

## 4. Test Equipment and Test Site

| Test Site   |                        |              |                   |      |
|-------------|------------------------|--------------|-------------------|------|
| No.         | Test Site              | Manufacturer | Specification     | Used |
| TB-EMCSR001 | Shielding Chamber #1   | YIHENG       | 7.5*4.0*3.0 ( m ) | X    |
| TB-EMCSR002 | Shielding Chamber #2   | YIHENG       | 8.0*4.0*3.0 ( m ) | √    |
| TB-EMCCA001 | 3m Anechoic Chamber #A | ETS          | 9.0*6.0*6.0 ( m ) | X    |
| TB-EMCCB002 | 3m Anechoic Chamber #B | YIHENG       | 9.0*6.0*6.0 ( m ) | √    |

### Radiation Emission Test(B Site)

| Equipment         | Manufacturer    | Model No.          | Serial No.  | Last Cal.     | Cal. Due Date |
|-------------------|-----------------|--------------------|-------------|---------------|---------------|
| Spectrum Analyzer | Agilent         | N9020A             | MY49100060  | Aug. 27, 2025 | Aug. 26, 2026 |
| Spectrum Analyzer | Rohde & Schwarz | FSV40-N            | 102197      | May. 15, 2026 | May. 14, 2027 |
| EMI Test Receiver | Rohde & Schwarz | ESU-8              | 100472/008  | Jan. 30, 2026 | Jan. 29, 2027 |
| Bilog Antenna     | SCHWARZBECK     | VULB 9168          | 1225        | Oct. 18, 2025 | Oct. 17, 2027 |
| Horn Antenna      | SCHWARZBECK     | BBHA 9120 D        | 2463        | May. 15, 2026 | May. 14, 2027 |
| Horn Antenna      | SCHWARZBECK     | BBHA 9170          | 1118        | Jan. 31, 2026 | Jan. 30, 2028 |
| HF Amplifier      | Tonscend        | TAP9E6343          | AP21C806117 | May. 15, 2026 | May. 14, 2027 |
| HF Amplifier      | Tonscend        | TAP051845          | AP21C806141 | Aug. 27, 2025 | Aug. 26, 2026 |
| HF Amplifier      | Tonscend        | TAP0184050         | AP21C806129 | Aug. 27, 2025 | Aug. 26, 2026 |
| Pre-amplifier     | HP              | 8449B              | 3008A00849  | Feb. 02, 2026 | Feb.01, 2027  |
| Highpass Filter   | CD              | HPM-6.4/18G        | ---         | N/A           | N/A           |
| Highpass Filter   | CD              | HPM-2.8/18G        | ---         | N/A           | N/A           |
| Highpass Filter   | XINBO           | XBLBQ-HTA67(8-25G) | 22052702-1  | N/A           | N/A           |

### Antenna Conducted Emission

| Equipment                            | Manufacturer       | Model No.          | Serial No.    | Last Cal.     | Cal. Due Date |
|--------------------------------------|--------------------|--------------------|---------------|---------------|---------------|
| Spectrum Analyzer                    | Rohde & Schwarz    | FSV40-N            | 102197        | May. 15, 2026 | May. 14, 2027 |
| MXA Signal Analyzer                  | KEYSIGHT           | N9020B             | MY60110172    | Aug. 27, 2025 | Aug. 26, 2026 |
| MXA Signal Analyzer                  | Agilent            | N9020A             | MY47380425    | Aug. 27, 2025 | Aug. 26, 2026 |
| Vector Signal Generator              | Agilent            | N5182A             | MY50141294    | Aug. 27, 2025 | Aug. 26, 2026 |
| Analog Signal Generator              | Agilent            | N5181A             | MY48180463    | Aug. 27, 2025 | Aug. 26, 2026 |
| Vector Signal Generator              | KEYSIGHT           | N5182B             | MY59101429    | Aug. 27, 2025 | Aug. 26, 2026 |
| Analog Signal Generator              | KEYSIGHT           | N5173B             | MY61252685    | Aug. 27, 2025 | Aug. 26, 2026 |
| RF Control Unit                      | Tonsced            | JS0806-2           | 21F8060439    | Aug. 27, 2025 | Aug. 26, 2026 |
| Power Control Box                    | Tonsced            | JS0806-4ADC        | 21C8060387    | N/A           | N/A           |
| RF Power Sensor                      | DARE!! Instruments | RadiPowerRPR3 006W | 17I00015SNO26 | Aug. 27, 2025 | Aug. 26, 2026 |
|                                      |                    |                    | 17I00015SNO29 | Aug. 27, 2025 | Aug. 26, 2026 |
|                                      |                    |                    | 17I00015SNO31 | Aug. 27, 2025 | Aug. 26, 2026 |
|                                      |                    |                    | 17I00015SNO33 | Aug. 27, 2025 | Aug. 26, 2026 |
| Wideband Radio Communication Tester  | Rohde & Schwarz    | CMW500             | 144382        | Aug. 27, 2025 | Aug. 26, 2026 |
| Universal Radio Communication Tester | Rohde&Schwarz      | CMW500             | 168796        | Jan. 30, 2026 | Jan. 29, 2027 |
| Temperature and Humidity Chamber     | ZhengHang          | ZH-QTH-225D        | ZH2107290     | May. 15, 2026 | May. 14, 2027 |



## 5. Conducted Emission

### 5.1 Test Standard and Limit

#### 5.1.1 Test Standard

##### FCC Part 15.207

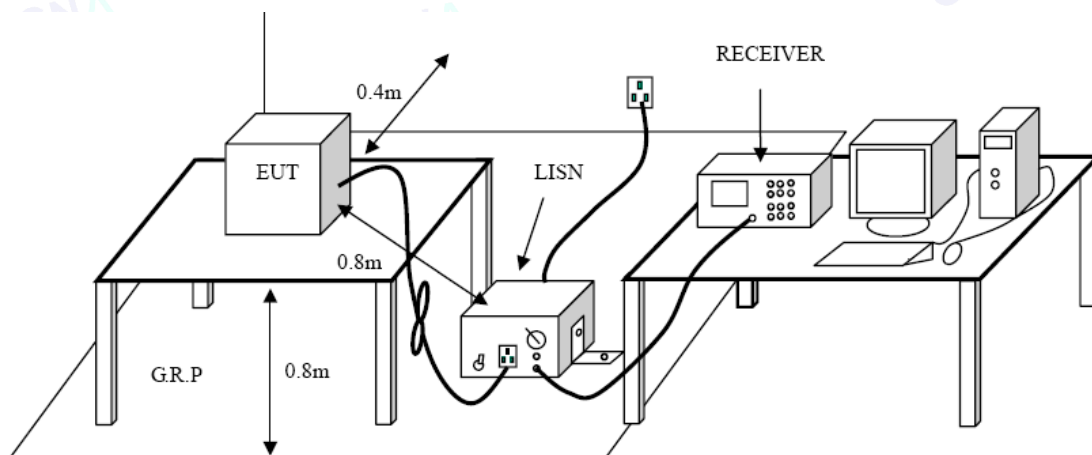
#### 5.1.2 Test Limit

| Frequency     | Maximum RF Line Voltage (dB $\mu$ V) |               |
|---------------|--------------------------------------|---------------|
|               | Quasi-peak Level                     | Average Level |
| 150kHz~500kHz | 66 ~ 56 *                            | 56 ~ 46 *     |
| 500kHz~5MHz   | 56                                   | 46            |
| 5MHz~30MHz    | 60                                   | 50            |

#### Notes:

- (1) \*Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 5.2 Test Setup



### 5.3 Test Procedure

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.



#### 5.4 Deviation From Test Standard

No deviation

#### 5.5 EUT Operating Mode

Please refer to the description of test mode.

#### 5.6 Test Data

N/A



## 6. Radiated and Conducted Unwanted Emissions

### 6.1 Test Standard and Limit

#### 6.1.1 Test Standard

**FCC Part 15.209 & FCC Part 15.247(d)**

#### 6.1.2 Test Limit

| General field strength limits at frequencies Below 30MHz |                        |                                    |                               |
|----------------------------------------------------------|------------------------|------------------------------------|-------------------------------|
| Frequency (MHz)                                          | Field Strength (μA/m)* | Field Strength (microvolt/meter)** | Measurement Distance (meters) |
| 0.009~0.490                                              | 6.37/F (F in kHz)      | 2400/F(KHz)                        | 300                           |
| 0.490~1.705                                              | 63.7/F (F in kHz)      | 24000/F(KHz)                       | 30                            |
| 1.705~30.0                                               | 0.08                   | 30                                 | 30                            |

**Note:** 1, The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.  
2, \*is for RSS Standard, \*\*is for FCC Standard.

| General field strength limits at frequencies above 30 MHz |                              |                               |
|-----------------------------------------------------------|------------------------------|-------------------------------|
| Frequency (MHz)                                           | Field strength (μV/m at 3 m) | Measurement Distance (meters) |
| 30~88                                                     | 100                          | 3                             |
| 88~216                                                    | 150                          | 3                             |
| 216~960                                                   | 200                          | 3                             |
| Above 960                                                 | 500                          | 3                             |

| General field strength limits at frequencies Above 1000MHz |                         |         |
|------------------------------------------------------------|-------------------------|---------|
| Frequency (MHz)                                            | Distance of 3m (dBuV/m) |         |
|                                                            | Peak                    | Average |
| Above 1000                                                 | 74                      | 54      |

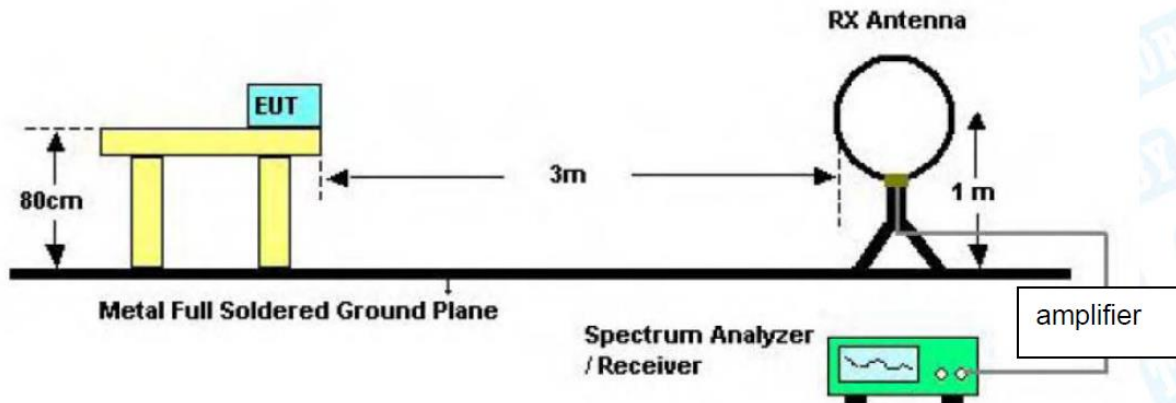
**Note:**  
(1) The tighter limit applies at the band edges.  
(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB.

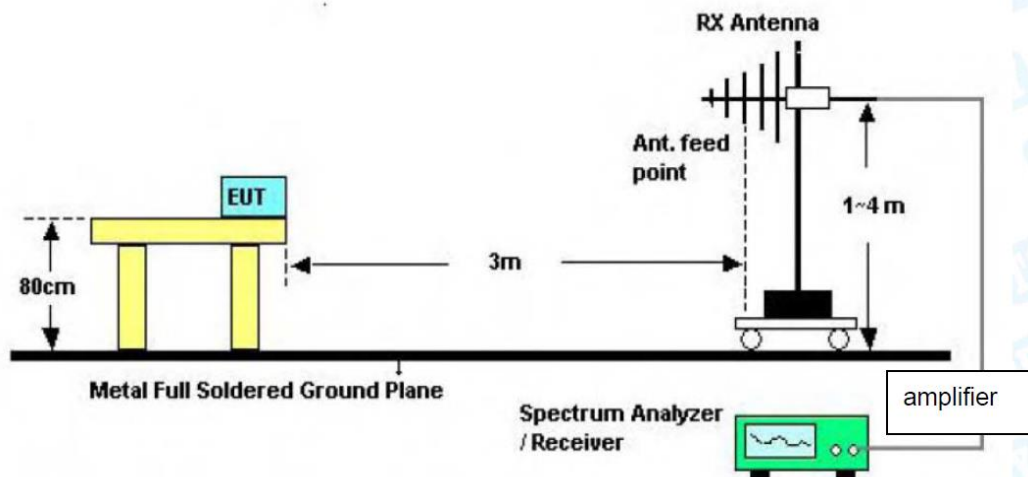


## 6.2 Test Setup

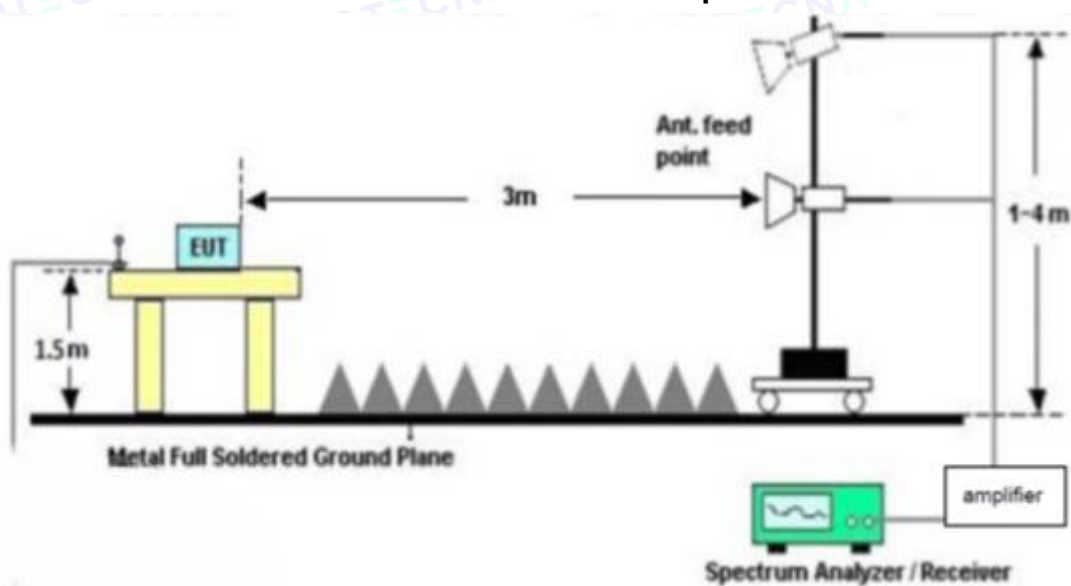
## Radiated measurement



## Below 30MHz Test Setup



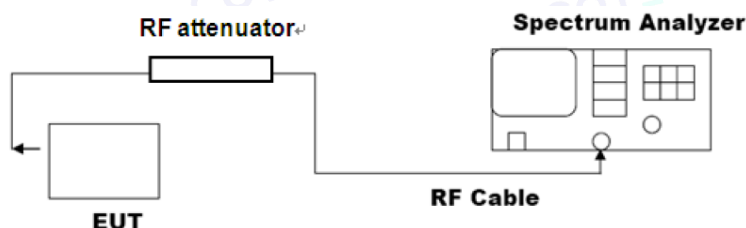
## Below 1000MHz Test Setup



## Above 1GHz Test Setup



## Conducted measurement



## 6.3 Test Procedure

## ---Radiated measurement

● The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.

● Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

● The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

● The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

● If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

● Testing frequency range 30MHz-1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection. Testing frequency range 9KHz-150Hz the measuring instrument use VBW=200Hz with Quasi-peak detection. Testing frequency range 9KHz-30MHz the measuring instrument use VBW=9kHz with Quasi-peak detection.

● Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

● For the actual test configuration, please see the test setup photo.

## --- Conducted measurement

## ●Reference level measurement

Establish a reference level by using the following procedure:

- Set instrument center frequency to DTS channel center frequency.
- Set the span to  $\geq 1.5$  times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW  $\geq [3 \times \text{RBW}]$ .
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

## ●Emission level measurement

Establish an emission level by using the following procedure:

- Set the center frequency and span to encompass frequency range to be measured.
- Set the RBW = 100 kHz.
- Set the VBW  $\geq [3 \times \text{RBW}]$ .
- Detector = peak.
- Sweep time = auto couple.



- f) Trace mode = max hold.
  - g) Allow trace to fully stabilize.
  - h) Use the peak marker function to determine the maximum amplitude level.
- Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

#### 6.4 Deviation From Test Standard

No deviation

#### 6.5 EUT Operating Mode

Please refer to the description of test mode.

#### 6.6 Test Data

Radiated measurement please refer to the Attachment A inside test report.

Conducted measurement please refer to the external appendix report of BLE.



## 7. Restricted Bands and Band Edge Requirement

### 7.1 Test Standard and Limit

#### 7.1.1 Test Standard

**FCC Part 15.205 & FCC Part 15.247(d)**

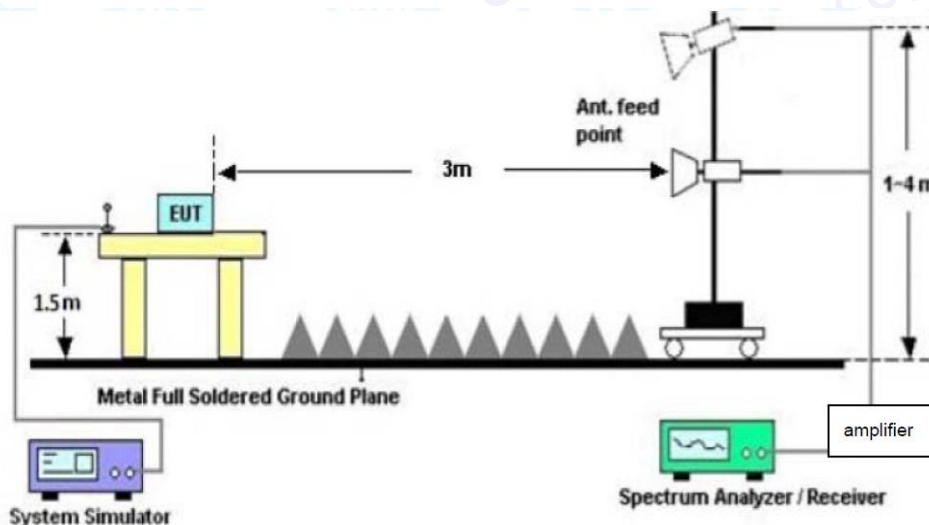
#### 7.1.2 Test Limit

| Restricted Frequency Band (MHz) | Distance Meters(at 3m)           |                                     |
|---------------------------------|----------------------------------|-------------------------------------|
|                                 | Peak (dBuV/m)                    | Average (dBuV/m)                    |
| 2310 ~2390                      | 74                               | 54                                  |
| 2483.5 ~2500                    | 74                               | 54                                  |
|                                 | Peak (dBm) <sub>see 7.3 e)</sub> | Average (dBm) <sub>see 7.3 e)</sub> |
| 2310 ~2390                      | -21.20                           | -41.20                              |
| 2483.5 ~2500                    | -21.20                           | -41.20                              |

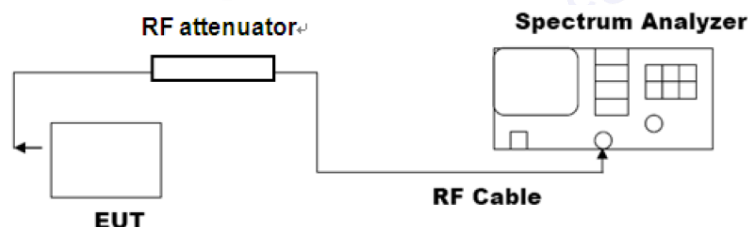
Note: According the ANSI C63.10 11.12.2 antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions is required.

### 7.2 Test Setup

#### Radiated measurement



#### Conducted measurement



### 7.3 Test Procedure

#### ---Radiated measurement

● Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

● The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

● The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

● The Peak Value and average value both need to comply with applicable limit above 1 GHz.

● Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

● For the actual test configuration, please see the test setup photo.

#### --- Conducted measurement

a) Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain).

c) Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies

≤30 MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies > 1000 MHz).

d) For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW).

e) Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log d + 104.8$$

where

$E$  is the electric field strength in dBuV/m

EIRP is the equivalent isotropically radiated power in dBm

$d$  is the specified measurement distance in m

f) Compare the resultant electric field strength level with the applicable regulatory limit.

g) Perform the radiated spurious emission test.

### 7.4 Deviation From Test Standard

No deviation

### 7.5 EUT Operating Mode

Please refer to the description of test mode.

### 7.6 Test Data

Remark: The test uses antenna-port conducted measurements as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements.

Please refer to the external appendix report of BLE.



## 8. Bandwidth Test

### 8.1 Test Standard and Limit

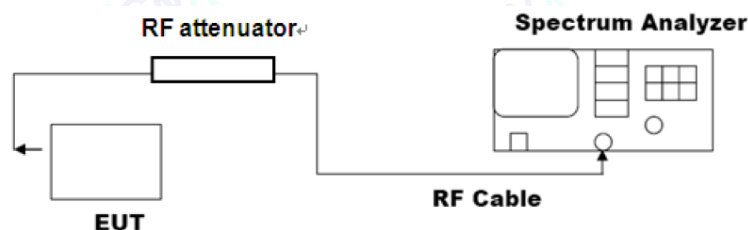
#### 8.1.1 Test Standard

**FCC Part 15.205 & FCC Part 15.247(d)**

#### 8.1.2 Test Limit

| Test Item                          | Limit          | Frequency Range(MHz) |
|------------------------------------|----------------|----------------------|
| -6dB bandwidth<br>(DTS bandwidth ) | $\geq 500$ KHz | 2400~2483.5          |
| 99% occupied bandwidth             | /              | 2400~2483.5          |

### 8.2 Test Setup



### 8.3 Test Procedure

#### ---DTS bandwidth

● The steps for the first option are as follows:

- Set RBW = 100 kHz.
- Set the VBW  $\geq [3 \times \text{RBW}]$ .
- Detector = peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### ---occupied bandwidth

● The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $[10 \log (\text{OBW}/\text{RBW})]$  below the reference level. Specific guidance is given in 4.1.5.2.
- Step a) through step c) might require iteration to adjust within the specified range.
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- Use the 99% power bandwidth function of the instrument (if available) and report the



measured bandwidth.

g) If the instrument does not have a 99% power bandwidth function, then the trace data points are 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) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

#### 8.4 Deviation From Test Standard

No deviation

#### 8.5 EUT Operating Mode

Please refer to the description of test mode.

#### 8.6 Test Data

Please refer to the external appendix report of BLE.

