

**CFR 47 FCC PART 15 SUBPART C  
ISED RSS-247 ISSUE 3**

**CERTIFICATION TEST REPORT**

*For*

**CC1312PSIP SimpleLink™ Sub-1-GHz Wireless System-in-Package**

**MODEL NUMBER: CC1312PSIPMOT2**

**FCC ID: 2AB2Q-1312PSIP**

**IC: 10256A-1312PSIP**

**HVIN: P-SP-A5-01B-A, P-SP-A6-01-A, P-SP-A7-01-A, P-SD-A12-01-A, P-SWC-A5-01-A**

**REPORT NUMBER: 4791354481-1**

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*Prepared for*

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Revision History

| Rev. | Issue Date     | Revisions     | Revised By |
|------|----------------|---------------|------------|
| V0   | April 17, 2025 | Initial Issue |            |

Note: This report is based on FR341305-01C which is issued by Sporton International Inc. Wensan Laboratory. The EUT had already applied for the FCC ID & IC ID, the customer updates the antenna designed. The RF technical construction including circuit diagram, PCB Layout, components, component layout and performance does not change except for the antenna designed. All the data have been tested in this report.

| Summary of Test Results                                                                                                                                                                                                                                                                                                                          |                                           |                                                                                                               |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------|
| Clause                                                                                                                                                                                                                                                                                                                                           | Test Items                                | FCC/ISED Rules                                                                                                | Test Results |
| 1                                                                                                                                                                                                                                                                                                                                                | 20dB Bandwidth and 99% Occupied Bandwidth | FCC 15.247 (a)(1) (i)<br>RSS-247 Clause 5.1 (c)<br>RSS-Gen Clause 6.7                                         | Pass         |
| 2                                                                                                                                                                                                                                                                                                                                                | Conducted Output Power                    | FCC 15.247 (b) (2)<br>RSS-247 Clause 5.4 (a)                                                                  | Pass         |
| 3                                                                                                                                                                                                                                                                                                                                                | Carrier Hopping Channel Separation        | FCC 15.247 (a) (1)<br>RSS-247 Clause 5.1 (c)                                                                  | Pass         |
| 4                                                                                                                                                                                                                                                                                                                                                | Number of Hopping Frequency               | 15.247 (a) (i)<br>RSS-247 Clause 5.1 (c)                                                                      | Pass         |
| 5                                                                                                                                                                                                                                                                                                                                                | Time of Occupancy (Dwell Time)            | 15.247 (a) (i)<br>RSS-247 Clause 5.1 (c)                                                                      | Pass         |
| 6                                                                                                                                                                                                                                                                                                                                                | Conducted Bandedge                        | FCC 15.247 (d)<br>RSS-247 Clause 5.5                                                                          | Pass         |
| 7                                                                                                                                                                                                                                                                                                                                                | Radiated Bandedge and Spurious            | FCC 15.247 (d)<br>FCC 15.209<br>FCC 15.205<br>RSS-247 Clause 5.5<br>RSS-GEN Clause 8.9<br>RSS-GEN Clause 8.10 | Pass         |
| 8                                                                                                                                                                                                                                                                                                                                                | Conducted Emission Test for AC Power Port | FCC Part 15.207<br>RSS-GEN Clause 8.8                                                                         | Pass         |
| 9                                                                                                                                                                                                                                                                                                                                                | Antenna Requirement                       | FCC 15.203<br>RSS-GEN Clause 6.8                                                                              | Pass         |
| <p>Note:</p> <p>1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China.</p> <p>2. The measurement result for the sample received is &lt;Pass&gt; according to &lt; CFR 47 FCC PART 15 SUBPART C &gt;&lt; ISED RSS-247 &gt; when &lt;Simple Acceptance&gt; decision rule is applied.</p> |                                           |                                                                                                               |              |

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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: LEEDARSON LIGHTING CO., LTD.  
Address: Xingda Road, Xingtai Industrial Zone, Changtai County,  
Zhangzhou, Fujian, China

### Manufacturer Information

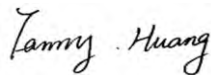
Company Name: LEEDARSON LIGHTING CO., LTD.  
Address: Xingda Road, Xingtai Industrial Zone, Changtai County,  
Zhangzhou, Fujian, China

### EUT Information

EUT Name: CC1312PSIP SimpleLink™ Sub-1-GHz Wireless System-in-Package  
Model: CC1312PSIPMOT2  
HVIN: P-SP-A5-01B-A, P-SP-A6-01-A, P-SP-A7-01-A, P-SD-A12-01-A, P-SWC-A5-01-A  
Sample Received Date: June 6, 2024  
Sample Status: Normal  
Sample ID: 7291060  
Date of Tested: June 6, 2024~ April 17, 2025

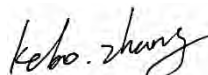
| APPLICABLE STANDARDS         |              |
|------------------------------|--------------|
| STANDARD                     | TEST RESULTS |
| CFR 47 FCC PART 15 SUBPART C | PASS         |
| ISED RSS-247 Issue 3         | PASS         |
| ISED RSS-GEN Issue 5         | PASS         |

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 3 and ISED RSS-GEN Issue 5.

## 3. FACILITIES AND ACCREDITATION

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accreditation Certificate | <p><b>A2LA (Certificate No.: 4102.01)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.</p> <p><b>ISED (Company No.: 21320)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Note 1: All tests measurement facilities use to collect the measurement data are located at Room 101, Building 2, Zhihui City Phase I, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China.

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

### 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| Test Item                                                                                                                                     | Uncertainty               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Conduction emission                                                                                                                           | 3.62 dB                   |
| Radiated Emission<br>(Included Fundamental Emission) (9 kHz ~ 30 MHz)                                                                         | 2.2 dB                    |
| Radiated Emission<br>(Included Fundamental Emission) (30 MHz ~ 1 GHz)                                                                         | 4.00 dB                   |
| Radiated Emission<br>(Included Fundamental Emission) (1 GHz to 26 GHz)                                                                        | 5.78 dB (1 GHz ~ 18 GHz)  |
|                                                                                                                                               | 5.23 dB (18 GHz ~ 26 GHz) |
| Duty Cycle                                                                                                                                    | ±0.028%                   |
| 20dB Emission Bandwidth and 99% Occupied Bandwidth                                                                                            | ±0.0196%                  |
| Carrier Frequency Separation                                                                                                                  | ±1.9%                     |
| Maximum Conducted Output Power                                                                                                                | ±0.743 dB                 |
| Number of Hopping Channel                                                                                                                     | ±1.9%                     |
| Time of Occupancy                                                                                                                             | ±0.028%                   |
| Conducted Band-edge Compliance                                                                                                                | ±1.328 dB                 |
| Conducted Unwanted Emissions In Non-restricted<br>Frequency Bands                                                                             | ±0.746 dB (9 kHz ~ 1 GHz) |
|                                                                                                                                               | ±1.328dB (1 GHz ~ 26 GHz) |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. |                           |

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

|                       |                                                                         |
|-----------------------|-------------------------------------------------------------------------|
| EUT Name              | CC1312PSIP SimpleLink™ Sub-1-GHz Wireless System-in-Package             |
| Model                 | CC1312PSIPMOT2                                                          |
| HVIN:                 | P-SP-A5-01B-A, P-SP-A6-01-A, P-SP-A7-01-A, P-SD-A12-01-A, P-SWC-A5-01-A |
| Frequency Range:      | 912.75 MHz to 919.12 MHz                                                |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS)                                 |
| Type of Modulation:   | GFSK                                                                    |
| Data Rates:           | 50 kbps                                                                 |
| Normal Test Voltage:  | DC 3.3 V                                                                |

### 5.2. MAXIMUM PEAK OUTPUT POWER

| Test Mode | Bit Rate | Operation Frequency      | Condition | Maximum Conducted PEAK Output Power (dBm) |
|-----------|----------|--------------------------|-----------|-------------------------------------------|
| GFSK      | 50 kbps  | 912.75 MHz to 919.12 MHz | 1         | 18.95                                     |
|           |          |                          | 2         | 18.97                                     |
|           |          |                          | 3         | 18.96                                     |
|           |          |                          | 4         | 18.59                                     |
|           |          |                          | 5         | 18.27                                     |

### 5.3. CHANNEL LIST

| Channel List |                 |         |                 |         |                 |         |                 |         |                 |
|--------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel      | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 1            | 912.75          | 11      | 914.05          | 21      | 915.35          | 31      | 916.65          | 41      | 917.95          |
| 2            | 912.88          | 12      | 914.18          | 22      | 915.48          | 32      | 916.78          | 42      | 918.08          |
| 3            | 913.01          | 13      | 914.31          | 23      | 915.61          | 33      | 916.91          | 43      | 918.21          |
| 4            | 913.14          | 14      | 914.44          | 24      | 915.74          | 34      | 917.04          | 44      | 918.34          |
| 5            | 913.27          | 15      | 914.57          | 25      | 915.87          | 35      | 917.17          | 45      | 918.47          |
| 6            | 913.4           | 16      | 914.7           | 26      | 916             | 36      | 917.3           | 46      | 918.6           |
| 7            | 913.53          | 17      | 914.83          | 27      | 916.13          | 37      | 917.43          | 47      | 918.73          |
| 8            | 913.66          | 18      | 914.96          | 28      | 916.26          | 38      | 917.56          | 48      | 918.86          |
| 9            | 913.79          | 19      | 915.09          | 29      | 916.39          | 39      | 917.69          | 49      | 918.99          |
| 10           | 913.92          | 20      | 915.22          | 30      | 916.52          | 40      | 917.82          | 50      | 919.12          |

### 5.4. TEST CHANNEL CONFIGURATION

| Test Mode | Test Channel                                                    | Frequency                                |
|-----------|-----------------------------------------------------------------|------------------------------------------|
| GFSK      | CH 1(Low Channel),<br>CH 25(MID Channel),<br>CH50(High Channel) | 912.75 MHz,<br>915.87 MHz,<br>919.12 MHz |

### 5.5. THE WORSE CASE POWER SETTING PARAMETER

| The Worse Case Power Setting Parameter under 902 ~ 928MHz Band |                         |                  |     |     |
|----------------------------------------------------------------|-------------------------|------------------|-----|-----|
| Test Software                                                  |                         | SmartRF Studio 7 |     |     |
| Modulation Mode                                                | Transmit Antenna Number | Test Channel     |     |     |
|                                                                |                         | LCH              | MCH | HCH |
| GFSK Condition 1                                               | 1                       | 20               | 20  | 20  |
| GFSK Condition 2                                               | 1                       | 20               | 20  | 20  |
| GFSK Condition 3                                               | 1                       | 20               | 20  | 20  |
| GFSK Condition 4                                               | 1                       | 19               | 19  | 19  |
| GFSK Condition 5                                               | 1                       | 19               | 19  | 19  |

## 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

### Condition 1

| Antenna | Frequency Band (MHz) | Model Name           | Antenna Type    | MAX Antenna Gain (dBi) |
|---------|----------------------|----------------------|-----------------|------------------------|
| 1       | 912-920              | Outdoor Plug Antenna | PCB IFA antenna | -0.91                  |

### Condition 2

| Antenna | Frequency Band (MHz) | Model Name          | Antenna Type      | MAX Antenna Gain (dBi) |
|---------|----------------------|---------------------|-------------------|------------------------|
| 1       | 912-920              | Indoor Plug Antenna | Metal IFA Antenna | -4.08                  |

### Condition 3

| Antenna | Frequency Band (MHz) | Model Name     | Antenna Type           | MAX Antenna Gain (dBi) |
|---------|----------------------|----------------|------------------------|------------------------|
| 1       | 912-920              | Socket Antenna | Metal Monopole antenna | -4.09                  |

### Condition 4

| Antenna | Frequency Band (MHz) | Model Name          | Antenna Type    | MAX Antenna Gain (dBi) |
|---------|----------------------|---------------------|-----------------|------------------------|
| 1       | 912-920              | 3way Dimmer Antenna | PCB IFA antenna | -2.48                  |

### Condition 5

| Antenna | Frequency Band (MHz) | Model Name          | Antenna Type           | MAX Antenna Gain (dBi) |
|---------|----------------------|---------------------|------------------------|------------------------|
| 1       | 912-920              | 3way Switch Antenna | Metal Monopole antenna | -0.73                  |

| Modulation       | Transmit and Receive Mode                    | Description                                              |
|------------------|----------------------------------------------|----------------------------------------------------------|
| GFSK Condition 1 | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |
| GFSK Condition 2 | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |
| GFSK Condition 3 | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |
| GFSK Condition 4 | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |
| GFSK Condition 5 | <input checked="" type="checkbox"/> 1TX, 1RX | Antenna 1 can be used as transmitting/receiving antenna. |

Note: The value of the antenna gain was declared by customer.

## 5.7. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Item | Equipment  | Brand Name | Model Name  | Remark                                                                      |
|------|------------|------------|-------------|-----------------------------------------------------------------------------|
| 1    | PC         | Lenovo     | E42-80      | /                                                                           |
| 2    | AC Adaptor | Lenovo     | ADLX65YCC3D | Input: AC 100-240V,<br>1.8A, 50-60Hz<br>Output: DC 20V,<br>3.25A, 65.0W Max |

### I/O CABLES

| Cable No | Port | Connector Type | Cable Type | Cable Length(m) | Remarks |
|----------|------|----------------|------------|-----------------|---------|
| 1        | USB  | /              | /          | 1.0             | /       |

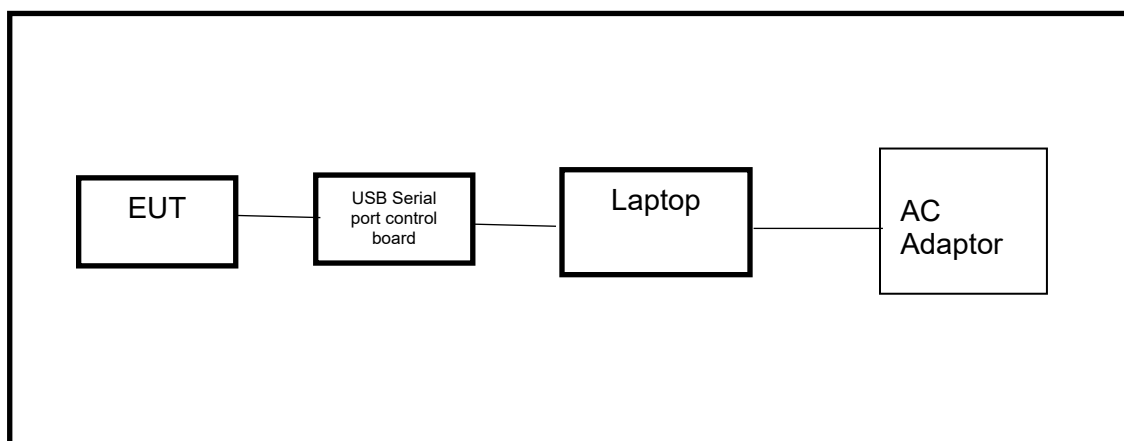
### ACCESSORIES

| Item | Accessory | Brand Name | Model Name | Description |
|------|-----------|------------|------------|-------------|
| /    | /         | /          | /          | /           |

### TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

### SETUP DIAGRAM FOR TESTS



Note: AC Adaptor only use for AC POWER LINE CONDUCTED EMISSION test.

## 6. MEASURING INSTRUMENT AND SOFTWARE USED

| R&S TS 8997 Test System     |                 |                         |             |                 |              |              |
|-----------------------------|-----------------|-------------------------|-------------|-----------------|--------------|--------------|
| Equipment                   | Manufacturer    | Model No.               | Serial No.  | Upper Last Cal. | Last Cal.    | Due. Date    |
| Power sensor, Power Meter   | R&S             | OSP120                  | 100921      | Mar.25,2024     | Dec.27,2024  | Dec.26,2025  |
| Vector Signal Generator     | R&S             | SMBV100A                | 261637      | Oct.12, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Signal Generator            | R&S             | SMB100A                 | 178553      | Oct.12, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Signal Analyzer             | R&S             | FSV40                   | 101118      | Oct.12, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Software                    |                 |                         |             |                 |              |              |
| Description                 | Manufacturer    |                         | Name        | Version         |              |              |
| For R&S TS 8997 Test System | Rohde & Schwarz |                         | EMC 32      | 10.60.10        |              |              |
| Tonsend RF Test System      |                 |                         |             |                 |              |              |
| Equipment                   | Manufacturer    | Model No.               | Serial No.  | Upper Last Cal. | Last Cal.    | Due. Date    |
| PXA Signal Analyzer         | Keysight        | N9030A                  | MY55410512  | Oct.12, 2023    | Sep.13, 2024 | Sep.12, 2025 |
| MXG Vector Signal Generator | Keysight        | N5182B                  | MY56200284  | Oct.12, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| MXG Vector Signal Generator | Keysight        | N5172B                  | MY56200301  | Oct.12, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Attenuator                  | Aglient         | 8495B                   | 2814a12853  | Oct.12, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| RF Control Unit             | Tonscend        | JS0806-2                | 23B80620666 | Mar.25,2024     | Sep.28, 2024 | Sep.27, 2025 |
| Software                    |                 |                         |             |                 |              |              |
| Description                 | Manufacturer    | Name                    |             |                 | Version      |              |
| Tonsend SRD Test System     | Tonsend         | JS1120-3 RF Test System |             |                 | V3.3.10      |              |

| Conducted Emissions                   |              |              |            |                 |              |              |
|---------------------------------------|--------------|--------------|------------|-----------------|--------------|--------------|
| Equipment                             | Manufacturer | Model No.    | Serial No. | Upper Last Cal. | Last Cal.    | Due Date     |
| EMI Test Receiver                     | R&S          | ESR3         | 101961     | Oct.13, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Two-Line V-Network                    | R&S          | ENV216       | 101983     | Oct.13, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Artificial Mains Networks             | Schwarzbeck  | NSLK 8126    | 8126465    | Oct.13, 2023    | Sep.28, 2024 | Sep.27, 2025 |
| Software                              |              |              |            |                 |              |              |
| Description                           |              | Manufacturer | Name       | Version         |              |              |
| Test Software for Conducted Emissions |              | Farad        | EZ-EMC     | Ver. UL-3A1     |              |              |

| Radiated Emissions                   |              |                         |               |                 |               |               |
|--------------------------------------|--------------|-------------------------|---------------|-----------------|---------------|---------------|
| Equipment                            | Manufacturer | Model No.               | Serial No.    | Upper Last Cal. | Last Cal.     | Due Date      |
| MXE EMI Receiver                     | KESIGHT      | N9038A                  | MY56400036    | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Hybrid Log Periodic Antenna          | TDK          | HLP-3003C               | 130959        | Aug.02, 2021    | June 28, 2024 | June.27, 2027 |
| Preamplifier                         | HP           | 8447D                   | 2944A09099    | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| EMI Measurement Receiver             | R&S          | ESR26                   | 101377        | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Horn Antenna                         | TDK          | HRN-0118                | 130939        | /               | Apr.29, 2022  | Apr.28, 2025  |
| Preamplifier                         | TDK          | PA-02-0118              | TRS-305-00067 | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Horn Antenna                         | Schwarzbeck  | BBHA9170                | 697           | July 20, 2021   | Jun 30, 2024  | Jun 29, 2027  |
| Preamplifier                         | TDK          | PA-02-2                 | TRS-307-00003 | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Preamplifier                         | TDK          | PA-02-3                 | TRS-308-00002 | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Loop antenna                         | Schwarzbeck  | 1519B                   | 00008         | Dec.14, 2021    | Dec. 09, 2024 | Dec.08, 2027  |
| Preamplifier                         | TDK          | PA-02-001-3000          | TRS-302-00050 | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Notch Filter                         | Wainwright   | WHJ10-882-980-7000-40SS | 23            | Oct.12, 2023    | Sep.28, 2024  | Sep.27, 2025  |
| Software                             |              |                         |               |                 |               |               |
| Description                          |              | Manufacturer            | Name          | Version         |               |               |
| Test Software for Radiated Emissions |              | Farad                   | EZ-EMC        | Ver. UL-3A1     |               |               |

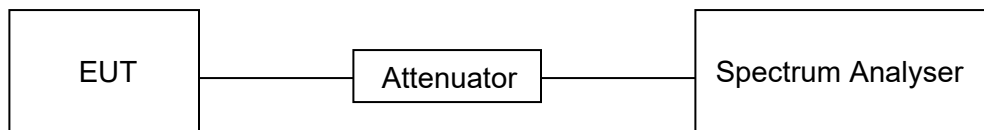
## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

#### TEST SETUP



#### TEST ENVIRONMENT

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

#### PROCEDURE

Refer to ANSI C63.10-2013 Zero – Span Spectrum Analyzer method.

#### RESULTS

Please refer to appendix A1-A5.

## 7.2. 20 dB BANDWIDTH AND 99 % OCCUPIED BANDWIDTH

### LIMITS

| CFR 47FCC Part15 (15.247) Subpart C<br>ISED RSS-247 ISSUE 3 |                         |                                    |                       |
|-------------------------------------------------------------|-------------------------|------------------------------------|-----------------------|
| Section                                                     | Test Item               | Limit                              | Frequency Range (MHz) |
| CFR 47 FCC 15.247 (a)(1) (i)<br>RSS-247 Clause 5.1 (a)      | 20 dB Bandwidth         | 500 kHz                            | 902 - 928             |
| ISED RSS-Gen Clause 6.7                                     | 99 % Occupied Bandwidth | None; for reporting purposes only. | 902 - 928             |

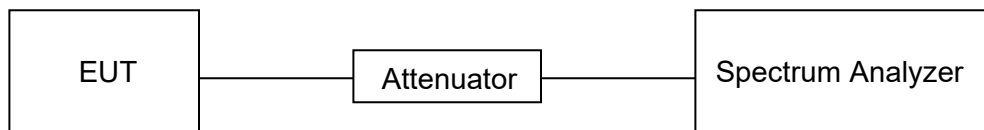
### TEST PROCEDURE

Connect the EUT to the spectrum analyser and use the following settings:

|                  |                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test                                                                              |
| Detector         | Peak                                                                                                                        |
| RBW              | For 20 dB Bandwidth: 1 % to 5 % of the 20 dB bandwidth<br>For 99 % Occupied Bandwidth: 1 % to 5 % of the occupied bandwidth |
| VBW              | For 20 dB Bandwidth: approximately 3×RBW<br>For 99 % Occupied Bandwidth: $\geq 3 \times \text{RBW}$                         |
| Span             | Approximately 2 to 3 times the 20dB bandwidth                                                                               |
| Trace            | Max hold                                                                                                                    |
| Sweep            | Auto couple                                                                                                                 |

a) Use the occupied bandwidth function of the instrument, allow the trace to stabilize and report the measured 99 % occupied bandwidth and 20 dB Bandwidth.

### TEST SETUP



**TEST ENVIRONMENT**

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

**RESULTS**

Please refer to appendix B1-B5.

### 7.3. CONDUCTED OUTPUT POWER

#### LIMITS

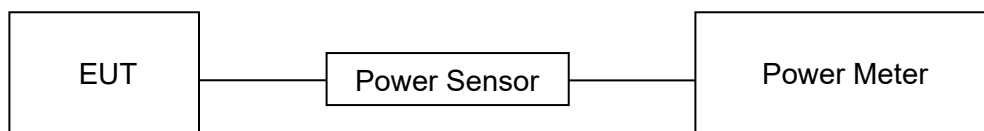
| CFR 47 FCC Part15 (15.247), Subpart C<br>ISED RSS-247 ISSUE 3  |                                |                                                              |                       |
|----------------------------------------------------------------|--------------------------------|--------------------------------------------------------------|-----------------------|
| Section                                                        | Test Item                      | Limit                                                        | Frequency Range (MHz) |
| CFR 47 FCC<br>15.247 (b) (2)<br>ISED RSS-247<br>Clause 5.4 (a) | Peak Conducted<br>Output Power | 1 watt for systems employing at least<br>50 hopping channels | 902 - 928             |

#### TEST PROCEDURE

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).

Measure peak emission level, the indicated level is the peak output power, after any corrections for external attenuators and cables.

#### TEST SETUP



#### TEST ENVIRONMENT

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

#### RESULTS

Please refer to appendix C1-C5.

Note: Reported average power is for information only.

## 7.4. CARRIER FREQUENCY SEPARATION

### LIMITS

| CFR 47 FCC Part15 (15.247),<br>Subpart C ISSED RSS-247 ISSUE 3  |                                    |                                                                                              |                       |
|-----------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------|-----------------------|
| Section                                                         | Test Item                          | Limit                                                                                        | Frequency Range (MHz) |
| CFR 47 FCC<br>15.247 (a) (1)<br>ISSED RSS-247<br>Clause 5.1 (b) | Carrier<br>Frequency<br>Separation | Minimum of 25 kHz or the 20 dB bandwidth<br>of the hopping channel, whichever is<br>greater. | 902 - 928             |

### TEST PROCEDURE

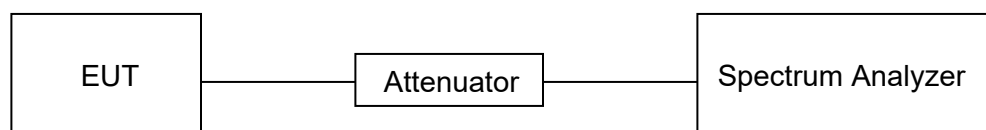
Connect the EUT to the spectrum analyzer and use the following settings:

|                  |                                                                                                                                                     |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test                                                                                                      |
| Span             | wide enough to capture the peaks of two adjacent channels                                                                                           |
| Detector         | Peak                                                                                                                                                |
| RBW              | Start with the RBW set to approximately 30 % of the channel spacing;<br>adjust as necessary to best identify the center of each individual channel. |
| VBW              | ≥RBW                                                                                                                                                |
| Trace            | Max hold                                                                                                                                            |
| Sweep time       | Auto couple                                                                                                                                         |

Allow the trace to stabilize and 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.

### TEST SETUP



**TEST ENVIRONMENT**

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

**RESULTS**

Please refer to Appendix D1-D5.

## 7.5. NUMBER OF HOPPING FREQUENCIES

### LIMITS

| CFR 47 FCC Part15 (15.247), Subpart C<br>ISED RSS-247 ISSUE 3 |                             |                                                                                                                                                                                                             |
|---------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section                                                       | Test Item                   | Limit                                                                                                                                                                                                       |
| CFR 47 15.247 (a) (i)<br>ISED RSS-247 Clause 5.1 (c)          | Number of Hopping Frequency | 1. if the 20 dB bandwidth of the hopping channel is less than 250 kHz, at least 50 hopping channels<br>2. if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, at least 25 hopping channels |

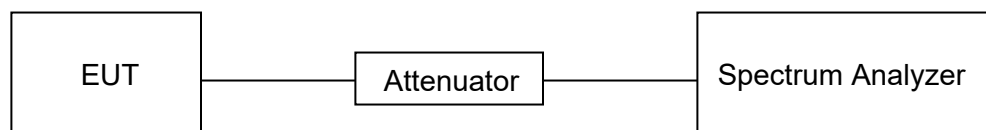
### TEST PROCEDURE

Connect the EUT to the spectrum Analyzer and use the following settings:

|            |                                                                                                                                                                                                                                      |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Detector   | Peak                                                                                                                                                                                                                                 |
| 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.                                                                                       |
| VBW        | ≥RBW                                                                                                                                                                                                                                 |
| Span       | The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen. |
| Trace      | Max hold                                                                                                                                                                                                                             |
| Sweep time | Auto couple                                                                                                                                                                                                                          |

Set EUT to transmit maximum output power and switch on frequency hopping function. then set enough count time (larger than 5000 times) to get all the hopping frequency channel displayed on the screen of spectrum analyzer, count the quantity of peaks to get the number of hopping channels.

### TEST SETUP



**TEST ENVIRONMENT**

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

**RESULTS**

Please refer to appendix E1-E5.

## 7.6. TIME OF OCCUPANCY (DWELL TIME)

### LIMITS

| CFR 47 FCC Part15 (15.247), Subpart C<br>ISED RSS-247 ISSUE 3 |                                   |                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section                                                       | Test Item                         | Limit                                                                                                                                                                                                                                                                                                                                                                            |
| CFR 47 15.247 (a) (i)<br>ISED RSS-247<br>Clause 5.1 (c)       | Time of Occupancy<br>(Dwell Time) | 1.If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.<br>2. if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. |

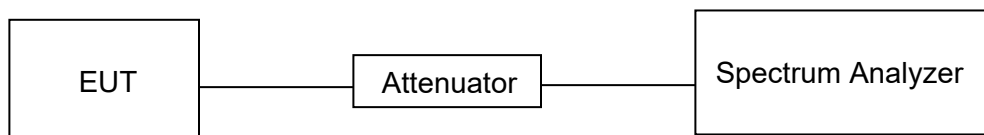
### TEST PROCEDURE

Connect the EUT to the spectrum Analyzer and use the following settings:

|                  |                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test                                                                                                                                                                                                                                                                                 |
| Detector         | Peak                                                                                                                                                                                                                                                                                                                           |
| RBW              | $\leq$ channel spacing and where possible RBW should be set $\gg 1 / T$ , where T is the expected dwell time per channel.                                                                                                                                                                                                      |
| VBW              | $\geq$ RBW                                                                                                                                                                                                                                                                                                                     |
| Span             | Zero span, centered on a hopping channel                                                                                                                                                                                                                                                                                       |
| Trace            | Max hold                                                                                                                                                                                                                                                                                                                       |
| Sweep time       | As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel |

- The transmitter output (antenna port) was connected to the spectrum analyzer
- Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.
- Measure the maximum time duration of one single pulse.  
A Period Time = (channel number)\*0.4

### TEST SETUP



**TEST ENVIRONMENT**

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

**RESULTS**

Please refer to appendix F1-F5.

## 7.7. CONDUCTED BANDEDGE AND SPURIOUS EMISSION

### LIMITS

| CFR 47 FCC Part15 (15.247), Subpart C<br>ISED RSS-247 ISSUE 3 |                                |                                                                                                                               |
|---------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Section                                                       | Test Item                      | Limit                                                                                                                         |
| CFR 47 FCC §15.247 (d)<br>ISED RSS-247 5.5                    | Conducted<br>Spurious Emission | at least 20 dB below that in the 100 kHz<br>bandwidth within the band that contains the<br>highest level of the desired power |

### TEST PROCEDURE

Connect the EUT to the spectrum analyser and use the following settings for reference level measurement:

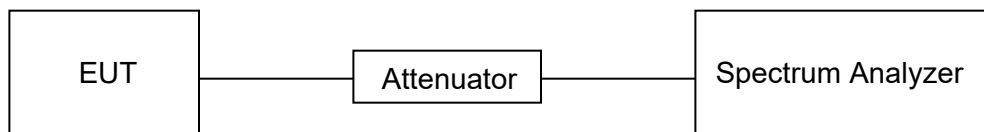
|                  |                                                |
|------------------|------------------------------------------------|
| Center Frequency | The center frequency of the channel under test |
| Detector         | Peak                                           |
| RBW              | 100 kHz                                        |
| VBW              | $\geq 3 \times \text{RBW}$                     |
| Span             | 1.5 x DTS bandwidth                            |
| Trace            | Max hold                                       |
| Sweep time       | Auto couple.                                   |

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level.

Change the settings for emission level measurement:

|                    |                                                                               |
|--------------------|-------------------------------------------------------------------------------|
| Span               | Set the center frequency and span to encompass frequency range to be measured |
| Detector           | Peak                                                                          |
| RBW                | 100 kHz                                                                       |
| VBW                | $\geq 3 \times \text{RBW}$                                                    |
| measurement points | $\geq \text{span}/\text{RBW}$                                                 |
| Trace              | Max hold                                                                      |
| Sweep time         | Auto couple.                                                                  |

Allow trace to fully stabilize and use the peak marker function to determine the maximum PSD level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements.

**TEST SETUP****TEST ENVIRONMENT**

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.9 °C | Relative Humidity | 61.7 %   |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

**RESULTS**

Please refer to appendix G1-G5.

## 8. RADIATED TEST RESULTS

### LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

Please refer to ISSED RSS-GEN Clause 8.9 and Clause 8.10.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz-1 GHz)

| Emissions radiated outside of the specified frequency bands above 30 MHz |                                    |                                      |         |
|--------------------------------------------------------------------------|------------------------------------|--------------------------------------|---------|
| Frequency Range (MHz)                                                    | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |         |
|                                                                          |                                    | Quasi-Peak                           |         |
| 30 - 88                                                                  | 100                                | 40                                   |         |
| 88 - 216                                                                 | 150                                | 43.5                                 |         |
| 216 - 960                                                                | 200                                | 46                                   |         |
| Above 960                                                                | 500                                | 54                                   |         |
| Above 1000                                                               | 500                                | Peak                                 | Average |
|                                                                          |                                    | 74                                   | 54      |

| FCC Emissions radiated outside of the specified frequency bands below 30 MHz |                                   |                               |
|------------------------------------------------------------------------------|-----------------------------------|-------------------------------|
| Frequency (MHz)                                                              | Field strength (microvolts/meter) | Measurement distance (meters) |
| 0.009-0.490                                                                  | 2400/F(kHz)                       | 300                           |
| 0.490-1.705                                                                  | 24000/F(kHz)                      | 30                            |
| 1.705-30.0                                                                   | 30                                | 30                            |

ISSED General field strength limits at frequencies below 30 MHz

| Table 6 – General field strength limits at frequencies below 30 MHz |                                          |                          |
|---------------------------------------------------------------------|------------------------------------------|--------------------------|
| Frequency                                                           | Magnetic field strength (H-Field) (uA/m) | Measurement distance (m) |
| 9 - 490 kHz <sup>Note 1</sup>                                       | 6.37/F (F in kHz)                        | 300                      |
| 490 - 1705 kHz                                                      | 63.7/F (F in kHz)                        | 30                       |
| 1.705 - 30 MHz                                                      | 0.08                                     | 30                       |

**Note 1:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

| MHz                 | MHz                   | GHz           |
|---------------------|-----------------------|---------------|
| 0.090 - 0.110       | 149.9 - 150.05        | 9.0 - 9.2     |
| 0.495 - 0.505       | 156.52475 - 156.52525 | 9.3 - 9.5     |
| 2.1735 - 2.1905     | 156.7 - 156.9         | 10.6 - 12.7   |
| 3.020 - 3.026       | 162.0125 - 167.17     | 13.25 - 13.4  |
| 4.125 - 4.128       | 167.72 - 173.2        | 14.47 - 14.5  |
| 4.17725 - 4.17775   | 240 - 285             | 15.35 - 16.2  |
| 4.20725 - 4.20775   | 322 - 335.4           | 17.7 - 21.4   |
| 5.677 - 5.683       | 399.9 - 410           | 22.01 - 23.12 |
| 6.215 - 6.218       | 608 - 614             | 23.6 - 24.0   |
| 6.26775 - 6.26825   | 960 - 1427            | 31.2 - 31.8   |
| 6.31175 - 6.31225   | 1435 - 1626.5         | 36.43 - 36.5  |
| 8.291 - 8.294       | 1645.5 - 1646.5       | Above 38.6    |
| 8.362 - 8.366       | 1660 - 1710           |               |
| 8.37625 - 8.38675   | 1718.8 - 1722.2       |               |
| 8.41425 - 8.41475   | 2200 - 2300           |               |
| 12.29 - 12.293      | 2310 - 2390           |               |
| 12.51975 - 12.52025 | 2483.5 - 2500         |               |
| 12.57675 - 12.57725 | 2655 - 2900           |               |
| 13.36 - 13.41       | 3260 - 3267           |               |
| 16.42 - 16.423      | 3332 - 3339           |               |
| 16.69475 - 16.69525 | 3345.8 - 3358         |               |
| 16.80425 - 16.80475 | 3500 - 4400           |               |
| 25.5 - 25.67        | 4500 - 5150           |               |
| 37.5 - 38.25        | 5350 - 5460           |               |
| 73 - 74.6           | 7250 - 7750           |               |
| 74.8 - 75.2         | 8025 - 8500           |               |
| 108 - 138           |                       |               |

**Note 1:** Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

FCC Restricted bands of operation refer to FCC §15.205 (a):

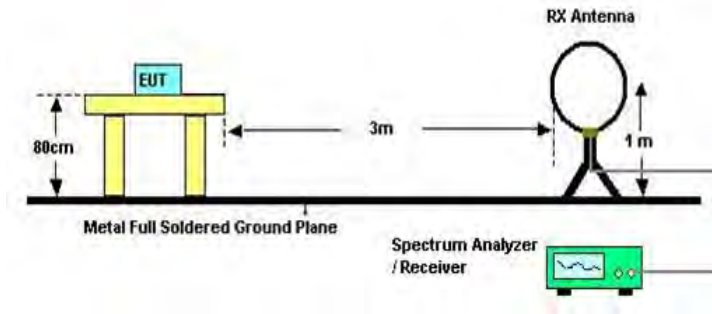
| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 0.495-0.505 | 16.69475-16.69525   | 608-614       | 5.35-5.46        |
| 2.1735-2.1905            | 16.80425-16.80475   | 960-1240      | 7.25-7.75        |
| 4.125-4.128              | 25.5-25.67          | 1300-1427     | 8.025-8.5        |
| 4.17725-4.17775          | 37.5-38.25          | 1435-1626.5   | 9.0-9.2          |
| 4.20725-4.20775          | 73-74.6             | 1645.5-1646.5 | 9.3-9.5          |
| 6.215-6.218              | 74.8-75.2           | 1660-1710     | 10.6-12.7        |
| 6.26775-6.26825          | 108-121.94          | 1718.8-1722.2 | 13.25-13.4       |
| 6.31175-6.31225          | 123-138             | 2200-2300     | 14.47-14.5       |
| 8.291-8.294              | 149.9-150.05        | 2310-2390     | 15.35-16.2       |
| 8.362-8.366              | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4        |
| 8.37625-8.38675          | 156.7-156.9         | 2690-2900     | 22.01-23.12      |
| 8.41425-8.41475          | 162.0125-167.17     | 3260-3267     | 23.6-24.0        |
| 12.29-12.293             | 167.72-173.2        | 3332-3339     | 31.2-31.8        |
| 12.51975-12.52025        | 240-285             | 3345.8-3358   | 36.43-36.5       |
| 12.57675-12.57725        | 322-335.4           | 3600-4400     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

Note: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6c

## TEST SETUP AND PROCEDURE

Below 30 MHz

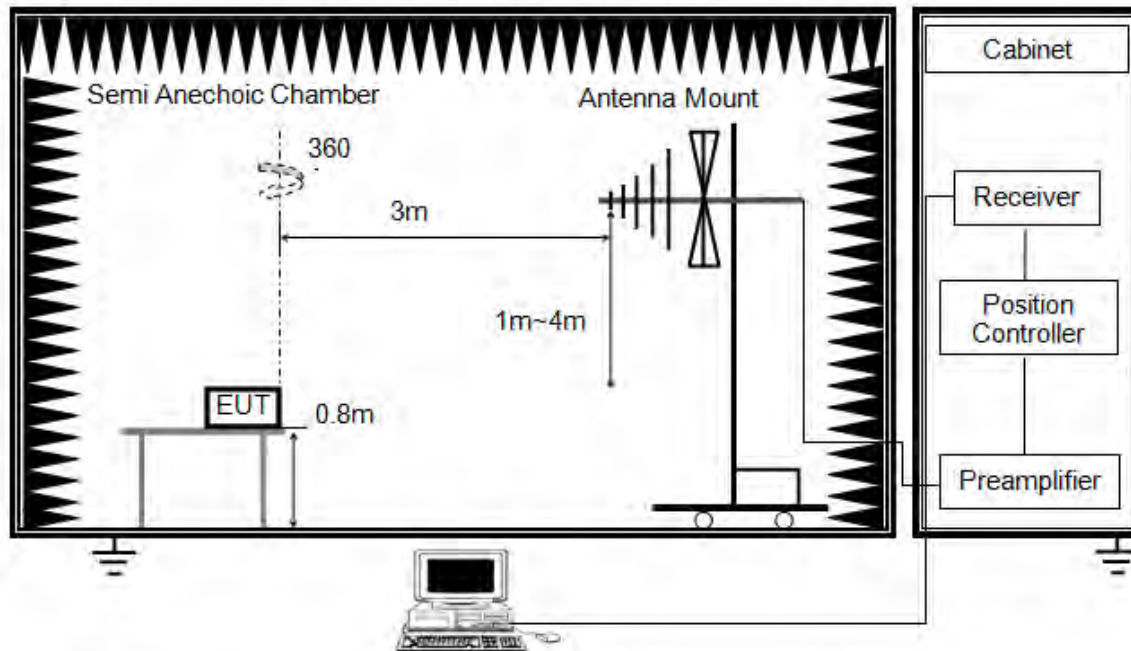


The setting of the spectrum analyzer

|       |                                                                  |
|-------|------------------------------------------------------------------|
| RBW   | 200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz) |
| VBW   | 200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz) |
| Sweep | Auto                                                             |
| Trace | Max hold                                                         |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of  $377\Omega$ . For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to  $Y-51.5 = Z$  dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

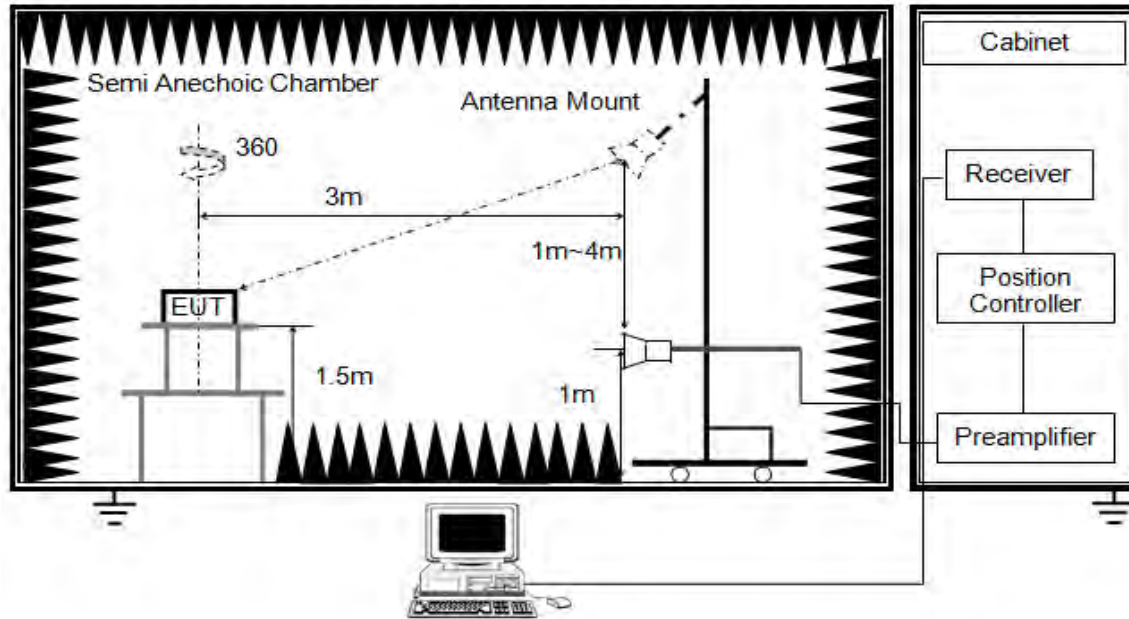


The setting of the spectrum analyser

|          |          |
|----------|----------|
| RBW      | 120 kHz  |
| VBW      | 300 kHz  |
| Sweep    | Auto     |
| Detector | Peak/QP  |
| Trace    | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

Above 1 GHz

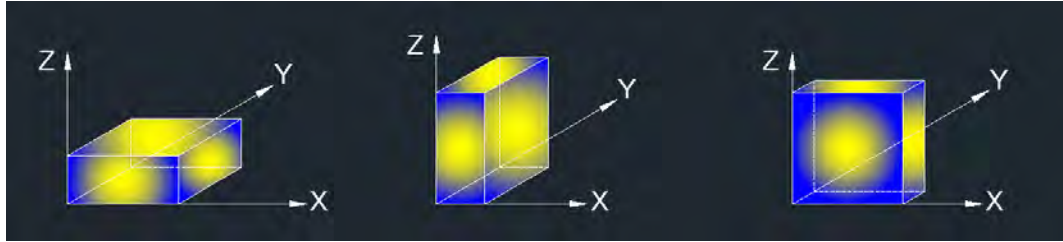


The setting of the spectrum analyser

|          |                                |
|----------|--------------------------------|
| RBW      | 1 MHz                          |
| VBW      | PEAK: 3 MHz<br>AVG: see note 6 |
| Sweep    | Auto                           |
| Detector | Peak                           |
| Trace    | Max hold                       |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

For Radiate Spurious emission (9 kHz ~ 30 MHz):

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. All modes have been tested, but only the worst data was recorded in the report.
5.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}[120\pi] = \text{dBuV/m} - 51.5$

For Radiate Spurious Emission (30 MHz ~ 1 GHz):

Note:

1. Result Level = Read Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
4. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious Emission (1 GHz ~ 10 GHz):

Note:

1. Peak Result = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4.  $\text{AVG: VBW} = 1/T_{\text{on}}$ , where:  $T_{\text{on}}$  is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.5.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. All modes have been tested, but only the worst data was recorded in the report.

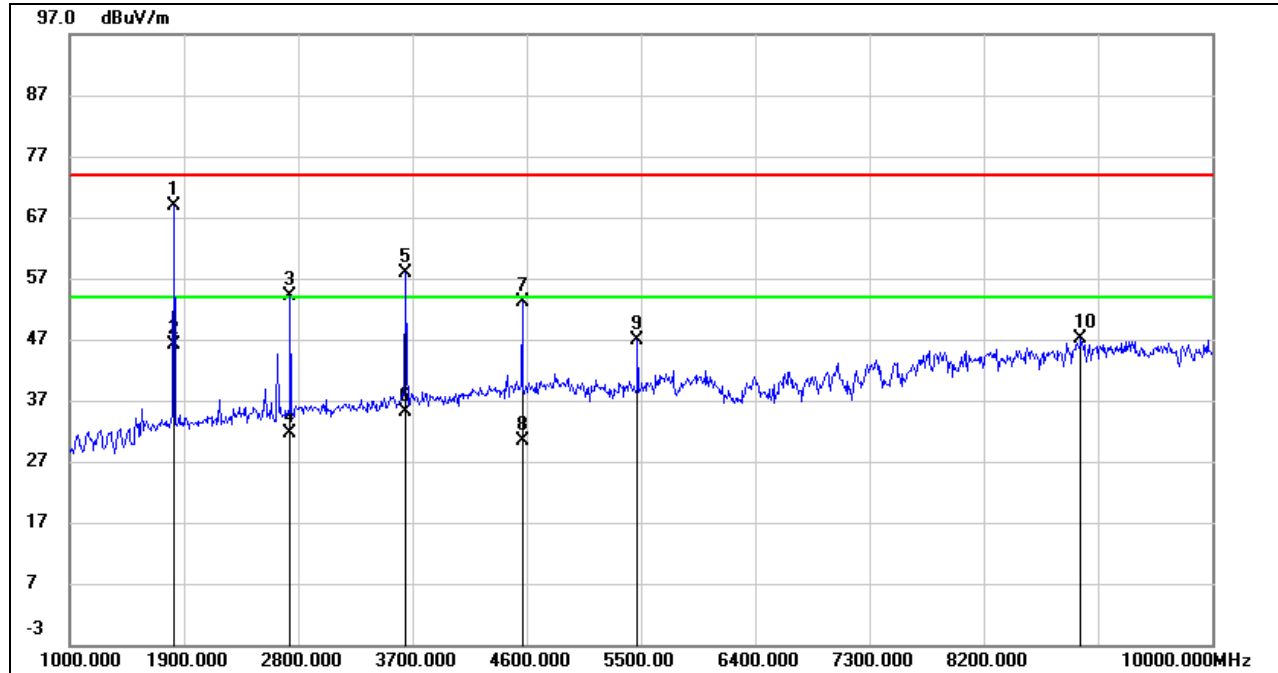
**TEST ENVIRONMENT**

|                     |         |                   |          |
|---------------------|---------|-------------------|----------|
| Temperature         | 24.2 °C | Relative Humidity | 55 %     |
| Atmosphere Pressure | 101 kPa | Test Voltage      | DC 3.3 V |

**RESULTS**

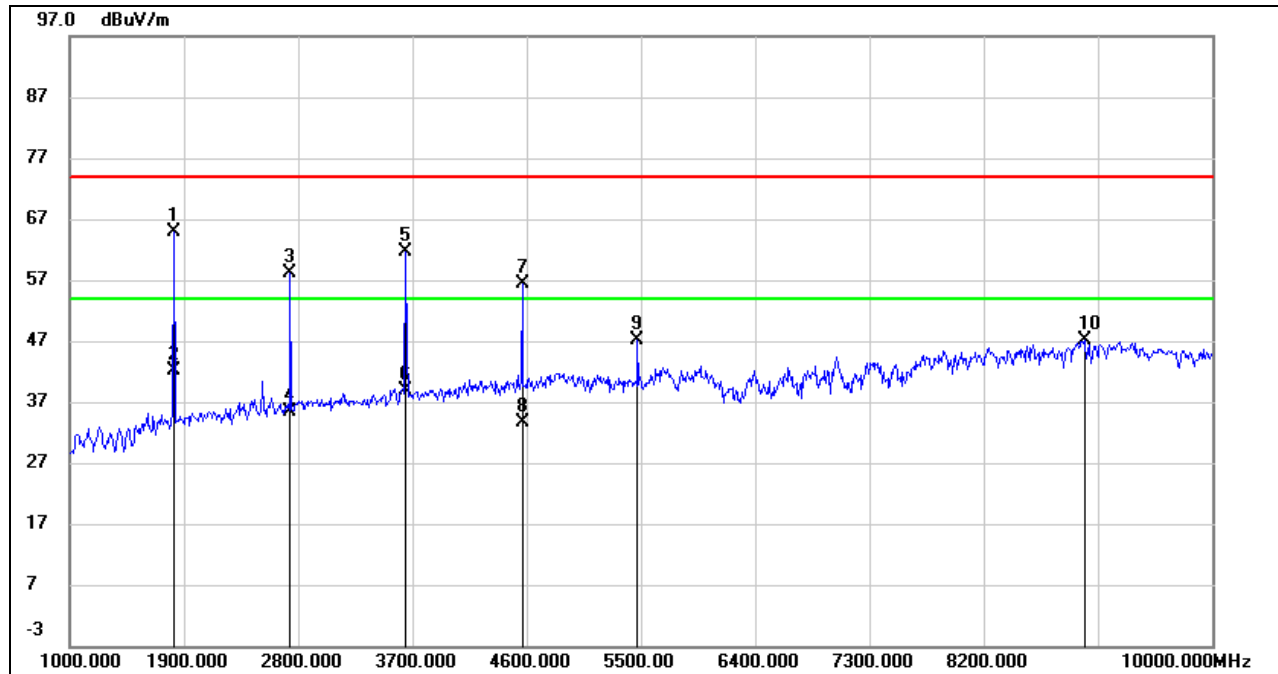
## 8.1. SPURIOUS EMISSIONS (1 GHz ~ 10 GHz)

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 912.75   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



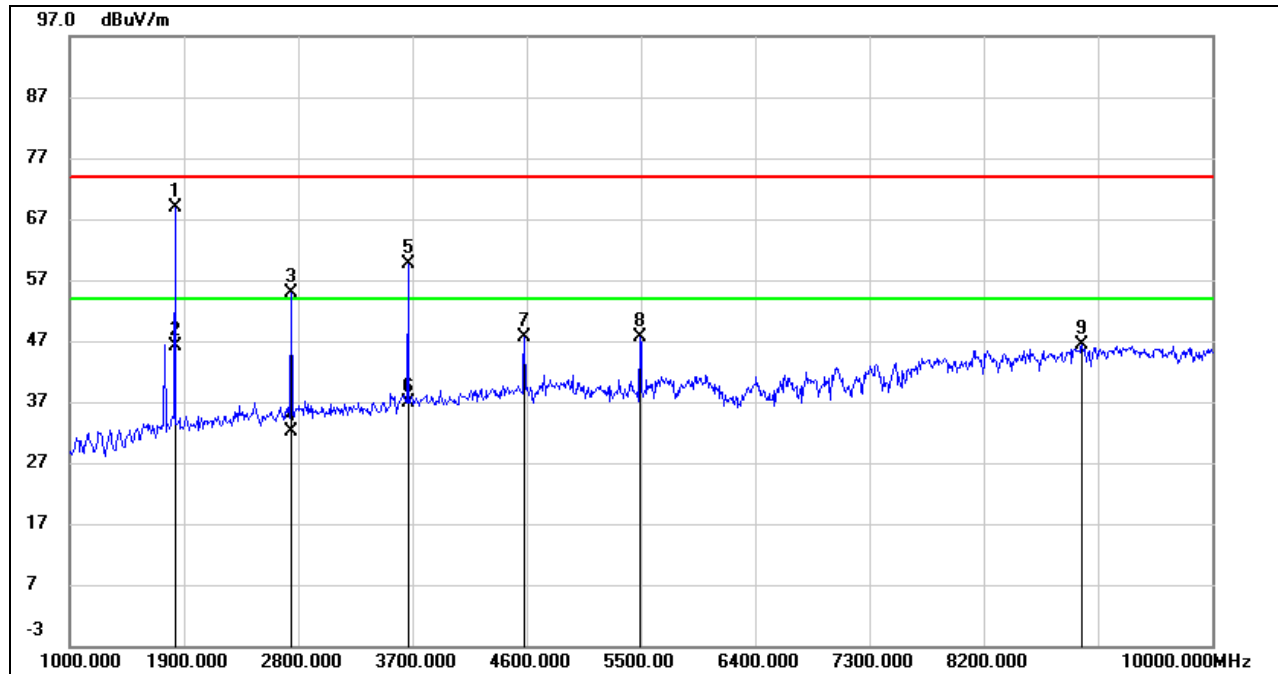
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 79.15          | -10.35         | 68.80           | 74.00          | -5.20       | peak   |
| 2   | 1819.000        | /              | /              | 46.13           | 54.00          | -7.87       | AVG    |
| 3   | 2737.000        | 61.45          | -7.24          | 54.21           | 74.00          | -19.79      | peak   |
| 4   | 2737.000        | /              | /              | 31.54           | 54.00          | -22.46      | AVG    |
| 5   | 3646.000        | 61.77          | -3.94          | 57.83           | 74.00          | -16.17      | peak   |
| 6   | 3646.000        | /              | /              | 35.16           | 54.00          | -18.84      | AVG    |
| 7   | 4564.000        | 54.45          | -1.31          | 53.14           | 74.00          | -20.86      | peak   |
| 8   | 4564.000        | /              | /              | 30.47           | 54.00          | -23.53      | AVG    |
| 9   | 5473.000        | 45.57          | 1.40           | 46.97           | 74.00          | -27.03      | peak   |
| 10  | 8965.000        | 36.97          | 10.06          | 47.03           | 74.00          | -26.97      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 912.75   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



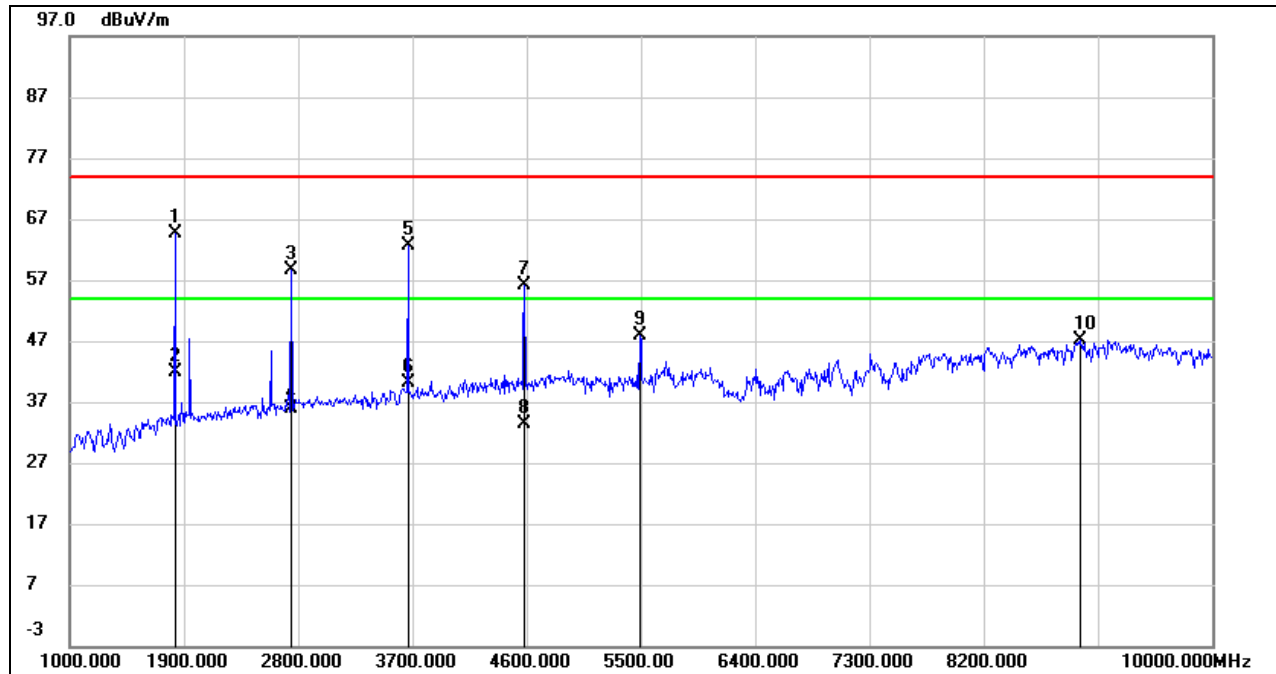
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 74.66          | -9.74          | 64.92           | 74.00          | -9.08       | peak   |
| 2   | 1819.000        | /              | /              | 42.25           | 54.00          | -11.75      | AVG    |
| 3   | 2737.000        | 64.36          | -6.21          | 58.15           | 74.00          | -15.85      | peak   |
| 4   | 2737.000        | /              | /              | 35.48           | 54.00          | -18.52      | AVG    |
| 5   | 3646.000        | 64.54          | -2.91          | 61.63           | 74.00          | -12.37      | peak   |
| 6   | 3646.000        | /              | /              | 38.96           | 54.00          | -15.04      | AVG    |
| 7   | 4564.000        | 56.65          | -0.37          | 56.28           | 74.00          | -17.72      | peak   |
| 8   | 4564.000        | /              | /              | 33.61           | 54.00          | -20.39      | AVG    |
| 9   | 5473.000        | 44.46          | 2.60           | 47.06           | 74.00          | -26.94      | peak   |
| 10  | 8992.000        | 36.23          | 10.78          | 47.01           | 74.00          | -26.99      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 915.87   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



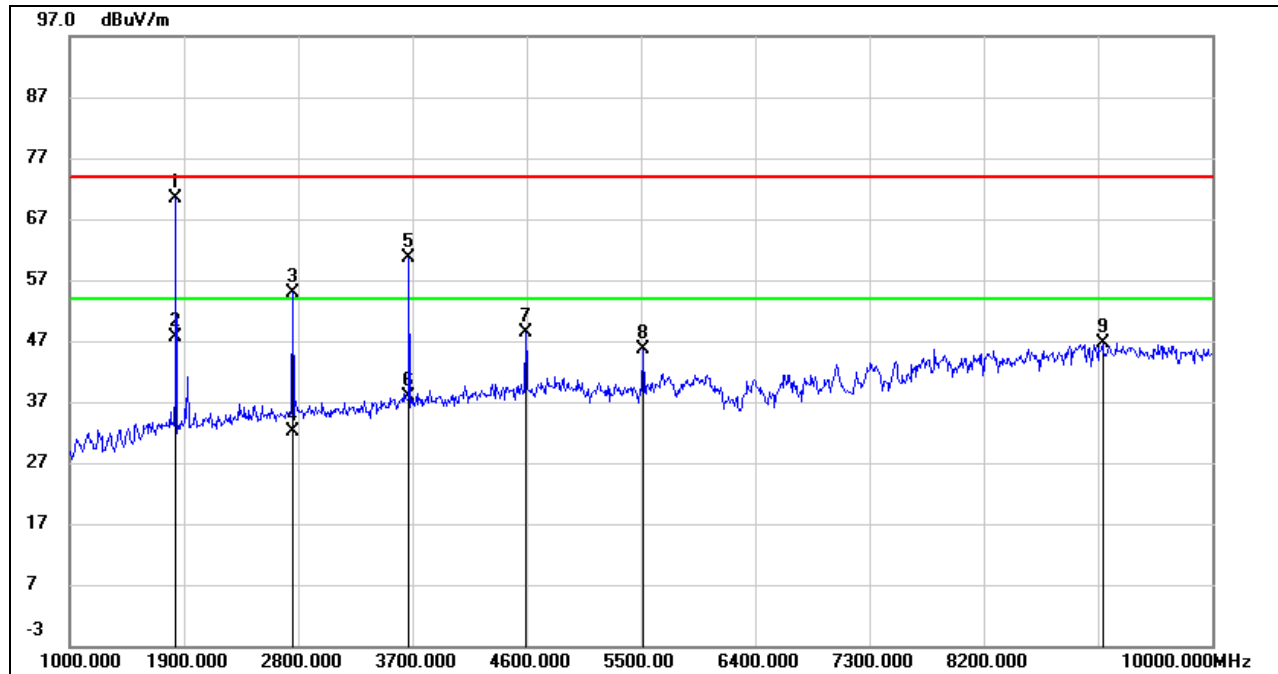
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 79.26          | -10.34         | 68.92           | 74.00          | -5.08       | peak   |
| 2   | 1828.000        | /              | /              | 46.25           | 54.00          | -7.75       | AVG    |
| 3   | 2746.000        | 62.02          | -7.20          | 54.82           | 74.00          | -19.18      | peak   |
| 4   | 2746.000        | /              | /              | 32.15           | 54.00          | -21.85      | AVG    |
| 5   | 3664.000        | 63.48          | -3.89          | 59.59           | 74.00          | -14.41      | peak   |
| 6   | 3664.000        | /              | /              | 36.92           | 54.00          | -17.08      | AVG    |
| 7   | 4582.000        | 48.85          | -1.27          | 47.58           | 74.00          | -26.42      | peak   |
| 8   | 5491.000        | 46.19          | 1.48           | 47.67           | 74.00          | -26.33      | peak   |
| 9   | 8974.000        | 36.17          | 10.16          | 46.33           | 74.00          | -27.67      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 915.87   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



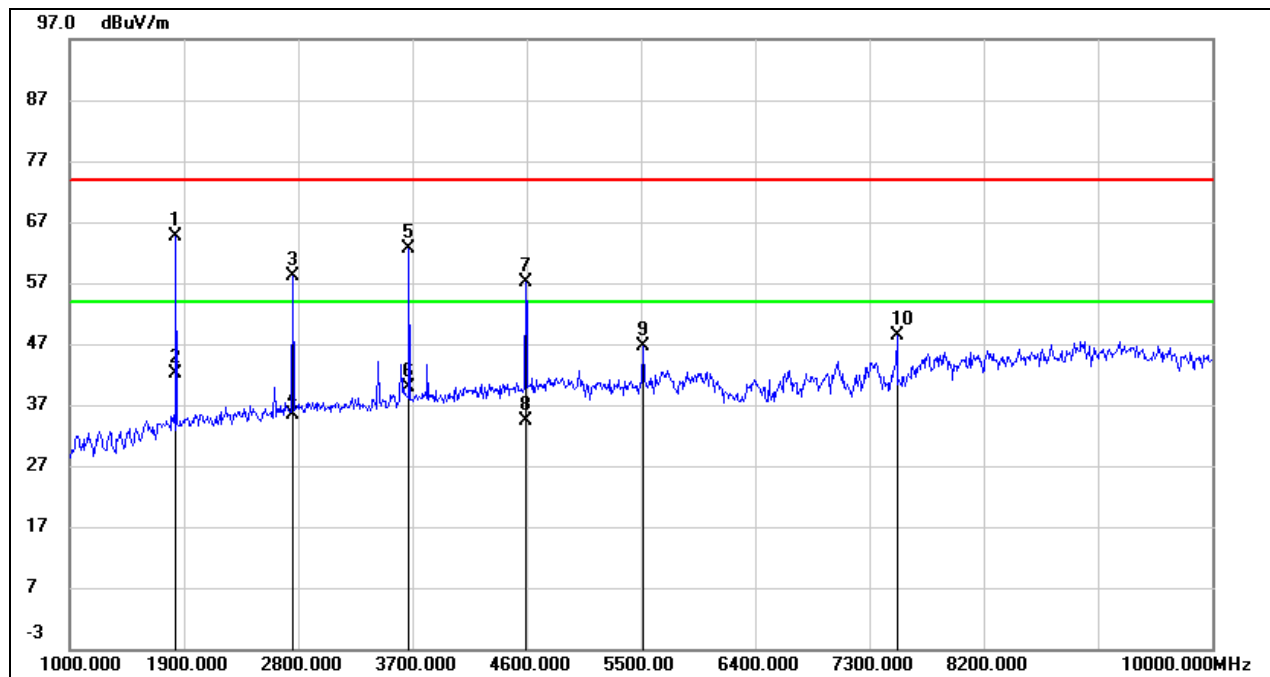
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 74.29          | -9.71          | 64.58           | 74.00          | -9.42       | peak   |
| 2   | 1828.000        | /              | /              | 41.91           | 54.00          | -12.09      | AVG    |
| 3   | 2746.000        | 64.78          | -6.15          | 58.63           | 74.00          | -15.37      | peak   |
| 4   | 2746.000        | /              | /              | 35.96           | 54.00          | -18.04      | AVG    |
| 5   | 3664.000        | 65.55          | -2.86          | 62.69           | 74.00          | -11.31      | peak   |
| 6   | 3664.000        | /              | /              | 40.02           | 54.00          | -13.98      | AVG    |
| 7   | 4582.000        | 56.41          | -0.32          | 56.09           | 74.00          | -17.91      | peak   |
| 8   | 4582.000        | /              | /              | 33.42           | 54.00          | -20.58      | AVG    |
| 9   | 5491.000        | 45.14          | 2.68           | 47.82           | 74.00          | -26.18      | peak   |
| 10  | 8965.000        | 36.76          | 10.47          | 47.23           | 74.00          | -26.77      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



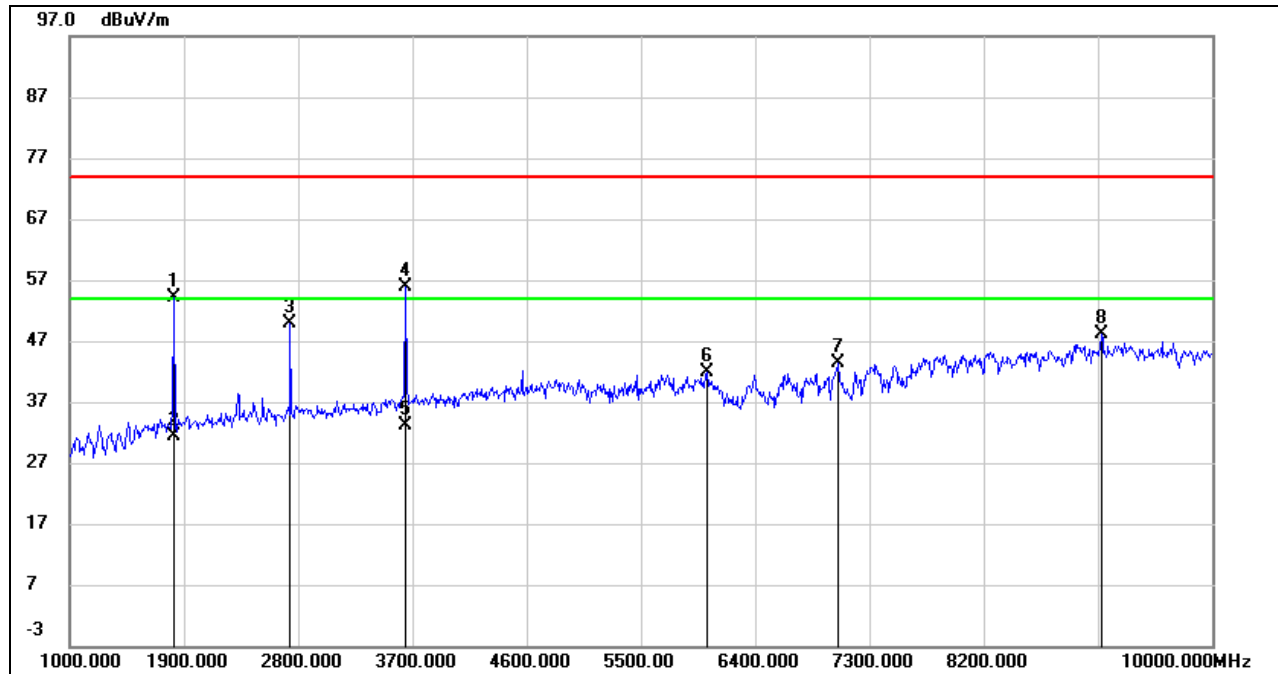
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 80.63          | -10.34         | 70.29           | 74.00          | -3.71       | peak   |
| 2   | 1837.000        | /              | /              | 47.62           | 54.00          | -6.38       | AVG    |
| 3   | 2755.000        | 62.05          | -7.15          | 54.90           | 74.00          | -19.10      | peak   |
| 4   | 2755.000        | /              | /              | 32.23           | 54.00          | -21.77      | AVG    |
| 5   | 3673.000        | 64.45          | -3.87          | 60.58           | 74.00          | -13.42      | peak   |
| 6   | 3673.000        | /              | /              | 37.91           | 54.00          | -16.09      | AVG    |
| 7   | 4591.000        | 49.50          | -1.23          | 48.27           | 74.00          | -25.73      | peak   |
| 8   | 5518.000        | 43.94          | 1.61           | 45.55           | 74.00          | -28.45      | peak   |
| 9   | 9136.000        | 36.83          | 9.87           | 46.70           | 74.00          | -27.30      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



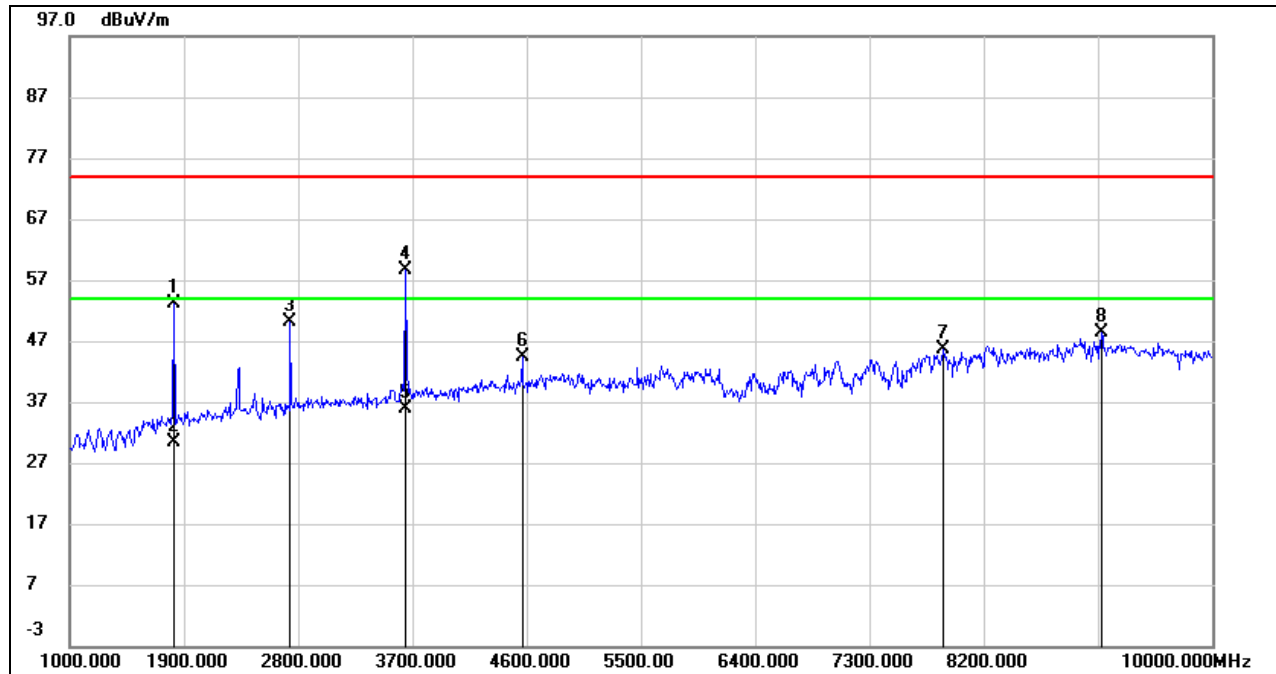
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 74.39          | -9.70          | 64.69           | 74.00          | -9.31       | peak   |
| 2   | 1837.000        | /              | /              | 42.02           | 54.00          | -11.98      | AVG    |
| 3   | 2755.000        | 64.15          | -6.09          | 58.06           | 74.00          | -15.94      | peak   |
| 4   | 2755.000        | /              | /              | 35.39           | 54.00          | -18.61      | AVG    |
| 5   | 3673.000        | 65.50          | -2.83          | 62.67           | 74.00          | -11.33      | peak   |
| 6   | 3673.000        | /              | /              | 40.00           | 54.00          | -14.00      | AVG    |
| 7   | 4591.000        | 57.33          | -0.28          | 57.05           | 74.00          | -16.95      | peak   |
| 8   | 4591.000        | /              | /              | 34.38           | 54.00          | -19.62      | AVG    |
| 9   | 5518.000        | 43.90          | 2.80           | 46.70           | 74.00          | -27.30      | peak   |
| 10  | 7516.000        | 40.87          | 7.41           | 48.28           | 74.00          | -25.72      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 2 | Frequency(MHz): | 912.75   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



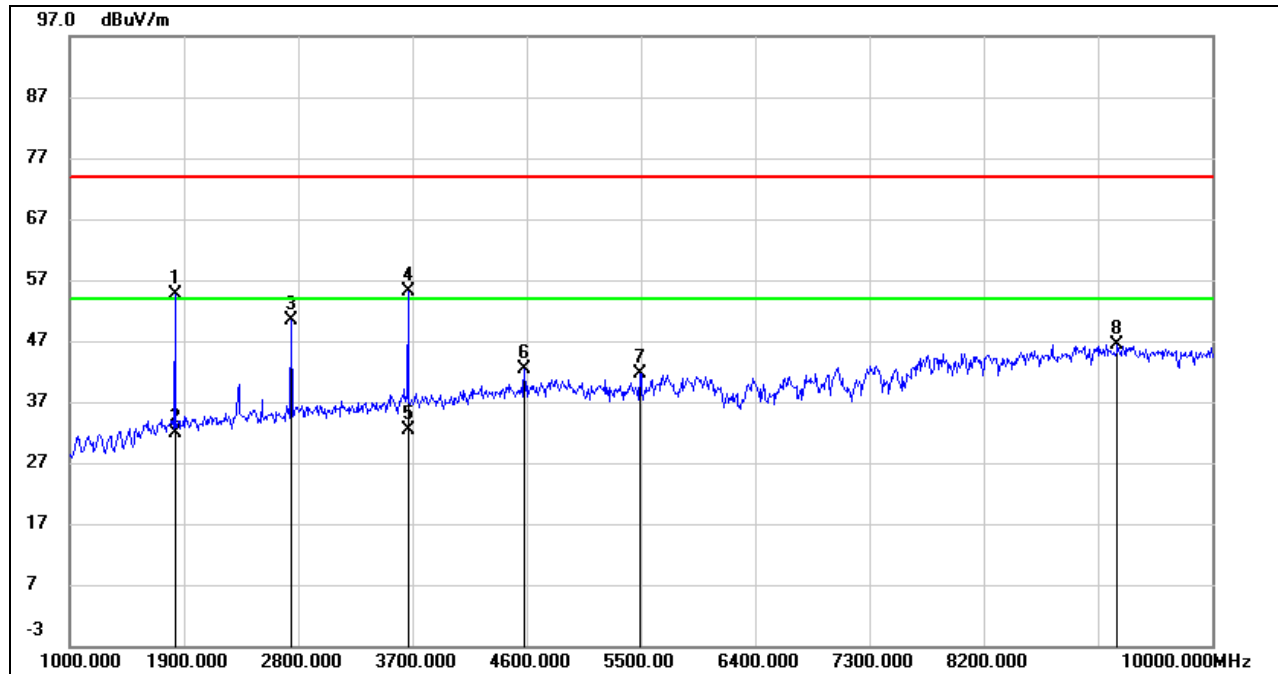
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 64.38          | -10.35         | 54.03           | 74.00          | -19.97      | peak   |
| 2   | 1819.000        | /              | /              | 31.36           | 54.00          | -22.64      | AVG    |
| 3   | 2737.000        | 57.24          | -7.24          | 50.00           | 74.00          | -24.00      | peak   |
| 4   | 3646.000        | 59.78          | -3.94          | 55.84           | 74.00          | -18.16      | peak   |
| 5   | 3646.000        | /              | /              | 33.17           | 54.00          | -20.83      | AVG    |
| 6   | 6022.000        | 38.89          | 2.87           | 41.76           | 74.00          | -32.24      | peak   |
| 7   | 7057.000        | 36.76          | 6.64           | 43.40           | 74.00          | -30.60      | peak   |
| 8   | 9127.000        | 38.24          | 9.91           | 48.15           | 74.00          | -25.85      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 2 | Frequency(MHz): | 912.75   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



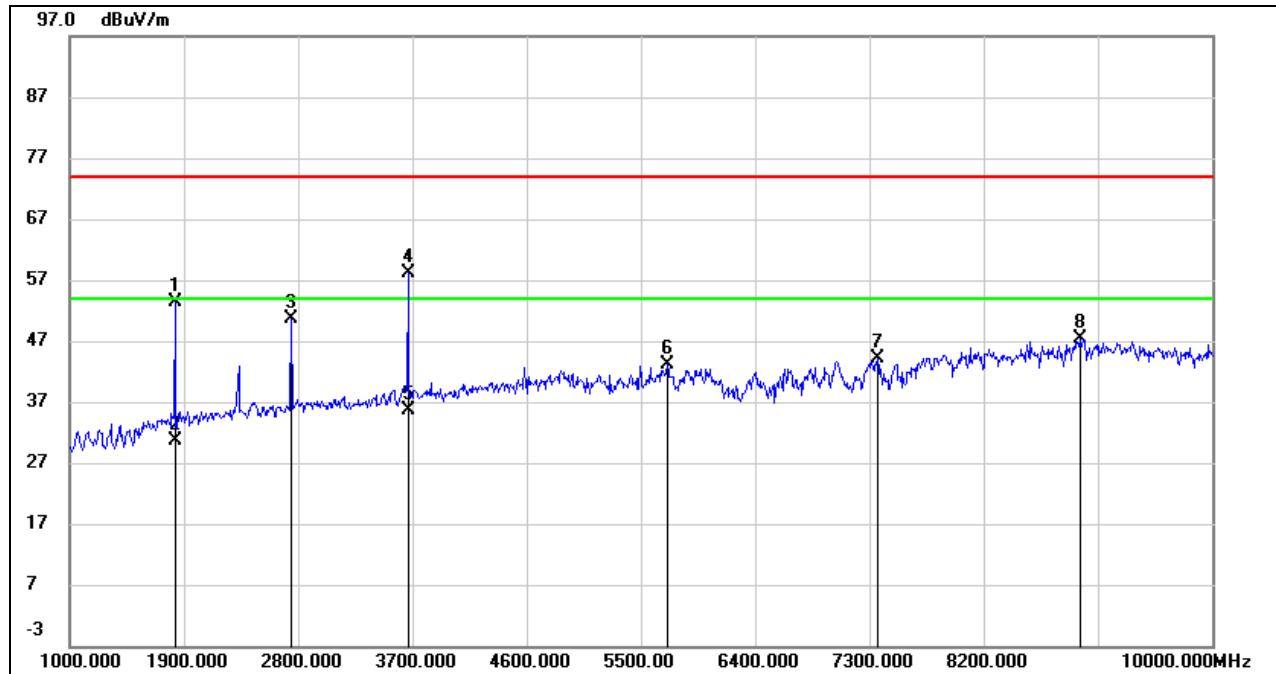
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------|--------------------|-------------------|----------------|--------|
| 1   | 1819.000           | 62.85             | -9.74             | 53.11              | 74.00             | -20.89         | peak   |
| 2   | 1819.000           | /                 | /                 | 30.44              | 54.00             | -23.56         | AVG    |
| 3   | 2737.000           | 56.33             | -6.21             | 50.12              | 74.00             | -23.88         | peak   |
| 4   | 3646.000           | 61.56             | -2.91             | 58.65              | 74.00             | -15.35         | peak   |
| 5   | 3646.000           | /                 | /                 | 35.98              | 54.00             | -18.02         | AVG    |
| 6   | 4564.000           | 44.82             | -0.37             | 44.45              | 74.00             | -29.55         | peak   |
| 7   | 7885.000           | 38.19             | 7.34              | 45.53              | 74.00             | -28.47         | peak   |
| 8   | 9127.000           | 38.23             | 10.21             | 48.44              | 74.00             | -25.56         | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 2 | Frequency(MHz): | 915.87   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



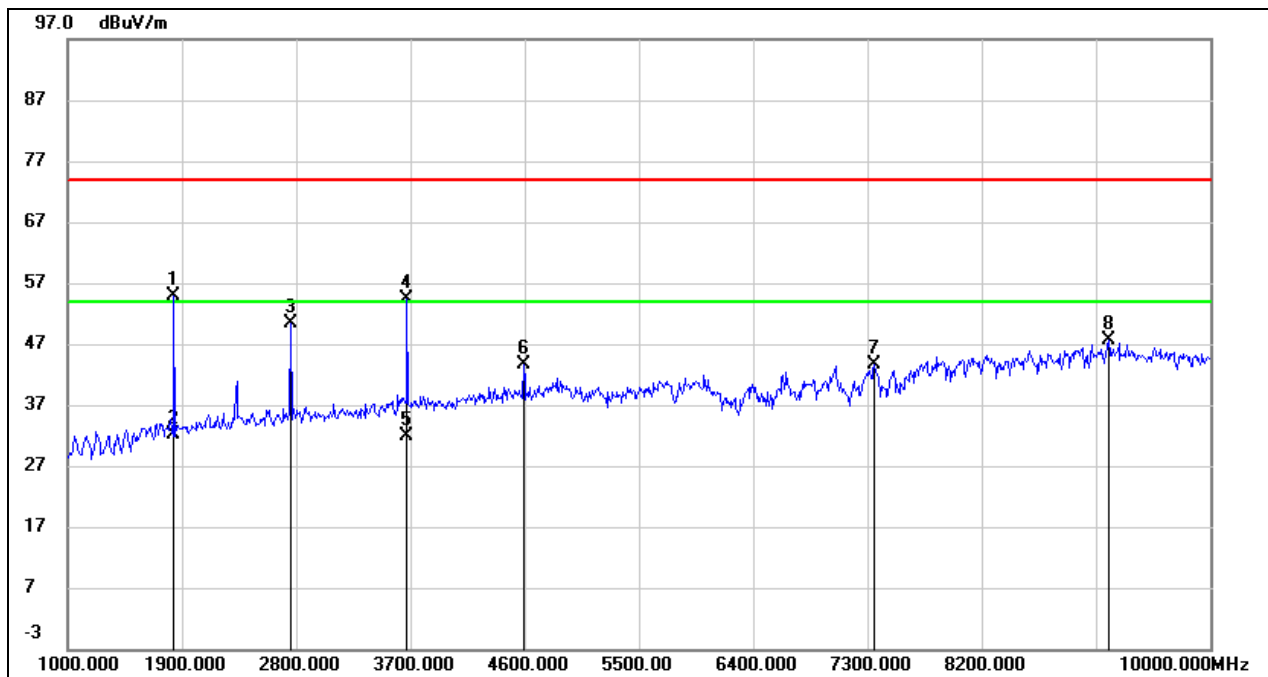
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 64.85          | -10.34         | 54.51           | 74.00          | -19.49      | peak   |
| 2   | 1828.000        | /              | /              | 31.84           | 54.00          | -22.16      | AVG    |
| 3   | 2746.000        | 57.46          | -7.20          | 50.26           | 74.00          | -23.74      | peak   |
| 4   | 3664.000        | 59.02          | -3.89          | 55.13           | 74.00          | -18.87      | peak   |
| 5   | 3664.000        | /              | /              | 32.46           | 54.00          | -21.54      | AVG    |
| 6   | 4582.000        | 43.63          | -1.27          | 42.36           | 74.00          | -31.64      | peak   |
| 7   | 5491.000        | 40.18          | 1.48           | 41.66           | 74.00          | -32.34      | peak   |
| 8   | 9253.000        | 36.69          | 9.70           | 46.39           | 74.00          | -27.61      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 2 | Frequency(MHz): | 915.87   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



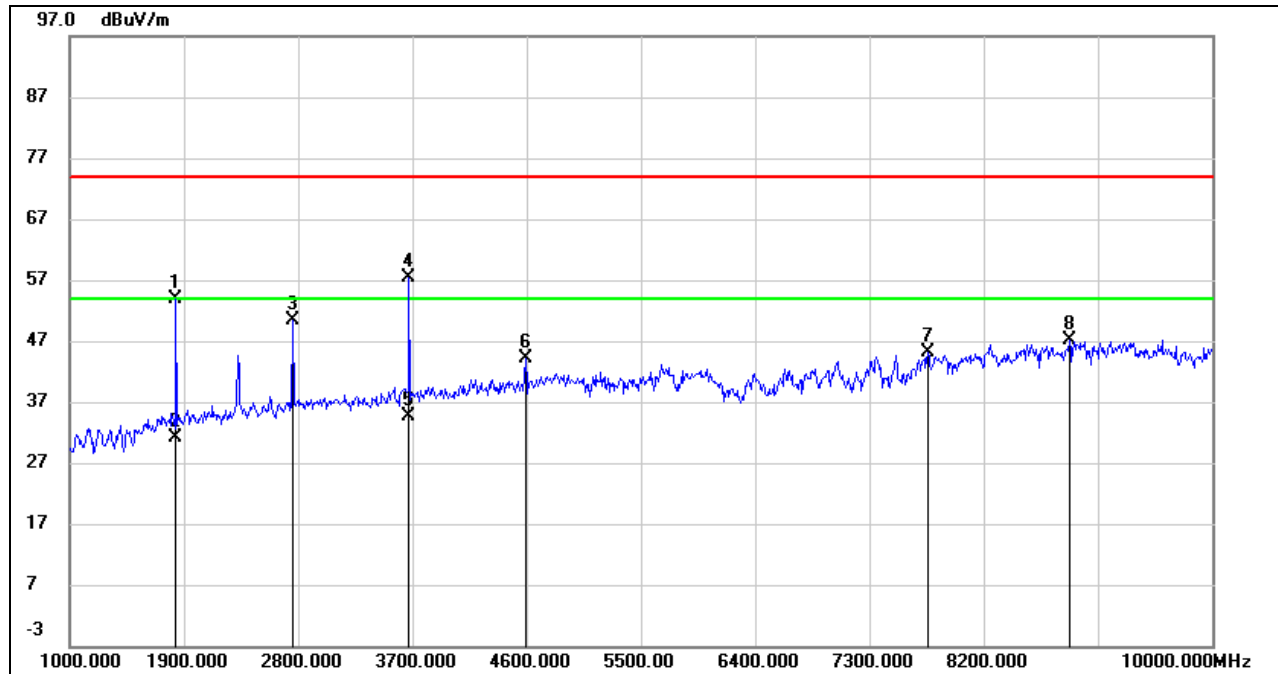
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 63.06          | -9.71          | 53.35           | 74.00          | -20.65      | peak   |
| 2   | 1828.000        | /              | /              | 30.68           | 54.00          | -23.32      | AVG    |
| 3   | 2746.000        | 56.67          | -6.15          | 50.52           | 74.00          | -23.48      | peak   |
| 4   | 3664.000        | 61.06          | -2.86          | 58.20           | 74.00          | -15.80      | peak   |
| 5   | 3664.000        | /              | /              | 35.53           | 54.00          | -18.47      | AVG    |
| 6   | 5707.000        | 39.99          | 3.09           | 43.08           | 74.00          | -30.92      | peak   |
| 7   | 7363.000        | 36.51          | 7.64           | 44.15           | 74.00          | -29.85      | peak   |
| 8   | 8956.000        | 36.91          | 10.36          | 47.27           | 74.00          | -26.73      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 2 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



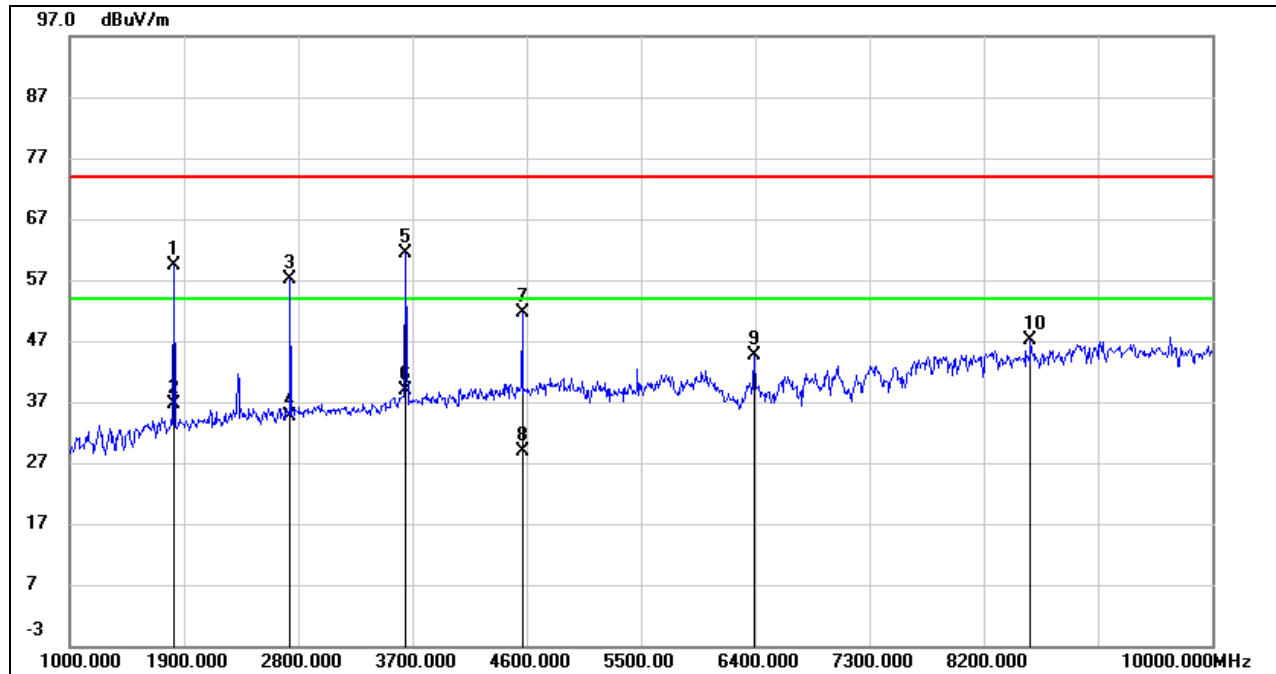
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 65.22          | -10.34         | 54.88           | 74.00          | -19.12      | peak   |
| 2   | 1837.000        | /              | /              | 32.21           | 54.00          | -21.79      | AVG    |
| 3   | 2755.000        | 57.57          | -7.15          | 50.42           | 74.00          | -23.58      | peak   |
| 4   | 3673.000        | 58.35          | -3.87          | 54.48           | 74.00          | -19.52      | peak   |
| 5   | 3673.000        | /              | /              | 31.81           | 54.00          | -22.19      | AVG    |
| 6   | 4591.000        | 44.80          | -1.23          | 43.57           | 74.00          | -30.43      | peak   |
| 7   | 7354.000        | 36.62          | 6.97           | 43.59           | 74.00          | -30.41      | peak   |
| 8   | 9199.000        | 38.07          | 9.59           | 47.66           | 74.00          | -26.34      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 2 | Frequency(MHz): | 919.12   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



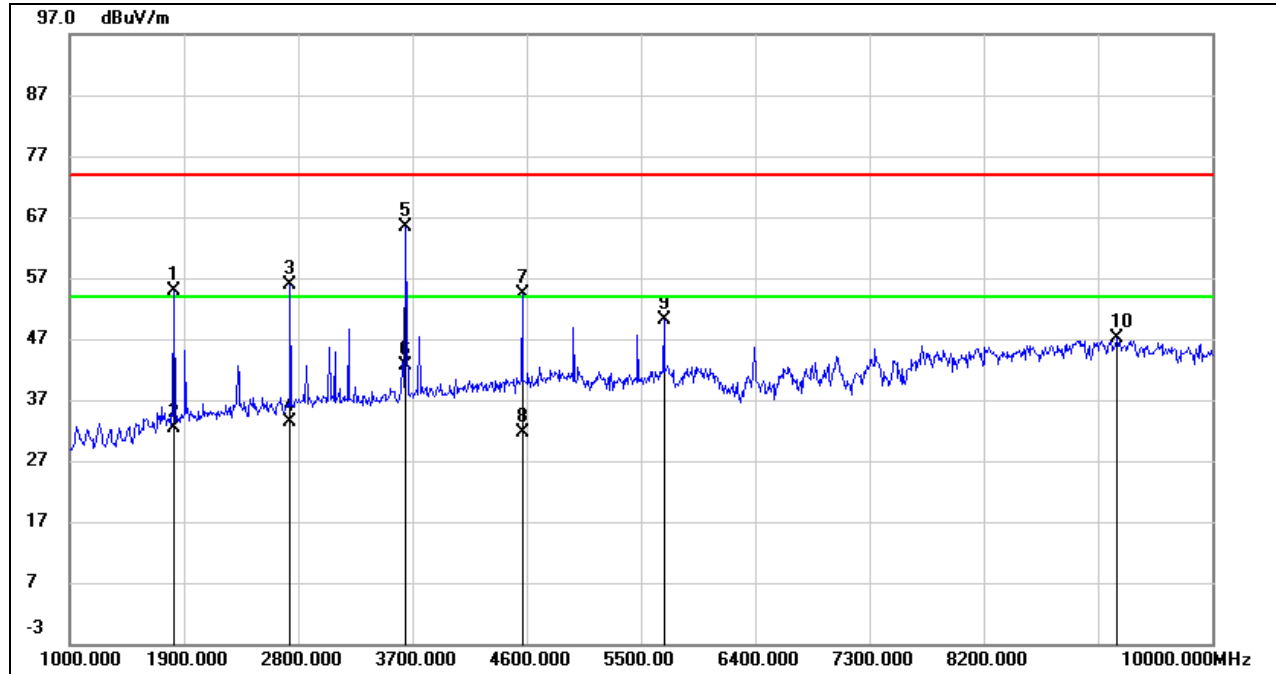
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 63.55          | -9.70          | 53.85           | 74.00          | -20.15      | peak   |
| 2   | 1837.000        | /              | /              | 31.18           | 54.00          | -22.82      | AVG    |
| 3   | 2755.000        | 56.42          | -6.09          | 50.33           | 74.00          | -23.67      | peak   |
| 4   | 3673.000        | 60.13          | -2.83          | 57.30           | 74.00          | -16.70      | peak   |
| 5   | 3673.000        | /              | /              | 34.63           | 54.00          | -19.37      | AVG    |
| 6   | 4591.000        | 44.52          | -0.28          | 44.24           | 74.00          | -29.76      | peak   |
| 7   | 7759.000        | 37.73          | 7.46           | 45.19           | 74.00          | -28.81      | peak   |
| 8   | 8875.000        | 37.75          | 9.42           | 47.17           | 74.00          | -26.83      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 3 | Frequency(MHz): | 912.75   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



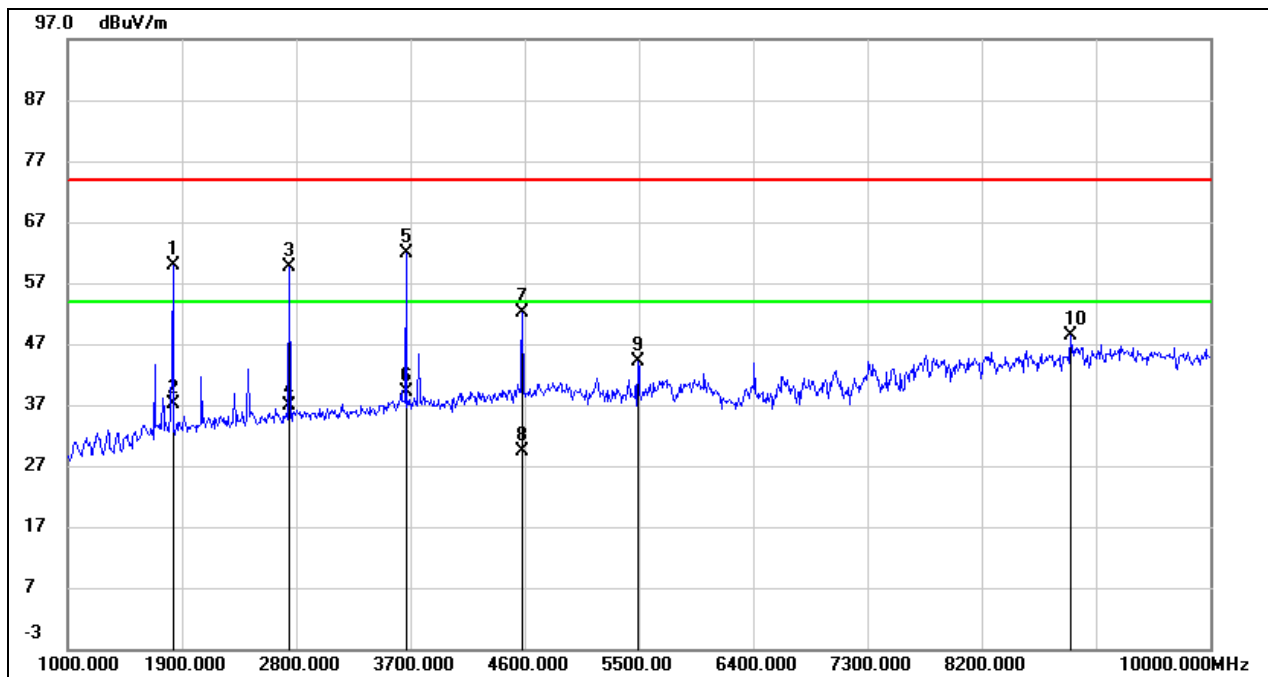
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 69.64          | -10.35         | 59.29           | 74.00          | -14.71      | peak   |
| 2   | 1819.000        | /              | /              | 36.62           | 54.00          | -17.38      | AVG    |
| 3   | 2737.000        | 64.48          | -7.24          | 57.24           | 74.00          | -16.76      | peak   |
| 4   | 2737.000        | /              | /              | 34.57           | 54.00          | -19.43      | AVG    |
| 5   | 3646.000        | 65.43          | -3.94          | 61.49           | 74.00          | -12.51      | peak   |
| 6   | 3646.000        | /              | /              | 38.82           | 54.00          | -15.18      | AVG    |
| 7   | 4564.000        | 52.86          | -1.31          | 51.55           | 74.00          | -22.45      | peak   |
| 8   | 4564.000        | /              | /              | 28.88           | 54.00          | -25.12      | AVG    |
| 9   | 6391.000        | 40.90          | 3.61           | 44.51           | 74.00          | -29.49      | peak   |
| 10  | 8569.000        | 38.97          | 8.15           | 47.12           | 74.00          | -26.88      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 3 | Frequency(MHz): | 912.75   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



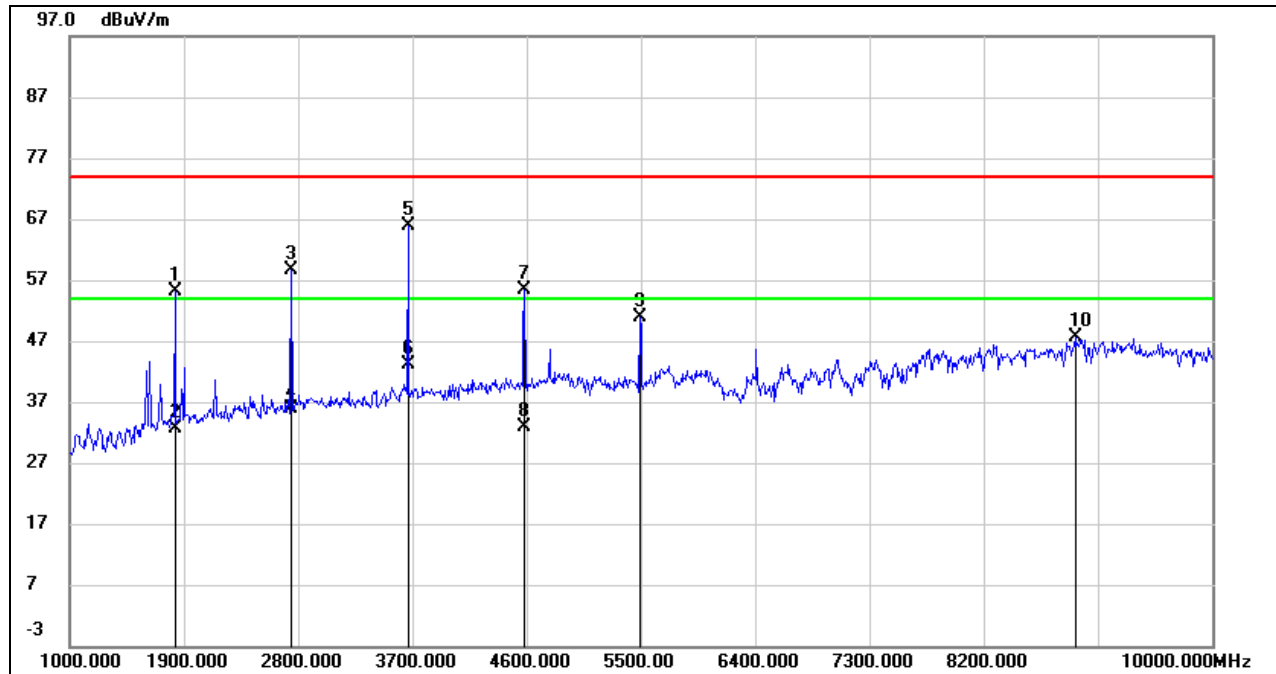
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 64.68          | -9.74          | 54.94           | 74.00          | -19.06      | peak   |
| 2   | 1819.000        | /              | /              | 32.27           | 54.00          | -21.73      | AVG    |
| 3   | 2737.000        | 62.19          | -6.21          | 55.98           | 74.00          | -18.02      | peak   |
| 4   | 2737.000        | /              | /              | 33.31           | 54.00          | -20.69      | AVG    |
| 5   | 3646.000        | 68.17          | -2.91          | 65.26           | 74.00          | -8.74       | peak   |
| 6   | 3646.000        | /              | /              | 42.59           | 54.00          | -11.41      | AVG    |
| 7   | 4564.000        | 54.64          | -0.37          | 54.27           | 74.00          | -19.73      | peak   |
| 8   | 4564.000        | /              | /              | 31.60           | 54.00          | -22.40      | AVG    |
| 9   | 5680.000        | 46.89          | 3.12           | 50.01           | 74.00          | -23.99      | peak   |
| 10  | 9253.000        | 37.18          | 9.90           | 47.08           | 74.00          | -26.92      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 3 | Frequency(MHz): | 915.87   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



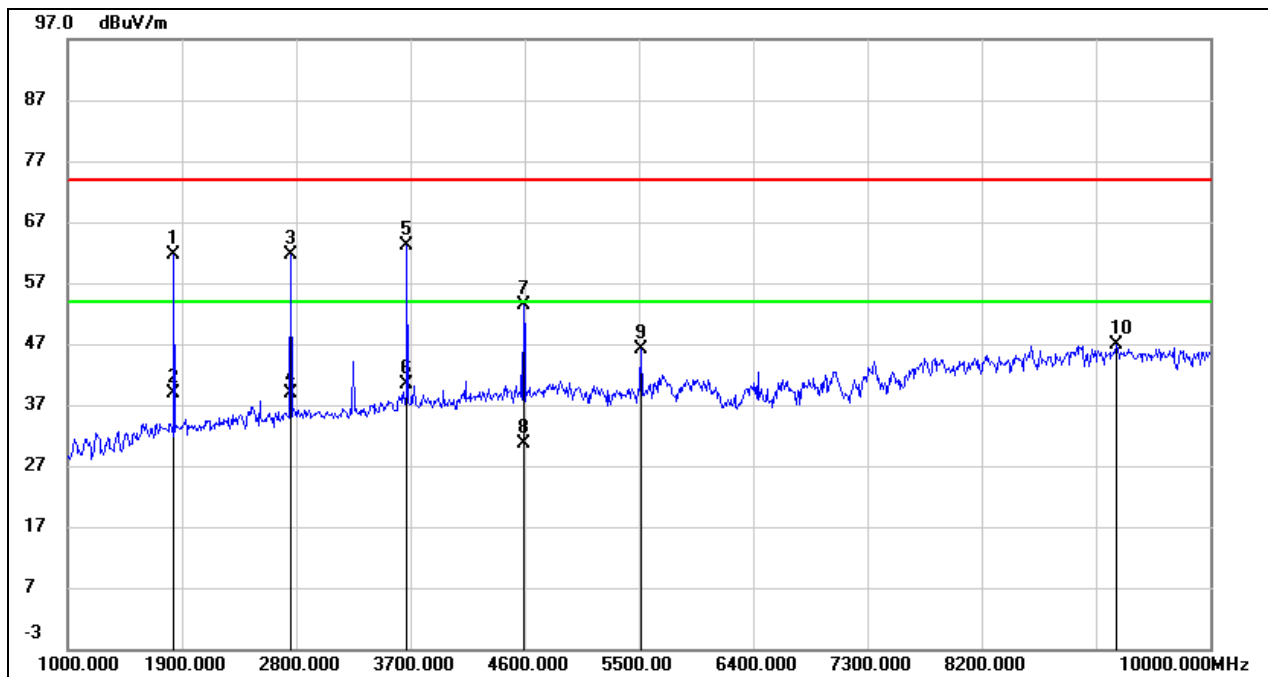
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 70.18          | -10.34         | 59.84           | 74.00          | -14.16      | peak   |
| 2   | 1828.000        | /              | /              | 37.17           | 54.00          | -16.83      | AVG    |
| 3   | 2746.000        | 66.83          | -7.20          | 59.63           | 74.00          | -14.37      | peak   |
| 4   | 2746.000        | /              | /              | 36.96           | 54.00          | -17.04      | AVG    |
| 5   | 3664.000        | 65.76          | -3.89          | 61.87           | 74.00          | -12.13      | peak   |
| 6   | 3664.000        | /              | /              | 39.20           | 54.00          | -14.80      | AVG    |
| 7   | 4582.000        | 53.37          | -1.27          | 52.10           | 74.00          | -21.90      | peak   |
| 8   | 4582.000        | /              | /              | 29.43           | 54.00          | -24.57      | AVG    |
| 9   | 5491.000        | 42.68          | 1.48           | 44.16           | 74.00          | -29.84      | peak   |
| 10  | 8902.000        | 39.00          | 9.29           | 48.29           | 74.00          | -25.71      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 3 | Frequency(MHz): | 915.87   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



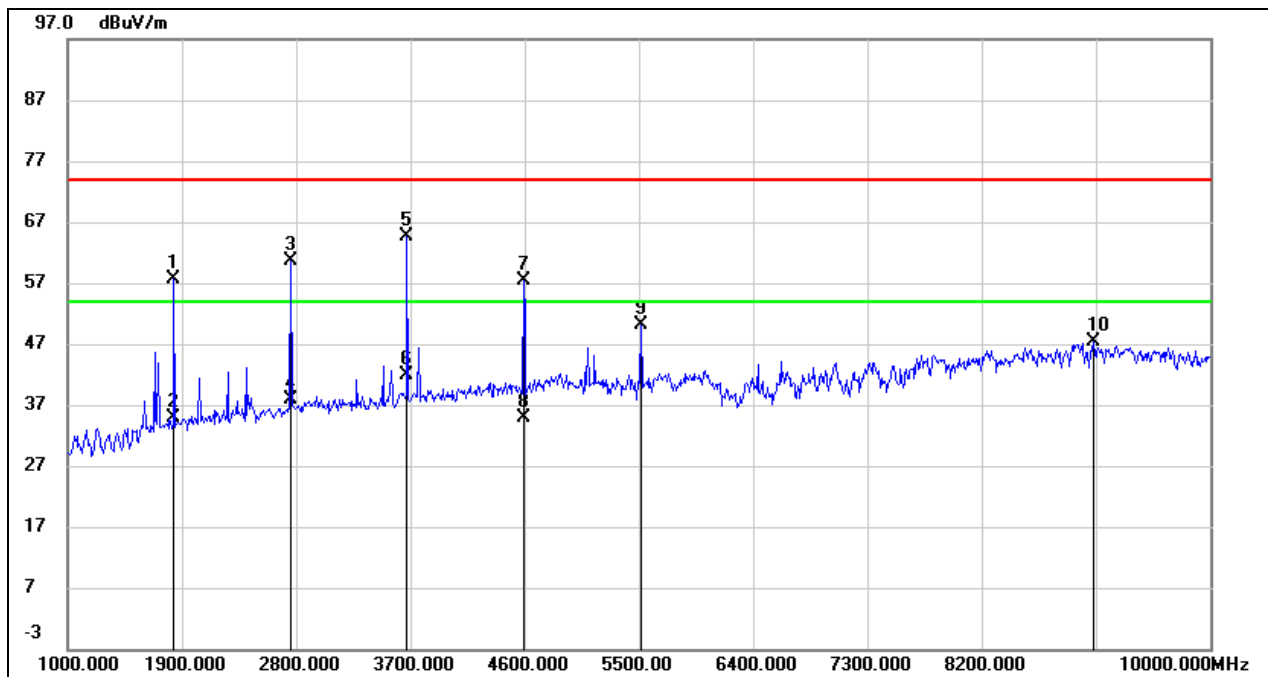
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 64.91          | -9.71          | 55.20           | 74.00          | -18.80      | peak   |
| 2   | 1828.000        | /              | /              | 32.53           | 54.00          | -21.47      | AVG    |
| 3   | 2746.000        | 64.82          | -6.15          | 58.67           | 74.00          | -15.33      | peak   |
| 4   | 2746.000        | /              | /              | 36.00           | 54.00          | -18.00      | AVG    |
| 5   | 3664.000        | 68.63          | -2.86          | 65.77           | 74.00          | -8.23       | peak   |
| 6   | 3664.000        | /              | /              | 43.10           | 54.00          | -10.90      | AVG    |
| 7   | 4582.000        | 55.76          | -0.32          | 55.44           | 74.00          | -18.56      | peak   |
| 8   | 4582.000        | /              | /              | 32.77           | 54.00          | -21.23      | AVG    |
| 9   | 5491.000        | 48.12          | 2.68           | 50.80           | 74.00          | -23.20      | peak   |
| 10  | 8920.000        | 37.76          | 9.95           | 47.71           | 74.00          | -26.29      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 3 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



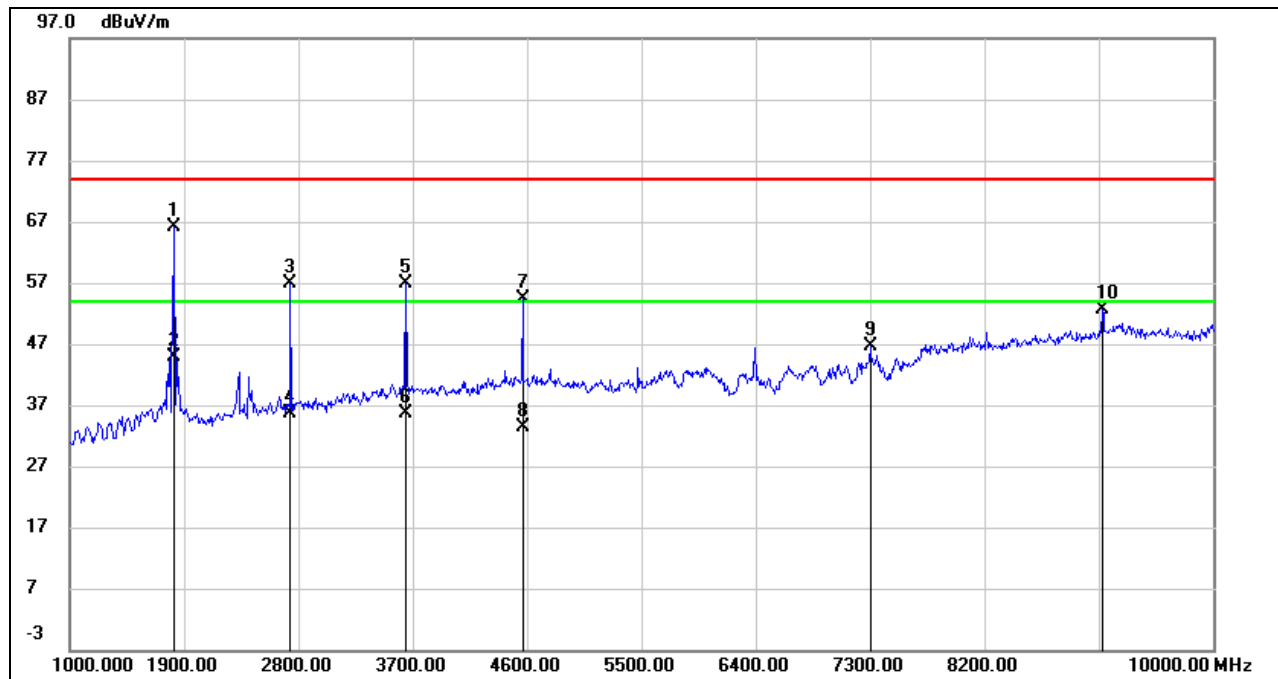
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 71.95          | -10.34         | 61.61           | 74.00          | -12.39      | peak   |
| 2   | 1837.000        | /              | -/             | 38.94           | 54.00          | -15.06      | AVG    |
| 3   | 2755.000        | 68.70          | -7.15          | 61.55           | 74.00          | -12.45      | peak   |
| 4   | 2755.000        | /              | /              | 38.88           | 54.00          | -15.12      | AVG    |
| 5   | 3673.000        | 66.92          | -3.87          | 63.05           | 74.00          | -10.95      | peak   |
| 6   | 3673.000        | /              | /              | 40.38           | 54.00          | -13.62      | AVG    |
| 7   | 4591.000        | 54.51          | -1.23          | 53.28           | 74.00          | -20.72      | peak   |
| 8   | 4591.000        | /              | /              | 30.61           | 54.00          | -23.39      | AVG    |
| 9   | 5518.000        | 44.43          | 1.61           | 46.04           | 74.00          | -27.96      | peak   |
| 10  | 9262.000        | 37.02          | 9.74           | 46.76           | 74.00          | -27.24      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 3 | Frequency(MHz): | 919.12   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



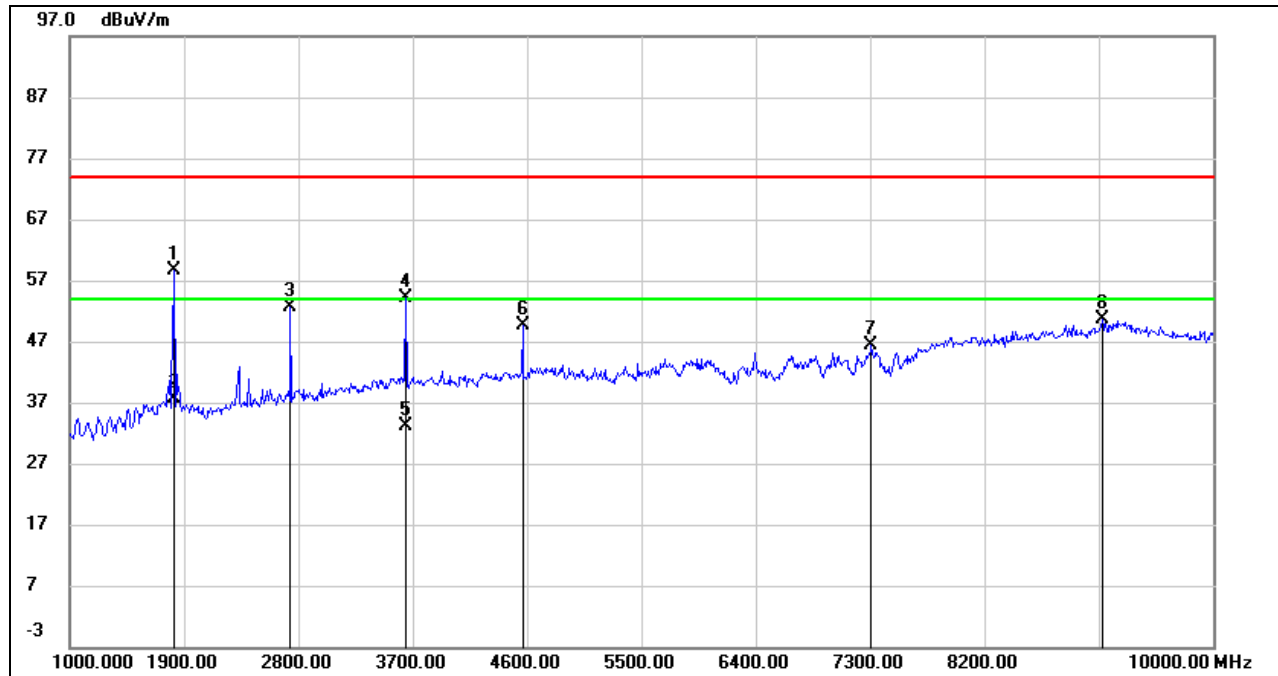
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 67.35          | -9.70          | 57.65           | 74.00          | -16.35      | peak   |
| 2   | 1837.000        | /              | /              | 34.98           | 54.00          | -19.02      | AVG    |
| 3   | 2755.000        | 66.64          | -6.09          | 60.55           | 74.00          | -13.45      | peak   |
| 4   | 2755.000        | /              | /              | 37.88           | 54.00          | -16.12      | AVG    |
| 5   | 3673.000        | 67.45          | -2.83          | 64.62           | 74.00          | -9.38       | peak   |
| 6   | 3673.000        | /              | /              | 41.95           | 54.00          | -12.05      | AVG    |
| 7   | 4591.000        | 57.78          | -0.28          | 57.50           | 74.00          | -16.50      | peak   |
| 8   | 4591.000        | /              | /              | 34.83           | 54.00          | -19.17      | AVG    |
| 9   | 5518.000        | 47.31          | 2.80           | 50.11           | 74.00          | -23.89      | peak   |
| 10  | 9082.000        | 36.84          | 10.45          | 47.29           | 74.00          | -26.71      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 4 | Frequency(MHz): | 912.75   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



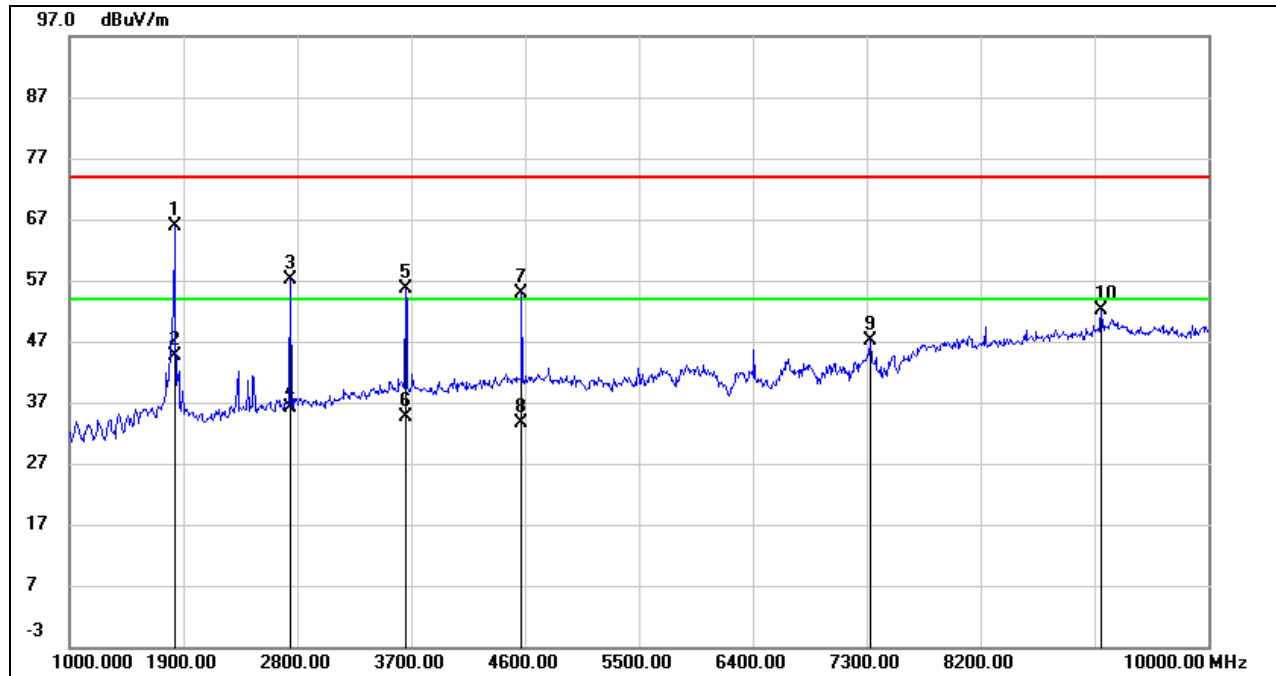
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 75.68          | -9.58          | 66.10           | 74.00          | -7.90       | peak   |
| 2   | 1819.000        | /              | /              | 44.97           | 54.00          | -9.03       | AVG    |
| 3   | 2737.000        | 64.05          | -7.17          | 56.88           | 74.00          | -17.12      | peak   |
| 4   | 2737.000        | /              | /              | 35.75           | 54.00          | -18.25      | AVG    |
| 5   | 3646.000        | 60.17          | -3.29          | 56.88           | 74.00          | -17.12      | peak   |
| 6   | 3646.000        | /              | /              | 35.75           | 54.00          | -18.25      | AVG    |
| 7   | 4564.000        | 55.73          | -1.31          | 54.42           | 74.00          | -19.58      | peak   |
| 8   | 4564.000        | /              | /              | 33.29           | 54.00          | -20.71      | AVG    |
| 9   | 7300.000        | 39.79          | 6.83           | 46.62           | 74.00          | -27.38      | peak   |
| 10  | 9127.000        | 41.76          | 10.91          | 52.67           | 74.00          | -21.33      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 4 | Frequency(MHz): | 912.75   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



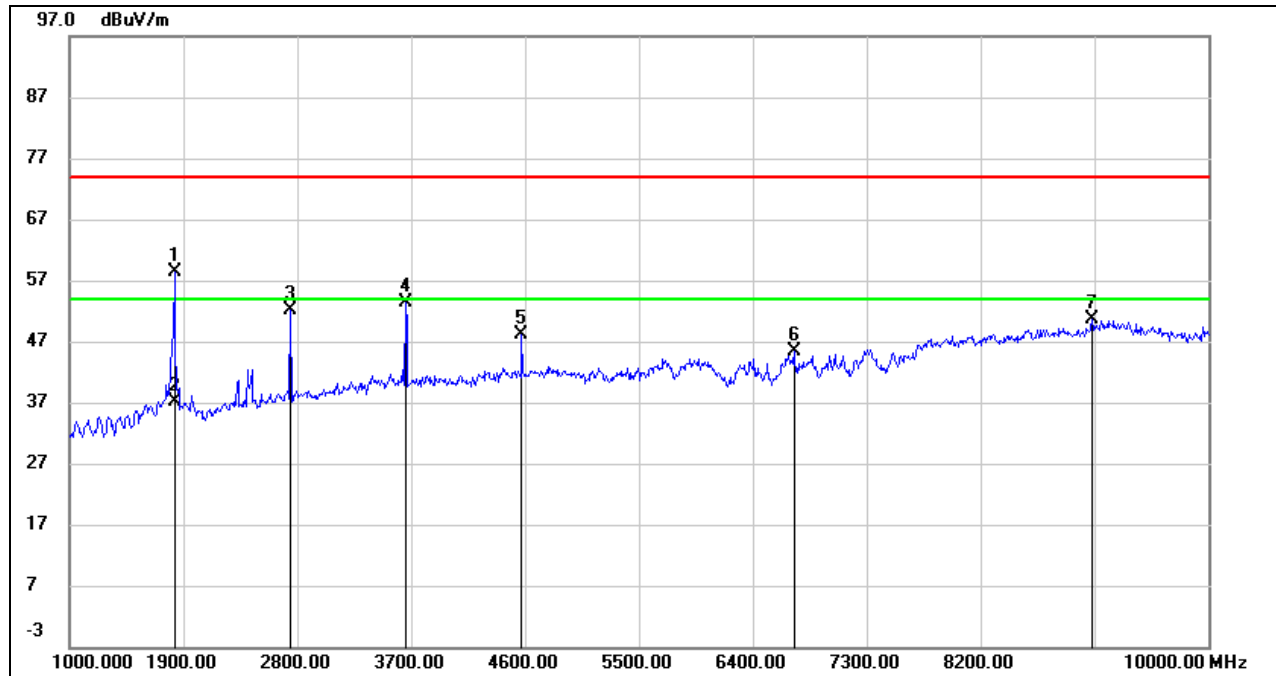
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 67.67          | -8.97          | 58.70           | 74.00          | -15.30      | peak   |
| 2   | 1819.000        | /              | /              | 37.57           | 54.00          | -16.43      | AVG    |
| 3   | 2737.000        | 58.79          | -6.14          | 52.65           | 74.00          | -21.35      | peak   |
| 4   | 3646.000        | 56.41          | -2.26          | 54.15           | 74.00          | -19.85      | peak   |
| 5   | 3646.000        | /              | /              | 33.20           | 54.00          | -20.80      | AVG    |
| 6   | 4564.000        | 50.00          | -0.37          | 49.63           | 74.00          | -24.37      | peak   |
| 7   | 7309.000        | 38.79          | 7.50           | 46.29           | 74.00          | -27.71      | peak   |
| 8   | 9127.000        | 39.33          | 11.21          | 50.54           | 74.00          | -23.46      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 4 | Frequency(MHz): | 915.87   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



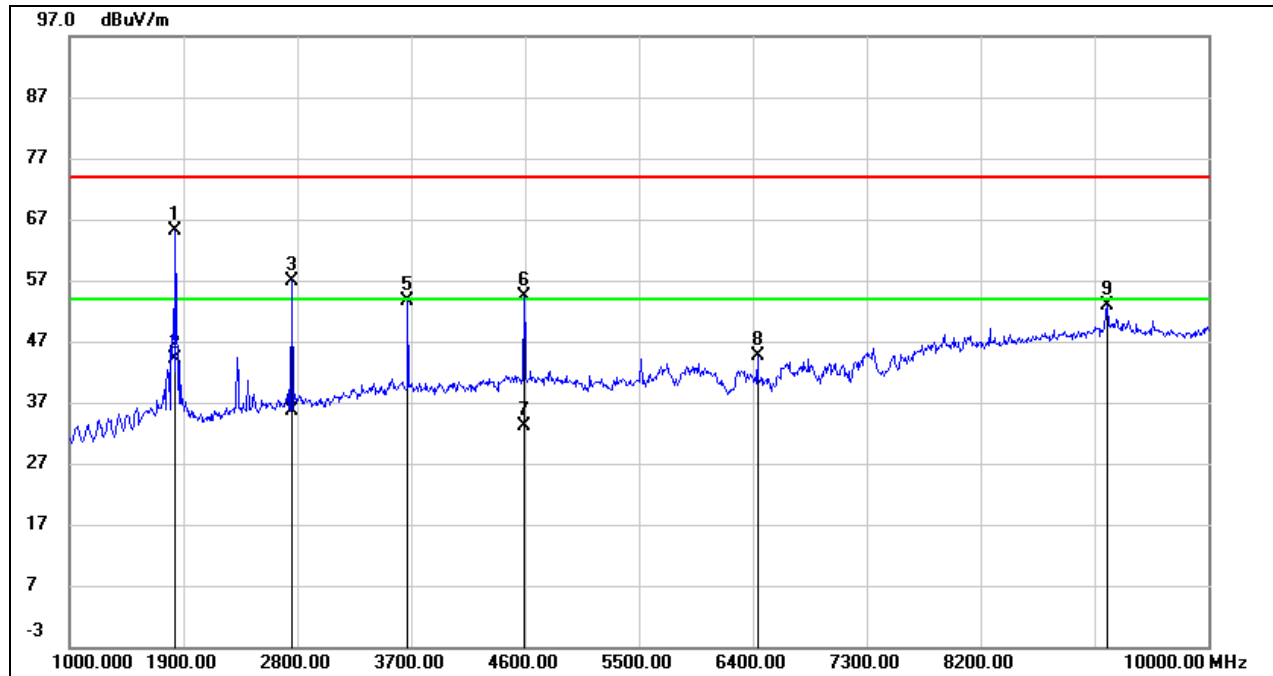
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 75.45          | -9.59          | 65.86           | 74.00          | -8.14       | peak   |
| 2   | 1828.000        | /              | /              | 44.72           | 54.00          | -9.28       | AVG    |
| 3   | 2746.000        | 64.34          | -7.13          | 57.21           | 74.00          | -16.79      | peak   |
| 4   | 2746.000        | /              | /              | 36.08           | 54.00          | -17.92      | AVG    |
| 5   | 3664.000        | 58.93          | -3.29          | 55.64           | 74.00          | -18.36      | peak   |
| 6   | 3664.000        | /              | /              | 34.51           | 54.00          | -19.49      | AVG    |
| 7   | 4579.000        | 56.08          | -1.28          | 54.80           | 74.00          | -19.20      | peak   |
| 8   | 4579.000        | /              | /              | 33.67           | 54.00          | -20.33      | AVG    |
| 9   | 7327.000        | 40.35          | 6.86           | 47.21           | 74.00          | -26.79      | peak   |
| 10  | 9154.000        | 41.09          | 11.04          | 52.13           | 74.00          | -21.87      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 4 | Frequency(MHz): | 915.87   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



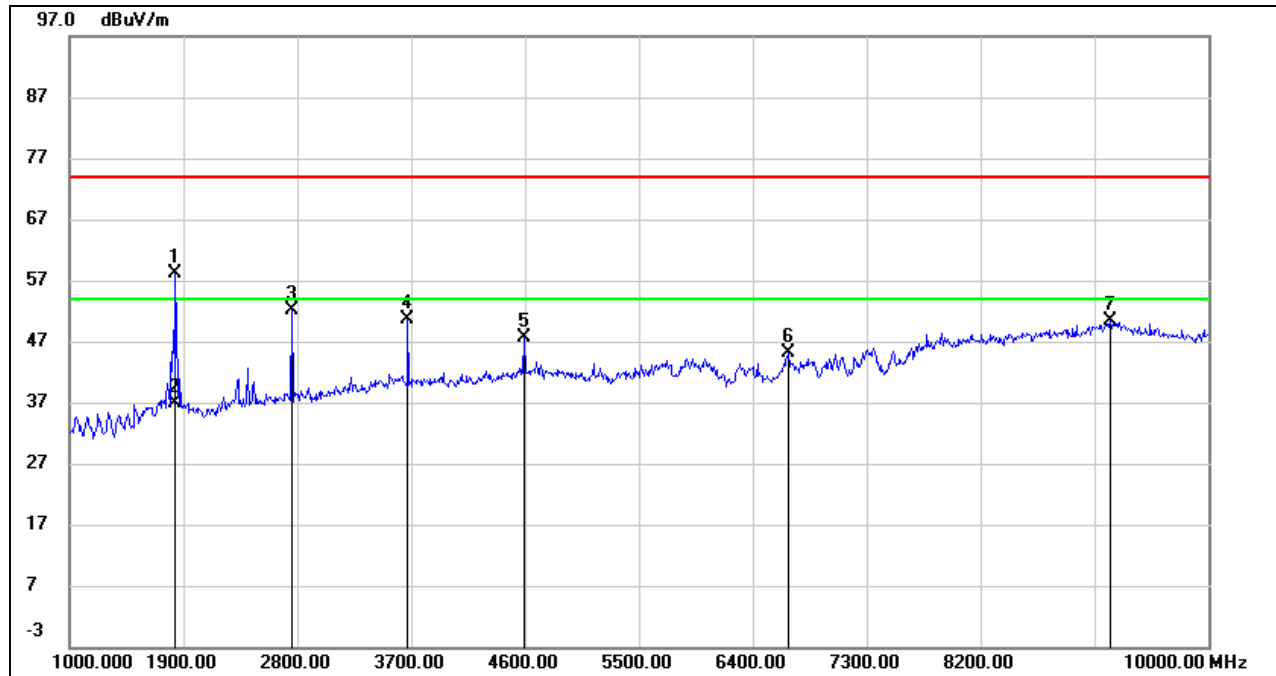
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 67.33          | -8.96          | 58.37           | 74.00          | -15.63      | peak   |
| 2   | 1828.000        | /              | /              | 37.24           | 54.00          | -16.76      | AVG    |
| 3   | 2746.000        | 58.20          | -6.08          | 52.12           | 74.00          | -21.88      | peak   |
| 4   | 3655.000        | 55.54          | -2.26          | 53.28           | 74.00          | -20.72      | peak   |
| 5   | 4573.000        | 48.58          | -0.34          | 48.24           | 74.00          | -25.76      | peak   |
| 6   | 6724.000        | 39.52          | 5.90           | 45.42           | 74.00          | -28.58      | peak   |
| 7   | 9082.000        | 39.57          | 11.03          | 50.60           | 74.00          | -23.40      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 4 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



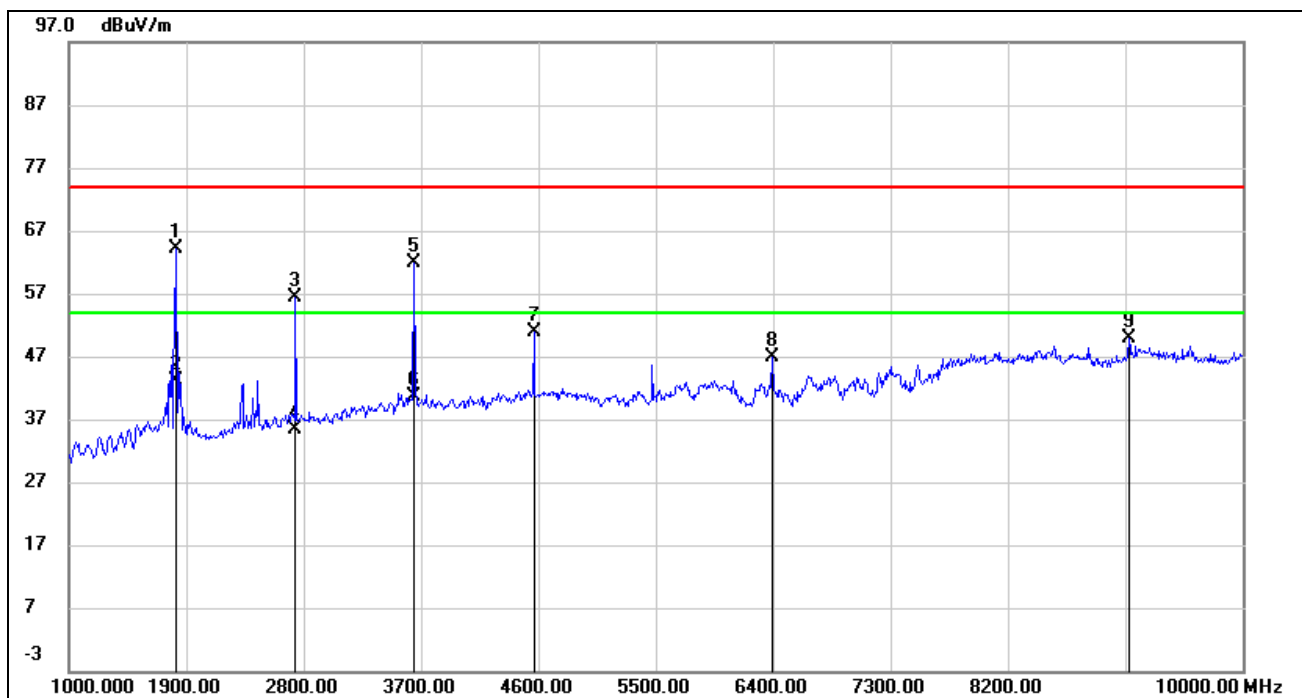
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 74.79          | -9.61          | 65.18           | 74.00          | -8.82       | peak   |
| 2   | 1837.000        | /              | /              | 44.05           | 54.00          | -9.95       | AVG    |
| 3   | 2755.000        | 63.91          | -7.10          | 56.81           | 74.00          | -17.19      | peak   |
| 4   | 2755.000        | /              | /              | 35.68           | 54.00          | -18.32      | AVG    |
| 5   | 3673.000        | 57.01          | -3.30          | 53.71           | 74.00          | -20.29      | peak   |
| 6   | 4591.000        | 55.61          | -1.24          | 54.37           | 74.00          | -19.63      | peak   |
| 7   | 4591.000        | /              | /              | 33.24           | 54.00          | -20.76      | AVG    |
| 8   | 6436.000        | 40.65          | 4.08           | 44.73           | 74.00          | -29.27      | peak   |
| 9   | 9199.000        | 41.72          | 11.26          | 52.98           | 74.00          | -21.02      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 4 | Frequency(MHz): | 919.12   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



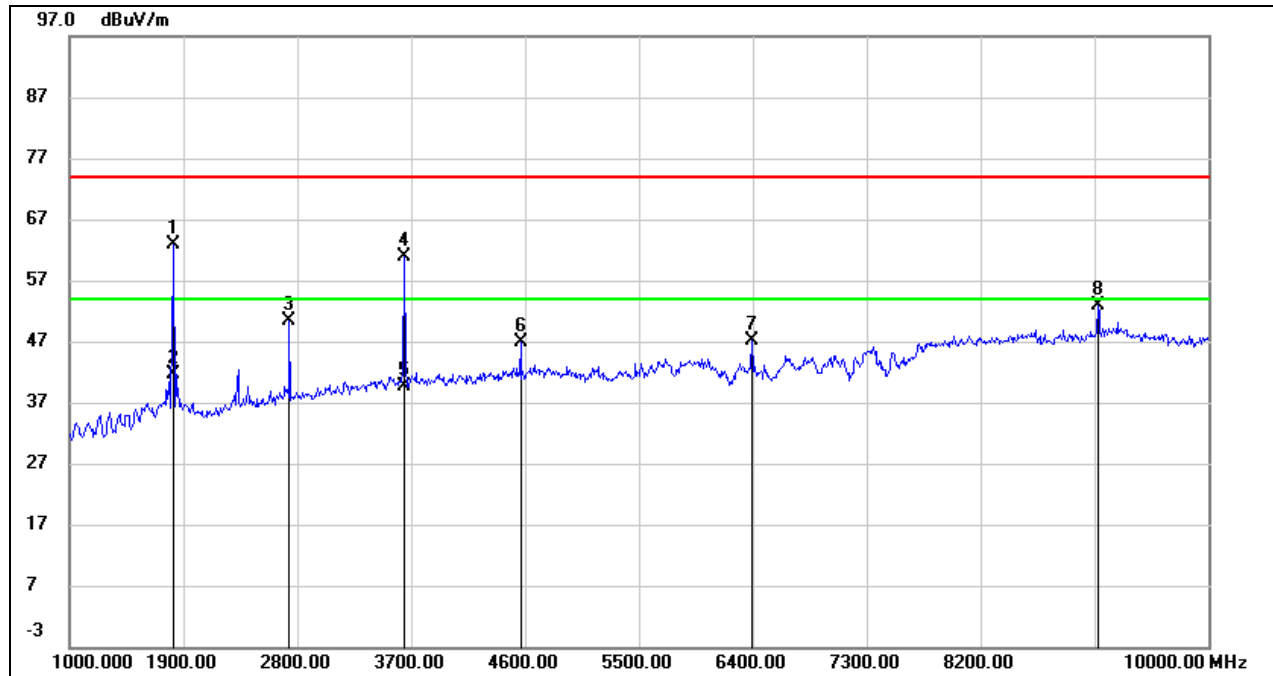
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 67.03          | -8.97          | 58.06           | 74.00          | -15.94      | peak   |
| 2   | 1837.000        | /              | /              | 36.93           | 54.00          | -17.07      | AVG    |
| 3   | 2755.000        | 58.11          | -6.04          | 52.07           | 74.00          | -21.93      | peak   |
| 4   | 3673.000        | 52.91          | -2.26          | 50.65           | 74.00          | -23.35      | peak   |
| 5   | 4591.000        | 47.93          | -0.29          | 47.64           | 74.00          | -26.36      | peak   |
| 6   | 6679.000        | 39.41          | 5.72           | 45.13           | 74.00          | -28.87      | peak   |
| 7   | 9226.000        | 38.83          | 11.53          | 50.36           | 74.00          | -23.64      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 5 | Frequency(MHz): | 912.75   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



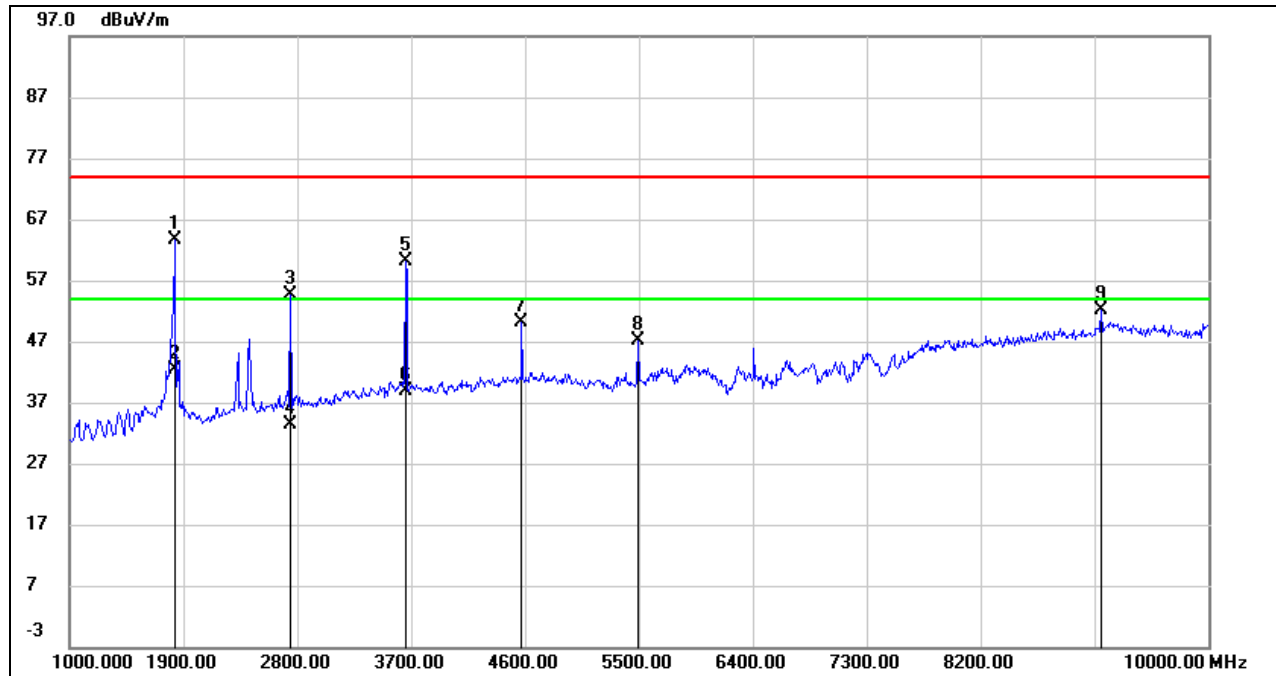
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 73.79          | -9.58          | 64.21           | 74.00          | -9.79       | peak   |
| 2   | 1819.000        | /              | /              | 43.08           | 54.00          | -10.92      | AVG    |
| 3   | 2737.000        | 63.59          | -7.17          | 56.42           | 74.00          | -17.58      | peak   |
| 4   | 2737.000        | /              | /              | 35.29           | 54.00          | -18.71      | AVG    |
| 5   | 3646.000        | 65.16          | -3.29          | 61.87           | 74.00          | -12.13      | peak   |
| 6   | 3646.000        | /              | /              | 40.74           | 54.00          | -13.26      | AVG    |
| 7   | 4564.000        | 52.12          | -1.31          | 50.81           | 74.00          | -23.19      | peak   |
| 8   | 6391.000        | 42.90          | 3.95           | 46.85           | 74.00          | -27.15      | peak   |
| 9   | 9127.000        | 38.98          | 10.91          | 49.89           | 74.00          | -24.11      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 5 | Frequency(MHz): | 912.75   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



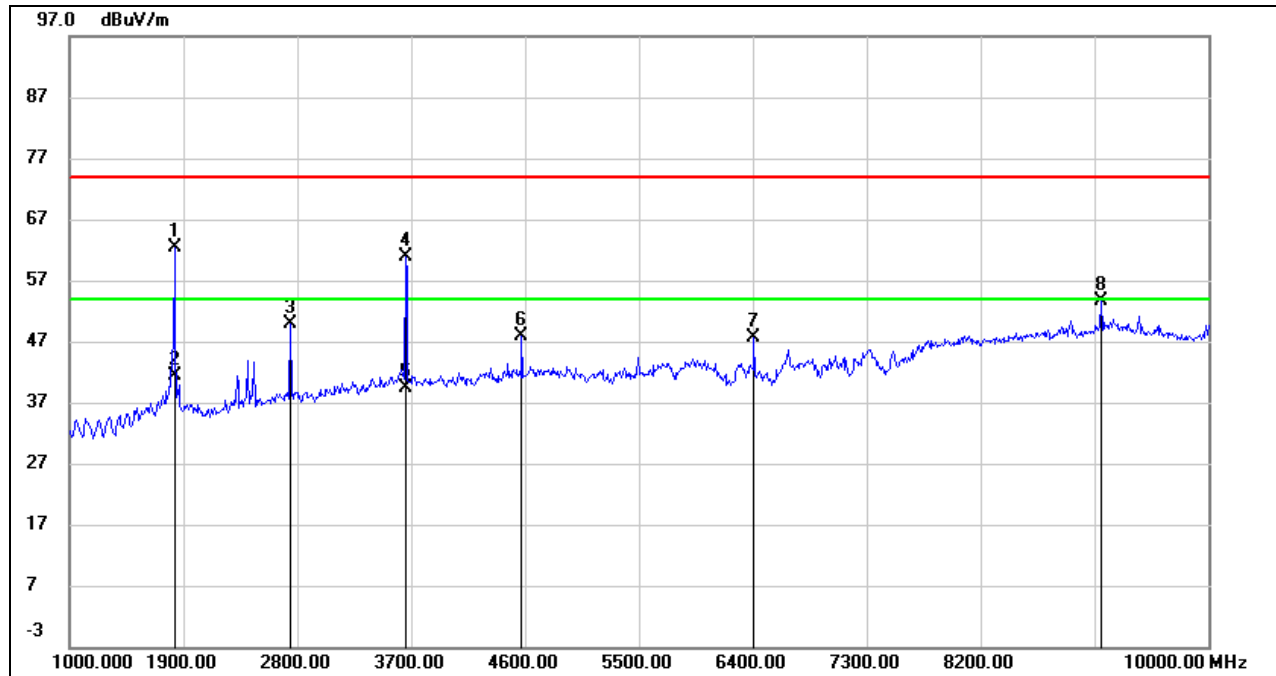
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1819.000        | 71.83          | -8.97          | 62.86           | 74.00          | -11.14      | peak   |
| 2   | 1819.000        | /              | /              | 41.73           | 54.00          | -12.27      | AVG    |
| 3   | 2737.000        | 56.40          | -6.14          | 50.26           | 74.00          | -23.74      | peak   |
| 4   | 3646.000        | 63.02          | -2.26          | 60.76           | 74.00          | -13.24      | peak   |
| 5   | 3646.000        | /              | /              | 39.63           | 54.00          | -14.37      | AVG    |
| 6   | 4564.000        | 47.19          | -0.37          | 46.82           | 74.00          | -27.18      | peak   |
| 7   | 6391.000        | 42.25          | 4.80           | 47.05           | 74.00          | -26.95      | peak   |
| 8   | 9127.000        | 41.56          | 11.21          | 52.77           | 74.00          | -21.23      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 5 | Frequency(MHz): | 915.87   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



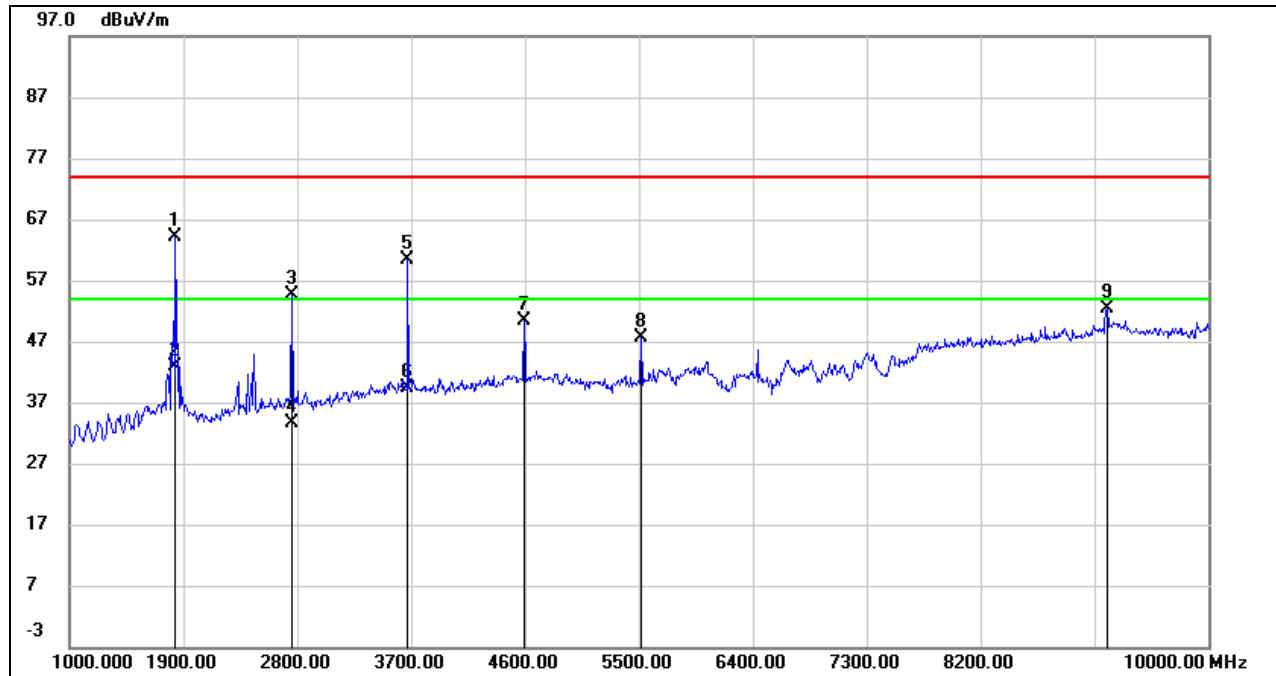
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 73.10          | -9.59          | 63.51           | 74.00          | -10.49      | peak   |
| 2   | 1828.000        | /              | /              | 42.40           | 54.00          | -11.60      | AVG    |
| 3   | 2746.000        | 61.66          | -7.13          | 54.53           | 74.00          | -19.47      | peak   |
| 4   | 2746.000        | /              | /              | 33.40           | 54.00          | -20.60      | AVG    |
| 5   | 3664.000        | 63.37          | -3.29          | 60.08           | 74.00          | -13.92      | peak   |
| 6   | 3664.000        | /              | /              | 38.95           | 54.00          | -15.05      | AVG    |
| 7   | 4579.000        | 51.38          | -1.28          | 50.10           | 74.00          | -23.90      | peak   |
| 8   | 5491.000        | 45.93          | 1.10           | 47.03           | 74.00          | -26.97      | peak   |
| 9   | 9154.000        | 41.19          | 11.04          | 52.23           | 74.00          | -21.77      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 5 | Frequency(MHz): | 915.87   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



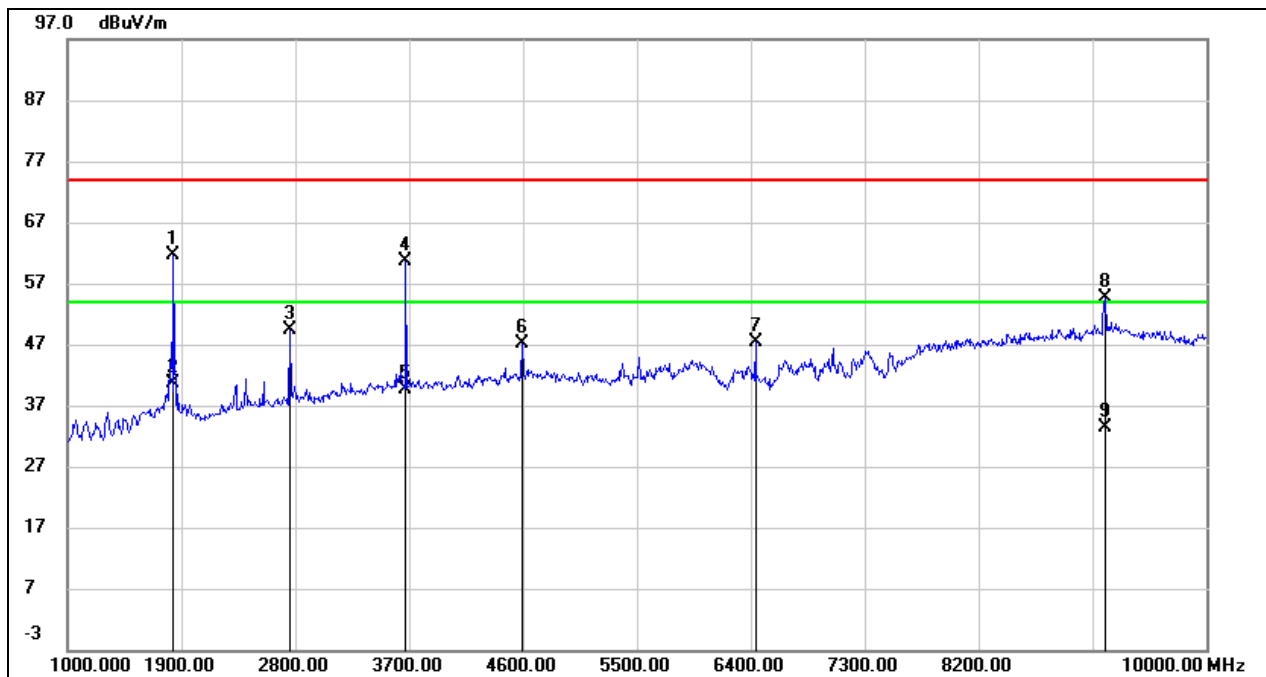
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1828.000        | 71.35          | -8.96          | 62.39           | 74.00          | -11.61      | peak   |
| 2   | 1828.000        | /              | /              | 41.26           | 54.00          | -12.74      | AVG    |
| 3   | 2746.000        | 55.93          | -6.08          | 49.85           | 74.00          | -24.15      | peak   |
| 4   | 3664.000        | 63.12          | -2.26          | 60.86           | 74.00          | -13.14      | peak   |
| 5   | 3664.000        | /              | /              | 39.37           | 54.00          | -14.63      | AVG    |
| 6   | 4579.000        | 48.22          | -0.34          | 47.88           | 74.00          | -26.12      | peak   |
| 7   | 6409.000        | 42.80          | 4.84           | 47.64           | 74.00          | -26.36      | peak   |
| 8   | 9154.000        | 42.30          | 11.31          | 53.61           | 74.00          | -20.39      | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 5 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 73.70          | -9.61          | 64.09           | 74.00          | -9.91       | peak   |
| 2   | 1837.000        | /              | /              | 42.96           | 54.00          | -11.04      | AVG    |
| 3   | 2755.000        | 61.80          | -7.10          | 54.70           | 74.00          | -19.30      | peak   |
| 4   | 2755.000        | /              | /              | 33.57           | 54.00          | -20.43      | AVG    |
| 5   | 3673.000        | 63.78          | -3.30          | 60.48           | 74.00          | -13.52      | peak   |
| 6   | 3673.000        | /              | /              | 39.35           | 54.00          | -14.65      | AVG    |
| 7   | 4591.000        | 51.69          | -1.24          | 50.45           | 74.00          | -23.55      | peak   |
| 8   | 5518.000        | 46.38          | 1.18           | 47.56           | 74.00          | -26.44      | peak   |
| 9   | 9199.000        | 41.01          | 11.26          | 52.27           | 74.00          | -21.73      | peak   |

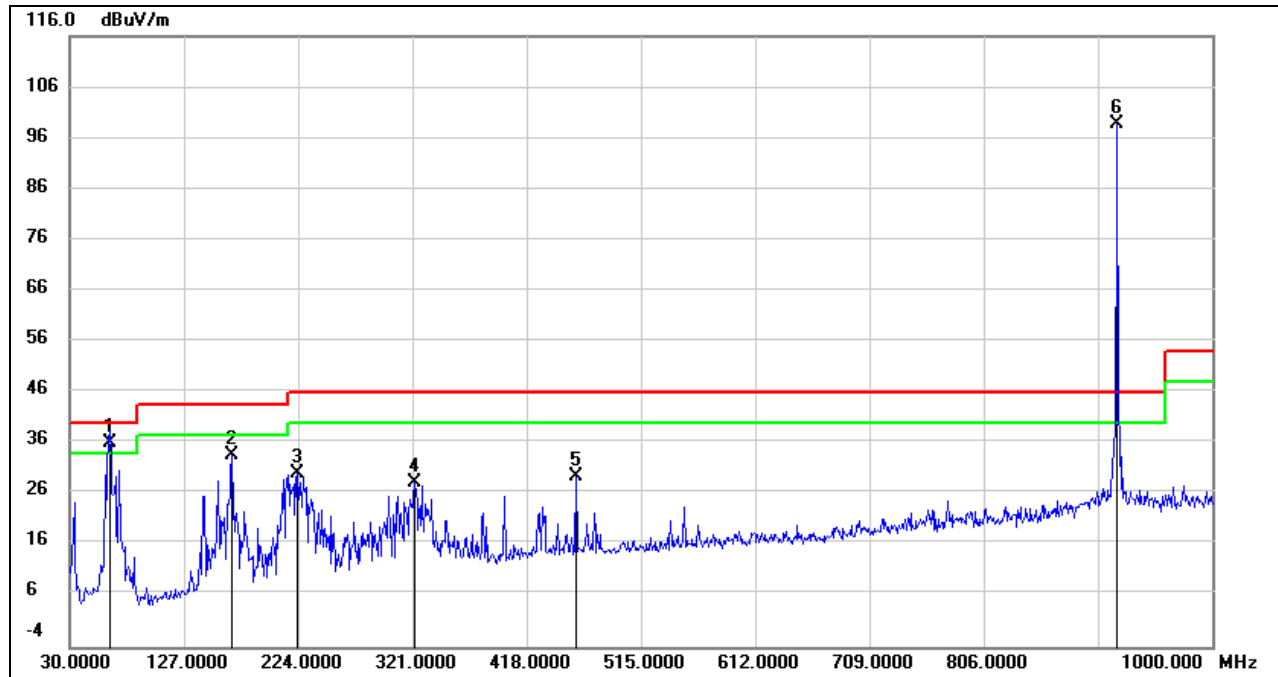
|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 5 | Frequency(MHz): | 919.12   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1837.000        | 70.63          | -8.97          | 61.66           | 74.00          | -12.34      | peak   |
| 2   | 1837.000        | /              | /              | 40.53           | 54.00          | -13.47      | AVG    |
| 3   | 2755.000        | 55.36          | -6.04          | 49.32           | 74.00          | -24.68      | peak   |
| 4   | 3673.000        | 63.01          | -2.26          | 60.75           | 74.00          | -13.25      | peak   |
| 5   | 3673.000        | /              | /              | 39.62           | 54.00          | -14.38      | AVG    |
| 6   | 4591.000        | 47.47          | -0.29          | 47.18           | 74.00          | -26.82      | peak   |
| 7   | 6436.000        | 42.35          | 4.91           | 47.26           | 74.00          | -26.74      | peak   |
| 8   | 9199.000        | 43.12          | 11.50          | 54.62           | 74.00          | -19.38      | peak   |
| 9   | 9199.000        | /              | /              | 33.47           | 54.00          | -20.53      | AVG    |

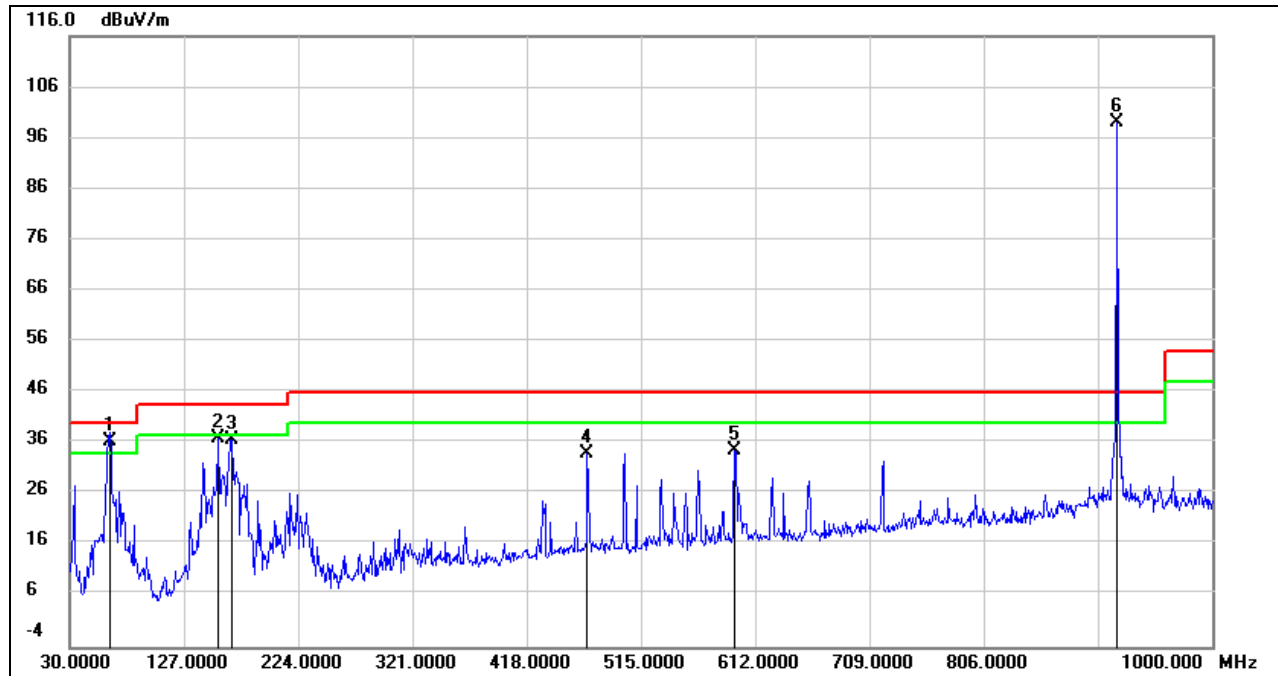
## 8.2. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark      |
|-----|--------------------|-------------------|-------------------|--------------------|-------------------|----------------|-------------|
| 1   | 63.9500            | 51.37             | -15.27            | 36.10              | 40.00             | -3.90          | QP          |
| 2   | 167.7400           | 46.02             | -12.29            | 33.73              | 43.50             | -9.77          | QP          |
| 3   | 223.0300           | 43.24             | -13.19            | 30.05              | 46.00             | -15.95         | QP          |
| 4   | 322.9400           | 38.98             | -10.62            | 28.36              | 46.00             | -17.64         | QP          |
| 5   | 459.7100           | 37.96             | -8.44             | 29.52              | 46.00             | -16.48         | QP          |
| 6   | 919.4900           | 100.12            | -1.43             | 98.69              | /                 | /              | fundamental |

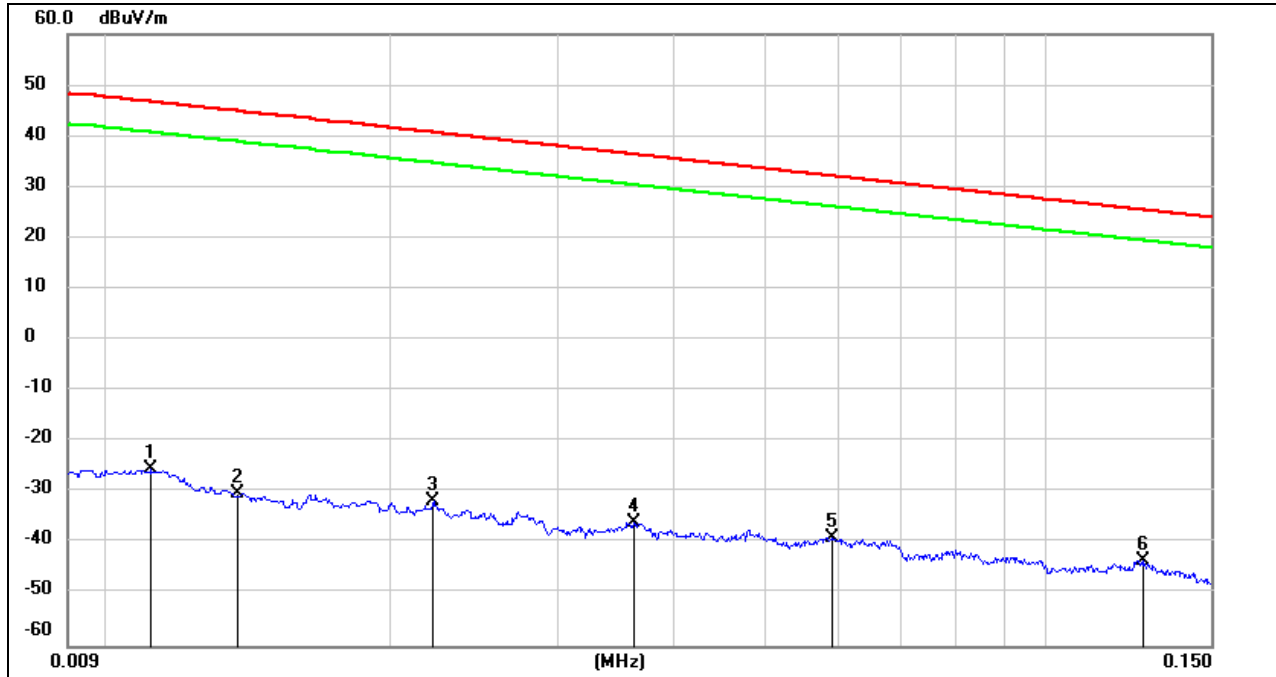
|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Vertical         | Test Voltage:   | DC 3.3 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark      |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|-------------|
| 1   | 63.9500         | 51.50          | -15.27         | 36.23           | 40.00          | -3.77       | QP          |
| 2   | 156.1000        | 49.93          | -13.05         | 36.88           | 43.50          | -6.62       | QP          |
| 3   | 167.7400        | 48.84          | -12.29         | 36.55           | 43.50          | -6.95       | QP          |
| 4   | 469.4100        | 42.21          | -8.36          | 33.85           | 46.00          | -12.15      | QP          |
| 5   | 594.5400        | 40.89          | -6.34          | 34.55           | 46.00          | -11.45      | QP          |
| 6   | 919.2200        | 100.57         | -1.43          | 99.14           | /              | /           | fundamental |

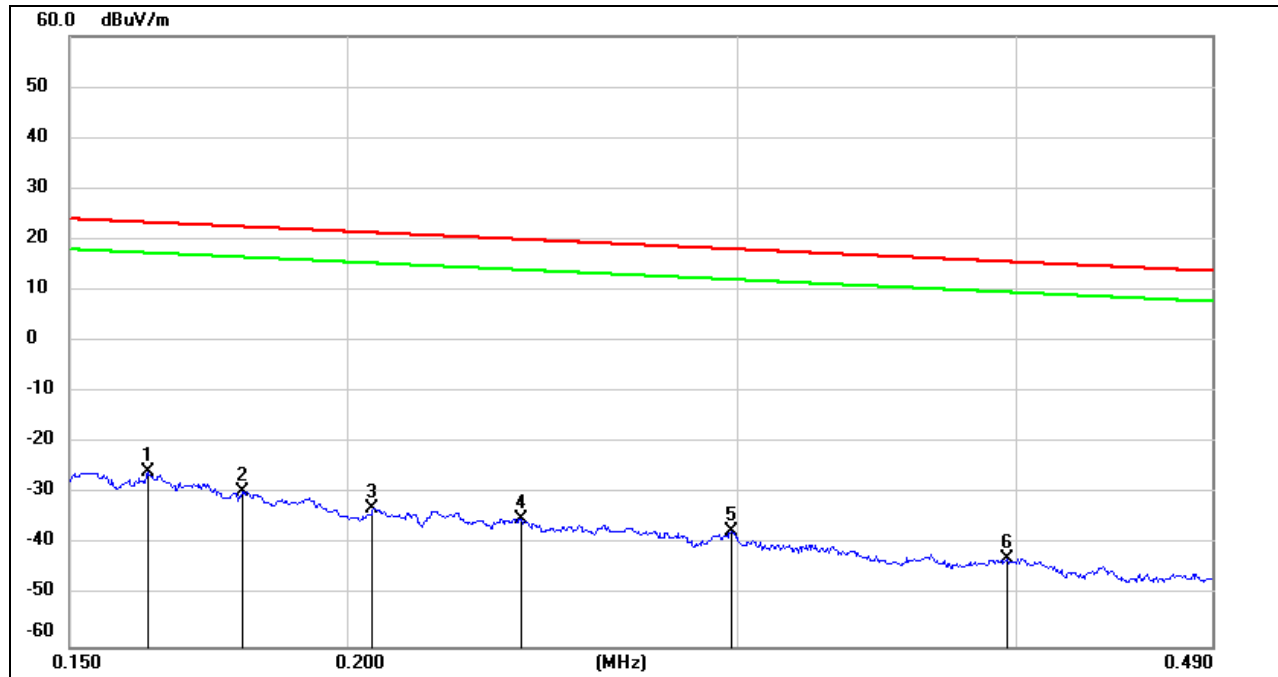
### 8.3. SPURIOUS EMISSIONS BELOW 30 MHz

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



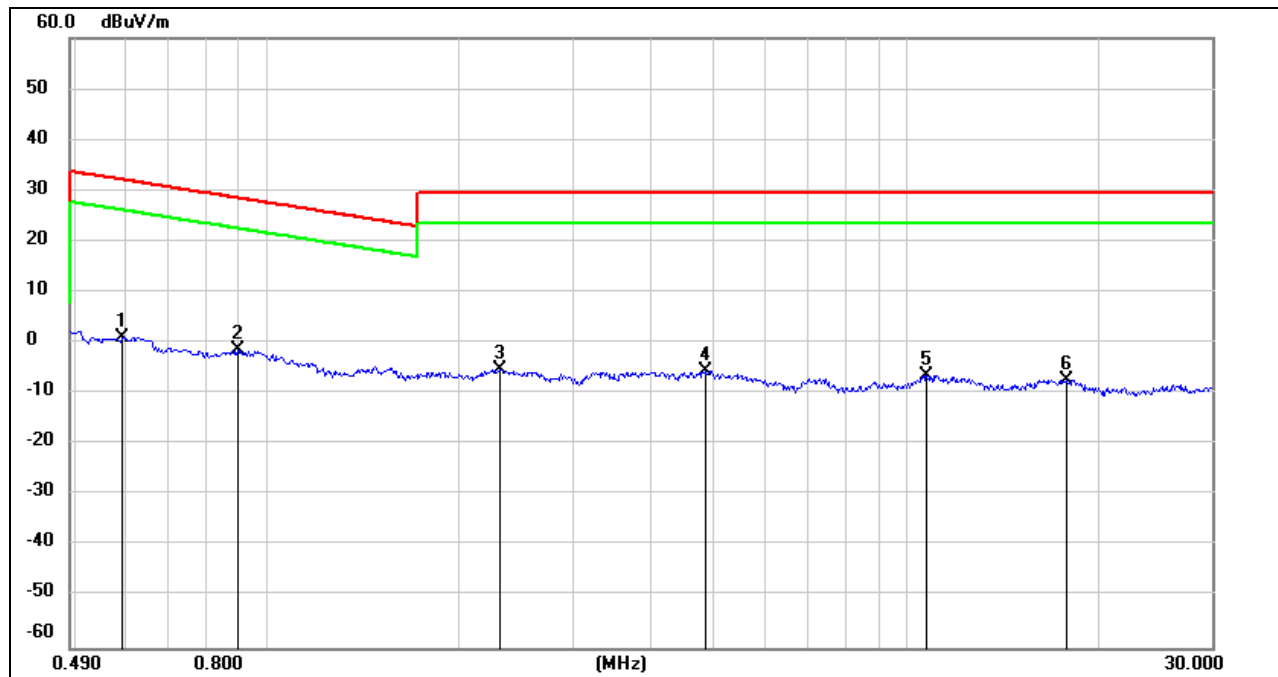
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | FCC<br>Result<br>(dBuV/m) | FCC Limit<br>(dBuV/m) | ISED<br>Result<br>(dBuA/m) | ISED<br>Limit<br>(dBuA/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------|---------------------------|-----------------------|----------------------------|---------------------------|----------------|--------|
| 1   | 0.0111             | 75.95             | -101.39           | -25.44                    | 46.69                 | -76.94                     | -4.81                     | -72.13         | peak   |
| 2   | 0.0137             | 71.30             | -101.38           | -30.08                    | 44.87                 | -81.58                     | -6.63                     | -74.95         | peak   |
| 3   | 0.0221             | 69.63             | -101.35           | -31.72                    | 40.71                 | -83.22                     | -10.79                    | -72.43         | peak   |
| 4   | 0.0362             | 65.51             | -101.42           | -35.91                    | 36.43                 | -87.41                     | -15.07                    | -72.34         | peak   |
| 5   | 0.0589             | 62.81             | -101.52           | -38.71                    | 32.20                 | -90.21                     | -19.30                    | -70.91         | peak   |
| 6   | 0.1272             | 58.35             | -101.71           | -43.36                    | 25.52                 | -94.86                     | -25.98                    | -68.88         | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | FCC<br>Result<br>(dBuV/m) | FCC Limit<br>(dBuV/m) | ISED<br>Result<br>(dBuA/m) | ISED<br>Limit<br>(dBuA/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------|---------------------------|-----------------------|----------------------------|---------------------------|----------------|--------|
| 1   | 0.1625             | 75.89             | -101.65           | -25.76                    | 23.39                 | -77.26                     | -28.11                    | -49.15         | peak   |
| 2   | 0.1794             | 72.27             | -101.68           | -29.41                    | 22.53                 | -80.91                     | -28.97                    | -51.94         | peak   |
| 3   | 0.2053             | 68.79             | -101.73           | -32.94                    | 21.35                 | -84.44                     | -30.15                    | -54.29         | peak   |
| 4   | 0.2394             | 66.97             | -101.78           | -34.81                    | 20.02                 | -86.31                     | -31.48                    | -54.83         | peak   |
| 5   | 0.2977             | 64.41             | -101.85           | -37.44                    | 18.13                 | -88.94                     | -33.37                    | -55.57         | peak   |
| 6   | 0.3966             | 59.18             | -101.96           | -42.78                    | 15.63                 | -94.28                     | -35.87                    | -58.41         | peak   |

|            |                  |                 |          |
|------------|------------------|-----------------|----------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12   |
| Polarity:  | Horizontal       | Test Voltage:   | DC 3.3 V |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB/m) | FCC<br>Result<br>(dBuV/m) | FCC Limit<br>(dBuV/m) | ISED<br>Result<br>(dBuA/m) | ISED<br>Limit<br>(dBuA/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------|---------------------------|-----------------------|----------------------------|---------------------------|----------------|--------|
| 1   | 0.5917             | 63.24             | -62.08            | 1.16                      | 32.16                 | -50.34                     | -19.34                    | -31.00         | peak   |
| 2   | 0.8971             | 60.72             | -62.20            | -1.48                     | 28.55                 | -52.98                     | -22.95                    | -30.03         | peak   |
| 3   | 2.3195             | 56.54             | -61.75            | -5.21                     | 29.54                 | -56.71                     | -21.96                    | -34.75         | peak   |
| 4   | 4.8573             | 56.00             | -61.47            | -5.47                     | 29.54                 | -56.97                     | -21.96                    | -35.01         | peak   |
| 5   | 10.7299            | 54.48             | -60.83            | -6.35                     | 29.54                 | -57.85                     | -21.96                    | -35.89         | peak   |
| 6   | 17.8124            | 53.62             | -60.92            | -7.30                     | 29.54                 | -58.80                     | -21.96                    | -36.84         | peak   |

## 9. AC POWER LINE CONDUCTED EMISSIONS

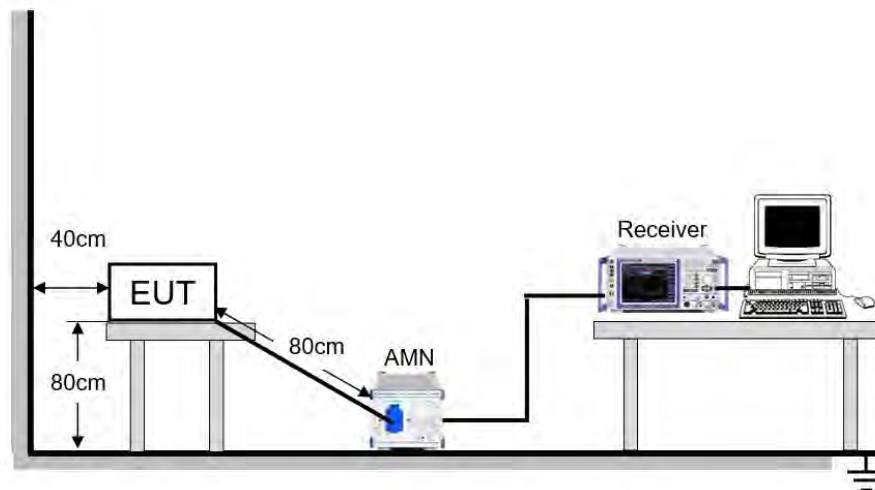
### LIMITS

Please refer to CFR 47 FCC §15.207 (a).

| FREQUENCY (MHz) | Quasi-peak | Average   |
|-----------------|------------|-----------|
| 0.15 -0.5       | 66 - 56 *  | 56 - 46 * |
| 0.50 -5.0       | 56.00      | 46.00     |
| 5.0 -30.0       | 60.00      | 50.00     |

### TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

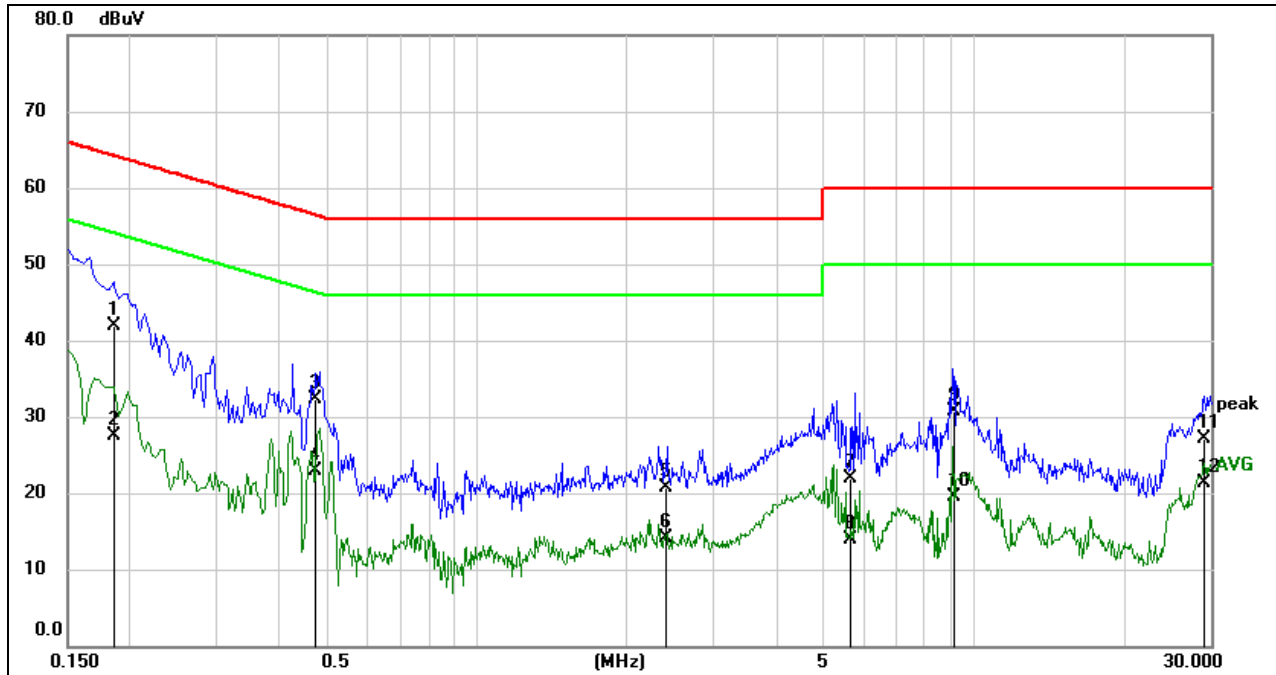
The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

### TEST ENVIRONMENT

|                     |         |                   |                |
|---------------------|---------|-------------------|----------------|
| Temperature         | 21.7 °C | Relative Humidity | 53.8 %         |
| Atmosphere Pressure | 101 kPa | Test Voltage      | AC 120 V/60 Hz |

## RESULTS

|            |                  |                 |        |
|------------|------------------|-----------------|--------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12 |
| Line:      | Line             |                 |        |



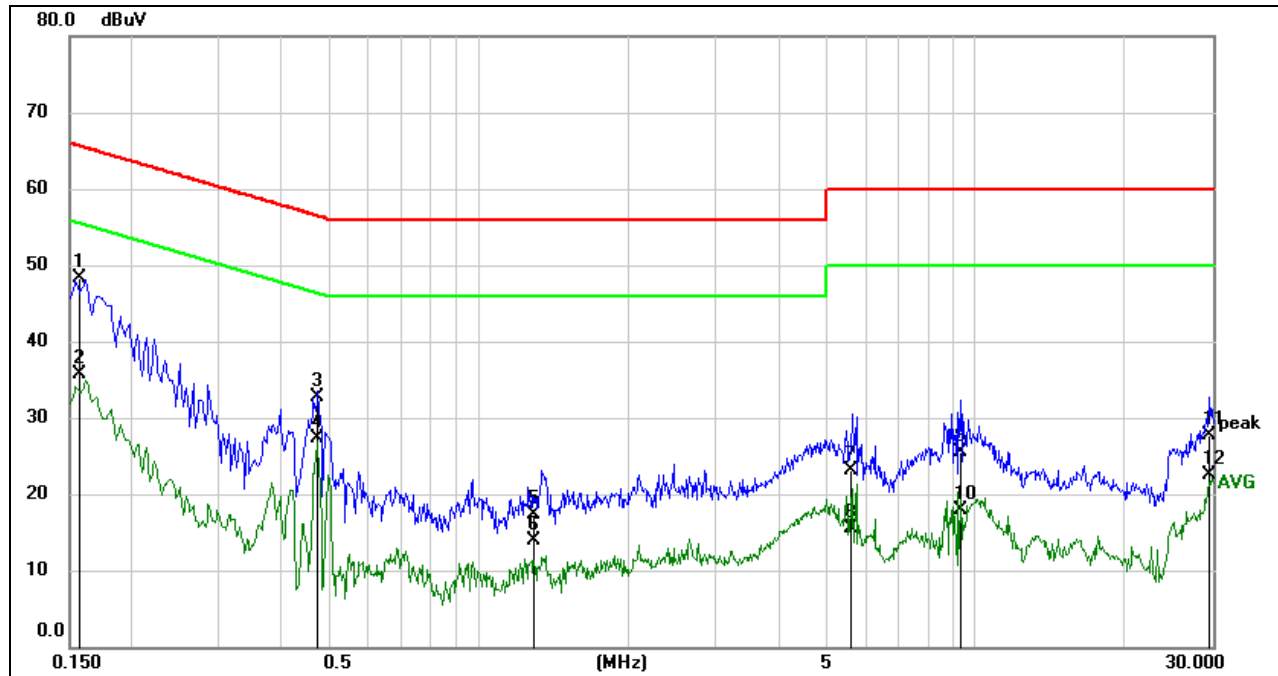
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|-----------------|----------------|--------------|---------------|--------------|-------------|--------|
| 1   | 0.1869          | 31.80          | 10.17        | 41.97         | 64.17        | -22.20      | QP     |
| 2   | 0.1869          | 17.34          | 10.17        | 27.51         | 54.17        | -26.66      | AVG    |
| 3   | 0.4775          | 22.32          | 10.05        | 32.37         | 56.38        | -24.01      | QP     |
| 4   | 0.4775          | 12.83          | 10.05        | 22.88         | 46.38        | -23.50      | AVG    |
| 5   | 2.3995          | 10.64          | 10.10        | 20.74         | 56.00        | -35.26      | QP     |
| 6   | 2.3995          | 3.93           | 10.10        | 14.03         | 46.00        | -31.97      | AVG    |
| 7   | 5.6610          | 11.55          | 10.39        | 21.94         | 60.00        | -38.06      | QP     |
| 8   | 5.6610          | 3.56           | 10.39        | 13.95         | 50.00        | -36.05      | AVG    |
| 9   | 9.1858          | 20.32          | 10.43        | 30.75         | 60.00        | -29.25      | QP     |
| 10  | 9.1858          | 9.03           | 10.43        | 19.46         | 50.00        | -30.54      | AVG    |
| 11  | 29.1217         | 16.05          | 11.12        | 27.17         | 60.00        | -32.83      | QP     |
| 12  | 29.1217         | 10.27          | 11.12        | 21.39         | 50.00        | -28.61      | AVG    |

Note:

1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

|            |                  |                 |        |
|------------|------------------|-----------------|--------|
| Test Mode: | GFSK Condition 1 | Frequency(MHz): | 919.12 |
| Line:      | Neutral          |                 |        |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|-----------------|----------------|--------------|---------------|--------------|-------------|--------|
| 1   | 0.1578          | 38.12          | 10.22        | 48.34         | 65.58        | -17.24      | QP     |
| 2   | 0.1578          | 25.52          | 10.22        | 35.74         | 55.58        | -19.84      | AVG    |
| 3   | 0.4722          | 22.61          | 10.05        | 32.66         | 56.48        | -23.82      | QP     |
| 4   | 0.4722          | 17.26          | 10.05        | 27.31         | 46.48        | -19.17      | AVG    |
| 5   | 1.2894          | 7.48           | 9.89         | 17.37         | 56.00        | -38.63      | QP     |
| 6   | 1.2894          | 4.04           | 9.89         | 13.93         | 46.00        | -32.07      | AVG    |
| 7   | 5.6030          | 12.74          | 10.38        | 23.12         | 60.00        | -36.88      | QP     |
| 8   | 5.6030          | 5.14           | 10.38        | 15.52         | 50.00        | -34.48      | AVG    |
| 9   | 9.3543          | 15.08          | 10.43        | 25.51         | 60.00        | -34.49      | QP     |
| 10  | 9.3543          | 7.51           | 10.43        | 17.94         | 50.00        | -32.06      | AVG    |
| 11  | 29.6715         | 16.48          | 11.13        | 27.61         | 60.00        | -32.39      | QP     |
| 12  | 29.6715         | 11.45          | 11.13        | 22.58         | 50.00        | -27.42      | AVG    |

Note:

1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

## 10. ANTENNA REQUIREMENTS

### **APPLICABLE REQUIREMENTS**

Please refer to FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)

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. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **RESULTS**

Complies

**TEST DATA****11. GFSK.50 kbps Condition 1****11.1. Appendix A1: DUTY CYCLE****11.1.1. Test Result**

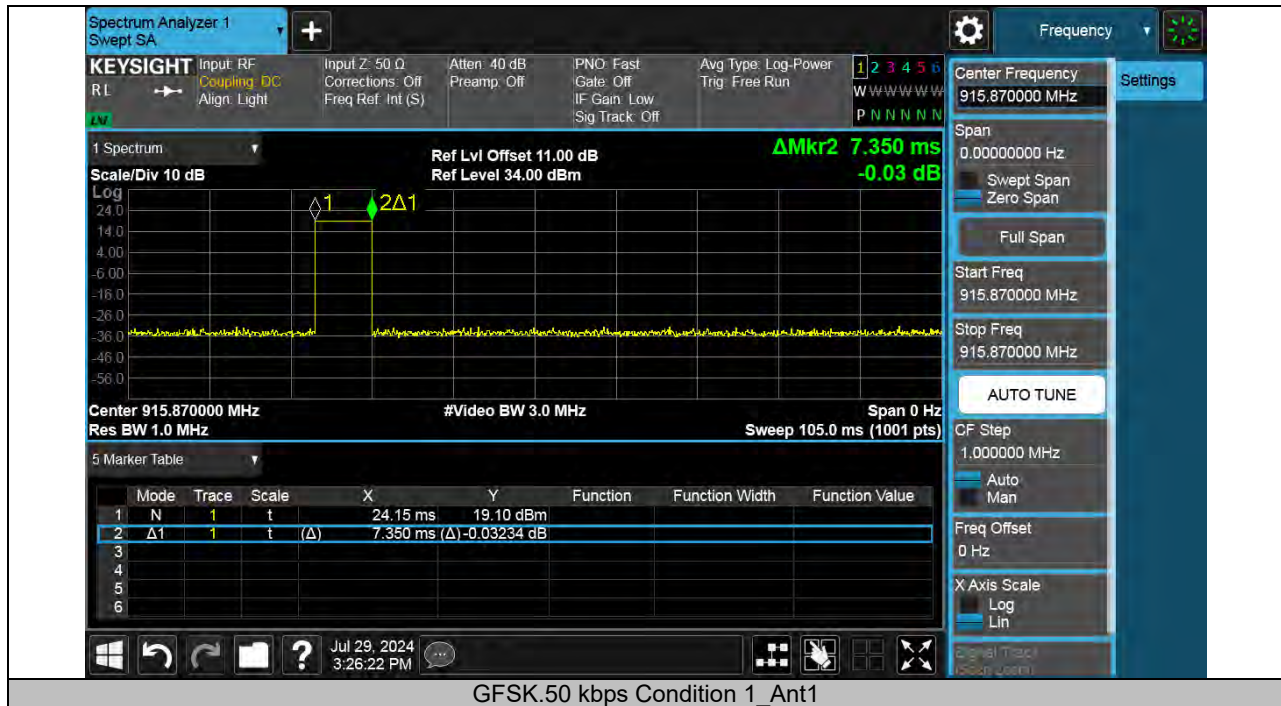
| Test Mode                   | On Time<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(Linear) | Duty Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) |
|-----------------------------|-------------------|------------------|-----------------------------|-------------------|-----------------------------------------|
| GFSK.50 kbps Condition<br>1 | 7.35              | 100              | 0.0735                      | 7.35              | -22.67                                  |

Note:

Duty Cycle Correction Factor=20log (1/x).

Where: x is Duty Cycle (Linear)

## Test Graphs

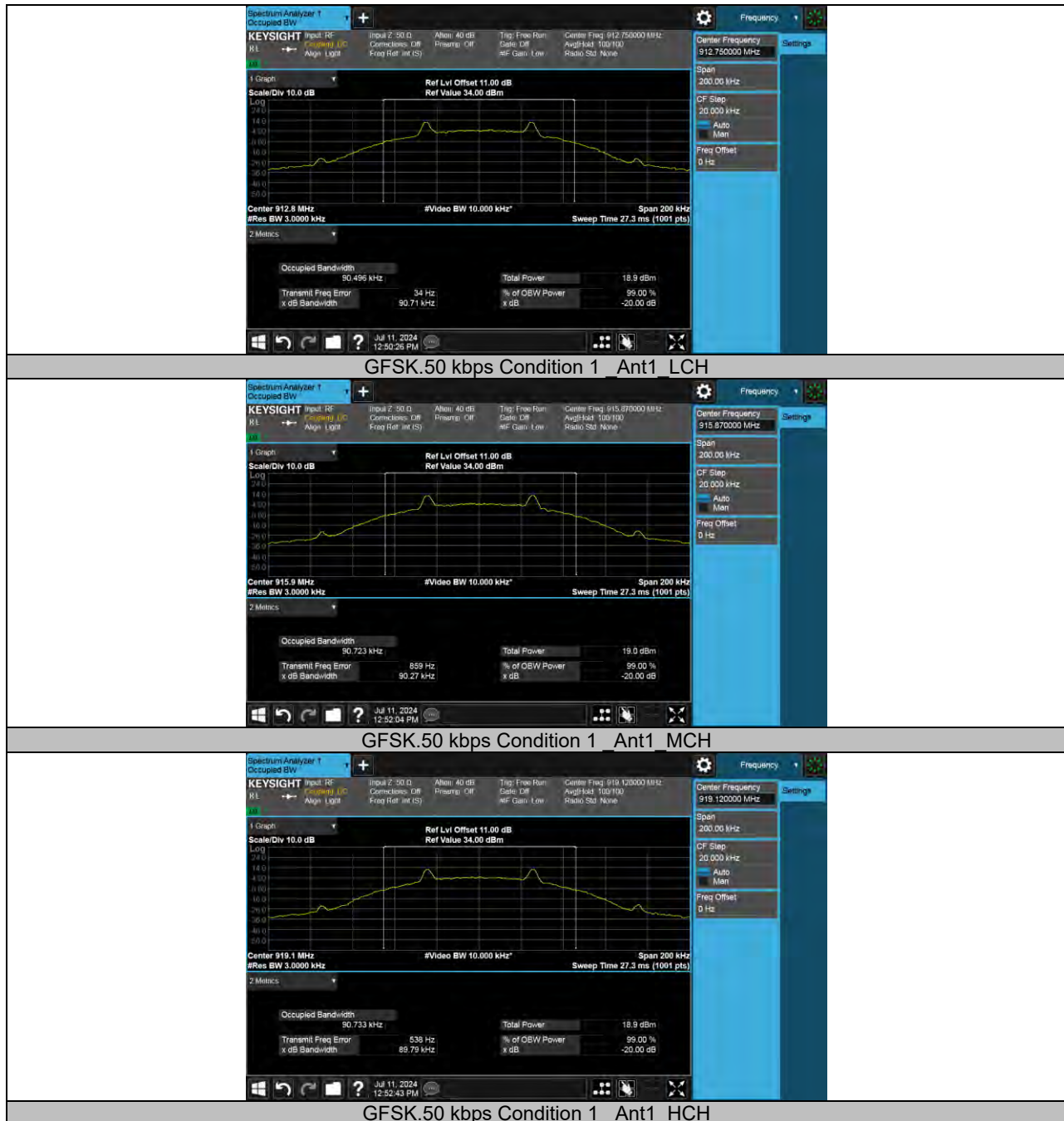


## 11.2. Appendix B1: 20DB BANDWIDTH & OCCUPIED CHANNEL BANDWIDTH

### 11.2.1. Test Result

| Test Mode                   | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|-----------------------------|---------|---------|---------------|-----------|---------|
| GFSK.50 kbps<br>Condition 1 | Ant1    | LCH     | 0.09071       | 0.090496  | PASS    |
|                             |         | MCH     | 0.09027       | 0.090723  | PASS    |
|                             |         | HCH     | 0.08979       | 0.090733  | PASS    |

## 11.2.2. Test Graphs



### 11.3. Appendix C1: CONDUCTED OUTPUT POWER

#### 11.3.1. Test Result

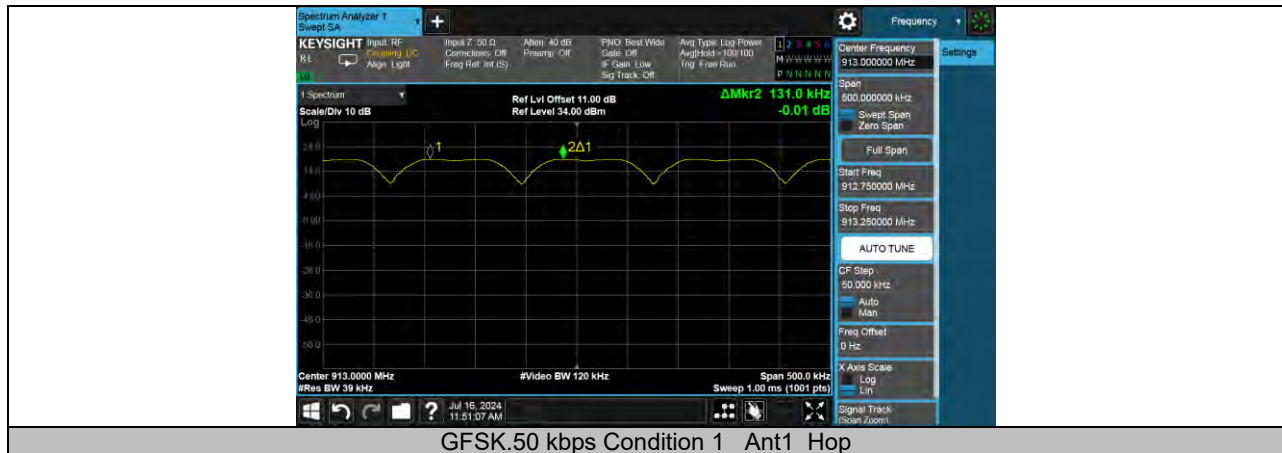
| Test Mode                   | Antenna | Channel | PEAK<br>Result[dBm] | Limit[dBm] | Verdict |
|-----------------------------|---------|---------|---------------------|------------|---------|
| GFSK.50 kbps Condition<br>1 | Ant1    | LCH     | 18.92               | ≤30        | PASS    |
|                             |         | MCH     | 18.94               | ≤30        | PASS    |
|                             |         | HCH     | 18.95               | ≤30        | PASS    |

## 11.4. Appendix D1: CARRIER FREQUENCY SEPARATION

### 11.4.1. Test Result

| Test Mode                | Antenna | Channel | Result [MHz] | Limit[MHz]     | Verdict |
|--------------------------|---------|---------|--------------|----------------|---------|
| GFSK.50 kbps Condition 1 | Ant1    | Hop     | 0.131        | $\geq 0.09071$ | PASS    |

### 11.4.2. Test Graphs

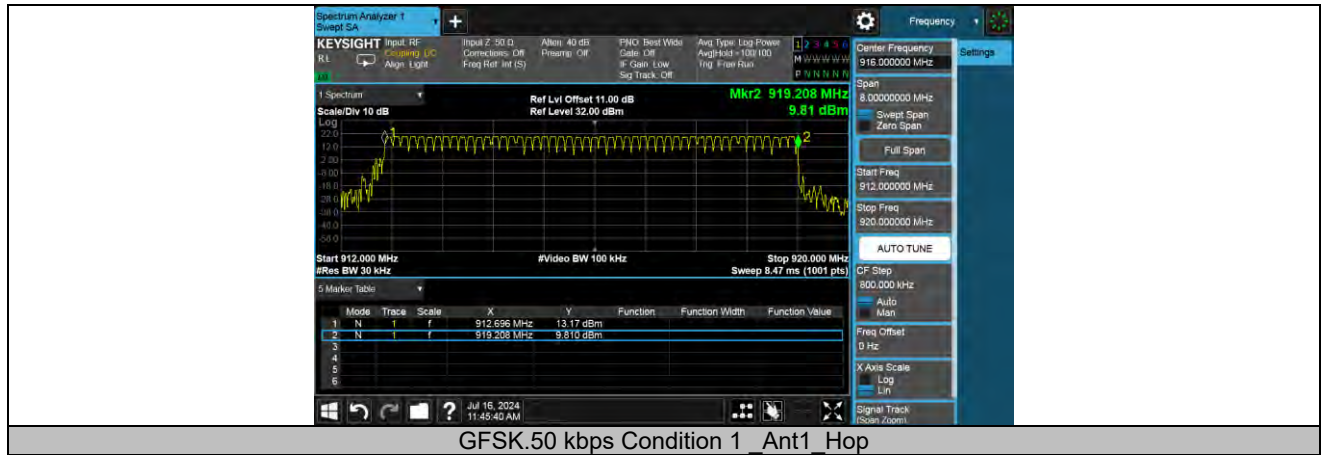


## 11.5. Appendix E1: NUMBER OF HOPPING FREQUENCIES

### 11.5.1. Test Result

| Test Mode                | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|--------------------------|---------|---------|-------------|------------|---------|
| GFSK.50 kbps Condition 1 | Ant1    | Hop     | 50          | ≥50        | PASS    |

### 11.5.2. Test Graphs



## 11.6. Appendix F1: TIME OF OCCUPANCY (DWELL TIME)

### 11.6.1. Test Result

| Test Mode                   | Antenna | Channel | Time of single slot<br>1<br>[ms] | The number of hop channel<br>appear | Burst Width 1<br>[ms/hop/ch] |
|-----------------------------|---------|---------|----------------------------------|-------------------------------------|------------------------------|
| GFSK.50 kbps Condition<br>1 | Ant1    | Hop     | 5.58                             | 28                                  | 156.24                       |

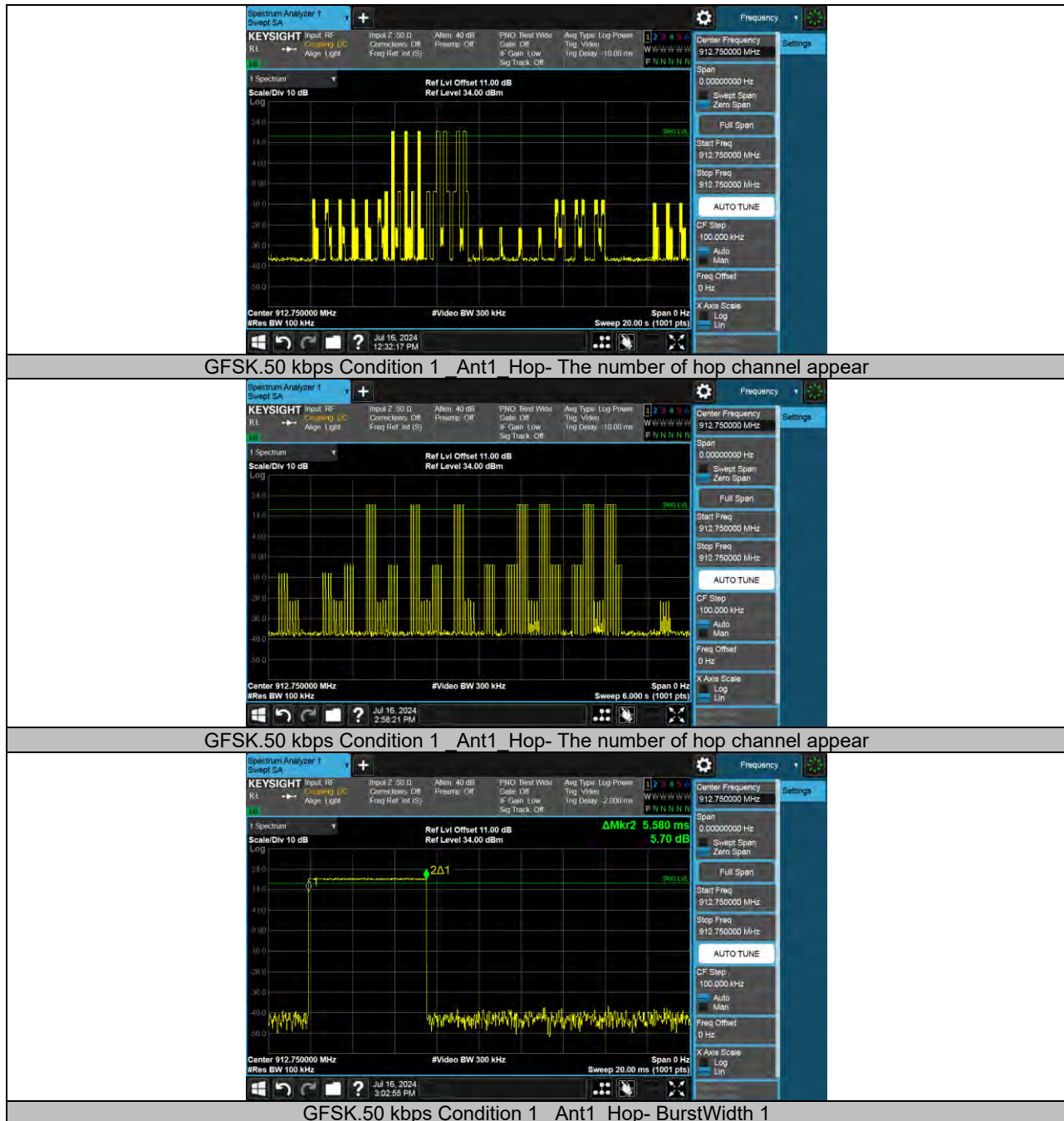
| Test Mode                | Antenna | Channel | Dwell Time<br>[ms] | Limit<br>[ms] | Results |
|--------------------------|---------|---------|--------------------|---------------|---------|
| GFSK.50 kbps Condition 1 | Ant1    | Hop     | 156.34             | 400           | PASS    |

Note:

GFSK.50 kbps Condition 1: The dwell time = Time of single slot \* The number of hop channel appear within 20s

BurstWidth = Time of single slot \* number of single slot

## 11.6.2. Test Graphs



## 11.7. Appendix G1: CONDUCTED BAND EDGE AND SPURIOUS EMISSION

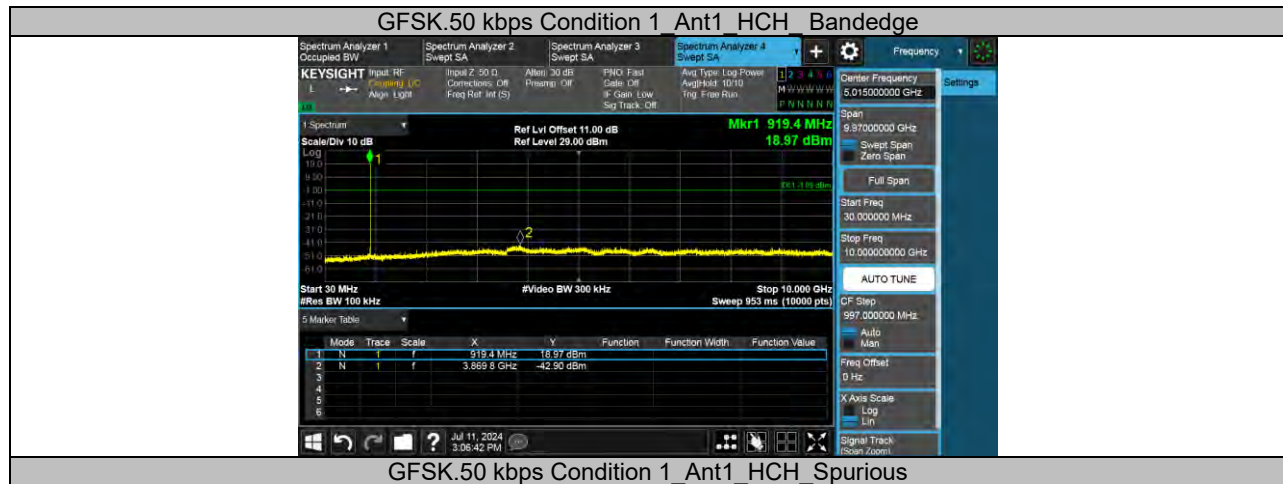
### 11.7.1. Test Result

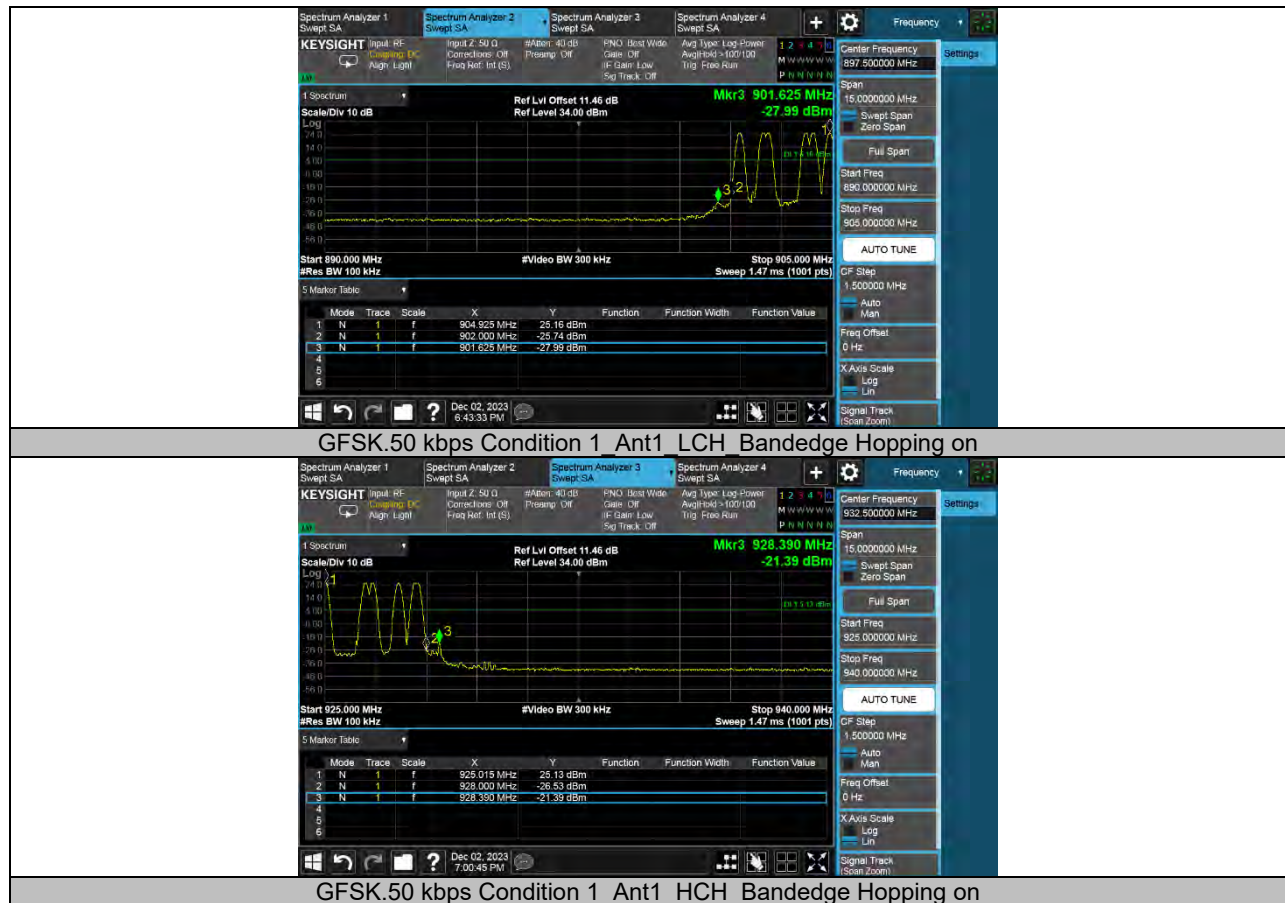
| Test Mode                   | Antenna | ChName  | Result [dBm]         | Verdict |
|-----------------------------|---------|---------|----------------------|---------|
| GFSK.50 kbps Condition<br>1 | Ant1    | LCH     | See the below graphs | PASS    |
|                             |         | MCH     |                      | PASS    |
|                             |         | HCH     |                      | PASS    |
|                             |         | Hop_LCH |                      | PASS    |
|                             |         | Hop_HCH |                      | PASS    |

## 11.7.2. Test Graphs









## 12. GFSK.50 kbps Condition 2

### 12.1. Appendix A2: DUTY CYCLE

#### 12.1.1. Test Result

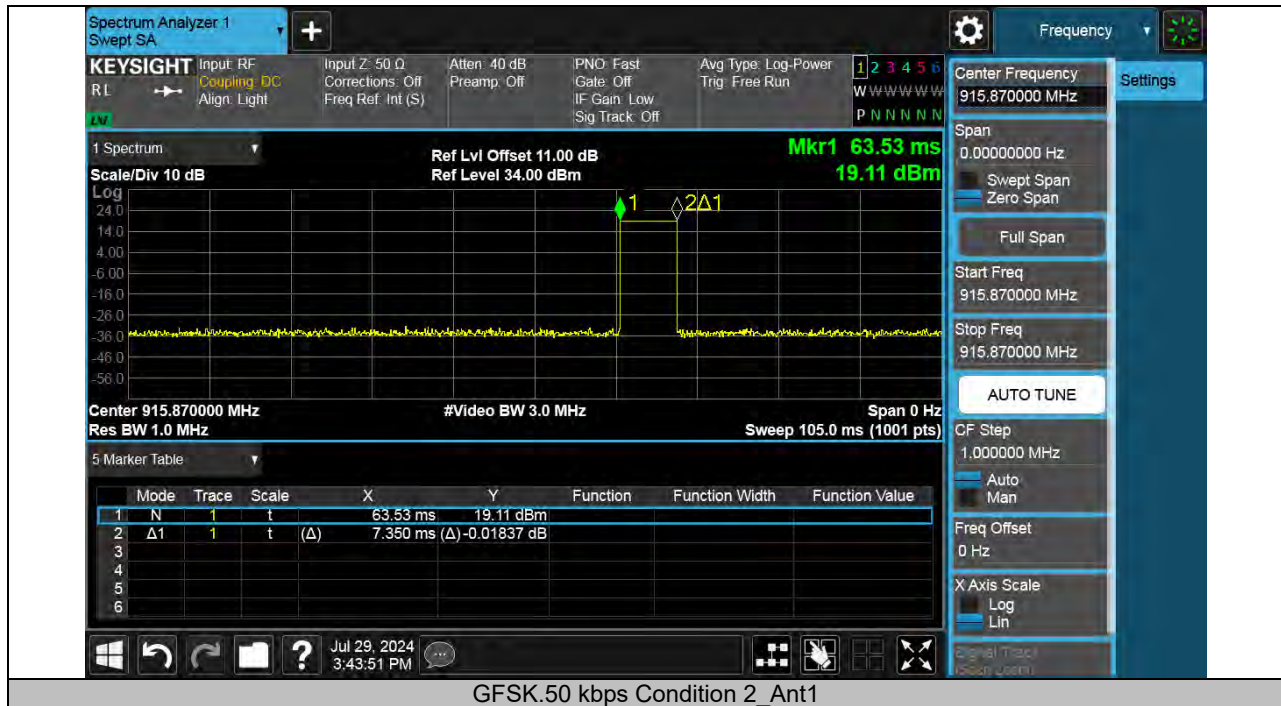
| Test Mode                   | On Time<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(Linear) | Duty Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) |
|-----------------------------|-------------------|------------------|-----------------------------|-------------------|-----------------------------------------|
| GFSK.50 kbps Condition<br>2 | 7.35              | 100              | 0.0735                      | 7.35              | -22.67                                  |

Note:

Duty Cycle Correction Factor=20log (1/x).

Where: x is Duty Cycle (Linear)

## Test Graphs

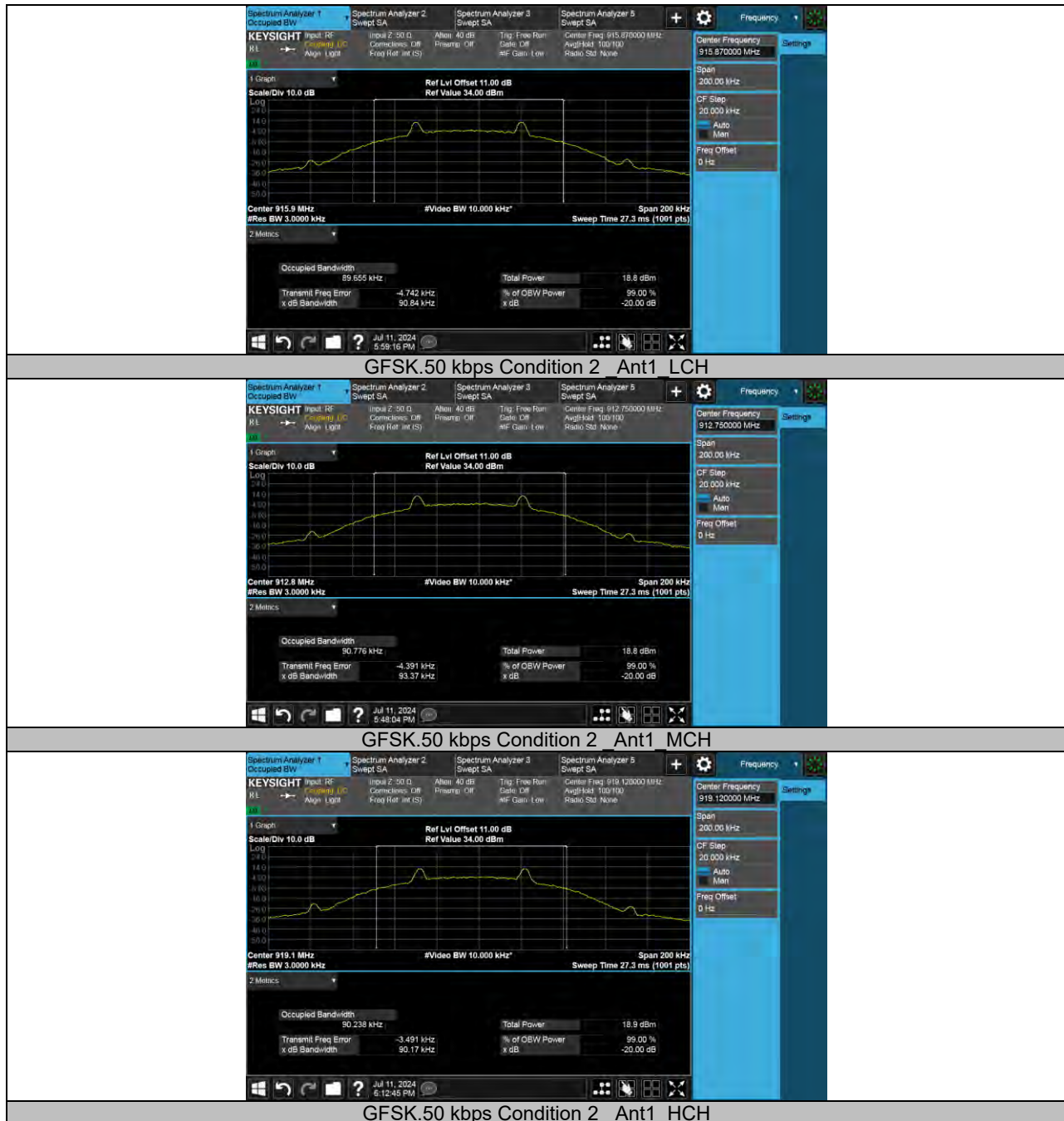


## 12.2. Appendix B2: 20DB BANDWIDTH & OCCUPIED CHANNEL BANDWIDTH

### 12.2.1. Test Result

| Test Mode                   | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|-----------------------------|---------|---------|---------------|-----------|---------|
| GFSK.50 kbps<br>Condition 2 | Ant1    | LCH     | 0.09337       | 0.090776  | PASS    |
|                             |         | MCH     | 0.09084       | 0.089665  | PASS    |
|                             |         | HCH     | 0.09017       | 0.090238  | PASS    |

## 12.2.2. Test Graphs



## 12.3. Appendix C2: CONDUCTED OUTPUT POWER

### 12.3.1. Test Result

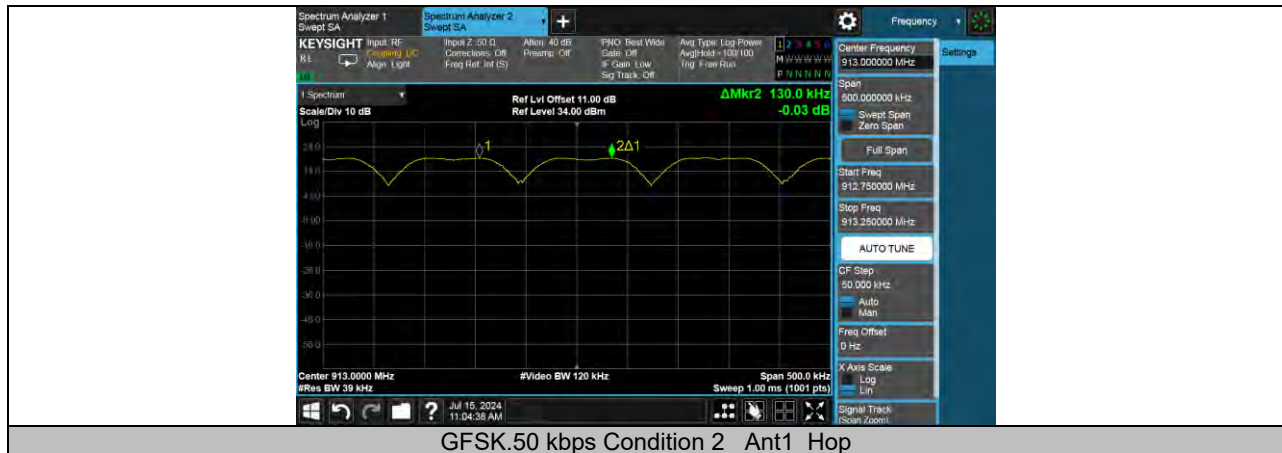
| Test Mode                   | Antenna | Channel | PEAK<br>Result[dBm] | Limit[dBm] | Verdict |
|-----------------------------|---------|---------|---------------------|------------|---------|
| GFSK.50 kbps Condition<br>2 | Ant1    | LCH     | 18.96               | ≤30        | PASS    |
|                             |         | MCH     | 18.95               | ≤30        | PASS    |
|                             |         | HCH     | 18.97               | ≤30        | PASS    |

## 12.4. Appendix D2: CARRIER FREQUENCY SEPARATION

### 12.4.1. Test Result

| Test Mode                | Antenna | Channel | Result [MHz] | Limit[MHz]     | Verdict |
|--------------------------|---------|---------|--------------|----------------|---------|
| GFSK.50 kbps Condition 2 | Ant1    | Hop     | 0.130        | $\geq 0.09337$ | PASS    |

### 12.4.2. Test Graphs

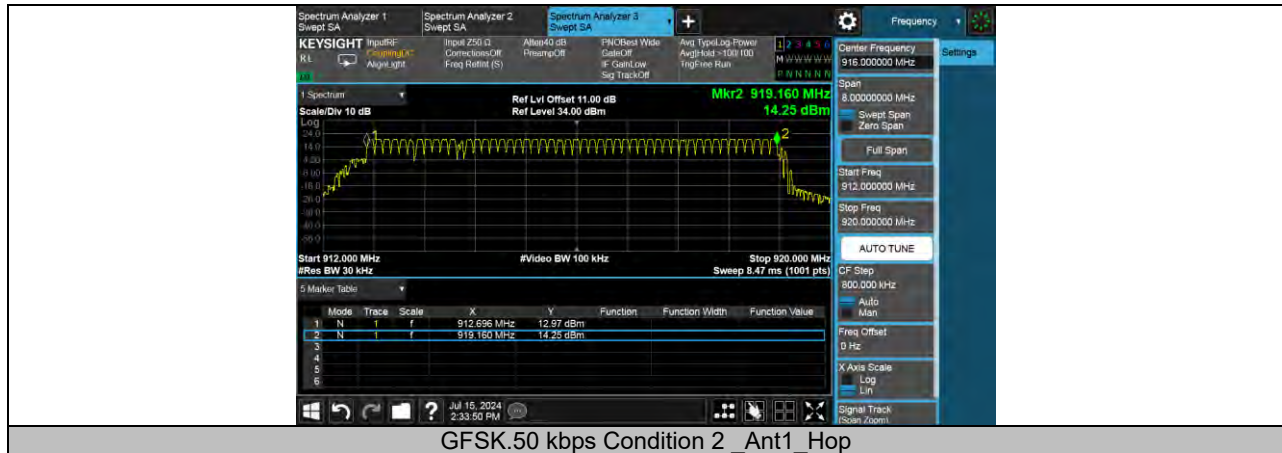


## 12.5. Appendix E2: NUMBER OF HOPPING FREQUENCIES

### 12.5.1. Test Result

| Test Mode                | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|--------------------------|---------|---------|-------------|------------|---------|
| GFSK.50 kbps Condition 2 | Ant1    | Hop     | 50          | ≥50        | PASS    |

### 12.5.2. Test Graphs



## 12.6. Appendix F2: TIME OF OCCUPANCY (DWELL TIME)

### 12.6.1. Test Result

| Test Mode                   | Antenna | Channel | Time of single slot<br>1<br>[ms] | The number of hop channel<br>appear | Burst Width 1<br>[ms/hop/ch] |
|-----------------------------|---------|---------|----------------------------------|-------------------------------------|------------------------------|
| GFSK.50 kbps Condition<br>2 | Ant1    | Hop     | 5.58                             | 28                                  | 156.24                       |

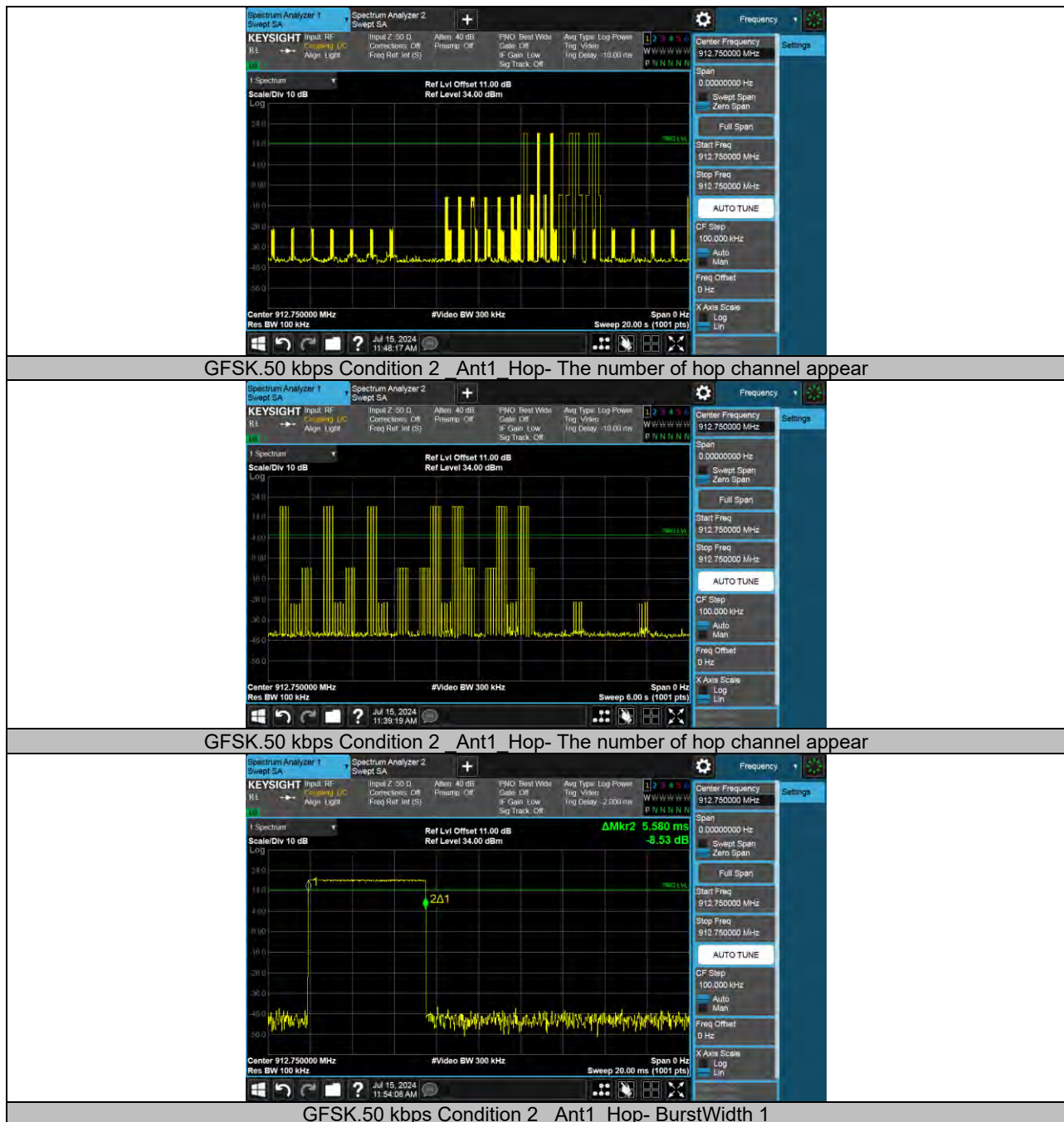
| Test Mode                | Antenna | Channel | Dwell Time<br>[ms] | Limit<br>[ms] | Results |
|--------------------------|---------|---------|--------------------|---------------|---------|
| GFSK.50 kbps Condition 2 | Ant1    | Hop     | 156.34             | 400           | PASS    |

Note:

2GFSK-150 kbps: The dwell time = Time of single slot \* The number of hop channel appear within 20s

BurstWidth = Time of single slot \* number of single slot

## 12.6.2. Test Graphs



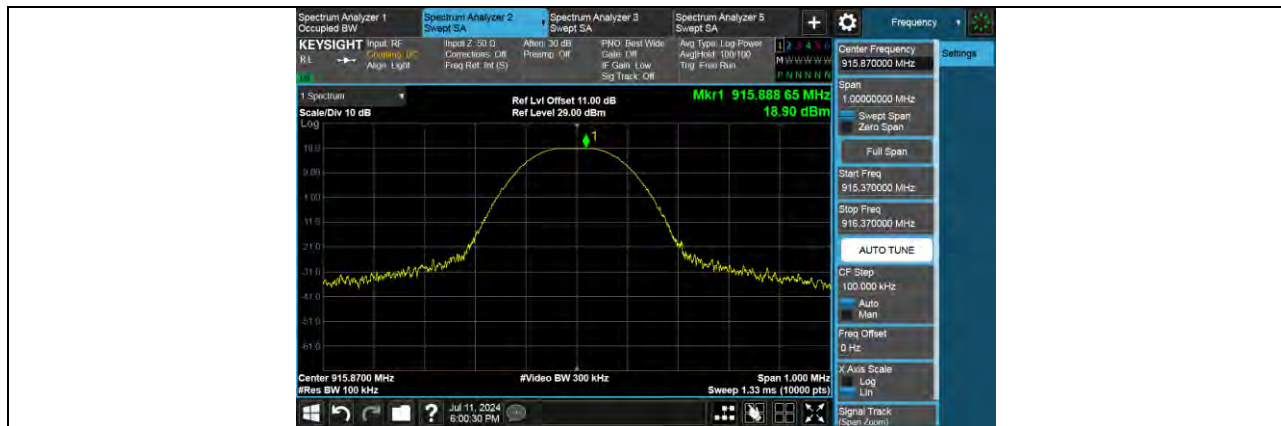
## 12.7. Appendix G2: CONDUCTED SPURIOUS EMISSION

### 12.7.1. Test Result

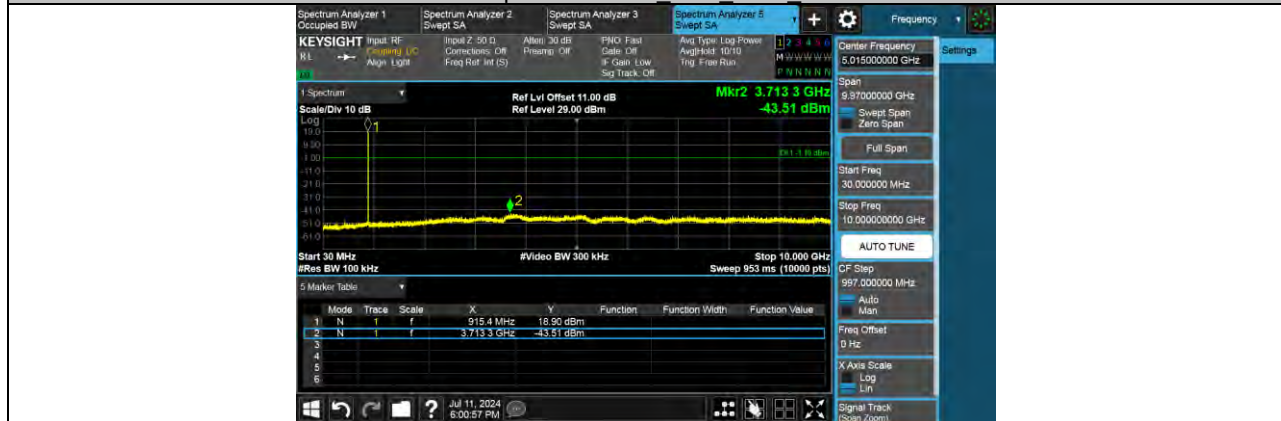
| Test Mode                   | Antenna | ChName  | Result [dBm]         | Verdict |
|-----------------------------|---------|---------|----------------------|---------|
| GFSK.50 kbps Condition<br>2 | Ant1    | LCH     | See the below graphs | PASS    |
|                             |         | MCH     |                      | PASS    |
|                             |         | HCH     |                      | PASS    |
|                             |         | Hop_LCH |                      | PASS    |
|                             |         | Hop_HCH |                      | PASS    |

## 12.7.2. Test Graphs

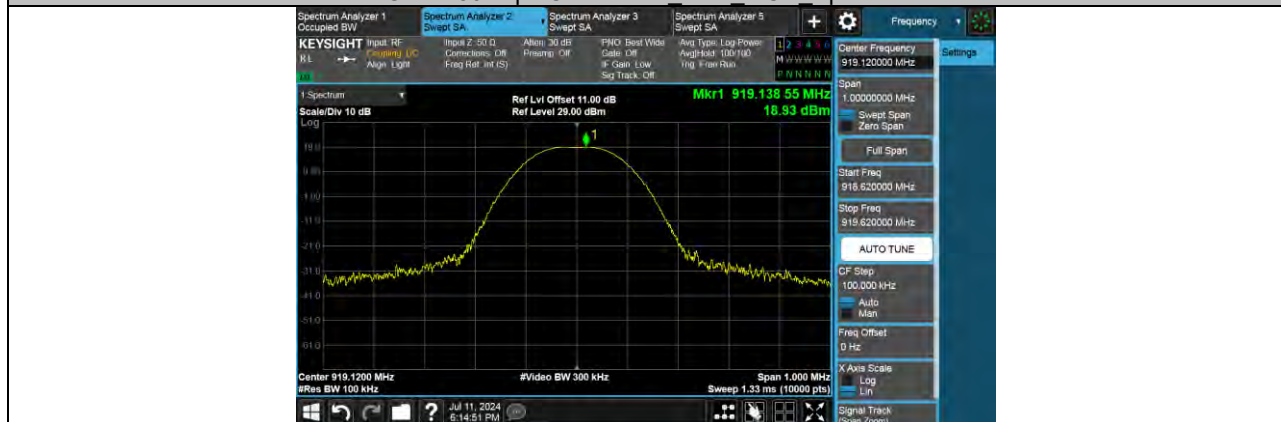




GFSK.50 kbps Condition 2 Ant1 MCH Reference

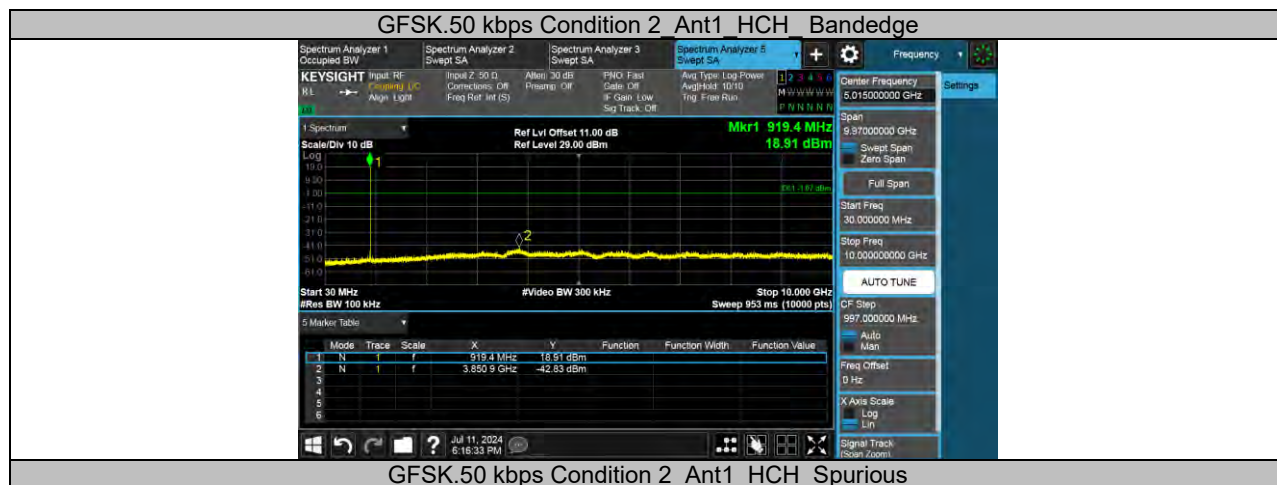


GFSK.50 kbps Condition 2 Ant1 MCH Spurious



GFSK.50 kbps Condition 2 Ant1 HCH Reference





### 13. GFSK.50 kbps Condition 3

#### 13.1. Appendix A3: DUTY CYCLE

##### 13.1.1. Test Result

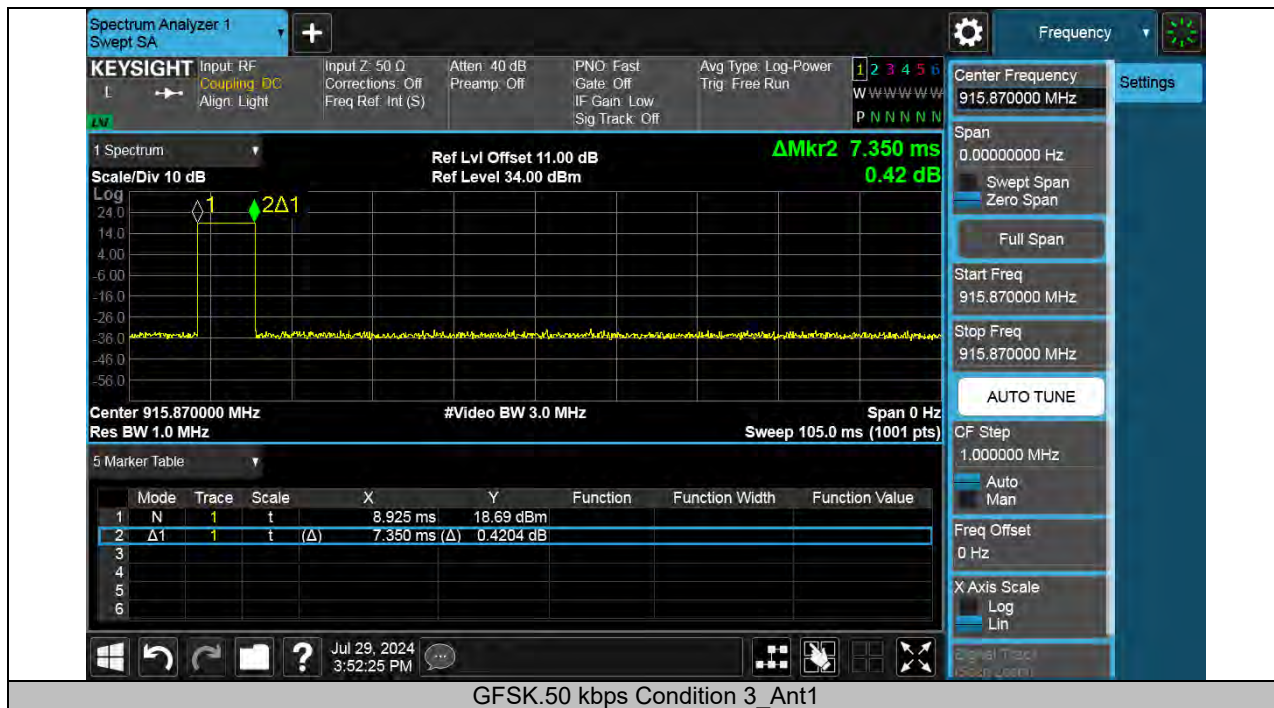
| Test Mode                   | On Time<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(Linear) | Duty Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) |
|-----------------------------|-------------------|------------------|-----------------------------|-------------------|-----------------------------------------|
| GFSK.50 kbps Condition<br>3 | 7.35              | 100              | 0.0735                      | 7.35              | -22.67                                  |

Note:

Duty Cycle Correction Factor= $20\log(1/x)$ .

Where: x is Duty Cycle (Linear)

## Test Graphs

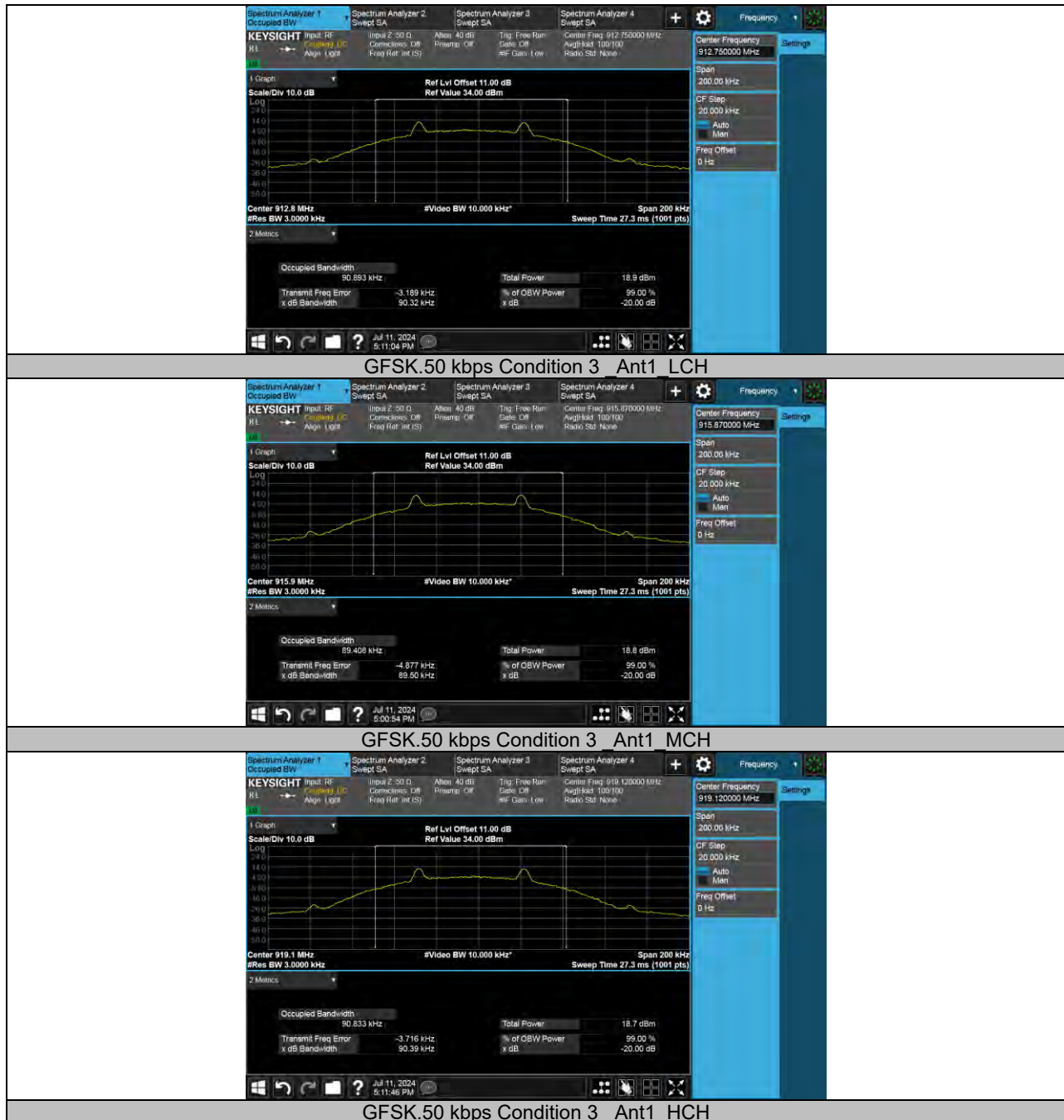


## 13.2. Appendix B3: 20DB BANDWIDTH & OCCUPIED CHANNEL BANDWIDTH

### 13.2.1. Test Result

| Test Mode                   | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|-----------------------------|---------|---------|---------------|-----------|---------|
| GFSK.50 kbps<br>Condition 3 | Ant1    | LCH     | 0.09032       | 0.090893  | PASS    |
|                             |         | MCH     | 0.08950       | 0.089408  | PASS    |
|                             |         | HCH     | 0.09039       | 0.090833  | PASS    |

### 13.2.2. Test Graphs



### 13.3. Appendix C3:CONDUCTED OUTPUT POWER

#### 13.3.1. Test Result

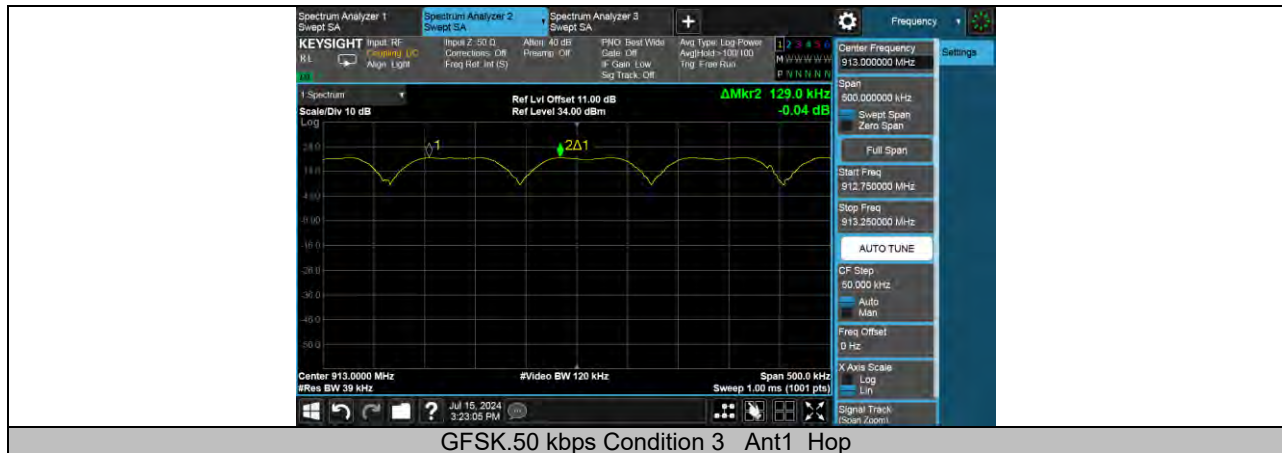
| Test Mode                   | Antenna | Channel | PEAK<br>Result[dBm] | Limit[dBm] | Verdict |
|-----------------------------|---------|---------|---------------------|------------|---------|
| GFSK.50 kbps Condition<br>3 | Ant1    | LCH     | 18.95               | ≤30        | PASS    |
|                             |         | MCH     | 18.94               | ≤30        | PASS    |
|                             |         | HCH     | 18.96               | ≤30        | PASS    |

## 13.4. Appendix D3: CARRIER FREQUENCY SEPARATION

### 13.4.1. Test Result

| Test Mode                | Antenna | Channel | Result [MHz] | Limit[MHz]     | Verdict |
|--------------------------|---------|---------|--------------|----------------|---------|
| GFSK.50 kbps Condition 3 | Ant1    | Hop     | 0.129        | $\geq 0.09039$ | PASS    |

### 13.4.2. Test Graphs

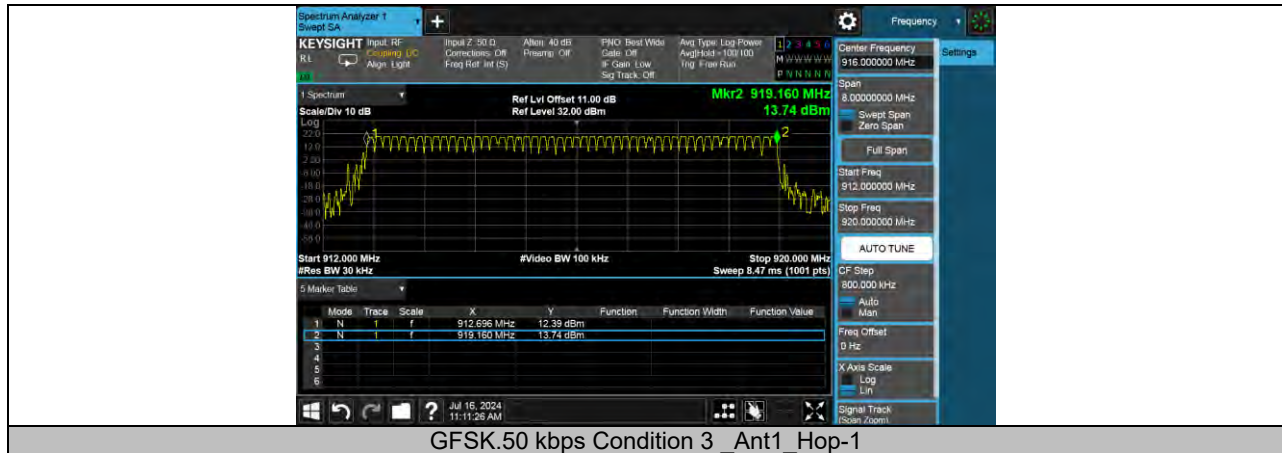


## 13.5. Appendix E3: NUMBER OF HOPPING FREQUENCIES

### 13.5.1. Test Result

| Test Mode                | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|--------------------------|---------|---------|-------------|------------|---------|
| GFSK.50 kbps Condition 3 | Ant1    | Hop     | 50          | ≥50        | PASS    |

### 13.5.2. Test Graphs



### 13.6. Appendix F3: TIME OF OCCUPANCY (DWELL TIME)

#### 13.6.1. Test Result

| Test Mode                   | Antenna | Channel | Time of single slot<br>1<br>[ms] | The number of hop channel<br>appear | Burst Width 1<br>[ms/hop/ch] |
|-----------------------------|---------|---------|----------------------------------|-------------------------------------|------------------------------|
| GFSK.50 kbps Condition<br>3 | Ant1    | Hop     | 5.58                             | 28                                  | 156.24                       |

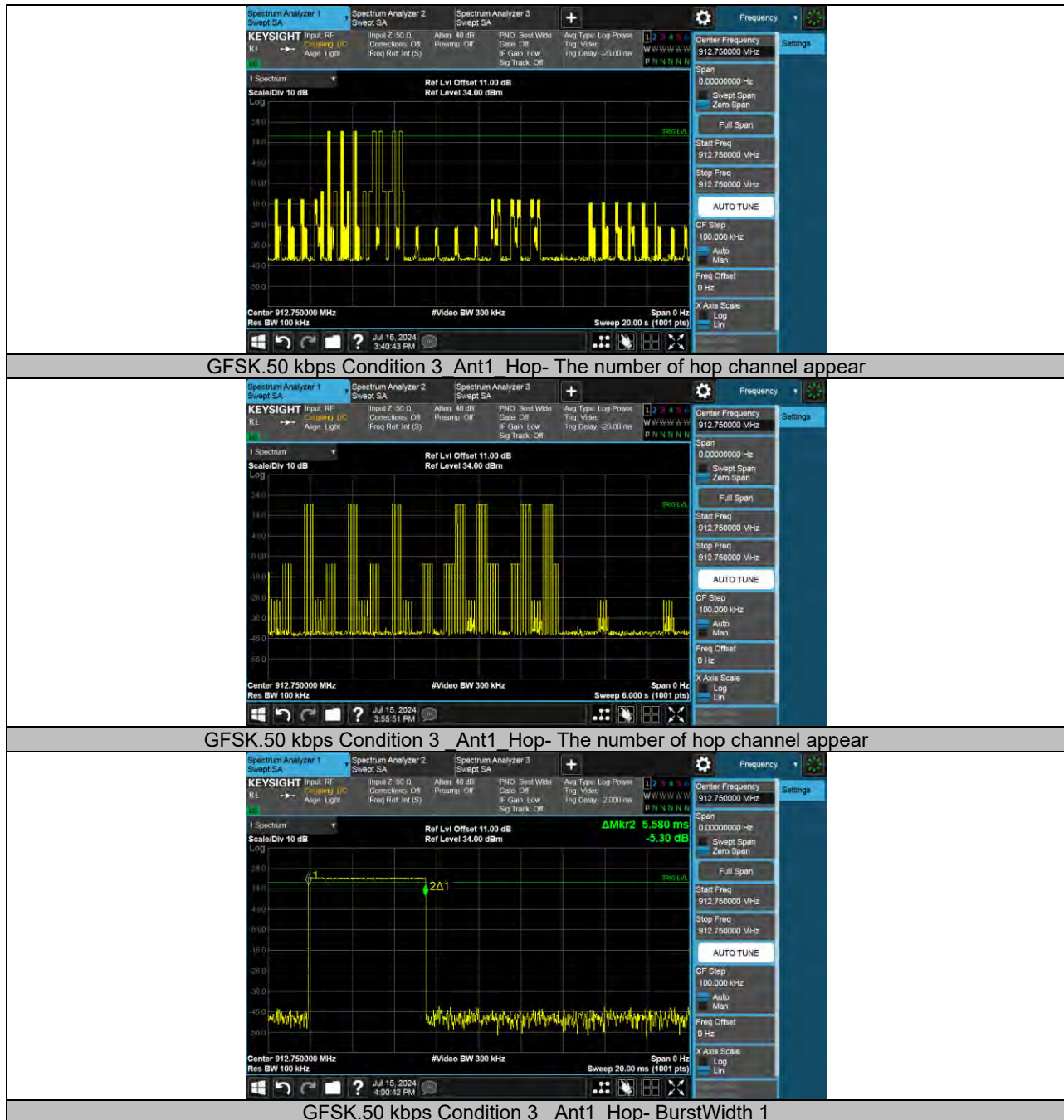
| Test Mode                | Antenna | Channel | Dwell Time<br>[ms] | Limit<br>[ms] | Results |
|--------------------------|---------|---------|--------------------|---------------|---------|
| GFSK.50 kbps Condition 3 | Ant1    | Hop     | 156.34             | 400           | PASS    |

Note:

GFSK.50 kbps Condition 3: The dwell time = Time of single slot \* The number of hop channel appear within 20s

BurstWidth = Time of single slot \* number of single slot

## 13.6.2. Test Graphs



### 13.7. Appendix G3: CONDUCTED BAND EDGE AND SPURIOUS EMISSION

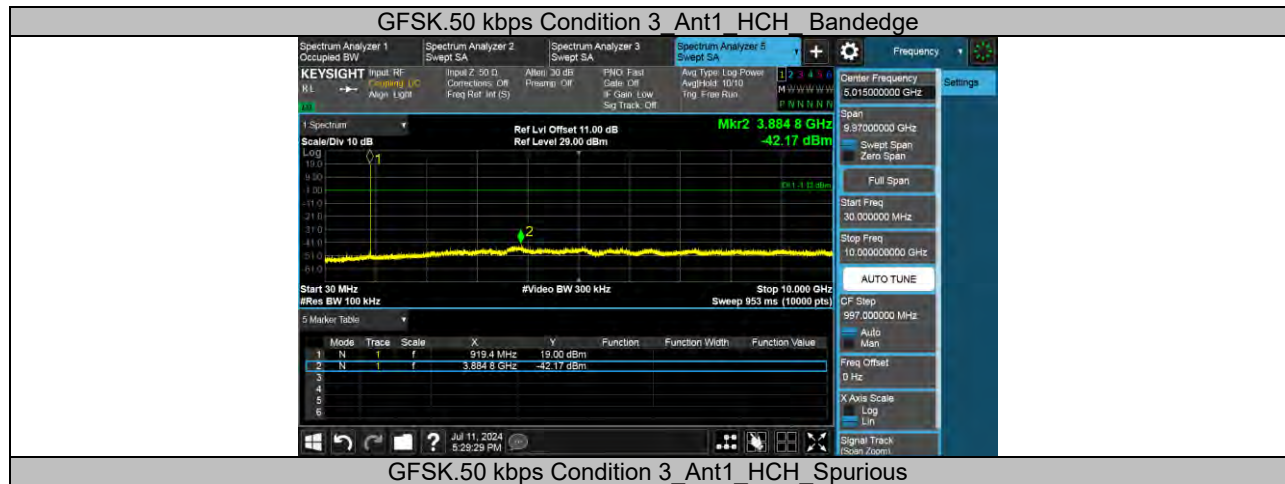
#### 13.7.1. Test Result

| Test Mode                   | Antenna | ChName  | Result [dBm]         | Verdict |
|-----------------------------|---------|---------|----------------------|---------|
| GFSK.50 kbps Condition<br>3 | Ant1    | LCH     | See the below graphs | PASS    |
|                             |         | MCH     |                      | PASS    |
|                             |         | HCH     |                      | PASS    |
|                             |         | Hop_LCH |                      | PASS    |
|                             |         | Hop_HCH |                      | PASS    |

## 13.7.2. Test Graphs







**14. GFSK.50 kbps Condition 4****14.1. Appendix A4: DUTY CYCLE****14.1.1. Test Result**

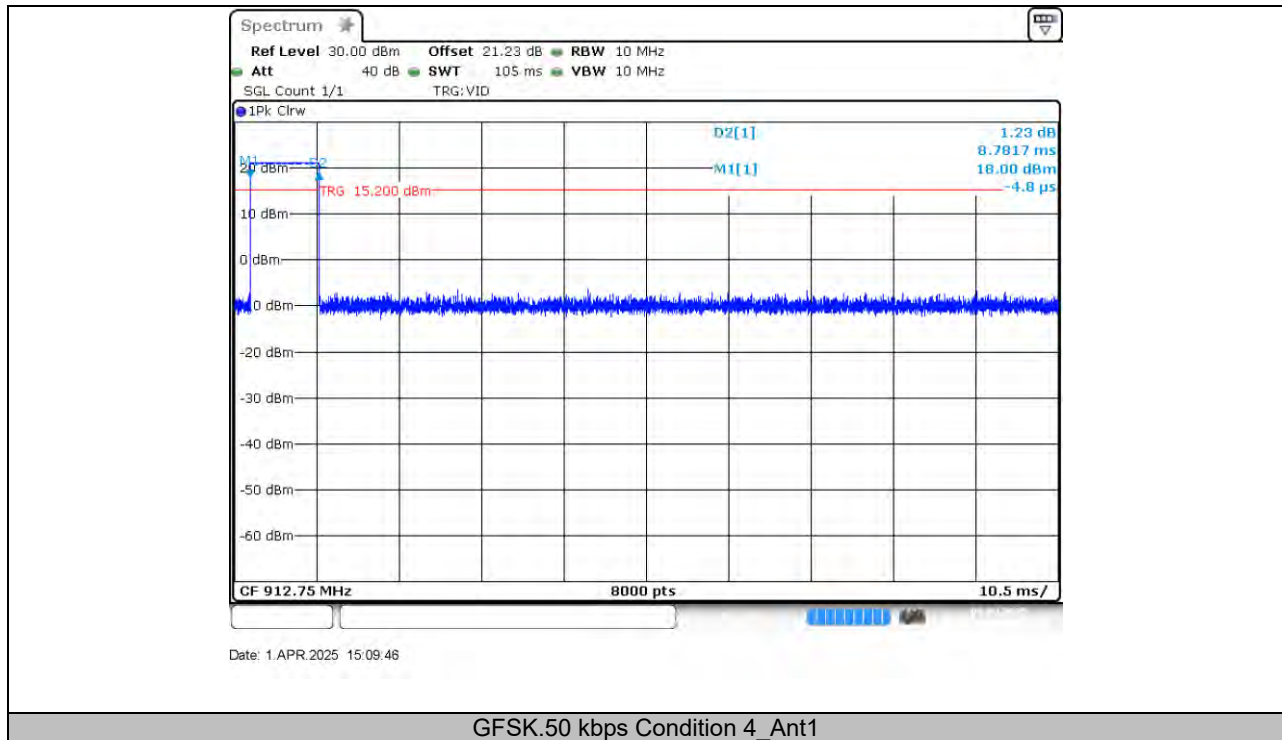
| Test Mode                   | On Time<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(Linear) | Duty Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) |
|-----------------------------|-------------------|------------------|-----------------------------|-------------------|-----------------------------------------|
| GFSK.50 kbps Condition<br>4 | 8.78              | 100              | 0.0878                      | 8.78              | -21.13                                  |

Note:

Duty Cycle Correction Factor=20log (1/x).

Where: x is Duty Cycle (Linear)

## Test Graphs

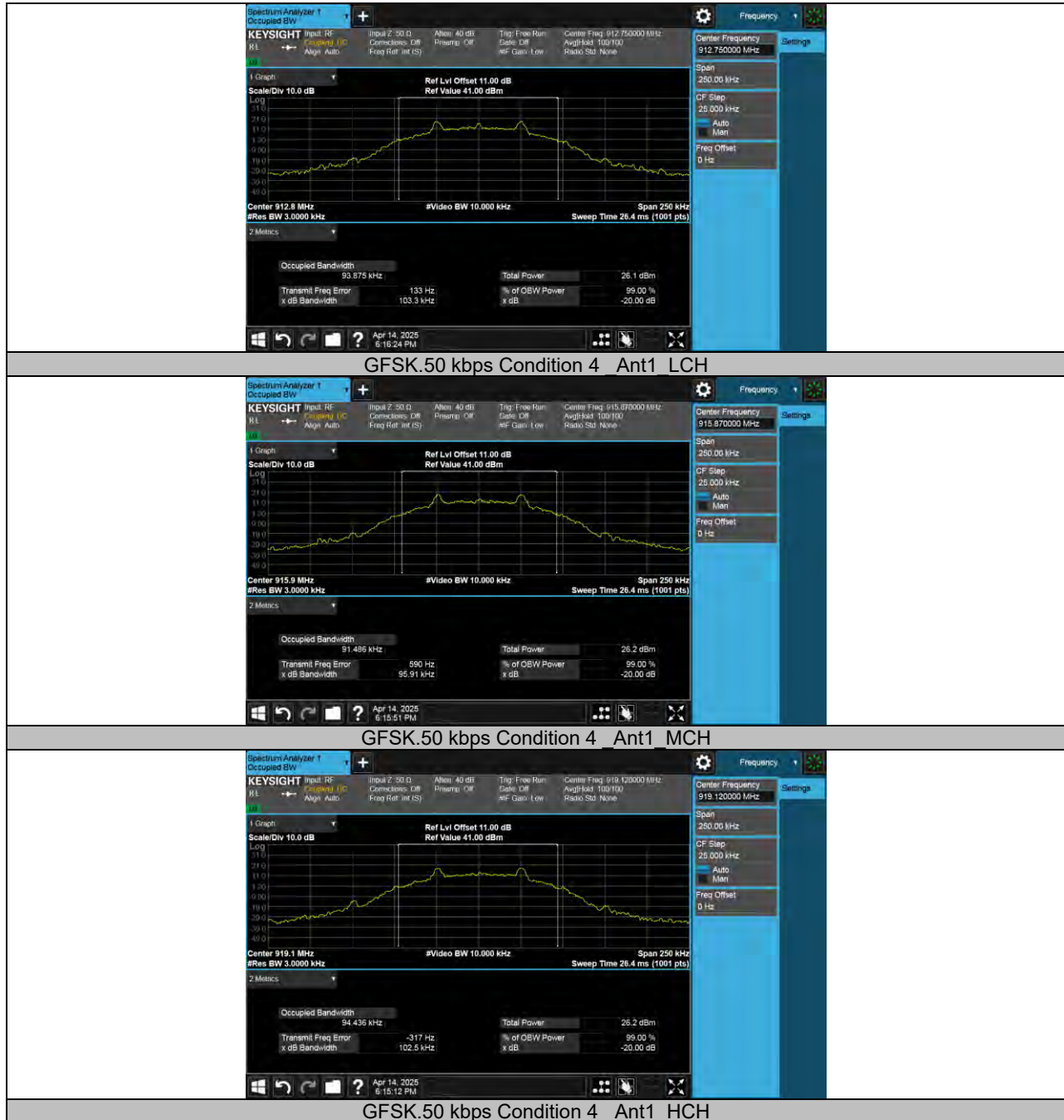


## 14.2. Appendix B4: 20DB BANDWIDTH & OCCUPIED CHANNEL BANDWIDTH

### 14.2.1. Test Result

| Test Mode                   | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|-----------------------------|---------|---------|---------------|-----------|---------|
| GFSK.50 kbps<br>Condition 4 | Ant1    | LCH     | 0.1033        | 0.093875  | PASS    |
|                             |         | MCH     | 0.09591       | 0.091486  | PASS    |
|                             |         | HCH     | 0.1025        | 0.094436  | PASS    |

## 14.2.2. Test Graphs



### 14.3. Appendix C4: CONDUCTED OUTPUT POWER

#### 14.3.1. Test Result

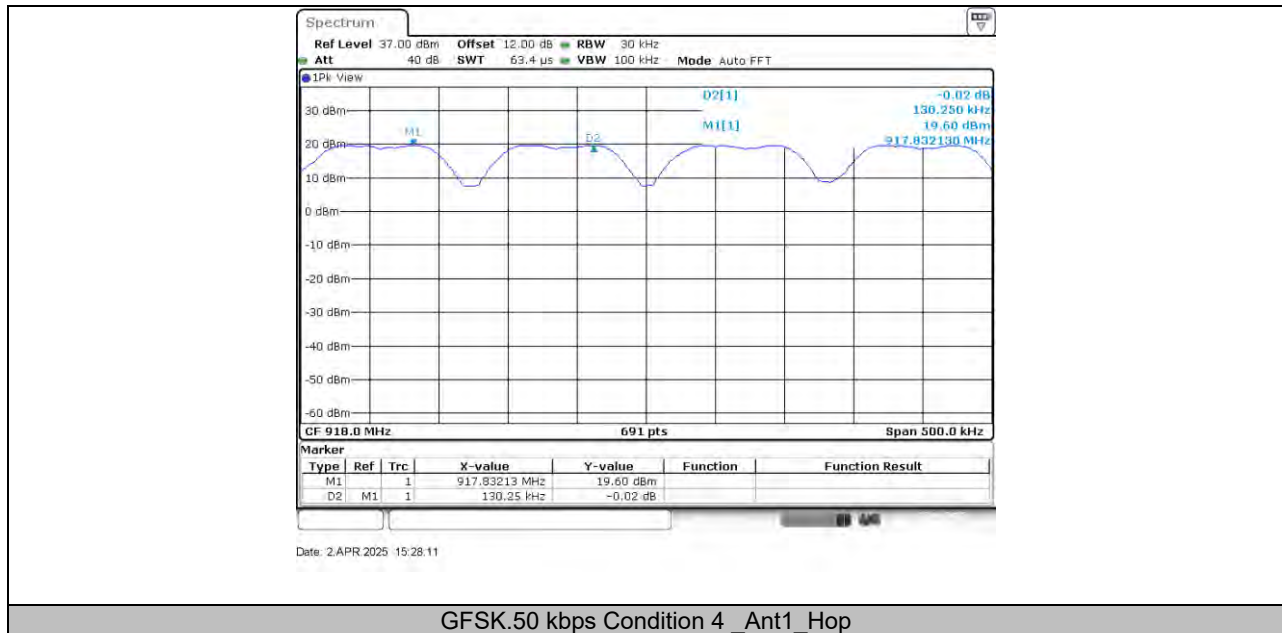
| Test Mode                   | Antenna | Channel | PEAK<br>Result[dBm] | Limit[dBm] | Verdict |
|-----------------------------|---------|---------|---------------------|------------|---------|
| GFSK.50 kbps Condition<br>4 | Ant1    | LCH     | 18.59               | ≤30        | PASS    |
|                             |         | MCH     | 18.50               | ≤30        | PASS    |
|                             |         | HCH     | 18.47               | ≤30        | PASS    |

## 14.4. Appendix D4: CARRIER FREQUENCY SEPARATION

### 14.4.1. Test Result

| Test Mode                | Antenna | Channel | Result [MHz] | Limit[MHz] | Verdict |
|--------------------------|---------|---------|--------------|------------|---------|
| GFSK.50 kbps Condition 4 | Ant1    | Hop     | 0.130        | ≥0.01033   | PASS    |

### 14.4.2. Test Graphs

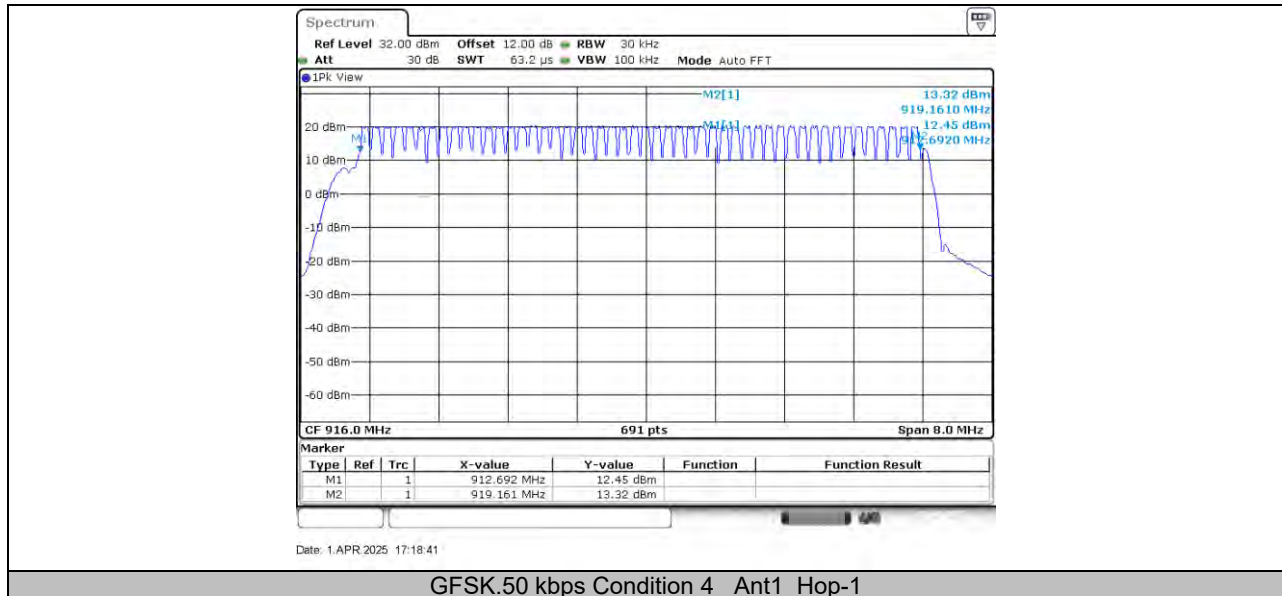


## 14.5. Appendix E4: NUMBER OF HOPPING FREQUENCIES

### 14.5.1. Test Result

| Test Mode                | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|--------------------------|---------|---------|-------------|------------|---------|
| GFSK.50 kbps Condition 4 | Ant1    | Hop     | 50          | ≥50        | PASS    |

### 14.5.2. Test Graphs



## 14.6. Appendix F4: TIME OF OCCUPANCY (DWELL TIME)

### 14.6.1. Test Result

| Test Mode                   | Antenna | Channel | Time of single slot<br>1<br>[ms] | The number of hop channel<br>appear | Burst Width 1<br>[ms/hop/ch] |
|-----------------------------|---------|---------|----------------------------------|-------------------------------------|------------------------------|
| GFSK.50 kbps Condition<br>4 | Ant1    | Hop     | 5.217                            | 28                                  | 146.076                      |

| Test Mode                | Antenna | Channel | Dwell Time<br>[ms] | Limit<br>[ms] | Results |
|--------------------------|---------|---------|--------------------|---------------|---------|
| GFSK.50 kbps Condition 4 | Ant1    | Hop     | 146.076            | 400           | PASS    |

Note:

GFSK.50 kbps Condition 4: The dwell time = Time of single slot \* The number of hop channel appear within 20s

BurstWidth =Time of single slot\*number of single slot

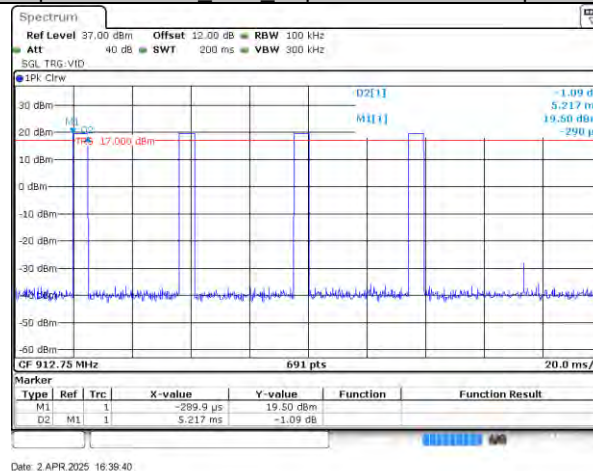
## 14.6.2. Test Graphs



GFSK.50 kbps Condition 4\_Ant1\_Hop- The number of hop channel appear



GFSK.50 kbps Condition 4\_Ant1\_Hop- The number of hop channel appear



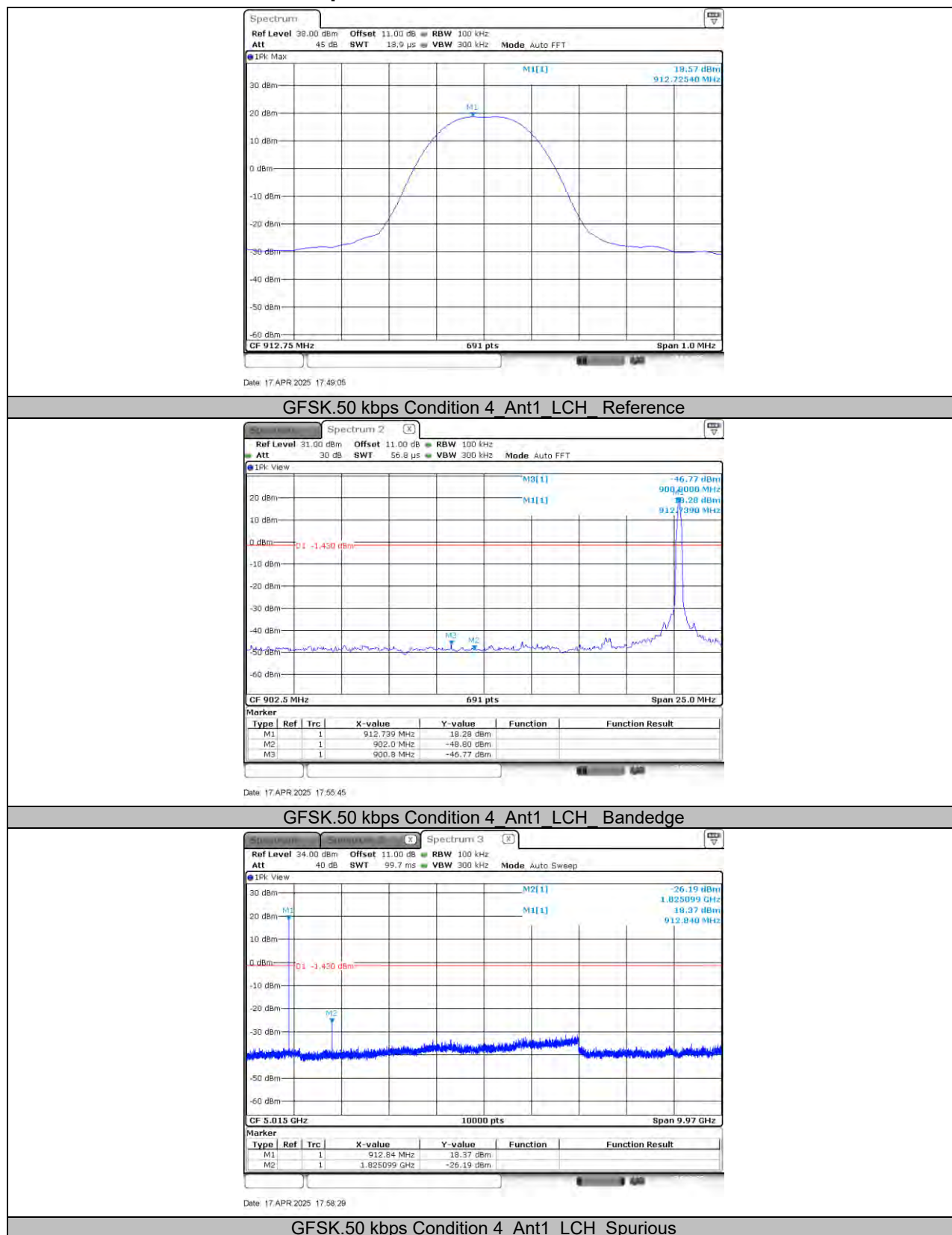
GFSK.50 kbps Condition 4\_Ant1\_Hop- BurstWidth 1

## 14.7. Appendix G4: CONDUCTED BAND EDGE AND SPURIOUS EMISSION

### 14.7.1. Test Result

| Test Mode                   | Antenna | ChName  | Result [dBm]         | Verdict |
|-----------------------------|---------|---------|----------------------|---------|
| GFSK.50 kbps Condition<br>4 | Ant1    | LCH     | See the below graphs | PASS    |
|                             |         | MCH     |                      | PASS    |
|                             |         | HCH     |                      | PASS    |
|                             |         | Hop_LCH |                      | PASS    |
|                             |         | Hop_HCH |                      | PASS    |

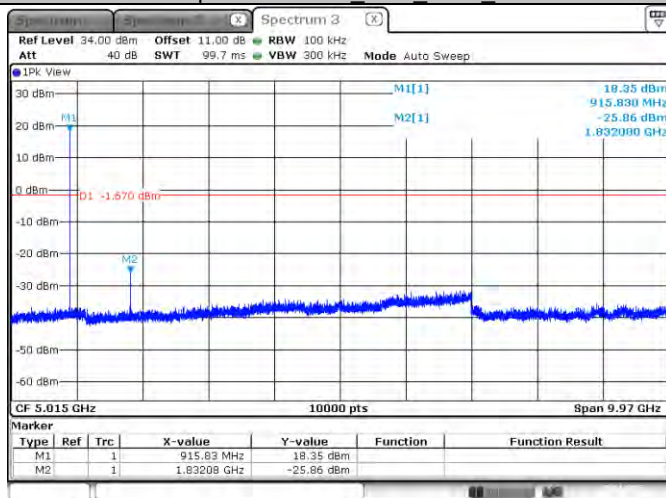
## 14.7.2. Test Graphs





Date: 17 APR 2025 18:03:39

### GFSK.50 kbps Condition 4 Ant1 MCH Reference



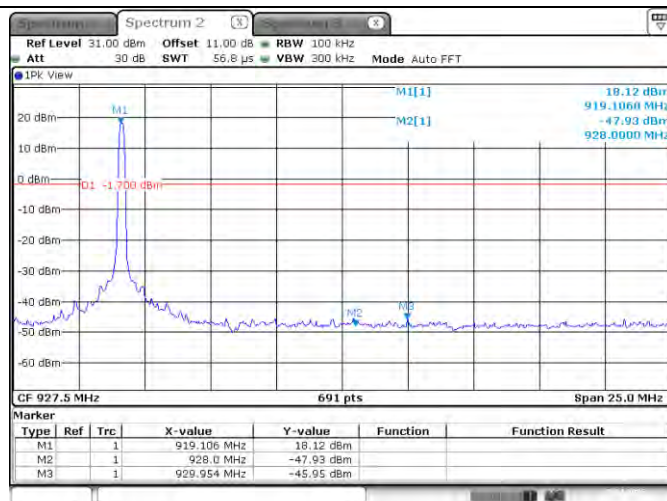
Date: 17 APR 2025 18:04:43

### GFSK.50 kbps Condition 4 Ant1 MCH Spurious



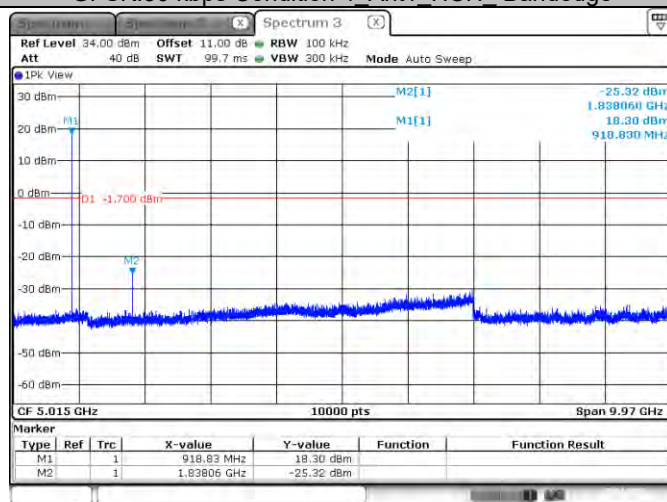
Date: 17 APR 2025 18:07:16

### GFSK.50 kbps Condition 4 Ant1 HCH Reference



Date: 17 APR 2025 18:09:08

### GFSK.50 kbps Condition 4 Ant1 HCH Bandedge



Date: 17 APR 2025 18:09:55

### GFSK.50 kbps Condition 4 Ant1 HCH Spurious

**15. GFSK.50 kbps Condition 5****15.1. Appendix A5: DUTY CYCLE****15.1.1. Test Result**

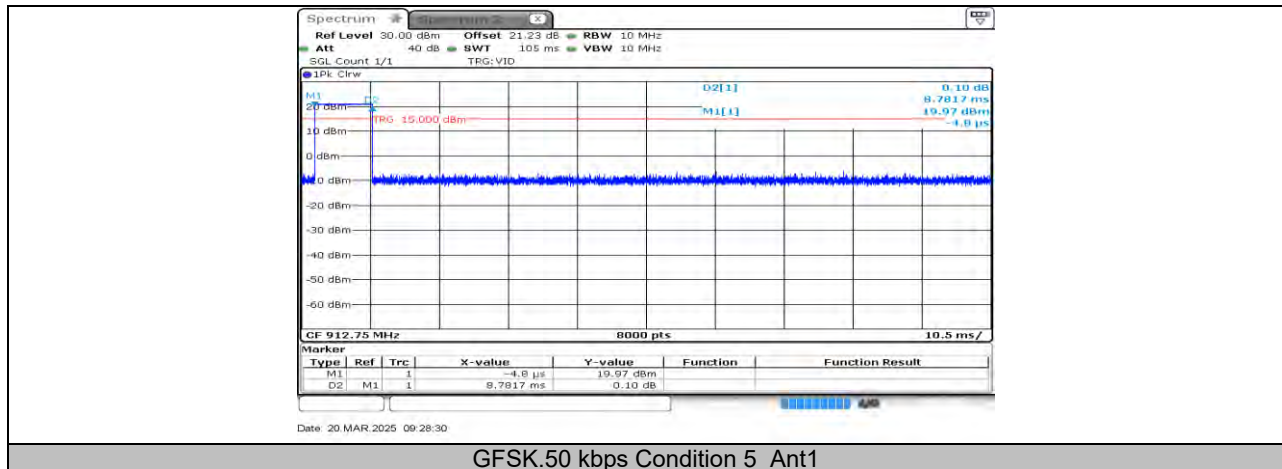
| Test Mode                   | On Time<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(Linear) | Duty Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) |
|-----------------------------|-------------------|------------------|-----------------------------|-------------------|-----------------------------------------|
| GFSK.50 kbps Condition<br>5 | 8.78              | 100              | 0.0878                      | 8.78              | -21.13                                  |

Note:

Duty Cycle Correction Factor=20log (1/x).

Where: x is Duty Cycle (Linear)

## Test Graphs

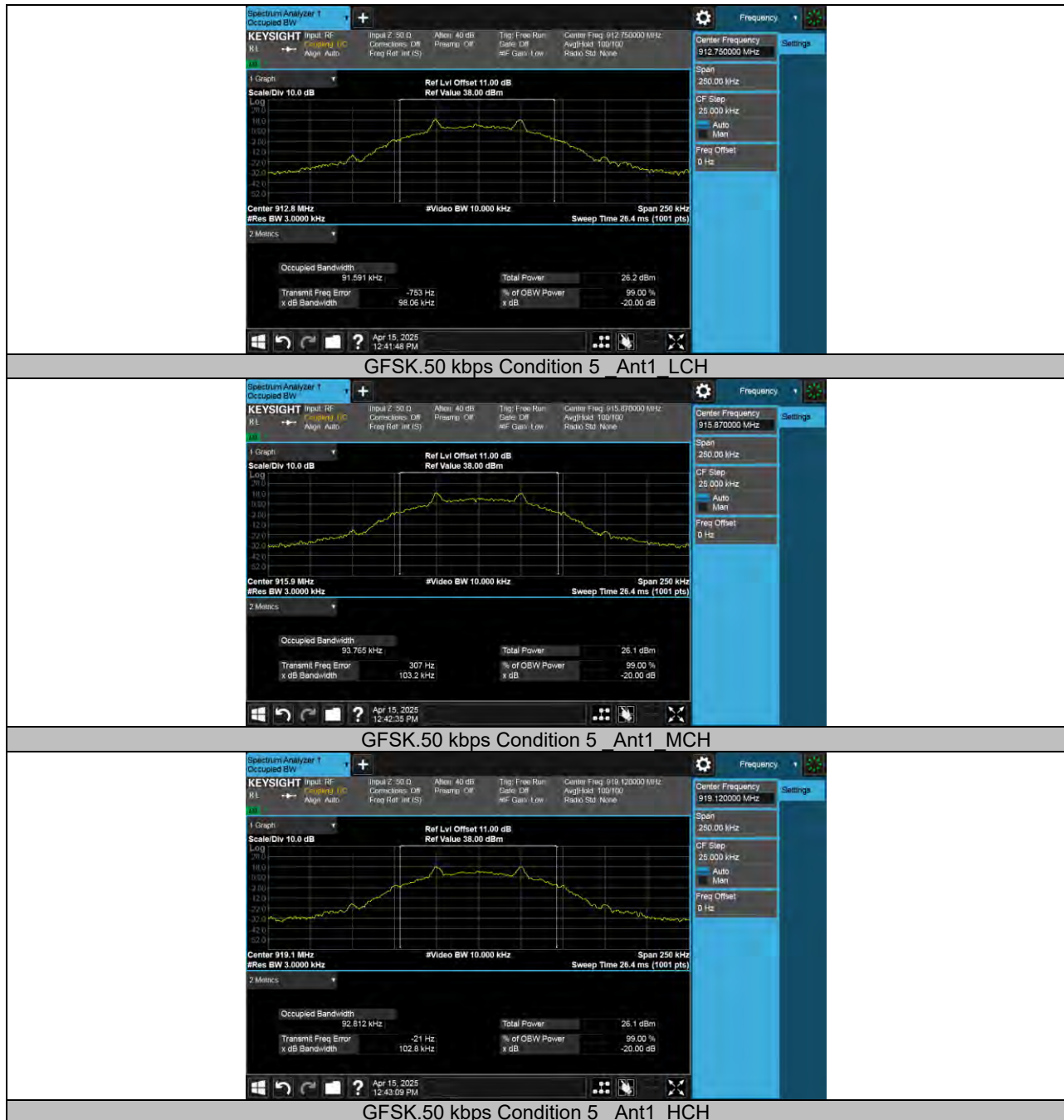


## 15.2. Appendix B5: 20DB BANDWIDTH & OCCUPIED CHANNEL BANDWIDTH

### 15.2.1. Test Result

| Test Mode                   | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|-----------------------------|---------|---------|---------------|-----------|---------|
| GFSK.50 kbps<br>Condition 5 | Ant1    | LCH     | 0.09806       | 0.091591  | PASS    |
|                             |         | MCH     | 0.1032        | 0.093765  | PASS    |
|                             |         | HCH     | 0.1028        | 0.092812  | PASS    |

## 15.2.2. Test Graphs



### 15.3. Appendix C5: CONDUCTED OUTPUT POWER

#### 15.3.1. Test Result

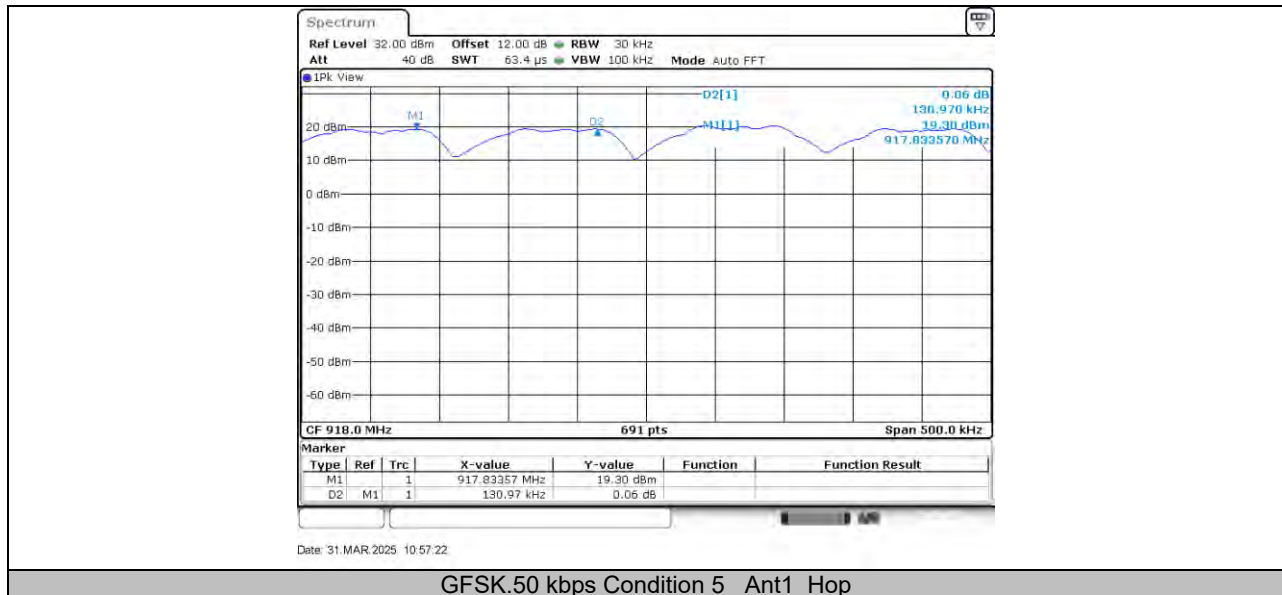
| Test Mode                   | Antenna | Channel | PEAK<br>Result[dBm] | Limit[dBm] | Verdict |
|-----------------------------|---------|---------|---------------------|------------|---------|
| GFSK.50 kbps Condition<br>5 | Ant1    | LCH     | 18.27               | ≤30        | PASS    |
|                             |         | MCH     | 18.16               | ≤30        | PASS    |
|                             |         | HCH     | 18.11               | ≤30        | PASS    |

## 15.4. Appendix D5: CARRIER FREQUENCY SEPARATION

### 15.4.1. Test Result

| Test Mode                | Antenna | Channel | Result [MHz] | Limit[MHz] | Verdict |
|--------------------------|---------|---------|--------------|------------|---------|
| GFSK.50 kbps Condition 5 | Ant1    | Hop     | 0.131        | ≥0.1032    | PASS    |

### 15.4.2. Test Graphs

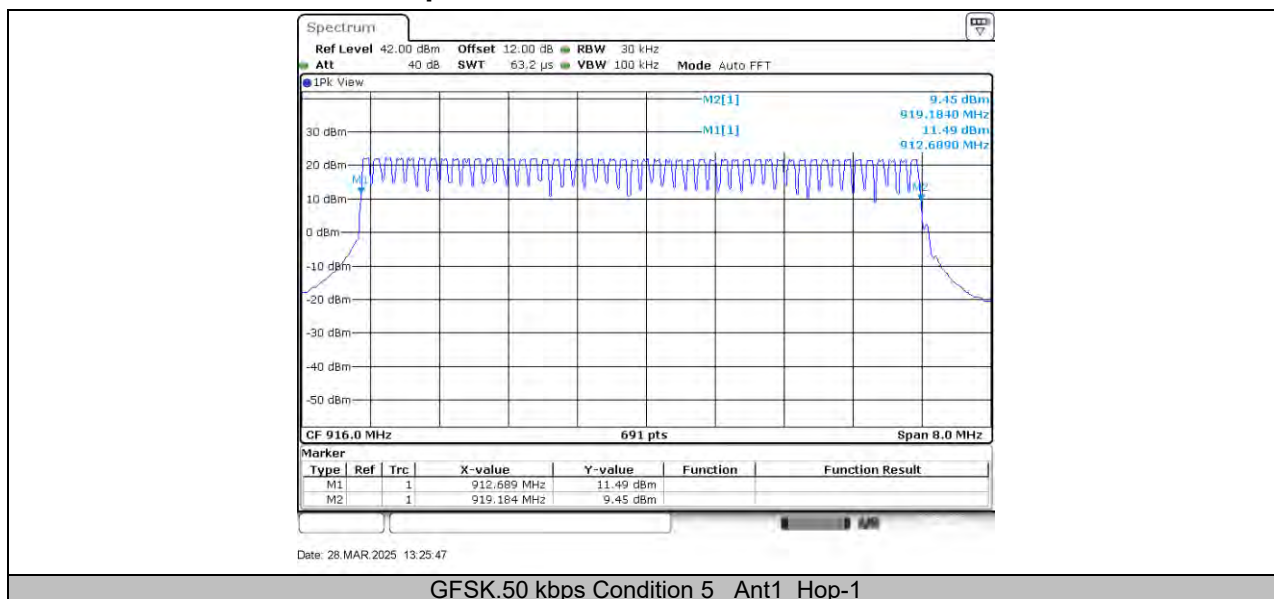


## 15.5. Appendix E5: NUMBER OF HOPPING FREQUENCIES

### 15.5.1. Test Result

| Test Mode                | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|--------------------------|---------|---------|-------------|------------|---------|
| GFSK.50 kbps Condition 5 | Ant1    | Hop     | 50          | ≥50        | PASS    |

### 15.5.2. Test Graphs



## 15.6. Appendix F5: TIME OF OCCUPANCY (DWELL TIME)

### 15.6.1. Test Result

| Test Mode                   | Antenna | Channel | Time of single slot<br>1<br>[ms] | The number of hop channel<br>appear | Burst Width 1<br>[ms/hop/ch] |
|-----------------------------|---------|---------|----------------------------------|-------------------------------------|------------------------------|
| GFSK.50 kbps Condition<br>5 | Ant1    | Hop     | 5.797                            | 28                                  | 162.316                      |

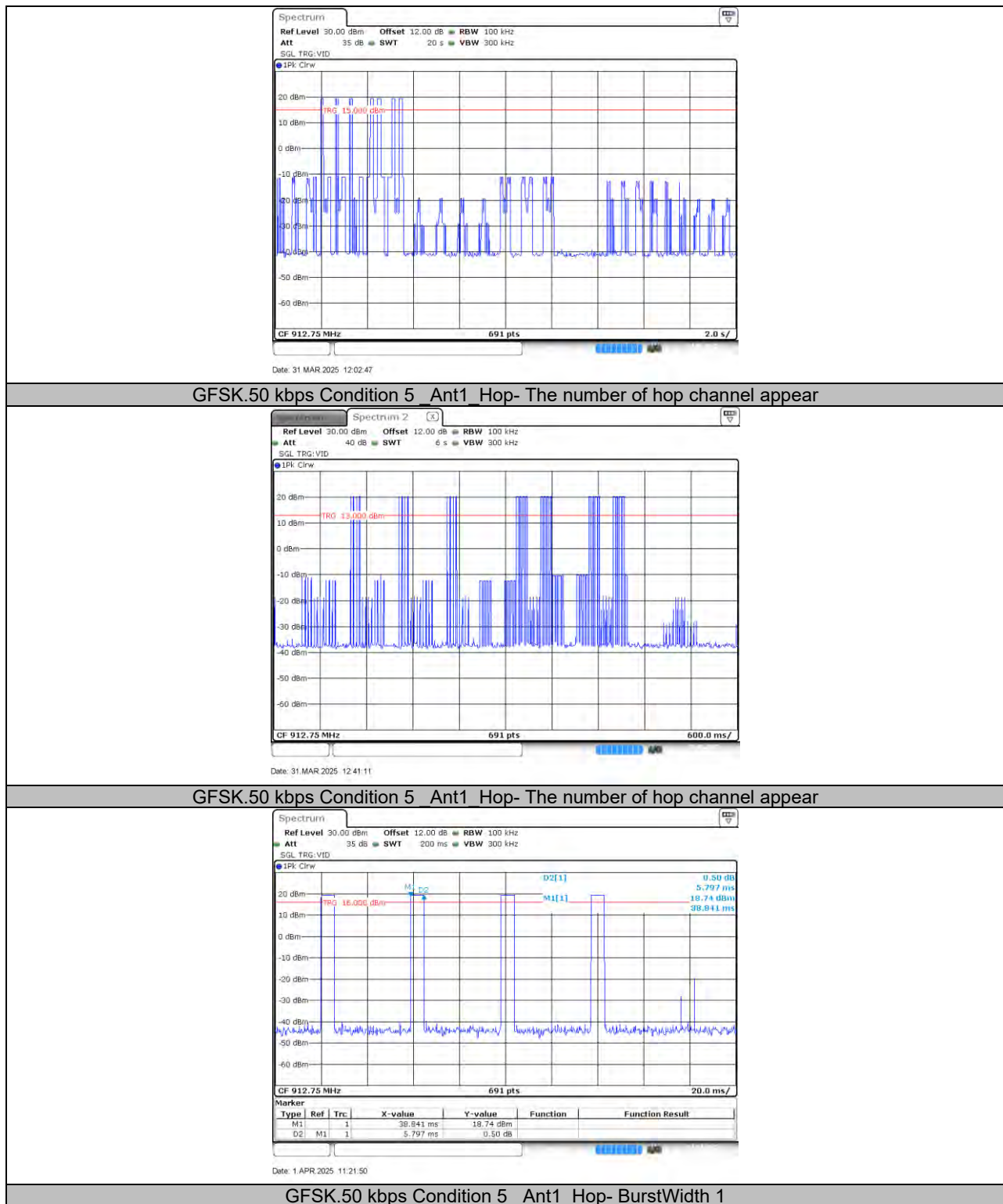
| Test Mode                | Antenna | Channel | Dwell Time<br>[ms] | Limit<br>[ms] | Results |
|--------------------------|---------|---------|--------------------|---------------|---------|
| GFSK.50 kbps Condition 5 | Ant1    | Hop     | 162.316            | 400           | PASS    |

Note:

GFSK.50 kbps Condition 5: The dwell time = Time of single slot \* The number of hop channel appear within 20s

BurstWidth = Time of single slot \* number of single slot

## 15.6.2. Test Graphs

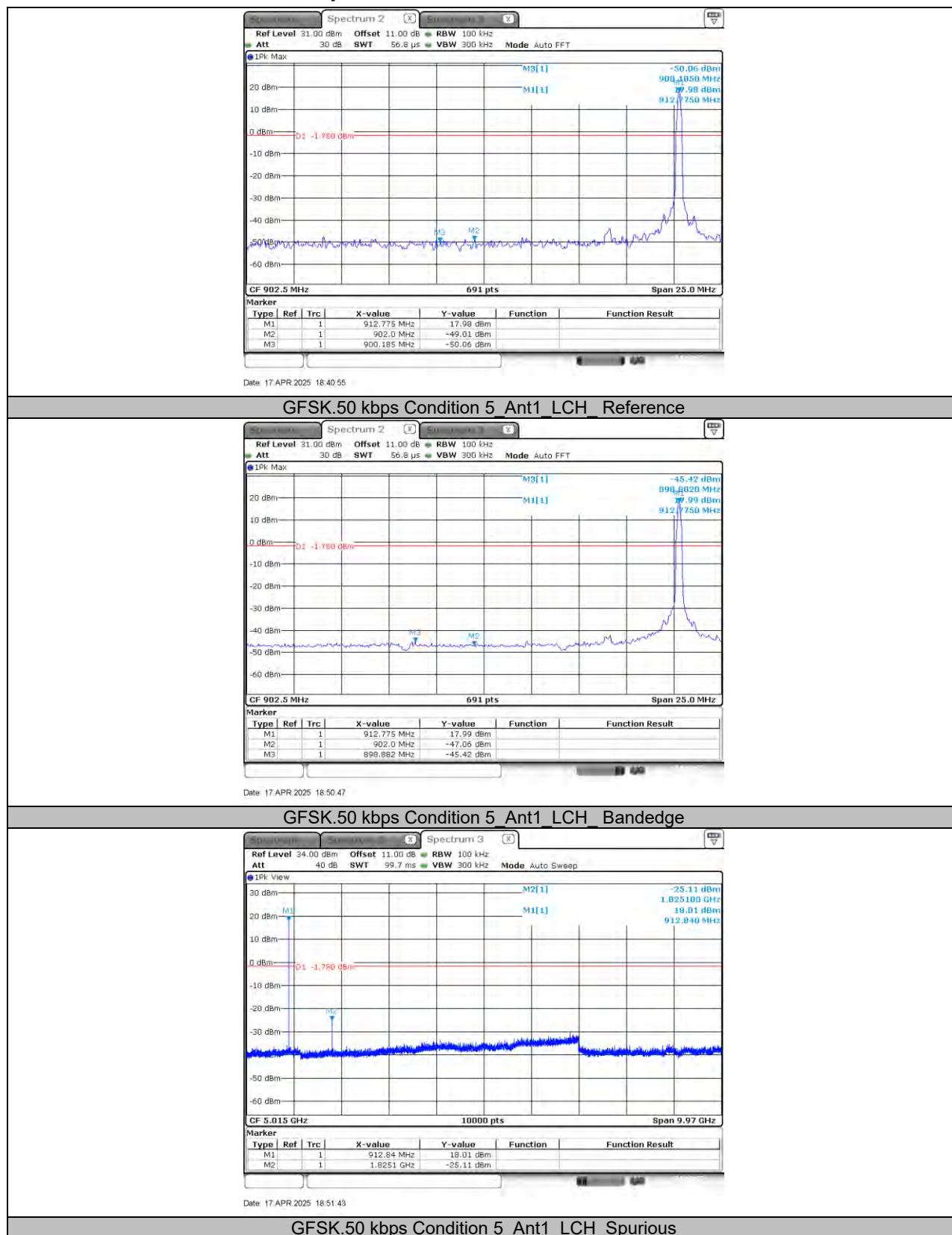


## 15.7. Appendix G5: CONDUCTED BAND EDGE AND SPURIOUS EMISSION

### 15.7.1. Test Result

| Test Mode                | Antenna | ChName  | Result [dBm]         | Verdict |
|--------------------------|---------|---------|----------------------|---------|
| GFSK.50 kbps Condition 5 | Ant1    | LCH     | See the below graphs | PASS    |
|                          |         | MCH     |                      | PASS    |
|                          |         | HCH     |                      | PASS    |
|                          |         | Hop_LCH |                      | PASS    |
|                          |         | Hop_HCH |                      | PASS    |

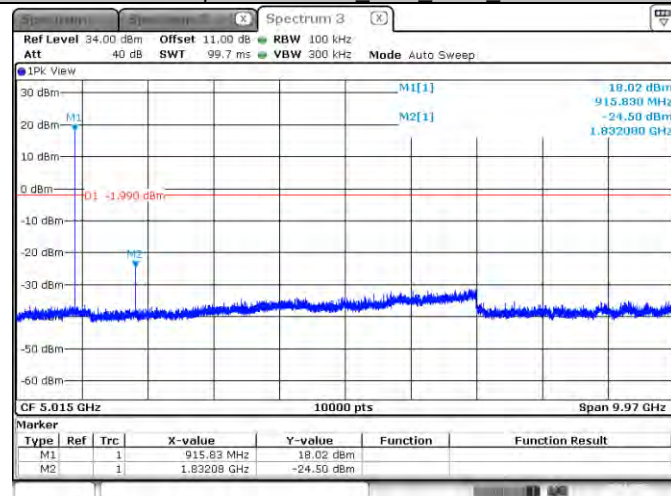
## 15.7.2. Test Graphs





Date: 17 APR 2025 18:28:47

### GFSK.50 kbps Condition 5 Ant1 MCH Reference



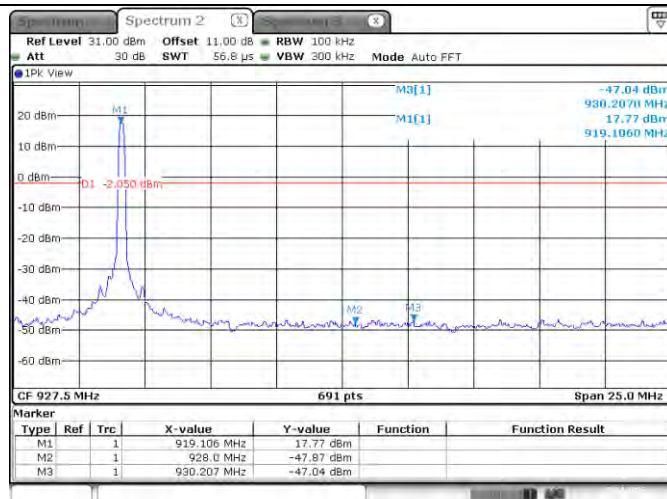
Date: 17 APR 2025 18:28:43

### GFSK.50 kbps Condition 5 Ant1 MCH Spurious



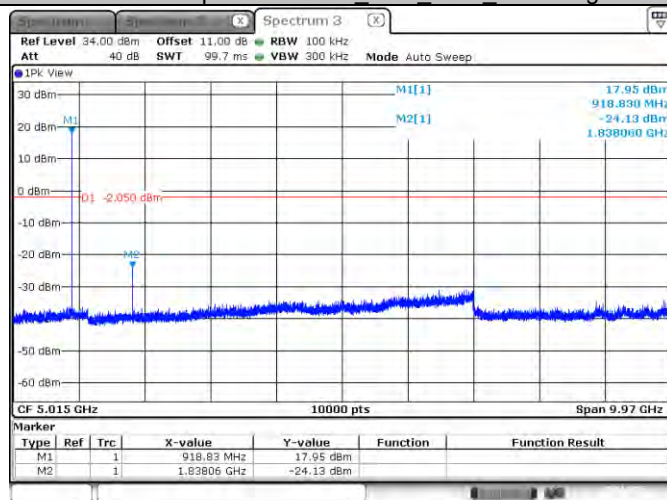
Date: 17 APR 2025 18:23:04

### GFSK.50 kbps Condition 5 Ant1 HCH Reference



Date: 17 APR 2025 18:24:02

### GFSK.50 kbps Condition 5 Ant1 HCH Bandedge



Date: 17 APR 2025 18:25:43

### GFSK.50 kbps Condition 5 Ant1 HCH Spurious

END OF REPORT