

**Binatone Electronics International Limited**

Application

For

Class I & Class II Permissive Change of 47 CFR Part 15 Certification /  
Previous Family of RSS-213 Issue 2 Equipment Certification

Unlicensed Personal Communication Service Devices/  
2 GHz License-exempt Personal Communications Service Devices

**FCC ID: VLJ80-6997-01**

**Model: K302, K301, K303, K304, K305, K30X**

**IC: 4522A-80699701**

**Model: K302, K301, K303, K304, K305**

**Test Report Number: HK09040073-1**

**Issue Date: May 12, 2009**

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- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.
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# INTERTEK TESTING SERVICES

## MEASUREMENT/TECHNICAL REPORT

**Binatone Electronics International Limited**  
**Model: K302, K301, K303, K304, K305, K30X**  
**FCC ID: VLJ80-6997-01**

This report concerns (check one) Original Grant  Class II Change

Equipment Type : PUE - Part 15 Unlicensed PCS portable Tx held to ear

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes  No

If yes, defer until :

\_\_\_\_\_  
Date

Company Name agrees to notify the Commission by: \_\_\_\_\_

\_\_\_\_\_  
Date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes  No

If no, assumed Part 15, Subpart D for Unlicensed Personal Communication Service Device - the new 47 CFR [10-01-07 Edition] Provision.

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# INTERTEK TESTING SERVICES

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**EXHIBIT 1  
SUMMARY OF TEST RESULTS**

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## 1.0 Summary of Test Results

**Binatone Electronics International Limited**

**FCC ID: VLJ80-6997-01**  
**MODEL: K302, K301, K303, K304, K305, K30X**

**IC: 4522A-80699701**  
**MODEL: K302, K301, K303, K304, K305**

### Technical Requirements

Test Items	RSS-213 / RSS-Gen# Clause	FCC Part 15 Section	Test Procedure ANSI C63.17 / ANSI C63.4	Results	Details see section
Antenna Requirement	7.1.4 <sup>#</sup>	15.317	---	Pass	4.1
Directional Gain of the Antenna	4.1(e)	15.319(e)	4.3.1	Pass	4.2
Power Spectral Density	6.6	15.319(d)	6.1.5	Pass	4.3
Unwanted Emission Inside the Sub-Band	6.7.2	15.323(d)	6.1.6.1	Pass	4.4
Emissions Outside the Sub-Band	6.7.1	15.323(d)	6.1.6.2	Pass	4.5
AC Power Lines Conducted Emissions from EUT	6.3	15.315	7 *	Pass	4.6
Radiated Emissions from Receiver Portion of EUT	6.8	---	8 *	Pass	4.7
Radio Frequency Radiation Exposure	RSS-102	15.319(i)	---	Pass	4.8
Frame Period and Jitter	4.3.4(c)	15.323(e)	6.2.3	Pass	4.15
Monitoring Antenna	4.3.4(b8)	15.323(c)(8)	4	Pass	4.9
Security Code Information	5	---	---	Pass	2.2

**Test Engineer:**



Simple Shum  
Engineer

Date: May 12, 2009

**Approved By:**



Sit Kim Wai, Ken  
Assistant Manager

Date: May 12, 2009

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**EXHIBIT 2  
GENERAL DESCRIPTION**

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### 2.0 General Description

#### 2.1 Product Description

The K302 is a 1.9GHz Digital Modulation Cordless Phone with Caller ID. 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 117VAC to 6VAC 300mA. The Handset is powered by a "Ni-MH" type rechargeable battery pack (2.4V 550mAh).

The antennas used in base unit and handset are integral, and the test sample is a prototype.

The Model(s): K301, K303, K304, K305, K30X are the same as the Model: K302 in hardware aspect except different number of handsets and extra chargers. Suffix, X, indicates number of identical handsets and extra chargers packed in the package. The difference in model number serves as the marketing strategy.

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.

#### 2.2 Technical Description

The circuit description and digital modulation techniques description are saved as filename: descri.pdf.

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### 2.3 Purpose of Application

The purpose of change is saved as filename: product change.pdf

This is an application for Certification of a PUE - Part 15 Unlicensed PCS portable Tx held to ear. The device is also subject to Part 68 Registration. A Verification report has been prepared for the digital portion.

### 2.4 Test Methodology

The radiated emission measurements for unintentional radiator (if any) and AC power line-conducted emission measurements were performed according to the test procedures specified in ANSI C63.4 (2003). The radiated emission measurements for intentional radiator contained in UPCS device and conducted emission measurements were performed according to the test procedures specified in ANSI C63.17 (2006). All radiated measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application. All other measurements were made in accordance with the procedures in 47 CFR Part 2 / RSS-Gen Issue 2 (2007).

### 2.5 Test Facility

The open area test site and conducted measurement facility used to collect the emission data 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 emissions testing, the equipment under test (EUT) was setup to transmit continuously in burst mode with pseudo-random data 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 handset (if any) was powered by a fully charged battery.

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 (as typical as possible).

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. Detector function was in peak mode. Radiated emissions are 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 UPCS transmitter radiated measurement, the spectrum analyzer resolution bandwidth was approximately 1% of EUT emission bandwidth, unless otherwise specified.

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

Radiated emission measurements for UPCS transmitter were 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. Receiver was performed from 30 MHz to the fifth harmonic of the highest frequency or 40 GHz, whichever is lower.

RF module for base unit of K302 is the same with original/previous granted model L302. Therefore conducted emission measurement for emission bandwidth, peak transmit power, jitter, frame repetition stability, carrier stability and listen before transmit requirements for K302 are skipped.

As the base unit has 2 antennas, both have been checked. While conducting the test on one of antennas, another one was being disable its transmission. The data in this report represented the worst-case.

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### 3.2 Conducted Emission Test Configuration

The setup and equipment setting were made in accordance with ANSI C63.17. The antenna of EUT transmitter was replaced by a coaxial cable. The impedance matching of connection, cable loss and external RF attenuator are taken into account. The EUT was arranged to communicate via a fixed carrier frequency between its transmitter and a companion device. The transmission was configured in burst mode with pseudo-random data as typical as normal operation.

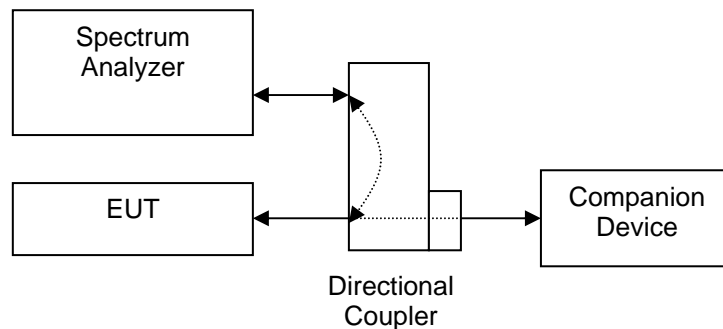


Figure 3.2.1

### 3.3 EUT Exercising Software

The EUT exercise program (if any) 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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### 3.4 Details of EUT and Description of Peripherals

#### Details of EUT:

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

- (1) Base Unit: An AC adaptor (117VAC to 6VAC 300mA, Model: UA-0603)  
(Supplied by Client)
- (2) Handset: A "Ni-MH" type rechargeable battery pack (2.4V 550mAh)  
(Supplied by Client)

#### Description of Peripherals:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded),  
terminated (Supplied by Intertek)

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### 3.5 Measurement Uncertainty

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

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 3.6 Equipment Modification

Any modifications installed previous to testing by Binatone Electronics International Limited will be incorporated in each production model sold/leased in the United States/Canada.

No modifications were installed by Commercial & Electrical Division, Intertek Testing Services Hong Kong Ltd.

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**EXHIBIT 4  
MEASUREMENT RESULTS**

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.0    **Measurement Results**

#### 4.1    Antenna Requirement, FCC Rule 15.317 / RSS-Gen Clause 7.1.4:

EUT must meet the antenna requirement of FCC Rule 15.203 / RSS-Gen Clause 7.1.4.

- EUT uses a permanently attached antenna which is considered sufficient to comply with the provisions of this rule. Please refer to internal photos.pdf for more details.
  
- EUT uses a unique antenna jack or electrical connector which is considered sufficient to comply with the provisions of this rule. Please refer to internal photos.pdf for more details.

#### 4.2    Directional Gain of the Antenna, FCC Rule FCC 15.319(e) / RSS-213 Clause 4.1(e):

The peak transmit power shall be reduced by the amount in dB that the maximum directional gain of the antenna exceeds 3 dBi.

The requirements are made in accordance with ANSI C63.17 sub-clause 4.3.1 / RSS-213 Clause 4.1(e).

- Manufacturer declares that the directional gain of the antenna is less than or equal to 3dBi. No peak transmit power reduction is required.
  
- Manufacturer declares that the directional gain of the antenna is greater than 3dBi. The peak transmit power shall be reduced by \_\_\_\_\_ dB.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.3 Power Spectral Density, FCC Rule 15.319(d) / RSS-213 Clause 6.6:

Power spectral density shall not exceed 3 mW (4.8dBm) in any 3 kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3 kHz.

Measurements are made in accordance with ANSI C63.17 sub-clause 6.1.5. Test setup is shown in section 3.2 Figure 3.2.1.

#### Test Results:

##### Ia. Base unit - Traffic Carrier

Channel	Channel Frequency (MHz)	Measured Power Spectral Density (dBm/3kHz)	Limit (dBm/3 kHz)	Results
Lowest	1921.536	-19.4	4.8	Pass
Middle	1924.992	-15.8	4.8	Pass
Highest	1928.448	-14.6	4.8	Pass

##### Ib. Base unit - Dummy Carrier

Channel	Channel Frequency (MHz)	Measured Power Spectral Density (dBm/3kHz)	Limit (dBm/3 kHz)	Results
Lowest	1921.536	-13.7	4.8	Pass
Middle	1924.992	-13.4	4.8	Pass
Highest	1928.448	-13.4	4.8	Pass

##### II. Handset - Traffic Carrier

Channel	Channel Frequency (MHz)	Measured Power Spectral Density (dBm/3kHz)	Limit (dBm/3 kHz)	Results
Lowest	1921.536	-8.4	4.8	Pass
Middle	1924.992	-5.6	4.8	Pass
Highest	1928.448	-8.8	4.8	Pass

The plots of the power spectral density are saved as filename: psd.pdf



## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

#### 4.4 Unwanted Emission Inside the Sub-Band, FCC Rule 15.323(d) / RSS-213 Clause 6.7.2:

Emissions inside the sub-band must comply with the following emission mask:

1. In the bands between  $1B$  and  $2B$  measured from the center of the emission bandwidth, emission shall be at least 30 dB below the permitted peak transmit power.
2. In the bands between  $2B$  and  $3B$  measured from the center of the emission bandwidth, emission shall be at least 50 dB below the permitted peak transmit power.
3. In the bands between  $3B$  and the band edge, emission shall be at least 60 dB below the permitted peak transmit power.

Where  $B$  = emission bandwidth or occupied bandwidth in Hz

Measurements are made in accordance with ANSI C63.17 sub-clause 6.1.6.1. Test setup is shown in section 3.2 Figure 3.2.1.

#### Test Results:

##### la. Base unit - Traffic Carrier

Channel	Channel Frequency (MHz)	Results
Lowest	1921.536	Pass
Middle	1924.992	Pass
Highest	1928.448	Pass

##### Ib. Base unit - Dummy Carrier

Channel	Channel Frequency (MHz)	Results
Lowest	1921.536	Pass
Middle	1924.992	Pass
Highest	1928.448	Pass

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.4 Unwanted Emission Inside the Sub-Band, FCC Rule 15.323(d) / RSS-213 Clause 6.7.2: - Continued

#### II. Handset - Traffic Carrier

Channel	Channel Frequency (MHz)	Results
Lowest	1921.536	Pass
Middle	1924.992	Pass
Highest	1928.448	Pass

The plots of the unwanted emission inside the sub-band are saved as filename:  
inband.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
 Model: K302

### 4.5 Emissions Outside the Sub-Band, FCC Rule 15.323(d) / RSS-213 Clause 6.7.1:

Emissions outside the sub-band shall be attenuated below a reference power of 112 mW (20.5 dBm) as follows:

1. 30 dB between the band edge and 1.25 MHz above or below the band;
2. 50 dB between 1.25 and 2.5 MHz above or below the band; and
3. 60 dB at 2.5 MHz or greater above or below the band, or shall meet the requirement of FCC Rule 15.319(g) which shall not exceed the limits of FCC Rule 15.209 / RSS-210 Clause 2.6.

Example: Calculation of Limit for emissions between the band edge and 1.25 MHz (1920.000 – 1918.750 MHz)

The emissions shall not exceed the Limit: 20.5 dBm – 30 dB = -9.5 dBm

Measurements are made in accordance with ANSI C63.17 sub-clause 6.1.6.2. As EUT has non-detachable antenna(s), radiated emissions test method is used for out-of-band emissions tests. Emissions that are directly caused by digital circuits in the transmit path and transmitter portion are measured. Test setup and procedures are described in section 3.2 Figure 3.2.1.

### Test Results:

Channel	Carrier Frequency (MHz)	Measured Band (MHz)	Limit (dBm)	Results
Lowest	1921.536	1920.000 - 1918.750	-9.5	Pass
		1918.750 - 1917.500	-29.5	Pass
		0.009 - 1917.500 & 1932.500 - 19300.000	-39.5 / FCC Rule 15.209 / RSS-210 Clause 2.6	Pass
Highest	1928.448	1930.000 - 1931.250	-9.5	Pass
		1931.250 - 1932.500	-29.5	Pass
		0.009 – 1917.500 & 1932.500 - 19300.000	-39.5 / FCC Rule 15.209 / RSS-210 Clause 2.6	Pass

Please refer to the section 4.9.1 to 4.9.4 for more details.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302  
Mode: Transmission

### 4.5.1 Radiated Emissions Configuration Photographs:

Worst Case Radiated Emission  
at

Base Unit: 3843.072 MHz

Handset: 9642.240 MHz

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

### 4.5.2 Radiated Emissions Data:

Data are 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. All measurements were performed with peak detection unless otherwise specified.

The data in table 1-8 list the significant emission frequencies, the limit and the margin of compliance.

Judgement:

Base Unit - Passed by 2.8 dB margin

Handset - Passed by 9.1 dB margin compared with peak limit

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## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited

Date of Test: April 09-28, 2009

Model: K302

Mode: Transmission

Table 1, Base Unit

**Radiated Emissions Data  
Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1  
Emissions Requirements**

Lowest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
H	1919.630	-42.4	-9.5	-32.9
H	1918.302	-50.4	-29.5	-20.9
H	1917.201	-52.3	-39.5	-12.8
H	3843.072	-42.3	-39.5	-2.8
H	5764.608	-44.8	-39.5	-5.3
H	7686.144	-45.6	-39.5	-6.1
H	9607.680	-45.0	-39.5	-5.5
H	11529.216	-46.7	-39.5	-7.2

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

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## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited

Date of Test: April 09-28, 2009

Model: K302

Mode: Transmission

Table 2, Base Unit

**Radiated Emissions Data**  
**Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1**  
**Emissions Requirements**

Highest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
H	1930.075	-41.6	-9.5	-32.1
H	1931.400	-50.3	-29.5	-20.8
H	1933.010	-52.0	-39.5	-12.5
H	3856.896	-42.6	-39.5	-3.1
H	5785.344	-44.8	-39.5	-5.3
H	7713.792	-45.2	-39.5	-5.7
H	9642.240	-44.9	-39.5	-5.4
H	11570.688	-46.8	-39.5	-7.3

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

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Company: Binatone Electronics International Limited

Date of Test: April 09-28, 2009

Model: K302

Mode: Talk

Table 3, Base Unit

**Radiated Emissions Data**  
**Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1**  
**Emissions Requirements**

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	55.300	-63.8	-39.5	-24.3
V	82.950	-63.5	-39.5	-24.0
V	110.600	-63.3	-39.5	-23.8
H	138.250	-63.2	-39.5	-23.7
H	165.900	-63.9	-39.5	-24.4
H	193.550	-65.0	-39.5	-25.5

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

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## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302  
Mode: Transmission

Table 4, Handset

**Radiated Emissions Data  
Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1  
Emissions Requirements**

Lowest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	1919.604	-39.0	-9.5	-29.5
V	1918.602	-44.8	-29.5	-15.3
V	1916.002	-52.9	-39.5	-13.4

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.



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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
 Model: K302  
 Mode: Transmission

Table 5, Handset

### Radiated Emissions Data Pursuant To FCC Part 15 Section 15.209 / RSS-210 Clause 2.6 Emissions Requirements

Lowest Channel

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	3843.072	63.3	33	33.3	63.6	22.2	41.4	54.0	-12.6
H	5764.608	50.7	33	36.6	54.3	22.2	32.1	54.0	-21.9
H	7686.144	53.9	33	38.9	59.8	22.2	37.6	54.0	-16.4
H	9607.680	57.1	33	40.4	64.5	22.2	42.3	54.0	-11.7
H	11529.216	50.9	33	40.5	58.4	22.2	36.2	54.0	-17.8

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	3843.072	63.3	33	33.3	63.6	74.0	-10.4
H	5764.608	50.7	33	36.6	54.3	74.0	-19.7
H	7686.144	53.9	33	38.9	59.8	74.0	-14.2
H	9607.680	57.1	33	40.4	64.5	74.0	-9.5
H	11529.216	50.9	33	40.5	58.4	74.0	-15.6

**NOTES:**

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.

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## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited

Date of Test: April 09-28, 2009

Model: K302

Mode: Transmission

Table 6, Handset

**Radiated Emissions Data**  
**Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1**  
**Emissions Requirements**

Highest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	1930.650	-37.8	-9.5	-28.3
V	1931.360	-43.0	-29.5	-13.5
V	1932.671	-52.8	-39.5	-13.3

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.

## INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
 Model: K302  
 Mode: Transmission

Table 7, Handset

**Radiated Emissions Data**  
**Pursuant To FCC Part 15 Section 15.209 / RSS-210 Clause 2.6**  
**Emissions Requirements**

Highest Channel

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Average Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	3856.896	62.9	33	33.3	63.2	22.2	41.0	54.0	-13.0
H	5785.344	50.8	33	36.6	54.4	22.2	32.2	54.0	-21.8
H	7713.792	53.5	33	38.9	59.4	22.2	37.2	54.0	-16.8
H	9642.240	57.5	33	40.4	64.9	22.2	42.7	54.0	-11.3
H	11570.688	50.7	33	40.5	58.2	22.2	36.0	54.0	-18.0

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	3856.896	62.9	33	33.3	63.2	74.0	-10.8
H	5785.344	50.8	33	36.6	54.4	74.0	-19.6
H	7713.792	53.5	33	38.9	59.4	74.0	-14.6
H	9642.240	57.5	33	40.4	64.9	74.0	-9.1
H	11570.688	50.7	33	40.5	58.2	74.0	-15.8

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.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited

Date of Test: April 09-28, 2009

Model: K302

Mode: Talk

Table 8, Handset

**Radiated Emissions Data**  
**Pursuant To FCC Part 15 Section 15.323 (d) / RSS-213 Clause 6.7.1**  
**Emissions Requirements**

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	52.381	-66.5	-39.5	-27.0
V	58.006	-65.8	-39.5	-26.3
V	64.881	-64.0	-39.5	-24.5
V	78.631	-63.5	-39.5	-24.0
V	93.254	-63.3	-39.5	-23.8
V	163.394	-65.0	-39.5	-25.5

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.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.5.3 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 $\mu$ V/m  
             RA = Receiver Amplitude (including preamplifier) in dB $\mu$ 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 $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dB $\mu$ V/m. This value in dB $\mu$ V/m is converted to its corresponding level in  $\mu$ V/m.

RA = 62.0 dB $\mu$ V  
AF = 7.4 dB  
CF = 1.6 dB  
AG = 29.0 dB  
PD = 0.0 dB  
AV = -10 dB

$$FS = 62.0 + 7.4 + 1.6 - 29.0 + 0.0 + (-10.0) = 32.0 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(32.0 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.6 Radiated Emissions from Receiver, RSS-213 Clause 6.8

The receiver portion is subject to the requirements of RSS-Gen Clause 7.2.3.2 and the radiated emission shall not exceed the limits of Table 1 in RSS-Gen Clause 6 (a).

Measurements are made in accordance with ANSI C63.4 sub-clause 8. Radiated emissions shall be measured with EUT operating in typical operation modes.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302  
Mode: Receiving

### 4.6.1 Radiated Emission Configuration Photographs:

Worst Case Radiated Emission  
at

Base Unit: 1925.860 MHz

Handset: 1925.860 MHz

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

### 4.6.2 Radiated Emissions Data:

Data are 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. All measurements were performed with peak detection unless otherwise specified.

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

Judgement:

Base Unit: Passed by 5.4 dB margin

Handset: Passed by 5.8 dB margin

## INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited

Date of Test: April 09-28, 2009

Model: K302

Mode: Receiving

Table 9, Base Unit

### Radiated Emissions Data Pursuant To RSS-213 Clause 6.8 Emissions Requirements

Middle Channel

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	1925.860	54.4	33	27.2	48.6	54.0	-5.4
V	3851.720	46.9	33	33.3	47.2	54.0	-6.8
V	5777.580	43.4	33	36.6	47.0	54.0	-7.0
V	7703.440	40.9	33	38.9	46.8	54.0	-7.2
V	9629.300	38.8	33	40.4	46.2	54.0	-7.8
V	11555.160	37.7	33	40.5	45.2	54.0	-8.8

#### NOTES:

1. Peak detector is used for the emission measurement.
2. The resolution bandwidth of the spectrum analyzer shall be 100kHz for spurious emission measurements below 1.0GHz and 1.0MHz for measurements above 1.0GHz.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.



## INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302  
Mode: Receiving

Table 10, Handset

### Radiated Emissions Data Pursuant To RSS-213 Clause 6.8 Emissions Requirements

Middle Channel

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	1925.860	54.0	33	27.2	48.2	54.0	-5.8
V	3851.720	47.3	33	33.3	47.6	54.0	-6.4
V	5777.580	43.6	33	36.6	47.2	54.0	-6.8
V	7703.440	41.0	33	38.9	46.9	54.0	-7.1
V	9629.300	38.8	33	40.4	46.2	54.0	-7.8
V	11555.160	38.3	33	40.5	45.8	54.0	-8.2

#### NOTES:

- 1 Peak detector is used for the emission measurement.
- 2 The resolution bandwidth of the spectrum analyzer shall be 100kHz for spurious emission measurements below 1.0GHz and 1.0MHz for measurements above 1.0GHz.
- 3 All measurements were made at 3 meters.
- 4 Negative value in the margin column shows emission below limit.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.7 AC Power Lines Conducted Emissions from Transmitter portion of EUT, FCC Rule 15.315 / RSS-213 Clause 6.3:

The AC power lines conducted emission shall not exceed the limits of FCC Rule 15.207 / Table 2 in RSS-Gen Clause 7.2.2.

Measurements are made in accordance with ANSI C63.4 sub-clause 7. Emissions that are directly caused by digital circuits in the transmit path and transmitter portion are measured.

Not applicable – EUT is only powered by battery for operation.

EUT connects to AC power lines. Emission Data are listed in following pages.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302  
Model: Talk

### 4.7.1 AC Power Lines Conducted Emissions Configuration Photographs:

#### Worst Case AC Power Line Conducted Emission

The worst case AC power Line conducted emission configuration photographs are saved as filename: config photos.pdf

### 4.7.2 AC Power Line Conducted Emissions Data:

The data on the following pages list the significant emission frequencies, the limit, and the margin of compliance.

#### Judgment:

Base unit: Passed by more than 20 dB margin

The worst case AC power line conducted emission data are saved as filename: conduct.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.8 Radio Frequency Radiation Exposure, FCC Rule 15.319(i):

EUT is subject to the radio frequency exposure requirements specified in FCC Rule §§ 1.1307(b), 2.1091 and 2.1093. It shall be considered to operate in a “general population / uncontrolled” environment.

[ × ] Handset unit: EUT was evaluated for Specific Absorption Rate (SAR) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). It is in compliance with the SAR evaluation requirements. A SAR test report was submitted at same time and saved as SAR Report.pdf.

[ × ] Base unit: EUT was evaluated for Maximum Permissible Exposure (MPE) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). The evaluation calculation results are saved as filename: RF exposure info.pdf.

### 4.9 Radio Frequency Exposure Compliance, RSS-102:

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

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited      Date of Test: April 09-28, 2009  
Model: K302

### 4.10 Frame Period and Jitter, FCC Rule 15.323(e) / RSS-213 Clause 4.3.4(c):

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of EUT operating in these sub-bands shall be 20 ms or 10 ms/X where X is a positive whole number.

The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the two ends of such a communication link shall not exceed 25  $\mu$ s for any two consecutive transmissions. Transmissions shall be continuous in every time and spectrum window during the frame period defined for EUT.

Measurements are made in accordance with ANSI C63.17 sub-clause 6.2.3. Test setup is shown in section 3.2 Figure 3.2.1. A spectrum analyzer measures the time duration between the rising edges of two consecutive frames. The measurements are taken over 100,000 frames. These measurement values are used to compute mean value and the difference between any two consecutive frame periods. The mean value is the frame period.

### Test Results:

#### I. Handset

Measured Maximum Jitter ( $\mu$ s)	Limit ( $\mu$ s)	Result
-0.3106	$\pm 25$	Pass

### 4.11 Monitoring Antenna, FCC Rule 15.323(c)(8) / RSS-213 Clause 4.3.4(b)(8):

The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.

- EUT uses the same antenna used for transmission and monitoring that is in compliance meet above provision.
- EUT uses difference antenna used for transmission and monitoring. It must be verified that the monitoring antenna provides coverage equivalent to that of the transmitting antenna. Measurements are made in accordance with ANSI C63.17 sub-clause 4.

## INTERTEK TESTING SERVICES

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### 5.0 Equipment List

#### 1) Radiated Emissions Test

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0954	EW-0446	EW-1015
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	Sep. 30, 2008	Oct. 02, 2008	Jul. 28, 2008
Calibration Due Date	Mar. 30, 2010	Apr. 02, 2010	Jan. 28, 2010

Equipment	EMI Test Receiver	Spectrum Analyzer	RF Pre-Amplifier
Registration No.	EW-0014	EW-2188	EW-1779a
Manufacturer	R&S	AGILENTTECH	MITEQ
Model No.	ESVS30	E4407B	AMF-4D-001120-34-13P
Calibration Date	May 09, 2008	Dec. 18, 2008	Jul. 05, 2008
Calibration Due Date	May 09, 2009	Dec. 18, 2009	Aug. 01, 2009

#### 2) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN	Pulse Limiter
Registration No.	EW-2251	EW-0192	EW-0700
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	Oct. 28, 2008	Nov. 12, 2008	Dec 04, 2007
Calibration Due Date	Oct. 28, 2009	Nov. 12, 2009	Jun. 04, 2009

#### 3) Conductive Measurement Test

Equipment	Spectrum Analyzer	Coaxial directional coupler	Digital Radiocommunication Tester for DECT
Registration No.	EW-2253	EW-2337	EW-2460
Manufacturer	R&S	MAGNA	R&S
Model No.	FSP40	4222-16	CMD60
Calibration Date	Aug. 12, 2008	Nil*	Aug. 22, 2008
Calibration Due Date	Aug. 12, 2009	Nil*	Aug. 22, 2009