

# **FCC Part 15C&RSS-247 TEST REPORT**

## **FCC ID:2BUKJCUBITT5**

### **IC:35125-CUBITT5**

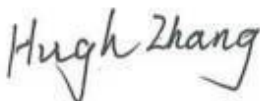
Prepared for : FYNE AUDIO LIMITED  
Address : 1 Belgrave Street Bellshill United Kingdom ML4 3NP  
Trade Name : FYNE AUDIO  
E.U.T : Active Loudspeaker  
Model Number : CUBITT 5

Prepared by : Keyway Testing Technology(Guangdong) Co., Ltd.  
Address : Room 2102, Building 6, Dongyi Intelligent Equipment  
New Energy Vehicle Park, No.30 of Tangxia District,  
Dongshen Road, Tangxia Town, Dongguan, 523710,  
People's Republic of China

Tel: 86-769-87182258

Fax: 86-769-87181058

Report No. : 2026020799823601-00  
Date of Test: : Feb. 01 ~ Feb. 11, 2026  
Date of Report : Feb. 11, 2026

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                       |                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              | FYNE AUDIO LIMITED                                                                                                                                                                                                                    |                                                                                       |
| <b>Address:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1 Belgrave Street Bellshill United Kingdom ML4 3NP                                                                                                                                                                                    |                                                                                       |
| <b>Manufacturer 1:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         | FYNE AUDIO LIMITED                                                                                                                                                                                                                    |                                                                                       |
| <b>Address:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1 Belgrave Street Bellshill United Kingdom ML4 3NP                                                                                                                                                                                    |                                                                                       |
| <b>E.U.T:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Active Loudspeaker                                                                                                                                                                                                                    |                                                                                       |
| <b>Model Number:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           | CUBITT 5                                                                                                                                                                                                                              |                                                                                       |
| <b>Trade Name:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                             | FYNE AUDIO                                                                                                                                                                                                                            |                                                                                       |
| <b>Date of Receipt:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        | Feb. 01, 2026                                                                                                                                                                                                                         |                                                                                       |
| <b>Date of Test:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           | Feb. 01 ~ Feb. 11, 2026                                                                                                                                                                                                               |                                                                                       |
| <b>Test Specification :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    | FCC CFR47 Part 15 Section 15.247<br>RSS-247 Issue 4: July 24, 2025<br>ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024<br>RSS-GEN Issue5, Amendment 2, February, 2021<br>KDB 558074 D01 15.247 Meas Guidance v05r02 |                                                                                       |
| <b>Test Result:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                            | The equipment under test was found to be compliance with the requirements of the standards applied.<br><div style="text-align: right;"><b>Issue Date: Feb. 11, 2026</b></div>                                                         |                                                                                       |
| <b>Tested by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Reviewed by:</b>                                                                                                                                                                                                                   | <b>Authorized by:</b>                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                    |  |
| Hugh Zhang/Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                            | Billy Zeng / Supervisor                                                                                                                                                                                                               | Cherry Chen / Manager                                                                 |
| Abbreviations: OK/P=passed fail/F=failed N/A=not applicable E.U.T=equipment under tested                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                       |                                                                                       |
| This device described above has been tested by Keyway, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.<br>This report shall not be reproduced except in full, without the written approval of Keyway, this document may be altered or revised by Keyway, personal only, and shall be noted in the revision of the document. |                                                                                                                                                                                                                                       |                                                                                       |

## Revision Record

| Version | Chapter | Date       | Modifier | Remark   |
|---------|---------|------------|----------|----------|
| 00      |         | 2026.02.11 |          | Original |
|         |         |            |          |          |
|         |         |            |          |          |

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## 1 Test Summary

| Test Items                       | Test Requirement                                                | Result |
|----------------------------------|-----------------------------------------------------------------|--------|
| AC Power Line Conducted Emission | 15.207<br>RSS-Gen 8.8                                           | PASS   |
| Radiated Spurious Emissions      | 15.205(a)<br>15.209<br>15.247(d)<br>RSS-Gen 8.9<br>RSS-Gen 8.10 | PASS   |
| Conducted Spurious Emission      | 15.247(d)<br>RSS-247 6.6                                        | PASS   |
| Band edge                        | 15.247(d)<br>15.205(a)<br>RSS-247 6.6                           | PASS   |
| 6dB&99% Bandwidth                | 15.247(a)(2)<br>RSS-247 6.3.1(a)<br>RSS-GEN 6.7                 | PASS   |
| Maximum Peak Output Power        | 15.247(b)(3)<br>RSS-247 6.3.2                                   | PASS   |
| Power Spectral Density           | 15.247(e)<br>RSS-247 6.3.1(b)                                   | PASS   |
| Antenna Requirement              | FCC part 15.203/15.247 (c)<br>RSS-Gen 6.8                       | PASS   |

Remark:

“N/A” denotes test is not applicable in this Test Report.

## 2 GENERAL PRODUCT INFORMATION

### 2.1 Description of Device (EUT)

|                                                                                                                                                                                                                |   |                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------|
| Product Name                                                                                                                                                                                                   | : | POWERED SPEAKERS               |
| Model Name                                                                                                                                                                                                     | : | CUBITT 5                       |
| Sample ID                                                                                                                                                                                                      | : | 33000262244, 33000262245       |
| Sample(s) Status:                                                                                                                                                                                              | : | Normal sample, Engineer sample |
| Additional model                                                                                                                                                                                               | : | N/A                            |
| Model difference                                                                                                                                                                                               | : | N/A                            |
| Operating frequency                                                                                                                                                                                            | : | 2402-2480MHz                   |
| Numbers of Channel                                                                                                                                                                                             | : | 40 channels                    |
| Antenna Type                                                                                                                                                                                                   | : | PCB Antenna                    |
| Antenna Gain                                                                                                                                                                                                   | : | 3.3dBi                         |
| Type of Modulation                                                                                                                                                                                             | : | GFSK                           |
| Power supply                                                                                                                                                                                                   | : | 100-240V~, 50/60Hz             |
| Hardware Version                                                                                                                                                                                               | : | V2.0                           |
| Software Version                                                                                                                                                                                               | : | V015_250728                    |
| Remark: the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant. |   |                                |

### 2.2 Channel List

The EUT has been tested under its typical operating condition.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2020+Cor. 1-2023 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The details of test channels and bandwidth were for RF conductive measurement.

Tests were conducted on three modulation methods: GFSK,  $\pi/4$ QPSK, and 8DPSK. The reported data only showed the worst performance.

Frequency and Channel list :

| Channel   | Frequency<br>(MHz) | Channel   | Frequency<br>(MHz) | Channel   | Frequency<br>(MHz) |
|-----------|--------------------|-----------|--------------------|-----------|--------------------|
| <b>00</b> | <b>2402</b>        | 14        | 2430               | 28        | 2458               |
| 01        | 2404               | 15        | 2432               | 29        | 2460               |
| 02        | 2406               | 16        | 2434               | 30        | 2462               |
| 03        | 2408               | 17        | 2436               | 31        | 2464               |
| 04        | 2410               | 18        | 2438               | 32        | 2466               |
| 05        | 2412               | <b>19</b> | <b>2440</b>        | 33        | 2468               |
| 06        | 2414               | 20        | 2442               | 34        | 2470               |
| 07        | 2416               | 21        | 2444               | 35        | 2472               |
| 08        | 2418               | 22        | 2446               | 36        | 2474               |
| 09        | 2420               | 23        | 2448               | 37        | 2476               |
| 10        | 2422               | 24        | 2450               | 38        | 2478               |
| 11        | 2424               | 25        | 2452               | <b>39</b> | <b>2480</b>        |
| 12        | 2426               | 26        | 2454               |           |                    |
| 13        | 2428               | 27        | 2456               |           |                    |

Test Frequency and Channel :

| Lowest Frequency |                    | Middle Frequency |                    | Highest Frequency |                    |
|------------------|--------------------|------------------|--------------------|-------------------|--------------------|
| Channel          | Frequency<br>(MHz) | Channel          | Frequency<br>(MHz) | Channel           | Frequency<br>(MHz) |
| 00               | 2402               | 19               | 2440               | 39                | 2480               |

## 2.3 Test Mode

|                                                                                                                                                                                                                                       |                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Transmitting mode                                                                                                                                                                                                                     | Keep the EUT in continuously transmitting mode. |
| Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data. |                                                 |

|                   |                     |
|-------------------|---------------------|
| Test Software     | Bluetest 3 3.15.exe |
| Power level setup | 10.0dBm             |

### 3 TEST SITES

#### 3.1 Test Facilities

##### Site Description

EMC Lab. : Certificated by Nemko  
Registration No.: ELA 814  
Date of registration: September 25, 2024

Certificated by CMA China  
Registration No.: 202319016955  
Date of registration: July 23, 2024

Certificated by A2LA  
Certificate Number: 7404.01  
Valid To: March 31, 2027

Name of Firm : Keyway Testing Technology (Guangdong) Co., Ltd.

Site Location : Room 2102, Building 6, Dongyi Intelligent Equipment New Energy Vehicle Park,  
No.30 of Tangxia District, Dongshen Road, Tangxia Town, Dongguan, 523710,  
People's Republic of China

#### 3.2 Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| Parameter                          | Uncertainty              |
|------------------------------------|--------------------------|
| RF output power, conducted         | $\pm 1.0\text{dB}$       |
| Power Spectral Density, conducted  | $\pm 2.2\text{dB}$       |
| Radio Frequency                    | $\pm 1 \times 10^{-6}$   |
| Bandwidth                          | $\pm 1.5 \times 10^{-6}$ |
| Duty Cycle                         | $\pm 2\%$                |
| Spurious emissions, conducted      | $\pm 0.21\text{dB}$      |
| Temperature                        | $\pm 1^\circ\text{C}$    |
| Humidity                           | $\pm 5\%$                |
| DC and low frequency voltages      | $\pm 3\%$                |
| Conducted Emissions (150kHz~30MHz) | $\pm 3.64\text{dB}$      |
| Radiated Emission(9KHz~30MHz)      | $\pm 4.51\text{dB}$      |
| Radiated Emission(30MHz~1GHz)      | $\pm 5.03\text{dB}$      |
| Radiated Emission(1GHz~25GHz)      | $\pm 4.74\text{dB}$      |
| Radiated Emission(25GHz~40GHz)     | $\pm 3.38\text{dB}$      |

### 3.3 List of Test and Measurement Instruments

| Equipment                                                                            | Manufacturer    | Model No.             | Serial No.   | Date of Cal. | Valid until |
|--------------------------------------------------------------------------------------|-----------------|-----------------------|--------------|--------------|-------------|
| For conducted emission at the mains terminals and signal port test 944 Shielded Room |                 |                       |              |              |             |
| Test Software                                                                        | FARAD           | EZ-EMC Ver.FARAD-3A1+ | KWET-089     | /            | /           |
| EMI Test Receiver                                                                    | Rohde&Schwarz   | ESCI                  | 101156       | Apr 14, 25   | Apr 13, 26  |
| ArtificialMains Network                                                              | Rohde&Schwarz   | ENV216                | 101314       | Mar 05, 25   | Mar 04, 26  |
| RF Cable                                                                             | FUJIKURA        | 3D-2W                 | KWET-030     | Apr 14, 25   | Apr 13, 26  |
| Socket                                                                               | Gongniu         | KWET-003A1            | KWET-003A1   | Feb 21, 25   | Feb 20, 26  |
| For radiated emission test (30MHz-1GHz)966 Chamber 2                                 |                 |                       |              |              |             |
| Test Software                                                                        | FARAD           | EZ-EMC Ver.FARAD-3A1+ | KWET-087     | /            | /           |
| EMI Test Receiver                                                                    | Rohde&Schwarz   | ESCI                  | 101178       | Apr 14, 25   | Apr 13, 26  |
| TRILOG Broadband Antenna                                                             | Schwarzbeck     | VULB 9168             | 00829        | May 10, 25   | May 09, 26  |
| 3m Semi-anechoic Chamber                                                             | YIHENDIANZI     | 966                   | YH-KW-966-02 | Mar 07, 26   | Mar 06, 29  |
| RF Cable                                                                             | EMC Instruments | EMCCFD400-NM-NM-2000  | 240307       | Apr 14, 25   | Apr 13, 26  |
| RF Cable                                                                             | EMC Instruments | EMCCFD400-NM-NM-9000  | 240309       | Apr 14, 25   | Apr 13, 26  |
| For radiated emission test (Above 1GHz)966 Chamber 2                                 |                 |                       |              |              |             |
| Test Software                                                                        | FARAD           | EZ-EMC Ver.FARAD-3A1+ | KWET-087     | /            | /           |
| EMI Test Receiver                                                                    | Rohde&Schwarz   | ESCI                  | 101178       | Apr 14, 25   | Apr 13, 26  |
| Spectrum Analyzer                                                                    | Agilent         | N9020A                | MY56070279   | Apr 14, 25   | Apr 13, 26  |
| Spectrum analyzer                                                                    | R&S             | FSV 40                | 101059       | Nov 06, 25   | Nov 05, 26  |
| Horn Antenna                                                                         | DAZE            | ZN30701               | 11003        | Jul 27, 25   | Jul 26, 26  |
| Low-frequency amplifier                                                              | SONOMA          | 310                   | KWET-010     | Apr 12, 24   | Apr 11, 26  |
| Signal Amplifier                                                                     | WCS Technology  | DLNA-1000-18000       | KWET-009     | Apr 15, 25   | Apr 14, 26  |
| SHF-EHF Horn Antenna                                                                 | SCHWARZBECK     | BBHA 9170             | 1368         | May 16, 25   | May 15, 26  |
| Signal Amplifier                                                                     | WCS Technology  | DLNA-18000-40000      | KWET-138     | Apr 19, 25   | Apr 18, 26  |
| 3m anechoic Chamber                                                                  | YIHENDIANZI     | 966                   | YH-KW-966-02 | Mar 07, 25   | Mar 06, 29  |
| RF Cable(1G-18GHz)                                                                   | EMC Instruments | EMC105-SM-SM-1000     | 240301       | Apr 14, 25   | Apr 13, 26  |
| RF Cable(1G-18GHz)                                                                   | EMC Instruments | EMC105-SM-SM-2000     | 240302       | Apr 14, 25   | Apr 13, 26  |
| RF Cable(1G-18GHz)                                                                   | EMC Instruments | EMC105-SM-SM-9000     | 240303       | Apr 14, 25   | Apr 13, 26  |
| RF Cable(18G-40GHz)                                                                  | WCS Technology  | CA360P-29M29M-1M      | W2415130001  | Apr 14, 25   | Apr 13, 26  |
| RF Cable(18G-40GHz)                                                                  | WCS Technology  | CA360P-29M29M-9M      | W2415110001  | Apr 14, 25   | Apr 13, 26  |
| High Pass Filter 3GHz                                                                | Micro-Ironics   | HPM17544              | KWET-179     | May 15, 24   | May 14, 26  |
| For conducted emission test (RF)                                                     |                 |                       |              |              |             |
| MXG Signal Analyzer                                                                  | Agilent         | N9020A                | MY56070279   | Apr 14, 25   | Apr 13, 26  |

|               |          |                 |             |            |            |
|---------------|----------|-----------------|-------------|------------|------------|
| RF SWITCH BOX | CSKJ     | SMU-1003        | KWET-047    | Apr 14, 25 | Apr 13, 26 |
| Attenuator    | R&S      | ESH3-Z2         | 102696      | Apr 14, 25 | Apr 13, 26 |
| Power meter   | YOKOKAWA | WY210           | 27D528405   | Apr 14, 25 | Apr 13, 26 |
| RF sma cable  | Keysight | ULC-1m-SMSM+    | 1623        | May 15, 25 | May 14, 26 |
| RF sma cable  | Keysight | ULC-1m-SMSM+    | 1623        | May 15, 25 | May 14, 26 |
| RF sma cable  | Keysight | ULC-1.5FT-SMSM+ | 1623        | May 15, 25 | May 14, 26 |
| RF sma cable  | Keysight | ULC-1.5FT-SMSM+ | 1623        | May 15, 25 | May 14, 26 |
| Coupler       | Keysight | ZHDC-10-63-S+   | SF331801603 | May 15, 25 | May 14, 26 |
| Test Software | CSKJ     | CS-305X         | KWET-149    | /          | /          |

### 3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment          | Mfr/Brand     | Model/Type No. | Series No. | Note      |
|------|--------------------|---------------|----------------|------------|-----------|
| E-1  | Active Loudspeaker | FYNE<br>AUDIO | CUBITT 5       | N/A        | EUT       |
| E-2  | Notebook           | lenovo        | B40-80         | MP07F6JD   | Auxiliary |
| E-3  | USB TO TTL         | MH            | USB to TTL     | N/A        | Auxiliary |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

## 4 Conducted Emission

|                   |                                                 |
|-------------------|-------------------------------------------------|
| Test Requirement: | : FCC CFR 47 Part 15 Section 15.207&RSS-Gen 8.8 |
| Test Method       | : ANSI C63.10:2020                              |
| Test Result       | : PASS                                          |
| Frequency Range   | : 150kHz to 30MHz                               |
| Class/Severity    | : Class B                                       |

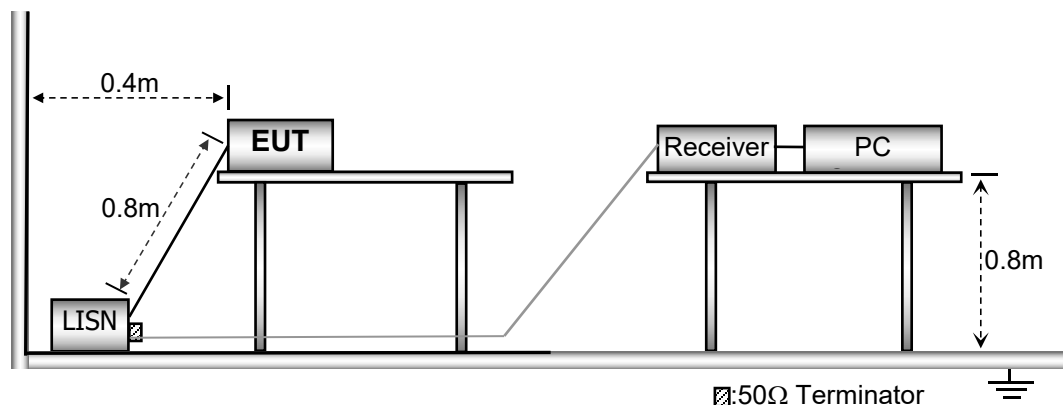
### 4.1 E.U.T. Operation

Operating Environment :

|                      |        |
|----------------------|--------|
| Temperature          | : 23.5 |
| Humidity             | : 54   |
| Atmospheric Pressure | : 1015 |

### 4.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2020.



### 4.3 Measurement Procedure

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

#### 4.4 Conducted Emission Limit

##### Conducted Emission

| Frequency(MHz) | Quasi-peak | Average |
|----------------|------------|---------|
| 0.15-0.5       | 66-56      | 56-46   |
| 0.5-5.0        | 56         | 46      |
| 5.0-30.0       | 60         | 50      |

##### Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

#### 4.5 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

#### 4.6 Conducted Emission Test Result

Both the left and right headphones have been tested. The report only shows the data of the left headphone, which is the worst among all.

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Line



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|
| 1 * | 0.150           | 52.73          | 10.11       | 62.84        | 66.00        | -3.16       | QP       |
| 2   | 0.150           | 20.62          | 10.11       | 30.73        | 56.00        | -25.27      | AVG      |
| 3   | 0.384           | 40.61          | 10.21       | 50.82        | 58.19        | -7.37       | QP       |
| 4   | 0.578           | 18.31          | 10.22       | 28.53        | 46.00        | -17.47      | AVG      |
| 5   | 0.888           | 31.06          | 10.14       | 41.20        | 56.00        | -14.80      | QP       |
| 6   | 1.540           | 14.31          | 10.09       | 24.40        | 46.00        | -21.60      | AVG      |
| 7   | 4.609           | 32.39          | 10.13       | 42.52        | 56.00        | -13.48      | QP       |
| 8   | 4.609           | 31.53          | 10.13       | 41.66        | 46.00        | -4.34       | AVG      |
| 9   | 5.375           | 32.90          | 10.13       | 43.03        | 50.00        | -6.97       | AVG      |
| 10  | 6.150           | 35.05          | 10.15       | 45.20        | 60.00        | -14.80      | QP       |
| 11  | 20.350          | 21.63          | 10.22       | 31.85        | 60.00        | -28.15      | QP       |
| 12  | 20.975          | 15.66          | 10.22       | 25.88        | 50.00        | -24.12      | AVG      |

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Neutral



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|
| 1   | 0.150           | 52.31          | 10.06       | 62.37        | 66.00        | -3.63       | QP       |
| 2   | 0.150           | 19.90          | 10.06       | 29.96        | 56.00        | -26.04      | AVG      |
| 3   | 0.375           | 40.38          | 10.13       | 50.51        | 58.39        | -7.88       | QP       |
| 4   | 0.384           | 21.43          | 10.14       | 31.57        | 48.19        | -16.62      | AVG      |
| 5   | 0.897           | 30.84          | 10.09       | 40.93        | 56.00        | -15.07      | QP       |
| 6   | 1.540           | 15.89          | 10.05       | 25.94        | 46.00        | -20.06      | AVG      |
| 7   | 4.609           | 35.17          | 10.05       | 45.22        | 56.00        | -10.78      | QP       |
| 8 * | 4.609           | 33.77          | 10.05       | 43.82        | 46.00        | -2.18       | AVG      |
| 9   | 5.375           | 35.05          | 10.05       | 45.10        | 60.00        | -14.90      | QP       |
| 10  | 5.375           | 31.17          | 10.05       | 41.22        | 50.00        | -8.78       | AVG      |
| 11  | 17.275          | 14.77          | 10.19       | 24.96        | 50.00        | -25.04      | AVG      |
| 12  | 17.625          | 27.26          | 10.19       | 37.45        | 60.00        | -22.55      | QP       |

#### Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor
4. Correct Factor = Cable Loss + AMP Factor - Preamp Factor

## 5 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247  
 RSS-Gen 8.9, RSS-Gen 8.10  
 Test Method : ANSI C63.10:2020 and RSS-Gen  
 Test Result : PASS  
 Measurement Distance : 3m  
 Limit : See the follow table

| Frequency (MHz) | Field Strength        |              | Field Strength Limit at 3m Measurement Dist |                                       |
|-----------------|-----------------------|--------------|---------------------------------------------|---------------------------------------|
|                 | uV/m                  | Distance (m) | uV/m                                        | dBuV/m                                |
| 0.009 ~ 0.490   | $2400/F(\text{kHz})$  | 300          | $10000 * 2400/F(\text{kHz})$                | $20\log^{(2400/F(\text{kHz}))} + 80$  |
| 0.490 ~ 1.705   | $24000/F(\text{kHz})$ | 30           | $100 * 24000/F(\text{kHz})$                 | $20\log^{(24000/F(\text{kHz}))} + 40$ |
| 1.705 ~ 30      | 30                    | 30           | $100 * 30$                                  | $20\log^{(30)} + 40$                  |
| 30 ~ 88         | 100                   | 3            | 100                                         | $20\log^{(100)}$                      |
| 88 ~ 216        | 150                   | 3            | 150                                         | $20\log^{(150)}$                      |
| 216 ~ 960       | 200                   | 3            | 200                                         | $20\log^{(200)}$                      |
| Above 960       | 500                   | 3            | 500                                         | $20\log^{(500)}$                      |

### 5.1 EUT Operation

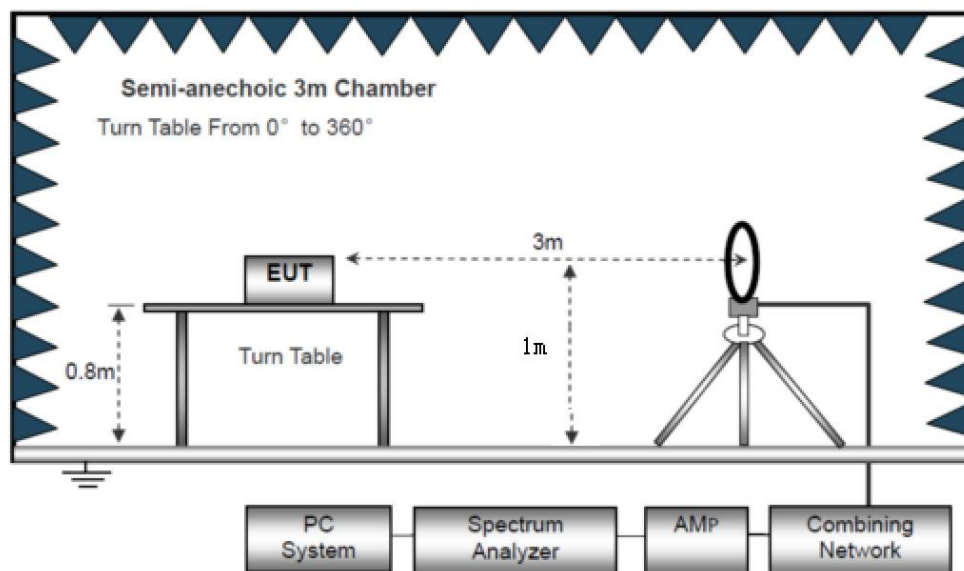
Operating Environment :

Temperature: : 23  
 Humidity: : 54  
 Atmospheric Pressure: : 1015

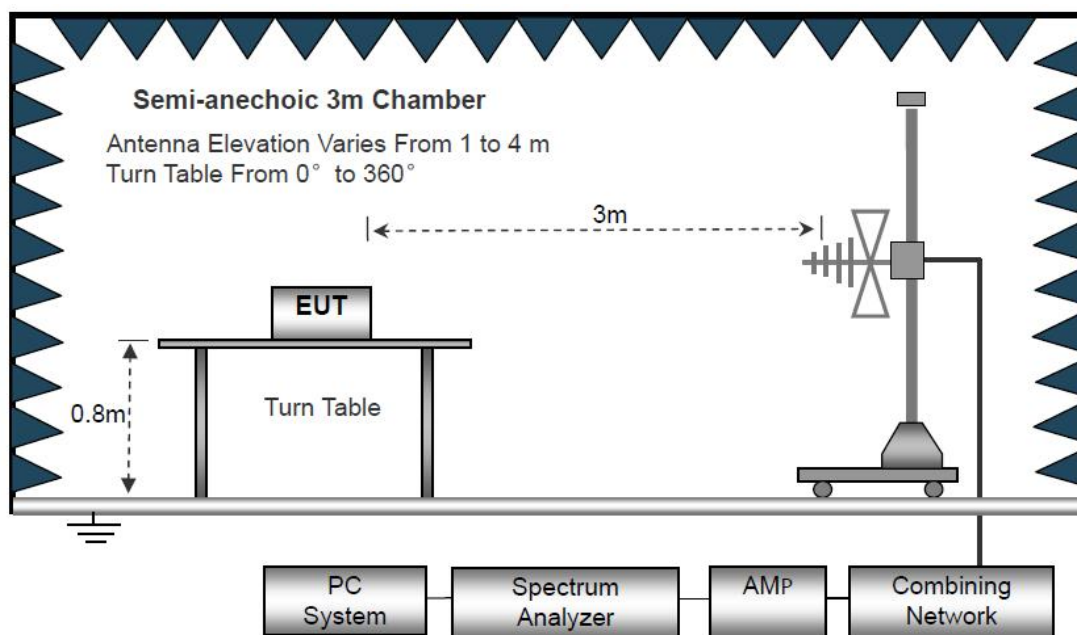
## 5.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

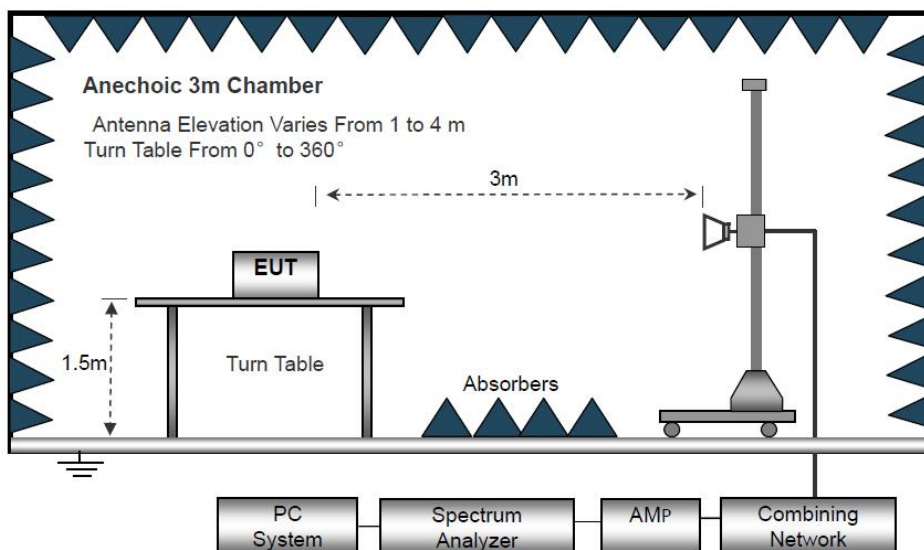
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



### 5.3 Spectrum Analyzer Setup

|                      |   |        |        |
|----------------------|---|--------|--------|
| Below 30MHz          |   |        |        |
| IF Bandwidth         | : | 10kHz  |        |
| Resolution Bandwidth | : | 10kHz  |        |
| Video Bandwidth      | : | 10kHz  |        |
| 30MHz ~ 1GHz         |   |        |        |
| Detector             | : | PK     | QP     |
| Resolution Bandwidth | : | 100kHz | 120kHz |
| Video Bandwidth      | : | 300kHz | 300kHz |
| Above 1GHz           |   |        |        |
| Detector             | : | PK     | AV     |
| Resolution Bandwidth | : | 1MHz   | 1MHz   |
| Video Bandwidth      | : | 3MHz   | 10Hz   |

## 5.4 Test Procedure

1. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane, And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
8. The test above 1GHz must be use the fully anechoic room, and the test below 1GHz use the half anechoic room

## 5.5 Summary of Test Results

### Test Frequency: 9KHz-30MHz

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV/m) | Limit 3m<br>(dBuV/m) | Over<br>(dB) |
|----------------|-----------------|----------------------------|----------------------|--------------|
| --             | --              | --                         | --                   | >20          |

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =  $40 \log(\text{Specific distance} / \text{test distance})$  (dB);

Limit line = Specific limits(dBuV) + distance extrapolation factor.

### Test Frequency: 30MHz ~ 1GHz

All the modulation modes were tested the data of the worst mode (TX GFSK Low Channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

Both the left and right headphones have been tested. The report only shows the data of the left headphone, which is the worst among all.

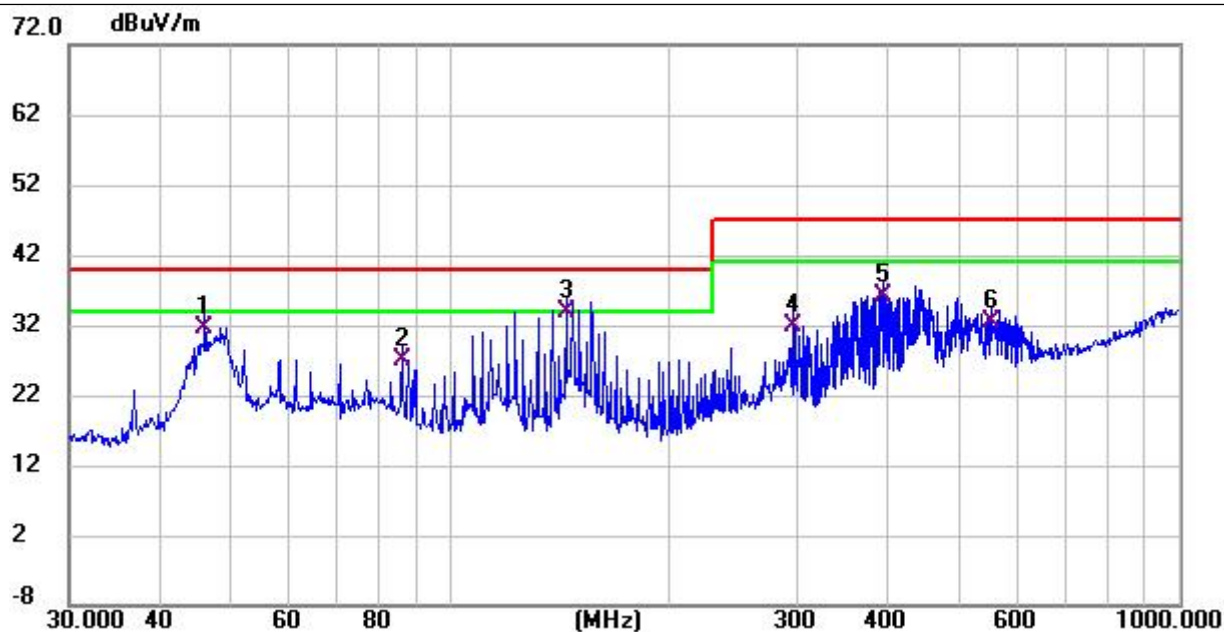
Please refer to the following test plots:

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 46.016          | 18.11          | 13.41         | 31.52          | 40.00          | -8.48       | QP       |
| 2   | 85.898          | 11.61          | 15.36         | 26.97          | 40.00          | -13.03      | QP       |
| 3 * | 144.335         | 22.04          | 11.82         | 33.86          | 40.00          | -6.14       | QP       |
| 4   | 295.147         | 17.59          | 14.41         | 32.00          | 47.00          | -15.00      | QP       |
| 5   | 393.472         | 19.16          | 16.93         | 36.09          | 47.00          | -10.91      | QP       |
| 6   | 552.883         | 11.86          | 20.67         | 32.53          | 47.00          | -14.47      | QP       |

Remark:

Emission Level=Reading+Factor

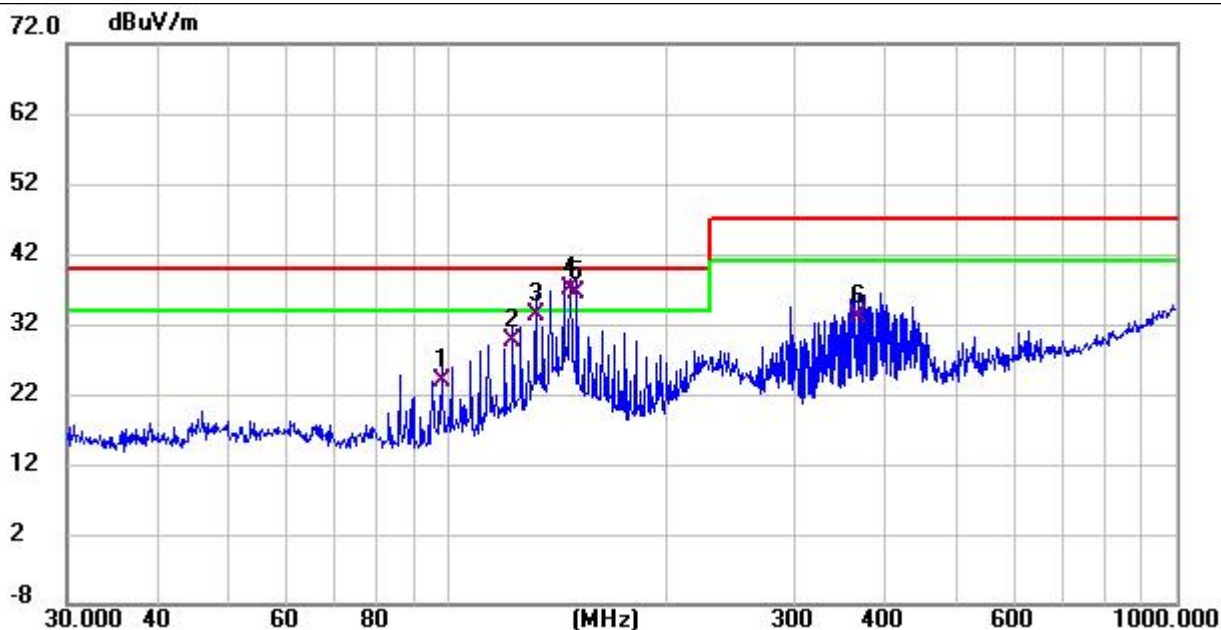
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 98.142          | 12.69          | 11.07         | 23.76          | 40.00          | -16.24      | QP       |
| 2   | 122.834         | 15.50          | 14.09         | 29.59          | 40.00          | -10.41      | QP       |
| 3   | 132.221         | 19.57          | 13.68         | 33.25          | 40.00          | -6.75       | QP       |
| 4 * | 147.479         | 23.34          | 13.52         | 36.86          | 40.00          | -3.14       | QP       |
| 5 ! | 150.538         | 22.93          | 13.59         | 36.52          | 40.00          | -3.48       | QP       |
| 6   | 365.539         | 16.87          | 16.20         | 33.07          | 47.00          | -13.93      | QP       |

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor-Preamplifier Factor

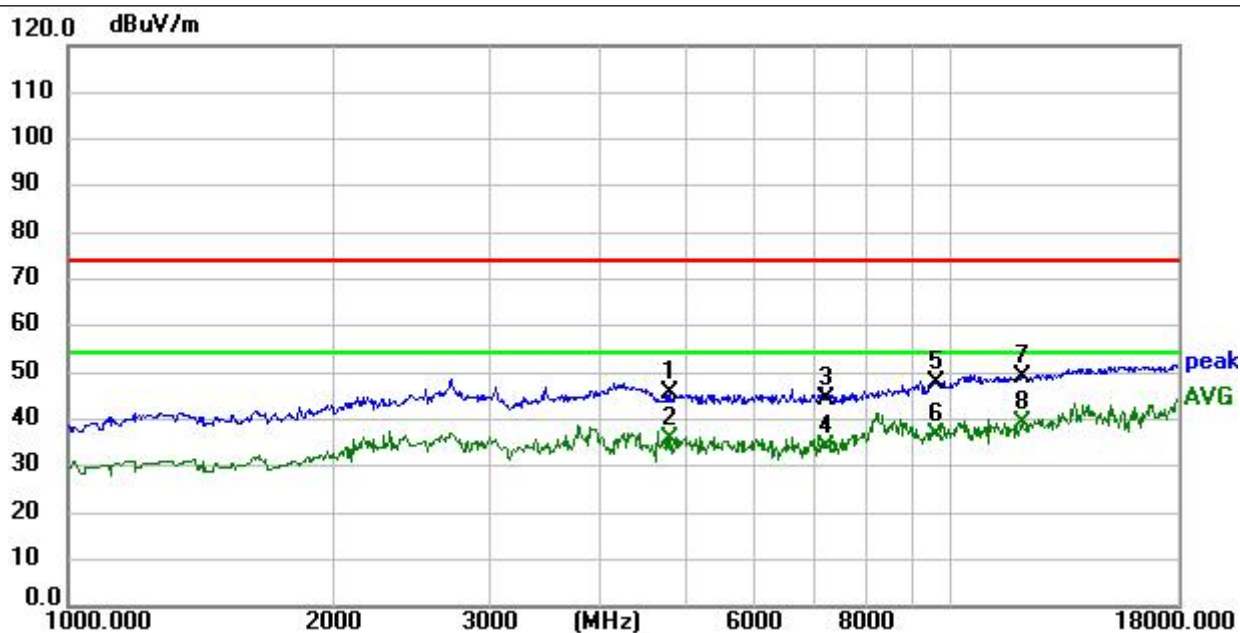
## Test Frequency: From 1GHz to 25GHz

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 4804.000        | 50.45          | -4.95         | 45.50          | 74.00          | -28.50      | peak     |
| 2   | 4804.000        | 40.88          | -4.95         | 35.93          | 54.00          | -18.07      | AVG      |
| 3   | 7206.000        | 44.08          | 0.24          | 44.32          | 74.00          | -29.68      | peak     |
| 4   | 7206.000        | 33.94          | 0.24          | 34.18          | 54.00          | -19.82      | AVG      |
| 5   | 9608.000        | 45.67          | 2.10          | 47.77          | 74.00          | -26.23      | peak     |
| 6   | 9608.000        | 34.37          | 2.10          | 36.47          | 54.00          | -17.53      | AVG      |
| 7   | 12010.000       | 45.26          | 3.87          | 49.13          | 74.00          | -24.87      | peak     |
| 8 * | 12010.000       | 35.25          | 3.87          | 39.12          | 54.00          | -14.88      | AVG      |

Remark:

Emission Level=Reading+Factor

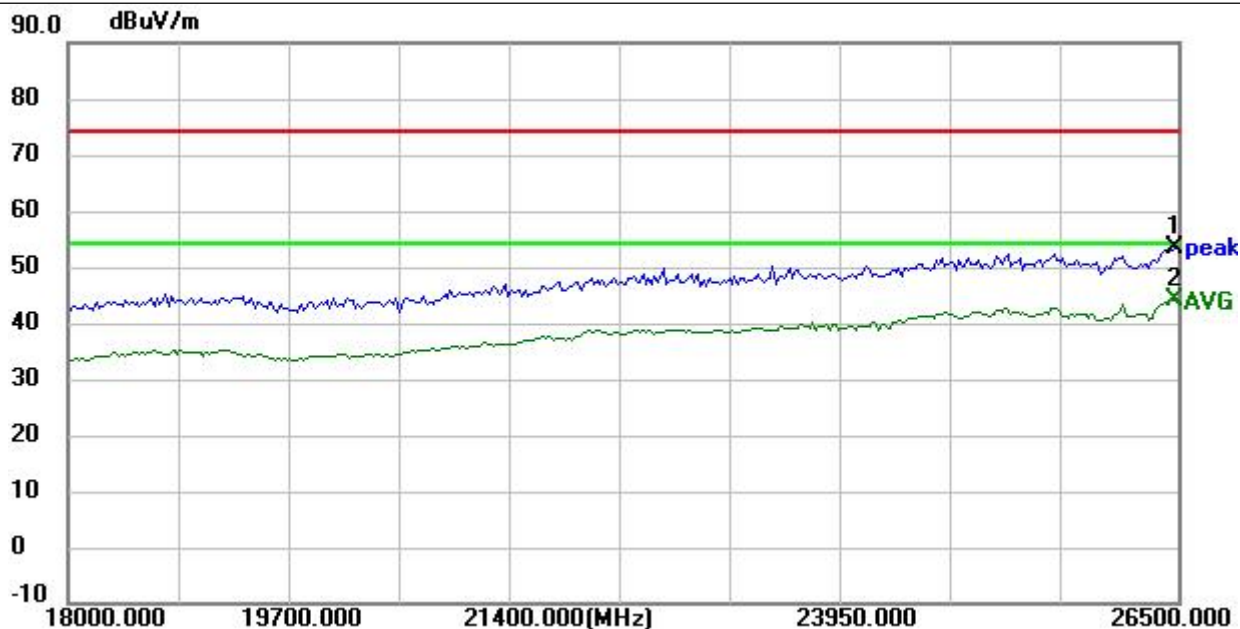
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 26477.979       | 41.80          | 11.56         | 53.36          | 74.00          | -20.64      | peak     |
| 2 * | 26477.979       | 32.37          | 11.56         | 43.93          | 54.00          | -10.07      | AVG      |

Remark:

Emission Level=Reading+Factor

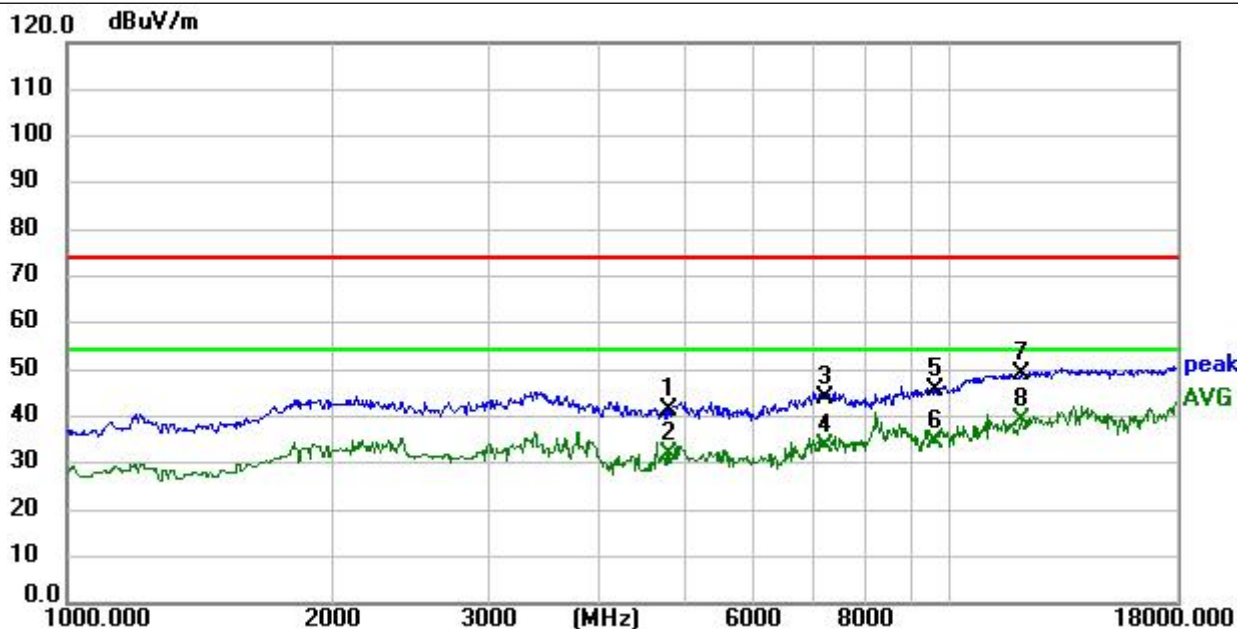
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 4804.000        | 46.45          | -4.95         | 41.50          | 74.00          | -32.50      | peak     |
| 2   | 4804.000        | 36.88          | -4.95         | 31.93          | 54.00          | -22.07      | AVG      |
| 3   | 7206.000        | 43.58          | 0.24          | 43.82          | 74.00          | -30.18      | peak     |
| 4   | 7206.000        | 33.44          | 0.24          | 33.68          | 54.00          | -20.32      | AVG      |
| 5   | 9608.000        | 43.67          | 2.10          | 45.77          | 74.00          | -28.23      | peak     |
| 6   | 9608.000        | 32.37          | 2.10          | 34.47          | 54.00          | -19.53      | AVG      |
| 7   | 12010.000       | 45.26          | 3.87          | 49.13          | 74.00          | -24.87      | peak     |
| 8 * | 12010.000       | 35.25          | 3.87          | 39.12          | 54.00          | -14.88      | AVG      |

Remark:

Emission Level=Reading+Factor

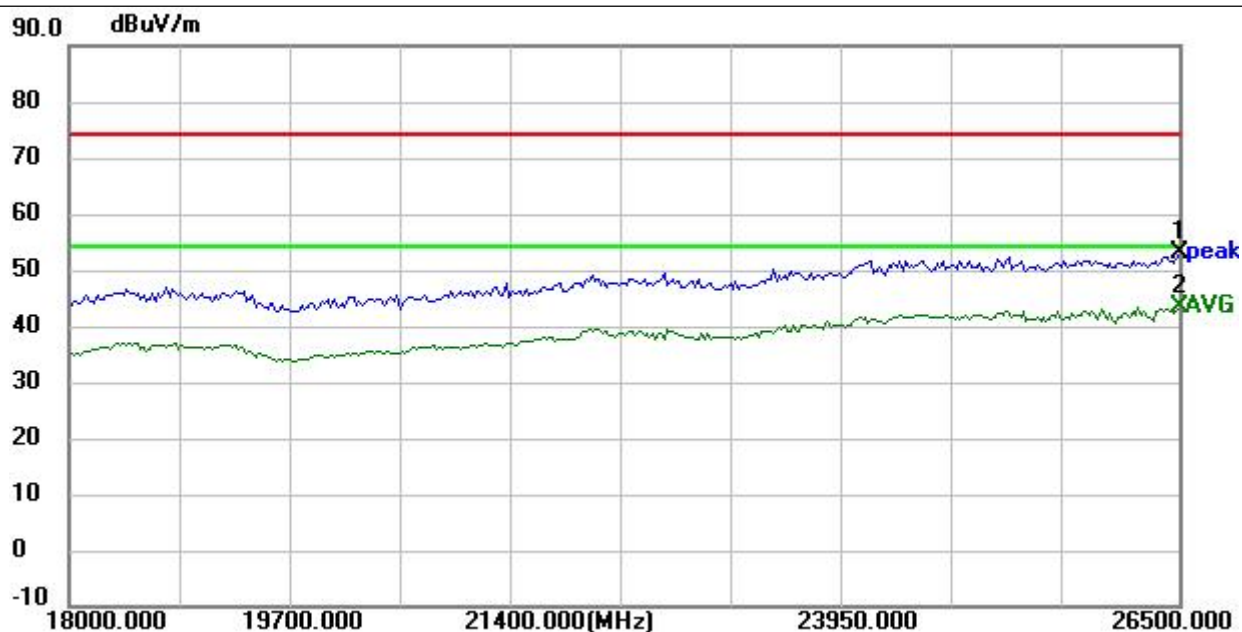
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 26500.000       | 41.16          | 11.71         | 52.87          | 74.00          | -21.13      | peak     |
| 2 * | 26500.000       | 31.77          | 11.71         | 43.48          | 54.00          | -10.52      | AVG      |

Remark:

Emission Level=Reading+Factor

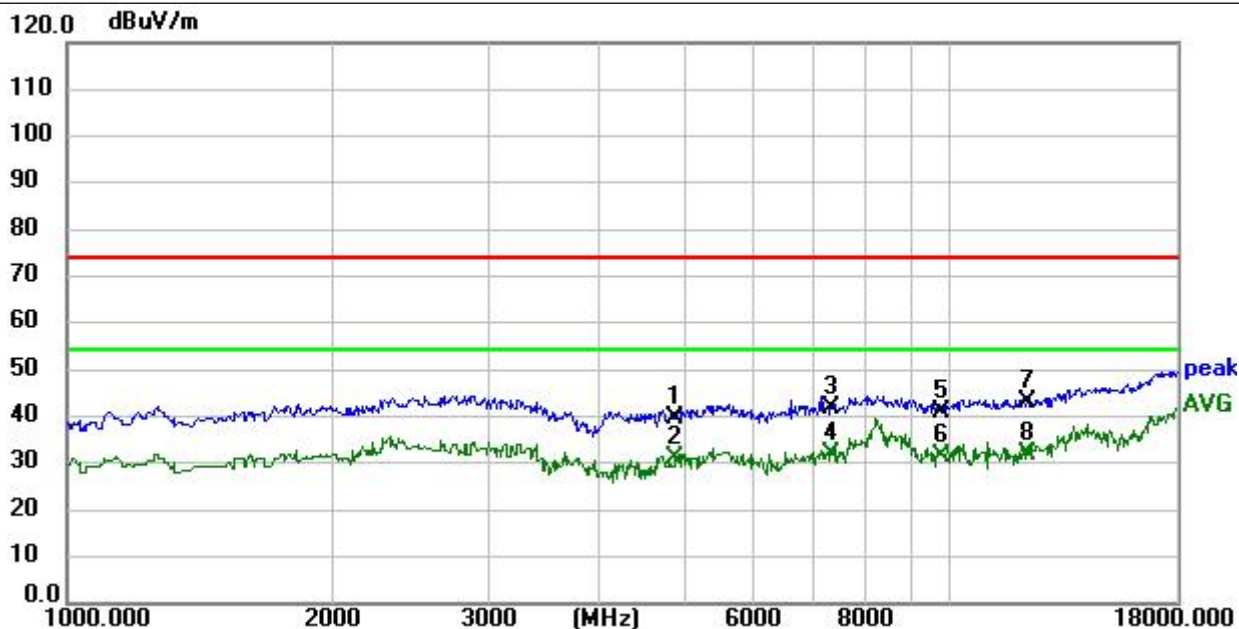
Factor=Cable Loss+ANT Factor-Preamp Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Middle Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 4880.000        | 44.51          | -4.69         | 39.82          | 74.00          | -34.18      | peak     |
| 2   | 4880.000        | 35.62          | -4.69         | 30.93          | 54.00          | -23.07      | AVG      |
| 3   | 7320.000        | 41.13          | 0.50          | 41.63          | 74.00          | -32.37      | peak     |
| 4   | 7320.000        | 31.59          | 0.50          | 32.09          | 54.00          | -21.91      | AVG      |
| 5   | 9760.000        | 39.35          | 1.73          | 41.08          | 74.00          | -32.92      | peak     |
| 6   | 9760.000        | 29.69          | 1.73          | 31.42          | 54.00          | -22.58      | AVG      |
| 7   | 12200.000       | 38.54          | 4.65          | 43.19          | 74.00          | -30.81      | peak     |
| 8 * | 12200.000       | 27.45          | 4.65          | 32.10          | 54.00          | -21.90      | AVG      |

Remark:

Emission Level=Reading+Factor

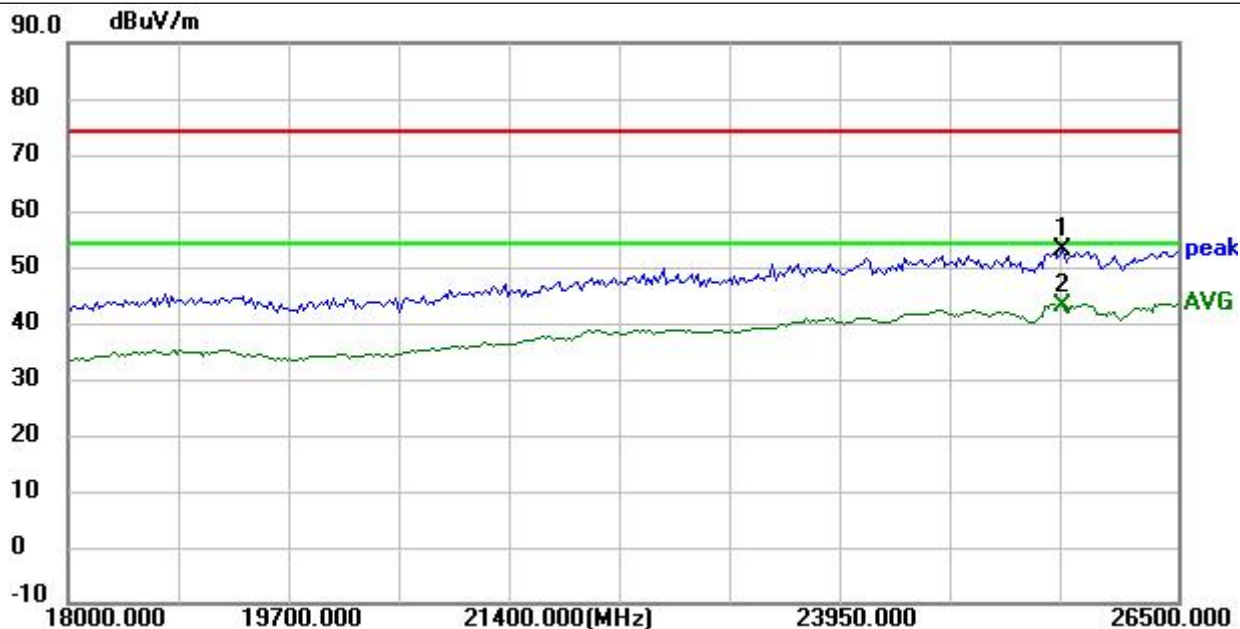
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Middle Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 25619.171       | 43.92          | 9.24          | 53.16          | 74.00          | -20.84      | peak     |
| 2 * | 25619.171       | 33.68          | 9.24          | 42.92          | 54.00          | -11.08      | AVG      |

Remark:

Emission Level=Reading+Factor

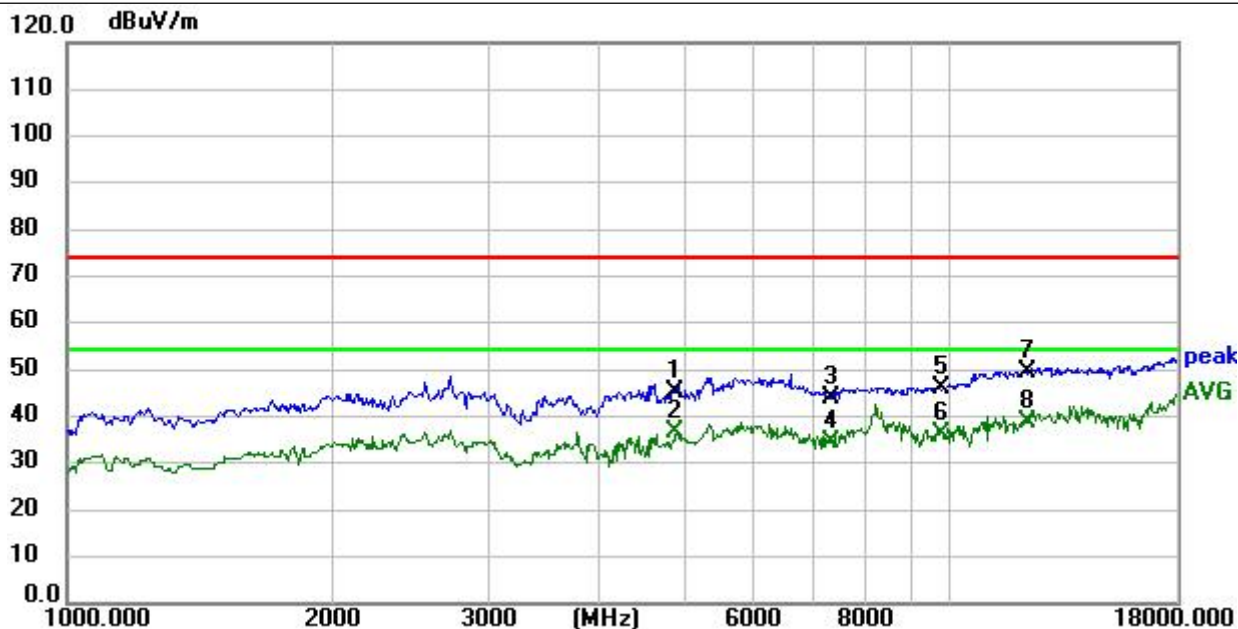
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Middle Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 4880.000        | 50.01          | -4.69         | 45.32          | 74.00          | -28.68      | peak     |
| 2   | 4880.000        | 41.12          | -4.69         | 36.43          | 54.00          | -17.57      | AVG      |
| 3   | 7320.000        | 43.63          | 0.50          | 44.13          | 74.00          | -29.87      | peak     |
| 4   | 7320.000        | 34.09          | 0.50          | 34.59          | 54.00          | -19.41      | AVG      |
| 5   | 9760.000        | 44.35          | 1.73          | 46.08          | 74.00          | -27.92      | peak     |
| 6   | 9760.000        | 34.69          | 1.73          | 36.42          | 54.00          | -17.58      | AVG      |
| 7   | 12200.000       | 45.04          | 4.65          | 49.69          | 74.00          | -24.31      | peak     |
| 8 * | 12200.000       | 33.95          | 4.65          | 38.60          | 54.00          | -15.40      | AVG      |

Remark:

Emission Level=Reading+Factor

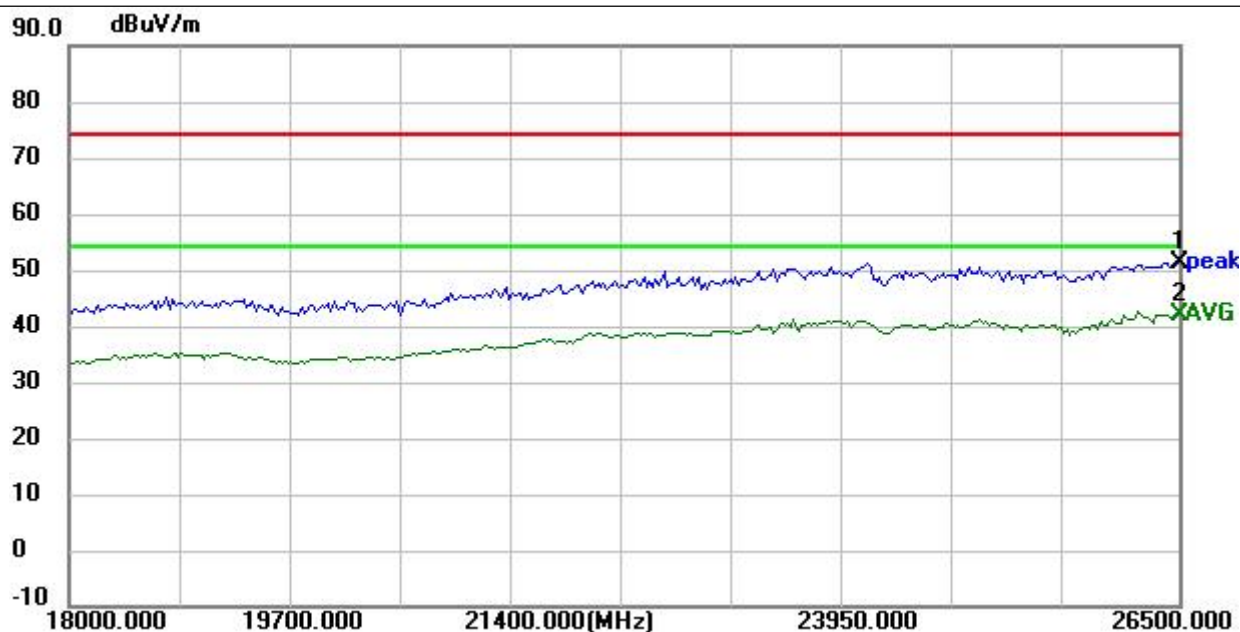
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK Middle Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 26500.000       | 39.66          | 11.71         | 51.37          | 74.00          | -22.63      | peak     |
| 2 * | 26500.000       | 30.27          | 11.71         | 41.98          | 54.00          | -12.02      | AVG      |

Remark:

Emission Level=Reading+Factor

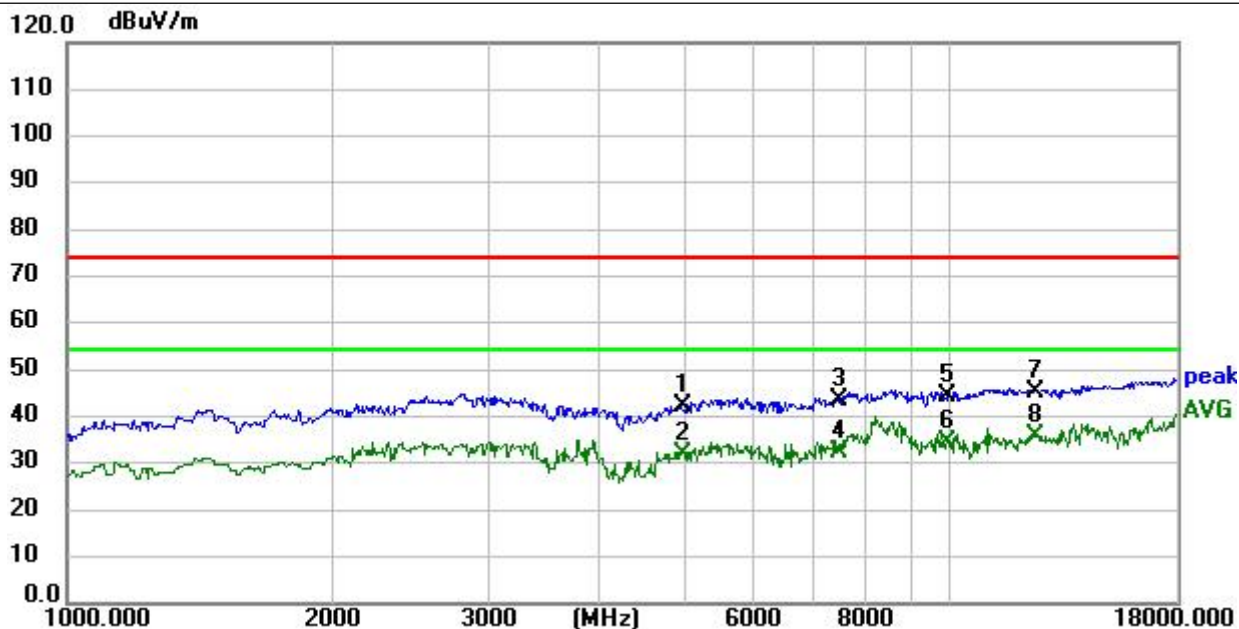
Factor=Cable Loss+ANT Factor-Preamp Factor

M/N : CUBITT 5

Operation Mode : TX GFSK High Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



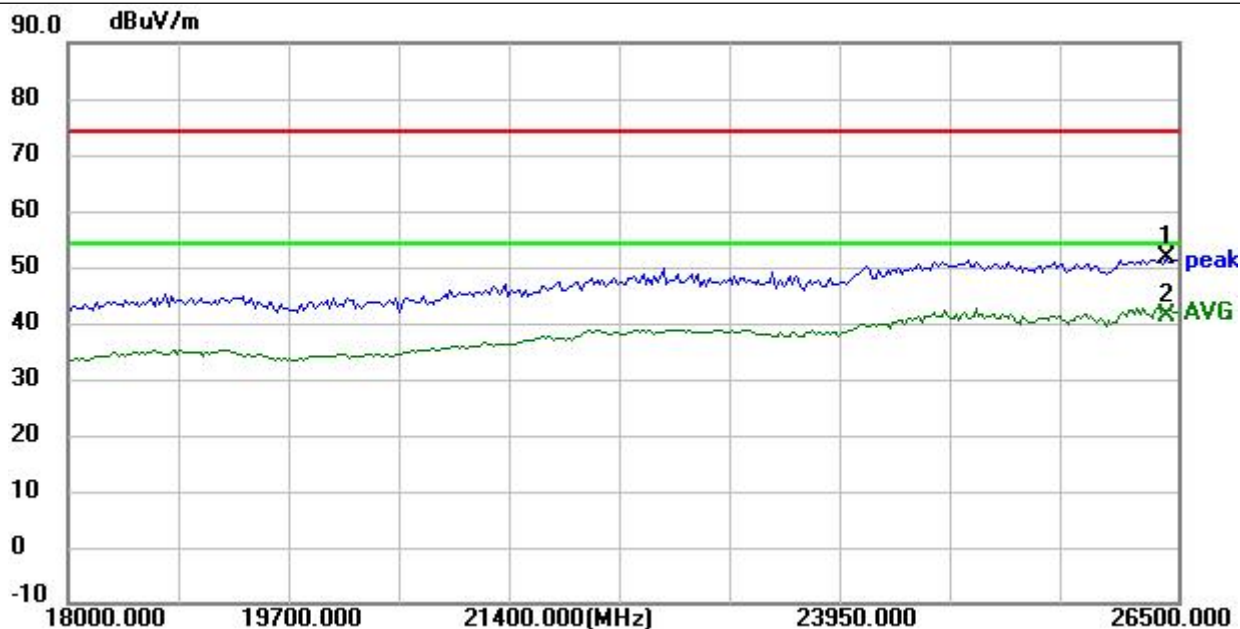
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 4960.000        | 47.22          | -5.15         | 42.07          | 74.00          | -31.93      | peak     |
| 2   | 4960.000        | 37.22          | -5.15         | 32.07          | 54.00          | -21.93      | AVG      |
| 3   | 7440.000        | 42.65          | 0.88          | 43.53          | 74.00          | -30.47      | peak     |
| 4   | 7440.000        | 31.32          | 0.88          | 32.20          | 54.00          | -21.80      | AVG      |
| 5   | 9920.000        | 42.45          | 1.95          | 44.40          | 74.00          | -29.60      | peak     |
| 6   | 9920.000        | 32.75          | 1.95          | 34.70          | 54.00          | -19.30      | AVG      |
| 7   | 12400.000       | 40.92          | 4.47          | 45.39          | 74.00          | -28.61      | peak     |
| 8 * | 12400.000       | 31.49          | 4.47          | 35.96          | 54.00          | -18.04      | AVG      |

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5  
Operation Mode : TX GFSK High Channel  
Test Voltage : AC 120V/60Hz  
Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 26411.917       | 40.56          | 11.11         | 51.67          | 74.00          | -22.33      | peak     |
| 2 * | 26411.917       | 30.24          | 11.11         | 41.35          | 54.00          | -12.65      | AVG      |

Remark:

Emission Level=Reading+Factor

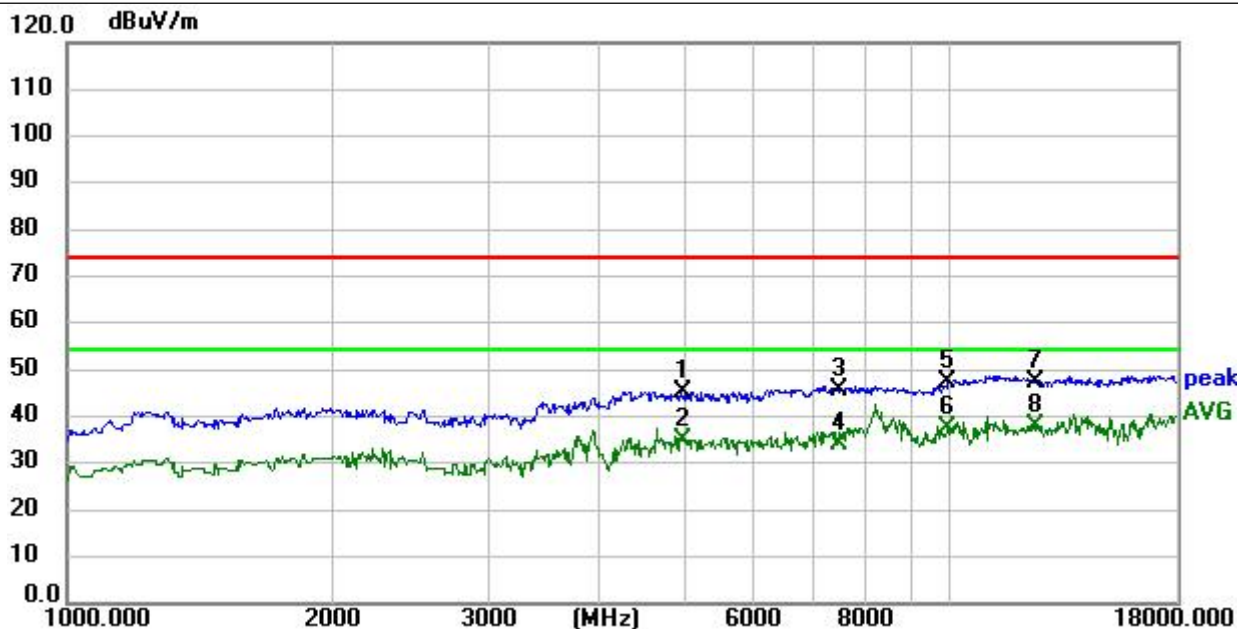
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK High Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 4960.000        | 50.22          | -5.15         | 45.07          | 74.00          | -28.93      | peak     |
| 2   | 4960.000        | 40.22          | -5.15         | 35.07          | 54.00          | -18.93      | AVG      |
| 3   | 7440.000        | 44.65          | 0.88          | 45.53          | 74.00          | -28.47      | peak     |
| 4   | 7440.000        | 33.32          | 0.88          | 34.20          | 54.00          | -19.80      | AVG      |
| 5   | 9920.000        | 45.45          | 1.95          | 47.40          | 74.00          | -26.60      | peak     |
| 6   | 9920.000        | 35.75          | 1.95          | 37.70          | 54.00          | -16.30      | AVG      |
| 7   | 12400.000       | 42.92          | 4.47          | 47.39          | 74.00          | -26.61      | peak     |
| 8 * | 12400.000       | 33.49          | 4.47          | 37.96          | 54.00          | -16.04      | AVG      |

Remark:

Emission Level=Reading+Factor

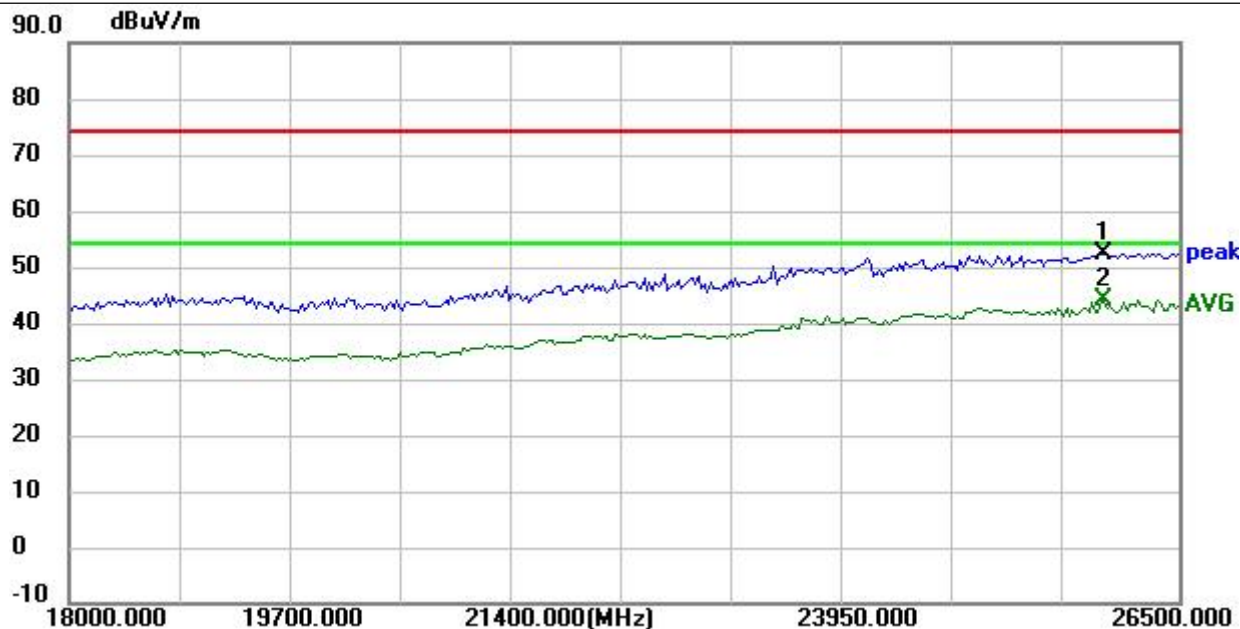
Factor=Cable Loss+ANT Factor-Preamplifier Factor

M/N : CUBITT 5

Operation Mode : TX GFSK High Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 25927.461       | 43.57          | 8.92          | 52.49          | 74.00          | -21.51      | peak     |
| 2 * | 25927.461       | 35.08          | 8.92          | 44.00          | 54.00          | -10.00      | AVG      |

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor-Preamp Factor

Note:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,

Margin= Emission Level - Limit

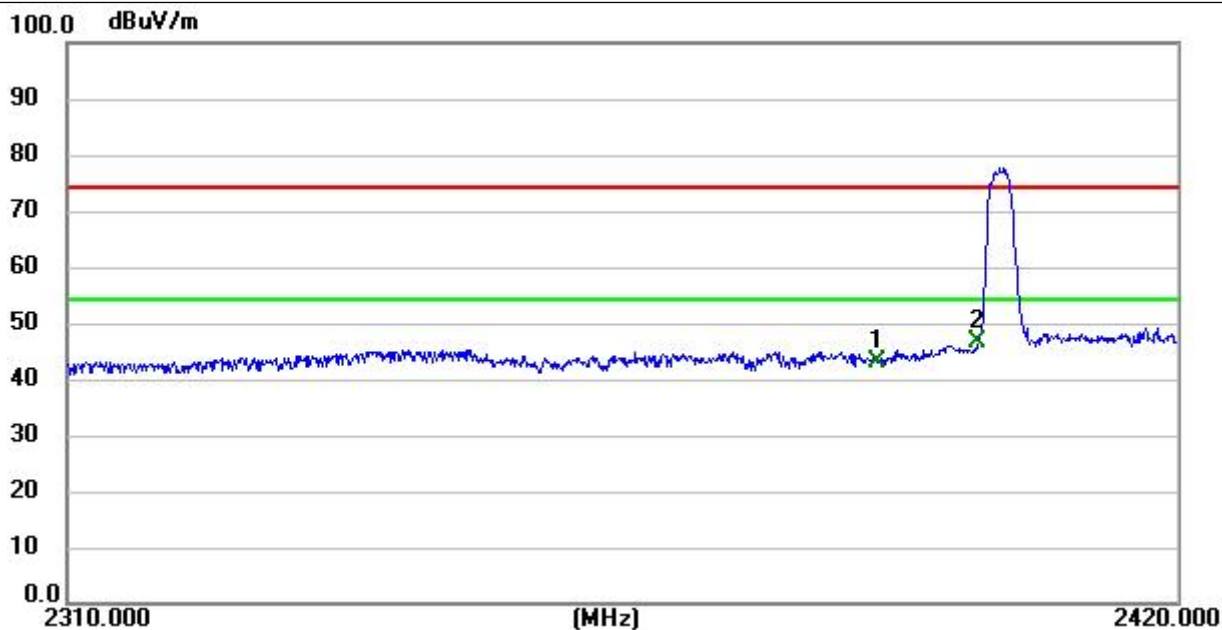
2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

# Radiated Band Emission Measurement:

Bluetooth (GFSK,  $\pi/4$ DQPSK, 8DPSK) mode have been tested, and the worst result(GFSK) was report as below

M/N : CUBITT 5  
Operation Mode : TX GFSK Low Channel  
Test Voltage : AC 120V/60Hz  
Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 2390.000        | 55.53          | -12.67        | 42.86          | 54.00          | -11.14      | AVG      |
| 2 * | 2400.000        | 59.33          | -12.69        | 46.64          | 54.00          | -7.36       | AVG      |

## Remark:

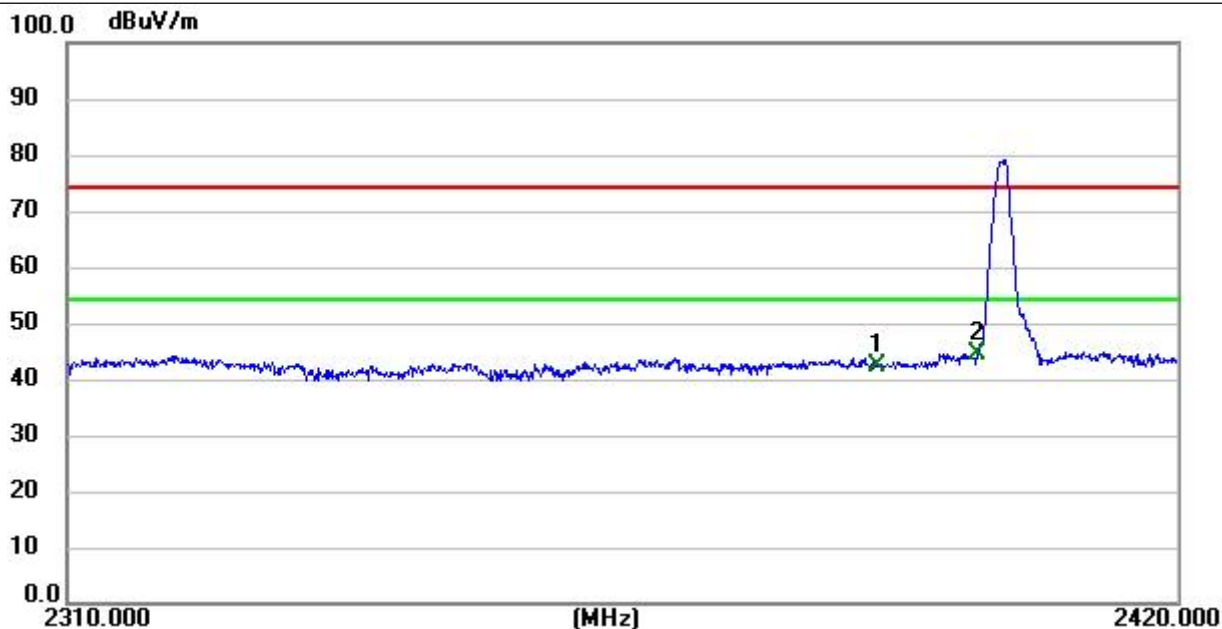
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

M/N : CUBITT 5

Operation Mode : TX GFSK Low Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 2390.000        | 54.98          | -12.67        | 42.31          | 54.00          | -11.69      | AVG      |
| 2 * | 2400.000        | 57.11          | -12.69        | 44.42          | 54.00          | -9.58       | AVG      |

Remark:

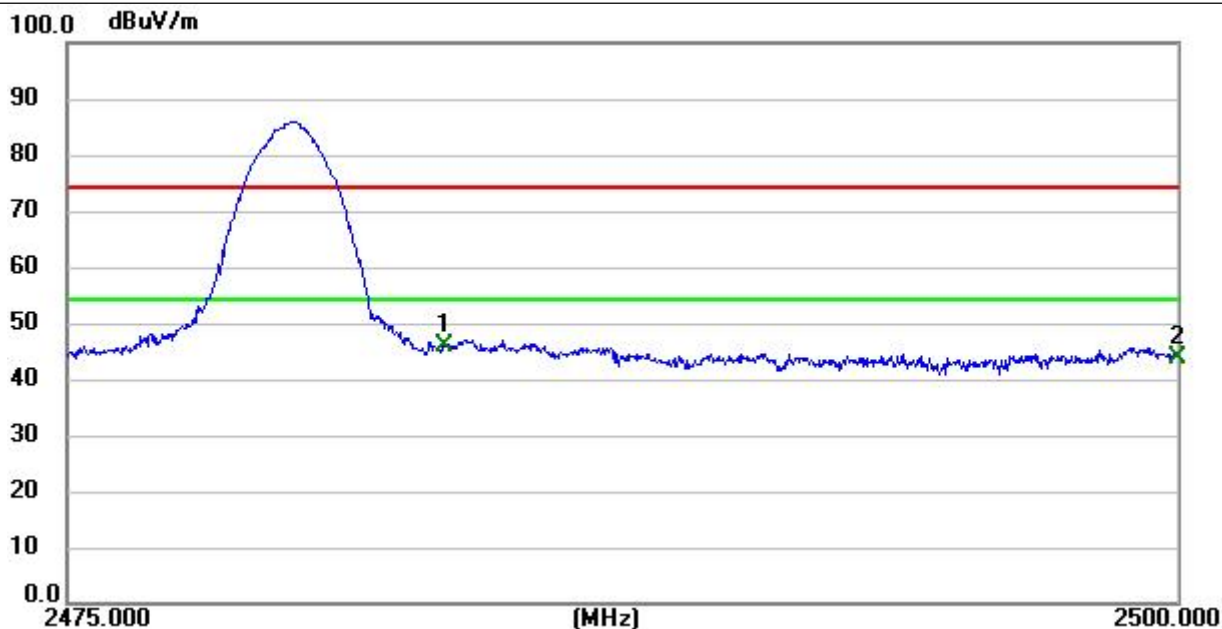
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

M/N : CUBITT 5

Operation Mode : TX GFSK High Channel

Test Voltage : AC 120V/60Hz

Test Specification : Horizontal



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 2483.500        | 58.70          | -12.81        | 45.89          | 54.00          | -8.11       | AVG      |
| 2   | 2500.000        | 56.30          | -12.63        | 43.67          | 54.00          | -10.33      | AVG      |

Remark:

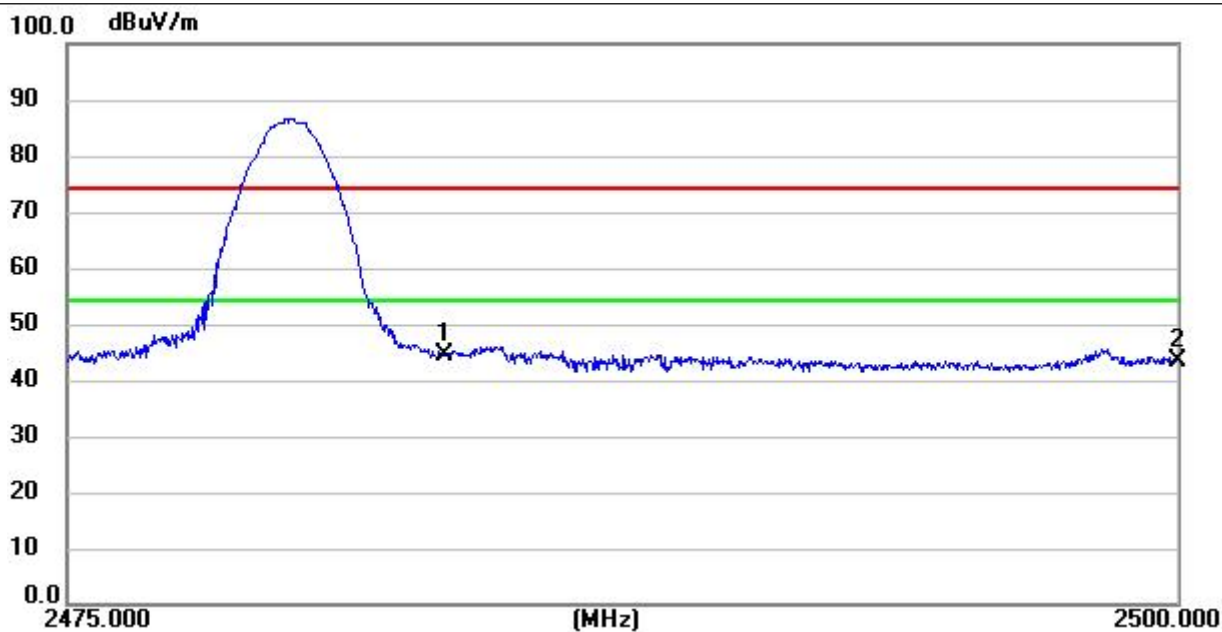
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

M/N : CUBITT 5

Operation Mode : TX GFSK High Channel

Test Voltage : AC 120V/60Hz

Test Specification : Vertical



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 2483.500        | 57.34          | -12.81        | 44.53          | 74.00          | -29.47      | peak     |
| 2   | 2500.000        | 56.18          | -12.63        | 43.55          | 74.00          | -30.45      | peak     |

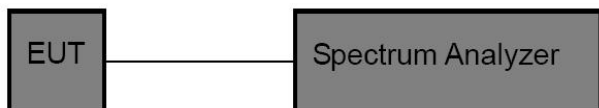
Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

## 6 Conduct Band Edge And Spurious Emissions Measurement

|                  |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement | : | Section 15.247(d) In addition, radiated emissions which fall in the restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test Method      | : | ANSI C63.10:2020 and RSS-Gen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Test Limit       | : | Regulation 15.247 (d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).<br>RSS-247 §6.6:<br>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power – based on either an RF conducted or a radiated measurement – provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 6.3.2, the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required. |

### 6.1 Test Setup



### 6.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto  
Detector function = peak, Trace = max hold

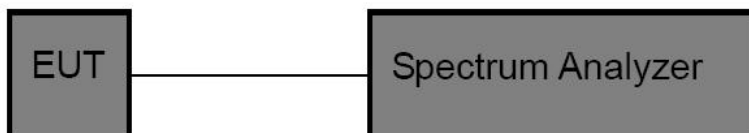
### 6.3 Test Result

Please see the attachment for BLE data.

## 7 6dB&99% Bandwidth Measurement

|                  |                                                                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement | : FCC CFR47 Part 15 Section 15.247 (a)(2)&RSS-247 6.3.1(a)&RSS-GEN 6.7                                                                                                      |
| Test Method      | : ANSI C63.10:2020 and RSS-Gen                                                                                                                                              |
| Test Limit       | Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz. |

### 7.1 Test Setup



### 7.2 Test Procedure

For 6dB Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

For 99% Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1%-5% OBW, VBW  $\geq$  3RBW

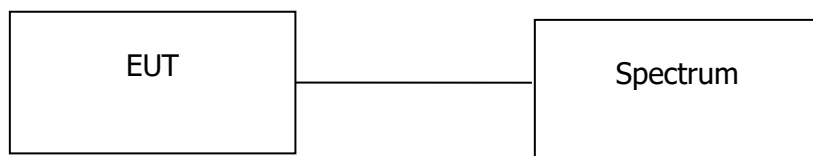
### 7.3 Test Result

Please see the attachment for BLE data.

## 8 Maximum Peak Output Power

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement | : FCC CFR47 Part 15 Section 15.247 (b)(3)&RSS-247 6.3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Method      | : ANSI C63.10:2020 Section 11.9.1.1 and RSS-Gen                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test Limit       | : Regulation 15.247 (b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.<br>RSS-247 6.3.2<br>For DTS operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W, and the e.i.r.p. shall not exceed 4 W, except as provided in section 6.5 a) and b). |

### 8.1 Test Setup



### 8.2 Test Procedure

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

- Set the RBW  $\geq$  DTS bandwidth.
- Set VBW  $\geq [3 \times \text{RBW}]$ .
- Set span  $\geq [3 \times \text{RBW}]$ .
- Sweep time = No faster than coupled (auto) time.
- Detector = peak.
- Trace mode = max-hold.
- Allow trace to fully stabilize.
- Use peak marker function to determine the peak amplitude level.

### 8.3 Test Result

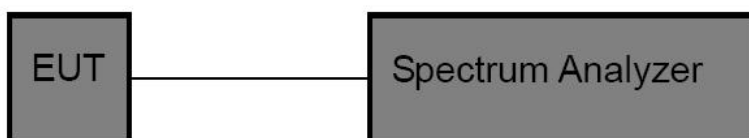
Please see the attachment for BLE data.

## 9 Power Spectral density

|                  |                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement | : FCC CFR47 Part 15 Section 15.247 (e)&RSS-247 6.3.1(b)                                                                                                                                                                                                                                                                        |
| Test Method      | : ANSI C63.10:2020.11.10.2 and RSS-Gen                                                                                                                                                                                                                                                                                         |
| Test Limit       | : Regulation 15.247(e) The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. |

Regulation RSS-247 6.3.1(b)  
the transmitter power spectral density conducted from the transmitter to the antenna(s) shall not be greater than 8 dBm/3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 6.3.2 The power spectral density shall be determined using the same method as is used to determine the maximum conducted output power.

### 9.1 Test Setup



### 9.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 9.1kHz, Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

### 9.3 Test Result

Please see the attachment for BLE data.

## 10 On Time and Duty Cycle

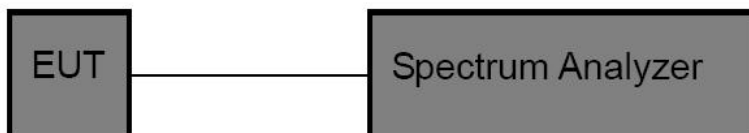
### 10.1 Standard Applicable

None: for reporting purpose only.

### 10.2 Measuring Instruments and Setting

Please refer to equipment's list in this report. The following table is the setting of the spectrum analyzer.

### 10.3 Test Setup



### 10.4 Test Procedures

1. Set the centre frequency of the spectrum analyzer to the transmitting frequency;
2. Set the span=0MHz, RBW=8MHz, VBW=8MHz, Sweep time=Auto;
3. Detector = RMS;
4. Trace mode = Single hold.

### 10.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

### 10.6 Test result

Please see the attachment for BLE data.

## 11 Antenna Application

### 11.1 Antenna Requirement

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

According to RSS-GEN section 6.8

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

### 11.2 Result

The EUT'S antenna, permanent attached antenna, is PCB Antenna. The antenna's gain is 3.3dBi, and meets the requirement.

## 12 Test Setup and EUT Photos

Reference to the attachment for details.

\*\*\*\*\*THE END REPORT\*\*\*\*\*