

# TEST REPORT

FCC BT Test for SC-55F  
Certification

**APPLICANT**  
SAMSUNG Electronics Co., Ltd.

**REPORT NO.**  
HCT-RF-2505-FC112

**DATE OF ISSUE**  
June 5, 2025

**Tested by**  
Jin Gwan Lee



**Technical Manager**  
Jong Seok Lee



**HCT CO., LTD.**  
*Bongjai Huh*  
BongJai Huh / CEO



HCT CO.,LTD.

2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea  
Tel. +82 31 645 6300 Fax. +82 31 645 6401

# TEST REPORT

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June 05, 2025

Applicant

**SAMSUNG Electronics Co., Ltd.**  
129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Product Name  
Model Name

Mobile Phone  
SC-55F

FCC ID

A3LSMF766JPN

Date of Test

February 23, 2025 ~ April 22, 2025

Test Results

PASS

FCC Classification

FCC Part 15 Spread Spectrum Transmitter

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            | June 05, 2025 | Initial Release |

## Notice

### Content

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).

Data referencing : BT Report (FCC ID: A3LSMF766U, Report No. HCT-RF-2504-FC041)

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## 1. EUT DESCRIPTION

|                       |                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------|
| Model                 | SC-55F                                                                                                       |
| Additional Model      | SCG35                                                                                                        |
| EUT Type              | Mobile Phone                                                                                                 |
| Power Supply          | DC 3.90 V                                                                                                    |
| Frequency Range       | 2 402 MHz - 2 480 MHz                                                                                        |
| Max. RF Output Power  | Ant.1 : 19.880 dBm (97.27 mW)<br>Ant.2 : 20.267 dBm (106.34 mW)<br>Dual Ant.1+ Ant.2 : 18.213 dBm (66.27 mW) |
| BT Operating Mode     | Normal, EDR, AFH                                                                                             |
| Modulation Type       | GFSK(Normal), $\pi$ /4DQPSK and 8DPSK(EDR)                                                                   |
| Modulation Technique  | FHSS                                                                                                         |
| Number of Channels    | 79 Channels, Minimum 20 Channels(AFH)                                                                        |
| Antenna Specification | Type: Metal<br>ANT.1 Peak Gain: -5.15 dBi, ANT.2 Peak Gain: -7.48 dBi                                        |
| Serial number         | Conducted : R3CY30SC53A<br>Radiated : R3CY30S8XET                                                            |

## ANTENNA CONFIGURATIONS

1. Below Tables are the possible configurations.

| Configurations | SISO         |              | Dual BT     |
|----------------|--------------|--------------|-------------|
|                | Ant1(Core-0) | Ant2(Core-1) | Ant1 & Ant2 |
| Bluetooth      | O            | O            | O           |

Note:

1. O = Support, X = Not Support

2. This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz or 6GHz Bands simultaneously on each antenna.

| Simultaneous transmission Scenario                     | 2.4 GHz WiFi Ant.1 | 2.4 GHz WiFi Ant.2 | 5 GHz WiFi Ant.1 | 5 GHz WiFi Ant.2 | 6 GHz WiFi Ant.1 | 6 GHz WiFi Ant.2 | BT Ant.1 | BT Ant.2 | Test Case |
|--------------------------------------------------------|--------------------|--------------------|------------------|------------------|------------------|------------------|----------|----------|-----------|
| Dual Bluetooth + 5 GHz WiFi MIMO                       |                    |                    | on               | on               |                  |                  | on       | on       | Scenario1 |
| Dual Bluetooth + 6 GHz WiFi MIMO                       |                    |                    |                  |                  | on               | on               | on       | on       |           |
| 2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO                    | on                 | on                 | on               | on               |                  |                  |          |          | Scenario2 |
| 2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO                    | on                 | on                 |                  |                  | on               | on               |          |          |           |
| Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO |                    | on                 | on               | on               |                  |                  | on       |          | Scenario3 |
| Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO |                    | on                 |                  |                  | on               | on               | on       |          |           |

## 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

The measurement procedure described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Device (ANSI C63.10-2013, KDB 558074) is used in the measurement of the test device.

## 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. (Version :2013) 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

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5m 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 according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013). 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 C63.5 (Version : 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. (Version :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 CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

#### 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 C63.10-2013.

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

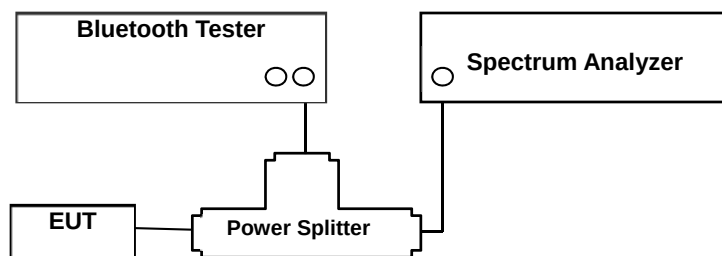
### 8.1. Conducted Maximum Peak Output Power

#### 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 transmitter output is connected to the Spectrum Analyzer. The Spectrum Analyzer is set to the peak detector mode. This test is performed with hopping off.

The Spectrum Analyzer is set to (7.8.5 in ANSI 63.10-2013& Procedure 9(b) in KDB 558074 v05r02)

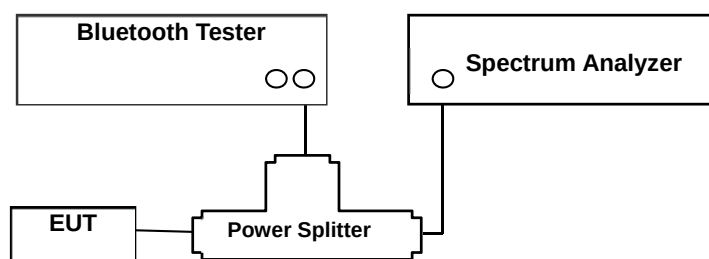
- 1) Span: approximately 5 times the 20 dB bandwidth, centered on a hopping channel
- 2) RBW > the 20 dB bandwidth of the emission being measured
- 3) VBW  $\geq$  RBW
- 4) Sweep = Auto
- 5) Detector = Peak
- 6) Trace = Max hold

## 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

This test is performed with hopping off and hopping on.

The Spectrum Analyzer is set to (6.10.4 in ANSI 63.10-2013& Procedure 8.5 and 8.6 in KDB 558074 v05r02)

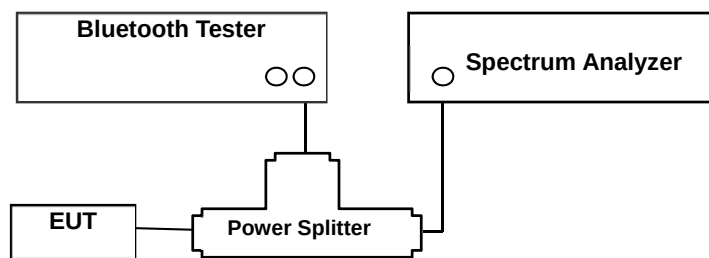
- 1) Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation
- 2) Reference level: As required to keep the signal from exceeding the maximum instrument input 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: Coupled.
- 5) RBW: 100 kHz
- 6) VBW: 300 kHz
- 7) Detector: Peak
- 8) Trace: Max hold

### 8.3. Frequency Separation & 20 dB 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 Channel Separation test is performed with hopping on.

And the 20 dB Bandwidth test is performed with hopping off.

The Spectrum Analyzer is set to (7.8.2 in ANSI 63.10-2013& Procedure 9(b) in KDB 558074 v05r02)

- 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: Auto
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) All 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)**

And the 20 dB Bandwidth test is performed with hopping off.

The Spectrum Analyzer is set to (6.9.2 in ANSI 63.10-2013)

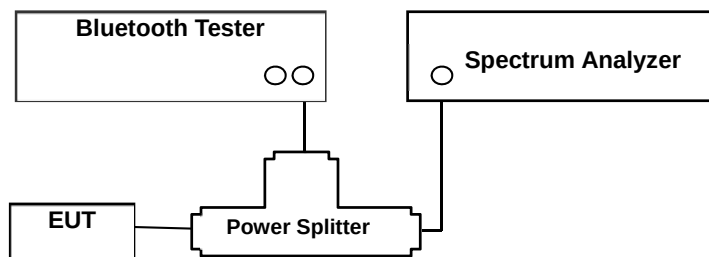
- 1) Span: Set between two times and five times the OBW
- 2) RBW: 1 % to 5 % of the OBW.
- 3) VBW  $\geq 3 \times$  RBW
- 4) Sweep: Auto
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) All the trace to stabilize.

#### 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 frequencies.

##### Test Configuration



##### Test Procedure

The Bluetooth frequency hopping function of the EUT was enabled.

The Spectrum Analyzer is set to (7.8.3 in ANSI 63.10-2013& Procedure 9(b) in KDB 558074 v05r02)

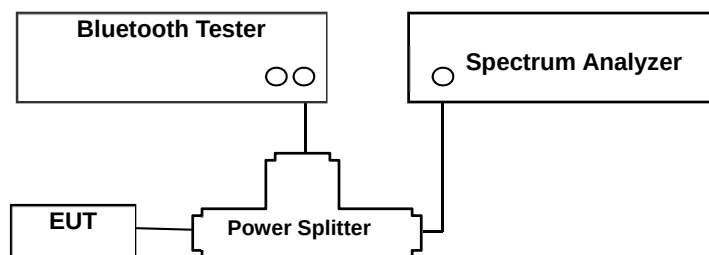
- 1) Span: the frequency band of operation
- 2) RBW: To identify clearly the individual channels, set the RBW to less than 30 % of the channel spacing or the 20 dB bandwidth, whichever is smaller.
- 3) VBW  $\geq$  RBW
- 4) Sweep: Auto
- 5) Detector: Peak
- 6) Trace: Max hold
- 7) Allow the trace to 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

This test is performed with hopping off.

The Spectrum Analyzer is set to (7.8.4 in ANSI 63.10-2013& Procedure 9(b) in KDB 558074 v05r02)

- 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 dwell time per channel.
- 3) Sweep = as necessary to capture the entire dwell time per hopping channel
- 4) Detector: Peak
- 5) Trace: Max hold

The marker-delta function was used to determine the dwell time.

### 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 need 5 time slot for transmitting and 1 time slot for receiving.

Then the system makes worst case 1600/6 hops per second with 79 channels. So the system have each channel 3.3755 times per second and so for 31.6 seconds the system have 106.667 times of appearance.

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

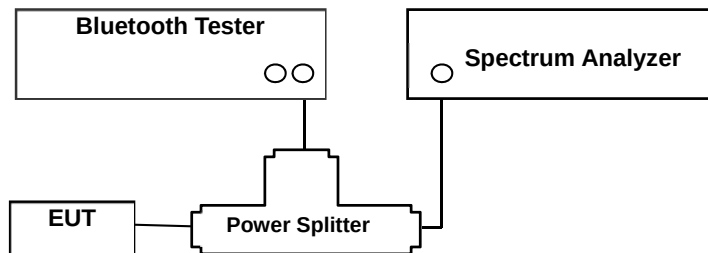
Dwell time = Tx-time x 106.667 = 308.27 (ms)

## 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 transmitter output is connected to the spectrum analyzer.

The Spectrum Analyzer is set to (7.8.8 in ANSI 63.10-2013& Procedure 8.5 and 8.6 in KDB 558074 v05r02)

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

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

This test is performed with hopping off.

#### Factors for frequency

| Freq(MHz)   | Factor(dB)   |
|-------------|--------------|
| 30          | 16.13        |
| 100         | 16.27        |
| 200         | 16.39        |
| 300         | 16.46        |
| 400         | 16.55        |
| 500         | 16.62        |
| 600         | 16.67        |
| 700         | 16.75        |
| 800         | 16.80        |
| 900         | 16.87        |
| 1000        | 16.90        |
| 2000        | 17.27        |
| <b>2400</b> | <b>17.43</b> |
| <b>2500</b> | <b>17.43</b> |
| 3000        | 17.55        |
| 4000        | 17.78        |
| 5000        | 17.98        |
| 6000        | 18.10        |
| 7000        | 18.36        |
| 8000        | 18.54        |
| 9000        | 18.68        |
| 10000       | 18.84        |
| 11000       | 18.95        |
| 12000       | 19.02        |
| 13000       | 19.16        |
| 14000       | 19.39        |
| 15000       | 19.44        |
| 16000       | 19.62        |
| 17000       | 19.78        |
| 18000       | 19.81        |
| 19000       | 19.60        |
| 20000       | 19.73        |
| 21000       | 19.85        |
| 22000       | 19.87        |
| 23000       | 19.91        |
| 24000       | 20.12        |
| 25000       | 20.12        |
| 26000       | 20.15        |

#### Note :

1. 2400 ~ 2500 MHz is fundamental frequency range.

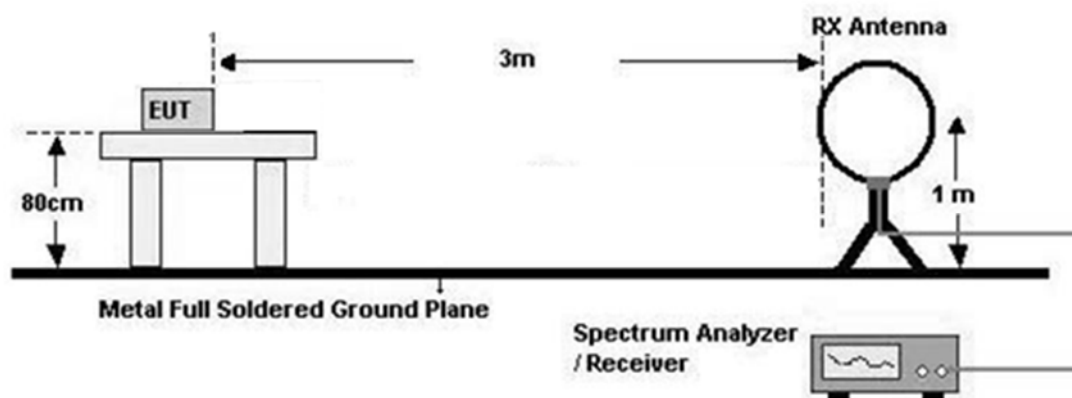
## 8.7. Radiated Test

### Limit

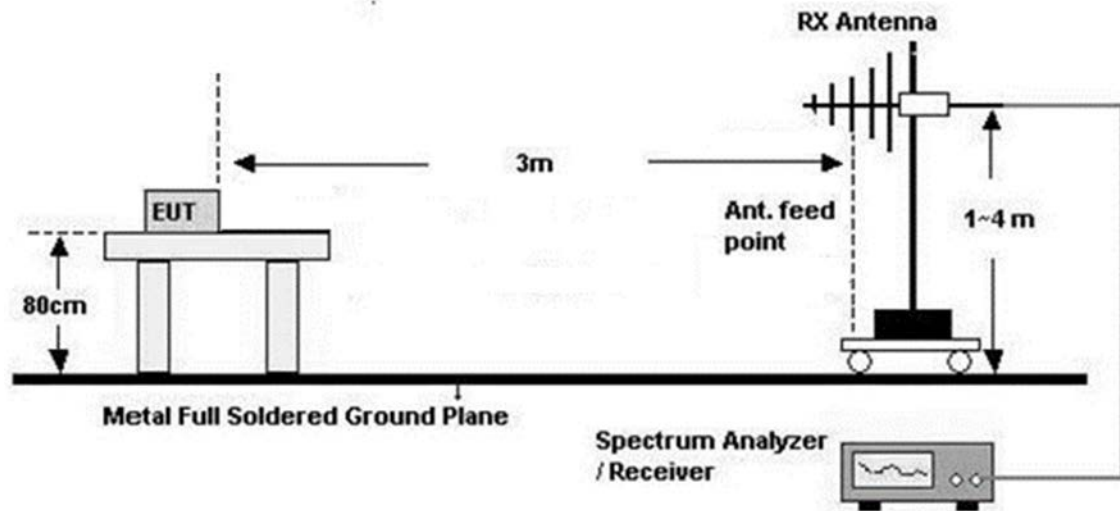
| Frequency (MHz) | Field Strength ( $\mu\text{V/m}$ ) | Measurement Distance (m) |
|-----------------|------------------------------------|--------------------------|
| 0.009 – 0.490   | $2400/F(\text{kHz})$               | 300                      |
| 0.490 – 1.705   | $24000/F(\text{kHz})$       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

### Test Configuration

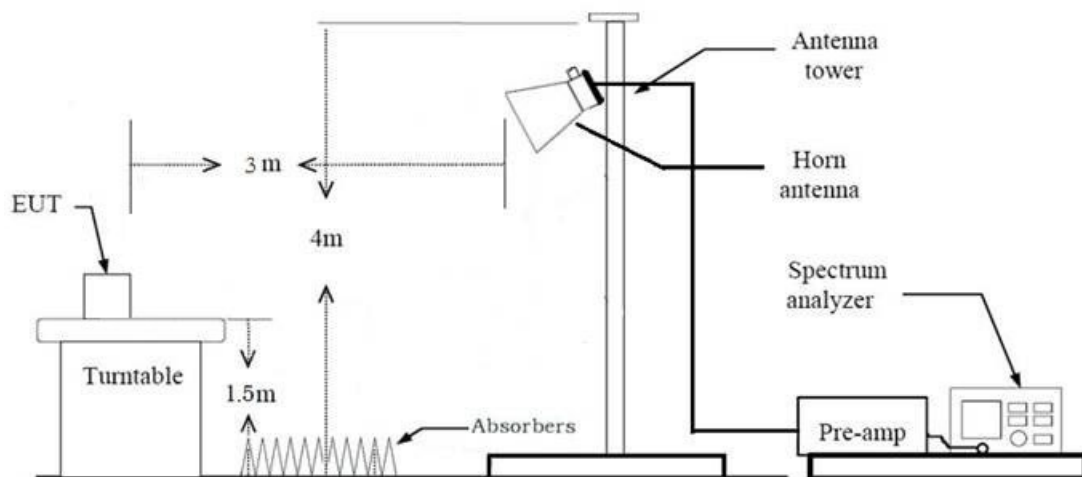
Below 30 MHz



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 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 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 off.
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. The unit was tested with its standard battery.

#### 9. Spectrum 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
- Unless otherwise specified, when the radiated emission limits are expressed in terms of the average value of the emission and pulsed operation is employed, the average measurement shall determine from the peak field strength after correcting for the worst-case duty cycle as described in Number.14 (On Page. 23)

◆ Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -24.7314 dB

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.

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

12. Total(Measurement Type : Peak)

$$= \text{Measured Value(Peak)} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(A.G)}$$

Total(Measurement Type : Average)

$$= \text{Measured Value(Peak)} + \text{Antenna Factor(A.F)} + \text{Cable Loss(C.L)} - \text{Amp Gain(A.G)} + \text{D.C.C.F(AFH)}$$

13. Duty Cycle Correction Factor (79 channel hopping)

- a. Time to cycle through all channels =  $\Delta t = \tau$  [ms]  $\times$  79 channels = 229.100 ms, where  $\tau$  = pulse width
- b.  $100 \text{ ms} / \Delta t$  [ms] = H  $\rightarrow$  Round up to next highest integer, H ' =1

- c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.9$  ms
- d. Duty Cycle Correction =  $20\log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
- 14. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels =  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms
  - d. Duty Cycle Correction (AFH) =  $20\log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -24.7314 dB

### Test Procedure of Radiated Restricted Band Edge

1. Radiated test is performed with hopping off.
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. The unit was tested with its standard battery.
8. Spectrum 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
    - Unless otherwise specified, when the radiated emission limits are expressed in terms of the average value of the emission and pulsed operation is employed, the average measurement shall determine from the peak field strength after correcting for the worst-case duty cycle as described in Number.14 (On Page. 23)
- ◆ Duty Cycle Correction (AFH) =  $20\log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -24.7314 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 =  $20\log (\text{test distance} / \text{specific distance})$  (dB)
11. Total
  - (1) Measurement (Peak)

= Measured Value(Peak)

(2) Measurement(Avg)

= 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)

12. Duty Cycle Correction Factor (79 channel hopping)

a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width

b.  $100 \text{ ms} / \Delta t$  [ms] = H  $\rightarrow$  Round up to next highest integer, H' = 1

c. Worst Case Dwell Time =  $\tau$  [ms] x H' = 2.9 ms

d. Duty Cycle Correction =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB

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

a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width

b.  $100 \text{ ms} / \Delta t$  [ms] = H  $\rightarrow$  Round up to next highest integer, H' = 2

c. Worst Case Dwell Time =  $\tau$  [ms] x H' = 5.800 ms

d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -24.7314 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 80 cm 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(Earphone etc)
- Worstcase : Stand alone

2. EUT Axis

(1) Ant.1

- Radiated Spurious Emissions : Y
- Radiated Restricted Band Edge : X

(2) Ant.2

- Radiated Spurious Emissions : Y
- Radiated Restricted Band Edge : X

(3) Dual Ant.1+ Ant.2

- Radiated Spurious Emissions : Y
- Radiated Restricted Band Edge : X

3. All data rate 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 position 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 mode of operation were investigated and the worst case results are reported.
- GFSK : DH5
- $\pi/4$ DQPSK : 2-DH5
- 8DPSK : 3-DH5

6. The EUT was tested in three modes(Open, Half-open, Closed), the worst case configuration results are reported.

(1) Ant.1

- Radiated Spurious Emissions : Open Mode
- Radiated Restricted Band Edge : Open Mode

(2) Ant.2

- Radiated Spurious Emissions : Open Mode
- Radiated Restricted Band Edge : Open Mode

(3) Dual Ant.1+ Ant.2

- Radiated Spurious Emissions : Open Mode
- Radiated Restricted Band Edge : Open Mode

7. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

#### Radiated test(Simultaneous transmission Scenario)

1. All modes of operation were investigated and the worst case configuration results are reported.

- Mode : Stand alone, Stand alone + External accessories(Earphone, Keyboard, etc)

- Worstcase : Stand alone

2. EUT Axis

- Radiated Spurious Emissions : Z, Y

3. All of RSDB Scenario were investigated and the worst case configuration results are reported.

| Simultaneous transmission Scenario                     | 2.4 GHz WiFi Ant.1 | 2.4 GHz WiFi Ant.2 | 5 GHz WiFi Ant.1 | 5 GHz WiFi Ant.2 | 6 GHz WiFi Ant.1 | 6 GHz WiFi Ant.2 | BT Ant.1 | BT Ant.2 | Test Case |
|--------------------------------------------------------|--------------------|--------------------|------------------|------------------|------------------|------------------|----------|----------|-----------|
| Dual Bluetooth + 5 GHz WiFi MIMO                       |                    |                    | on               | on               |                  |                  | on       | on       | Scenario1 |
| Dual Bluetooth + 6 GHz WiFi MIMO                       |                    |                    |                  |                  | on               | on               | on       | on       |           |
| 2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO                    | on                 | on                 | on               | on               |                  |                  |          |          | Scenario2 |
| 2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO                    | on                 | on                 |                  |                  | on               | on               |          |          |           |
| Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO |                    | on                 | on               | on               |                  |                  | on       |          | Scenario3 |
| Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO |                    | on                 |                  |                  | on               | on               | on       |          |           |

4. The RSDB mode test investigated both intermodulation and radiated spurious emissions.

And the worst results were reported.

- Worst result: Radiated spurious emissions

- Intermodulation: No signals are generated.

- Radiated spurious emissions: cf. Section 10.6.2.

5. The following tables show the worst case configurations determined during testing.

(Worst case: The lowest margin condition the channels and modes were selected for test.)

| Scenario 1                          | Description | Bluetooth Emission | 5 GHz Emission  |
|-------------------------------------|-------------|--------------------|-----------------|
| Dual Bluetooth +<br>5 GHz WiFi MIMO | Antenna     | Dual ANT           | Ant All         |
|                                     | Channel     | 39                 | 36              |
|                                     | Data Rate   | 1 Mbps             | MCS0            |
|                                     | Mode        | GFSK               | 802.11be(EHT20) |
|                                     | Tone/RU     | -                  | 242/61          |

Note : UNII ax, be Simultaneous transmission Data refer to [UNII ax, be] Test Report

| Scenario 3                                                   | Description | Bluetooth Emission | 2.4GHz Emission | 5 GHz Emission  |
|--------------------------------------------------------------|-------------|--------------------|-----------------|-----------------|
| Bluetooth ANT.1 +<br>2.4 GHz WiFi ANT.2 +<br>5 GHz WiFi MIMO | Antenna     | ANT1               | ANT2            | Ant All         |
|                                                              | Channel     | 39                 | 6               | 36              |
|                                                              | Data Rate   | 1 Mbps             | 1 Mbps          | MCS0            |
|                                                              | Mode        | GFSK               | 802.11b         | 802.11be(EHT20) |
|                                                              | Tone/RU     | -                  | -               | 242/61          |

Note : UNII ax, be, DTS Simultaneous transmission Data refer to [UNII ax, be], [DTS] Test Report

6. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

#### AC Power line Conducted Emissions

1. All modes of operation were investigated and the worst case configuration results are reported.

- Mode : Stand alone+ External accessories(Earphone, etc)+Travel Adapter

Stand alone + Travel Adapter

- Worstcase : Stand alone + Travel Adapter

2. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

#### 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. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

## 9. SUMMARY OF TEST RESULTS & DATA REFERENCING

### 9.1. Test result

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

#### Note:

1. Average Power data refer to SAR report
2. Note. The decision rule applies 'simple acceptance'

## 9.2. Data Referencing

| Equipment Class | Rule Part                       | Test item                           | Data Referencing | Comments   |
|-----------------|---------------------------------|-------------------------------------|------------------|------------|
| DSS (BT)        | 15.247(a)(1)                    | 20 dB Bandwidth                     | Y                | -          |
|                 | N/A                             | Occupied Bandwidth                  | Y                | -          |
|                 | 15.247(b)(1)                    | Conducted Maximum Peak Output Power | Y                | Spot-check |
|                 | 15.247(a)(1)                    | Carrier Frequency Separation        | Y                | -          |
|                 | 15.247(a)(1)(iii)               | Number of Hopping Frequencies       | Y                | -          |
|                 | 15.247(a)(1)(iii)               | Time of Occupancy                   | Y                | -          |
|                 | 15.247(d)                       | Conducted Spurious Emissions        | Y                | -          |
|                 | 15.247(d)                       | Band Edge (Out of Band Emissions)   | Y                | -          |
|                 | 15.207(a)                       | AC Power line Conducted Emissions   | Y                | Spot-check |
|                 | 15.247(d),<br>15.205,<br>15.209 | Radiated Spurious Emissions         | Y                | Spot-check |
|                 | 15.247(d),<br>15.205,<br>15.209 | Radiated Restricted Band Edge       | Y                | Spot-check |

### Spot-Check Result

1. Data was leveraged from model SM-F766U for the certification of SC-55F.
2. Please refer to the [FCC Evaluation] Report.

## 10. TEST RESULT

### 10.1 PEAK POWER

[Ant.1]

| Channel | Frequency<br>(MHz) | Output Power<br>(GFSK) |       | Limit<br>(mW) |
|---------|--------------------|------------------------|-------|---------------|
|         |                    | (dBm)                  | (mW)  |               |
| Ch. 0   | 2402               | 19.880                 | 97.27 | 125           |
| Ch. 39  | 2441               | 18.631                 | 72.96 |               |
| Ch. 78  | 2480               | 18.892                 | 77.48 |               |

| Channel | Frequency<br>(MHz) | Output Power<br>(8DPSK) |       | Limit<br>(mW) |
|---------|--------------------|-------------------------|-------|---------------|
|         |                    | (dBm)                   | (mW)  |               |
| Ch. 0   | 2402               | 19.650                  | 92.26 | 125           |
| Ch. 39  | 2441               | 18.355                  | 68.47 |               |
| Ch. 78  | 2480               | 18.777                  | 75.46 |               |

| Channel | Frequency<br>(MHz) | Output Power<br>( $\pi/4$ DQPSK) |       | Limit<br>(mW) |
|---------|--------------------|----------------------------------|-------|---------------|
|         |                    | (dBm)                            | (mW)  |               |
| Ch. 0   | 2402               | 19.157                           | 82.36 | 125           |
| Ch. 39  | 2441               | 17.782                           | 60.01 |               |
| Ch. 78  | 2480               | 18.046                           | 63.77 |               |

[Ant.2]

| Channel | Frequency<br>(MHz) | Output Power<br>(GFSK) |        | Limit<br>(mW) |
|---------|--------------------|------------------------|--------|---------------|
|         |                    | (dBm)                  | (mW)   |               |
| Ch. 0   | 2402               | 20.267                 | 106.34 | 125           |
| Ch. 39  | 2441               | 19.887                 | 97.43  |               |
| Ch. 78  | 2480               | 19.559                 | 90.34  |               |

| Channel | Frequency<br>(MHz) | Output Power<br>(8DPSK) |       | Limit<br>(mW) |
|---------|--------------------|-------------------------|-------|---------------|
|         |                    | (dBm)                   | (mW)  |               |
| Ch. 0   | 2402               | 19.903                  | 97.79 | 125           |
| Ch. 39  | 2441               | 19.435                  | 87.80 |               |
| Ch. 78  | 2480               | 19.040                  | 80.17 |               |

| Channel | Frequency<br>(MHz) | Output Power<br>( $\pi/4$ DQPSK) |       | Limit<br>(mW) |
|---------|--------------------|----------------------------------|-------|---------------|
|         |                    | (dBm)                            | (mW)  |               |
| Ch. 0   | 2402               | 19.248                           | 84.10 | 125           |
| Ch. 39  | 2441               | 18.768                           | 75.30 |               |
| Ch. 78  | 2480               | 18.436                           | 69.76 |               |

[Dual Ant.1 + Ant. 2]

| Channel | Frequency<br>(MHz) | Output Power<br>(GFSK) |       |            |       |                     |       | Limit<br>(mW) |
|---------|--------------------|------------------------|-------|------------|-------|---------------------|-------|---------------|
|         |                    | Dual Ant.1             |       | Dual Ant.2 |       | Dual(Ant.1 + Ant.2) |       |               |
|         |                    | (dBm)                  | (mW)  | (dBm)      | (mW)  | (dBm)               | (mW)  |               |
| Ch. 0   | 2402               | 15.467                 | 35.21 | 14.140     | 25.94 | 17.864              | 61.15 | 125           |
| Ch. 39  | 2441               | 15.582                 | 36.16 | 14.787     | 30.11 | 18.213              | 66.27 |               |
| Ch. 78  | 2480               | 15.572                 | 36.07 | 14.084     | 25.61 | 17.902              | 61.68 |               |

| Channel | Frequency<br>(MHz) | Output Power<br>(8DPSK) |       |            |       |                     |       | Limit<br>(mW) |
|---------|--------------------|-------------------------|-------|------------|-------|---------------------|-------|---------------|
|         |                    | Dual Ant.1              |       | Dual Ant.2 |       | Dual(Ant.1 + Ant.2) |       |               |
|         |                    | (dBm)                   | (mW)  | (dBm)      | (mW)  | (dBm)               | (mW)  |               |
| Ch. 0   | 2402               | 15.775                  | 37.80 | 13.637     | 23.10 | 17.847              | 60.91 | 125           |
| Ch. 39  | 2441               | 15.454                  | 35.11 | 14.253     | 26.63 | 17.905              | 61.73 |               |
| Ch. 78  | 2480               | 15.841                  | 38.38 | 13.572     | 22.76 | 17.863              | 61.14 |               |

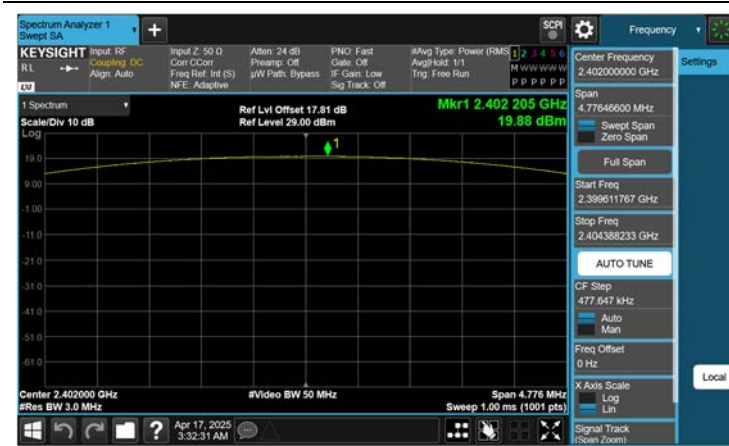
| Channel | Frequency<br>(MHz) | Output Power<br>( $\pi$ /4DQPSK) |       |            |       |                     |       | Limit<br>(mW) |
|---------|--------------------|----------------------------------|-------|------------|-------|---------------------|-------|---------------|
|         |                    | Dual Ant.1                       |       | Dual Ant.2 |       | Dual(Ant.1 + Ant.2) |       |               |
|         |                    | (dBm)                            | (mW)  | (dBm)      | (mW)  | (dBm)               | (mW)  |               |
| Ch. 0   | 2402               | 15.717                           | 37.30 | 13.246     | 21.12 | 17.665              | 58.41 | 125           |
| Ch. 39  | 2441               | 14.873                           | 30.71 | 13.830     | 24.15 | 17.393              | 54.87 |               |
| Ch. 78  | 2480               | 15.655                           | 36.77 | 13.203     | 20.91 | 17.610              | 57.68 |               |

# TEST PLOTS(Peak Power)

## Note:

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

ANT.1 GFSK : Peak Power (Ch. 0)



ANT.2 GFSK : Peak Power (Ch. 0)



ANT.1 8DPSK : Peak Power (Ch. 0)



ANT.2 8DPSK : Peak Power (Ch. 0)



ANT.1 π/4DQPSK : Peak Power (Ch. 0)



ANT.2 π/4DQPSK : Peak Power (Ch. 0)



[Dual ANT]

Dual ANT.1 GFSK : Peak Power (Ch. 39)



Dual ANT.2 GFSK : Peak Power (Ch. 39)



Dual ANT.1 8DPSK : Peak Power (Ch. 39)



Dual ANT.2 8DPSK : Peak Power (Ch. 39)


Dual ANT.1  $\pi$ /4DQPSK : Peak Power (Ch. 0)

Dual ANT.2  $\pi$ /4DQPSK : Peak Power (Ch. 0)


## 10.2 BAND EDGES

### [Ant. 1]

#### Without hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 60.188       | 52.997        | 52.849                | 20             |
| Upper                  | 68.492       | 65.021        | 64.672                |                |

#### With hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 63.642       | 52.987        | 54.108                | 20             |
| Upper                  | 69.795       | 66.051        | 67.101                |                |

### [Ant. 2]

#### Without hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 55.717       | 50.963        | 51.275                | 20             |
| Upper                  | 64.277       | 61.473        | 63.336                |                |

#### With hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 63.609       | 51.589        | 52.300                | 20             |
| Upper                  | 67.099       | 65.274        | 65.662                |                |

### [Dual Ant. 1]

#### Without hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 49.491       | 32.762        | 32.620                | 20             |
| Upper                  | 65.554       | 47.331        | 47.000                |                |

#### With hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 50.520       | 34.671        | 36.002                | 20             |
| Upper                  | 66.768       | 52.219        | 52.758                |                |

### [Dual Ant. 2]

#### Without hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 57.415       | 39.933        | 40.583                | 20             |
| Upper                  | 64.497       | 46.722        | 48.496                |                |

#### With hopping

| Outside Frequency Band | GFSK<br>(dB) | 8DPSK<br>(dB) | $\pi/4$ DQPSK<br>(dB) | Limit<br>(dBc) |
|------------------------|--------------|---------------|-----------------------|----------------|
| Lower                  | 61.183       | 39.731        | 41.652                | 20             |
| Upper                  | 66.229       | 48.507        | 48.468                |                |

## TEST PLOTS(BAND EDGES)

### Note:

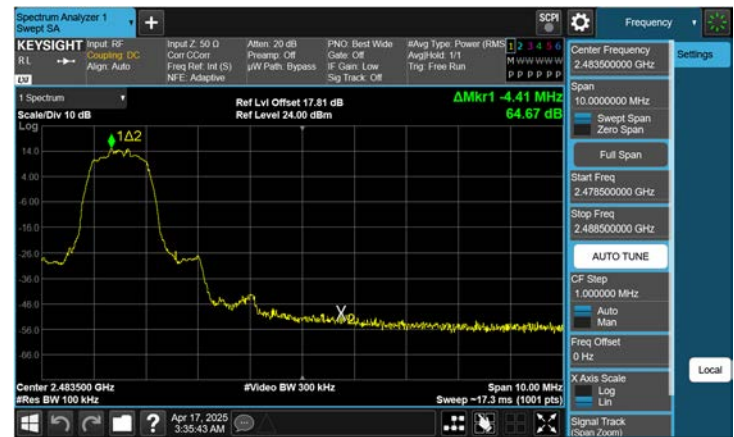
In order to simplify the report, attached plots were only the worst case mode.

-Without hopping

ANT.1  $\pi/4$ DQPSK Band Edge(Ch. 0)



ANT.1  $\pi/4$ DQPSK Band Edge(Ch. 78)



ANT.2 8DPSK Band Edge(Ch. 0)



ANT.2 8DPSK Band Edge(Ch. 78)



Dual ANT.1  $\pi/4$ DQPSKBand Edge(Ch. 0)



Dual ANT.1  $\pi/4$ DQPSKBand Edge(Ch. 78)



Dual ANT.2 8DPSKBand Edge(Ch. 0)



Dual ANT.2 8DPSKBand Edge(Ch. 78)



-With hopping

ANT.1 8DPSKBand Edge(Ch. 0)



ANT.1 8DPSKBand Edge(Ch. 78)



ANT.2 8DPSKBand Edge(Ch. 0)



ANT.2 8DPSKBand Edge(Ch. 78)



Dual ANT.1 8DPSKBand Edge(Ch. 0)



Dual ANT.1 8DPSKBand Edge(Ch. 78)



Dual ANT.2 8DPSKBand Edge(Ch. 0)

Dual ANT.2  $\pi/4$ DQPSK Band Edge(Ch. 78)

### 10.3 FREQUENCY SEPARATION / OCCUPIED BANDWIDTH (99 % BW)

[Ant.1]

| 99% BW (kHz) |        |        |               |
|--------------|--------|--------|---------------|
| Channel      | GFSK   | 8DPSK  | $\pi$ /4DQPSK |
| Ch. 0        | 854.05 | 1178.1 | 1183.7        |
| Ch. 39       | 856.01 | 1179.6 | 1177.9        |
| Ch. 78       | 858.42 | 1177.7 | 1174.3        |

| 20dB Bandwidth (kHz) |       |       |               |
|----------------------|-------|-------|---------------|
| Channel              | GFSK  | 8DPSK | $\pi$ /4DQPSK |
| Ch. 0                | 955.3 | 1306  | 1328          |
| Ch. 39               | 953.0 | 1306  | 1330          |
| Ch. 78               | 952.8 | 1307  | 1281          |

| Channel Separation (kHz) |       |               | Limit<br>(kHz)                     |
|--------------------------|-------|---------------|------------------------------------|
| GFSK                     | 8DPSK | $\pi$ /4DQPSK |                                    |
| 998                      | 994   | 991           | >25 kHz or<br>>2/3 of the 20 dB BW |

[Ant.2]

| 99% BW (kHz) |        |        |               |
|--------------|--------|--------|---------------|
| Channel      | GFSK   | 8DPSK  | $\pi$ /4DQPSK |
| Ch. 0        | 857.58 | 1178.7 | 1177.6        |
| Ch. 39       | 854.33 | 1179.5 | 1178.7        |
| Ch. 78       | 858.41 | 1176.9 | 1177.8        |

| 20dB Bandwidth (kHz) |       |       |               |
|----------------------|-------|-------|---------------|
| Channel              | GFSK  | 8DPSK | $\pi$ /4DQPSK |
| Ch. 0                | 954.4 | 1305  | 1326          |
| Ch. 39               | 954.3 | 1306  | 1326          |
| Ch. 78               | 952.7 | 1304  | 1326          |

| Channel Separation (kHz) |       |               | Limit<br>(kHz)                     |
|--------------------------|-------|---------------|------------------------------------|
| GFSK                     | 8DPSK | $\pi$ /4DQPSK |                                    |
| 934                      | 1001  | 994           | >25 kHz or<br>>2/3 of the 20 dB BW |

[Dual Ant.1]

| 99% BW (kHz) |        |        |               |
|--------------|--------|--------|---------------|
| Channel      | GFSK   | 8DPSK  | $\pi$ /4DQPSK |
| Ch. 0        | 873.28 | 1212.9 | 1225.4        |
| Ch. 39       | 879.68 | 1186.2 | 1186.3        |
| Ch. 78       | 905.50 | 1219.8 | 1221.8        |

| 20dB Bandwidth (kHz) |       |       |               |
|----------------------|-------|-------|---------------|
| Channel              | GFSK  | 8DPSK | $\pi$ /4DQPSK |
| Ch. 0                | 959.4 | 1336  | 1359          |
| Ch. 39               | 986.4 | 1312  | 1328          |
| Ch. 78               | 1026  | 1333  | 1347          |

| Channel Separation (kHz) |       |               | Limit<br>(kHz)                     |
|--------------------------|-------|---------------|------------------------------------|
| GFSK                     | 8DPSK | $\pi$ /4DQPSK |                                    |
| 924                      | 988   | 998           | >25 kHz or<br>>2/3 of the 20 dB BW |

[Dual Ant.2]

| 99% BW (kHz) |        |        |               |
|--------------|--------|--------|---------------|
| Channel      | GFSK   | 8DPSK  | $\pi/4$ DQPSK |
| Ch. 0        | 885.75 | 1197.0 | 1201.4        |
| Ch. 39       | 891.45 | 1189.5 | 1190.9        |
| Ch. 78       | 858.87 | 1190.7 | 1192.2        |

| 20dB Bandwidth (kHz) |       |       |               |
|----------------------|-------|-------|---------------|
| Channel              | GFSK  | 8DPSK | $\pi/4$ DQPSK |
| Ch. 0                | 992.6 | 1310  | 1338          |
| Ch. 39               | 1012  | 1311  | 1329          |
| Ch. 78               | 953.6 | 1322  | 1331          |

| Channel Separation (kHz) |       |               | Limit<br>(kHz)                     |
|--------------------------|-------|---------------|------------------------------------|
| GFSK                     | 8DPSK | $\pi/4$ DQPSK |                                    |
| 998                      | 998   | 994           | >25 kHz or<br>>2/3 of the 20 dB BW |

## TEST PLOTS(20 dB Bandwidth & 99% Bandwidth)

### Note:

In order to simplify the report, attached plots were only the widest 20 dB BW channel.

ANT. 1 GFSK 20 dB BW & 99% OBW (Ch. 0)



ANT. 2 GFSK 20 dB BW & 99% OBW (Ch. 0)



ANT. 1 8DPSK 20 dB BW & 99% OBW (Ch. 78)



ANT. 2 8DPSK 20 dB BW & 99% OBW (Ch. 39)



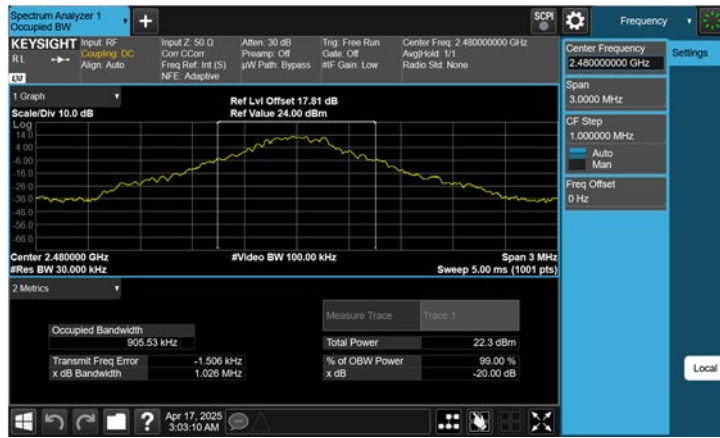
ANT. 1  $\pi$ /4DQPSK 20 dB BW & 99% OBW (Ch. 39)



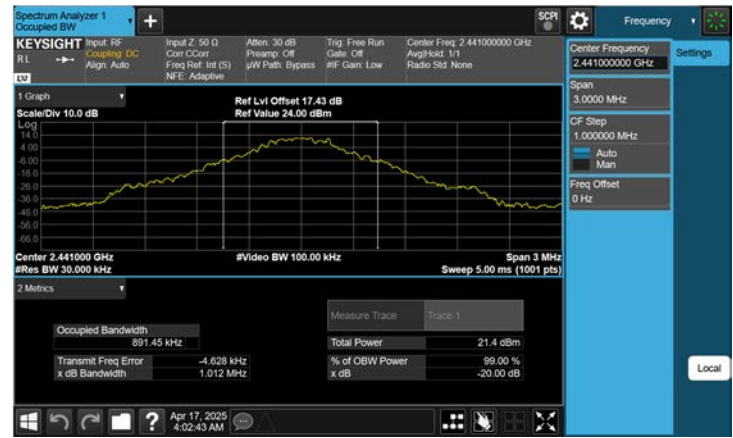
ANT. 2  $\pi$ /4DQPSK 20 dB BW & 99% OBW (Ch. 78)



Dual ANT. 1 GFSK 20 dB BW &amp; 99% OBW (Ch. 78)



Dual ANT. 2 GFSK 20 dB BW &amp; 99% OBW (Ch. 39)



Dual ANT. 1 8DPSK 20 dB BW &amp; 99% OBW (Ch. 0)



Dual ANT. 2 8DPSK 20 dB BW &amp; 99% OBW (Ch. 78)


Dual ANT. 1  $\pi/4$ DQPSK 20 dB BW & 99% OBW (Ch. 0)

Dual ANT. 2  $\pi/4$ DQPSK 20 dB BW & 99% OBW (Ch. 0)


## TEST PLOTS(Channel Separation)

ANT. 1 GFSK : Channel Separation



ANT. 2 GFSK : Channel Separation



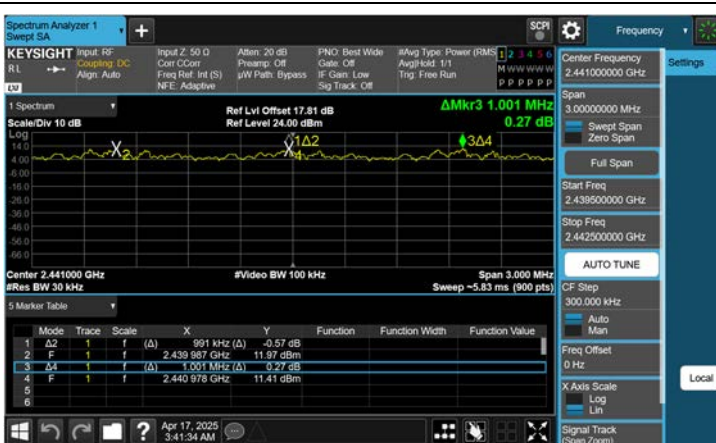
ANT. 1 8DPSK : Channel Separation



ANT. 2 8DPSK : Channel Separation



ANT. 1  $\pi/4$ DQPSK : Channel Separation



ANT. 2  $\pi/4$ DQPSK : Channel Separation



### Dual ANT. 1 GFSK : Channel Separation



### Dual ANT. 2 GFSK : Channel Separation



Dual ANT. 18DPSK: Channel Separation



Dual ANT. 2 8DPSK: Channel Separation

Dual ANT. 1  $\pi/4$ DQPSK: Channel SeparationDual ANT.  $2\pi/4$ DQPSK : Channel Separation

#### 10.4 NUMBER OF HOPPING FREQUENCY

[Ant.1]

| Result (No. of CH) |       |               | Limit |
|--------------------|-------|---------------|-------|
| GFSK               | 8DPSK | $\pi/4$ DQPSK |       |
| 79                 | 79    | 79            | >15   |

[Ant.2]

| Result (No. of CH) |       |               | Limit |
|--------------------|-------|---------------|-------|
| GFSK               | 8DPSK | $\pi/4$ DQPSK |       |
| 79                 | 79    | 79            | >15   |

[Dual Ant.1]

| Result (No. of CH) |       |               | Limit |
|--------------------|-------|---------------|-------|
| GFSK               | 8DPSK | $\pi/4$ DQPSK |       |
| 79                 | 79    | 79            | >15   |

[Dual Ant.2]

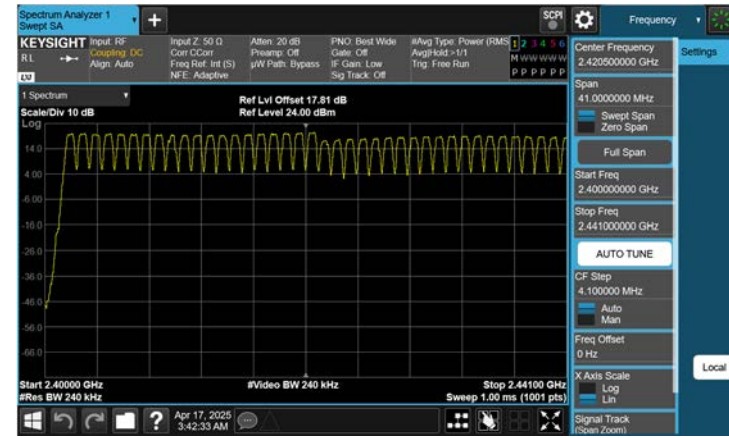
| Result (No. of CH) |       |               | Limit |
|--------------------|-------|---------------|-------|
| GFSK               | 8DPSK | $\pi/4$ DQPSK |       |
| 79                 | 79    | 79            | >15   |

Note :

In case of AFH mode, minimum number of hopping channels is 20.

TEST PLOTS(NUMBER OF HOPPING FREQUENCY)  
 [ANT.1]

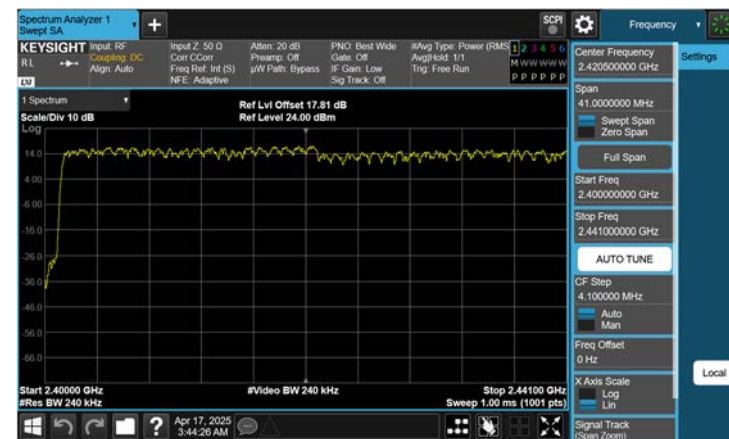
ANT.1 GFSK (2.4 GHz - 2.441 GHz)



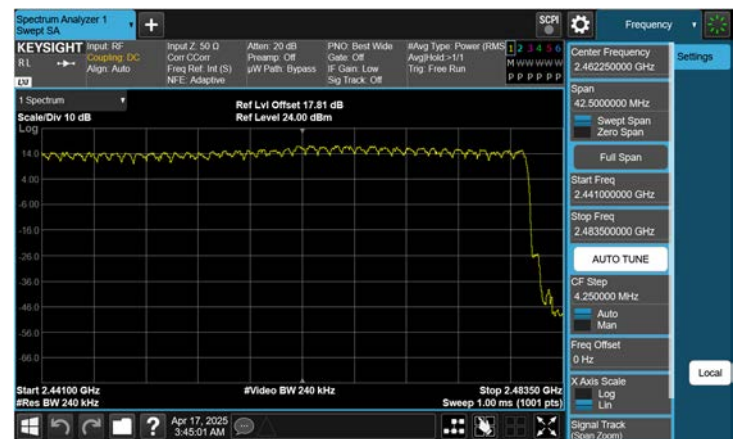
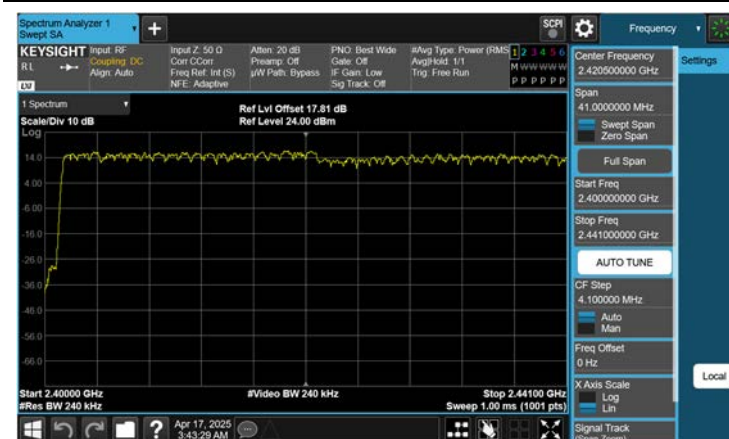
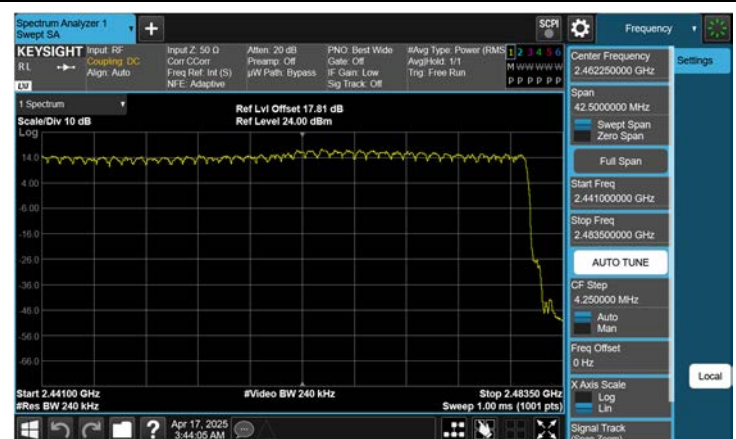
ANT.1 GFSK (2.441 GHz - 2.483.5 GHz)



ANT.1 8DPSK (2.4 GHz - 2.441 GHz)

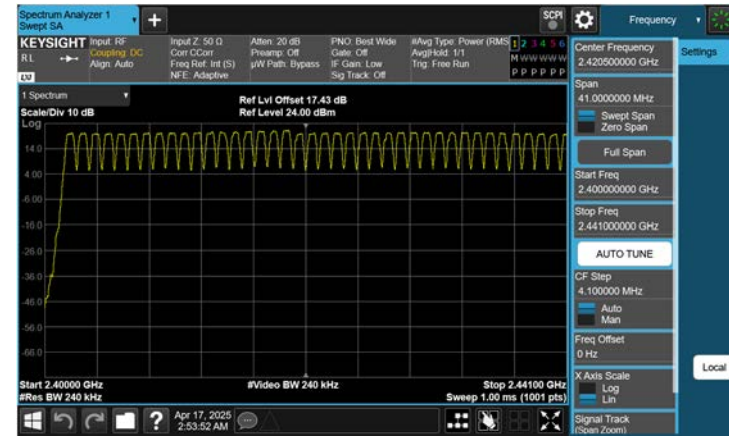


ANT.1 8DPSK (2.441 GHz - 2.483.5 GHz)


ANT.1  $\pi/4$ DQPSK (2.4 GHz - 2.441 GHz)

ANT.1  $\pi/4$ DQPSK (2.441 GHz - 2.483.5 GHz)


[ANT.2]

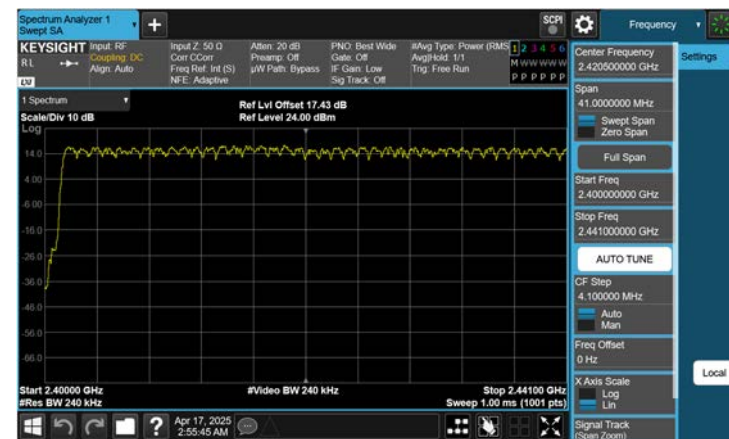
ANT.2 GFSK (2.4 GHz - 2.441 GHz)



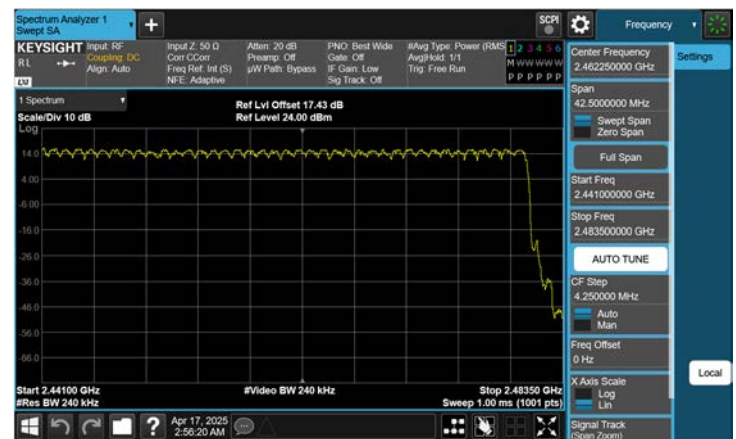
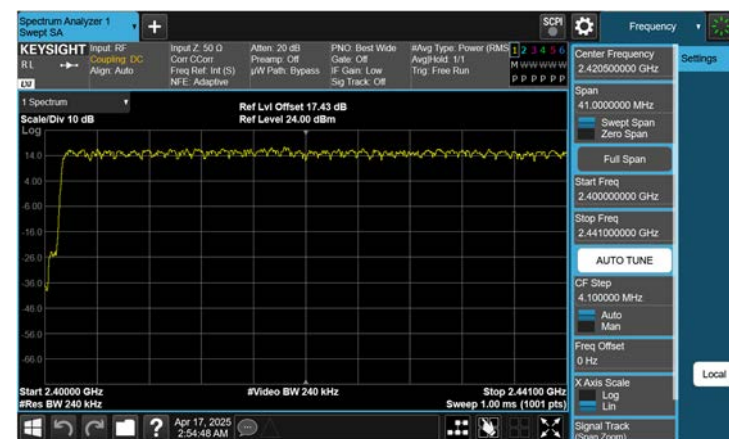
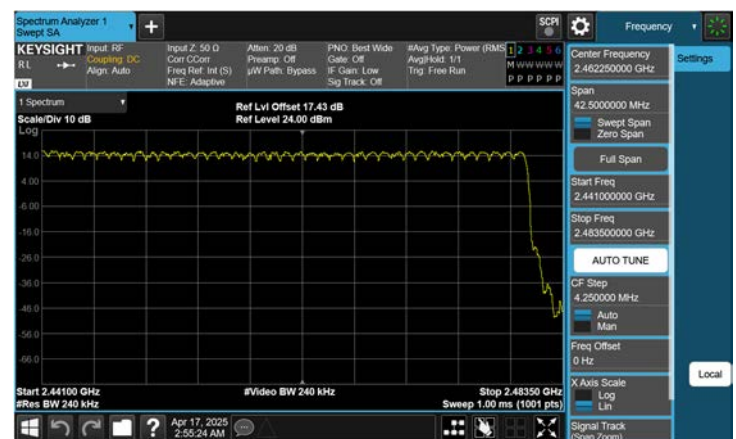
ANT.2 GFSK (2.441 GHz - 2.483.5 GHz)



ANT.2 8DPSK (2.4 GHz - 2.441 GHz)

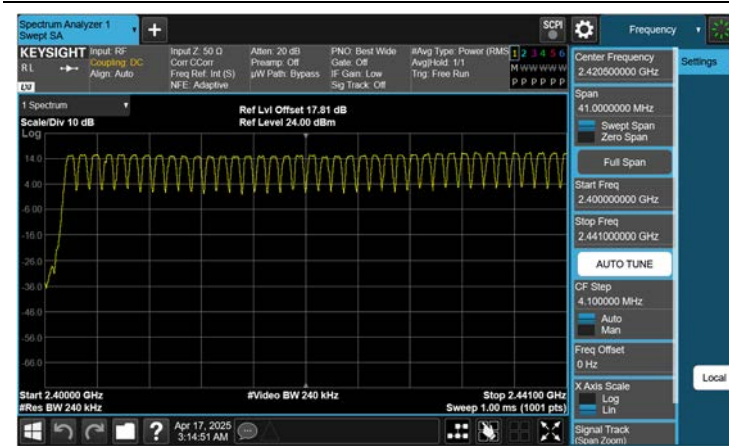


ANT.2 8DPSK (2.441 GHz - 2.483.5 GHz)

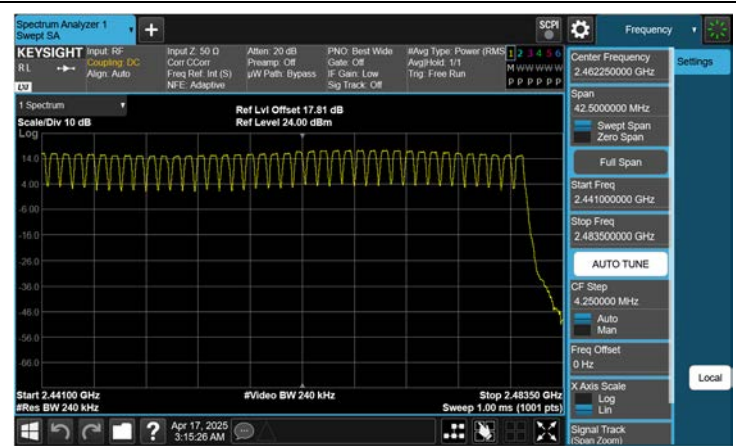

ANT.2  $\pi$ /4DQPSK (2.4 GHz - 2.441 GHz)

ANT.2  $\pi$ /4DQPSK (2.441 GHz - 2.483.5 GHz)


[Dual ANT.1]

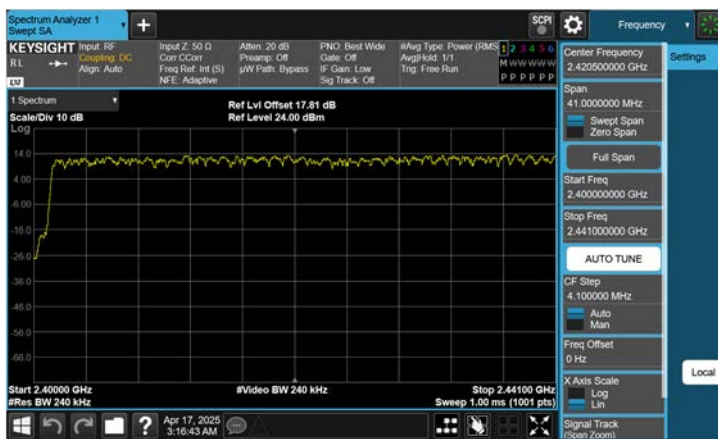
Dual ANT.1 GFSK (2.4 GHz - 2.441 GHz)



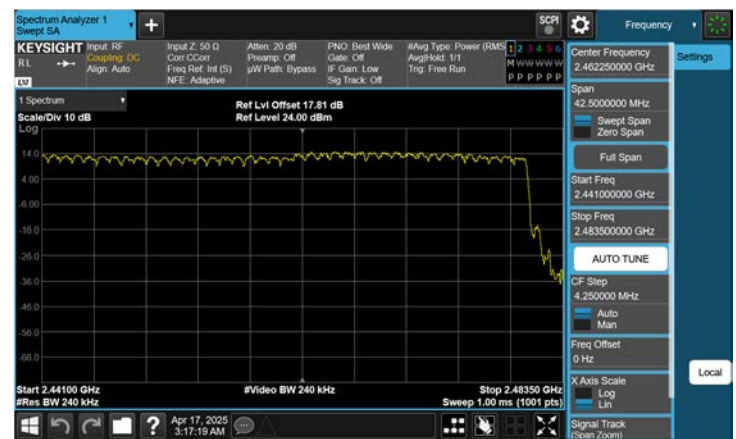
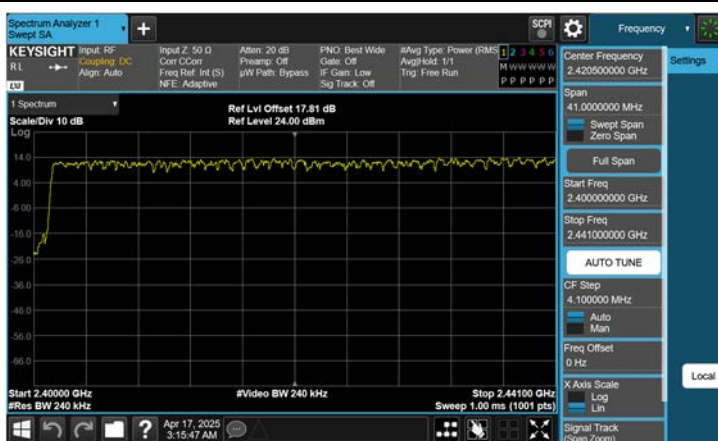
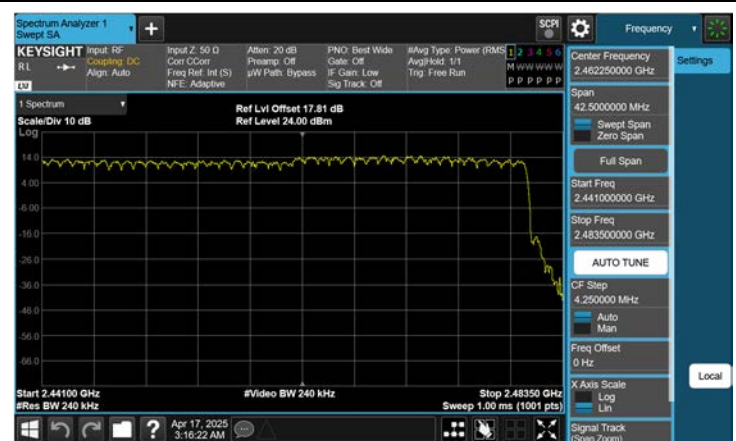
Dual ANT.1 GFSK (2.441 GHz - 2.483.5 GHz)



Dual ANT.1 8DPSK (2.4 GHz - 2.441 GHz)

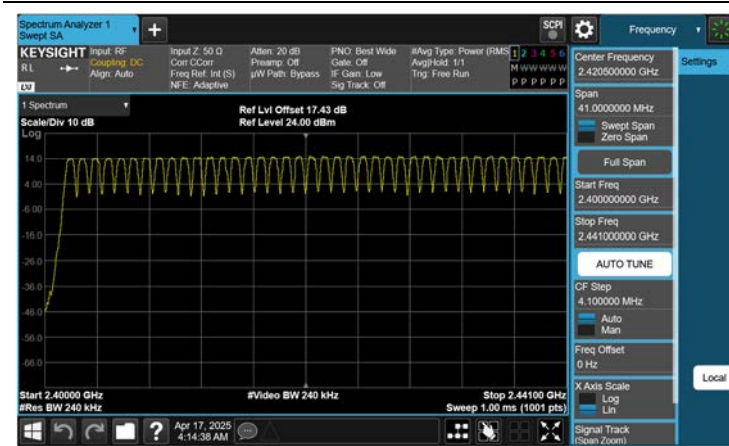


Dual ANT.1 8DPSK (2.441 GHz - 2.483.5 GHz)

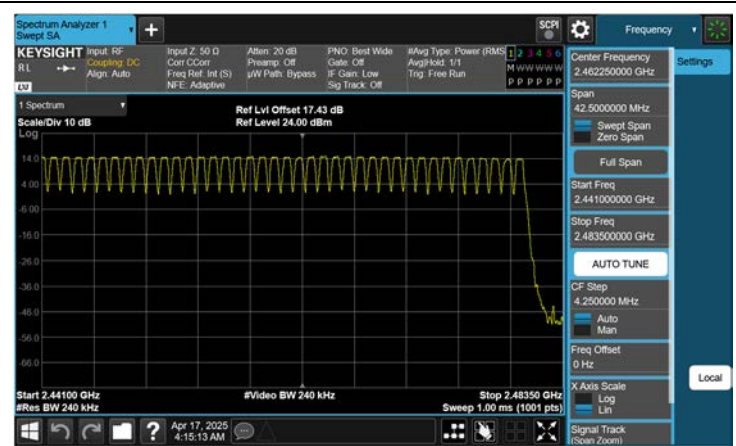

Dual ANT.1  $\pi/4$ DQPSK (2.4 GHz - 2.441 GHz)

Dual ANT.1  $\pi/4$ DQPSK (2.441 GHz - 2.483.5 GHz)


[Dual ANT.2]

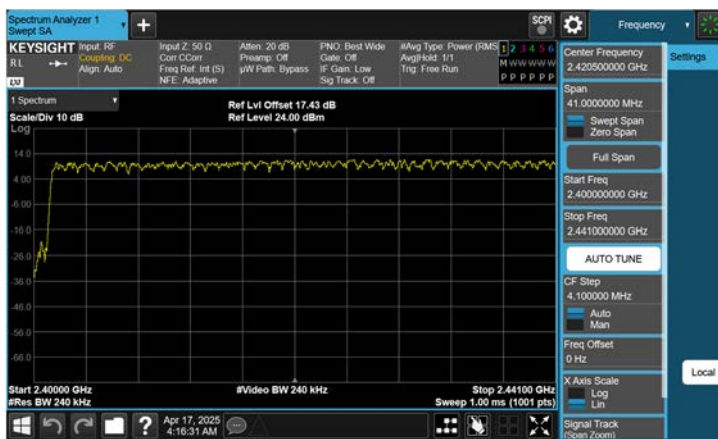
Dual ANT.2 GFSK (2.4 GHz - 2.441 GHz)



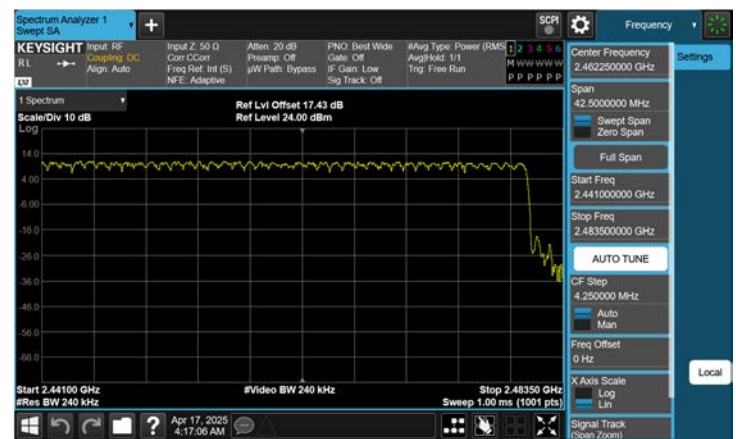
Dual ANT.2 GFSK (2.441 GHz - 2.483.5 GHz)



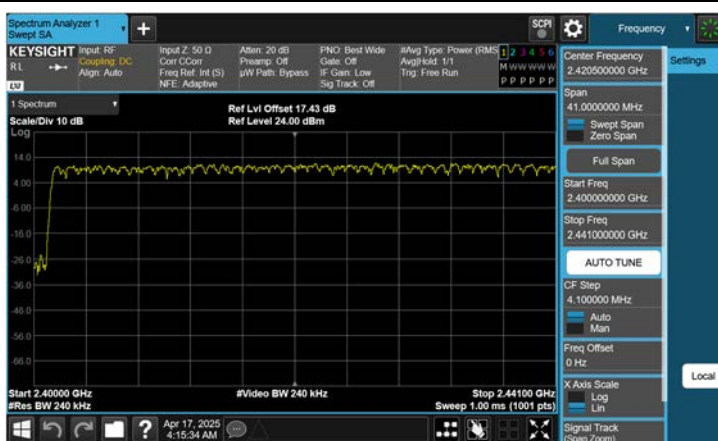
Dual ANT.2 8DPSK (2.4 GHz - 2.441 GHz)



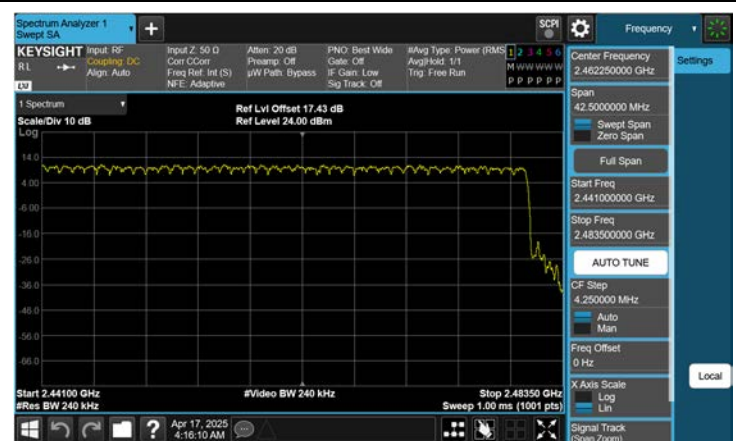
Dual ANT.2 8DPSK (2.441 GHz - 2.483.5 GHz)



Dual ANT.2  $\pi/4$ DQPSK (2.4 GHz - 2.441 GHz)



Dual ANT.2  $\pi/4$ DQPSK (2.441 GHz - 2.483.5 GHz)



## 10.5 TIME OF OCCUPANCY (DWELL TIME)

[Ant.1]

|                 | Channel | GFSK  | 8DPSK | $\pi/4$ DQPSK |
|-----------------|---------|-------|-------|---------------|
| Pulse Time (ms) | Ch. 0   | 2.890 | 2.890 | 2.890         |
|                 | Ch. 39  | 2.885 | 2.890 | 2.890         |
|                 | Ch. 78  | 2.890 | 2.890 | 2.885         |
|                 |         |       |       |               |

Non-AFH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 308.27 | 308.27 | 308.27        | 31.6            | 400        |
|                     | Ch. 39  | 307.73 | 308.27 | 308.27        | 31.6            |            |
|                     | Ch. 78  | 308.27 | 308.27 | 307.73        | 31.6            |            |
|                     |         |        |        |               |                 |            |

A FH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 154.13 | 154.13 | 154.13        | 8               | 400        |
|                     | Ch. 39  | 153.87 | 154.13 | 154.13        | 8               |            |
|                     | Ch. 78  | 154.13 | 154.13 | 153.87        | 8               |            |
|                     |         |        |        |               |                 |            |

[Ant.2]

|                 | Channel | GFSK  | 8DPSK | $\pi/4$ DQPSK |
|-----------------|---------|-------|-------|---------------|
| Pulse Time (ms) | Ch. 0   | 2.890 | 2.890 | 2.890         |
|                 | Ch. 39  | 2.885 | 2.895 | 2.890         |
|                 | Ch. 78  | 2.885 | 2.895 | 2.885         |
|                 |         |       |       |               |

Non-AFH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 308.27 | 308.27 | 308.27        | 31.6            | 400        |
|                     | Ch. 39  | 307.73 | 308.80 | 308.27        | 31.6            |            |
|                     | Ch. 78  | 307.73 | 308.80 | 307.73        | 31.6            |            |
|                     |         |        |        |               |                 |            |

AFH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 154.13 | 154.13 | 154.13        | 8               | 400        |
|                     | Ch. 39  | 153.87 | 154.40 | 154.13        | 8               |            |
|                     | Ch. 78  | 153.87 | 154.40 | 153.87        | 8               |            |
|                     |         |        |        |               |                 |            |

[Dual Ant.1]

|                 | Channel | GFSK  | 8DPSK | $\pi/4$ DQPSK |
|-----------------|---------|-------|-------|---------------|
| Pulse Time (ms) | Ch. 0   | 2.890 | 2.890 | 2.885         |
|                 | Ch. 39  | 2.890 | 2.890 | 2.890         |
|                 | Ch. 78  | 2.885 | 2.890 | 2.885         |
|                 |         |       |       |               |

Non-AFH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 308.27 | 308.27 | 307.73        | 31.6            | 400        |
|                     | Ch. 39  | 308.27 | 308.27 | 308.27        | 31.6            |            |
|                     | Ch. 78  | 307.73 | 308.27 | 307.73        | 31.6            |            |
|                     |         |        |        |               |                 |            |

A FH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 154.13 | 154.13 | 153.87        | 8               | 400        |
|                     | Ch. 39  | 154.13 | 154.13 | 154.13        | 8               |            |
|                     | Ch. 78  | 153.87 | 154.13 | 153.87        | 8               |            |
|                     |         |        |        |               |                 |            |

[Dual Ant.2]

|                 | Channel | GFSK  | 8DPSK | $\pi/4$ DQPSK |
|-----------------|---------|-------|-------|---------------|
| Pulse Time (ms) | Ch. 0   | 2.890 | 2.890 | 2.890         |
|                 | Ch. 39  | 2.890 | 2.890 | 2.885         |
|                 | Ch. 78  | 2.890 | 2.890 | 2.890         |
|                 |         |       |       |               |

Non-AFH Mode

|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 308.27 | 308.27 | 308.27        | 31.6            | 400        |
|                     | Ch. 39  | 308.27 | 308.27 | 307.73        | 31.6            |            |
|                     | Ch. 78  | 308.27 | 308.27 | 308.27        | 31.6            |            |
|                     |         |        |        |               |                 |            |

AFH Mode

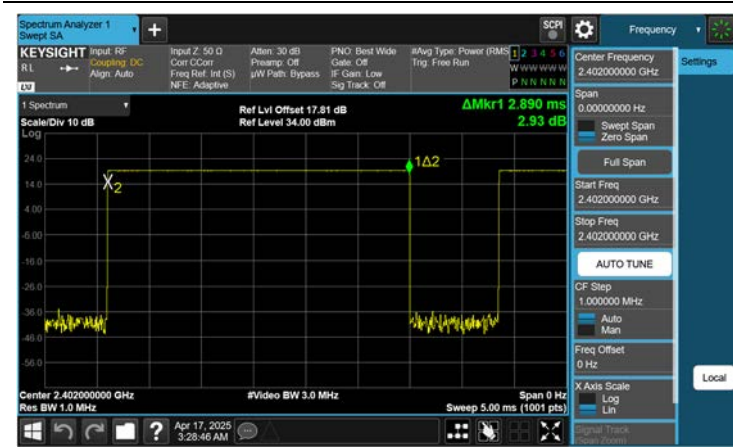
|                     | Channel | GFSK   | 8DPSK  | $\pi/4$ DQPSK | Period Time (s) | Limit (ms) |
|---------------------|---------|--------|--------|---------------|-----------------|------------|
| Total of Dwell (ms) | Ch. 0   | 154.13 | 154.13 | 154.13        | 8               | 400        |
|                     | Ch. 39  | 154.13 | 154.13 | 153.87        | 8               |            |
|                     | Ch. 78  | 154.13 | 154.13 | 154.13        | 8               |            |
|                     |         |        |        |               |                 |            |

# TEST PLOTS(Dwell Time)

## Note:

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

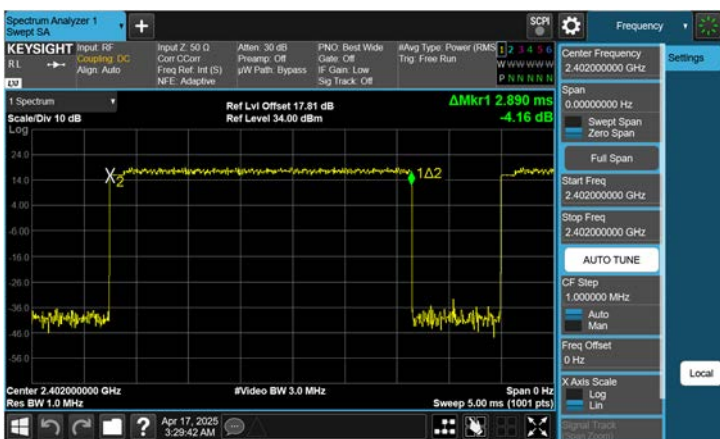
ANT.1 GFSK : Dwell Time(Ch. 0)



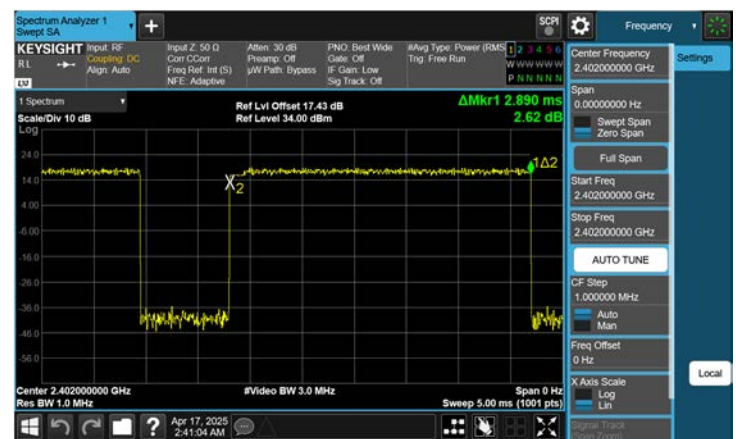
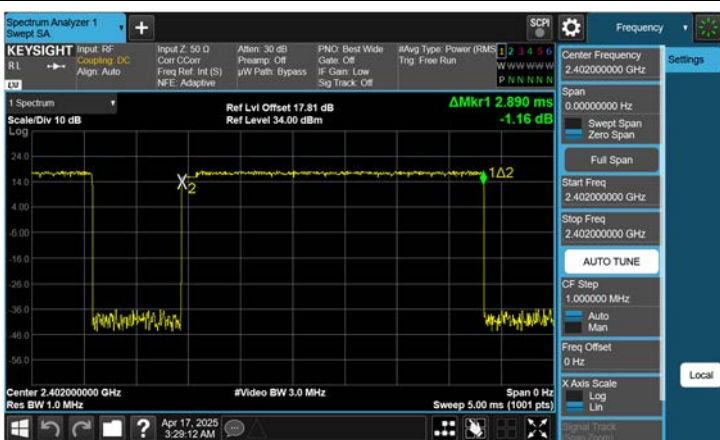
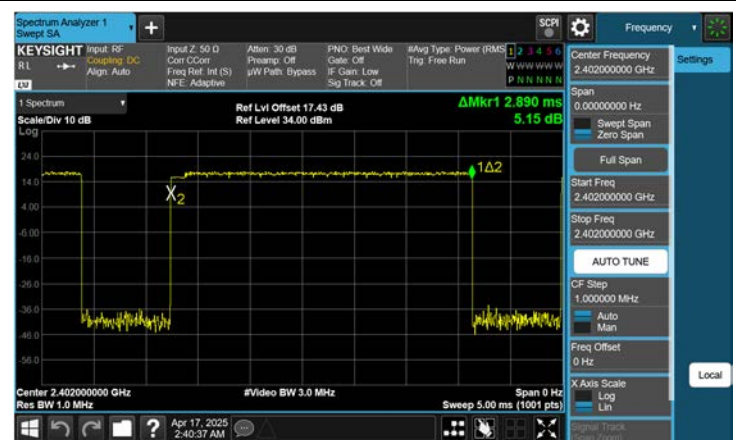
ANT.2 GFSK : Dwell Time(Ch. 0)



ANT.1 8DPSK : Dwell Time(Ch. 0)



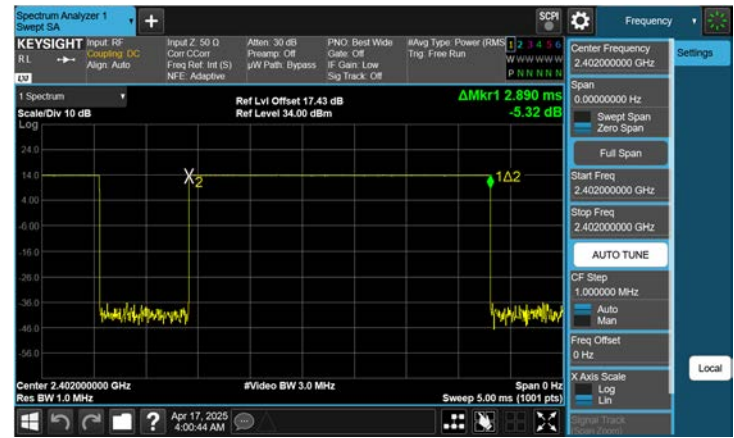
ANT.2 8DPSK : Dwell Time(Ch. 0)


ANT.1  $\pi/4$ DQPSK : Dwell Time(Ch. 0)

ANT.2  $\pi/4$ DQPSK : Dwell Time(Ch. 0)


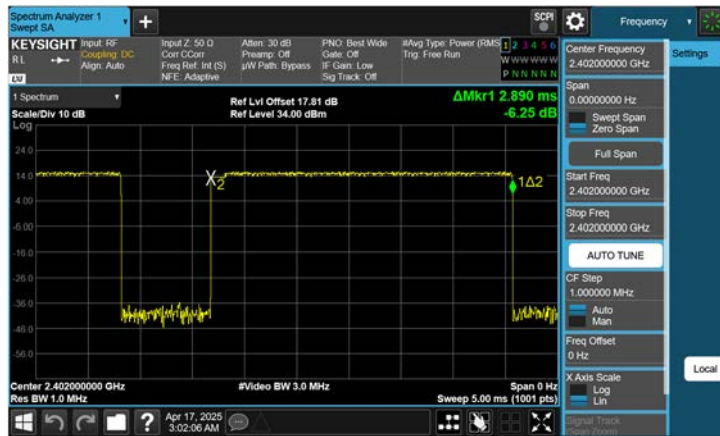
Dual ANT.1 GFSK : Dwell Time(Ch. 0)



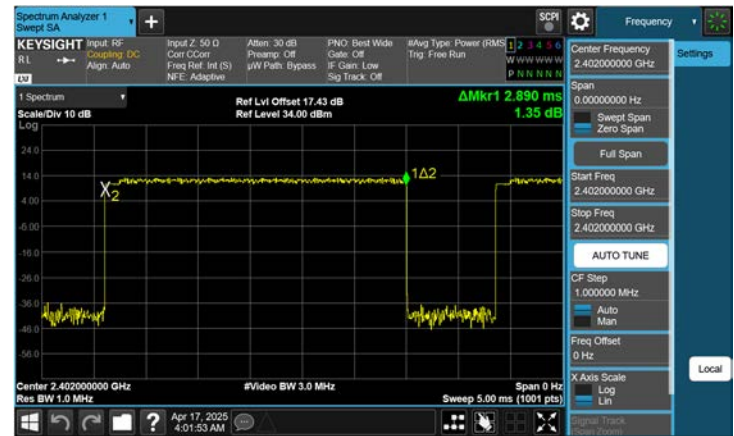
Dual ANT.2 GFSK : Dwell Time(Ch. 0)



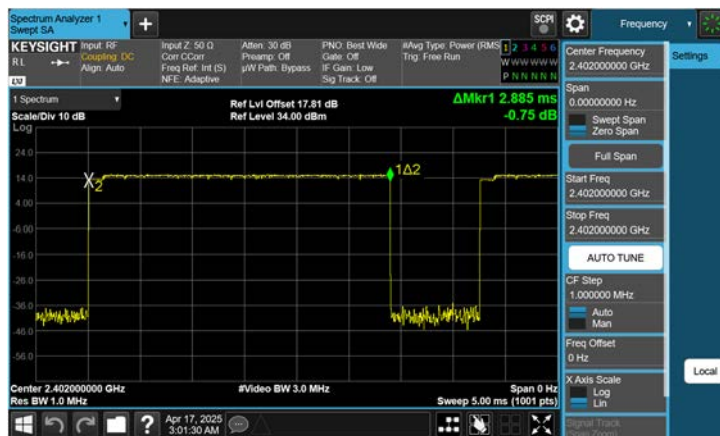
Dual ANT.1 8DPSK : Dwell Time(Ch. 0)



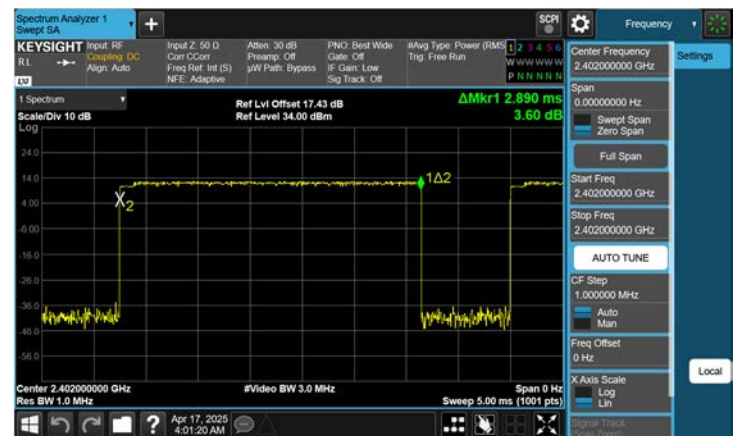
Dual ANT.2 8DPSK : Dwell Time(Ch. 0)



Dual ANT.1  $\pi/4$ DQPSK : Dwell Time(Ch. 0)



Dual ANT.2  $\pi/4$ DQPSK : Dwell Time(Ch. 0)



## 10.6 SPURIOUS EMISSIONS

### 10.6.1 CONDUCTED SPURIOUS EMISSIONS

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

#### TEST PLOTS(CONDUCTED SPURIOUS EMISSIONS)

Spurious Emission (30 MHz - 26.50 GHz)Ant.1, GFSK Ch. 0



Spurious Emission (30 MHz - 26.50 GHz)Ant.2, GFSK Ch. 0



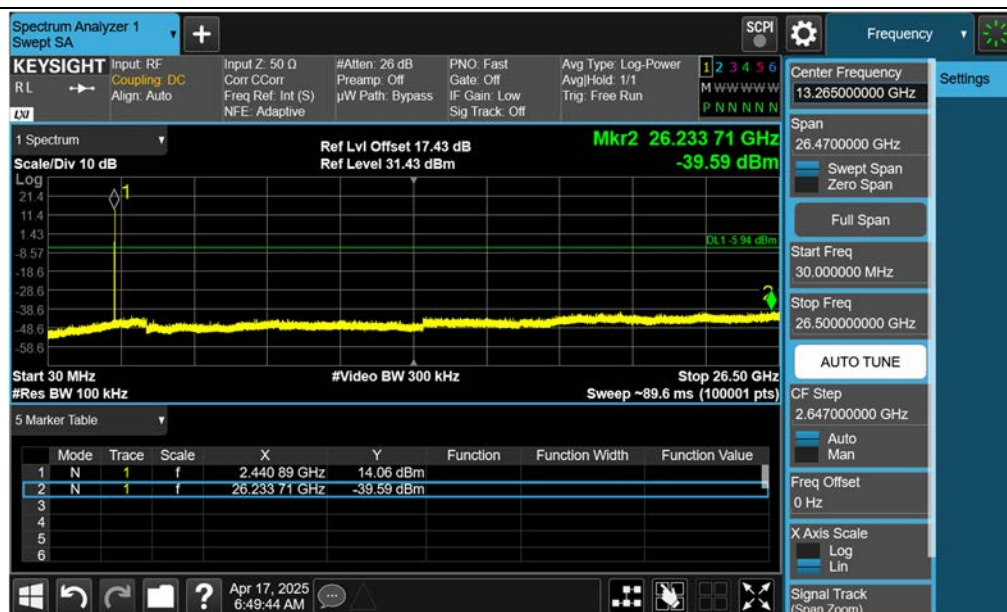
Note

1. Ant.1 Limit (dBm): -0.77, Ant.2 Limit (dBm): -1.15

## Spurious Emission (30 MHz - 26.50 GHz) Dual Ant.1, 8DPSK Ch. 78



## Spurious Emission (30 MHz - 26.50 GHz) Dual Ant.2, GFSK Ch. 39



### Note

1. Dual Ant.1 Limit (dBm): -7.72, Dual Ant.2 Limit (dBm): -5.94

## 10.6.2 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

| Frequency | Measured Value | A.F+C.L+D.F | POL   | Total          | Limit          | Margin |
|-----------|----------------|-------------|-------|----------------|----------------|--------|
| [MHz]     | [dB $\mu$ V]   | [dB/m]      | [H/V] | [dB $\mu$ V/m] | [dB $\mu$ V/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 = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dB $\mu$ V) + Distance extrapolation factor
4. Radiated test is performed with hopping off.

Frequency Range : Below 1 GHz

| Frequency | Measured Value | A.F+C.L | POL   | Total          | Limit          | Margin |
|-----------|----------------|---------|-------|----------------|----------------|--------|
| [MHz]     | [dB $\mu$ V]   | [dB/m]  | [H/V] | [dB $\mu$ V/m] | [dB $\mu$ V/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 off.

Frequency Range : Above 1 GHz

[Ant.1]

| CH 0      | 2402           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4804      | 54.20          | -9.84    | V        | 0.00                  | 44.36    | 73.98        | 29.62  | PK               |
| 4804      | 54.20          | -9.84    | V        | -24.73                | 19.63    | 53.98        | 34.35  | AV               |
| 7206      | 51.60          | -3.15    | V        | 0.00                  | 48.45    | 73.98        | 25.53  | PK               |
| 7206      | 51.60          | -3.15    | V        | -24.73                | 23.72    | 53.98        | 30.26  | AV               |
| 4804      | 54.42          | -9.84    | H        | 0.00                  | 44.58    | 73.98        | 29.40  | PK               |
| 4804      | 54.42          | -9.84    | H        | -24.73                | 19.85    | 53.98        | 34.13  | AV               |
| 7206      | 51.63          | -3.15    | H        | 0.00                  | 48.48    | 73.98        | 25.50  | PK               |
| 7206      | 51.63          | -3.15    | H        | -24.73                | 23.75    | 53.98        | 30.23  | AV               |

| CH 39     | 2441           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4882      | 55.02          | -9.58    | V        | 0.00                  | 45.44    | 73.98        | 28.54  | PK               |
| 4882      | 55.02          | -9.58    | V        | -24.73                | 20.71    | 53.98        | 33.27  | AV               |
| 7323      | 51.43          | -3.11    | V        | 0.00                  | 48.32    | 73.98        | 25.66  | PK               |
| 7323      | 51.43          | -3.11    | V        | -24.73                | 23.59    | 53.98        | 30.39  | AV               |
| 4882      | 55.10          | -9.58    | H        | 0.00                  | 45.52    | 73.98        | 28.46  | PK               |
| 4882      | 55.10          | -9.58    | H        | -24.73                | 20.79    | 53.98        | 33.19  | AV               |
| 7323      | 51.71          | -3.11    | H        | 0.00                  | 48.60    | 73.98        | 25.38  | PK               |
| 7323      | 51.71          | -3.11    | H        | -24.73                | 23.87    | 53.98        | 30.11  | AV               |

| CH 78     | 2480           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4960      | 55.68          | -9.25    | V        | 0.00                  | 46.43    | 73.98        | 27.55  | PK               |
| 4960      | 55.68          | -9.25    | V        | -24.73                | 21.70    | 53.98        | 32.28  | AV               |
| 7440      | 51.43          | -2.84    | V        | 0.00                  | 48.59    | 73.98        | 25.39  | PK               |
| 7440      | 51.43          | -2.84    | V        | -24.73                | 23.86    | 53.98        | 30.12  | AV               |
| 4960      | 55.53          | -9.25    | H        | 0.00                  | 46.28    | 73.98        | 27.70  | PK               |
| 4960      | 55.53          | -9.25    | H        | -24.73                | 21.55    | 53.98        | 32.43  | AV               |
| 7440      | 51.42          | -2.84    | H        | 0.00                  | 48.58    | 73.98        | 25.40  | PK               |
| 7440      | 51.42          | -2.84    | H        | -24.73                | 23.85    | 53.98        | 30.13  | AV               |

[Ant.2]

| CH 0      | 2402           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4804      | 53.76          | -9.84    | V        | 0.00                  | 43.92    | 73.98        | 30.06  | PK               |
| 4804      | 53.76          | -9.84    | V        | -24.73                | 19.19    | 53.98        | 34.79  | AV               |
| 7206      | 52.79          | -3.15    | V        | 0.00                  | 49.64    | 73.98        | 24.34  | PK               |
| 7206      | 52.79          | -3.15    | V        | -24.73                | 24.91    | 53.98        | 29.07  | AV               |
| 4804      | 54.13          | -9.84    | H        | 0.00                  | 44.29    | 73.98        | 29.69  | PK               |
| 4804      | 54.13          | -9.84    | H        | -24.73                | 19.56    | 53.98        | 34.42  | AV               |
| 7206      | 52.62          | -3.15    | H        | 0.00                  | 49.47    | 73.98        | 24.51  | PK               |
| 7206      | 52.62          | -3.15    | H        | -24.73                | 24.74    | 53.98        | 29.24  | AV               |

| CH 39     | 2441           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4882      | 54.69          | -9.58    | V        | 0.00                  | 45.11    | 73.98        | 28.87  | PK               |
| 4882      | 54.69          | -9.58    | V        | -24.73                | 20.38    | 53.98        | 33.60  | AV               |
| 7323      | 52.30          | -3.11    | V        | 0.00                  | 49.19    | 73.98        | 24.79  | PK               |
| 7323      | 52.30          | -3.11    | V        | -24.73                | 24.46    | 53.98        | 29.52  | AV               |
| 4882      | 55.36          | -9.58    | H        | 0.00                  | 45.78    | 73.98        | 28.20  | PK               |
| 4882      | 55.36          | -9.58    | H        | -24.73                | 21.05    | 53.98        | 32.93  | AV               |
| 7323      | 52.83          | -3.11    | H        | 0.00                  | 49.72    | 73.98        | 24.26  | PK               |
| 7323      | 52.83          | -3.11    | H        | -24.73                | 24.99    | 53.98        | 28.99  | AV               |

| CH 78     | 2480           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4960      | 56.18          | -9.25    | V        | 0.00                  | 46.93    | 73.98        | 27.05  | PK               |
| 4960      | 56.18          | -9.25    | V        | -24.73                | 22.20    | 53.98        | 31.78  | AV               |
| 7440      | 51.78          | -2.84    | V        | 0.00                  | 48.94    | 73.98        | 25.04  | PK               |
| 7440      | 51.78          | -2.84    | V        | -24.73                | 24.21    | 53.98        | 29.77  | AV               |
| 4960      | 56.37          | -9.25    | H        | 0.00                  | 47.12    | 73.98        | 26.86  | PK               |
| 4960      | 56.37          | -9.25    | H        | -24.73                | 22.39    | 53.98        | 31.59  | AV               |
| 7440      | 51.69          | -2.84    | H        | 0.00                  | 48.85    | 73.98        | 25.13  | PK               |
| 7440      | 51.69          | -2.84    | H        | -24.73                | 24.12    | 53.98        | 29.86  | AV               |

[Dual Ant.1+ Ant.2]

| CH 0      | 2402           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4804      | 53.67          | -9.84    | V        | 0.00                  | 43.83    | 73.98        | 30.15  | PK               |
| 4804      | 53.67          | -9.84    | V        | -24.73                | 19.10    | 53.98        | 34.88  | AV               |
| 7206      | 52.69          | -3.15    | V        | 0.00                  | 49.54    | 73.98        | 24.44  | PK               |
| 7206      | 52.69          | -3.15    | V        | -24.73                | 24.81    | 53.98        | 29.17  | AV               |
| 4804      | 54.09          | -9.84    | H        | 0.00                  | 44.25    | 73.98        | 29.73  | PK               |
| 4804      | 54.09          | -9.84    | H        | -24.73                | 19.52    | 53.98        | 34.46  | AV               |
| 7206      | 52.81          | -3.15    | H        | 0.00                  | 49.66    | 73.98        | 24.32  | PK               |
| 7206      | 52.81          | -3.15    | H        | -24.73                | 24.93    | 53.98        | 29.05  | AV               |

| CH 39     | 2441           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4882      | 55.78          | -9.58    | V        | 0.00                  | 46.20    | 73.98        | 27.78  | PK               |
| 4882      | 55.78          | -9.58    | V        | -24.73                | 21.47    | 53.98        | 32.51  | AV               |
| 7323      | 51.00          | -3.11    | V        | 0.00                  | 47.89    | 73.98        | 26.09  | PK               |
| 7323      | 51.00          | -3.11    | V        | -24.73                | 23.16    | 53.98        | 30.82  | AV               |
| 4882      | 54.63          | -9.58    | H        | 0.00                  | 45.05    | 73.98        | 28.93  | PK               |
| 4882      | 54.63          | -9.58    | H        | -24.73                | 20.32    | 53.98        | 33.66  | AV               |
| 7323      | 51.05          | -3.11    | H        | 0.00                  | 47.94    | 73.98        | 26.04  | PK               |
| 7323      | 51.05          | -3.11    | H        | -24.73                | 23.21    | 53.98        | 30.77  | AV               |

| CH 78     | 2480           | MHz      | Mode :   |                       |          | Normal(GFSK) |        |                  |
|-----------|----------------|----------|----------|-----------------------|----------|--------------|--------|------------------|
| Frequency | Measured value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit        | Margin | Measurement Type |
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]     | [dB]   |                  |
| 4960      | 55.63          | -9.25    | V        | 0.00                  | 46.38    | 73.98        | 27.60  | PK               |
| 4960      | 55.63          | -9.25    | V        | -24.73                | 21.65    | 53.98        | 32.33  | AV               |
| 7440      | 51.18          | -2.84    | V        | 0.00                  | 48.34    | 73.98        | 25.64  | PK               |
| 7440      | 51.18          | -2.84    | V        | -24.73                | 23.61    | 53.98        | 30.37  | AV               |
| 4960      | 55.91          | -9.25    | H        | 0.00                  | 46.66    | 73.98        | 27.32  | PK               |
| 4960      | 55.91          | -9.25    | H        | -24.73                | 21.93    | 53.98        | 32.05  | AV               |
| 7440      | 51.50          | -2.84    | H        | 0.00                  | 48.66    | 73.98        | 25.32  | PK               |
| 7440      | 51.50          | -2.84    | H        | -24.73                | 23.93    | 53.98        | 30.05  | AV               |

[Simultaneous transmission]

### Scenario 1

Dual Bluetooth DH5\_Ch.39 + Ant All(MIMO) 5 GHz 802.11be(EHT20)\_Ch.36\_ MCS0\_242 Tone RU61

| Frequency | Measured Value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit    | Margin | Measurement Type |
|-----------|----------------|----------|----------|-----------------------|----------|----------|--------|------------------|
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m] | [dB]   |                  |
| 4882      | 54.69          | -9.58    | V        | 0.00                  | 45.11    | 73.98    | 28.87  | PK               |
| 4882      | 54.69          | -9.58    | V        | -24.73                | 20.38    | 53.98    | 33.60  | AV               |
| 7323      | 55.28          | -3.11    | V        | 0.00                  | 52.17    | 73.98    | 21.81  | PK               |
| 7323      | 55.28          | -3.11    | V        | -24.73                | 27.44    | 53.98    | 26.54  | AV               |
| 4882      | 55.34          | -9.58    | H        | 0.00                  | 45.76    | 73.98    | 28.22  | PK               |
| 4882      | 55.34          | -9.58    | H        | -24.73                | 21.03    | 53.98    | 32.95  | AV               |
| 7323      | 56.41          | -3.11    | H        | 0.00                  | 53.30    | 73.98    | 20.68  | PK               |
| 7323      | 56.41          | -3.11    | H        | -24.73                | 28.57    | 53.98    | 25.41  | AV               |

### Scenario 3

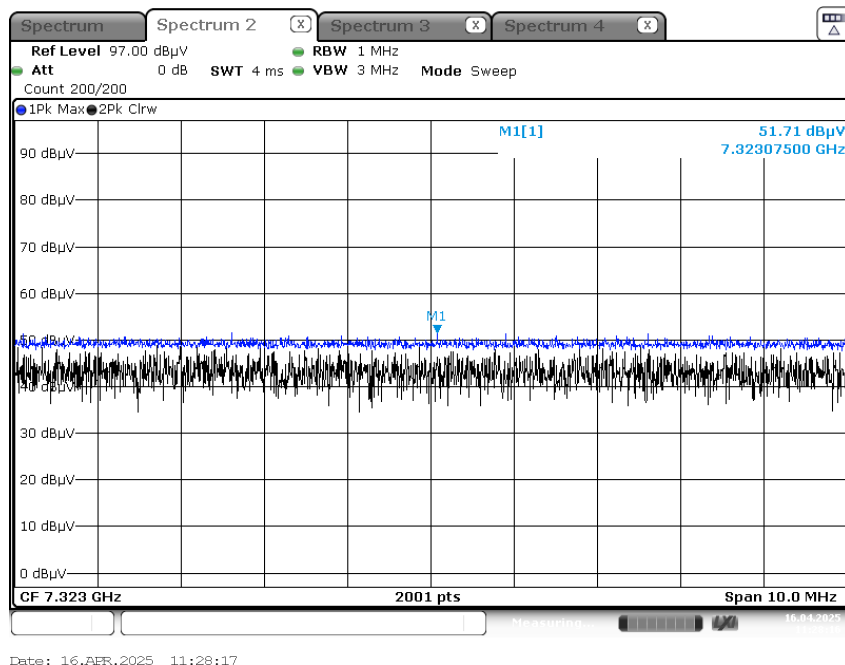
Ant.1\_Bluetooth DH5\_Ch.39 + Ant.2\_2.4 GHz 802.11b \_1 Mbps Ch.6 + Ant All(MIMO) 5 GHz 802.11be(EHT20)\_Ch.36\_ MCS0\_242 Tone RU61

| Frequency | Measured Value | AF+CL-AG | ANT. POL | Duty Cycle Correction | Total    | Limit    | Margin | Measurement Type |
|-----------|----------------|----------|----------|-----------------------|----------|----------|--------|------------------|
| [MHz]     | [dBμV]         | [dB/m]   | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m] | [dB]   |                  |
| 4882      | 60.10          | -9.58    | V        | 0.00                  | 50.52    | 73.98    | 23.46  | PK               |
| 4882      | 60.10          | -9.58    | V        | -24.73                | 25.79    | 53.98    | 28.19  | AV               |
| 7323      | 52.86          | -3.11    | V        | 0.00                  | 49.75    | 73.98    | 24.23  | PK               |
| 7323      | 52.86          | -3.11    | V        | -24.73                | 25.02    | 53.98    | 28.96  | AV               |
| 4882      | 60.38          | -9.58    | H        | 0.00                  | 50.80    | 73.98    | 23.18  | PK               |
| 4882      | 60.38          | -9.58    | H        | -24.73                | 26.07    | 53.98    | 27.91  | AV               |
| 7323      | 53.36          | -3.11    | H        | 0.00                  | 50.25    | 73.98    | 23.73  | PK               |
| 7323      | 53.36          | -3.11    | H        | -24.73                | 25.52    | 53.98    | 28.46  | AV               |

## Test Plots

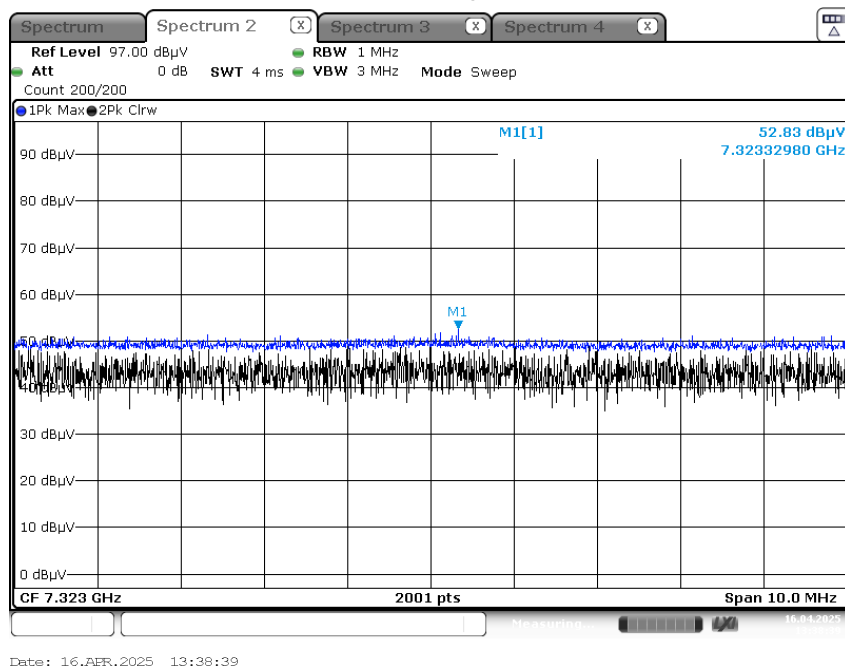
[Ant.1]

Radiated Spurious Emissions plot – Peak & Average Result (GFSK, Ch. 39 3rd Harmonic, Y-H)



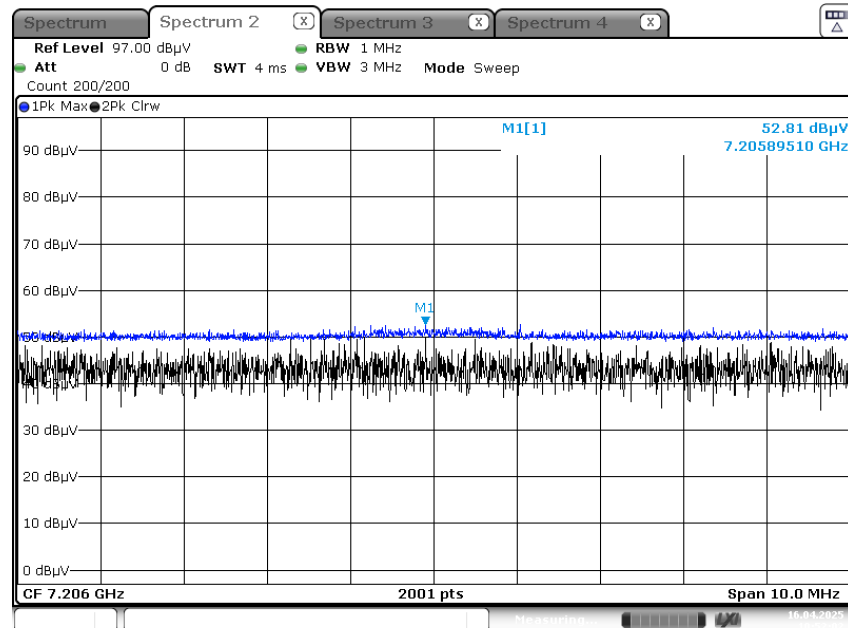
[Ant.2]

Radiated Spurious Emissions plot – Peak & Average Result (GFSK, Ch. 39 3rd Harmonic, Y-H)



[Dual Ant.1+ Ant.2]

Radiated Spurious Emissions plot – Peak & Average Result (GFSK, Ch. 0 3rd Harmonic, Y-H)



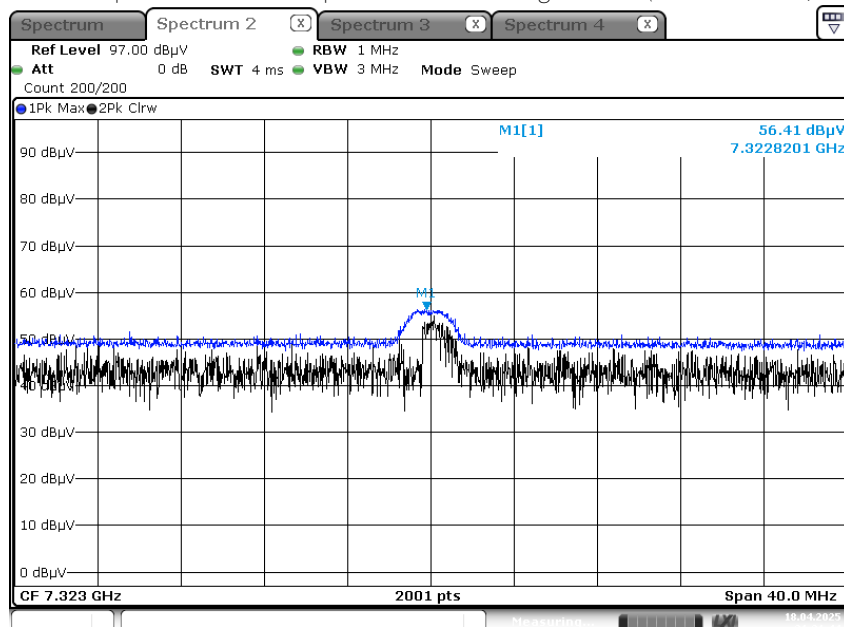
Date: 16.APR.2025 10:52:03

[Simultaneous transmission]

### Scenario 1

Dual Bluetooth DH5\_Ch.39 + Ant All(MIMO) 5 GHz 802.11be(EHT20)\_Ch.36\_ MCS0\_242 Tone RU61

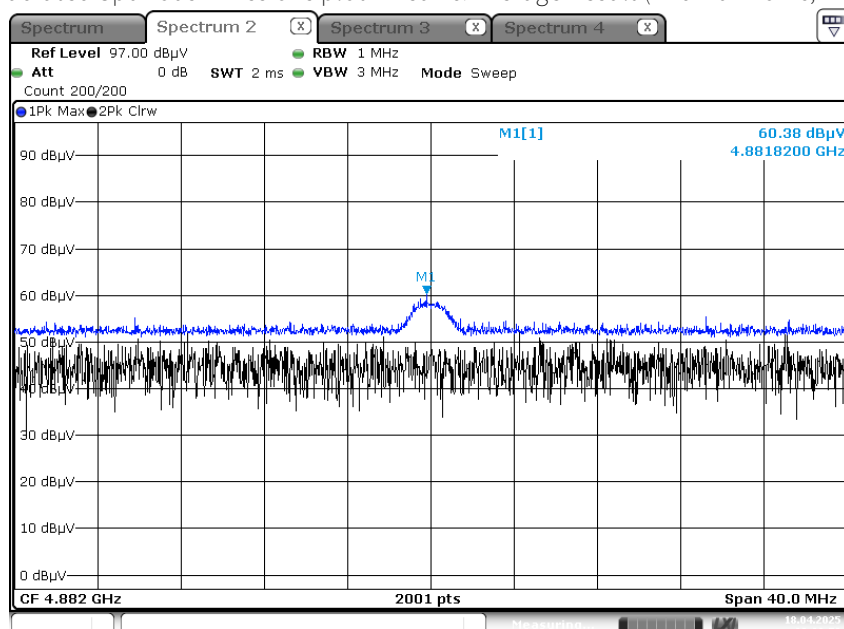
Radiated Spurious Emissions plot – Peak & Average Result (3rd Harmonic, Z-H)



### Scenario 3

Ant.1\_Bluetooth DH5\_Ch.39 + Ant.2\_2.4 GHz 802.11b \_1 Mbps Ch.6 + Ant All(MIMO) 5 GHz 802.11be(EHT20)\_Ch.36\_ MCS0\_242 Tone RU61

Radiated Spurious Emissions plot – Peak & Average Result (2nd Harmonic, Y-H)



Note: Plots of worst case are only reported.

### 10.6.3 RADIATED RESTRICTED BAND EDGES

[Ant.1]

| Normal(GFSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|--------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency    | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]        | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0       | 53.67          | -             | H        | 0.00                  | 53.67    | 73.98              | 20.31  | PK               |
| 2390.0       | 53.67          | -             | H        | -24.73                | 28.94    | 53.98              | 25.04  | AV               |
| 2483.5       | 57.98          | -             | H        | 0.00                  | 57.98    | 73.98              | 16.00  | PK               |
| 2483.5       | 57.98          | -             | H        | -24.73                | 33.25    | 53.98              | 20.73  | AV               |

| EDR( $\pi$ /4DQPSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|---------------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency           | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]               | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0              | 54.10          | -             | H        | 0.00                  | 54.10    | 73.98              | 19.88  | PK               |
| 2390.0              | 54.10          | -             | H        | -24.73                | 29.37    | 53.98              | 24.61  | AV               |
| 2483.5              | 64.33          | -             | H        | 0.00                  | 64.33    | 73.98              | 9.65   | PK               |
| 2483.5              | 64.33          | -             | H        | -24.73                | 39.60    | 53.98              | 14.38  | AV               |

| EDR(8DPSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency  | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]      | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0     | 53.67          | -             | H        | 0.00                  | 53.67    | 73.98              | 20.31  | PK               |
| 2390.0     | 53.67          | -             | H        | -24.73                | 28.94    | 53.98              | 25.04  | AV               |
| 2483.5     | 62.81          | -             | H        | 0.00                  | 62.81    | 73.98              | 11.17  | PK               |
| 2483.5     | 62.81          | -             | H        | -24.73                | 38.08    | 53.98              | 15.90  | AV               |

[Ant.2]

| Normal(GFSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|--------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency    | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]        | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0       | 53.75          | -             | V        | 0.00                  | 53.75    | 73.98              | 20.23  | PK               |
| 2390.0       | 53.75          | -             | V        | -24.73                | 29.02    | 53.98              | 24.96  | AV               |
| 2483.5       | 59.00          | -             | V        | 0.00                  | 59.00    | 73.98              | 14.98  | PK               |
| 2483.5       | 59.00          | -             | V        | -24.73                | 34.27    | 53.98              | 19.71  | AV               |

| EDR( $\pi$ /4DQPSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|---------------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency           | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]               | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0              | 53.95          | -             | V        | 0.00                  | 53.95    | 73.98              | 20.03  | PK               |
| 2390.0              | 53.95          | -             | V        | -24.73                | 29.22    | 53.98              | 24.76  | AV               |
| 2483.5              | 62.06          | -             | V        | 0.00                  | 62.06    | 73.98              | 11.92  | PK               |
| 2483.5              | 62.06          | -             | V        | -24.73                | 37.33    | 53.98              | 16.65  | AV               |

| EDR(8DPSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency  | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]      | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0     | 53.62          | -             | V        | 0.00                  | 53.62    | 73.98              | 20.36  | PK               |
| 2390.0     | 53.62          | -             | V        | -24.73                | 28.89    | 53.98              | 25.09  | AV               |
| 2483.5     | 60.21          | -             | V        | 0.00                  | 60.21    | 73.98              | 13.77  | PK               |
| 2483.5     | 60.21          | -             | V        | -24.73                | 35.48    | 53.98              | 18.50  | AV               |

[Dual Ant.1+ Ant.2]

| Normal(GFSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|--------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency    | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]        | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0       | 53.63          | -             | H        | 0.00                  | 53.63    | 73.98              | 20.35  | PK               |
| 2390.0       | 53.63          | -             | H        | -24.73                | 28.90    | 53.98              | 25.08  | AV               |
| 2483.5       | 59.10          | -             | H        | 0.00                  | 59.10    | 73.98              | 14.88  | PK               |
| 2483.5       | 59.10          | -             | H        | -24.73                | 34.37    | 53.98              | 19.61  | AV               |

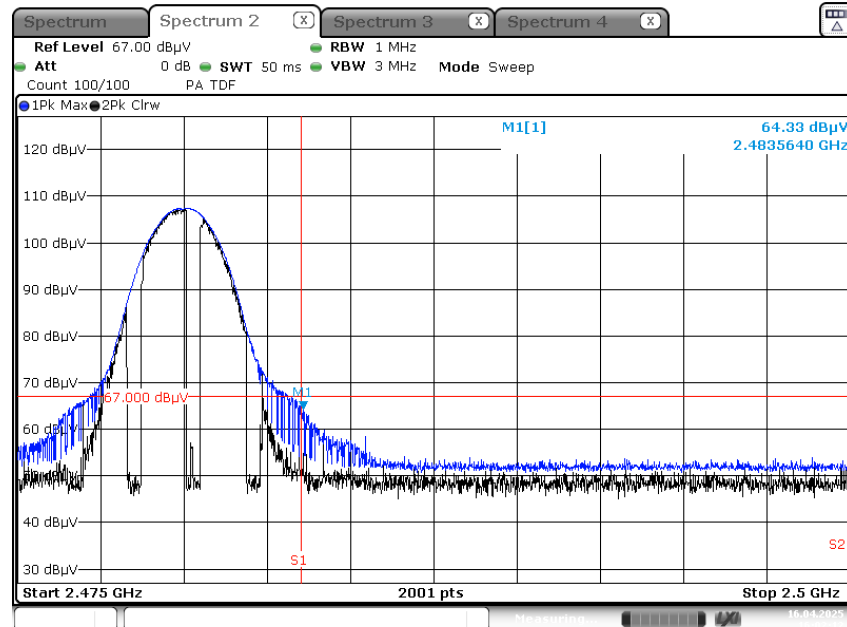
| EDR(π/4DQPSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|---------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency     | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]         | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0        | 54.13          | -             | H        | 0.00                  | 54.13    | 73.98              | 19.85  | PK               |
| 2390.0        | 54.13          | -             | H        | -24.73                | 29.40    | 53.98              | 24.58  | AV               |
| 2483.5        | 71.88          | -             | H        | 0.00                  | 71.88    | 73.98              | 2.10   | PK               |
| 2483.5        | 71.88          | -             | H        | -24.73                | 47.15    | 53.98              | 6.83   | AV               |

| EDR(8DPSK) | Channel        | CH. 0, CH. 78 |          | Channel Frequency     |          | 2402 MHz, 2480 MHz |        |                  |
|------------|----------------|---------------|----------|-----------------------|----------|--------------------|--------|------------------|
| Frequency  | Measured Value | AF+CL         | ANT. POL | Duty Cycle Correction | Total    | Limit              | Margin | Measurement Type |
| [MHz]      | [dBμV]         | [dB/m]        | [H/V]    | [dB]                  | [dBμV/m] | [dBμV/m]           | [dB]   |                  |
| 2390.0     | 53.51          | -             | H        | 0.00                  | 53.51    | 73.98              | 20.47  | PK               |
| 2390.0     | 53.51          | -             | H        | -24.73                | 28.78    | 53.98              | 25.20  | AV               |
| 2483.5     | 71.17          | -             | H        | 0.00                  | 71.17    | 73.98              | 2.81   | PK               |
| 2483.5     | 71.17          | -             | H        | -24.73                | 46.44    | 53.98              | 7.54   | AV               |

## Test Plots

[Ant.1]

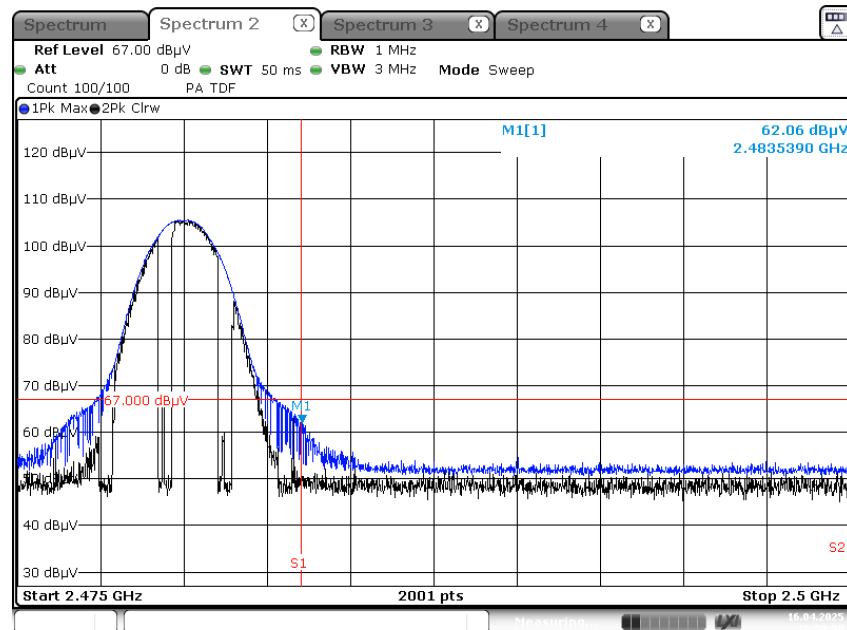
Radiated Restricted Band Edges plot – Average & Peak Result ( $\pi/4$ DQPSK, Ch. 78, X-H)



Date: 16.APR.2025 16:02:12

[Ant.2]

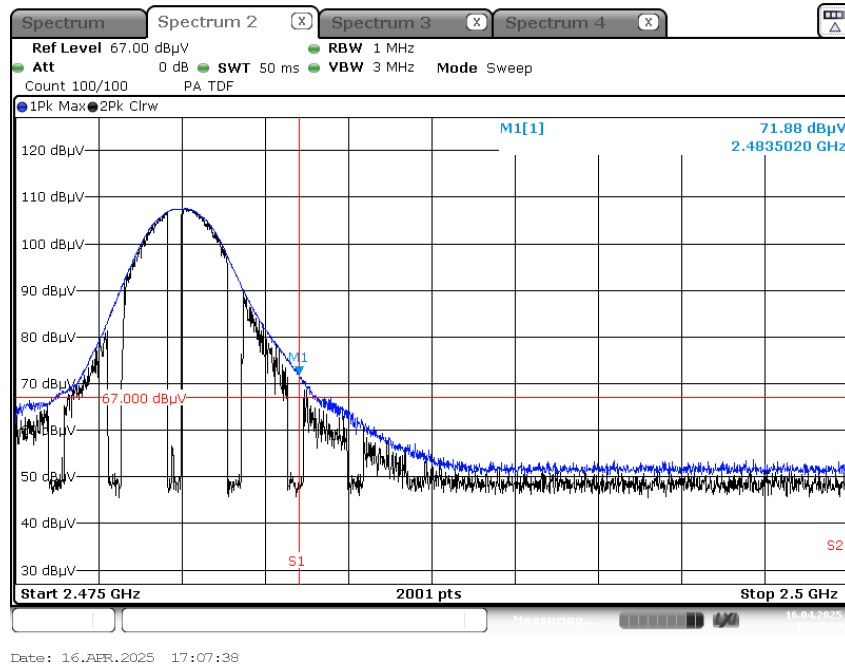
Radiated Restricted Band Edges plot – Average & Peak Result ( $\pi/4$ DQPSK, Ch. 78, X-V)



Date: 16.APR.2025 16:50:51

[Dual Ant.1+ Ant.2]

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



Note:

Plots of worst case are only reported.

## 10.7 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions

Test

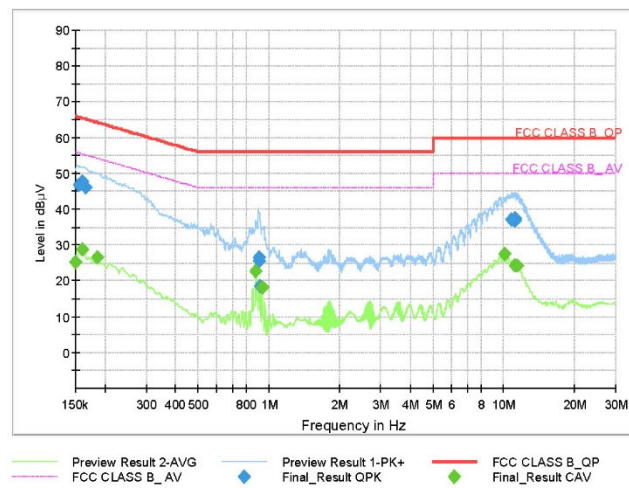
1 / 1

## Test Report

### Common Information

EUT : SM-F766U  
Operating Conditions : BT Mode  
Comment :

Full Spectrum



### Final Result QPK

| Frequency (MHz) | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|--------------|-------------|-----------------|------|------------|
| 0.1545          | 46.81            | 65.75        | 18.95       | 9.000           | L1   | 9.6        |
| 0.1613          | 47.76            | 65.40        | 17.64       | 9.000           | L1   | 9.6        |
| 0.1658          | 46.01            | 65.17        | 19.16       | 9.000           | L1   | 9.6        |
| 0.9028          | 26.65            | 56.00        | 29.35       | 9.000           | N    | 9.7        |
| 0.9118          | 25.67            | 56.00        | 30.33       | 9.000           | N    | 9.7        |
| 0.9163          | 18.43            | 56.00        | 37.57       | 9.000           | N    | 9.7        |
| 10.8073         | 37.14            | 60.00        | 22.86       | 9.000           | N    | 10.1       |
| 11.0998         | 36.88            | 60.00        | 23.12       | 9.000           | N    | 10.1       |
| 11.1290         | 37.33            | 60.00        | 22.67       | 9.000           | N    | 10.2       |

### Final Result CAV

| Frequency (MHz) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|-----------------|--------------|-------------|-----------------|------|------------|
| 0.1500          | 25.31           | 56.00        | 30.69       | 9.000           | N    | 9.6        |
| 0.1613          | 28.93           | 55.40        | 26.47       | 9.000           | L1   | 9.6        |
| 0.1860          | 26.70           | 54.21        | 27.52       | 9.000           | L1   | 9.6        |
| 0.8803          | 22.55           | 46.00        | 23.45       | 9.000           | L1   | 9.7        |
| 0.9343          | 18.10           | 46.00        | 27.90       | 9.000           | L1   | 9.7        |
| 10.0400         | 27.39           | 50.00        | 22.61       | 9.000           | L1   | 10.1       |
| 11.1088         | 24.39           | 50.00        | 25.61       | 9.000           | N    | 10.1       |
| 11.1358         | 24.22           | 50.00        | 25.78       | 9.000           | N    | 10.2       |
| 11.4260         | 24.36           | 50.00        | 25.64       | 9.000           | N    | 10.2       |

2025-04-07

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## 11. LIST OF TEST EQUIPMENT

### Conducted Test

| Equipment                                    | Model     | Manufacturer    | Serial No. | Due to Calibration | Calibration Interval |
|----------------------------------------------|-----------|-----------------|------------|--------------------|----------------------|
| LISN                                         | ENV216    | Rohde & Schwarz | 102245     | 07/17/2025         | Annual               |
| EMI Test Receiver                            | ESR       | Rohde & Schwarz | 101910     | 07/02/2025         | Annual               |
| Temperature Chamber                          | SU-642    | ESPEC           | 93008124   | 02/11/2026         | Annual               |
| Signal Analyzer                              | N9030A    | Keysight        | MY55410508 | 08/23/2025         | Annual               |
| Signal Analyzer                              | N9030B    | Keysight        | MY56320554 | 02/03/2026         | Annual               |
| Power Meter                                  | N1911A    | Agilent         | MY45100523 | 02/21/2026         | Annual               |
| Power Sensor                                 | N1921A    | Agilent         | MY57820067 | 02/04/2026         | Annual               |
| Directional Coupler                          | 87300B    | Agilent         | 3116A03621 | 10/21/2025         | Annual               |
| Power Splitter                               | 11667B    | Hewlett Packard | 10545      | 01/23/2026         | Annual               |
| DC Power Supply                              | E3632A    | Agilent         | MY50360067 | 02/11/2026         | Annual               |
| Attenuator(10 dB)(DC-26.5 GHz)               | 8493C-010 | Agilent         | 08285      | 05/28/2025         | Annual               |
| Attenuator(20 dB)                            | 18N-20dB  | Rohde & Schwarz | 8          | 02/18/2026         | Annual               |
| Software                                     | EMC32     | Rohde & Schwarz | N/A        | N/A                | N/A                  |
| FCC WLAN&BT&BLE Conducted Test Software v3.0 | N/A       | HCT CO., LTD.   | N/A        | N/A                | N/A                  |
| Bluetooth Tester                             | CBT       | Rohde & Schwarz | 100808     | 02/27/2026         | Annual               |

### Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

### Radiated Test

| Equipment                                 | Model                                       | Manufacturer              | Serial No.                  | Due to Calibration | Calibration Interval |
|-------------------------------------------|---------------------------------------------|---------------------------|-----------------------------|--------------------|----------------------|
| Controller<br>(Antenna mast & Turn Table) | CO3000                                      | Innco system              | CO3000/<br>15421/57580623/G | N/A                | N/A                  |
| Antenna Position Tower                    | MA4640                                      | Innco system              | 9320422                     | 04/03/2026         | Biennial             |
| Turn Table                                | N/A                                         | Innco system              | 5930623                     | N/A                | N/A                  |
| Loop Antenna                              | FMZB 1513                                   | Schwarzbeck               | 1513-175                    | 01/06/2027         | Biennial             |
| Hybrid Antenna                            | VULB 9168                                   | Schwarzbeck               | 9168-1135                   | 08/19/2026         | Biennial             |
| Horn Antenna                              | BBHA 9120D                                  | Schwarzbeck               | 9120D-1151                  | 07/14/2025         | Biennial             |
| Horn Antenna<br>(15 GHz ~ 40 GHz)         | BBHA9170                                    | Schwarzbeck               | BBHA9170124                 | 03/23/2027         | Biennial             |
| Amp & Filter Bank Switch<br>Controller    | FBSM-01B                                    | T&M system                | TM2009001                   | N/A                | N/A                  |
| Band Reject Filter                        | WRCJV2400/2483.5-<br>2370/2520-60/12SS      | Wainwright<br>Instruments | 2                           | 12/26/2025         | Annual               |
| Band Reject Filter                        | WRCJV12-4900-5100-5900-<br>6100-50SS        | Wainwright<br>Instruments | 5                           | 06/04/2025         | Annual               |
| Band Reject Filter                        | WRCJV12-4900-5100-5900-<br>6100-50SS        | Wainwright<br>Instruments | 6                           | 06/04/2025         | Annual               |
| Band Reject Filter                        | WRCJV5100/5850-40/50-<br>8EEK               | Wainwright<br>Instruments | 1                           | 01/09/2026         | Annual               |
| RF Switching System                       | FMSR-05B (HPF(3~18GHz)<br>+ LNA1(1~18GHz))  | T&M system                | S5L1                        | 03/11/2026         | Annual               |
| RF Switching System                       | FMSR -05B (ATT(10dB) +<br>LNA1(1~18GHz))    | T&M system                | S5L2                        | 03/11/2026         | Annual               |
| RF Switching System                       | FMSR -05B (ATT(3dB) +<br>LNA1(1~18GHz))     | T&M system                | S5L3                        | 03/11/2026         | Annual               |
| RF Switching System                       | FMSR -05B<br>(LNA1(1~18GHz))                | T&M system                | S5L4                        | 03/11/2026         | Annual               |
| RF Switching System                       | FMSR -05B (HPF(7~18GHz)<br>+ LNA2(6~18GHz)) | T&M system                | S5L5                        | 03/11/2026         | Annual               |
| RF Switching System                       | FMSR -05B (Thru(30MHz ~<br>18GHz))          | T&M system                | S5L6                        | 03/11/2026         | Annual               |
| Power Amplifier                           | CBL18265035                                 | CERNEX                    | 22966                       | 11/07/2025         | Annual               |
| Power Amplifier                           | CBL26405040                                 | CERNEX                    | 25956                       | 02/19/2026         | Annual               |
| Bluetooth Tester                          | TC-3000C                                    | TESCOM                    | 3000C000175                 | 03/12/2026         | Annual               |
| Spectrum Analyzer                         | FSV40<br>(9 kHz ~ 40 GHz)                   | Rohde & Schwarz           | 101510                      | 09/24/2025         | Annual               |

#### Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

## 12. ANNEX A\_ TEST SETUP PHOTO

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

| No. | Description         |
|-----|---------------------|
| 1   | HCT-RF-2505-FC112-P |