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TEST REPORT

Report Number: 16120696HKG-001

Application
For
Class II Permissive Change of 47 CFR Part 15 Certification
Unlicensed Personal Communication Service Devices

FCC ID: EW780-9870-00

Prepared and Checked by:

Approved by:

Signed on File

Leung Chiu Kuen, Stanley
Engineer

Koo Wai Ip
Technical Supervisor
February 17, 2017

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Intertek Testing Services Hong Kong Ltd.

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-ettsemko.com

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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, 2015 Edition
FCC ID:	EW780-9870-00
FCC Model(s):	CL83207, CL83107, CL83307, CL83407, CL83XY7, CL83107 BS, CL83207 BS, CL83307 BS, CL83407 BS, CL83XY7 BS
Type of EUT:	Unlicensed Personal Communications Service Devices
Description of EUT:	DECT 6.0 Cordless Phone
Serial Number:	N/A
Sample Receipt Date:	December 19, 2016
Date of Test:	December 20, 2016 to January 25, 2017
Report Date:	February 17, 2017
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

General Technical Requirements				
Test Items	FCC Part 15 Section	Test Procedure ANSI C63.17 / ANSI C63.4*	Results	Details see section
Antenna Requirement	15.317	---	Pass	4.1
Digital Modulation Techniques	15.319(b)	6.1.4	Pass	4.2
Occupied/Emission Bandwidth	15.323(a)	6.1.3	Pass	4.3
Directional Gain of the Antenna	15.319(e)	4.3.1	Pass	4.4
Power Spectral Density	15.319(d)	6.1.5	Pass	4.5
Automatic Discontinuation of Transmission	15.319(f)	---	Pass	4.6
AC Power Line Conducted Emissions from EUT	15.315	7*	Pass	4.9
Security Code Information	---	---	Pass	2.2

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1.1 Summary of Test Results (continued)

Specific Requirements for UPCS Device				
Test Items	FCC Part 15 Section	Test Procedure ANSI C63.17	Results	Details see section
Unwanted Emission Inside the Sub-Band	15.323(d)	6.1.6.1	Pass	4.7
Emissions Outside the Sub-Band	15.323(d)	6.1.6.2	Pass	4.8
Least Interfered Channel (LIC) Selection	15.323(c)(5)	7.3.2	Pass	4.10.1
Least Interfered Channel (LIC) Confirmation	15.323(c)(5)	7.3.2 7.3.3	Pass	4.10.2
Maximum Spectrum Occupancy	15.323(c)(5)	---	Pass	4.10.3
Maximum Reaction Time	15.323(c)(7)	7.5	Pass	4.11

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1.2 Statement of Compliance

The equipment under test is found to be complying with the following standards:

FCC Part 15, October 1, 2015 Edition

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**EXHIBIT 2
GENERAL DESCRIPTION**

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2.0 General Description

2.1 Product Description

The CL83207 is a DECT 6.0 Cordless Telephone. It operates at frequency range of 1921.536MHz to 1928.448MHz with 5 channels (1921.536MHz, 1923.264MHz, 1924.992MHz, 1926.720MHz and 1928.448MHz). The Base Unit is powered by an adaptor 100-120VAC to 6VDC 600mA.

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

The Model(s): CL83107, CL83307, CL83407, CL83XY7, CL83107 BS, CL83207 BS, CL83307 BS, CL83407 BS and CL83XY7 BS are the same as the Model: CL83207 in electrical designs including software & firmware, PCB layout and construction design/physical design/enclosure. The only differences between these models are color, model number, package type and number of Handset and Charger to be sold for marketing purpose. Suffix ("X, Y" in CL83XY7 and CL83XY7 BS) indicates different number of handsets, package type or color of enclosure.

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 with filename: descri.pdf.

2.3 Purpose of Change

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

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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 (2014). The radiated emission measurements for intentional radiator contained in UPCS device, conducted emission measurements, Listen Before Transmit (LBT) tests, Time Frame and Frequency Stability tests were performed according to the test procedures specified in ANSI C63.17 (2013). All radiated measurements were performed in radiated emission test site. Preliminary scans were performed in the radiated emission test site 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.

2.5 Test Facility

The radiated emission test site, AC power line conducted measurement facility and antenna port conducted measurement facility used to collect the radiated data, AC Power Line conducted data, and conductive data are at Intertek Testing Services Hong Kong Ltd., which is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong. This test facility and site measurement data have been fully placed on file with FCC.

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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 set up 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 Base Unit was powered by a 100-120VAC 60Hz 200mA 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 EUT is attached to accessories, 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.

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.

RF module for base unit of CL83207 is the same with original granted model CL83215. Therefore conducted emission measurement for jitter, frame repetition stability, carrier stability and listen before transmit requirements for CL83207 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.

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.

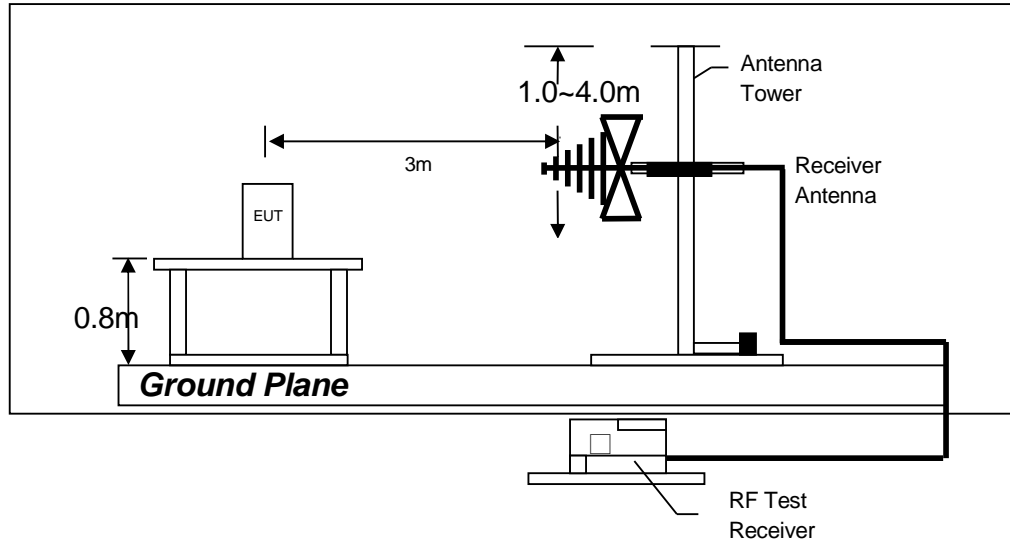
All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

All relevant operation modes have been tested, and the worst case data is included in this report.

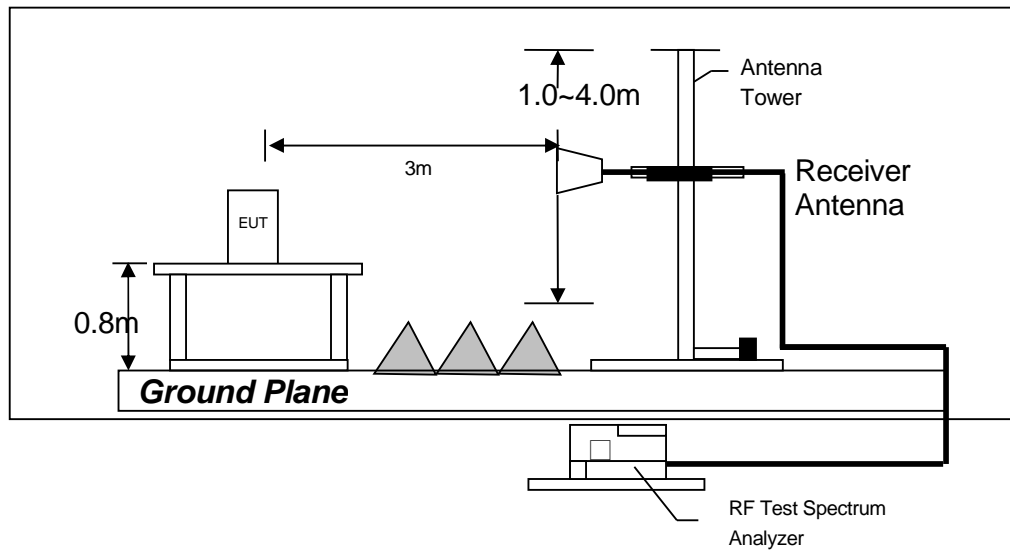
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3.2 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

Figure 3.2.1

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3.3 AC Line Conducted Emission Test Setup

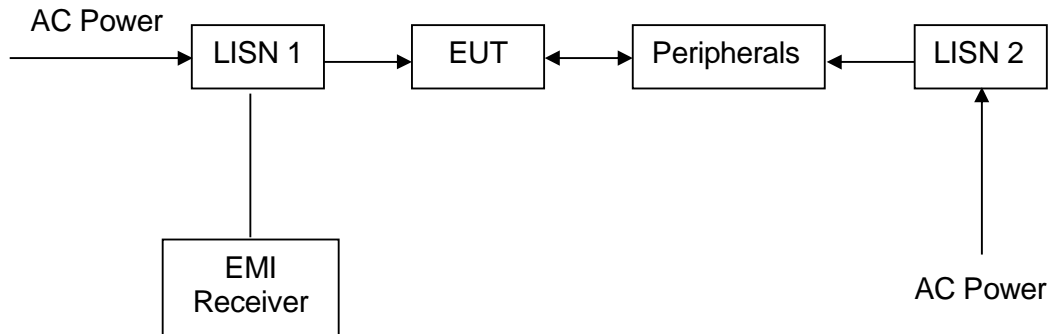


Figure 3.3.1

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3.4 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.

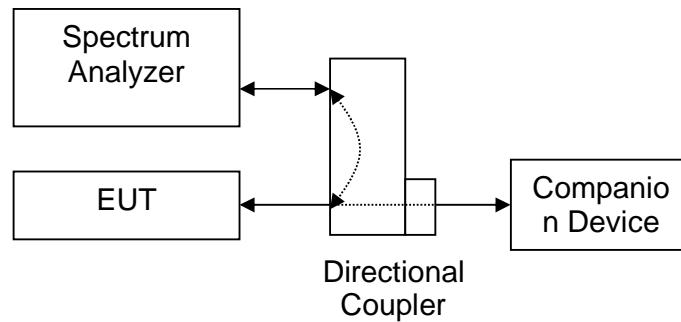


Figure 3.4.1

3.5 Conducted Monitoring and Operation Test Configuration

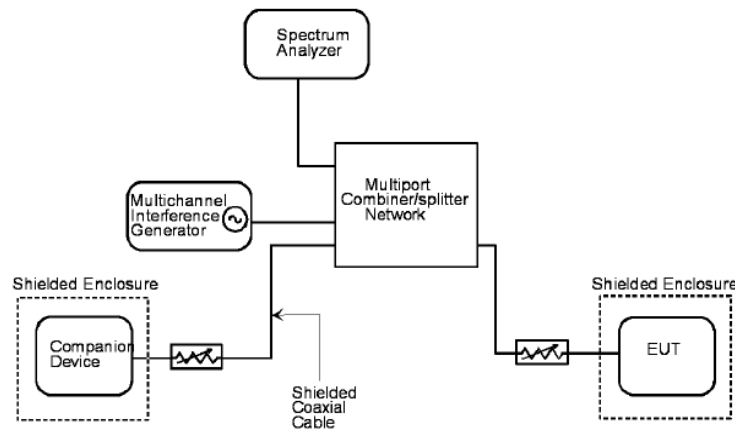


Figure 3.5.1

3.6 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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3.7 Details of EUT and Description of Accessories

Details of EUT:

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

- (1) Base Unit: An AC adaptor (100-120VAC 60Hz 200mA to 6VDC 600mA, Model: S006AKU0600060, Brand: Ten Pao) (Supplied by Client)

Description of Accessories:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)
- (2) Handset (Model: CL82207, FCC ID: EW780-9867-00)

3.8 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered. The values of the Measurement uncertainty for radiated emission test, AC line conducted emission test and RF conducted test, frequency stability and timing jitter are $\pm 5.3\text{dB}$, $\pm 4.2\text{dB}$, $\pm 1\text{dB}$, $\pm 23\text{Hz}$, $0.1\mu\text{s}$ respectively.

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.

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**EXHIBIT 4
TEST RESULTS**

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4.0 Measurement Results

4.1 Antenna Requirement, FCC Rule 15.317:

EUT must meet the antenna requirement of FCC Rule 15.203.

- EUT uses permanently attached antenna(s) which is considered sufficient to comply with the provisions of this rule. Please refer to internal photos.pdf for more details.

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

4.2 Digital Modulation Techniques, FCC Rule 15.319(b):

All transmissions must use only digital modulation techniques.

The requirements are made in accordance with ANSI C63.17 sub-clause 6.1.4.

Attestation:

Please refer to the technical description (descri.pdf) or relevant DECT standards for more details.

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4.3 Emission Bandwidth, FCC Rule 15.323(a):

Operation shall be contained within the 1920 – 1930 MHz band. The emission bandwidth (*B*) shall be less than 2.5 MHz and greater than 50 kHz.

Measurements are made in accordance with ANSI C63.17 sub-clause 6.1.3. Test setup is shown in section 3.4 Figure 3.4.1.

Test Results:

I. Base unit - Traffic Carrier

Channel	Channel Frequency (MHz)	Measuring Signal Level	Measured Emission Bandwidth (MHz)	Results
Lowest	1921.536	26 dB down	1.43	Pass
Highest	1928.448	26 dB down	1.49	Pass

The plots of emission bandwidth are saved as below.

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4.4 Directional Gain of the Antenna, FCC Rule FCC 15.319(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.

- 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.

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4.5 Power Spectral Density, FCC Rule 15.319(d):

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 3.4 Figure 3.4.1.

Test Results:

I. Base unit - Traffic Carrier

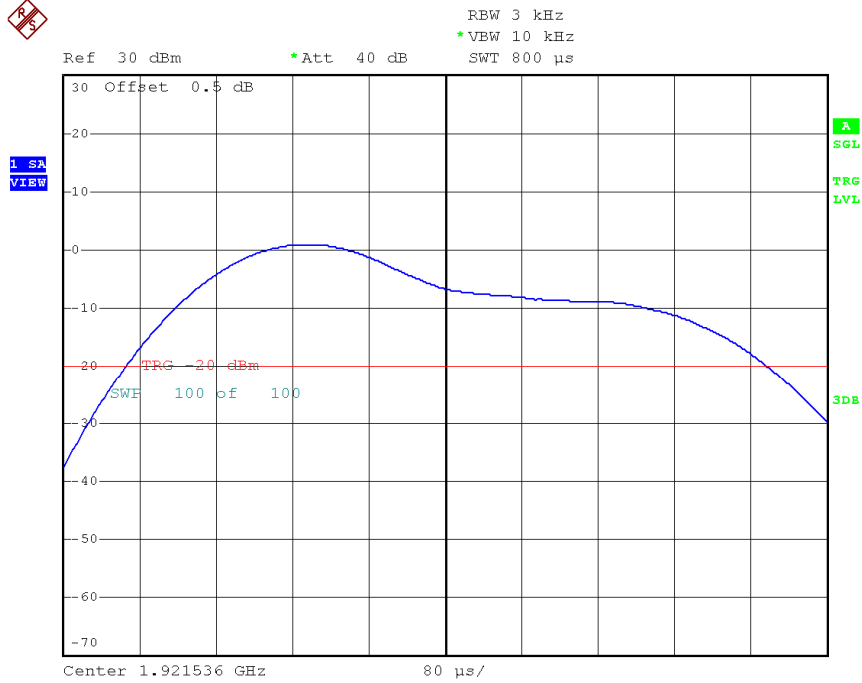
Channel	Channel Frequency (MHz)	Measured Power Spectral Density (dBm/3kHz)	Limit (dBm/3 kHz)	Results
Lowest	1921.536	-5.4	4.8	Pass
Highest	1928.448	-5.5	4.8	Pass

The plots of the power spectral density are as below.

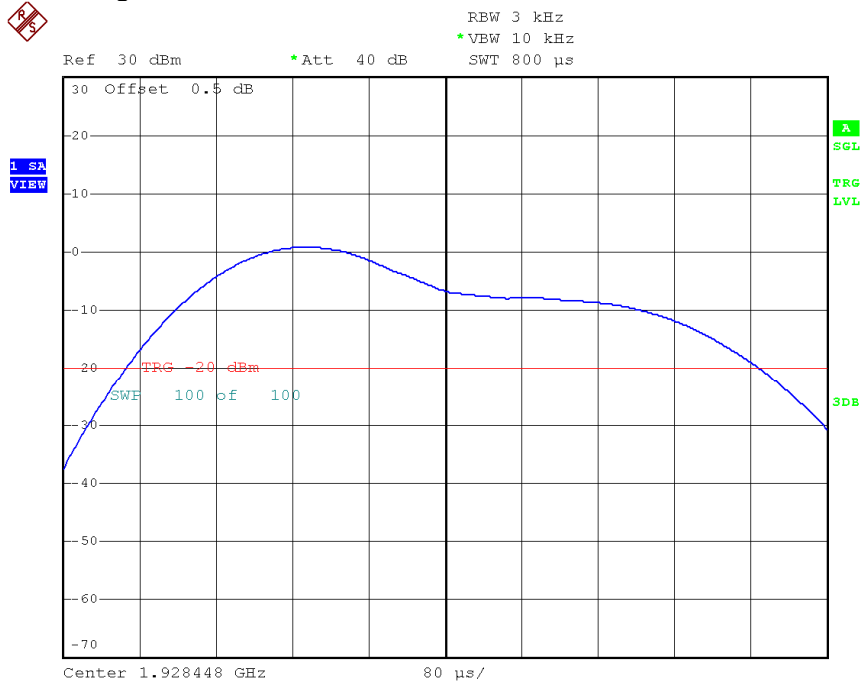
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Plots of the power spectral density

Base unit, Lowest channel, Traffic carrier



Base unit, Highest channel, Traffic carrier



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4.6 Automatic Discontinuation of Transmission, FCC Rule 15.319(f):

The EUT shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

The manufacturer declares that the EUT can automatically discontinue transmission in case of either absent information to transmit or operational failure. Please refer to the declaration letter for details, which is saved with filename: declaration.pdf.

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4.7 Unwanted Emission Inside the Sub-Band, FCC Rule 15.323(d):

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 in Hz

Measurements are made in accordance with ANSI C63.17 sub-clause 6.1.6.1. Test setup is shown in section 3.4 Figure 3.4.1

Test Results:

I. Base unit - Traffic Carrier

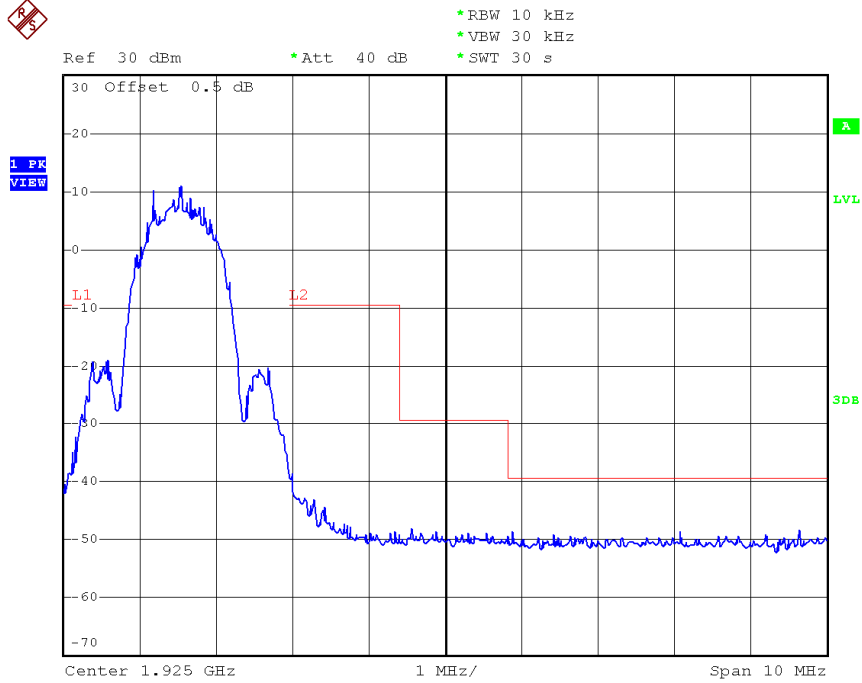
Channel	Channel Frequency (MHz)	Results
Lowest	1921.536	Pass
Middle	1924.992	Pass
Highest	1928.448	Pass

The plots of the unwanted emission inside the sub-band are as below.

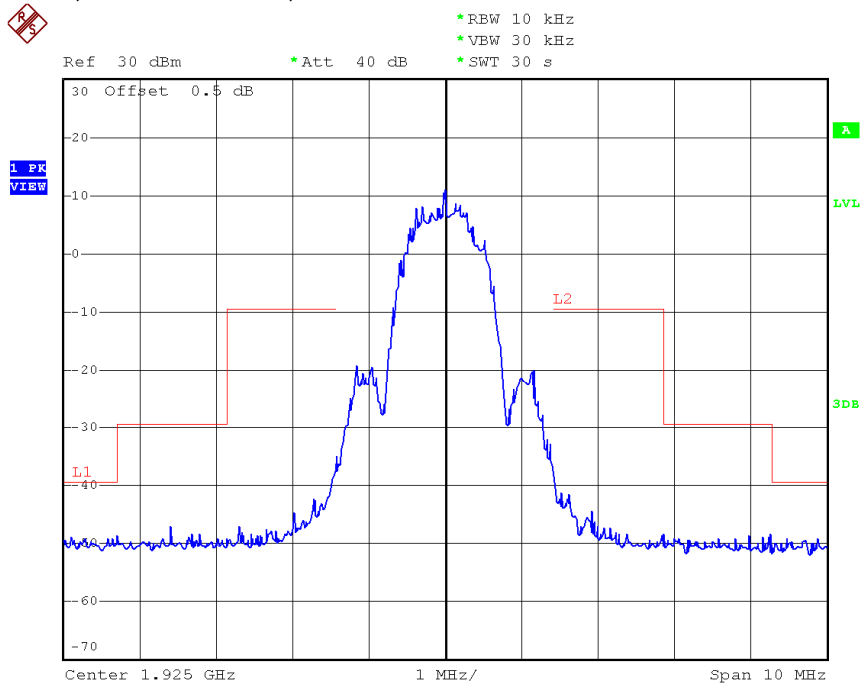
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Plots of the unwanted emission inside the sub-band

Base unit, Lowest channel, Traffic carrier



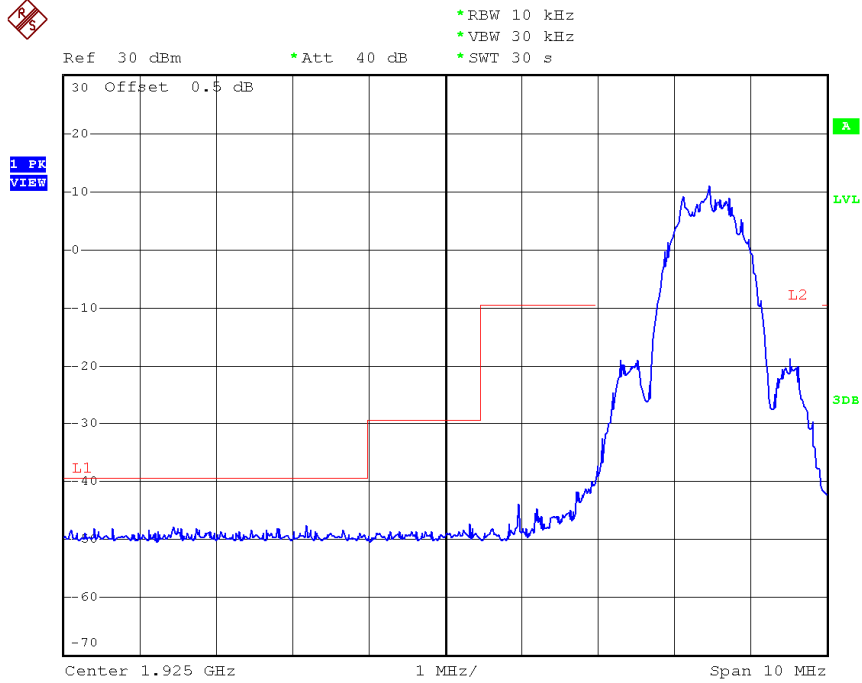
Base unit, Middle channel, Traffic carrier



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Plots of the unwanted emission inside the sub-band

Base unit, Highest channel, Traffic carrier



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4.8 Emissions Outside the Sub-Band, FCC Rule 15.323(d):

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.

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. Radiated emissions test method is used. Emissions that are directly caused by digital circuits in the transmit path and transmitter portion are measured.

Test setup is shown 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	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	Pass

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4.8.1 Radiated Emissions Configuration Photographs:

Worst Case Radiated Emission
at

Base Unit : 2121.360 MHz

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

4.8.2 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 1-12 list the significant emission frequencies, the limit and the margin of compliance.

Judgement:

Base Unit - Passed by 2.5 dB margin

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Mode: Transmission

Table 1, Base Unit

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d) Emissions Requirements**

Lowest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
H	1917.357	-54.6	-39.5	-15.1
H	1918.702	-52.6	-29.5	-23.1
H	1919.926	-41.2	-9.5	-31.7
H	1537.125	-58.9	-39.5	-19.4
H	1729.450	-54.9	-39.5	-15.4
H	2114.004	-45.0	-39.5	-5.5
H	2304.750	-54.5	-39.5	-15.0
H	3843.072	-51.1	-39.5	-11.6
H	5764.608	-54.9	-39.5	-15.4
H	7686.144	-53.7	-39.5	-14.2
V	9607.680	-52.9	-39.5	-13.4
V	11529.216	-51.4	-39.5	-11.9

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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Mode: Transmission

Table 2, Base Unit

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d) Emissions Requirements**

Highest Channel

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
H	1930.038	-41.7	-9.5	-32.2
H	1931.785	-51.8	-29.5	-22.3
H	1932.842	-54.8	-39.5	-15.3
V	1542.680	-57.9	-39.5	-18.4
H	1735.450	-53.7	-39.5	-14.2
H	2121.360	-42.0	-39.5	-2.5
H	2314.160	-53.4	-39.5	-13.9
H	3856.896	-51.2	-39.5	-11.7
H	5785.344	-55.1	-39.5	-15.6
H	7713.792	-53.6	-39.5	-14.1
V	9642.240	-52.8	-39.5	-13.3
V	11570.688	-51.6	-39.5	-12.1

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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Mode: Speaker On

Table 3, Base Unit

**Radiated Emissions Data
Pursuant To FCC Part 15 Section 15.323 (d) Emissions Requirements**

Polarization	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
V	54.371	-72.6	-39.5	-33.1
V	131.728	-70.6	-39.5	-31.1
V	207.383	-72.7	-39.5	-33.2
H	414.737	-68.1	-39.5	-28.6
H	829.522	-66.5	-39.5	-27.0
V	960.855	-59.9	-39.5	-20.4

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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4.8.3 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 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 29.0 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 μ V/m. This value in dB μ V/m is converted to its corresponding level in μ V/m.

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

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

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

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4.8.4 Average Factor Calculation and Transmitter ON Time Measurements, FCC Rule 15.35(b, c):

- [] The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SPAN function on the analyzer was set to ZERO. The transmitter ON time was determined from the resultant time-amplitude display:

Please refer to the attached plots for more details:

The plots of Transmitter ON Time Measurements are as below.

- [] Please refer to the attached transmitter timing diagram that are provided by manufacturer
- [x] Not applicable - No average factor is required.
- [] Please refer to Technical Description (descri.pdf) for more details

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4.9 AC Power Line Conducted Emissions, FCC Rule 15.315:

The AC power line conducted emission shall not exceed the limits of FCC Rule 15.207.

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.

Test setup is shown in section 3.3 Figure 3.3.1.

- 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 (indirectly) but has no transmission. Emission Data of Base Unit is listed in following pages.

- Handset connects to AC power line (indirectly) only during charging. Emission Data is listed in following pages.

INTERTEK TESTING SERVICES

4.9.1 AC Power Line Conducted Emissions Configuration Photographs:

Worst Case AC Power Line Conducted Emission
at

321 kHz

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

4.9.2 AC Power Line Conducted Emissions Data:

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

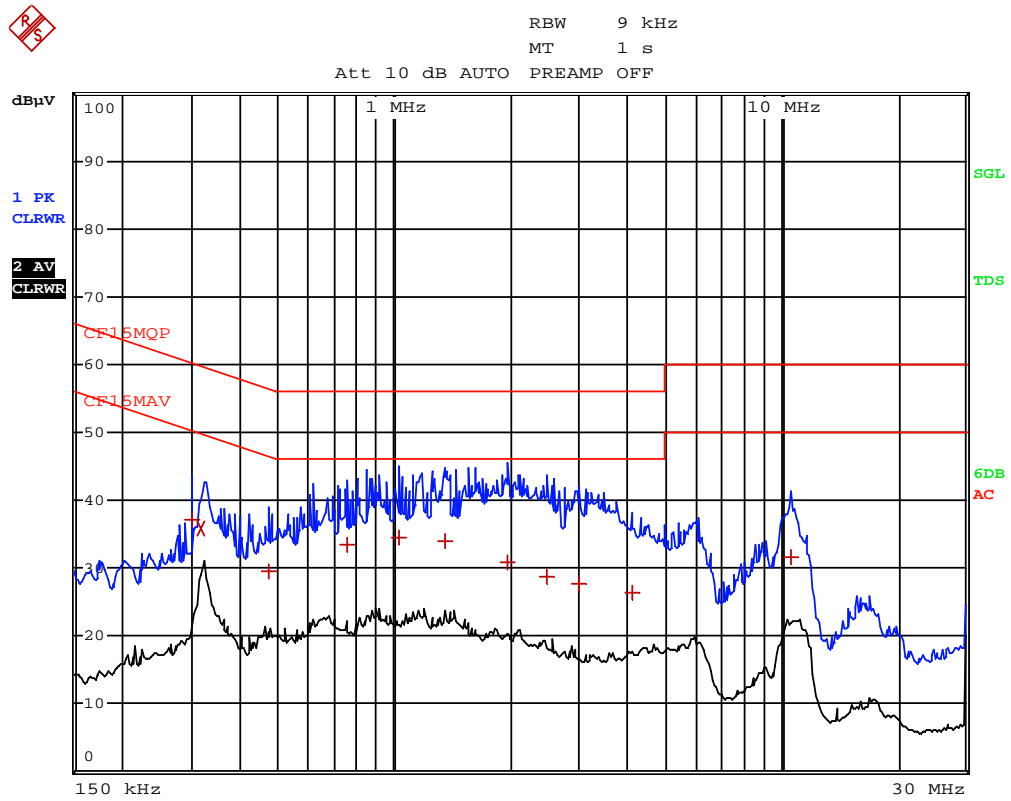
Judgment:

Passed by 13.74 dB margin compared with CISPR Average limit

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Worst Case:

Base Talk



Date: 28.DEC.2016 12:41:12

INTERTEK TESTING SERVICES

Worst Case:

Base Talk

EDIT PEAK LIST (Final Measurement Results)					
Trace1:	CF15MQP				
Trace2:	CF15MAV				
Trace3:	---				
TRACE	FREQUENCY	LEVEL	dB μ V	DELTA	LIMIT dB
1 Quasi Peak	298.5 kHz	37.15	L1	-23.12	
2 CISPR Average	321 kHz	35.93	L1	-13.74	
1 Quasi Peak	474 kHz	29.44	N	-27.00	
1 Quasi Peak	757.5 kHz	33.52	N	-22.47	
1 Quasi Peak	1.023 MHz	34.53	N	-21.46	
1 Quasi Peak	1.3515 MHz	33.96	N	-22.04	
1 Quasi Peak	1.968 MHz	30.72	N	-25.27	
1 Quasi Peak	2.481 MHz	28.81	N	-27.18	
1 Quasi Peak	3.012 MHz	27.69	N	-28.30	
1 Quasi Peak	4.137 MHz	26.38	N	-29.61	
1 Quasi Peak	10.635 MHz	31.73	N	-28.26	

Date: 28.DEC.2016 12:40:56

INTERTEK TESTING SERVICES

4.10 Least Interfered Channel, LIC, FCC Rule 15.323(c)(5):

- Not implemented – EUT met monitoring threshold requirements. Please refer to the section 4.14.1 for more details
- If access to spectrum is not available as determined by section 4.14.1 and a minimum of 20 duplex system access channels are defined for the EUT, the time and spectrum windows with the lowest power level may be accessed

Number of duplex channels per frequency channel = 12

Number of frequency channel = 5

Total Duplex Channels = 60

INTERTEK TESTING SERVICES

4.10.1 Least Interfered Channel (LIC) Selection, FCC Rule 15.323(c)(5):

The criteria are specified in section 4.14.2. In addition, the power measurement resolution for this comparison must be accurate to within 6 dB.

Measurements are made in accordance with ANSI C63.17 sub-clause 7.3.2. Test setup is shown in section 3.5 Figure 3.5.1. RF signal generators apply uniform CW interference on all EUT carriers except two carriers (designated f_1 and f_2), each at level $T_L + U_M + 14\text{dB}$ (cases 1 and 2) and $T_L + U_M + 8\text{dB}$ (cases 3 and 4). EUT can only transmit on f_2 carrier (cases 1 and 3) and f_1 carrier (cases 2 and 4).

Test Descriptions and Results:

I. LIC Procedure - Base unit

	Test Descriptions	EUT transmits on	Results
1	Apply interference on f_1 at level $T_L + U_M + 7\text{ dB}$. Apply interference on f_2 at level $T_L + U_M$. Initiate transmission. Verify transmission on f_2 . Terminate transmission. Repeat 5 times.	f_2	Pass
2	Apply interference on f_1 at level $T_L + U_M$. Apply interference on f_2 at level $T_L + U_M + 7\text{ dB}$. Initiate transmission. Verify transmission on f_1 . Terminate transmission. Repeat 5 times.	f_1	Pass
3	Apply interference on f_1 at level $T_L + U_M + 1\text{ dB}$. Apply interference on f_2 at level $T_L + U_M - 6\text{ dB}$. Initiate transmission. Verify transmission on f_2 . Terminate transmission. Repeat 5 times.	f_2	Pass
4	Apply interference on f_1 at level $T_L + U_M - 6\text{ dB}$. Apply interference on f_2 at level $T_L + U_M + 1\text{ dB}$. Initiate transmission. Verify transmission on f_1 . Terminate transmission. Repeat 5 times.	f_1	Pass

NA - Not applicable

INTERTEK TESTING SERVICES

4.10.1 Least Interfered Channel (LIC) Selection, FCC Rule 15.323(c)(5):

Test Descriptions and Results:

II. LIC Procedure - Handset

	Test Descriptions	EUT transmits on	Results
1	Apply interference on f_1 at level $T_L + U_M + 7$ dB. Apply interference on f_2 at level $T_L + U_M$. Initiate transmission. Verify transmission on f_2 . Terminate transmission. Repeat 5 times.	f_2	Pass
2	Apply interference on f_1 at level $T_L + U_M$. Apply interference on f_2 at level $T_L + U_M + 7$ dB. Initiate transmission. Verify transmission on f_1 . Terminate transmission. Repeat 5 times.	f_1	Pass
3	Apply interference on f_1 at level $T_L + U_M + 1$ dB. Apply interference on f_2 at level $T_L + U_M - 6$ dB. Initiate transmission. Verify transmission on f_2 . Terminate transmission. Repeat 5 times.	f_2	Pass
4	Apply interference on f_1 at level $T_L + U_M - 6$ dB. Apply interference on f_2 at level $T_L + U_M + 1$ dB. Initiate transmission. Verify transmission on f_1 . Terminate transmission. Repeat 5 times.	f_1	Pass

NA - Not applicable

INTERTEK TESTING SERVICES

4.10.2 Least Interfered Channel (LIC) Confirmation, FCC Rule 15.323(c)(5):

EUT utilizing the provision of FCC Rule 15.323(c)(5) must have monitored all access channels defined for its system within the last 10 s and must verify, within the 20 ms (40 ms for EUT designed to use a 20 ms frame period) immediately preceding actual channel access that the detected power of the selected time and spectrum windows is no higher than the previously detected value.

Measurements are made in accordance with ANSI C63.17 sub-clause 7.3.2 and 7.3.3. These tests are performed in section 4.14.2.1 and 4.15.

Results:

The tests are reported in section 4.14.2.1 and 4.15.

4.10.3 Maximum Spectrum Occupancy, FCC Rule 15.323(c)(5):

No EUT or group of co-operating EUTs located within 1 meter of each other shall during any frame period occupy more than 6 MHz of aggregate bandwidth, or alternatively, more than one third of the time and spectrum windows defined by the EUT.

Attestation:

According to the technical description provided, the total number of the time and spectrum windows defined by the system is $5 \times 12 = 60$.

During any frame period, the maximum number of time and spectrum windows occupied by the system will be 12, which is less than one third of the time and spectrum windows defined by the system.

INTERTEK TESTING SERVICES

4.11 Maximum Reaction Time, FCC Rule 15.323(c)(7).2:

The monitoring system bandwidth must have a maximum reaction time less than $50 \times \text{SQRT}(1.25/\text{emission bandwidth } B \text{ in MHz}) \mu\text{s}$ for signals at the applicable threshold level but shall not be required to be less than $50 \mu\text{s}$. If a signal is detected that is 6 dB or more above the applicable threshold level, the maximum reaction time shall be $35 \times \text{SQRT}(1.25/\text{emission bandwidth } B \text{ in MHz}) \mu\text{s}$ but shall not be required to be less than $35 \mu\text{s}$.

Measurements are made in accordance with ANSI C63.17 sub-clause 7.5. Test setup is shown in section 3.5 Figure 3.5.1.

Test Results:

	Test	Reaction of EUT	Results
1	Apply Interference Pulse $50\mu\text{s}$ on f_1 at pulsed level $T_L + U_m$, then apply a CW signal on f_2 at the level T_L	f_2	Pass
2	Change Interference Pulse to $35\mu\text{s}$ on f_1 at pulsed level $T_L + U_m + 6\text{dB}$,	f_2	Pass

INTERTEK TESTING SERVICES

**EXHIBIT 5
EQUIPMENT LIST**

INTERTEK TESTING SERVICES

5.0 **Equipment List**

1) Radiated Emissions Test

Equipment	BiConiLog Antenna	Double Ridged Guide Antenna	Broad-Band Horn Antenna
Registration No.	EW-3061	EW-1133	EW-1679
Manufacturer	EMCO	EMCO	SCHWARZBECK
Model No.	3412E	3115	BBHA9170
Calibration Date	Sep. 23, 2016	Nov. 05, 2015	Jun. 28, 2016
Calibration Due Date	Sep. 23, 2017	May 05, 2017	Jun. 28, 2017

Equipment	EMI Test Receiver	Spectrum Analyzer
Registration No.	EW-3095	EW-2466
Manufacturer	R&S	R&S
Model No.	ESCI	FSP30
Calibration Date	Oct. 25, 2016	Oct. 03, 2016
Calibration Due Date	Oct. 25, 2017	Aug. 20, 2017

2) Conducted Emissions Test

Equipment	EMI Test Receiver (9kHz to 3GHz)	LISN
Registration No.	EW-2500	EW-2874
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Nov. 17, 2016	Jan. 28, 2016
Calibration Due Date	Nov. 15, 2017	Jan. 28, 2017

3) Conductive Measurement Test

Equipment	Coaxial directional coupler	Spectrum Analyzer	Digital Radiocommunication Tester for DECT
Registration No.	EW-2337	EW-3110	EW-1739
Manufacturer	MAGNA	R&S	ROHDESCHWARZ
Model No.	4222-16	FSP30	CMD60
Calibration Date	Nil*	Jan. 14, 2016	Aug. 22, 2016
Calibration Due Date	Nil*	Jan. 14, 2017	Aug. 22, 2017

Equipment	Vector Signal Generator	Temperature & Humidity Chamber	Digital Multimeter
Registration No.	EW-2411	EW-2134	EW-1021
Manufacturer	R&S	GIANT FORCE	FLUKE
Model No.	SMU200A	GTH-750-40-CP-SD	87-IV
Calibration Date	Mar. 29, 2016	Sep. 26, 2016	Oct. 31, 2016
Calibration Due Date	Mar. 29, 2017	Sep. 4, 2017	Nov. 29, 2017

END OF TEST REPORT