

# TEST REPORT

FCC BT Test for SM-A176U  
Class II Permissive Change

APPLICANT  
SAMSUNG Electronics Co., Ltd.

REPORT NO.  
HCT-RF-2512-FC065-R1

DATE OF ISSUE  
December 30, 2025

Tested by  
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Technical Manager  
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# TEST REPORT

**REPORT NO.**

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December 30, 2025

**Applicant****SAMSUNG Electronics Co., Ltd.**

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

**Product Name**

Mobile Phone

**Model Name**

SM-A176U

**FCC ID**

A3LSMA176U

**Date of Test**

December 4, 2025 ~ December 17, 2025

**Test Results**

PASS

**FCC Classification**

FCC Part 15 Spread Spectrum Transmitter (DSS)

**Test Standard Used**

FCC Rule Part(s): Part 15 subpart C 15.247

**Location of Test**

☒ Permanent Testing Lab ☐ On Site Testing Lab

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

## REVISION HISTORY

The revision history for this test report is shown in table.

| Revision No. | Date of Issue     | Description                                               |
|--------------|-------------------|-----------------------------------------------------------|
| 0            | December 19, 2025 | Initial Release                                           |
| 1            | December 30, 2025 | Deleted the statement on simultaneous operation on page 6 |

## Notice

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### Content

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Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked \*.

Information provided by the applicant is marked \*\*.

Test results provided by external providers are marked \*\*\*.

When confirmation of authenticity of this test report is required, please contact [www.hct.co.kr](http://www.hct.co.kr)

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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## 1. EUT DESCRIPTION

|                             |                                                     |
|-----------------------------|-----------------------------------------------------|
| <b>Model</b>                | SM-A176U                                            |
| <b>Additional Model</b>     | SM-A176U1, SM-S176V                                 |
| <b>EUT Type</b>             | Mobile Phone                                        |
| <b>Power Supply</b>         | DC 3.88 V                                           |
| <b>Frequency Range</b>      | 2 402 MHz - 2 480 MHz                               |
| <b>Max. RF Output Power</b> | 10.996 dBm (12.58 mW)                               |
| <b>BT Operating Mode</b>    | Normal, EDR, AFH                                    |
| <b>Modulation Type</b>      | GFSK(Normal), $\pi/4$ DQPSK and 8DPSK(EDR)          |
| <b>Modulation Technique</b> | FHSS                                                |
| <b>Number of Channels</b>   | 79 Channels, Minimum 20 Channels(AFH)               |
| <b>Antenna Information</b>  | Please refer to the Antenna Specification document. |
| <b>Serial number</b>        | Conducted : R3CY70RH0NW<br>Radiated : R3CY70RH1FJ   |

## ANTENNA CONFIGURATIONS

1. Below Tables are the possible configurations.

| Configurations | SISO |      | Dual BT     |
|----------------|------|------|-------------|
|                | Ant1 | Ant2 | Ant1 & Ant2 |
| Bluetooth      | O    | X    | X           |

Note:

- 1) O = Support, X = Not Support
- 2) SISO = Single Input Single Output

## 2. Requirements for Bluetooth transmitter(15.247)

This Bluetooth module has been tested by a Bluetooth Qualification Lab, and we confirm the following:

- 1) This system is hopping pseudo-randomly.
- 2) Each frequency is used equally on the average by each transmitter.
- 3) The receiver input bandwidths that match the hopping channel bandwidths of their corresponding transmitters
- 4) The receiver shifts frequencies in synchronization with the transmitted signals.
  - 15.247(g): The system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this Section 15.247 should the transmitter be presented with a continuous data (or information) stream.
  - 15.247(h): The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

## 3. TEST METHODOLOGY

Unlicensed Wireless Devices were tested using the following measurement procedure.

[1] KDB 558074 D01 15.247 Meas Guidance v05v02

[2] ANSI C63.10-2020

## EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

## EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

## GENERAL TEST PROCEDURES

### Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10-2020. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

### Radiated Emissions

According to the requirements in Section 6.3 ~ Section 6.6 of ANSI C63.10-2020,

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes. To record the final measurements, the analyzer detector function was set to CISPR quasi-peak mode and the bandwidth of the spectrum analyzer was set to 120 kHz for frequencies below 1 GHz or 1 MHz for frequencies above 1 GHz. For average measurements above 1 GHz, the analyzer was set to peak detector and add the DCCF calculations.

## DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

#### 4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

#### 5. FACILITIES AND ACCREDITATIONS

##### FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4-2014 and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

##### EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to ANSI/USEMCSC C63.2-2023, "American National Standard for Specifications of Electromagnetic Interference and Field Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz".

## 6. ANTENNA REQUIREMENTS

### According to FCC 47 CFR § 15.203:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T complies with the requirement of § 15.203

## 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicate a 95 % level of confidence.

The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

| Parameter                                                                          | Expanded Uncertainty ( $\pm$ kHz)        |
|------------------------------------------------------------------------------------|------------------------------------------|
| X dB, 99% Bandwidth                                                                | 95 (Confidence level about 95 %, $k=2$ ) |
| Frequency stability                                                                | 28 (Confidence level about 95 %, $k=2$ ) |
| Carrier Frequency Separation<br>Number of Hopping Frequencies<br>Time of Occupancy | 49 (Confidence level about 95 %, $k=2$ ) |

| Parameter                                | Expanded Uncertainty ( $\pm$ dB)           |
|------------------------------------------|--------------------------------------------|
| Conducted Disturbance (150 kHz ~ 30 MHz) | 1.54 (Confidence level about 95 %, $k=2$ ) |
| Conducted Output Power(Signal Analyzer)  | 0.68 (Confidence level about 95 %, $k=2$ ) |
| Power Spectral Density                   | 1.03 (Confidence level about 95 %, $k=2$ ) |
| Conducted Spurious Emissions             | 0.70 (Confidence level about 95 %, $k=2$ ) |
| Radiated Disturbance (9 kHz ~ 30 MHz)    | 4.36 (Confidence level about 95 %, $k=2$ ) |
| Radiated Disturbance (30 MHz ~ 1 GHz)    | 5.68 (Confidence level about 95 %, $k=2$ ) |
| Radiated Disturbance (1 GHz ~ 18 GHz)    | 5.75 (Confidence level about 95 %, $k=2$ ) |
| Radiated Disturbance (18 GHz ~ 40 GHz)   | 5.82 (Confidence level about 95 %, $k=2$ ) |

## 8. DESCRIPTION OF TESTS

| Test Item                                          | Test Procedure                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20 dB Bandwidth                                    | - ANSI C63.10-2020 - Section 6.9.2                                                                                                                                                                                                                                                                                          |
| Occupied Bandwidth                                 | - ANSI C63.10-2020 - Section 6.9.3                                                                                                                                                                                                                                                                                          |
| Conducted Maximum Peak Output Power                | - ANSI C63.10-2020 - Section 7.8.5                                                                                                                                                                                                                                                                                          |
| Carrier Frequency Separation                       | - ANSI C63.10-2020 - Section 7.8.2                                                                                                                                                                                                                                                                                          |
| Number of Hopping Frequencies                      | - ANSI C63.10-2020 - Section 7.8.3                                                                                                                                                                                                                                                                                          |
| Time of Occupancy                                  | - ANSI C63.10-2020 - Section 7.8.4                                                                                                                                                                                                                                                                                          |
| Conducted Spurious Emissions & Conducted Band Edge | - ANSI C63.10-2020 - Section 7.8.7                                                                                                                                                                                                                                                                                          |
| Radiated Test                                      | <ul style="list-style-type: none"> <li>- ANSI C63.10-2020 - Section 6.4 (Below 30 MHz)</li> <li>- ANSI C63.10-2020 - Section 6.5 (30 MHz to 1000 MHz)</li> <li>- ANSI C63.10-2020 - Section 6.6 &amp; 7.8.8 (1 GHz to 40 GHz)</li> <li>- ANSI C63.10-2020 - Section 6.10 &amp; 7.8.8 (Restricted-Band band-edge)</li> </ul> |
| AC Power line Conducted Emissions                  | - ANSI C63.10-2020 - Section 6.2                                                                                                                                                                                                                                                                                            |

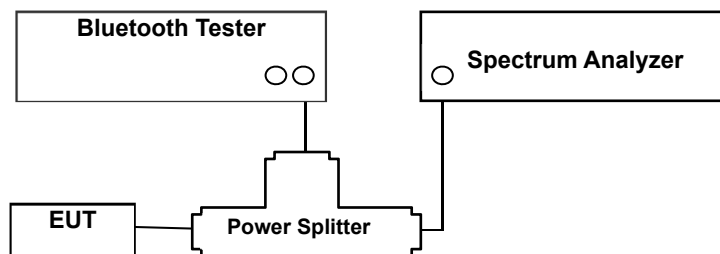
### 8.1. Conducted Maximum Peak Output Power

#### Limit

The maximum peak output power of the intentional radiator shall not exceed the following:

1. For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 W. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 W.
2. The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

#### Test Configuration



#### Test Procedure

The EUT was tested with hopping disabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

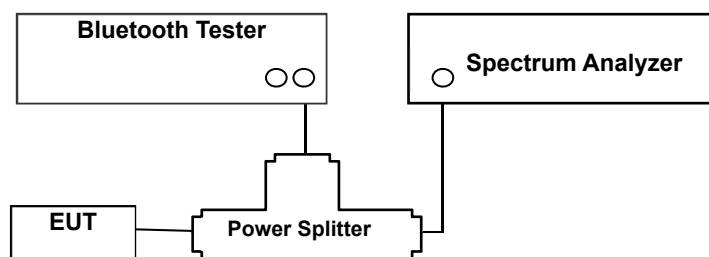
- 1) Span: approximately 5 times the 20 dB bandwidth, centered on a hopping channel
- 2) RBW > the 20 dB bandwidth of the emission being measured
- 3) VBW  $\geq$  RBW
- 4) Sweep = No faster than coupled (auto) time
- 5) Detector = Peak
- 6) Trace = Max hold
- 7) Allow trace to stabilize.
- 8) Use the marker-to-peak function to set the marker to the peak of the emission.

## 8.2. Conducted Band Edge(Out of Band Emissions)

### Limit

According to § 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 the transmitter demonstrates compliance with the peak conducted power limits.

### Test Configuration



### Test Procedure

The EUT was tested with hopping enabled and hopping disabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

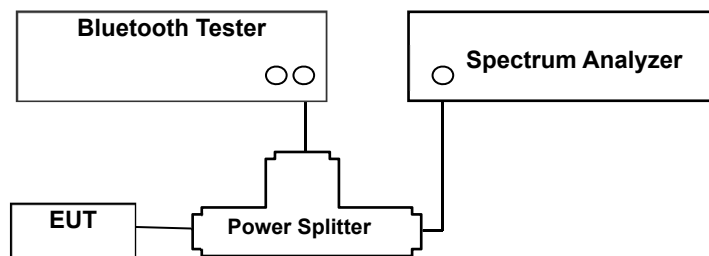
- 1) Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation
- 2) Reference level: As required to keep the signal from exceeding the maximum instrument input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level.
- 3) Attenuation: Auto (at least 10 dB preferred).
- 4) Sweep time: No faster than coupled (auto) time.
- 5) RBW: 100 kHz
- 6) VBW: 300 kHz
- 7) Detector: Peak
- 8) Trace: Max hold

### 8.3. Frequency Separation & 20 dB Bandwidth & 99% Occupied Bandwidth

#### Limit

According to § 15.247(a)(1), Frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

#### Test Configuration



#### Test Procedure(Frequency Separation)

The EUT was tested with hopping enabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

- 1) Span: Wide enough to capture the peaks of two adjacent channels
- 2) RBW: Start with the RBW set to approximately 30 % of the channel spacing; adjust as necessary to best identify the center of each individual channel.
- 3) VBW  $\geq$  RBW
- 4) Sweep: No faster than coupled (auto) time
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) Allow the trace to stabilize
- 8) Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined. A plot of the data shall be included in the test report.

**Test Procedure (20 dB Bandwidth)**

The EUT was tested with hopping disabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

- 1) Span: Set between two times and five times the OBW
- 2) RBW: 1 % to 5 % of the OBW.
- 3) VBW  $\geq 3 \times$  RBW
- 4) Sweep: Auto
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) Allow the trace to stabilize
- 8) We tested 20 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set to 20 dB.

**Test Procedure (99% Occupied Bandwidth)**

The EUT was tested with hopping disabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

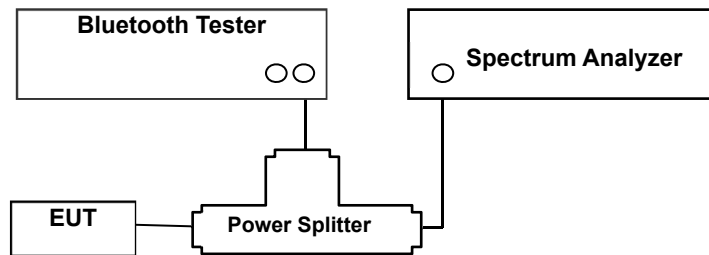
- 1) Span: Set between 1.5 times and 5.0 times the OBW
- 2) RBW: 1 % to 5 % of the OBW.
- 3) VBW  $\geq 3 \times$  RBW
- 4) Sweep: Auto
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) Allow the trace to stabilize
- 8) Use the 99% power bandwidth function of the instrument

#### 8.4. Number of Hopping Frequencies

##### Limit

According to § 15.247(a)(1)(iii), Frequency hopping systems operating in the 2400 MHz ~ 2483.5 MHz bands shall use at least 15 hopping channels.

##### Test Configuration



##### Test Procedure

The EUT was tested with hopping enabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

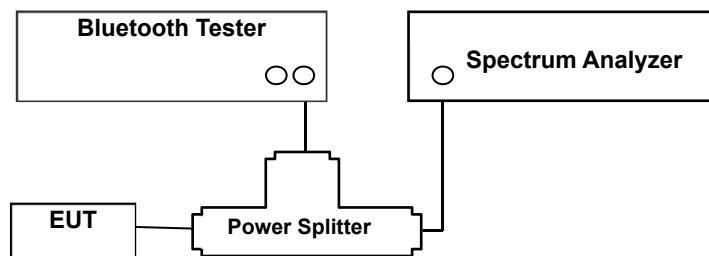
- 1) Span: The frequency band of operation
- 2) RBW: To identify clearly the individual channels, set the RBW to less than 30 % of the channel spacing or the 20 dB bandwidth, whichever is smaller.
- 3) VBW  $\geq$  RBW
- 4) Sweep: No faster than coupled (auto) time
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) Allow the trace to stabilize.

## 8.5. Time of Occupancy

### Limit

According to § 15.247(a)(1)(iii), Frequency hopping systems operating in the 2400 MHz ~ 2483.5 MHz bands, the average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

### Test Configuration



### Test Procedure

The EUT was tested with hopping enabled.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

- 1) Span: Zero span, centered on a hopping channel
- 2) RBW shall be  $\leq$  channel spacing and where possible RBW should be set  $\gg 1/T$ , where T is the expected transmission time per hop.
- 3) Sweep time: Set so that the start of the first transmission and end of the last transmission for the hop are clearly captured. (To be slightly longer than the hopping period per channel)
- 4) The video trigger is set with trigger delay, and the trigger level is adjusted as needed to clearly capture the start of transmission and reduce false triggers caused by adjacent channels.
- 5) Detector: Peak
- 6) Trace: Clear-write, single sweep.
- 7) Place markers at the start of the first transmission on the channel and at the end of the last transmission. The dwell time per hop is the time between these two markers.

### Sample Calculation

The following calculation process is not relevant to our measurement results. It is just an example.

(1) Non-AFH Mode

- DH 5 (GFSK) :  $2.890 \times (1600/6)/79 \times 31.6 = 308.27 \text{ (ms)}$
- 2-DH 5 ( $\pi/4$ DQPSK) :  $2.890 \times (1600/6)/79 \times 31.6 = 308.27 \text{ (ms)}$
- 3-DH 5 (8DPSK) :  $2.890 \times (1600/6)/79 \times 31.6 = 308.27 \text{ (ms)}$

(2) AFH Mode

- DH 5 (GFSK) :  $2.890 \times (800/6)/20 \times 8.0 = 154.13 \text{ (ms)}$
- 2-DH 5 ( $\pi/4$ DQPSK) :  $2.890 \times (800/6)/20 \times 8.0 = 154.13 \text{ (ms)}$
- 3-DH 5 (8DPSK) :  $2.890 \times (800/6)/20 \times 8.0 = 154.13 \text{ (ms)}$

Note :

DH5 Packet needs 5 time slots for transmitting and 1 time slot for receiving. In the worst case, the system performs 1600/6 hops per second with 79 channels. Consequently, each channel is used 3.3755 times per second, resulting in 106.667 occurrences over 31.6 seconds.

Each Tx-time per appearance of DH5 is 2.890 ms.

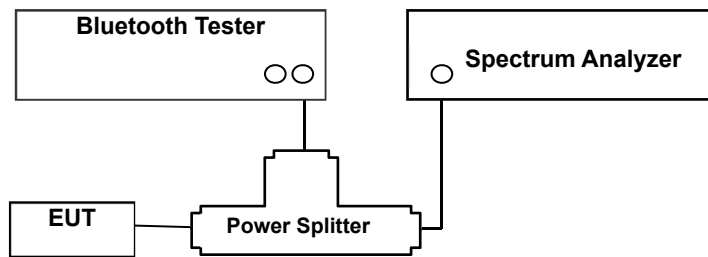
Dwell time = Tx-time  $\times$  106.667 = 308.27 (ms)

## 8.6. Conducted Spurious Emissions

### Limit

Conducted > 20 dBc

### Test Configuration



### Test Procedure

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The EUT was tested with hopping disabled.

The transmitter output is connected to the spectrum analyzer.

The Spectrum Analyzer is set to

- 1) Span: 30 MHz to 10 times the operating frequency in GHz.
- 2) RBW: 100 kHz
- 3) VBW: 300 kHz
- 4) Sweep time : Coupled
- 5) Detector: Peak
- 6) Trace: Max Hold

Measurements are made over the 30 MHz to 25 GHz range with the transmitter set to the lowest, middle, and highest channels.

### Factors for frequency

| Freq(MHz)   | Factor(dB)  |
|-------------|-------------|
| 30          | 6.23        |
| 100         | 6.31        |
| 200         | 6.31        |
| 300         | 6.47        |
| 400         | 6.73        |
| 500         | 6.56        |
| 600         | 6.57        |
| 700         | 6.66        |
| 800         | 6.68        |
| 900         | 6.69        |
| 1000        | 6.80        |
| 2000        | 7.27        |
| <b>2400</b> | <b>7.41</b> |
| 3000        | 7.54        |
| 4000        | 7.68        |
| 5000        | 7.81        |
| <b>5850</b> | 7.95        |
| 6000        | 8.56        |
| <b>7000</b> | 8.77        |
| 8000        | 8.48        |
| 9000        | 9.81        |
| 10000       | 8.77        |
| 11000       | 8.58        |
| 12000       | 9.04        |
| 13000       | 8.76        |
| 14000       | 9.24        |
| 15000       | 9.76        |
| 16000       | 9.53        |
| 17000       | 10.14       |
| 18000       | 9.91        |
| 19000       | 10.10       |
| 20000       | 10.27       |
| 21000       | 10.78       |
| 22000       | 10.64       |
| 23000       | 10.65       |
| 24000       | 10.88       |
| 25000       | 10.68       |
| 26000       | 11.26       |

Note : 1. 2400 ~ 2500 MHz is fundamental frequency range.

2. Factor = Cable loss(2 EA) + Splitter loss(6 dB)

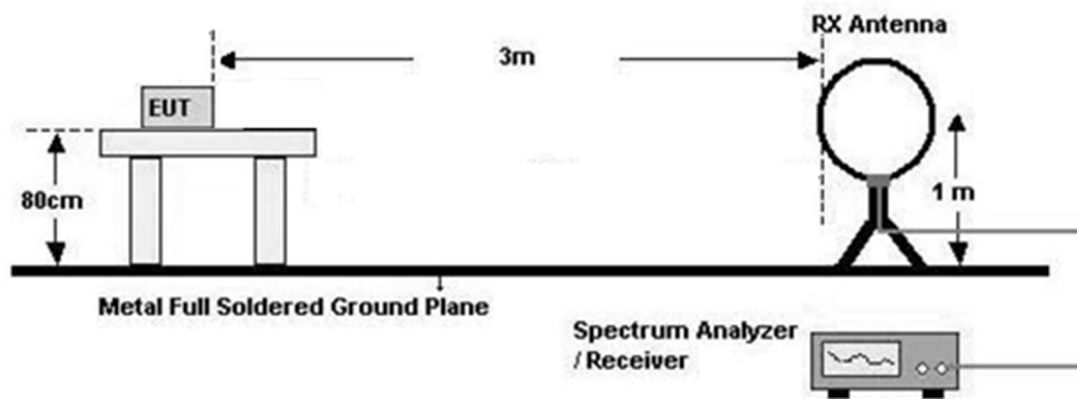
## 8.7. Radiated Test

### Limit

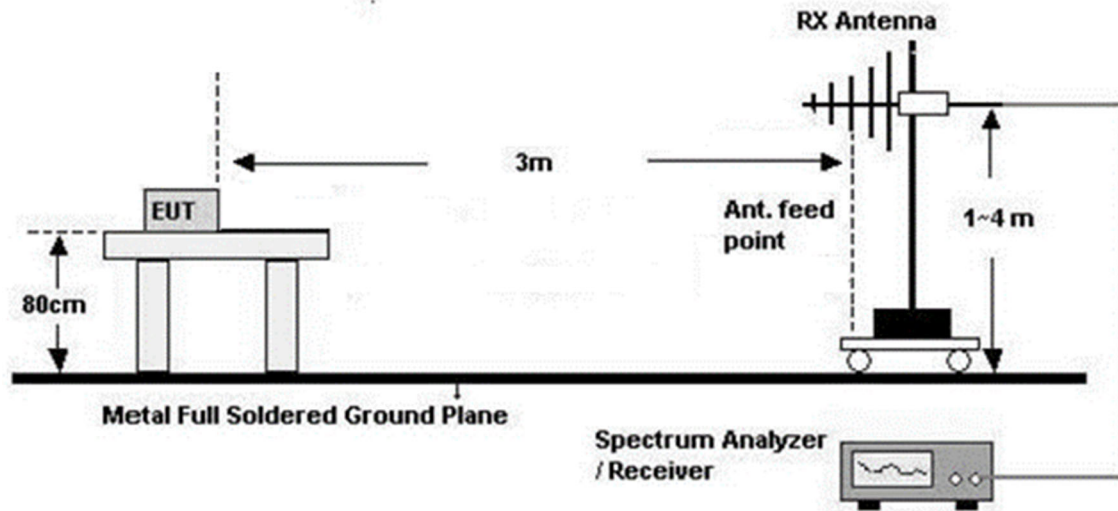
| Frequency (MHz) | Field Strength ( $\mu\text{V/m}$ ) | Measurement Distance (m) |
|-----------------|------------------------------------|--------------------------|
| 0.009 – 0.490   | $2400/F(\text{kHz})$               | 300                      |
| 0.490 – 1.705   | $24000/F(\text{kHz})$              | 30                       |
| 1.705 – 30      | 30                                 | 30                       |
| 30-88           | 100                                | 3                        |
| 88-216          | 150                                | 3                        |
| 216-960         | 200                                | 3                        |
| Above 960       | 500                                | 3                        |

### Test Configuration

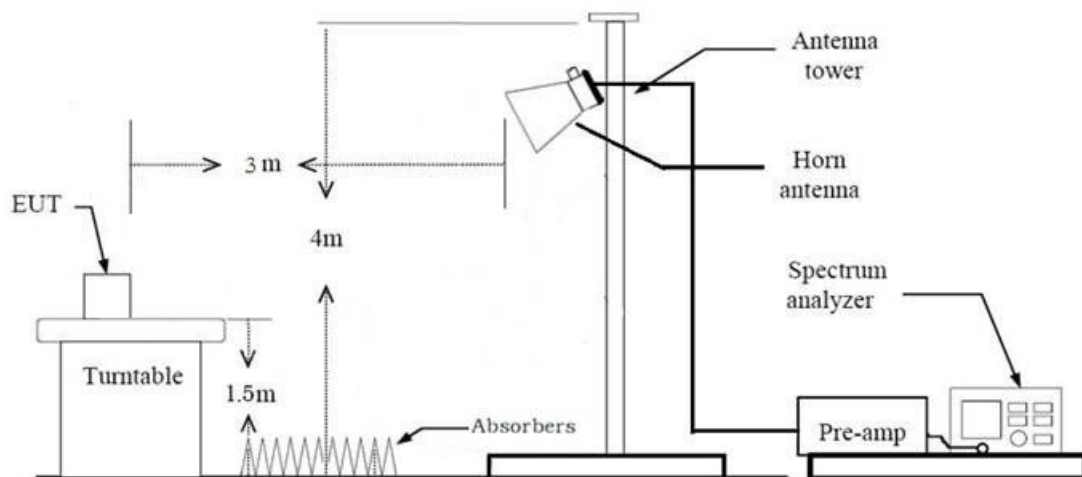
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



## Test Procedure of Radiated spurious emissions(Below30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) =  $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$   
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) =  $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$   
Measurement Distance : 3 m

#### 8. Spectrum Analyzer Setting

- Frequency Range = 9 kHz ~ 30 MHz
- Detector = Peak
- Trace = Max hold
- RBW = 9 kHz
- VBW  $\geq 3 \times$  RBW

9. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

#### **KDB 414788 OFS and Chamber Correlation Justification**

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

#### **Test Procedure of Radiated spurious emissions(Below 1 GHz)**

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Analyzer Setting

##### (1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Max hold
- RBW = 100 kHz
- VBW  $\geq 3 \times$  RBW

##### (2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Quasi-Peak
- RBW = 120 kHz

※In general, (1) is used mainly

7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)

8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

#### **Test Procedure of Radiated spurious emissions (Above 1 GHz)**

1. Radiated test is performed with hopping disabled.
2. The EUT is placed on a turntable, which is 1.5 m above ground plane.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
6. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
7. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
8. Spectrum Analyzer Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 1 GHz – 25 GHz
    - Detector = Peak
    - Trace = Max hold
    - RBW = 1 MHz
    - VBW  $\geq 3 \times$  RBW
  - (2) Measurement Type(Average):
    - Average value of pulsed emissions
    - From the peak value of the emission : The measured peak value in dBuV/m is corrected by  $20\log(\text{maximum dwell time in 100 ms} / 100)$ .
      - ◆  $DH5 = 20\log(\text{Maximum dwell time} / 100\text{ms}) \text{ dB} = -24.731 \text{ dB}$
      - ◆  $2-DH5, 3-DH5 = 20\log(\text{Maximum dwell time} / 100\text{ms}) \text{ dB} = -18.711 \text{ dB}$
9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
10. Distance extrapolation factor =  $20\log(\text{test distance} / \text{specific distance}) \text{ (dB)}$
11. Total(Measurement Type : Peak)  
= Measured Value(Peak) + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) – Amp Gain(A.G)  
Total(Measurement Type : Average)  
= Measured Value(Peak) + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) - Amp Gain(A.G) + D.C.C.F(AFH)
12. Duty Cycle Correction Factor (79 channel hopping)

- a. Time to cycle through all channels =  $\Delta t = \tau \text{ [ms]} \times 79 \text{ channels} = 229.100 \text{ ms}$ , where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t \text{ [ms]} = H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau \text{ [ms]} \times H' = 2.9 \text{ ms}$
  - d. Channel separation correction = 1 (DH5, 2-DH5, 3-DH5)
  - e. Overlapping channel correction
    - (1) DH5 : = 0
    - (2) 2-DH5, 3-DH5 = 1
  - f. Maximum dwell time
    - (1) DH5 =  $2.9 \text{ ms} \times (1 + 0) = 2.9 \text{ ms}$
    - (2) 2-DH5, 3-DH5 =  $2.9 \text{ ms} \times (1 + 1) = 5.8 \text{ ms}$
  - g. Duty Cycle Correction
    - (1) DH5 =  $20 \log (\text{Maximum dwell time} / 100 \text{ ms}) \text{ dB} = -30.752 \text{ dB}$
    - (2) 2-DH5, 3-DH5 =  $20 \log (\text{Maximum dwell time} / 100 \text{ ms}) \text{ dB} = -24.731 \text{ dB}$
13. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
- a. Time to cycle through all channels =  $\Delta t = \tau \text{ [ms]} \times 20 \text{ channels} = 58.00 \text{ ms}$ , where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t \text{ [ms]} = H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau \text{ [ms]} \times H' = 5.8 \text{ ms}$
  - d. Channel separation correction = 1 (DH5, 2DH5, 3DH5)
  - e. Overlapping channel correction
    - (1) DH5 : = 0
    - (2) 2DH5, 3DH5 = 1
  - f. Maximum dwell time
    - (1) DH5 =  $5.8 \text{ ms} \times (1 + 0) = 5.8 \text{ ms}$
    - (2) 2-DH5, 3-DH5 =  $5.8 \text{ ms} \times (1 + 1) = 11.6 \text{ ms}$
  - g. Duty Cycle Correction
    - (1) DH5 =  $20 \log (\text{Maximum dwell time} / 100 \text{ ms}) \text{ dB} = -24.731 \text{ dB}$
    - (2) 2-DH5, 3-DH5 =  $20 \log (\text{Maximum dwell time} / 100 \text{ ms}) \text{ dB} = -18.711 \text{ dB}$

### **Test Procedure of Radiated Restricted Band Edge**

1. Radiated test is performed with hopping disabled.
2. The EUT is placed on a turntable, which is 1.5 m above ground plane.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

## 7. Spectrum Analyzer Setting

### (1) Measurement Type(Peak):

- Detector = Peak
- Trace = Max hold
- RBW = 1 MHz
- VBW  $\geq 3 \times$  RBW

### (2) Measurement Type(Average):

- Average value of pulsed emissions
- From the peak value of the emission: The measured peak value in dBuV/m is corrected by  $20\log(\text{maximum dwell time in 100 ms} / 100)$ .
  - ◆ DH5 =  $20\log(\text{Maximum dwell time} / 100\text{ms})$  dB = -24.731 dB
  - ◆ 2-DH5, 3-DH5 =  $20\log(\text{Maximum dwell time} / 100\text{ms})$  dB = -18.711 dB

8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

9. Distance extrapolation factor =  $20\log(\text{test distance} / \text{specific distance})$  (dB)

10.Total(Measurement Type : Peak) = Measured Value(Peak)

Total(Measurement Type : Average) = Measured Value(Peak) + D.C.C.F(AFH)

- We apply to the offset in range 1 GHz - 18 GHz
- The offset = Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

11. Duty Cycle Correction Factor (79 channel hopping)

- a. Time to cycle through all channels =  $\Delta t = \tau [\text{ms}] \times 79 \text{ channels} = 229.100 \text{ ms}$ , where  $\tau$  = pulse width
- b.  $100 \text{ ms} / \Delta t [\text{ms}] = H \rightarrow$  Round up to next highest integer,  $H' = 1$
- c. Worst Case Dwell Time =  $\tau [\text{ms}] \times H' = 2.9 \text{ ms}$
- d. Channel separation correction = 1 (DH5, 2DH5, 3DH5)
- e. Overlapping channel correction
  - (1) DH5 : = 0
  - (2) 2-DH5, 3-DH5 = 1
- f. Maximum dwell time
  - (1) DH5 =  $2.9\text{ms} \times (1 + 0) = 2.9 \text{ ms}$
  - (2) 2-DH5, 3-DH5 =  $2.9\text{ms} \times (1 + 1) = 5.8 \text{ ms}$
- g. Duty Cycle Correction
  - (1) DH5 =  $20\log(\text{Maximum dwell time} / 100\text{ms})$  dB = -30.752 dB
  - (2) 2-DH5, 3-DH5 =  $20\log(\text{Maximum dwell time} / 100\text{ms})$  dB = -24.731 dB

12. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)

- a. Time to cycle through all channels =  $\Delta t = \tau [\text{ms}] \times 20 \text{ channels} = 58.00 \text{ ms}$ , where  $\tau$  = pulse width
- b.  $100 \text{ ms} / \Delta t [\text{ms}] = H \rightarrow$  Round up to next highest integer,  $H' = 2$

c. Worst Case Dwell Time =  $\tau$  [ms] x H' = 5.8 ms

d. Channel separation correction = 1 (DH5, 2DH5, 3DH5)

e. Overlapping channel correction

(1) DH5 : = 0

(2) 2-DH5, 3-DH5 = 1

f. Maximum dwell time

(1) DH5 = 5.8 ms X (1 + 0) = 5.8 ms

(2) 2-DH5, 3-DH5 = 5.8 ms X (1 + 1) = 11.6 ms

g. Duty Cycle Correction

(1) DH5 =  $20\log$  (Maximum dwell time / 100ms) dB = -24.731 dB

(2) 2-DH5, 3-DH5 =  $20\log$  (Maximum dwell time / 100ms) dB = -18.711 dB

## 8.8. AC Power line Conducted Emissions

### Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN).

| Frequency Range (MHz) | Limits (dB $\mu$ V)     |                         |
|-----------------------|-------------------------|-------------------------|
|                       | Quasi-peak              | Average                 |
| 0.15 to 0.50          | 66 to 56 <sup>(a)</sup> | 56 to 46 <sup>(a)</sup> |
| 0.50 to 5             | 56                      | 46                      |
| 5 to 30               | 60                      | 50                      |

<sup>(a)</sup>Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

### Test Procedure

1. The EUT is placed on a wooden table 0.8m above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.
5. The EUT is the device operating below 30MHz.
  - For unterminated the Antenna, the AC line conducted tests are performed with the antenna connected
  - For terminated the Antenna, the AC line conducted tests are performed with a dummy load connected to the EUT antenna output terminal.

### Sample Calculation

Quasi-peak(Final Result) = Measured Value + Correction Factor

## 8.9. Worst case configuration and mode

### Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
  - Mode : Stand alone, Stand alone + External accessories
  - Worstcase : Stand alone
2. EUT Axis
  - Radiated Spurious Emissions : Y
  - Radiated Restricted Band Edge : X
3. All data rates of operation were investigated and the test results are worst case in highest data rate of each mode.
  - GFSK : DH5
  - $\pi/4$ DQPSK : 2-DH5
  - 8DPSK : 3-DH5
4. All positions of loop antenna were investigated and the test result is a no critical peak found at all positions.
  - Position : Horizontal, Vertical, Parallel to the ground plane
5. Radiated Spurious Emission
  - All modes of operation were investigated and the worst case results are reported.
  - GFSK : DH5
  - $\pi/4$ DQPSK : 2-DH5
  - 8DPSK : 3-DH5
6. SM-A176U, Additional Models were tested and the worst case results are reported.  
(Worst case: SM-A176U)

### Conducted test

1. The EUT was configured with data rate of highest power.
  - GFSK : DH5
  - $\pi/4$ DQPSK : 2-DH5
  - 8DPSK : 3-DH5
2. AFH & Non-AFH were tested and the worst case results are reported.  
(Worst case : Non-AFH)
3. SM-A176U, Additional Models were tested and the worst case results are reported.  
(Worst case: SM-A176U)

## 9. SUMMARY OF TEST RESULTS

| Test Item                                   | FCC Part Section(s)               | Test Limit                            | Test Condition | Test Result | Status              |
|---------------------------------------------|-----------------------------------|---------------------------------------|----------------|-------------|---------------------|
| 20 dB Bandwidth                             | § 15.247(a)(1)                    | N/A                                   | Conducted      | PASS        | NT <sup>Note4</sup> |
| Occupied Bandwidth                          | N/A                               | N/A                                   |                | PASS        | NT <sup>Note4</sup> |
| Conducted Maximum Peak Output Power         | § 15.247(b)(1)                    | <0.125 W                              |                | PASS        | C <sup>Note3</sup>  |
| Carrier Frequency Separation                | § 15.247(a)(1)                    | >25 kHz or<br>>2/3 of the 20 dB BW    |                | PASS        | NT <sup>Note4</sup> |
| Number of Hopping Frequencies               | § 15.247(a)(1)(iii)               | ≥ 15                                  |                | PASS        | NT <sup>Note4</sup> |
| Time of Occupancy                           | § 15.247(a)(1)(iii)               | <400 ms                               |                | PASS        | NT <sup>Note4</sup> |
| Conducted Spurious Emissions                | § 15.247(d)                       | > 20 dB for all out-of band emissions |                | PASS        | NT <sup>Note4</sup> |
| Conducted Band Edge (Out of Band Emissions) | § 15.247(d)                       | > 20 dB for all out-of band emissions |                | PASS        | NT <sup>Note4</sup> |
| AC Power line Conducted Emissions           | § 15.207(a)                       | cf. Section 8.8                       |                | PASS        | NT <sup>Note4</sup> |
| Radiated Spurious Emissions                 | § 15.247(d),<br>15.205,<br>15.209 | cf. Section 8.7                       | Radiated       | PASS        | C <sup>Note3</sup>  |
| Radiated Restricted Band Edge               | § 15.247(d),<br>15.205,<br>15.209 | cf. Section 8.7                       |                | PASS        | C <sup>Note3</sup>  |

### Note

1. C = Comply, NT = Not Tested, NA = Not Applicable, NC = Not Comply
2. C2PC model is electrically identical to the Original model.
3. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the test result of section 10.
4. Output power was verified to be within the expected tune up tolerances prior to performing the spot

checks for radiated spurious emissions and band edge to confirm that the proposed changes to the digital circuitry had not adversely affected the previously reported values in the original filing.

5. The decision rule applies 'simple acceptance'

## 10. TEST RESULT

### 10.1 PEAK POWER

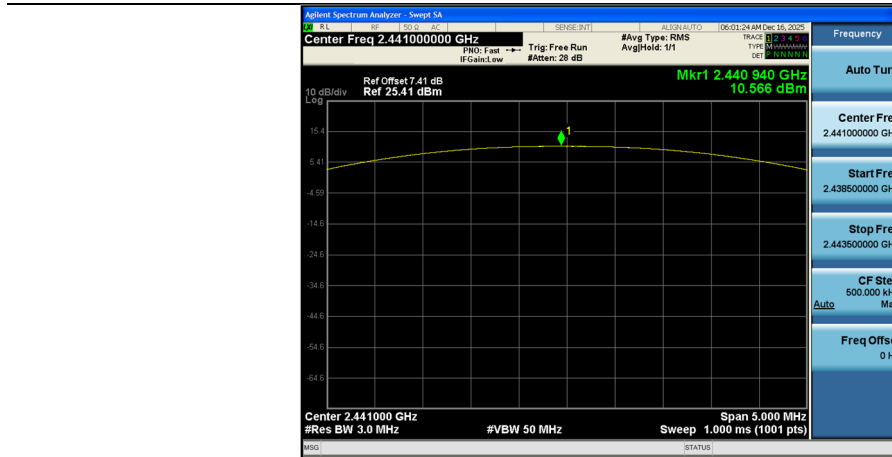
| Mode          | Channel | Frequency<br>[MHz] | Peak Power |       | Limit<br>[mW] |
|---------------|---------|--------------------|------------|-------|---------------|
|               |         |                    | [dBm]      | [mW]  |               |
| GFSK          | 0       | 2402               | 10.273     | 10.65 | 125           |
|               | 39      | 2441               | 10.566     | 11.39 |               |
|               | 78      | 2480               | 10.510     | 11.25 |               |
| $\pi/4$ DQPSK | 0       | 2402               | 10.725     | 11.82 |               |
|               | 39      | 2441               | 10.313     | 10.75 |               |
|               | 78      | 2480               | 10.331     | 10.79 |               |
| 8DPSK         | 0       | 2402               | 10.996     | 12.58 |               |
|               | 39      | 2441               | 10.642     | 11.59 |               |
|               | 78      | 2480               | 10.579     | 11.43 |               |

# TEST PLOTS(Peak Power)

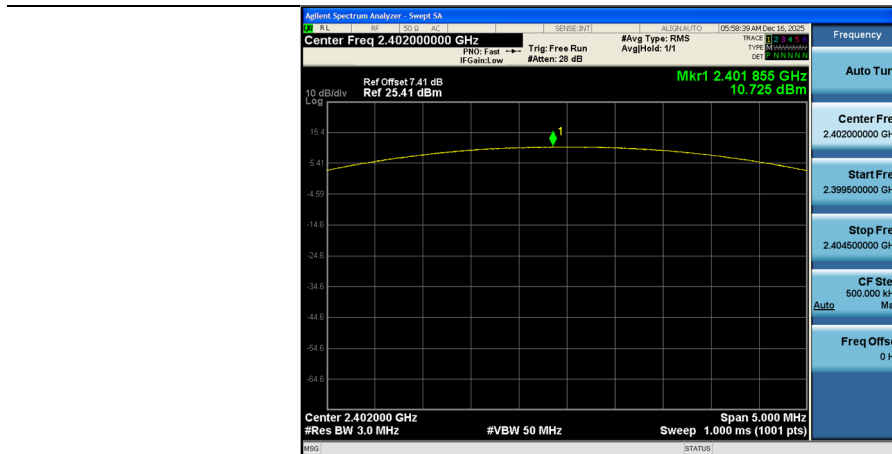
## Note :

In order to simplify the report, attached plots were only the worst case channel.

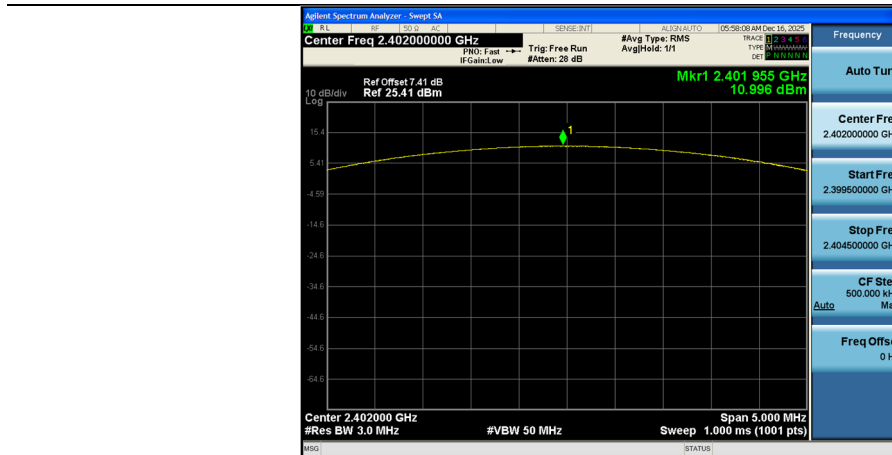
GFSK : Peak Power (Ch. 39)



$\pi/4$ DQPSK : Peak Power (Ch. 0)



8DPSK : Peak Power (Ch. 0)



## 10.2 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

| Frequency               | Measured Value | A.F+C.L+D.F | ANT. POL | Total    | Limit    | Margin |
|-------------------------|----------------|-------------|----------|----------|----------|--------|
| [MHz]                   | [dBμV]         | [dB/m]      | [H/V]    | [dBμV/m] | [dBμV/m] | [dB]   |
| No Critical peaks found |                |             |          |          |          |        |

Note:

1. The Measured of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor =  $40\log(\text{specific distance} / \text{test distance})$  (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor
4. Radiated test is performed with hopping disabled.

Frequency Range : Below 1 GHz

| Frequency               | Measured Value | A.F+C.L | ANT. POL | Total    | Limit    | Margin |
|-------------------------|----------------|---------|----------|----------|----------|--------|
| [MHz]                   | [dBμV]         | [dB/m]  | [H/V]    | [dBμV/m] | [dBμV/m] | [dB]   |
| No Critical peaks found |                |         |          |          |          |        |

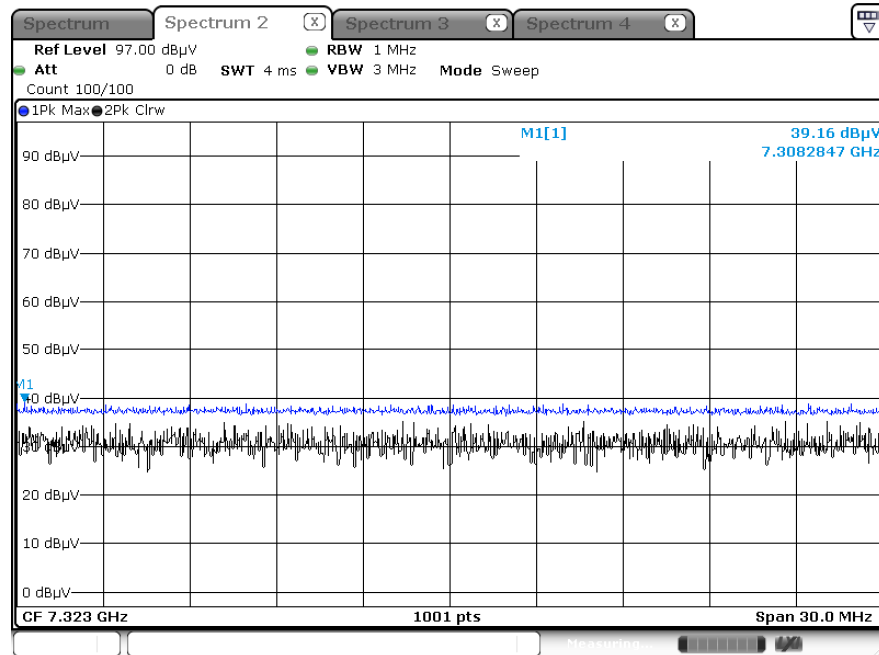
Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
2. Radiated test is performed with hopping disabled.

Frequency Range : Above 1 GHz

| CH 39     | 2441           | MHz             | Mode :   |                       |                | EDR ( $\pi/4$ QPSK) |        |                  |
|-----------|----------------|-----------------|----------|-----------------------|----------------|---------------------|--------|------------------|
| Frequency | Measured value | A.F+C.L-A.G+D.F | ANT. POL | Duty Cycle Correction | Total          | Limit               | Margin | Measurement Type |
| [MHz]     | [dB $\mu$ V]   | [dB/m]          | [H/V]    | [dB]                  | [dB $\mu$ V/m] | [dB $\mu$ V/m]      | [dB]   |                  |
| 4882      | 41.15          | 5.26            | V        | 0.00                  | 46.41          | 73.98               | 27.57  | PK               |
| 4882      | 41.15          | 5.26            | V        | -18.71                | 27.70          | 53.98               | 26.28  | AV               |
| 7323      | 38.89          | 12.51           | V        | 0.00                  | 51.40          | 73.98               | 22.58  | PK               |
| 7323      | 38.89          | 12.51           | V        | -18.71                | 32.69          | 53.98               | 21.29  | AV               |
| 4882      | 41.25          | 5.26            | H        | 0.00                  | 46.51          | 73.98               | 27.47  | PK               |
| 4882      | 41.25          | 5.26            | H        | -18.71                | 27.80          | 53.98               | 26.18  | AV               |
| 7323      | 39.16          | 12.51           | H        | 0.00                  | 51.67          | 73.98               | 22.31  | PK               |
| 7323      | 39.16          | 12.51           | H        | -18.71                | 32.96          | 53.98               | 21.02  | AV               |

### Test Plots

Radiated Spurious Emissions plot – Peak & Average Result ( $\pi/4$ QPSK, Ch. 39 3rd Harmonic, Y-H)


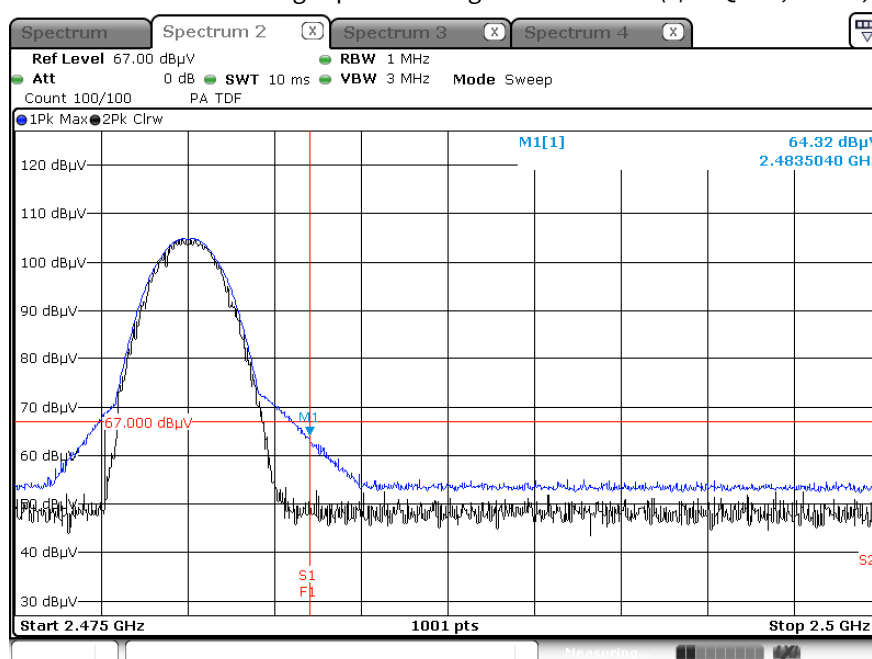
Note: Plots of worst case are only reported.

### 10.3 RADIATED RESTRICTED BAND EDGES

| Normal( $\pi/4$ DQPSK) | Channel        | CH. 78                  |          | Channel Frequency        |                | 2480 MHz       |        |                     |
|------------------------|----------------|-------------------------|----------|--------------------------|----------------|----------------|--------|---------------------|
| Frequency              | Measured Value | A.F+C.L-A.G+<br>ATT+D.F | ANT. POL | Duty Cycle<br>Correction | Total          | Limit          | Margin | Measurement<br>Type |
| [MHz]                  | [dB $\mu$ V]   | [dB/m]                  | [H/V]    | [dB]                     | [dB $\mu$ V/m] | [dB $\mu$ V/m] | [dB]   |                     |
| 2483.5                 | 64.32          | -                       | H        | 0                        | 64.32          | 73.98          | 9.66   | PK                  |
| 2483.5                 | 64.32          | -                       | H        | -18.71                   | 45.61          | 53.98          | 8.37   | AV                  |

#### Test Plots

Radiated Restricted Band Edges plot – Average & Peak Result ( $\pi/4$ DQPSK, Ch. 78, X-H)



#### Note:

Plots of worst case are only reported.

## 11. LIST OF TEST EQUIPMENT

### Conducted Test

| Equipment                      | Model                   | Manufacturer    | Serial No. | Due to Calibration | Calibration Interval |
|--------------------------------|-------------------------|-----------------|------------|--------------------|----------------------|
| LISN                           | ENV216                  | Rohde & Schwarz | 102245     | 07/15/2026         | Annual               |
| EMI Test Receiver              | ESR                     | Rohde & Schwarz | 101910     | 08/20/2026         | Annual               |
| Temperature Chamber            | SU-642                  | ESPEC           | 0093008124 | 02/11/2026         | Annual               |
| Signal Analyzer                | N9030A                  | Agilent         | MY49432108 | 02/18/2026         | Annual               |
| Power Measurement Set          | OSP 120                 | Rohde & Schwarz | 100935     | 07/24/2026         | Annual               |
| Power Meter                    | N1911A                  | Agilent         | MY45100523 | 02/21/2026         | Annual               |
| Power Sensor                   | N1921A                  | Agilent         | MY57820067 | 02/04/2026         | Annual               |
| Directional Coupler            | 87300B                  | Agilent         | 3116A03621 | 10/14/2026         | Annual               |
| Power Splitter                 | 11667B                  | Hewlett Packard | 10545      | 01/23/2026         | Annual               |
| DC Power Supply                | E3632A                  | Agilent         | KR75303243 | 04/16/2026         | Annual               |
| Attenuator(10 dB)(DC-26.5 GHz) | 8493C                   | HP              | 07560      | 05/27/2026         | Annual               |
| Attenuator(10 dB)(DC-26.5 GHz) | 8493C                   | HP              | 08285      | 05/19/2026         | Annual               |
| Attenuator(20 dB)              | 18N-20dB                | Rohde & Schwarz | 8          | 02/18/2026         | Annual               |
| Software                       | EMC32                   | Rohde & Schwarz | N/A        | N/A                | N/A                  |
| Bluetooth Tester               | CBT                     | Rohde & Schwarz | 100752     | 12/27/2025         | Annual               |
| Automation Software            | FCC WLAN Conducted      | HCT CO., LTD    | N/A        | N/A                | N/A                  |
| Automation Software            | FCC Bluetooth Conducted | HCT CO., LTD    | N/A        | N/A                | N/A                  |

### Note:

- Equipment whose calibration due date was updated during the test period was not used between the previous due date and the update.  
All reported measurements were performed using equipment within valid calibration.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

### Radiated Test

| Equipment                           | Model                                    | Manufacturer           | Serial No.            | Due to Calibration | Calibration Interval |
|-------------------------------------|------------------------------------------|------------------------|-----------------------|--------------------|----------------------|
| Controller                          | CO3000                                   | Innco system           | CO3000-4p             | N/A                | N/A                  |
| Antenna Position Tower              | MA4640/800-XP-EP                         | Innco system           | S1AM                  | 07/25/2026         | Annual               |
| Turn Table                          | DS2000-S-1t                              | Innco system           | DS2000/572/54610422/P | N/A                | N/A                  |
| Amp & Filter Bank Switch Controller | FBSM-01B                                 | T&M system             | TM19050002            | N/A                | N/A                  |
| Loop Antenna                        | 1513                                     | Schwarzbeck            | 1513-175              | 06/24/2027         | Biennial             |
| Hybrid Antenna                      | VULB 9168                                | Schwarzbeck            | 9168-0895             | 08/28/2026         | Biennial             |
| Horn Antenna                        | BBHA 9120D                               | Schwarzbeck            | 9120D-1300            | 01/03/2026         | Biennial             |
| Horn Antenna                        | BBHA 9120D                               | Schwarzbeck            | 9120D-2296            | 05/16/2026         | Biennial             |
| Horn Antenna(15 GHz ~ 40 GHz)       | BBHA 9170                                | Schwarzbeck            | BBHA9170342           | 09/20/2026         | Biennial             |
| Spectrum Analyzer                   | FSV(10 Hz ~ 40 GHz)                      | Rohde & Schwarz        | 101055                | 05/07/2026         | Annual               |
| Band Reject Filter                  | WRCJV2400/2483.5-2370/2520-60/12SS       | Wainwright Instruments | 2                     | 12/26/2025         | Annual               |
| Band Reject Filter                  | WRCJV12-4900-5100-5900-6100-50SS         | Wainwright Instruments | 5                     | 05/27/2026         | Annual               |
| Band Reject Filter                  | WRCJV12-4900-5100-5900-6100-50SS         | Wainwright Instruments | 6                     | 05/27/2026         | Annual               |
| High Pass Filter                    | F5_HPF1.5G                               | Wainwright Instruments | F5                    | 05/09/2026         | Annual               |
| High Pass Filter(7 GHz ~ 18 GHz)    | WHKX10-7150-8000-18000-50SS              | Wainwright Instruments | 1                     | 02/21/2026         | Annual               |
| Power Amplifier                     | CBL18265035                              | CERNEX                 | 22966                 | 10/21/2026         | Annual               |
| Power Amplifier                     | CBL26405040                              | CERNEX                 | 25956                 | 02/19/2026         | Annual               |
| Bluetooth Tester                    | TC-3000C                                 | TESCOM                 | 3000C000175           | 03/12/2026         | Annual               |
| RF Switching System                 | FMSR-05B (HPF(3~18GHz) + LNA1(1~18GHz))  | T&M system             | S1L1                  | 12/08/2026         | Annual               |
| RF Switching System                 | FMSR -05B (ATT(10dB) + LNA1(1~18GHz))    | T&M system             | S1L2                  | 12/08/2026         | Annual               |
| RF Switching System                 | FMSR -05B (ATT(3dB) + LNA1(1~18GHz))     | T&M system             | S1L3                  | 12/08/2026         | Annual               |
| RF Switching System                 | FMSR -05B (LNA1(1~18GHz))                | T&M system             | S1L4                  | 12/08/2026         | Annual               |
| RF Switching System                 | FMSR -05B (HPF(7~18GHz) + LNA2(6~18GHz)) | T&M system             | S1L5                  | 12/08/2026         | Annual               |
| RF Switching System                 | FMSR -05B (Thru(30MHz ~ 18GHz))          | T&M system             | S1L6                  | 12/08/2026         | Annual               |
| Automation Software                 | FCC WLAN Radiated                        | HCT CO., LTD           | N/A                   | N/A                | N/A                  |
| Attenuator(3 dB)                    | 18B-03                                   | Api tech.              | 1                     | 04/21/2026         | Annual               |

### Note:

- Equipment whose calibration due date was updated during the test period was not used between the previous due date and the update.  
All reported measurements were performed using equipment within valid calibration.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

## 12. ANNEX A\_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

| No. | Description         |
|-----|---------------------|
| 1   | HCT-RF-2512-FC065-P |