

## TEST REPORT

**Report Number: 19030197HKG-001**

Application For Class II Permissive Change of 47 CFR Part 15 Certification

Unlicensed Personal Communication Service Devices

(Handset)

**FCC ID: EW780-0899-00**

**Prepared and Checked by:**

**Approved by:**

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Date: April 16, 2019

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## TEST REPORT

### GENERAL INFORMATION

|                                    |   |
|------------------------------------|---|
| <b>Grantee:</b>                    | VTech Telecommunications Ltd.   |
| <b>Grantee Address:</b>            | 23/F., Tai Ping Industrial Centre, Block 1,<br>57 Ting Kok Road, Tai Po,<br>Hong Kong.  |
| <b>FCC Specification Standard:</b> | FCC Part 15, October 1, 2017 Edition  |
| <b>FCC ID:</b>                     | EW780-0899-00   |
| <b>FCC Model(s):</b>               | M45R SC   |
| <b>Type of EUT:</b>                | Unlicensed Personal Communications Service Devices  |
| <b>Description of EUT:</b>         | SIP DECT Cordless Handset   |
| <b>Serial Number:</b>              | N/A   |
| <b>Sample Receipt Date:</b>        | March 06, 2019  |
| <b>Date of Test:</b>               | March 12, 2019 to March 27, 2019  |
| <b>Report Date:</b>                | April 16, 2019  |
| <b>Environmental Conditions:</b>   | Temperature: +10 to 40°C<br>Humidity: 10 to 90%   |
| <b>Conclusion:</b>                 | Test was conducted by client submitted sample. The submitted sample as received complied with the 47 CFR Part 15 Certification. |

**TEST REPORT**

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## TEST REPORT

### 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 |
| Occupied/Emission Bandwidth                | 15.323(a)           | 6.1.3                                    | Pass    | 4.1                 |
| Power Spectral Density                     | 15.319(d)           | 6.1.5                                    | Pass    | 4.2                 |
| AC Power Line Conducted Emissions from EUT | 15.315              | 7 *                                      | Pass    | 4.5                 |

| 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    | 4.3                 |
| Emissions Outside the Sub-Band        | 15.323(d)           | 6.1.6.2                    | Pass    | 4.4                 |

#### 1.2 Statement of Compliance

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

FCC Part 15, October 1, 2017 Edition

## TEST REPORT

### 2.0 GENERAL DESCRIPTION

#### 2.1 Product Description

The M45R SC is a SIP DECT Cordless Handset. It is operate at frequency range of 1921.536MHz to 1928.448MHz with 5 channels (1921.536MHz, 1923.264MHz, 1924.992MHz, 1926.720MHz and 1928.448MHz). The Handset is powered by a NiMH type rechargeable battery pack (2.4V 950mAh).

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

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 Purpose of Change

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

#### 2.3 Test Methodology

The radiated emission measurements for unintentional radiator (if any) 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.

#### 2.4 Test Facility

The radiated emission test site, facility and antenna port conducted measurement facility used to collect the radiated 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.

## TEST REPORT

### 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 handset 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 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 handset of M45R SC is the same with original granted model VDP801. Therefore conducted emission measurement for peak transmit power, jitter, frame repetition stability, carrier stability and listen before transmit requirements for M45R SC are skipped.

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.

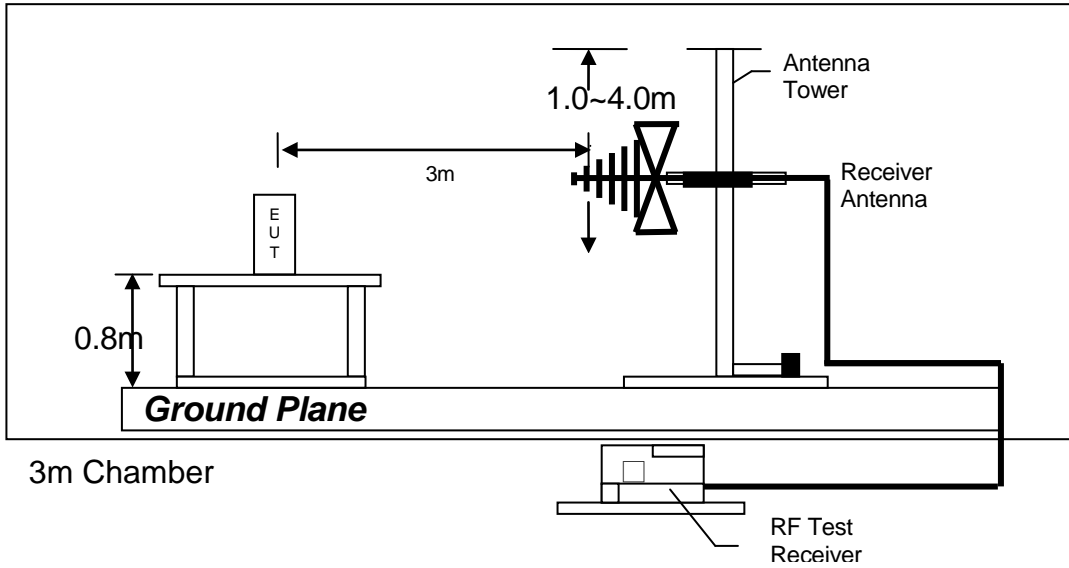
All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

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

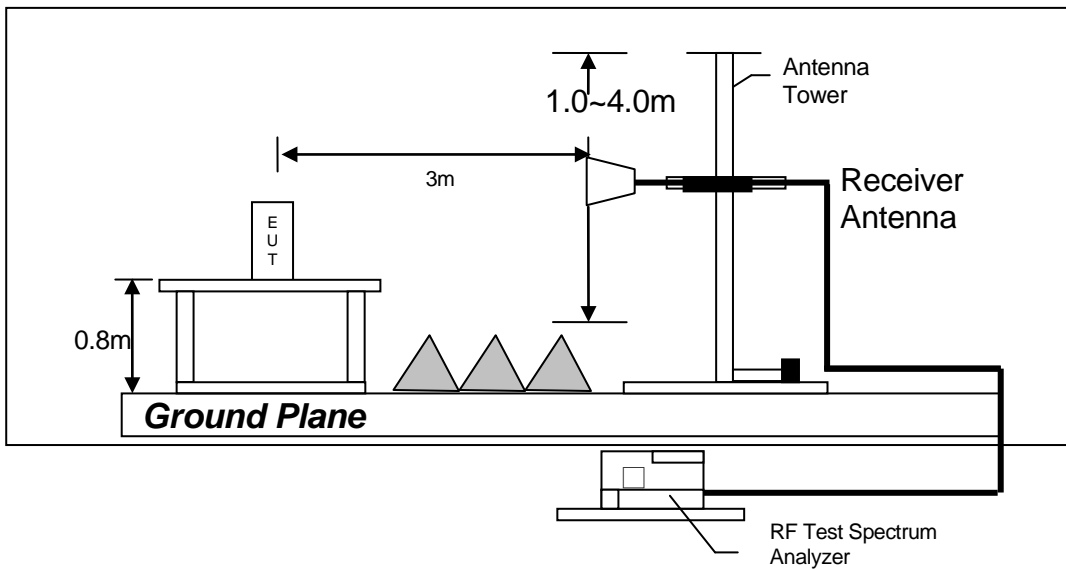
**TEST REPORT**

**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

## TEST REPORT

### 3.3 AC Line Conducted Emission Test Setup

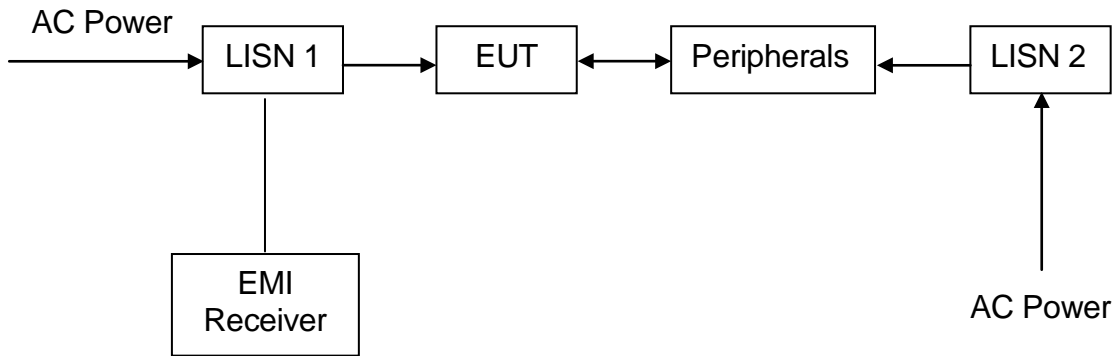


Figure 3.3.1



## TEST REPORT

### 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.

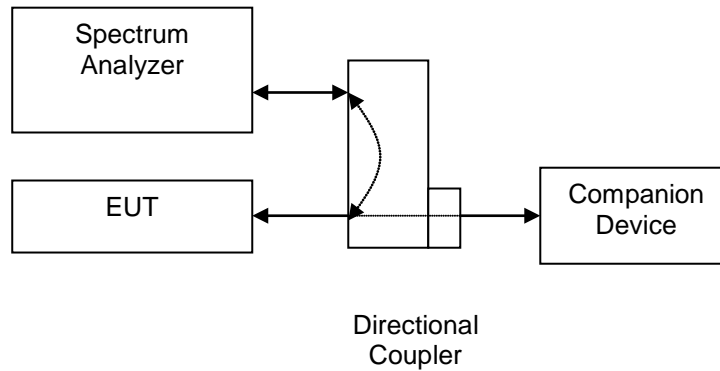


Figure 3.4.1

### 3.5 Conducted Monitoring and Operation Test Configuration

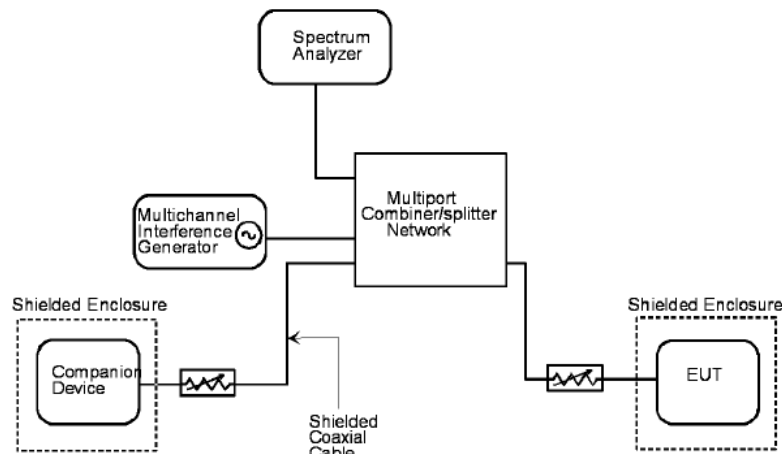


Figure 3.5.1

### 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.

## TEST REPORT

### 3.7 Details of EUT and Description of Accessories

#### Details of EUT:

A battery (provided with the unit) was used to power the device. Their descriptions are listed below.

- (1) A NiMH type rechargeable battery (2.4V 950mAh, brand: GP, Model: GP100AAAH2BMXZ) (Supplied by Client)

#### Description of Accessories:

- (1) Vtech Console, Model: UP416 FCC ID: EW780-8587-00 (Supplied by client)
- (2) 1 x CAT5 LAN cable with 1.5m long (Supplied by Intertek)
- (3) Base Unit (Model: VDP800, FCC ID: EW780-0899-00) (Supplied by client)

### 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.

**TEST REPORT**

**4.0 MEASUREMENT RESULTS**

4.1 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:

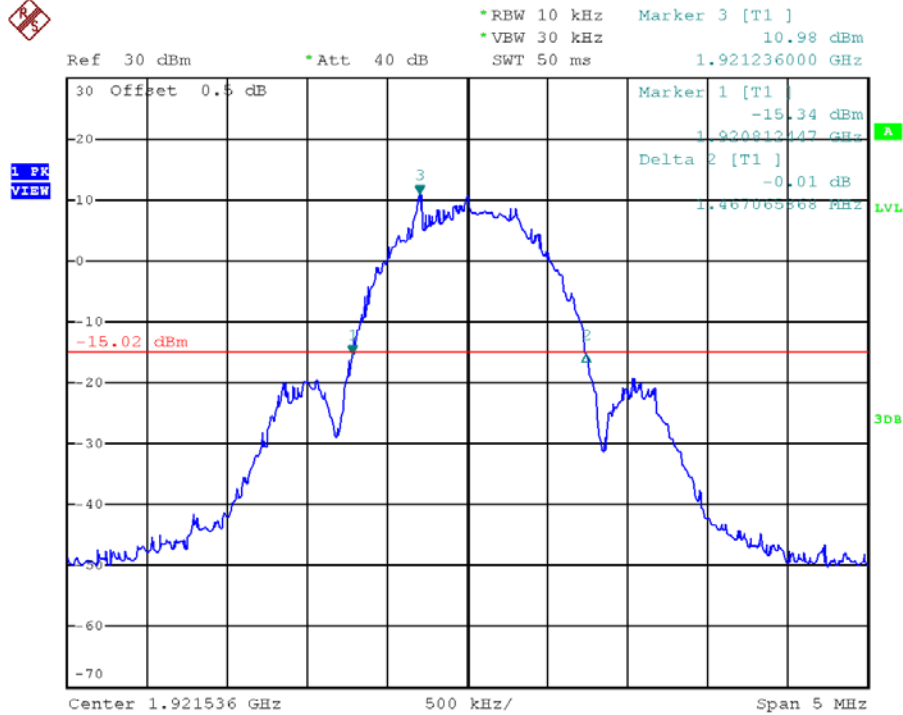
| Channel | Channel Frequency (MHz) | Measuring Signal Level | Measured Emission Bandwidth (MHz) | Results |
|---------|-------------------------|------------------------|-----------------------------------|---------|
| Lowest  | 1921.536                | 26 dB down             | 1.47                              | Pass    |
| Highest | 1928.448                | 26 dB down             | 1.49                              | Pass    |

The plots of emission bandwidth are saved as below.

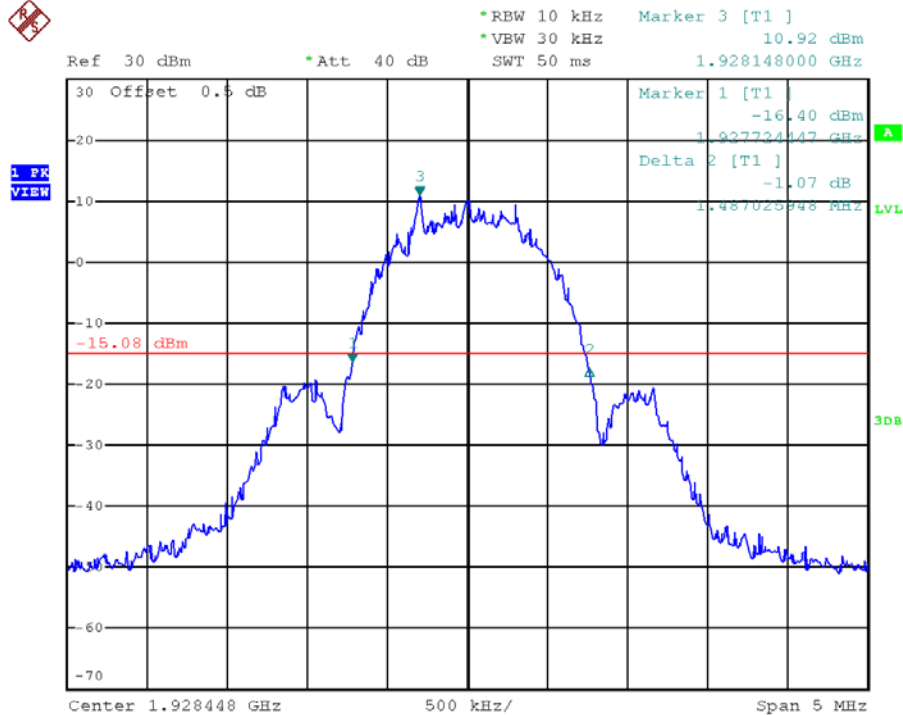
**TEST REPORT**

**PLOTS OF EMISSION BANDWIDTH**

Handset unit, Lowest channel, Traffic carrier



Handset unit, Highest channel, Traffic carrier



**TEST REPORT**

4.2 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:

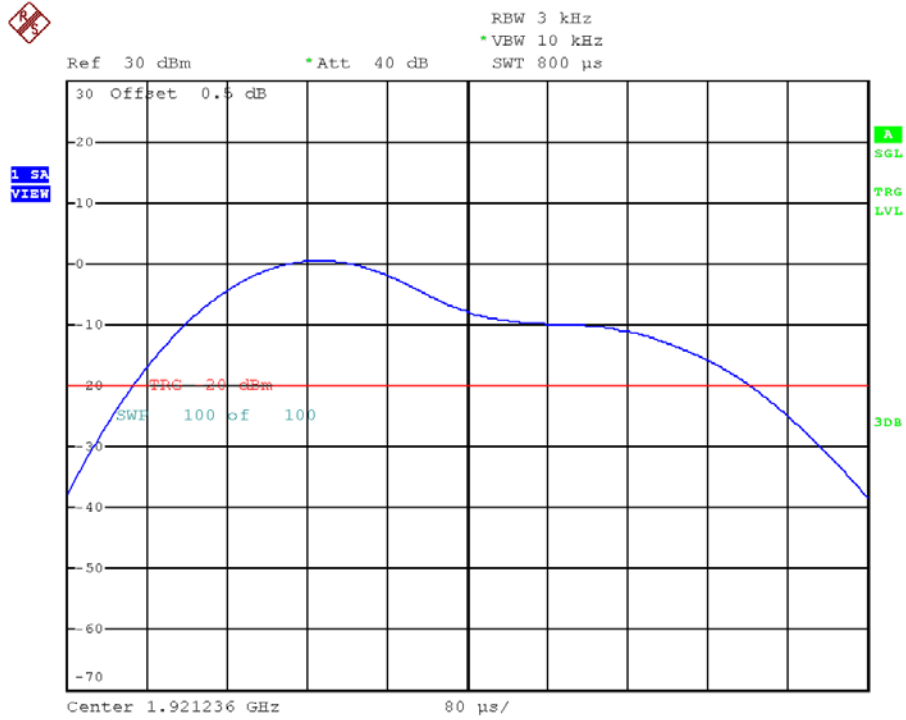
| Channel | Channel Frequency (MHz) | Measured Power Spectral Density (dBm/3kHz) | Limit (dBm/3 kHz) | Results |
|---------|-------------------------|--|-------------------|---------|
| Lowest  | 1921.536                | -6.1                                       | 4.8               | Pass    |
| Highest | 1928.448                | -6.1                                       | 4.8               | Pass    |

The plots of the power spectral density are as below.

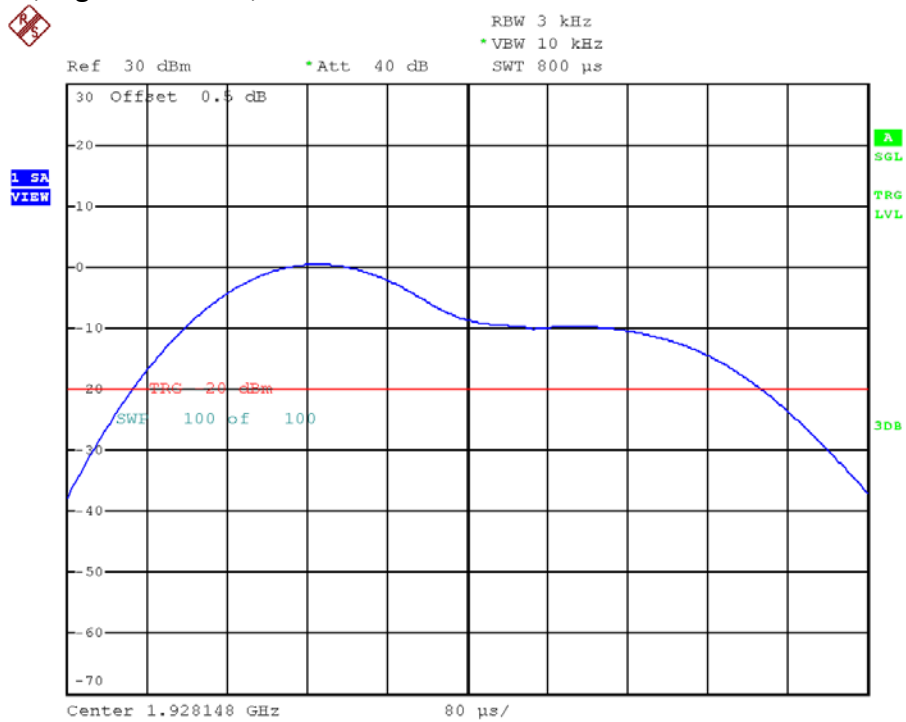
**TEST REPORT**

**PLOTS OF THE POWER SPECTRAL DENSITY**

Handset unit, Lowest channel, Traffic carrier



Handset unit, Highest channel, Traffic carrier



**TEST REPORT**

4.3 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:

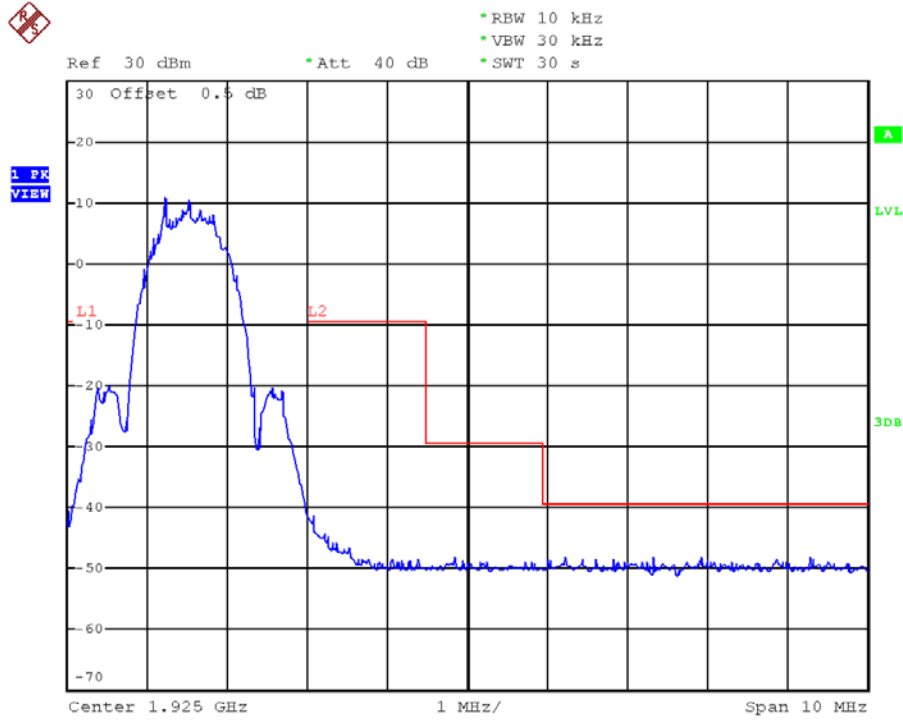
| Channel | Channel Frequency (MHz) | Results |
|---------|-------------------------|---------|
| Lowest  | 1921.536                | Pass    |
| Middle  | 1924.992                | Pass    |
| Highest | 1928.448                | Pass    |

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

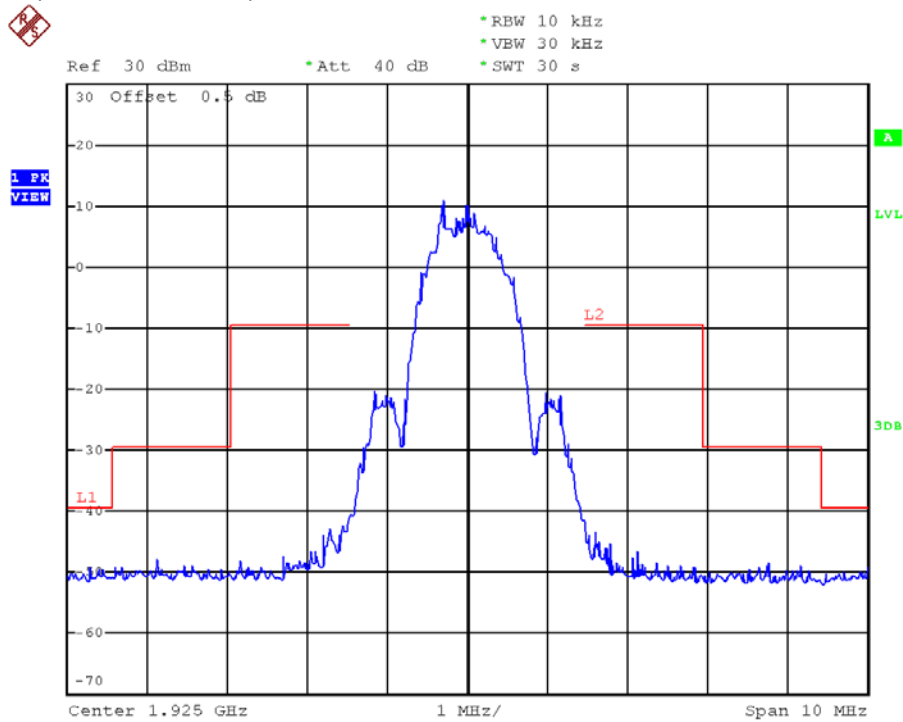
**TEST REPORT**

**PLOTS OF THE UNWANTED EMISSION INSIDE THE SUB-BAND**

Handset unit, Lowest channel, Traffic carrier



Handset unit, Middle channel, Traffic carrier

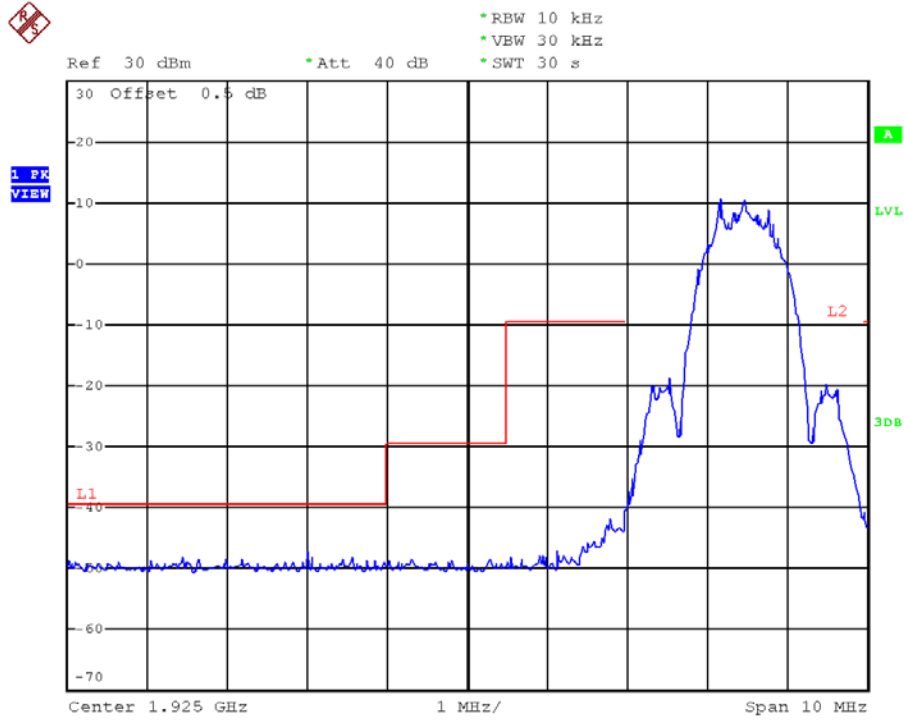




**TEST REPORT**

**PLOTS OF THE UNWANTED EMISSION INSIDE THE SUB-BAND**

Handset unit, Highest channel, Traffic carrier



**TEST REPORT**

4.4 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 / FCC Rule 15.209 | 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 | Pass    |

## TEST REPORT

### 4.4.1 Radiated Emissions Configuration Photographs:

Worst Case Radiated Emission  
at

5764.608 MHz

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

### 4.4.2 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 1-3 list the significant emission frequencies, the limit and the margin of compliance.

Judgement:

Passed by 6.6 dB margin

**TEST REPORT**

**RADIATED EMISSIONS DATA**

Mode: Transmission

Table 1

**Pursuant to FCC Part 15 Section 15.323 (d) Emissions Requirements**

Lowest Channel

| Polarization | Frequency (MHz) | Measured Power (dBm) | Power Limit (dBm) | Margin (dB) |
|--------------|-----------------|----------------------|-------------------|-------------|
| V            | 1916.912        | -55.8                | -39.5             | -16.3       |
| V            | 1918.677        | -52.4                | -29.5             | -22.9       |
| V            | 1919.947        | -40.8                | -9.5              | -31.3       |
| V            | 3843.072        | -60.2                | -39.5             | -20.7       |
| H            | 5764.608        | -46.1                | -39.5             | -6.6        |
| V            | 7686.144        | -59.5                | -39.5             | -20.0       |
| V            | 9607.680        | -58.1                | -39.5             | -18.6       |
| V            | 11529.216       | -55.9                | -39.5             | -16.4       |

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.

**TEST REPORT**

Mode: Transmission

Table 2

**Pursuant to FCC Part 15 Section 15.323 (d) Emissions Requirements**

Highest Channel

| Polarization | Frequency (MHz) | Measured Power (dBm) | Power Limit (dBm) | Margin (dB) |
|--------------|-----------------|----------------------|-------------------|-------------|
| V            | 1930.079        | -41.2                | -9.5              | -31.7       |
| V            | 1931.518        | -52.7                | -29.5             | -23.2       |
| V            | 1932.875        | -55.8                | -39.5             | -16.3       |
| V            | 3856.896        | -60.1                | -39.5             | -20.6       |
| H            | 5785.344        | -46.3                | -39.5             | -6.8        |
| V            | 7713.792        | -59.4                | -39.5             | -19.9       |
| V            | 9642.240        | -58.4                | -39.5             | -18.9       |
| V            | 11570.688       | -56.0                | -39.5             | -16.5       |

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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Mode: Talk

Table 3

**Pursuant to FCC Part 15 Section 15.323 (d) Emissions Requirements**

| Polarization | Frequency (MHz) | Measured Power (dBm) | Power Limit (dBm) | Margin (dB) |
|--------------|-----------------|----------------------|-------------------|-------------|
| V            | 45.545          | -82.8                | -39.5             | -43.3       |
| V            | 67.482          | -82.6                | -39.5             | -43.1       |
| V            | 112.541         | -71.5                | -39.5             | -32.0       |
| V            | 149.974         | -74.5                | -39.5             | -35.0       |
| H            | 290.304         | -66.5                | -39.5             | -27.0       |
| V            | 387.073         | -63.6                | -39.5             | -24.1       |
| V            | 483.842         | -61.3                | -39.5             | -21.8       |
| V            | 580.608         | -53.4                | -39.5             | -13.9       |
| V            | 677.414         | -59.3                | -39.5             | -19.8       |
| V            | 870.911         | -53.8                | -39.5             | -14.3       |

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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### 4.4.3 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.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0.0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

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

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

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### 4.4.4 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



## TEST REPORT

### 4.5 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.

## TEST REPORT

### 5.0 EQUIPMENT LIST

#### 1) Radiated Emissions Test

| Equipment            | Spectrum Analyzer | EMI Test Receiver | Biconical Antenna |
|----------------------|-------------------|-------------------|-------------------|
| Registration No.     | EW-2466           | EW-3156           | EW-0571           |
| Manufacturer         | R&S               | ROHDESCHWARZ      | EMCO              |
| Model No.            | FSP30             | ESR26             | 3104C             |
| Calibration Date     | January 06, 2019  | November 19, 2018 | February 27, 2018 |
| Calibration Due Date | January 06, 2020  | November 19, 2019 | August 27, 2019   |

| Equipment            | BiConiLog Antenna | Log Periodic Antenna | Double Ridged Guide Antenna |
|----------------------|-------------------|----------------------|-----------------------------|
| Registration No.     | EW-3061           | EW-0447              | EW-1133                     |
| Manufacturer         | EMCO              | EMCO                 | EMCO                        |
| Model No.            | 3142E             | 3146                 | 3115                        |
| Calibration Date     | November 02, 2017 | January 17, 2018     | November 29, 2018           |
| Calibration Due Date | May 02, 2019      | July 17, 2019        | May 29, 2020                |

| Equipment            | Notch Filter (cutoff frequency 1.9GHz to 2.0GHz) | 12m Double Shield RF Cable (20MHz to 6GHz) | High Frequency Coaxial Cable Assembly (4 pcs) |
|----------------------|--|--|---|
| Registration No.     | EW-2213  | EW-1852                                    | EW-3126c                                      |
| Manufacturer         | MICROWAVE  | RADIALL                                    | GREATBILLION                                  |
| Model No.            | BRM50701-02                                      | N(m)-RG142 - N(m)                          | SMAm st - SMA m ra<br>0.6m 18GHz              |
| Calibration Date     | May 24, 2018                                     | March 04, 2019                             | May 11, 2018                                  |
| Calibration Due Date | May 24, 2019                                     | March 04, 2020                             | May 11, 2019                                  |

| Equipment            | Pyramidal Horn Antenna (18.0 - 26.5)GHz |
|----------------------|---|
| Registration No.     | EW-0905                                 |
| Manufacturer         | EMCO                                    |
| Model No.            | 3160-09                                 |
| Calibration Date     | February 18, 2019                       |
| Calibration Due Date | February 18, 2020                       |

#### 2) Conducted Emissions Test

| Equipment            | EMI Test Receiver | RF Cable 9kHz to 1000MHz | LISN           |
|----------------------|-------------------|--------------------------|----------------|
| Registration No.     | EW-3156           | EW-3170                  | EW-2874        |
| Manufacturer         | ROHDESCHWARZ      | N/A                      | R&S            |
| Model No.            | ESR26             | 9kHz to 1000MHz          | ENV-216        |
| Calibration Date     | November 19, 2018 | May 11, 2018             | March 29, 2018 |
| Calibration Due Date | November 19, 2019 | May 11, 2019             | March 29, 2019 |

**TEST REPORT**

3) Conductive Measurement Test

| Equipment            | Coaxial Directional Coupler | Spectrum Analyzer | Digital Multimeter |
|----------------------|-----------------------------|-------------------|--------------------|
| Registration No.     | EW-2337                     | EW-3016           | EW-1020            |
| Manufacturer         | MAGNA                       | R&S               | FLUKE              |
| Model No.            | 4222-16                     | FSP30             | 87-IV              |
| Calibration Date     | Nil*                        | October 16, 2018  | June 25, 2018      |
| Calibration Due Date | Nil*                        | October 16, 2019  | July 09, 2019      |

| Equipment            | Vector Signal Generator | Temperature & Humidity Chamber | Digital Radiocommunication Tester For DECT |
|----------------------|-------------------------|--------------------------------|--|
| Registration No.     | EW-3063                 | EW-2134                        | EW-1739                                    |
| Manufacturer         | R&S                     | GIANT FORCE                    | ROHDESCHWARZ                               |
| Model No.            | SMU100A                 | GTH-750-40-CP-SD               | CMD60                                      |
| Calibration Date     | October 24, 2018        | September 18, 2018             | October 24, 2018                           |
| Calibration Due Date | October 24, 2019        | September 18, 2019             | October 24, 2019                           |

| Equipment            | DECT 01 02 03 (SMA - SMA) Cable x 3 pcs |
|----------------------|---|
| Registration No.     | EW-3102                                 |
| Manufacturer         | N/A                                     |
| Model No.            | EMC2 SMA - SMA                          |
| Calibration Date     | June 06, 2018                           |
| Calibration Due Date | June 06, 2019                           |

**END OF TEST REPORT**