.81
1 Quasi Peak	285 kHz	36.16	L1		-24.50
2 CISPR Average	366 kHz	31.51	N		-17.07
1 Quasi Peak	393 kHz	51.90	L1		-6.09
1 Quasi Peak	406.5 kHz	49.67	N		-8.04
2 CISPR Average	406.5 kHz	32.42	N		-15.30
1 Quasi Peak	609 kHz	38.88	L1		-17.11
1 Quasi Peak	802.5 kHz	44.60	N		-11.39
2 CISPR Average	802.5 kHz	32.72	N		-13.27
2 CISPR Average	1.5135 MHz	27.15	L1		-18.84
1 Quasi Peak	1.518 MHz	38.85	N		-17.14
1 Quasi Peak	1.914 MHz	40.07	L1		-15.92
2 CISPR Average	1.932 MHz	29.46	L1		-16.53
1 Quasi Peak	2.2065 MHz	38.38	L1		-17.62
2 CISPR Average	2.238 MHz	27.88	L1		-18.12
2 CISPR Average	4.0245 MHz	29.57	L1		-16.43
1 Quasi Peak	4.029 MHz	37.10	L1		-18.89
1 Quasi Peak	4.353 MHz	36.17	N		-19.82
2 CISPR Average	4.353 MHz	28.34	N		-17.65
2 CISPR Average	14.2125 MHz	33.21	N		-16.79

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Worst Case: USB Audio

EDIT PEAK LIST (Final Measurement Results)				
Trace1:		CF15MQP		
Trace2:		CF15MAV		
Trace3:		---		
TRACE	FREQUENCY	LEVEL dB μ V		DELTA LIMIT dB
1 Quasi Peak	16.2285 MHz	39.93	N	-20.06
2 CISPR Average	16.2285 MHz	36.44	N	-13.55

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**EXHIBIT 5
EQUIPMENT LIST**

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5.0 Equipment List

1) Radiated Emissions Test

Equipment	BiConiLog Antenna	EMI Test Receiver	Spectrum Analyzer
Registration No.	EW-3061	EW-3095	EW-2253
Manufacturer	EMCO	R&S	R&S
Model No.	3412E	ESCI	FSP40
Calibration Date	Jul. 17, 2014	Oct. 16, 2014	May. 8, 2014
Calibration Due Date	Jul. 17, 2015	Oct. 16, 2015	May. 8, 2015

2) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN
Registration No.	EW-3095	EW-2874
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Oct. 16, 2014	Oct. 17, 2014
Calibration Due Date	Oct. 16, 2015	Aug. 17, 2015

END OF TEST REPORT