

TEST REPORT

Report Number: HK11110366-2

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

1.9GHz Digital Modulation Cordless Phone with Bluetooth - Base Unit
Bluetooth Portion

FCC ID: EW780-8540-00

IC: 1135B-80854000

Prepared and Checked by:

Approved by:

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December 15, 2011

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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, 2010 Edition
FCC ID:	EW780-8540-00
FCC Model(s):	1. DS6511-2, DS6511, DS651Z-XY 2. DS6521-2, DS6521, DS6522-3, DS6522-32, DS652Z-XY
IC Specification Standard:	RSS-210 Issue 8, December 2010 RSS-Gen Issue 3, December 2010 RSS-102 Issue 4, March 2010 RSS-310 Issue 3, December 2010
IC:	1135B-80854000
IC Model(s):	1. DS6511-2, DS6511 2. DS6521-2, DS6521, DS6522-3, DS6522-32
Type of EUT:	Transceiver
Description of EUT:	1. 1.9GHz Digital Modulation Cordless Phone with Caller ID and Bluetooth - Base Unit Bluetooth Portion 2. 1.9GHz Digital Modulation Cordless Phone with Caller ID, Digital Answering Machine and Bluetooth - Base Unit Bluetooth Portion
Serial Number:	N/A
Sample Receipt Date:	November 09, 2011
Date of Test:	November 18-December 08, 2011
Report Date:	December 15, 2011
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
Radiated Emission Radiated Emission on the Bandedge	15.249(a), 209, & 109 15.249(d)	A2.9(a) A2.9(b)	Pass Pass	4.2 4.4
Radiated Emission in Restricted Bands	15.205	2.2	Pass	4.2
Radiated Emission from Receiver	N/A	2.3	Pass	4.3
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4 [#]	Pass	4.5
Radio Frequency Exposure Compliance	N/A	RSS-102	Pass	4.6

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, 2010 Edition
RSS-210 Issue 8, December 2010
RSS-Gen Issue 3, December 2010
RSS-102 Issue 4, March 2010
RSS-310 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 Model: DS6511-2 is a 1.9GHz Digital Modulation Cordless Phone with Caller ID and Bluetooth – Base Unit Bluetooth Portion while DS6521-2 is a 1.9GHz Digital Modulation Cordless Phone with Caller ID, Digital Answering Machine and Bluetooth – Base Unit Bluetooth Portion. Only both Base Units have Bluetooth feature, and they operate at frequency range of 2402MHz to 2480MHz with 79 channels. Both Base Units are powered by an adaptor 100-120VAC to 6VDC 400mA. With Bluetooth and 1.9GHz wireless communications enabled, the Base Unit allows users to use a cordless handset to dial out or receive Bluetooth-equipped cellular phone calls via the cellular network. Only one cellular phone can be on a call at time.

The Bluetooth antenna used in Base Units are integral, and the test sample is a prototype.

For FCC, the Model(s): DS6511 and DS651Z-XY are the same as the Model: DS6511-2 in electrical designs, including software & firmware, PCB layout and construction design/Physical design/Enclosure. The Model: DS6521, DS6522-3, DS6522-32 and DS652Z-XY are the same as the Model: DS6521-2 in electrical designs, including software & firmware, PCB layout and construction design/Physical design/Enclosure. The only differences between these models are color, model number and package configuration and material to be sold for marketing purpose. Suffix (X, Y, Z) indicates different number of handsets, different color of enclosure, and different package material respectively.

For IC, the Model(s): DS6511 is the same as the Model: DS6511-2 in electrical designs, including software & firmware, PCB layout and construction design/Physical design/Enclosure. The Model: DS6521, DS6522-3 and DS6522-32 are the same as the Model: DS6521-2 in electrical designs, including software & firmware, PCB layout and construction design/Physical design/Enclosure. The only differences between these models are color, model number and package configuration and material to be sold for marketing purpose.

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

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.

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2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). 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 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.

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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 / receive continuously / 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.

Both Base Units were powered by a 100-120VAC to 6VDC 400mA 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 handset was remotely located as far from the antenna and the base as possible to ensure full power transmission from the base. Else, the base was wired to transmit full power.

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 any intentional radiator powered by AC power line, measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

For transmitter radiated measurement, the spectrum analyzer resolution bandwidth was 100 kHz for frequencies below 1000 MHz. The resolution bandwidth was 1 MHz for frequencies above 1000 MHz.

For receiver radiated measurement, the spectrum analyzer resolution bandwidth was 1MHz for measurement above 1GHz while 100kHz for measurement from 30MHz to 1GHz.

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. Radiated emission measurement for receiver was performed from 30MHz to the fifth harmonic of the highest frequency or 40GHz, whichever is lower.

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.

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.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF*. The effective period (Teff) was 625 μ s. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

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

- (1) Base Unit: An AC adaptor (100-120VAC to 6VDC 400mA, Model: S005IU0600040, Brand: Ten Pao) (Supplied by Client)

Description of Accessories:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)
- (2) Handset, Model: DS6521-2, FCC ID: EW780-8540-00 (Supplied by Client)
- (3) 3m Telephone Line (Supplied by Intertek)
- (4) Nokia Mobile Phone: Model: 5300, FCC ID: PPIRM-146 (Supplied by Intertek)
- (5) Telephone Line Simulator, Model: TLS-5D-01, S/N: 151101 (Supplied by Intertek)

3.4 Measurement Uncertainty

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

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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.

$$\begin{aligned} RA &= 62.0 \text{ dB}\mu\text{V} \\ AF &= 7.4 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29 \text{ dB} \\ PD &= 0 \text{ dB} \\ AV &= -10 \text{ dB} \\ FS &= 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m} \end{aligned}$$

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

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4.2 Radiated Emissions

4.2.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

Base Unit of Model DS6511-2: 85.950 MHz

Base Unit of Model DS6521-2: 64.002 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 1-8 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Base Unit of Model DS6511-2: Passed by 5.4 dB margin

Base Unit of Model DS6521-2: Passed by 6.2 dB margin

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4.2.3 Transmitter Duty Cycle Calculation

Based on the Bluetooth Specification Version 2.0 / 2.1 + EDR, the transmitter ON time for each timeslot of Bluetooth is 625 μ s. DH5 has the maximum duty cycle, which consists of 5 continuous Tx slots and 1 Rx slot. Therefore one hopset take (5+1) x 625 μ s = 3.75ms. For one period for a pseudo-random hopping through all 79 RF channels, it take: 79 x 3.75ms = 296.25ms.

The dwell time for DH5 is 5 x 625 μ s = 3.125ms.

Therefore,

$$\begin{aligned}\text{Duty Cycle (DC)} &= \text{Maximum On time in } 100\text{ms}/100\text{ms} \\ &= 3.125\text{ms}/100\text{ms} \\ &= 0.03125\end{aligned}$$

$$\begin{aligned}\text{Average Factor (AF) of Bluetooth in dB} &= 20 \log_{10} (0.03125) \\ &= -30.1\text{dB}\end{aligned}$$

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Model: DS6511-2
 Mode: TX-Channel 00

Table 1, Base Unit Bluetooth Portion

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	2402.000	105.8	33	29.4	30.1	72.1	94.0	-21.9
H	4804.000	61.3	33	34.9	30.1	33.1	54.0	-20.9
H	7206.000	52.0	33	37.9	30.1	26.8	54.0	-27.2
H	9608.000	48.0	33	40.4	30.1	25.3	54.0	-28.7
H	12010.000	43.1	33	40.5	30.1	20.5	54.0	-33.5
H	14412.000	43.2	33	40.0	30.1	20.1	54.0	-33.9

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
H	2402.000	105.8	33	29.4	102.2	114.0	-11.8
H	4804.000	61.3	33	34.9	63.2	74.0	-10.8
H	7206.000	52.0	33	37.9	56.9	74.0	-17.1
H	9608.000	48.0	33	40.4	55.4	74.0	-18.6
H	12010.000	43.1	33	40.5	50.6	74.0	-23.4
H	14412.000	43.2	33	40.0	50.2	74.0	-23.8

- 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. Horn antenna is used for the emission over 1000MHz.
 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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Model: DS6511-2
 Mode: TX-Channel 39

Table 2, Base Unit Bluetooth Portion

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	2441.000	105.7	33	29.4	30.1	72.0	94.0	-22.0
H	4882.000	60.9	33	34.9	30.1	32.7	54.0	-21.3
H	7323.000	51.5	33	37.9	30.1	26.3	54.0	-27.7
H	9764.000	48.9	33	40.4	30.1	26.2	54.0	-27.8
H	12205.000	43.1	33	40.5	30.1	20.5	54.0	-33.5
H	14646.000	44.8	33	38.4	30.1	20.1	54.0	-33.9

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
H	2441.000	105.7	33	29.4	102.1	114.0	-11.9
H	4882.000	60.9	33	34.9	62.8	74.0	-11.2
H	7323.000	51.5	33	37.9	56.4	74.0	-17.6
H	9764.000	48.9	33	40.4	56.3	74.0	-17.7
H	12205.000	43.1	33	40.5	50.6	74.0	-23.4
H	14646.000	44.8	33	38.4	50.2	74.0	-23.8

- 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. Horn antenna is used for the emission over 1000MHz.
 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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Model: DS6511-2
 Mode: TX-Channel 78

Table 3, Base Unit Bluetooth Portion

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	2480.000	105.5	33	29.4	30.1	71.8	94.0	-22.2
H	4960.000	60.3	33	34.9	30.1	32.1	54.0	-21.9
H	7440.000	52.5	33	37.9	30.1	27.3	54.0	-26.7
H	9920.000	49.5	33	40.4	30.1	26.8	54.0	-27.2
H	12400.000	42.8	33	40.5	30.1	20.2	54.0	-33.8
H	14880.000	44.8	33	38.4	30.1	20.1	54.0	-33.9

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
H	2480.000	105.5	33	29.4	101.9	114.0	-12.1
H	4960.000	60.3	33	34.9	62.2	74.0	-11.8
H	7440.000	52.5	33	37.9	57.4	74.0	-16.6
H	9920.000	49.5	33	40.4	56.9	74.0	-17.1
H	12400.000	42.8	33	40.5	50.3	74.0	-23.7
H	14880.000	44.8	33	38.4	50.2	74.0	-23.8

- 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. Horn antenna is used for the emission over 1000MHz.
 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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Model: DS6511-2

Mode: Talk

Table 4, Base Unit Bluetooth Portion

Radiated Emission Data

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	41.475	39.9	16	10.0	33.9	40.0	-6.1
V	55.300	39.1	16	11.0	34.1	40.0	-5.9
V	82.950	43.6	16	7.0	34.6	40.0	-5.4
H	128.000	35.8	16	14.0	33.8	43.5	-9.7
H	165.900	33.2	16	17.0	34.2	43.5	-9.3
H	196.008	34.2	16	16.0	34.2	43.5	-9.3
H	392.016	25.5	16	25.0	34.5	46.0	-11.5
H	588.024	21.6	16	29.0	34.6	46.0	-11.4

- 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. 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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Model: DS6521-2
 Mode: TX-Channel 00

Table 5, Base Unit Bluetooth Portion

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	2402.000	104.5	33	29.4	30.1	70.8	94.0	-23.2
H	4804.000	62.7	33	34.9	30.1	34.5	54.0	-19.5
H	7206.000	50.7	33	37.9	30.1	25.5	54.0	-28.5
H	9608.000	46.8	33	40.4	30.1	24.1	54.0	-29.9
H	12010.000	43.4	33	40.5	30.1	20.8	54.0	-33.2
H	14412.000	43.6	33	40.0	30.1	20.5	54.0	-33.5

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
H	2402.000	104.5	33	29.4	100.9	114.0	-13.1
H	4804.000	62.7	33	34.9	64.6	74.0	-9.4
H	7206.000	50.7	33	37.9	55.6	74.0	-18.4
H	9608.000	46.8	33	40.4	54.2	74.0	-19.8
H	12010.000	43.4	33	40.5	50.9	74.0	-23.1
H	14412.000	43.6	33	40.0	50.6	74.0	-23.4

- 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. Horn antenna is used for the emission over 1000MHz.
 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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Model: DS6521-2
 Mode: TX-Channel 39

Table 6, Base Unit Bluetooth Portion

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	2441.000	104.4	33	29.4	30.1	70.7	94.0	-23.3
H	4882.000	62.0	33	34.9	30.1	33.8	54.0	-20.2
H	7323.000	52.1	33	37.9	30.1	26.9	54.0	-27.1
H	9764.000	50.6	33	40.4	30.1	27.9	54.0	-26.1
H	12205.000	43.1	33	40.5	30.1	20.5	54.0	-33.5
H	14646.000	45.0	33	38.4	30.1	20.3	54.0	-33.7

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
H	2441.000	104.4	33	29.4	100.8	114.0	-13.2
H	4882.000	62.0	33	34.9	63.9	74.0	-10.1
H	7323.000	52.1	33	37.9	57.0	74.0	-17.0
H	9764.000	50.6	33	40.4	58.0	74.0	-16.0
H	12205.000	43.1	33	40.5	50.6	74.0	-23.4
H	14646.000	45.0	33	38.4	50.4	74.0	-23.6

- 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. Horn antenna is used for the emission over 1000MHz.
 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.

INTERTEK TESTING SERVICES

Model: DS6521-2
 Mode: TX-Channel 78

Table 7, Base Unit Bluetooth Portion

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
H	2480.000	104.2	33	29.4	30.1	70.5	94.0	-23.5
H	4960.000	62.7	33	34.9	30.1	34.5	54.0	-19.5
H	7440.000	52.0	33	37.9	30.1	26.8	54.0	-27.2
H	9920.000	48.8	33	40.4	30.1	26.1	54.0	-27.9
H	12400.000	42.7	33	40.5	30.1	20.1	54.0	-33.9
H	14880.000	44.8	33	38.4	30.1	20.1	54.0	-33.9

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
H	2480.000	104.2	33	29.4	100.6	114.0	-13.4
H	4960.000	62.5	33	34.9	64.4	74.0	-9.6
H	7440.000	52.0	33	37.9	56.9	74.0	-17.1
H	9920.000	48.8	33	40.4	56.2	74.0	-17.8
H	12400.000	42.7	33	40.5	50.2	74.0	-23.8
H	14880.000	44.8	33	38.4	50.2	74.0	-23.8

- 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. Horn antenna is used for the emission over 1000MHz.
 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.

INTERTEK TESTING SERVICES

Model: DS6521-2

Mode: Talk

Table 8, Base Unit Bluetooth Portion

Radiated Emission Data

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	32.001	39.6	16	10.0	33.6	40.0	-6.4
V	64.002	40.8	16	9.0	33.8	40.0	-6.2
V	128.003	36.1	16	14.0	34.1	43.5	-9.4
H	192.004	34.3	16	16.0	34.3	43.5	-9.2
H	224.006	31.2	16	18.0	33.2	46.0	-12.8
H	256.024	27.8	16	21.0	32.8	46.0	-13.2

- 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. 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.

INTERTEK TESTING SERVICES

4.3 Radiated Emissions from Receiver

4.3.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

Base Unit of Model DS6511-2: 2439.500 MHz

Base Unit of Model DS6512-2: 2439.500 MHz

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

4.3.2 Radiated Emission Data

The data in tables 9-10 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Base Unit of Model DS6511-2: Passed by 13.1 dB margin

Base Unit of Model DS6512-2: Passed by 13.4 dB margin

INTERTEK TESTING SERVICES

Model: DS6511-2

Mode: Receiving – Middle Channel

Table 9, Base Unit

Radiated Emissions Data

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	2439.500	44.5	33	29.4	40.9	54.0	-13.1
V	4879.000	38.7	33	34.9	40.6	54.0	-13.4
V	7318.500	35.5	33	37.9	40.4	54.0	-13.6
V	9758.000	32.6	33	40.4	40.0	54.0	-14.0
V	12197.500	32.1	33	40.5	39.6	54.0	-14.4

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. Horn antenna is used for the emission over 1000MHz.

INTERTEK TESTING SERVICES

Model: DS6521-2

Mode: Receiving – Middle Channel

Table 10, Base Unit

Radiated Emissions Data

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	2439.500	44.2	33	29.4	40.6	54.0	-13.4
V	4879.000	38.5	33	34.9	40.4	54.0	-13.6
V	7318.500	35.3	33	37.9	40.2	54.0	-13.8
V	9758.000	32.5	33	40.4	39.9	54.0	-14.1
V	12197.500	32.0	33	40.5	39.5	54.0	-14.5

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. Horn antenna is used for the emission over 1000MHz.

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4.4 Radiated Emission on the Bandedge

From the following plots, they show that the fundamental emissions are confined in the specified band (2400MHz and 2483.5MHz). In case of emissions up to two standard bandwidths away from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.4 (2003) for frequency being measured.

Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50 dB below the level of the fundamental or to the general radiated emission limits in FCC Part 15 Section 15.209 / Table 5 of RSS-Gen, whichever is the lesser attenuation, which meet the requirement of FCC Part 15 Section 15.249(d) / RSS-210 A2.9(b).

Radiated Emission on bandedge plots are saved with filename: be.pdf

Bandedge compliance is determined by applying marker-delta method, i.e.

Resultant Field Strength = Fundamental Emissions - Delta from the plot

INTERTEK TESTING SERVICES

4.4 Radiated Emission on the Bandedge (Cont'd)

Resultant field strength for the lowest and/or highest channel(s), with corresponding average values are calculated as follows:

For Model: DS6511-2

	Channel	Fundamental Emission (dB μ V/m)	Delta from the Plot (dB)	Resultant Field Strength (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)
Base	Lowest	72.1	34.38	37.72	54	-16.28
	Highest	71.8	45.69	26.11	54	-27.89

	Channel	Fundamental Emission (dB μ V/m)	Delta from the Plot (dB)	Resultant Field Strength (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)
Base	Lowest	102.2	34.38	67.82	74	-6.18
	Highest	101.9	45.69	56.21	74	-17.79

For Model: DS6521-2

	Channel	Fundamental Emission (dB μ V/m)	Delta from the Plot (dB)	Resultant Field Strength (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)
Base	Lowest	70.8	36.99	33.81	54	-20.19
	Highest	70.5	46.67	23.83	54	-30.17

	Channel	Fundamental Emission (dB μ V/m)	Delta from the Plot (dB)	Resultant Field Strength (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)
Base	Lowest	100.9	36.99	63.91	74	-10.09
	Highest	100.6	46.67	53.93	74	-20.07

The resultant field strength meets the general radiated emission limit in FCC Part 15 Section 15.209 / Table 5 of RSS-Gen, which does not exceed 74dB μ V/m for peak limit and also 54dB μ V/m for average limit.

INTERTEK TESTING SERVICES

4.5 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.

4.5.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

Base Unit of Model DS6511-2: 0.551 MHz

Base Unit of Model DS6521-2: 0.569 MHz

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

4.5.2 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.

Base Unit of Model DS6511-2 - Passed by 15.82 dB margin compare with quasi-peak limit

Base Unit of Model DS6521-2 - Passed by 16.96 dB margin compare with quasi-peak limit

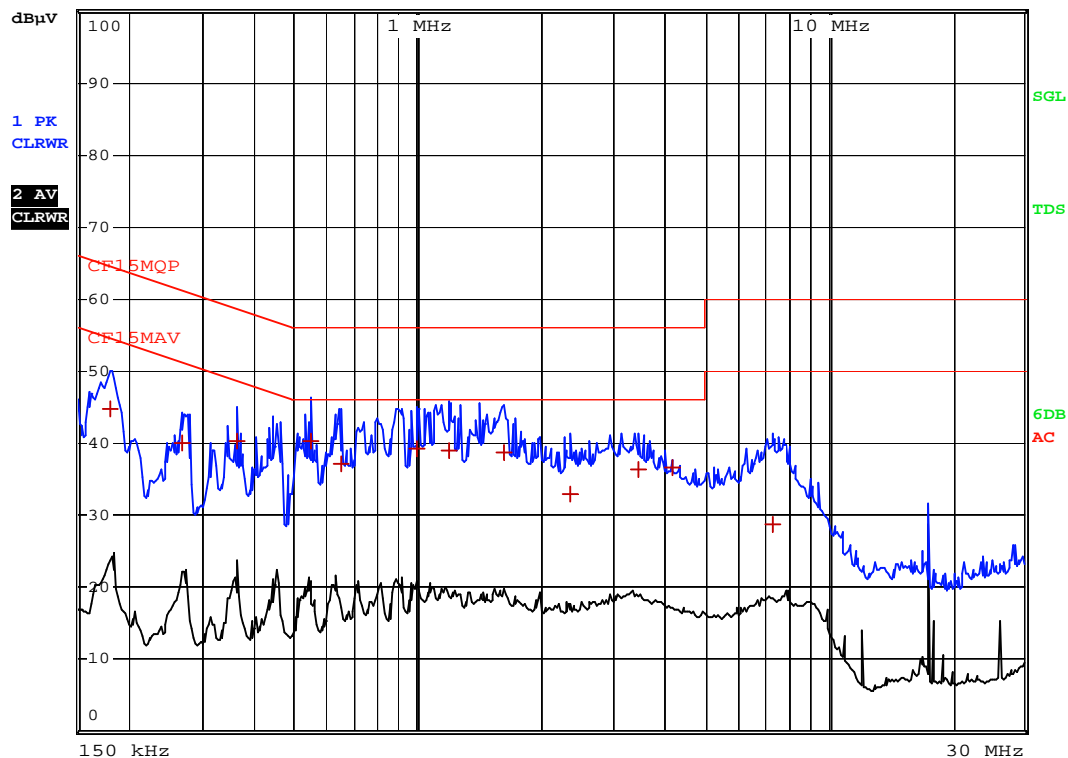
INTERTEK TESTING SERVICES

Model No.: DS6511-2
Worst Case: Talk (DECT & Bluetooth)



RBW 9 kHz
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 2.DEC.2011 11:45:24

INTERTEK TESTING SERVICES

Model No.: DS6511-2
Worst Case: Talk (DECT & Bluetooth)

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dB μ V	DELTA LIMIT dB
1	Quasi Peak	181.5 kHz	44.69 N gnd	-19.72
1	Quasi Peak	267 kHz	40.00 L1 gnd	-21.20
1	Quasi Peak	361.5 kHz	40.18 L1 gnd	-18.50
1	Quasi Peak	550.5 kHz	40.17 L1 gnd	-15.82
1	Quasi Peak	649.5 kHz	37.12 L1 gnd	-18.87
1	Quasi Peak	991.5 kHz	39.11 L1 gnd	-16.89
1	Quasi Peak	1.1895 MHz	38.91 L1 gnd	-17.08
1	Quasi Peak	1.6305 MHz	38.78 L1 gnd	-17.21
1	Quasi Peak	2.364 MHz	32.89 L1 gnd	-23.10
1	Quasi Peak	3.4485 MHz	36.23 N gnd	-19.76
1	Quasi Peak	4.1595 MHz	36.60 L1 gnd	-19.39
1	Quasi Peak	7.3095 MHz	28.65 L1 gnd	-31.34

Date: 2.DEC.2011 11:45:05

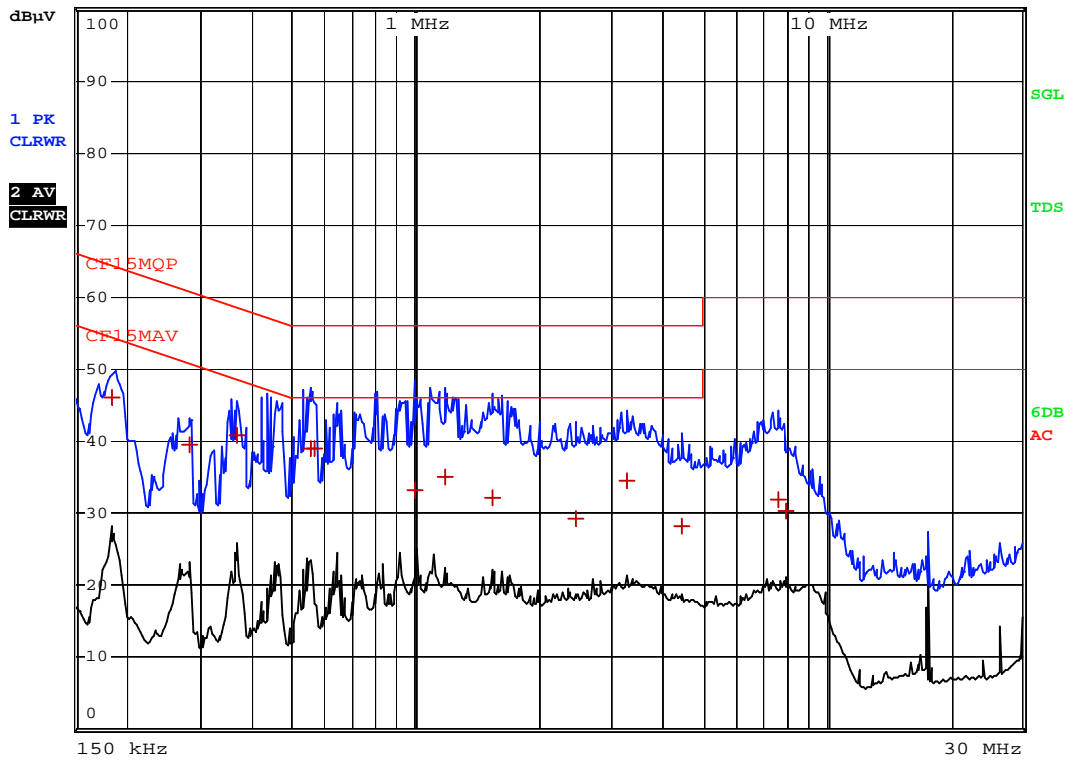
INTERTEK TESTING SERVICES

Model No.: DS6521-2
Worst Case: Talk (DECT & Bluetooth)



RBW 9 kHz
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 18.NOV.2011 10:55:35

INTERTEK TESTING SERVICES

Model No.: DS6521-2
Worst Case: Talk (DECT & Bluetooth)

EDIT PEAK LIST (Final Measurement Results)

Trace1:	CF15MQP				
Trace2:	CF15MAV				
Trace3:	---				
TRACE	FREQUENCY	LEVEL	dB μ V	DELTA LIMIT	dB
1 Quasi Peak	186 kHz	46.12	L1 gnd	-18.09	
1 Quasi Peak	280.5 kHz	39.38	N gnd	-21.42	
1 Quasi Peak	366 kHz	40.81	L1 gnd	-17.77	
1 Quasi Peak	555 kHz	38.94	L1 gnd	-17.05	
1 Quasi Peak	568.5 kHz	39.03	L1 gnd	-16.96	
1 Quasi Peak	996 kHz	33.14	L1 gnd	-22.85	
1 Quasi Peak	1.1805 MHz	34.96	L1 gnd	-21.03	
1 Quasi Peak	1.5405 MHz	32.17	L1 gnd	-23.82	
1 Quasi Peak	2.454 MHz	29.27	N gnd	-26.72	
1 Quasi Peak	3.2865 MHz	34.60	L1 gnd	-21.39	
1 Quasi Peak	4.4565 MHz	28.34	L1 gnd	-27.65	
1 Quasi Peak	7.647 MHz	32.00	L1 gnd	-27.99	
1 Quasi Peak	7.98 MHz	30.41	L1 gnd	-29.58	

Date: 18.NOV.2011 10:55:11

INTERTEK TESTING SERVICES

4.6 Radio Frequency Exposure Compliance

The Routine RF Exposure Evaluation, Routine SAR Evaluation and Declaration of RF Exposure Compliance are saved with filename: RF exposure.pdf

INTERTEK TESTING SERVICES

**EXHIBIT 5
EQUIPMENT LIST**

INTERTEK TESTING SERVICES

5.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer	Biconical Antenna
Registration No.	EW-2500	EW-2188	EW-0571
Manufacturer	R&S	AGILENTTECH	EMCO
Model No.	ESCI	E4407B	3104C
Calibration Date	Jan. 25, 2011	Sep. 26, 2011	Sep. 28, 2010
Calibration Due Date	Jan. 25, 2012	Sep. 26, 2012	Mar. 28, 2012

Equipment	Log Periodic Antenna	Double Ridged Guide Antenna (1GHz - 18GHz)	Broad-Band Horn Antenna
Registration No.	EW-1042	EW-1133	EW-1679
Manufacturer	EMCO	EMCO	SCHWARZBECK
Model No.	3148	3115	BBHA9170
Calibration Date	Oct. 06, 2010	Mar. 02, 2011	Mar. 03, 2011
Calibration Due Date	Oct. 06, 2012	Sep. 02, 2012	Sep. 03, 2012

Equipment	Biconical Antenna (20MHz to 200MHz)	Log Periodic Antenna
Registration No.	EW-0954	EW-0447
Manufacturer	EMCO	EMCO
Model No.	3104C	3146
Calibration Date	Oct. 18, 2011	Jul. 28, 2010
Calibration Due Date	Apr. 18, 2013	Jan. 28, 2012

2) Conducted Emissions Test

Equipment	EMI Test Receiver	Artificial Mains	Pulse Limiter
Registration No.	EW-2251	EW-0192	EW-0698
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	May 06, 2011	Nov. 30, 2010	Mar. 11, 2011
Calibration Due Date	May 06, 2012	Mar. 31, 2012	Mar. 11, 2012

END OF TEST REPORT