

TEST REPORT

Report Number: HK12010393-2

Application
for
Original Grant of 47 CFR Part 15 Certification

1.9GHz Digital Modulation Cordless Phone with Caller ID, Speakerphone,
Digital Answering Machine and Bluetooth - Base Unit Bluetooth Portion

FCC ID: EW780-8213-01

Prepared and Checked by:

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February 09, 2012

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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:	EW780-8213-01
FCC Model(s):	TL96271, TL96371, TL96471, TL96XY1
Type of EUT:	Transceiver
Description of EUT:	1.9GHz Digital Modulation Cordless Phone with Caller ID, Speakerphone, Digital Answering Machine and Bluetooth - Base Unit Bluetooth Portion
Serial Number:	N/A
Sample Receipt Date:	January 10, 2012
Date of Test:	Jan 20 - Feb 03, 2012
Report Date:	February 09, 2012
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
Antenna Requirement	15.203	Pass	2.1
Radiated Emission	15.249(a), 209, & 109	Pass	4.2
Radiated Emission on the Bandedge	15.249(d)	Pass	4.3
Radiated Emission in Restricted Bands	15.205	Pass	4.2
AC Power Line Conducted Emission	15.207 & 15.107	Pass	4.4

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 standard:

FCC Part 15, October 1, 2010 Edition

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**EXHIBIT 2
GENERAL DESCRIPTION**

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2.0 General Description

2.1 Product Description

The TL96271 is a 1.9GHz Digital Modulation Cordless Phone with Caller ID, Digital Answering Machine and Bluetooth - Base Unit Bluetooth Portion. Only base unit has Bluetooth feature, and It operates at frequency range of 2402MHz to 2480MHz with 79 channels. The Base Unit is powered by an adaptor 100-120VAC to 6VDC 600mA.

The antenna used in base unit is integral, and the test sample is a prototype.

The Model(s): TL96371, TL96471 and TL96XY1 are the same as the Model: TL96271 in electronics/electrical designs including software & firmware, PCB layout and construction design/physical design/enclosure. The only differences between these models are color, model number and packing configuration to be sold for marketing purpose. Suffix (X) indicates different number of handset, Suffix (Y) indicates different color of enclosure and different packaging material.

The circuit description is attached in the Appendix and 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 (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.

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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/receive 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 EUT was powered by a 100-120VAC to 6VDC 600mA 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.

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.

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.

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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.

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

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 descriptions are listed below.

- (1) Base Unit: An AC adaptor (100-120VAC to 6VDC 600mA, Model: S005IU0600060, Brand: Ten Pao)(Supplied by Client)
- (1) Base Unit: An AC adaptor (100-120VAC to 6VDC 600mA, Model: SSA-5AP-09 US 060060L, Brand: SIL) (Supplied by Client)

Description of Peripherals:

- (1) Telephone Line Simulator, Model: TLS-5C-01, S/N: 059355 (Supplied by Intertek)
- (2) Handset Unit, Model: TL96271, FCC ID: EW780-7764-01(Supplied by Client)
- (3) Nokia Mobile Phone, Model: 5300, FCC ID: PPIRM-146(Supplied by Intertek)
- (4) 1 x 3m Telephone Line (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: 42.172 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 1-8 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Base Unit: Passed by 6.1 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 $(5+1) \times 625\mu\text{s} = 3.75\text{ms}$. For one period for a pseudo-random hopping through all 79 RF channels, it take: $79 \times 3.75\text{ms} = 296.25\text{ms}$.

The dwell time for DH5 is $5 \times 625\mu\text{s} = 3.125\text{ms}$.

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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Mode: TX-Channel 00 with Adaptor 'Tenpao'

Table 1, Base Unit

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)
V	2402.000	100.0	33	29.4	30.1	66.3	94.0	-27.7
V	4804.000	58.5	33	34.9	30.1	30.3	54.0	-23.7
H	7206.000	53.4	33	37.9	30.1	28.2	54.0	-25.8
H	9608.000	51.0	33	40.4	30.1	28.3	54.0	-25.7
H	12010.000	50.1	33	40.5	30.1	27.5	54.0	-26.5
H	14412.000	49.8	33	40.0	30.1	26.7	54.0	-27.3

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)
V	2402.000	100.0	33	29.4	96.4	114.0	-17.6
V	4804.000	58.5	33	34.9	60.4	74.0	-13.6
H	7206.000	53.4	33	37.9	58.3	74.0	-15.7
H	9608.000	51.0	33	40.4	58.4	74.0	-15.6
H	12010.000	50.1	33	40.5	57.6	74.0	-16.4
H	14412.000	49.8	33	40.0	56.8	74.0	-17.2

- 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. 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.

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Mode: TX-Channel 39 with Adaptor 'Tenpao'

Table 2, Base Unit

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)
V	2441.000	98.9	33	29.4	30.1	65.2	94.0	-28.8
V	4882.000	58.2	33	34.9	30.1	30.0	54.0	-24.0
H	7323.000	53.5	33	37.9	30.1	28.3	54.0	-25.7
H	9764.000	51.2	33	40.4	30.1	28.5	54.0	-25.5
H	12205.000	51.7	33	40.5	30.1	29.1	54.0	-24.9
H	14646.000	53.0	33	38.4	30.1	28.3	54.0	-25.7

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)
V	2441.000	98.9	33	29.4	95.3	114.0	-18.7
V	4882.000	58.2	33	34.9	60.1	74.0	-13.9
H	7323.000	53.5	33	37.9	58.4	74.0	-15.6
H	9764.000	51.2	33	40.4	58.6	74.0	-15.4
H	12205.000	51.7	33	40.5	59.2	74.0	-14.8
H	14646.000	53.0	33	38.4	58.4	74.0	-15.6

- 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.

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Mode: TX-Channel 78 with Adaptor 'Tenpao'

Table 3, Base Unit

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)
V	2480.000	98.6	33	29.4	30.1	64.9	94.0	-29.1
V	4960.000	57.5	33	34.9	30.1	29.3	54.0	-24.7
H	7440.000	53.5	33	37.9	30.1	28.3	54.0	-25.7
H	9920.000	51.2	33	40.4	30.1	28.5	54.0	-25.5
H	12400.000	51.5	33	40.5	30.1	28.9	54.0	-25.1
H	14880.000	52.8	33	38.4	30.1	28.1	54.0	-25.9

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)
V	2480.000	98.6	33	29.4	95.0	114.0	-19.0
V	4960.000	57.5	33	34.9	59.4	74.0	-14.6
H	7440.000	53.5	33	37.9	58.4	74.0	-15.6
H	9920.000	51.2	33	40.4	58.6	74.0	-15.4
H	12400.000	51.5	33	40.5	59.0	74.0	-15.0
H	14880.000	52.8	33	38.4	58.2	74.0	-15.8

- 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.

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Mode: Talk with Adaptor 'Tenpao'

Table 4, 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)	Limit at 3m (dB μ V/m)	Margin (dB)
V	42.172	39.9	16	10.0	33.9	40.0	-6.1
V	84.248	41.6	16	8.0	33.6	40.0	-6.4
H	126.516	36.1	16	14.0	34.1	43.5	-9.4
H	168.688	32.0	16	18.0	34.0	43.5	-9.5
H	207.416	33.8	16	17.0	34.8	43.5	-8.7
H	295.204	28.9	16	22.0	34.9	46.0	-11.1
H	331.784	27.0	16	24.0	35.0	46.0	-11.0
H	355.786	27.1	16	24.0	35.1	46.0	-10.9
H	663.568	22.3	16	29.0	35.3	46.0	-10.7
H	963.837	17.6	16	33.0	34.6	54.0	-19.4

- 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.

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Mode: TX-Channel 00 with Adaptor 'SIL'

Table 5, Base Unit

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)
V	2402.000	100.1	33	29.4	30.1	66.4	94.0	-27.6
V	4804.000	58.5	33	34.9	30.1	30.3	54.0	-23.7
H	7206.000	53.5	33	37.9	30.1	28.3	54.0	-25.7
H	9608.000	50.8	33	40.4	30.1	28.1	54.0	-25.9
H	12010.000	49.9	33	40.5	30.1	27.3	54.0	-26.7
H	14412.000	49.9	33	40.0	30.1	26.8	54.0	-27.2

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)
V	2402.000	100.1	33	29.4	96.5	114.0	-17.5
V	4804.000	58.5	33	34.9	60.4	74.0	-13.6
H	7206.000	53.5	33	37.9	58.4	74.0	-15.6
H	9608.000	50.8	33	40.4	58.2	74.0	-15.8
H	12010.000	49.9	33	40.5	57.4	74.0	-16.6
H	14412.000	49.9	33	40.0	56.9	74.0	-17.1

- 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.

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Mode: TX-Channel 39 with Adaptor 'SIL'

Table 6, Base Unit

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)
V	2441.000	99.0	33	29.4	30.1	65.3	94.0	-28.7
V	4882.000	58.3	33	34.9	30.1	30.1	54.0	-23.9
H	7323.000	53.4	33	37.9	30.1	28.2	54.0	-25.8
H	9764.000	51.5	33	40.4	30.1	28.8	54.0	-25.2
H	12205.000	51.6	33	40.5	30.1	29.0	54.0	-25.0
H	14646.000	52.8	33	38.4	30.1	28.1	54.0	-25.9

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)
V	2441.000	99.0	33	29.4	95.4	114.0	-18.6
V	4882.000	58.3	33	34.9	60.2	74.0	-13.8
H	7323.000	53.4	33	37.9	58.3	74.0	-15.7
H	9764.000	51.5	33	40.4	58.9	74.0	-15.1
H	12205.000	51.6	33	40.5	59.1	74.0	-14.9
H	14646.000	52.8	33	38.4	58.2	74.0	-15.8

- 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.

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Mode: TX-Channel 78 with Adaptor 'SIL'

Table 7, Base Unit

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)
V	2480.000	98.7	33	29.4	30.1	65.0	94.0	-29.0
V	4960.000	57.7	33	34.9	30.1	29.5	54.0	-24.5
H	7440.000	53.5	33	37.9	30.1	28.3	54.0	-25.7
H	9920.000	51.2	33	40.4	30.1	28.5	54.0	-25.5
H	12400.000	51.5	33	40.5	30.1	28.9	54.0	-25.1
H	14880.000	52.8	33	38.4	30.1	28.1	54.0	-25.9

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)
V	2480.000	98.7	33	29.4	95.1	114.0	-18.9
V	4960.000	57.7	33	34.9	59.6	74.0	-14.4
H	7440.000	53.5	33	37.9	58.4	74.0	-15.6
H	9920.000	51.2	33	40.4	58.6	74.0	-15.4
H	12400.000	51.5	33	40.5	59.0	74.0	-15.0
H	14880.000	52.8	33	38.4	58.2	74.0	-15.8

- 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.

INTERTEK TESTING SERVICES

Mode: Talk with Adaptor 'SIL'

Table 8, 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)	Limit at 3m (dB μ V/m)	Margin (dB)
V	42.172	39.9	16	10.0	33.9	40.0	-6.1
V	84.248	41.6	16	8.0	33.6	40.0	-6.4
H	126.516	36.1	16	14.0	34.1	43.5	-9.4
H	168.688	32.0	16	18.0	34.0	43.5	-9.5
H	207.416	33.6	16	17.0	34.6	43.5	-8.9
H	295.204	28.9	16	22.0	34.9	46.0	-11.1
H	331.784	27.1	16	24.0	35.1	46.0	-10.9
H	355.785	27.2	16	24.0	35.2	46.0	-10.8
H	663.568	22.4	16	29.0	35.4	46.0	-10.6
H	963.837	17.5	16	33.0	34.5	54.0	-19.5

- 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. Emission (the row indicated by **bold italic**) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

INTERTEK TESTING SERVICES

4.3 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, whichever is the lesser attenuation, which meet the requirement of FCC Part 15 Section 15.249(d).

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

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

Base Unit

Model	Adaptor	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)
TL96271	"Tenpao"	Lowest	66.3	31.95	34.35	54	-19.65
TL96271	"Tenpao"	Highest	64.9	45.33	19.57	54	-34.43
TL96271	"SIL"	Lowest	66.4	31.15	35.25	54	-18.75
TL96271	"SIL"	Highest	65.0	46.38	18.62	54	-35.38

Model	Adaptor	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)
TL96271	"Tenpao"	Lowest	96.4	31.95	64.45	74	-9.55
TL96271	"Tenpao"	Highest	95.0	45.33	49.67	74	-24.33
TL96271	"SIL"	Lowest	96.5	31.15	65.35	74	-8.65
TL96271	"SIL"	Highest	95.1	46.38	48.72	74	-25.28

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

INTERTEK TESTING SERVICES

4.4 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.

4.4.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

0.564 MHz

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

4.4.2 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 11.10 dB margin compare with quasi-peak limit

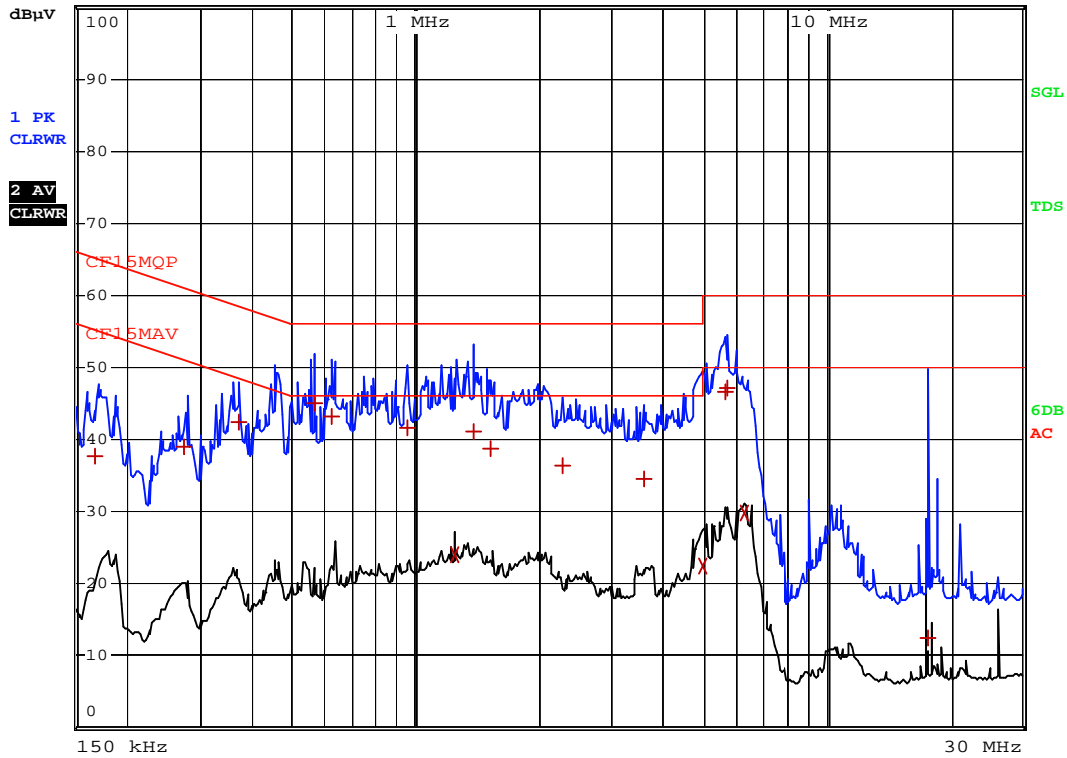
INTERTEK TESTING SERVICES

Model No.: TL96271
Worst Case: Ringing



RBW 9 kHz
MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.FEB.2012 16:29:39

INTERTEK TESTING SERVICES

Model No.: TL96271
Worst Case: Ringing

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dB μ V	DELTA LIMIT dB
1	Quasi Peak	168 kHz	37.68 L1 gnd	-27.37
1	Quasi Peak	276 kHz	39.02 L1 gnd	-21.91
1	Quasi Peak	370.5 kHz	42.37 L1 gnd	-16.11
1	Quasi Peak	564 kHz	44.89 L1 gnd	-11.10
1	Quasi Peak	622.5 kHz	43.14 L1 gnd	-12.85
1	Quasi Peak	951 kHz	41.67 L1 gnd	-14.32
2	CISPR Average	1.248 MHz	23.98 L1 gnd	-22.01
1	Quasi Peak	1.383 MHz	41.06 L1 gnd	-14.93
1	Quasi Peak	1.527 MHz	38.60 N gnd	-17.39
1	Quasi Peak	2.274 MHz	36.48 L1 gnd	-19.52
1	Quasi Peak	3.5835 MHz	34.46 N gnd	-21.53
2	CISPR Average	4.992 MHz	22.39 N gnd	-23.60
1	Quasi Peak	5.667 MHz	46.70 L1 gnd	-13.30
1	Quasi Peak	5.73 MHz	46.99 L1 gnd	-13.00
2	CISPR Average	6.3465 MHz	29.88 L1 gnd	-20.11
1	Quasi Peak	17.61 MHz	12.52 L1 gnd	-47.47

Date: 3.FEB.2012 16:29:18

INTERTEK TESTING SERVICES

Model No.: TL96271

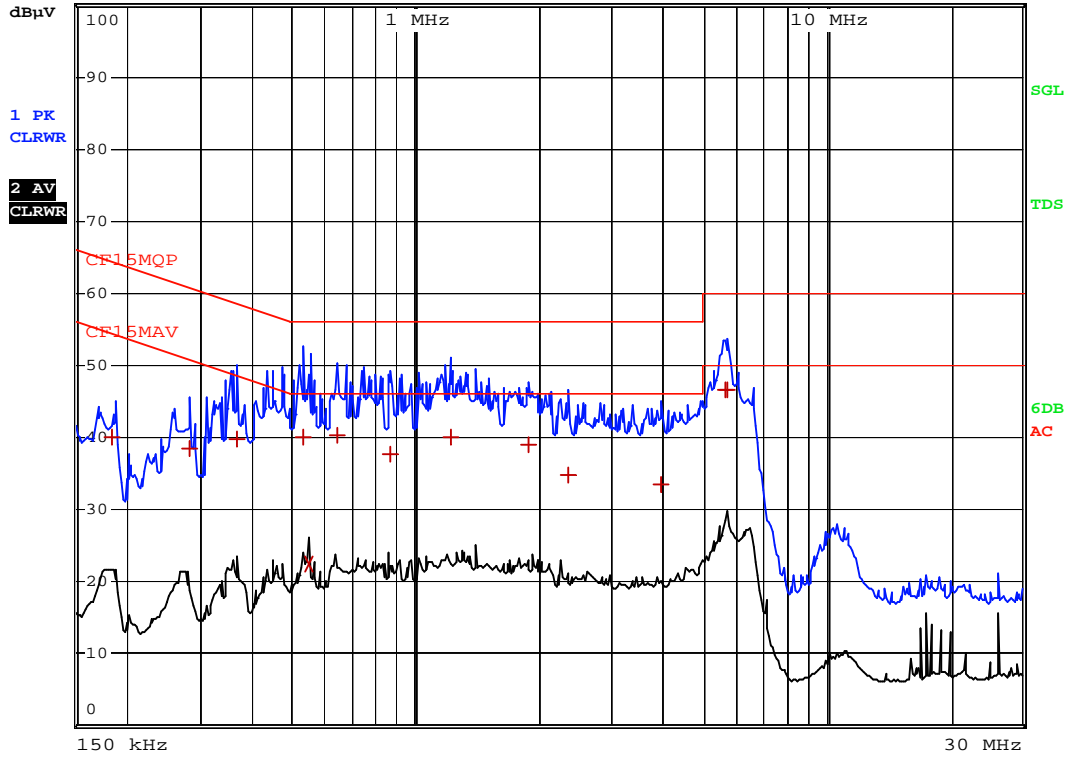
Worst Case: Talk



RBW 9 kHz

MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.FEB.2012 16:51:08

INTERTEK TESTING SERVICES

Model No.: TL96271

Worst Case: Talk

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	40.05	L1 gnd	-24.16
1	Quasi Peak	280.5 kHz	38.41	L1 gnd	-22.39
1	Quasi Peak	366 kHz	39.67	L1 gnd	-18.91
1	Quasi Peak	528 kHz	39.90	L1 gnd	-16.09
2	CISPR Average	546 kHz	22.39	L1 gnd	-23.60
1	Quasi Peak	640.5 kHz	40.30	L1 gnd	-15.69
1	Quasi Peak	865.5 kHz	37.70	L1 gnd	-18.29
1	Quasi Peak	1.221 MHz	40.02	L1 gnd	-15.97
1	Quasi Peak	1.878 MHz	38.87	L1 gnd	-17.12
1	Quasi Peak	2.3505 MHz	34.84	L1 gnd	-21.15
1	Quasi Peak	3.9525 MHz	33.48	L1 gnd	-22.51
1	Quasi Peak	5.649 MHz	46.55	L1 gnd	-13.44
1	Quasi Peak	5.73 MHz	46.56	L1 gnd	-13.43

Date: 3.FEB.2012 16:50:47

INTERTEK TESTING SERVICES

Model No.: TL96271

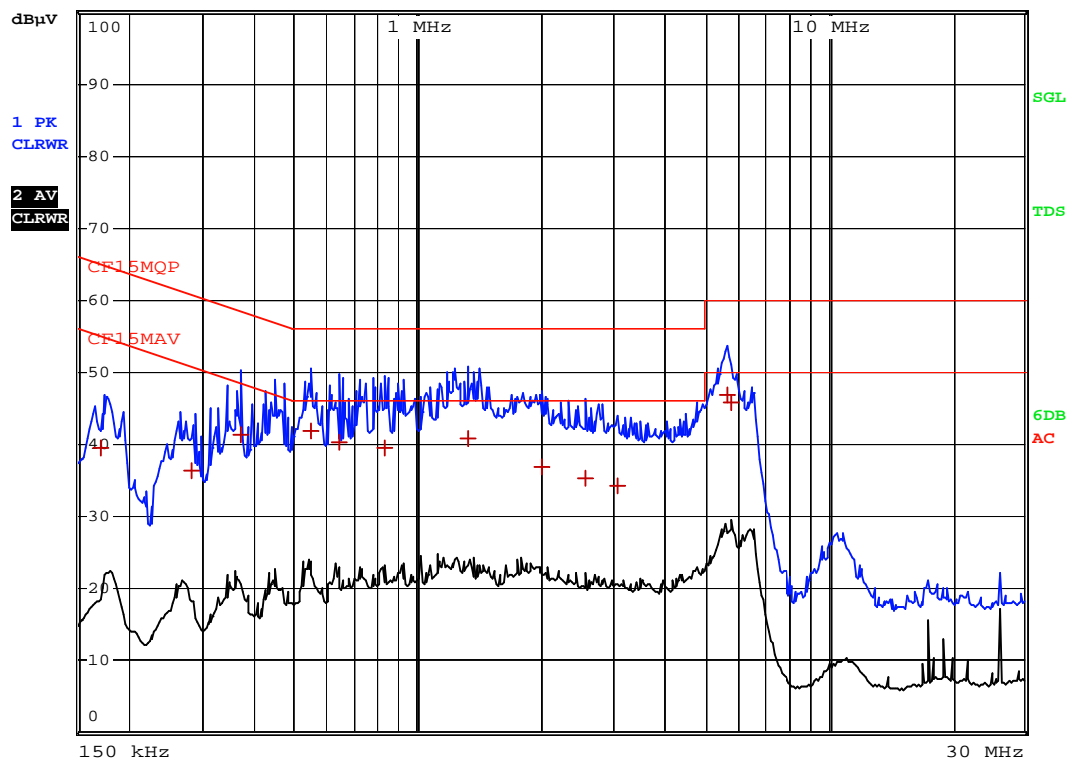
Worst Case: Speakerphone on-line



RBW 9 kHz

MT 1 s

Att 10 dB AUTO PREAMP OFF



Date: 3.FEB.2012 16:35:18

INTERTEK TESTING SERVICES

Model No.: TL96271

Worst Case: Speakerphone on-line

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP

Trace2: CF15MAV

Trace3: ---

	TRACE	FREQUENCY	LEVEL dB μ V		DELTA LIMIT dB
1	Quasi Peak	172.5 kHz	39.37	L1 gnd	-25.46
1	Quasi Peak	285 kHz	36.28	L1 gnd	-24.38
1	Quasi Peak	370.5 kHz	41.34	L1 gnd	-17.15
1	Quasi Peak	546 kHz	41.74	L1 gnd	-14.25
1	Quasi Peak	640.5 kHz	40.38	L1 gnd	-15.61
1	Quasi Peak	829.5 kHz	39.61	L1 gnd	-16.38
1	Quasi Peak	1.32 MHz	40.71	L1 gnd	-15.28
1	Quasi Peak	2.0085 MHz	36.89	L1 gnd	-19.10
1	Quasi Peak	2.5575 MHz	35.30	L1 gnd	-20.69
1	Quasi Peak	3.057 MHz	34.26	L1 gnd	-21.73
1	Quasi Peak	5.6715 MHz	46.80	L1 gnd	-13.19
1	Quasi Peak	5.7705 MHz	45.72	L1 gnd	-14.27

Date: 3.FEB.2012 16:35:04

INTERTEK TESTING SERVICES

**EXHIBIT 5
EQUIPMENT LIST**

INTERTEK TESTING SERVICES

5.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Log Periodic Antenna	Spectrum Analyzer	Biconical Antenna
Registration No.	EW-2500	EW-0446	EW-2188	EW-0571
Manufacturer	R&S	EMCO	AGILENTTECH	EMCO
Model No.	ESCI	3146	E4407B	3104C
Calibration Date	Jan. 25, 2011	Oct. 31, 2011	Sep. 26, 2011	Sep. 28, 2010
Calibration Due Date	Jan. 25, 2012	Apr. 30, 2013	Sep. 26, 2012	Mar. 28, 2012

Equipment	EMI Test Receiver	Double Ridged Guide Antenna (1GHz - 18GHz)	Broad-Band Horn Antenna with frequency range 4G - 40GHz
Registration No.	EW-2251	EW-1133	EW-1679
Manufacturer	R&S	EMCO	SCHWARZBECK
Model No.	ESCI	3115	BBHA9170
Calibration Date	May. 06, 2011	Mar. 02, 2011	Mar. 03, 2011
Calibration Due Date	May. 06, 2012	Sep. 02, 2012	Mar. 03, 2012

2) Conducted Emissions Test

Equipment	EMI Test Receiver	Artificial Mains	Pulse Limiter
Registration No.	EW-2251	EW-0192	EW-0698
Manufacturer	ROHDESCHWARZ	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	May. 06, 2011	Nov. 30, 2010	Mar. 11, 2011
Calibration Due Date	May. 06, 2012	Feb. 29, 2012	Mar. 11, 2012

END OF TEST REPORT