# TEST REPORT

| | |
|---|---|
| **Applicant:** | Punkt Tronics AG |
| **Address:** | Via Losanna 4,6900 Lugano, Switzerland |
| **Equipment Type:** | MC 02 |
| **Model Name:** | MC 02 |
| **Brand Name:** | Punkt. |
| **FCC ID:** | Z3PMC02 |
| **Test Standard:** | 47 CFR Part 2<br>(Others refer to chapter 3.1) |
| **Sample Arrival Date:** | Dec. 21, 2023 |
| **Test Date:** | Dec. 21, 2023 - Jan. 17, 2024 |
| **Date of Issue:** | Jan. 25, 2024 |

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Jiamin Lu

**Checked by:** Wu Huihui

**Approved by:** Tolan Tu

(Testing Director)

**Revision History**

| Version | Issue Date | Revisions Content |
|---|---|---|
| Rev. 01 | Jan. 23, 2024 | Initial Issue |
| Rev. 02 | Jan. 25, 2024 | Update the applicant's name, brand, and FCC ID. |

# TABLE OF CONTENTS

# 1 GENERAL INFORMATION

## 1.1 Test Laboratory

| | |
|---|---|
| Name | Shenzhen BALUN Technology Co., Ltd. |
| Address | Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Phone Number | +86 755 6685 0100 |

## 1.2 Test Location

| | |
|---|---|
| Name | Shenzhen BALUN Technology Co., Ltd. |
| Location | ☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| | ☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Accreditation Certificate | The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. |

# 2 PRODUCT INFORMATION

## 2.1 Applicant Information

| | |
|---|---|
| Applicant | Punkt Tronics AG |
| Address | Via Losanna 4,6900 Lugano, Switzerland |

## 2.2 Manufacturer Information

| | |
|---|---|
| Manufacturer | UWIN INNOVATIOIN (HONG KONG) LIMITED |
| Address | ROOM D 10/F TOWER A BILLION CENTRE 1 WANG KWONG RD KOWLOON BAY KL |

## 2.3 General Description for Equipment under Test (EUT)

| | |
|---|---|
| EUT Name | MC 02 |
| Model Name Under Test | MC 02 |
| Series Model Name | N/A |
| Description of Model name differentiation | N/A |
| Hardware Version | N/A |
| Software Version | MC02.20231230.U0 |
| Dimensions (Approx.) | N/A |
| Weight (Approx.) | N/A |

## 2.4 Technical Information

| | |
|---|---|
| All Network and Wireless connectivity for EUT | 5G Network<br>SA: NR n48 |
| About the Product | The equipment is Smartphone, intended for used with information technology equipment. |
| Note 1:<br>The EUT is a Smartphone, supporting dual SIM card slots under the same transceiver. Both SIM card slots support NR. And both SIM card slots share the same transceiver, so only SIM1 is tested in this report. | |

The following is the technical information of the EUT tested frequency bands in this report.

| | | | |
|---|---|---|---|
| Operating Bands | | SA: n48 | |
| Modulation Type | | NR | CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM |
| | | | DFT-s-OFDM: QPSK / 16QAM / 64QAM / 256QAM |
| Antenna Type | | FPC Antenna | |
| Antenna Gain | | TDD NR Band n48: 0.81 dBi | |
| The Max RF Output Power (EIRP/ERP) | | TDD NR Band n48: 21.46 dBm | |
| SCS and Channel Bandwidths | | n48_SCS 30kHz: 10 MHz, 15 MHz, 20 MHz, 40 MHz | |
| Band | Power Class | Tx Frequency Range | Rx Frequency Range |
| NR n48 | 3 | 3550 MHz ~ 3700 MHz | 3550 MHz ~ 3700 MHz |

Note1: The EUT information provided by the applicant, except for The Max RF Conducted Power. For more detailed band specifications and features description, please refer to the manufacturer's specifications or user's manual.

# 3 SUMMARY OF TEST RESULTS

## 3.1 Test Standards

| No. | Identity | Document Title |
|---|---|---|
| 1 | 47 CFR Part 2 | Frequency Allocations and Radio Treaty Matters; General Rules and Regulations |
| 2 | 47 CFR Part 96 | CITIZENS BROADBAND RADIO SERVICE |
| 3 | ANSI C63.26-2015 | American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services |
| 4 | KDB 971168 D01 v03 | Measurement Guidance for Certification of Licensed Digital Transmitters |

## 3.2 Test Verdict

| No. | Test Description | FCC Part No. | Test Result | Test Verdict |
|---|---|---|---|---|
| 1 | Conducted RF Output Power | 2.1046 | Reporting only (ANNEX A.1) | Pass |
| 2 | Effective (Isotropic) Radiated Power | 2.1046<br>96.41(b) | ANNEX A.1 | Pass |
| 3 | Peak to Average Radio | 2.1046 | ANNEX A.2 | Pass |
| 4 | Occupied Bandwidth | 2.1049 | ANNEX A.3 | Pass |
| 5 | Frequency Stability | 2.1055 | ANNEX A.4 | Pass |
| 6 | Spurious Emission at Antenna Terminals | 2.1051<br>96.41(e) | ANNEX A.5 | Pass |
| 7 | Band Edge | 2.1051<br>96.41(e) | ANNEX A.6 | Pass |
| 8 | Field Strength of Spurious Radiation | 2.1053<br>96.41(e) | ANNEX A.7 | Pass |

# 4 GENERAL TEST CONFIGURATIONS

## 4.1 Test Environments

During the measurement, the environmental conditions were within the listed ranges:

| | | |
|---|---|---|
| Relative Humidity | | 20% to 75% |
| Atmospheric Pressure | | 98 kPa to 102 kPa |
| Test Voltage of the EUT | NV (Normal Voltage) | 3.850 V |
| | LV (Low Voltage) | 3.465 V |
| | HV (High Voltage) | 4.235 V |
| Test Temperature of the EUT | NT (Normal Temperature) | 15 °C to 35 °C |
| | LT (Low Temperature) | -30 °C |
| | HT (High Temperature) | +50 °C |

## 4.2 Test Equipment List

| Description | Manufacturer | Model | Serial No. | Version | Cal. Date | Cal. Due |
|---|---|---|---|---|---|---|
| **2/3/4/5G RF Test System** | | | | | | |
| BL410 Test Software | BALUN | BL410R | N/A | 2.1.1.496 | N/A | N/A |
| Temperature Chamber | AHK | SP20 | 1412 | N/A | 2023.09.11 | 2024.09.10 |
| 5G Wireless Test Platform | Starpoint | SP9500-CTS | 19220 | C1.0.8.32 | 2023.11.10 | 2024.11.09 |
| Spectrum Analyzer | keysight | N9020A | MY50531628 | A.16.09 | 2023.05.12 | 2024.05.11 |
| Spectrum Analyzer | R&S | FSV40 | 101544 | 2.30.SP4 | 2023.12.27 | 2024.12.26 |
| DC Power Supply | ITECH | IT6863A | 800014020757810006 | N/A | 2023.08.16 | 2024.08.15 |
| **Radiated Test System** | | | | | | |
| Radiated Test System Test Software | BALUN | BL410-E | N/A | V19.918 | N/A | N/A |
| Spectrum Analyzer | R&S | FSV40 | 101544 | 2.30.SP4 | 2023.12.27 | 2024.12.26 |
| Test Antenna-Bi-Log(30 MHz-3 GHz) | Schwarzbeck | VULB 9163 | 9163-624 | N/A | 2021.08.20 | 2024.08.19 |
| Test Antenna-Horn(1-18 GHz) | Schwarzbeck | BBHA 9120D | 01917 | N/A | 2022.06.09 | 2025.06.08 |

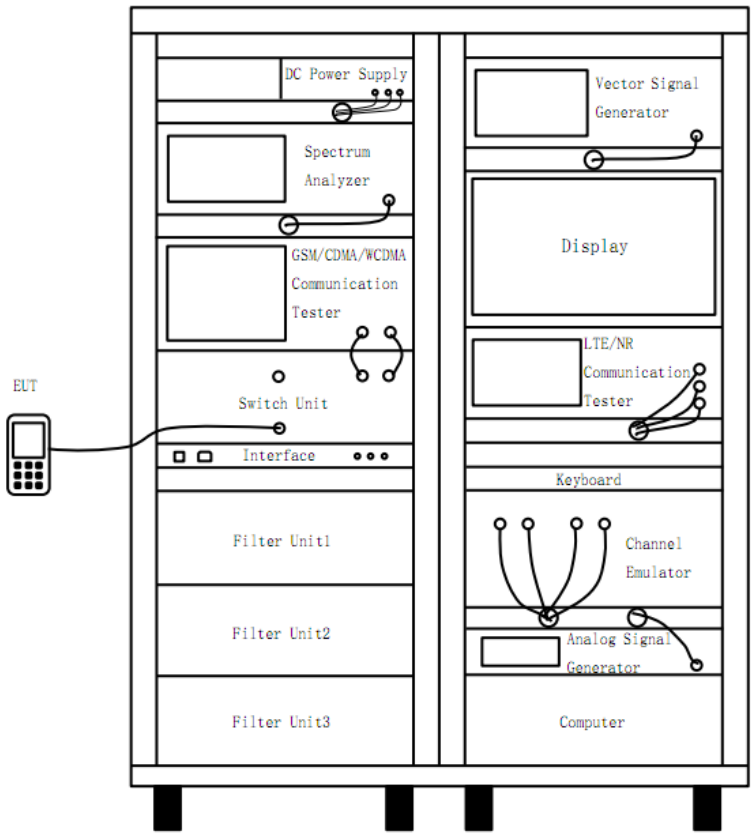
| | | | | | | |
|---|---|---|---|---|---|---|
| Test Antenna-Horn(18-40 GHz) | A-INFO | LB-180400KF | J211060273 | N/A | 2021.07.02 | 2024.07.01 |
| Anechoic Chamber | YIHENG | 9m*6m*6m | 144 | N/A | 2022.02.09 | 2024.09.03 |
| EMI Receiver | Keysight | N9038A | MY53220118 | A.14.16 | 2023.09.05 | 2024.09.04 |

## 4.3 Test Configuration

| Test Mode | Channel Bandwidth (MHz) | UL Channel | UL Channel No. | UL Frequency (MHz) |
|---|---|---|---|---|
| NR Band n48 | 10 | Low Range | 637000 | 3555 |
| | | Middle Range | 641666 | 3624.99 |
| | | High Range | 646332 | 3694.98 |
| | 15 | Low Range | 637168 | 3557.52 |
| | | Middle Range | 641666 | 3624.99 |
| | | High Range | 646166 | 3692.49 |
| | 20 | Low Range | 637334 | 3560.01 |
| | | Middle Range | 641666 | 3624.99 |
| | | High Range | 646000 | 3690 |
| | 40 | Low Range | 638000 | 3570 |
| | | Middle Range | 641666 | 3624.99 |
| | | High Range | 645332 | 3679.98 |

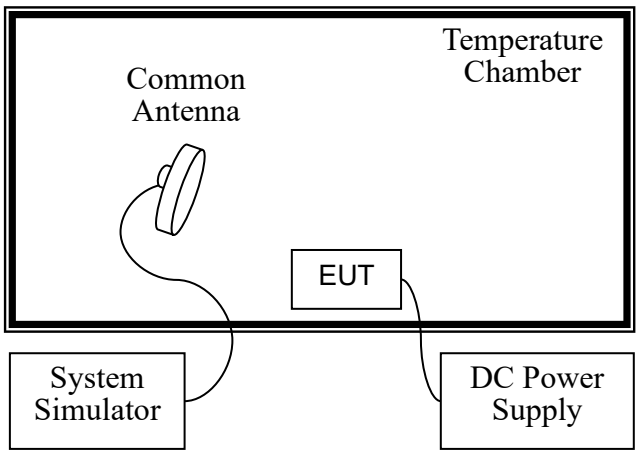
## 4.4 Test Setup

### 4.4.1 For Antenna Port Test



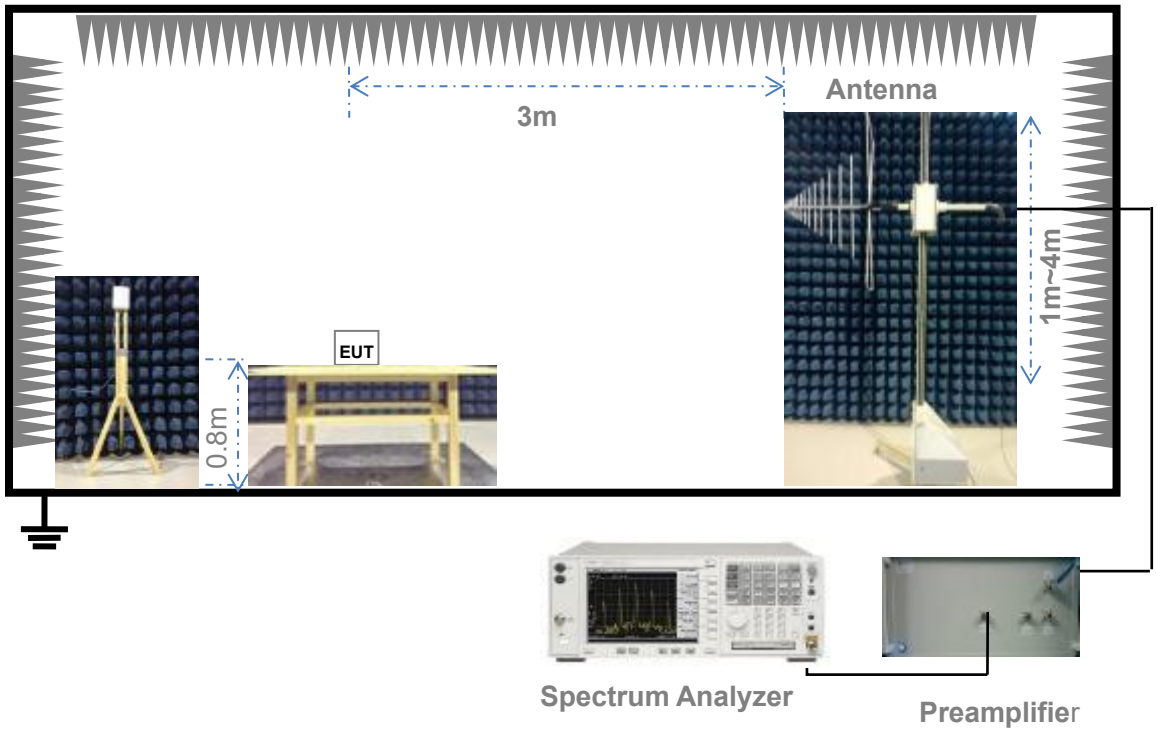

**(Diagram 1)**

### 4.4.2 For Frequency Stability Test



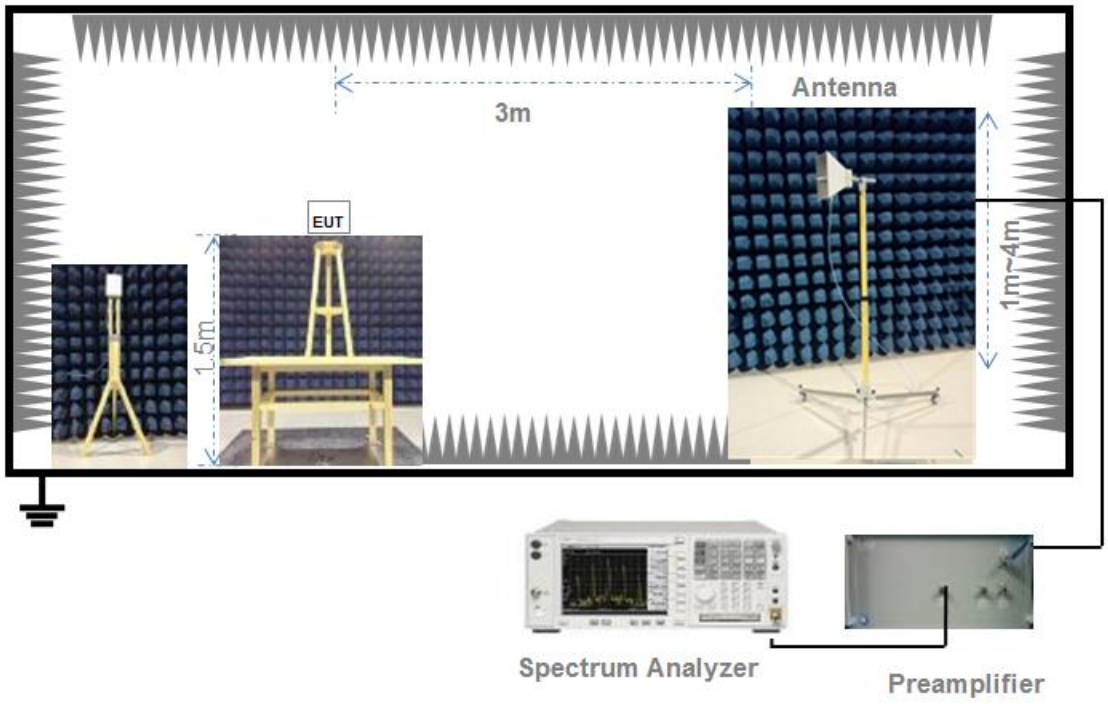

**(Diagram 2)**

### 4.4.3 For Radiated Test (30 MHz ~ 1 GHz)




**(Diagram 3)**

### 4.4.4 For Radiated Test (Above 1 GHz)




**(Diagram 4)**

# 5 TEST ITEMS

## 5.1 Transmitter Radiated Power (EIRP/ERP)

### 5.1.1 Limit

FCC § 2.1046 & 96.41(b)

FCC section 96.41(b), the maximum effective isotropic radiated power (EIRP) and maximum Power Spectral Density (PSD) of any CBSD and End User Device must comply with the limits shown in the table in this paragraph below:

| Device | Maximum EIRP (dBm/10 megahertz) | Maximum PSD (dBm/MHz) |
|---|---|---|
| End User Device | 23 | N/A |
| Category A CBSD | 30 | 20 |
| Category B CBSD[note1] | 47 | 37 |
| Note1: Category B CBSDs will only be authorized for use after an ESC is approved and commercially deployed consistent with §§ 96.15 and 96.67. | | |

### 5.1.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description is used for conducted test, and the section 4.4.3 and 4.4.4 (Diagram 3, 4) test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 5.1.3 Test Procedure

**Description of the Conducted Output Power Measurement**

The EUT is coupled to the SS with attenuator through power splitter; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. A system simulator is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The relevant equation for determining the conducted measured value is:

Conducted Output Power Value (dBm) = Measured Value (dBm) + Path Loss (dB)

where:
Conducted Output Power Value = final conducted measured value in the conducted power test, in dBm;
Measured Value = measured conducted power received by spectrum analyzer or power meter, in dBm;
Path Loss = signal attenuation in the connecting cable between the transmitter and spectrum analyzer or power meter, including external cable loss, in dB;

During the test, the data of Path Loss (dB) is added in the spectrum analyzer or power meter, so Measured Value (dBm) is the final values which contains the data of Path Loss (dB).

For example:

In the conducted output power test, when measured value for GSM850 is 24.7 dBm, and path loss is 8.5 dB, then final conducted output power value is:

Conducted Output Power Value (dBm) = 24.7 dBm + 8.5 dB = 33.2 dBm

**Description of the Transmitter Radiated Power Measurement**

In many cases, the RF output power limits for licensed digital transmission devices is specified in terms of effective radiated power (ERP) or equivalent isotropic radiated power (EIRP). Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

Final measurement calculation as below:

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$ERP/EIRP = P_{Meas} + GT - LC$

where:
ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as $P_{Meas}$, typically dBW or dBm);
$P_{Meas}$ = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
dBd (ERP)=dBi (EIRP) -2.15 dB
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

For example:
In the EIRP test, when $P_{Meas}$ value for GSM1900 is 30.2 dBm, LC is 0.6 dB, and GT is -3.4 dB, then final EIRP value is:

EIRP for GSM1900 = 30.2 dBm - 3.4 dBi - 0.6 dB = 26.2 dBm

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:
ERP/EIRP (dBm) = SA Read Value (dBm) + Correction Factor (dB)

where:
ERP/EIRP = effective or equivalent radiated power, in dBm;
SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm;
Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

For example:

In the ERP test, when SA read value for GSM850 is 21dBm, and correction factor is 8dB, then final ERP value for GSM850 is:

ERP (dBm) = 21dBm + 8dB = 29dBm

### 5.1.4 Test Result

Please refer to ANNEX A.1.

## 5.2 Peak to Average Ratio

### 5.2.1 Limit

FCC § 2.1046

In addition, when the transmitter power is measured in terms of average value, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

### 5.2.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description is used for this test. The photo of test setup please refer to ANNEX B.

### 5.2.3 Test Procedure

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

According to KDB 971168 D01, there is CCDF procedure for PAPR:

a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;

b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;

c) Set the number of counts to a value that stabilizes the measured CCDF curve;

d) Set the measurement interval as follows:

1) for continuous transmissions, set to 1 ms,

2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

e) Record the maximum PAPR level associated with a probability of 0.1%.

Alternate procedure for PAPR:

Use one of the procedures presented in 4.1 to measure the total peak power and record as $P_{Pk}$. Use one of the applicable procedures presented 4.2 to measure the total average power and record as $P_{Avg}$. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

PAPR (dB) = $P_{Pk}$ (dBm) - $P_{Avg}$ (dBm).

### 5.2.4 Test Result

Please refer to ANNEX A.2.

## 5.3 Occupied Bandwidth

### 5.3.1 Limit

FCC § 2.1049

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Many of the individual rule parts specify a relative OBW in lieu of the 99% OBW. In such cases, the OBW is defined as the width of the signal between two points, one below the carrier center frequency and on above the carrier center frequency, outside of which all emissions are attenuated by at least X dB below the transmitter power, where the value of X is typically specified as 26.

### 5.3.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description is used for this test. The photo of test setup please refer to ANNEX B.

### 5.3.3 Test Procedure

The following procedure shall be used for measuring power bandwidth.

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the anticipated OBW).

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.

d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.

e) For -26 dB OBW, the dynamic range of the spectrum analyzer at the selected RBW shall be at least 10dB below the target “-X dB down” requirement, e.g. -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be 36dB below the reference value.

f) Set the detection mode to peak, and the trace mode to max hold.

g) For 99% OBW, use the 99 % power bandwidth function of the spectrum analyzer (if available) and report the measured bandwidth.

If the instrument does not have a 99 % power bandwidth function, the trace data points are to be recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is

recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % power bandwidth is the difference between these two frequencies.

h) For -26 dB OBW, determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).

Determine the “-X dB down amplitude” as equal to (reference value -X). Alternatively, this calculation can be performed by the analyzer by using the marker-delta function.

Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below “-X dB down amplitude” determined in step g). If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.

i) The OBW shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

j) Change variable modulations, coding, or channel bandwidth settings, then repeat above test procedures.

### 5.3.4 Test Result

Please refer to ANNEX A.3.

## 5.4 Frequency Stability

### 5.4.1 Limit

FCC § 2.1055

FCC § 2.1055

The frequency stability shall be measured with variation of ambient temperature as follows:

(1) The temperature is varied from -30°C to +50°C.

(2) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10°C through the range.

The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating and point which shall be specified by the manufacture.

(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

### 5.4.2 Test Setup

The section 4.4.2 (Diagram 2) test setup description is used for this test. The photo of test setup please refer to ANNEX B.

### 5.4.3 Test Procedure

1. The EUT is placed in a temperature chamber.

2. The temperature is set to 25°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured.

3. The temperature is increased by not more than 10 degrees, allowed to stabilize and soak, and then repeat the frequency error measurement.

4. Repeat procedure 3 until +50°C and -30°C is reached.

5. Change supply voltage, and repeat measurement until extreme voltage is reached.

### 5.4.4 Test Result

Please refer to ANNEX A.4.

## 5.5 Spurious Emission at Antenna Terminals

### 5.5.1 Limit

FCC § 2.1051 & 96.41(e)

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 96.41(e)

The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed-25 dBm/MHz.The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed-40 dBm/MHz.

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than1GHz.However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolutionbandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least26 dB below the transmitter power.

### 5.5.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

### 5.5.3 Test Procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside

and adjacent to the frequency blocks a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

1. The EUT is coupled to the system simulator and spectrum analyzer; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

2. Base Station is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power.

3. The RF output of the transmitter is connected to the input of the spectrum analyzer through sufficient attenuation.

4. Spurious emissions are tested with 0.001MHz RBW for frequency less than 150kHz, 0.01MHz RBW for frequency less than 30MHz, 0.1MHz RBW for frequency less than 1GHz, and 1MHz RBW for frequency above 1GHz. And sweep point number are at least 401, referring to following formula.

Sweep point number = Span/RBW

VBW=3*RBW

Detector Mode=mean or average power

5. Record the frequencies and levels of spurious emissions.

### 5.5.4 Test Result

Please refer to ANNEX A.5.

## 5.6 Band Edge

### 5.6.1 Limit

FCC § 2.1051 & 96.41(e)

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 96.41(e)

The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed-25 dBm/MHz.The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed-40 dBm/MHz.

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than1GHz.However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolutionbandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least26 dB below the transmitter power.

### 5.6.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

### 5.6.3 Test Procedure

The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading.

1.The EUT is coupled to the system simulator and spectrum analyzer; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

2. Base Station is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power.

3. The RF output of the transmitter is connected to the input of the spectrum analyzer through sufficient attenuation.

4. The center of the spectrum analyzer was set to block edge frequency.

5. Band edge are tested with 1%*cBW (RBW), and sweep point number referred to following formula.

Sweep point number = 2*Span/RBW

VBW=3RBW

6. Record the frequencies and levels of spurious emissions.

For mobile and portable stations, on all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

10*log(10 kHz / 6.25 kHz) = 2.04 dB
Limit Line = -35 dBm + 2.04 dB = -32.96dBm

### 5.6.4 Test Result

Please refer to ANNEX A.6.

## 5.7 Field Strength of Spurious Radiation

### 5.7.1 Limit

FCC § 2.1051 & 96.41(e)

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 96.41(e)

The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed-25 dBm/MHz.The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed-40 dBm/MHz.

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than1GHz.However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolutionbandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least26 dB below the transmitter power.

### 5.7.2 Test Setup

The section 4.4.3 and 4.4.4 (Diagram 3, 4) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

### 5.7.3 Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position close to normal use as declared by the applicant.

2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.

3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.

4. During the measurement of the EUT, the resolution bandwidth was to 1 MHz and the average bandwidth

was set to 1 MHz.

5. The transmitter shall be switched on; the measuring receiver shall be tuned to the frequency of the transmitter under test.

6. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.

7. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

8. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.

9. The maximum signal level detected by the measuring receiver shall be noted.

10. The EUT was replaced by half-wave dipole (824 ~ 849 MHz) or horn antenna (1 850 ~ 1 910 MHz) connected to a signal generator.

11. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase

the sensitivity of the measuring receiver.

12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.

13. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.

14. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

Final measurement calculation as below:

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:

ERP/EIRP (dBm) = SA Read Value (dBm) + Correction Factor (dB)

where:

ERP/EIRP = effective or equivalent radiated power, in dBm;
SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm;
Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

For example:

In the ERP test, when SA read value for GSM850 is 21dBm, and correction factor is 8dB, then final ERP value for GSM850 is:

ERP (dBm) = 21dBm + 8dB = 29dBm

### 5.7.4 Test Result

Please refer to ANNEX A.7.

# ANNEX A TEST RESULTS

## A.1 Transmitter Radiated Power (EIRP/ERP)

NR Mode Test Data

| Test BW | Test Channel | Test Mode | UL RB Number | UL RB Position | Conducted Output AV Power(dBm) | EIRP (W) | Limit (W) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NR Band n48 | | | | | | | | |
| 10 | LCH | QPSK | 12 | 6 | 19.64 | 0.111 | 0.200 | Pass |
| | | | 1 | 1 | 19.62 | 0.110 | 0.200 | Pass |
| | | | 1 | 22 | 19.62 | 0.110 | 0.200 | Pass |
| | | 16QAM | 12 | 6 | 18.64 | 0.088 | 0.200 | Pass |
| | | | 1 | 1 | 18.52 | 0.086 | 0.200 | Pass |
| | | | 1 | 22 | 18.51 | 0.086 | 0.200 | Pass |
| | | 64QAM | 12 | 6 | 17.09 | 0.062 | 0.200 | Pass |
| | | | 1 | 1 | 17.11 | 0.062 | 0.200 | Pass |
| | | | 1 | 22 | 17.1 | 0.062 | 0.200 | Pass |
| | | 256QAM | 12 | 6 | 15.15 | 0.039 | 0.200 | Pass |
| | | | 1 | 1 | 15.12 | 0.039 | 0.200 | Pass |
| | | | 1 | 22 | 15.15 | 0.039 | 0.200 | Pass |
| | MCH | QPSK | 12 | 6 | 20.2 | 0.126 | 0.200 | Pass |
| | | | 1 | 1 | 20.17 | 0.125 | 0.200 | Pass |
| | | | 1 | 22 | 20.19 | 0.126 | 0.200 | Pass |
| | | 16QAM | 12 | 6 | 19.2 | 0.100 | 0.200 | Pass |
| | | | 1 | 1 | 19.01 | 0.096 | 0.200 | Pass |
| | | | 1 | 22 | 19.05 | 0.097 | 0.200 | Pass |
| | | 64QAM | 12 | 6 | 17.65 | 0.070 | 0.200 | Pass |
| | | | 1 | 1 | 17.62 | 0.070 | 0.200 | Pass |
| | | | 1 | 22 | 17.67 | 0.070 | 0.200 | Pass |
| | | 256QAM | 12 | 6 | 15.75 | 0.045 | 0.200 | Pass |
| | | | 1 | 1 | 15.69 | 0.045 | 0.200 | Pass |
| | | | 1 | 22 | 15.7 | 0.045 | 0.200 | Pass |
| | HCH | QPSK | 12 | 6 | 20.3 | 0.129 | 0.200 | Pass |
| | | | 1 | 1 | 20.23 | 0.127 | 0.200 | Pass |
| | | | 1 | 22 | 20.21 | 0.126 | 0.200 | Pass |
| | | 16QAM | 12 | 6 | 19.31 | 0.103 | 0.200 | Pass |
| | | | 1 | 1 | 19.34 | 0.104 | 0.200 | Pass |
| | | | 1 | 22 | 19.33 | 0.103 | 0.200 | Pass |
| | | 64QAM | 12 | 6 | 17.74 | 0.072 | 0.200 | Pass |
| | | | 1 | 1 | 17.91 | 0.074 | 0.200 | Pass |
| | | | 1 | 22 | 17.88 | 0.074 | 0.200 | Pass |
| | | 256QAM | 12 | 6 | 15.78 | 0.046 | 0.200 | Pass |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 1 | 15.82 | 0.046 | 0.200 | Pass |
| | | | 1 | 22 | 15.89 | 0.047 | 0.200 | Pass |
| 20 | LCH | QPSK | 25 | 12 | 19.67 | 0.112 | 0.200 | Pass |
| | | | 1 | 1 | 19.6 | 0.110 | 0.200 | Pass |
| | | | 1 | 49 | 19.66 | 0.111 | 0.200 | Pass |
| | | 16QAM | 25 | 12 | 18.7 | 0.089 | 0.200 | Pass |
| | | | 1 | 1 | 18.71 | 0.090 | 0.200 | Pass |
| | | | 1 | 49 | 18.74 | 0.090 | 0.200 | Pass |
| | | 64QAM | 25 | 12 | 17.14 | 0.062 | 0.200 | Pass |
| | | | 1 | 1 | 17.29 | 0.065 | 0.200 | Pass |
| | | | 1 | 49 | 17.32 | 0.065 | 0.200 | Pass |
| | | 256QAM | 25 | 12 | 15.1 | 0.039 | 0.200 | Pass |
| | | | 1 | 1 | 15.22 | 0.040 | 0.200 | Pass |
| | | | 1 | 49 | 15.3 | 0.041 | 0.200 | Pass |
| | MCH | QPSK | 25 | 12 | 20.18 | 0.126 | 0.200 | Pass |
| | | | 1 | 1 | 20.03 | 0.121 | 0.200 | Pass |
| | | | 1 | 49 | 20.07 | 0.122 | 0.200 | Pass |
| | | 16QAM | 25 | 12 | 19.2 | 0.100 | 0.200 | Pass |
| | | | 1 | 1 | 19.13 | 0.099 | 0.200 | Pass |
| | | | 1 | 49 | 19.16 | 0.099 | 0.200 | Pass |
| | | 64QAM | 25 | 12 | 17.64 | 0.070 | 0.200 | Pass |
| | | | 1 | 1 | 17.73 | 0.071 | 0.200 | Pass |
| | | | 1 | 49 | 17.78 | 0.072 | 0.200 | Pass |
| | | 256QAM | 25 | 12 | 15.64 | 0.044 | 0.200 | Pass |
| | | | 1 | 1 | 15.61 | 0.044 | 0.200 | Pass |
| | | | 1 | 49 | 15.7 | 0.045 | 0.200 | Pass |
| | HCH | QPSK | 25 | 12 | 20.25 | 0.128 | 0.200 | Pass |
| | | | 1 | 1 | 20.05 | 0.122 | 0.200 | Pass |
| | | | 1 | 49 | 20.14 | 0.124 | 0.200 | Pass |
| | | 16QAM | 25 | 12 | 19.26 | 0.102 | 0.200 | Pass |
| | | | 1 | 1 | 18.92 | 0.094 | 0.200 | Pass |
| | | | 1 | 49 | 18.97 | 0.095 | 0.200 | Pass |
| | | 64QAM | 25 | 12 | 17.69 | 0.071 | 0.200 | Pass |
| | | | 1 | 1 | 17.59 | 0.069 | 0.200 | Pass |
| | | | 1 | 49 | 17.68 | 0.071 | 0.200 | Pass |
| | | 256QAM | 25 | 12 | 15.66 | 0.044 | 0.200 | Pass |
| | | | 1 | 1 | 15.59 | 0.044 | 0.200 | Pass |
| | | | 1 | 49 | 15.65 | 0.044 | 0.200 | Pass |
| 40 | LCH | QPSK | 50 | 25 | 20.26 | 0.128 | 0.200 | Pass |
| | | | 1 | 1 | 19.74 | 0.114 | 0.200 | Pass |
| | | | 1 | 104 | 19.8 | 0.115 | 0.200 | Pass |
| | | 16QAM | 50 | 25 | 19.23 | 0.101 | 0.200 | Pass |
| | | | 1 | 1 | 18.62 | 0.088 | 0.200 | Pass |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 104 | 18.73 | 0.090 | 0.200 | Pass |
| | | 64QAM | 50 | 25 | 17.72 | 0.071 | 0.200 | Pass |
| | | | 1 | 1 | 17.37 | 0.066 | 0.200 | Pass |
| | | | 1 | 104 | 17.43 | 0.067 | 0.200 | Pass |
| | | 256QAM | 50 | 25 | 15.7 | 0.045 | 0.200 | Pass |
| | | | 1 | 1 | 15.38 | 0.042 | 0.200 | Pass |
| | | | 1 | 104 | 15.4 | 0.042 | 0.200 | Pass |
| | MCH | QPSK | 50 | 25 | 20.58 | 0.138 | 0.200 | Pass |
| | | | 1 | 1 | 20.23 | 0.127 | 0.200 | Pass |
| | | | 1 | 104 | 20.27 | 0.128 | 0.200 | Pass |
| | | 16QAM | 50 | 25 | 19.59 | 0.110 | 0.200 | Pass |
| | | | 1 | 1 | 19.09 | 0.098 | 0.200 | Pass |
| | | | 1 | 104 | 19.09 | 0.098 | 0.200 | Pass |
| | | 64QAM | 50 | 25 | 18.1 | 0.078 | 0.200 | Pass |
| | | | 1 | 1 | 17.8 | 0.073 | 0.200 | Pass |
| | | | 1 | 104 | 17.78 | 0.072 | 0.200 | Pass |
| | | 256QAM | 50 | 25 | 16.07 | 0.049 | 0.200 | Pass |
| | | | 1 | 1 | 15.76 | 0.045 | 0.200 | Pass |
| | | | 1 | 104 | 15.82 | 0.046 | 0.200 | Pass |
| | HCH | QPSK | 50 | 25 | 20.65 | 0.140 | 0.200 | Pass |
| | | | 1 | 1 | 20.27 | 0.128 | 0.200 | Pass |
| | | | 1 | 104 | 20.26 | 0.128 | 0.200 | Pass |
| | | 16QAM | 50 | 25 | 19.63 | 0.111 | 0.200 | Pass |
| | | | 1 | 1 | 19.06 | 0.097 | 0.200 | Pass |
| | | | 1 | 104 | 19.08 | 0.097 | 0.200 | Pass |
| | | 64QAM | 50 | 25 | 18.16 | 0.079 | 0.200 | Pass |
| | | | 1 | 1 | 17.78 | 0.072 | 0.200 | Pass |
| | | | 1 | 104 | 17.79 | 0.072 | 0.200 | Pass |
| | | 256QAM | 50 | 25 | 16.13 | 0.049 | 0.200 | Pass |
| | | | 1 | 1 | 15.77 | 0.045 | 0.200 | Pass |
| | | | 1 | 104 | 15.8 | 0.046 | 0.200 | Pass |

## A.2 Peak to Average Ratio

Note 1: Test plots please refer to the document “Annex No.:BL-SZ23C1113-501 Data Part 1.pdf”.

NR Mode Test Data

| Test Band | NR Test Bandwidth | Test Channel | Test Mode | NR UL RB No. | NR UL RB Pos. | Peak to Average Ratio (dB) | Limit (dB) | Refer to Plot[Note2] | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| n48 | 20 MHz | LCH | QPSK | 1 | 0 | 5.25 | 13 | 1.1 | Pass |
| | | | | 50 | 0 | 5.48 | 13 | 1.2 | Pass |
| | | | 16-QAM | 1 | 0 | 6 | 13 | 1.3 | Pass |
| | | | | 50 | 0 | 6.14 | 13 | 1.4 | Pass |
| | | | 64QAM | 1 | 0 | 5.91 | 13 | 1.5 | Pass |
| | | | | 50 | 0 | 6.42 | 13 | 1.6 | Pass |
| | | | 256QAM | 1 | 0 | 6.14 | 13 | 1.7 | Pass |
| | | | | 50 | 0 | 6.66 | 13 | 1.8 | Pass |
| | | MCH | QPSK | 1 | 0 | 5.11 | 13 | 1.9 | Pass |
| | | | | 50 | 0 | 5.53 | 13 | 1.10 | Pass |
| | | | 16-QAM | 1 | 0 | 6.33 | 13 | 1.11 | Pass |
| | | | | 50 | 0 | 6.19 | 13 | 1.12 | Pass |
| | | | 64QAM | 1 | 0 | 6.05 | 13 | 1.13 | Pass |
| | | | | 50 | 0 | 6.47 | 13 | 1.14 | Pass |
| | | | 256QAM | 1 | 0 | 6.19 | 13 | 1.15 | Pass |
| | | | | 50 | 0 | 6.66 | 13 | 1.16 | Pass |
| | | HCH | QPSK | 1 | 0 | 4.83 | 13 | 1.17 | Pass |
| | | | | 50 | 0 | 5.53 | 13 | 1.18 | Pass |
| | | | 16-QAM | 1 | 0 | 6.19 | 13 | 1.19 | Pass |
| | | | | 50 | 0 | 6.14 | 13 | 1.20 | Pass |
| | | | 64QAM | 1 | 0 | 6 | 13 | 1.21 | Pass |
| | | | | 50 | 0 | 6.47 | 13 | 1.22 | Pass |
| | | | 256QAM | 1 | 0 | 6.14 | 13 | 1.23 | Pass |
| | | | | 50 | 0 | 6.66 | 13 | 1.24 | Pass |

## A.3 Occupied Bandwidth

Note 1: All modes were tested, but only the typical data were reported in this report.

Note 2: Test plots please refer to the document “Annex No.:BL-SZ23C1113-501 Data Part 2.pdf”.

NR Mode Test Data

| Test Band | NR Test Bandwidth | Test Channel | Test Mode | NR UL RB No. | NR UL RB Pos. | Measured 99% Occupied Bandwidth (MHz) | Measured -26 dB Occupied Bandwidth (MHz) | Verdict | Refer to Plot[Note2] |
|---|---|---|---|---|---|---|---|---|---|
| n48 | 10 MHz | LCH | QPSK | 24 | 0 | 8.57 | 9.12 | Pass | 1.1 |
| | | MCH | QPSK | 24 | 0 | 8.56 | 9.12 | Pass | 1.2 |
| | | HCH | QPSK | 24 | 0 | 8.57 | 9.05 | Pass | 1.3 |
| | 15 MHz | LCH | QPSK | 38 | 0 | 13.54 | 14.17 | Pass | 1.4 |
| | | MCH | QPSK | 38 | 0 | 13.55 | 14.15 | Pass | 1.5 |
| | | HCH | QPSK | 38 | 0 | 13.53 | 14.23 | Pass | 1.6 |
| | 20 MHz | LCH | QPSK | 51 | 0 | 18.16 | 18.89 | Pass | 1.7 |
| | | MCH | QPSK | 51 | 0 | 18.16 | 18.84 | Pass | 1.8 |
| | | HCH | QPSK | 51 | 0 | 18.18 | 19.23 | Pass | 1.9 |
| | 40 MHz | LCH | QPSK | 106 | 0 | 38.01 | 46.99 | Pass | 1.10 |
| | | MCH | QPSK | 106 | 0 | 38 | 40.47 | Pass | 1.11 |
| | | HCH | QPSK | 106 | 0 | 37.98 | 40.51 | Pass | 1.12 |

## A.4 Frequency Stability

NR Band n48 QPSK 40 MHz

| Test Conditions | | Frequency Deviation | | Verdict |
|---|---|---|---|---|
| Power (VDC) | Temperature (°C) | MCH 3624.99 MHz | | |
| | | Value(Hz) | Limits (Hz) | |
| 3.85 | -30 | -10.9 | ±9062.475 | Pass |
| | -20 | -8 | | |
| | -10 | -6.3 | | |
| | 0 | -6.8 | | |
| | 10 | -5.4 | | |
| | 20 | -7 | | |
| | 25 | -7.3 | | |
| | 30 | -7.1 | | |
| | 40 | -4.5 | | |
| | 50 | -4.7 | | |
| 4.235 | 25 | -5.3 | | |
| 3.465 | 25 | -10.1 | | |

## A.5 Spurious Emission at Antenna Terminals

Note 1: The frequencies of verdict which are marked by "N/A" should be ignored because they are UE carrier frequency.

Note 2: Test plots please refer to the document “Annex No.:BL-SZ23C1113-501 Data Part 3.pdf”.

Note 3: The disturbance above 26.5GHz was very low, and the above harmonics were the highest point could befound when testing, so only the worst case data displayed in this report.

NR Mode Test Verdict

| Test Band | NR Test Bandwidth (MHz) | Test Channel | Test Mode | NR UL RB No. | NR UL RB Pos. | Refer to Plot[Note3] | Verdict |
|---|---|---|---|---|---|---|---|
| n48 | 10 MHz | LCH | QPSK | 1 | 0 | 1.1 | Pass |
| | | | QPSK | 1 | 23 | 1.2 | Pass |
| | | | QPSK | 24 | 0 | 1.3 | Pass |
| | | MCH | QPSK | 1 | 0 | 1.4 | Pass |
| | | | QPSK | 1 | 23 | 1.5 | Pass |
| | | | QPSK | 24 | 0 | 1.6 | Pass |
| | | HCH | QPSK | 1 | 0 | 1.7 | Pass |
| | | | QPSK | 1 | 23 | 1.8 | Pass |
| | | | QPSK | 24 | 0 | 1.9 | Pass |
| | 20 MHz | LCH | QPSK | 1 | 0 | 1.10 | Pass |
| | | | QPSK | 1 | 50 | 1.11 | Pass |
| | | | QPSK | 51 | 0 | 1.12 | Pass |
| | | MCH | QPSK | 1 | 0 | 1.13 | Pass |
| | | | QPSK | 1 | 50 | 1.14 | Pass |
| | | | QPSK | 51 | 0 | 1.15 | Pass |
| | | HCH | QPSK | 1 | 0 | 1.16 | Pass |
| | | | QPSK | 1 | 50 | 1.17 | Pass |
| | | | QPSK | 51 | 0 | 1.18 | Pass |
| | 40 MHz | LCH | QPSK | 1 | 0 | 1.19 | Pass |
| | | | QPSK | 1 | 105 | 1.20 | Pass |
| | | | QPSK | 106 | 0 | 1.21 | Pass |
| | | MCH | QPSK | 1 | 0 | 1.22 | Pass |
| | | | QPSK | 1 | 105 | 1.23 | Pass |
| | | | QPSK | 106 | 0 | 1.24 | Pass |
| | | HCH | QPSK | 1 | 0 | 1.25 | Pass |
| | | | QPSK | 1 | 105 | 1.26 | Pass |
| | | | QPSK | 106 | 0 | 1.27 | Pass |

## A.6 Band Edge

Note 1: Test plots please refer to the document “Annex No.:BL-SZ23C1113-501 Data Part 4.pdf”.

NR Mode Test Verdict

| Test Band | NR Test Bandwidth (MHz) | Test Channel | Test Mode | NR UL RB No. | NR UL RB Pos. | Refer to Plot[Note3] | Verdict |
|---|---|---|---|---|---|---|---|
| n48 | 10 | LCH | QPSK | 1 | 0 | 1.1 | Pass |
| | | | | 24 | 0 | 1.2 | Pass |
| | | HCH | QPSK | 1 | 23 | 1.3 | Pass |
| | | | | 24 | 0 | 1.4 | Pass |
| | 20 | LCH | QPSK | 1 | 0 | 1.5 | Pass |
| | | | | 51 | 0 | 1.6 | Pass |
| | | HCH | QPSK | 1 | 50 | 1.7 | Pass |
| | | | | 51 | 0 | 1.8 | Pass |
| | 40 | LCH | QPSK | 1 | 0 | 1.9 | Pass |
| | | | | 106 | 0 | 1.10 | Pass |
| | | HCH | QPSK | 1 | 105 | 1.11 | Pass |
| | | | | 106 | 0 | 1.12 | Pass |

## A.7 Field Strength of Spurious Radiation

Note 1: All modes have been tested, and only the worst case data are shown here.

Note 2: The frequencies of verdict which are marked by "N/A" should be ignored because they are UE carrier frequency.

Note 3: Test plots please refer to the document “Annex No.:BL-SZ23C1113-501 Data Part 5.pdf”.

Note 4: The disturbance above 26.5GHz was very low, and the above harmonics were the highest point could befound when testing, so only the worst case data displayed in this report.

NR Mode Test Verdict

| Test Band | NR Test Bandwidth (MHz) | Test Channel | Refer to Plot[Note3] | Verdict |
|---|---|---|---|---|
| n48 | 10 | HIGH | 1.1 | Pass |

# ANNEX B TEST SETUP PHOTOS

Please refer to the document “BL-SZ23C1113-AR.PDF”.

# ANNEX C EUT EXTERNAL PHOTOS

Please refer to the document “BL-SZ23C1113-AW.PDF”.

# ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ23C1113-AI.PDF”.

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