Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

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HOKLAS 005
TEST

TEST REPORT

Report Number: HK13020193-2

Application
for
Original Grant of 47 CFR Part 15 Certification

DECT Headset-Base Unit

FCC ID: MZV-112115BS

Prepared and Checked by:

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Senior Lead Engineer

Approved by:

Nip Ming Fung, Melvin
Assistant Manager
March 25, 2013

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GENERAL INFORMATION

Applicant Name:	Telefield Ltd.
Applicant Address:	Flat D, 2/F., Valiant Industrial Centre, 2-12 Au Pui Wan Street, Fo Tan, N.T., Hong Kong.
FCC Specification Standard:	FCC Part 15, October 1, 2011 Edition
FCC ID:	MZV-112115BS
FCC Model(s):	A-00049BS, A-00056BS, A-00058, A-00059
Type of EUT:	Class B Personal Computers and Peripherals
Description of EUT:	1.9GHz DECT Headset – Base Unit
Serial Number:	N/A
Sample Receipt Date:	February 05, 2013
Date of Test:	March 19, 2013
Report Date:	March 25, 2013
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

Table of Contents

EXHIBIT 1
TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

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	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 standards:

FCC Part 15, October 1, 2011 Edition

EXHIBIT 2
GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The A-00059 is a 1.9 GHz DECT 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). The Base Unit is powered by an adaptor 100-240VAC to 5.1VDC 1A. The Base connects to PC using the USB connection.

For FCC, Base Unit, the Model(s): A-00049BS, A-00056BS and A-00058 are the same as the Model: A-00059 in electronics/electrical designs including software & firmware, PCB layout and construction design/physical design/enclosure. Model: A-00058 consists of one Base and one headset (Mono), Model: A-00059 consists of one Base and one headset (Dual), Model(s): A-00049BS and A-00056BS consists of one Base only. The only differences between these models are cosmetic details and model number to be sold for marketing purpose.

2.3 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 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.

2.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data and conducted data are at Roof Top and 2nd Floor respectively 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.

EXHIBIT 3
SYSTEM TEST CONFIGURATION

3.0 System Test Configuration

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to 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 was powered by a 100-240VAC to 5.1VDC 1A 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.

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.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.209. Digital circuitry used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109 Limits.

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.

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.

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 power cord connected to one LISN (Line impedance stabilization network), which provided 50ohm coupling impedance for measuring instrument. Meanwhile, the peripheral or support equipment power cords connected to a separate LISN. The ac power for all LISNs were obtained from the same power source. 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. Power cords of non-EUT equipment (peripherals) were not bundled. AC power cords of peripheral equipments draped over the rear edge of the table, and routed them down onto the floor of the ac powerline conducted emission test site to the second LISN.
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.

3.3 Details of EUT and Description of Accessories

Details of EUT:

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

(1) Base Unit: An AC adaptor (100-240VAC to 5.1VDC 1A, Model: KSAS0060510100VUD) (Supplied by Client)

Description of Accessories:

(1) Headset (Mono), Model : A-00058, FCC ID: MZV-MKC112 (Supplied by Client)
(2) Headset (Dual), Model : A-00059, FCC ID: MZV-MKC115 (Supplied by Client)
(3) 1x USB cable with one meter long (Supplied by Client)
(4) 1x USB cable with 0.5 meter long (Supplied by Intertek)
(5) 1x IEEE1394 cable with 0.5 meter long (Supplied by Intertek)
(6) Smart-Drive External Hard Disk, Model: HD3-SU2FW, SN:0800261, Doc Product (Supplied by Intertek)
(7) Lenovo Notebook, Model: T61, S/N: L3-CF468, DoC product (Supplied by Intertek)
(8) HP Notebook, Model: 2540p, S/N: CND05104SY, DoC product(Supplied by Intertek)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 reflects 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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29 dB
PD = 0 dB
AV = -10 dB
FS = 62 + 7.4 +1.6 -29 +0 + (-10) = 32 dBμV/m

Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

4.2 Radiated Emissions

4.2.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

Base Unit: 57.856 MHz

The worst case radiated emission configuration photographs are 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 6.1 dB margin

Mode: TALK with PC

Table 1, Base Unit

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	57.856	38.9	16	11.0	33.9	40.0	-6.1
V	79.896	43.5	16	6.0	33.5	40.0	-6.5
H	116.125	36.9	16	14.0	34.9	43.5	-8.6
H	186.325	34.2	16	16.0	34.2	43.5	-9.3
H	232.256	32.0	16	18.0	34.0	46.0	-12.0
H	269.354	27.6	16	22.0	33.6	46.0	-12.4
H	964.653	18.6	16	33.0	35.6	54.0	-18.4

Notes: 1. Peak Detector Data.

2. Negative sign (-) in the margin column signify levels below the limit.

3. Only emissions significantly above equipment noise floor are reported.

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

0.339 MHz

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 11.97 dB margin compare with quasi-peak limit

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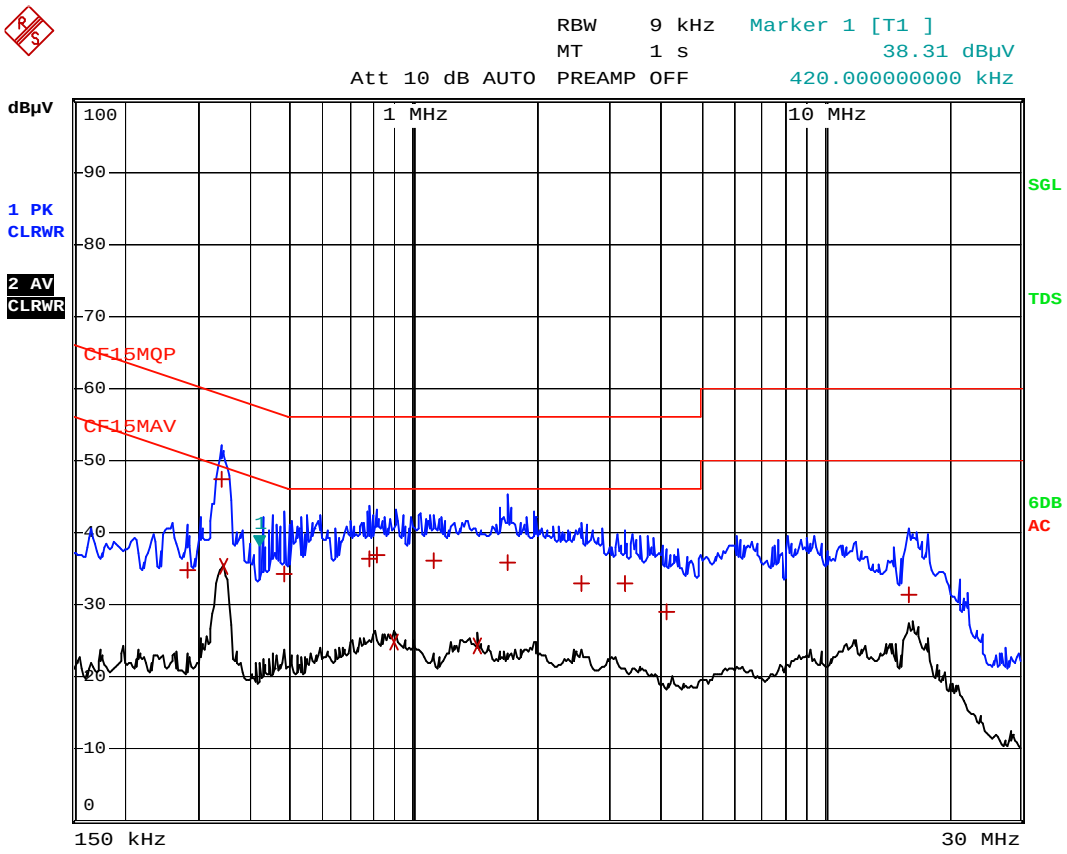
Worst Case: Talk with PC



Date: 19.MAR.2013 21:22:20

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Worst Case: Talk with PC

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	280.5 kHz	34.90	L1 gnd	-25.89
1	Quasi Peak	339 kHz	47.25	L1 gnd	-11.97
2	CISPR Average	343.5 kHz	35.42	L1 gnd	-13.69
1	Quasi Peak	483 kHz	34.26	L1 gnd	-22.01
1	Quasi Peak	780 kHz	36.36	L1 gnd	-19.64
1	Quasi Peak	816 kHz	36.76	L1 gnd	-19.23
2	CISPR Average	897 kHz	24.75	L1 gnd	-21.24
1	Quasi Peak	1.113 MHz	35.97	L1 gnd	-20.02
2	CISPR Average	1.4325 MHz	24.32	L1 gnd	-21.67
1	Quasi Peak	1.6935 MHz	35.92	L1 gnd	-20.07
1	Quasi Peak	2.571 MHz	33.02	L1 gnd	-22.97
1	Quasi Peak	3.2595 MHz	32.92	L1 gnd	-23.07
1	Quasi Peak	4.137 MHz	28.97	L1 gnd	-27.02
1	Quasi Peak	16.0125 MHz	31.32	L1 gnd	-28.67

Date: 19.MAR.2013 21:22:06

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EXHIBIT 5
EQUIPMENT LIST

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5.0 **Equipment List**

1) Radiated Emissions Test

Equipment	Biconical Antenna	EMI Test Receiver (9kHz to 7GHz)
Registration No.	EW-0954	EW-2666
Manufacturer	EMCO	ROHDESCHWARZ
Model No.	3104C	ESCI7
Calibration Date	Oct. 18, 2011	May. 21, 2012
Calibration Due Date	Apr. 18, 2013	May. 21, 2013

Equipment	Log Periodic Antenna (200 - 1000)MHz	Spectrum Analyzer
Registration No.	EW-0572	EW-2188
Manufacturer	EMCO	AGILENTTECH
Model No.	3146	E4407B
Calibration Date	Nov. 15, 2011	Nov. 05, 2012
Calibration Due Date	May. 15, 2013	Nov. 05, 2013

2) Conducted Emissions Test

Equipment	EMI Test Receiver	Pulse Limiter
Registration No.	EW-2251	EW-0700
Manufacturer	R&S	R&S
Model No.	ESCI	ESH3-Z2
Calibration Date	Nov. 23, 2012	Jul. 30, 2012
Calibration Due Date	Oct. 30, 2013	Jan. 30, 2014

Equipment	Artificial Mains
Registration No.	EW-0192
Manufacturer	R&S
Model No.	ESH3-Z5
Calibration Date	Apr. 11, 2012
Calibration Due Date	Apr. 11, 2013

END OF TEST REPORT

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