



Valued Quality. Delivered.

TEST REPORT

Report Number: 16101132HKG-005

Application
for
Original Grant of 47 CFR Part 15 Certification

DECT 6.0 Cordless Headset - Base Unit

FCC ID: EW780-0575-00

This report contains the data of Computer Peripherals only.

Prepared and Checked by:

Approved by:

Signed on File

Leung Chiu Kuen, Stanley
Engineer

 Digitally signed
by Jess Tang
Location:
Intertek Testing
Services Hong
Kong Ltd.

Tang Kwan Mo, Jess
Lead Engineer
January 03, 2017

- Intertek's standard Terms and Conditions can be obtained at our website: <http://www.intertek.com/terms/>.
- 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.
- © 2016 Intertek

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

INTERTEK TESTING SERVICES

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, 2015 Edition
FCC ID:	EW780-0575-00
FCC Model(s):	V300, V300.BS
Type of EUT:	Class B Personal Computers and Peripherals
Description of EUT:	DECT 6.0 Cordless Headset - Base Unit
Serial Number:	N/A
Sample Receipt Date:	October 28, 2016
Date of Test:	November 03, 2016 to December 21, 2016
Report Date:	January 03, 2017
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

INTERTEK TESTING SERVICES

Table of Contents

1.0 Test Results Summary & Statement of Compliance	4
1.1 Summary of Test Results	4
1.2 Statement of Compliance	4
2.0 General Description	6
2.1 Product Description	6
2.2 Test Methodology	6
2.3 Test Facility	6
3.0 System Test Configuration	8
3.1 Justification	8
3.2 EUT Exercising Software	9
3.3 Details of EUT and Description of Accessories	10
3.4 Measurement Uncertainty	10
4.0 Test Results	12
4.1 Field Strength Calculation	12
4.2 Radiated Emissions	13
4.2.1 Radiated Emission Configuration Photograph	13
4.2.2 Radiated Emission Data	13
4.3 AC Power Line Conducted Emission	15
4.3.1 AC Power Line Conducted Emission Configuration Photograph	15
4.3.2 AC Power Line Conducted Emission Data	15
5.0 Equipment List	19

INTERTEK TESTING SERVICES

EXHIBIT 1
TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

INTERTEK TESTING SERVICES

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, 2015 Edition

INTERTEK TESTING SERVICES

EXHIBIT 2 GENERAL DESCRIPTION

INTERTEK TESTING SERVICES

2.0 General Description

2.1 Product Description

The V300 is a DECT 6.0 Cordless Headset - 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) and Bluetooth Transmitter operates with 79 channels (2402MHz - 2480MHz). The Base Unit is powered by an adaptor 100-120VAC 50/60Hz 200mA. It also has a Bluetooth transceiver that manages Bluetooth connections to a Bluetooth-equipped mobile device. With Bluetooth and 1.9GHz wireless communications enabled, the Base Unit allows user uses the cordless handset to make or receive cellular phone calls via the cellular network. The base unit can connect to PC via USB port. This allows music played in the computer to be listened through the headset when the base unit is switched to PC mode. All other function is disabled in PC mode.

The Model(s): V300.BS is the same as the Model: V300 in electrical designs including software & firmware, PCB layout and construction design/physical design/enclosure. The only differences between these models are color and model number to be sold for marketing purpose.

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.

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 (2014). 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.

INTERTEK TESTING SERVICES

EXHIBIT 3 SYSTEM TEST CONFIGURATION

INTERTEK TESTING SERVICES

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 EUT is power by a 100-1200VAC to Output1: 6VDC 450mAh & Output2: 6VDC 300mAh 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.

Detector function for radiated emissions is in peak mode.

INTERTEK TESTING SERVICES

3.1 Justification - Cont'd

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.

INTERTEK TESTING SERVICES

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) An AC adaptor (100-120VAC 50/60Hz 200mA to Output1: 6VDC 450mAh & Output2: 6VDC 300mAh, Model: SSC-6W2 US 6045/6030) (Supplied by Client)

Description of Accessories:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)
- (2) Corded phone (Panasonic, Model: KX TS500MX), (Supplied by Intertek)
- (3) AT&T corporation Handset lifter set (Supplied by client)
- (4) Corded telephone cable with RJ10 connectors (1m, unshielded), (Supplied by Intertek)
- (5) Notebook (HP Probook 430) (Provided by Intertek)
- (6) USB cable (1m, with ferried), (Supplied by client)
- (7) 1 X LAN cable of 1m in length (Supplied by Intertek)
- (8) 1 X microphone for lifter of 0.5m in length (Supplied by client)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test at a level of confidence of 95% has been considered. The values of the Measurement uncertainty for radiated emission test and RF conducted measurement test are $\pm 5.3\text{dB}$ and $\pm 0.99\text{dB}$ respectively. The value of the Measurement uncertainty for conducted emission test is $\pm 4.2\text{dB}$.

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.

INTERTEK TESTING SERVICES

EXHIBIT 4 TEST RESULTS

INTERTEK TESTING SERVICES

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.

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

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

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

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

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

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

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

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

INTERTEK TESTING SERVICES

4.2 Radiated Emissions

4.2.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

36.001MHz

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 -

Passed by 1.0 dB margin

INTERTEK TESTING SERVICES

Mode: PC Music Playing

Table 1

**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	30.606	39.2	16	10.0	33.2	40.0	-6.8
V	36.001	45.0	16	10.0	39.0	40.0	-1.0
V	43.095	41.0	16	10.0	35.0	40.0	-5.0
H	83.956	37.9	16	7.0	28.9	40.0	-11.1
H	107.963	37.7	16	14.0	35.7	43.5	-7.8
V	149.431	34.9	16	14.0	32.9	43.5	-10.6
H	251.887	34.4	16	20.0	38.4	46.0	-7.6
H	263.891	32.0	16	21.0	37.0	46.0	-9.0
V	414.726	32.2	16	25.0	41.2	46.0	-4.8
V	599.632	21.8	16	29.0	34.8	46.0	-11.2
H	665.592	28.5	16	29.0	41.5	46.0	-4.5
H	714.335	25.0	16	30.0	39.0	46.0	-7.0
H	724.762	29.6	16	30.0	43.6	46.0	-2.4
H	737.615	29.0	16	30.0	43.0	46.0	-3.0
H	749.740	28.1	16	30.0	42.1	46.0	-3.9
H	761.258	23.6	16	30.0	37.6	46.0	-8.4
H	905.667	25.6	16	32.0	41.6	46.0	-4.4
H	917.428	25.9	16	33.0	42.9	46.0	-3.1
H	953.561	24.2	16	33.0	41.2	46.0	-4.8

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.
4. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

INTERTEK TESTING SERVICES

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

4.4295 kHz

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

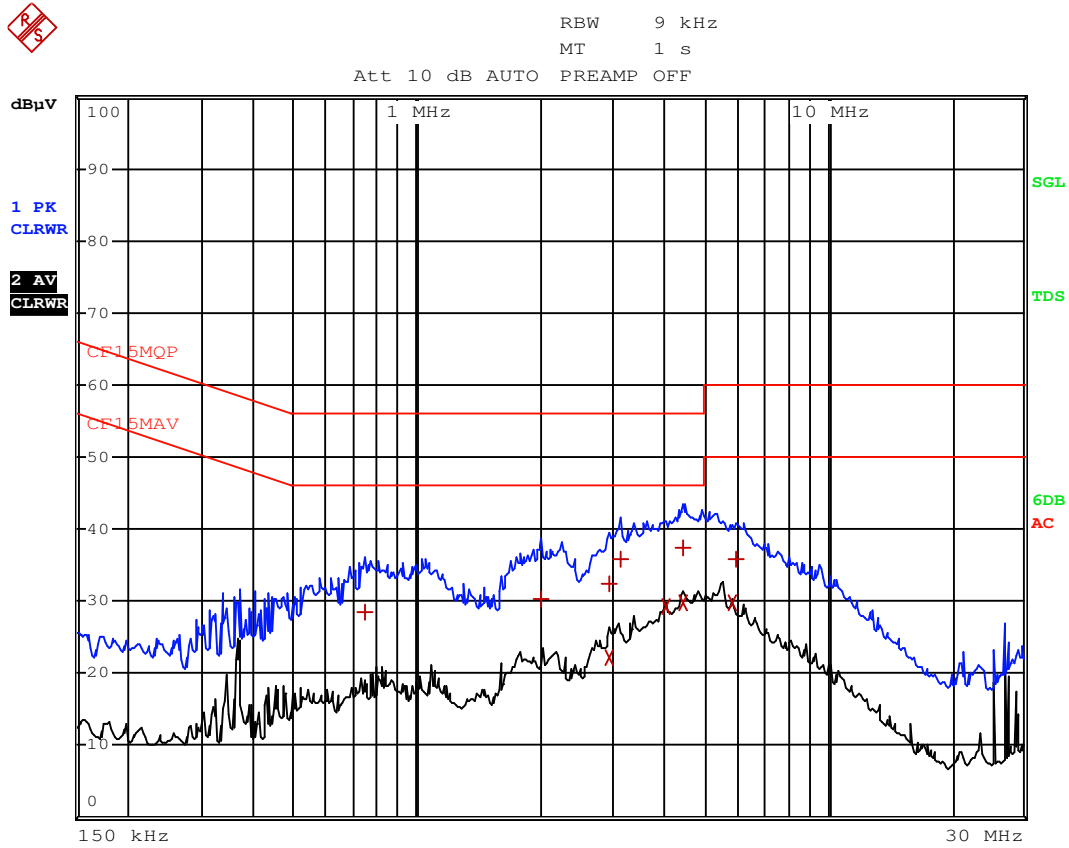
4.3.2 AC Power Line Conducted Emission Data

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

Passed by 16.24 dB margin compare with CISPR-average limit

INTERTEK TESTING SERVICES

Worst Case: PC Music Playing



INTERTEK TESTING SERVICES

Worst Case: PC Music Playing

EDIT PEAK LIST (Final Measurement Results)					
Trace1:	CF15MQP				
Trace2:	CF15MAV				
Trace3:	---				
TRACE	FREQUENCY	LEVEL	dB μ V	DELTA	LIMIT dB
1 Quasi Peak	748.5 kHz	28.54	N	-27.45	
1 Quasi Peak	2.013 MHz	30.43	N	-25.56	
2 CISPR Average	2.94 MHz	22.23	N	-23.76	
1 Quasi Peak	2.9445 MHz	32.50	L1	-23.49	
1 Quasi Peak	3.129 MHz	35.85	L1	-20.15	
2 CISPR Average	4.065 MHz	29.33	N	-16.66	
2 CISPR Average	4.4295 MHz	29.75	L1	-16.24	
1 Quasi Peak	4.452 MHz	37.31	L1	-18.68	
2 CISPR Average	5.8425 MHz	29.69	N	-20.30	
1 Quasi Peak	5.9775 MHz	35.72	L1	-24.27	

INTERTEK TESTING SERVICES

EXHIBIT 5 EQUIPMENT LIST

INTERTEK TESTING SERVICES

5.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	BiConiLog Antenna
Registration No.	EW-3095	EW-3061
Manufacturer	R&S	EMCO
Model No.	ESCI	3412E
Calibration Date	Oct. 25, 2016	Sep. 23, 2016
Calibration Due Date	Oct. 25, 2017	Sep. 23, 2017

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0571	EW-0447	EW-1133
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	Jun. 23, 2015	May 18, 2016	Nov. 05, 2015
Calibration Due Date	Dec. 23, 2016	Nov 18, 2017	May 05, 2017

2) Conducted Emissions Test

Equipment	EMI Test Receiver (9kHz to 3GHz)	LISN
Registration No.	EW-3095	EW-2501
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Oct. 25, 2016	Jan. 28, 2016
Calibration Due Date	Oct. 25, 2017	Jan. 28, 2017

END OF TEST REPORT