

# TEST REPORT

of

FCC Part 95 Subpart C  
IC RSS-210 Issue 11 and RSS-Gen Issue 5

FCC ID: SWN-TD50UT  
IC Certification: 12166A-TD50UT

Equipment Under Test : DOG TRAINING DEVICE

Model Name : TD50UT

Variant Model Name(s) : Refer to the page 4

Applicant : Dogtra Co., Ltd.

Manufacturer : Dogtra Co., Ltd.

Date of Receipt : 2025.03.26

Date of Test(s) : 2025.04.10 ~ 2025.04.22

Date of Issue : 2025.04.22

In the configuration tested, the EUT complied with the standards specified above. This test report does not assure KOLAS accreditation.

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- 2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.
- 3) This test report cannot be reproduced, except in full, without prior written permission of the Company.
- 4) The data marked **※** in this report was provided by the customer and may affect the validity of the test results.

We are responsible for all the information of this test report except for the data(**※**) provided by the customer

Tested by:



Finn Nam

Technical  
Manager:



Jinyoung Cho

## SGS Korea Co., Ltd. Gunpo Laboratory

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## 1. General Information

### 1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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### 1.2. Details of Applicant

Applicant : Dogtra Co., Ltd.  
Address : 35, Namdongdong-ro 33beon-gil, Namdong-gu, Incheon, South Korea, 21694  
Contact Person : Chae, Yong-byeong  
Phone No. : +82 32 812 2445

### 1.3. Details of Manufacturer

Company : Same as Applicant  
Address : Same as Applicant

#### 1.4. Description of EUT

|                              |  |
|------------------------------|--|
| <b>Kind of Product</b>       | DOG TRAINING DEVICE  |
| <b>Model Name</b>            | TD50UT   |
| <b>Variant Model Name(s)</b> | 200iQ<br>200iQ 1-DOG UNIT<br>CA 200iQ 1-DOG UNIT<br>200iQ 2-DOG UNIT<br>CA 200iQ 2-DOG UNIT<br>TOM DAVIS EDITION 200iQ<br>TD200iQ<br>200iQ 1-DOG UNIT SPECIAL EDITION<br>200iQ SPECIAL EDITION<br>200iQ SE |
| <b>Serial Number</b>         | Conducted: 001<br>Radiated: 002  |
| <b>Power Supply</b>          | DC 3.7 V   |
| <b>Frequency Range</b>       | 27.195 MHz   |
| <b>Modulation Type</b>       | FSK  |
| <b>Emission Designator</b>   | 4K85F1D  |
| <b>Number of Channel</b>     | 1  |
| <b>Antenna Type</b>          | Helical Antenna  |
| <b>Antenna Gain *</b>        | -19.0 dB i   |
| <b>H/W Version</b>           | Ver1.0   |
| <b>S/W Version</b>           | Ver1.0   |
| <b>FVIN</b>                  | N/A  |

## 1.5. Test Equipment List

| Equipment         | Manufacturer                | Model                                | S/N                    | Cal. Date     | Cal. Interval | Cal. Due      |
|-------------------|-----------------------------|--------------------------------------|------------------------|---------------|---------------|---------------|
| Signal Generator  | R&S                         | SMBV100A                             | 255834                 | Dec. 06, 2024 | Annual        | Dec. 06, 2025 |
| Spectrum Analyzer | R&S                         | FSV30                                | 101004                 | Dec. 18, 2024 | Annual        | Dec. 18, 2025 |
| DC Power Supply   | R&S                         | HMP2020                              | 022802107              | Oct. 31, 2024 | Annual        | Oct. 31, 2025 |
| Attenuator        | AEROFLEX / INMET            | 40AH2W-10                            | 40G-1                  | Jun. 19, 2024 | Annual        | Jun. 19, 2025 |
| Preamplifier      | H.P.                        | 8447F                                | 2944A03909             | Aug. 09, 2024 | Annual        | Aug. 09, 2025 |
| Loop Antenna      | Schwarzbeck Mess-Elektronik | FMZB 1519                            | 1519-039               | Mar. 25, 2025 | Biennial      | Mar. 25, 2027 |
| Bilog Antenna     | Schwarzbeck Mess-Elektronik | VULB 9163                            | 01126                  | Mar. 05, 2025 | Biennial      | Mar. 05, 2027 |
| Test Receiver     | R&S                         | ESU26                                | 100109                 | Jan. 13, 2025 | Annual        | Jan. 13, 2026 |
| Turn Table        | Innco systems GmbH          | DS 1200 S                            | N/A                    | N.C.R.        | N/A           | N.C.R.        |
| Controller        | Innco systems GmbH          | CONTROLLER CO3000-4P                 | CO3000/963/38330 516/L | N.C.R.        | N/A           | N.C.R.        |
| Antenna Mast      | Innco systems GmbH          | MA4640-XP-ET                         | MA4640/536/38330 516/L | N.C.R.        | N/A           | N.C.R.        |
| Anechoic Chamber  | SY Corporation              | L × W × H<br>(9.6 m × 6.4 m × 6.6 m) | N/A                    | N.C.R.        | N/A           | N.C.R.        |
| Coaxial Cable     | SENSORVIEW                  | NMST-13A26-NMST-5 m                  | TPC2402190004          | Apr. 08, 2025 | Semi-Annual   | Oct. 08, 2025 |
| Coaxial Cable     | SENSORVIEW                  | NMST-13A26-NMST-10 m                 | TPC2402190001          | Apr. 08, 2025 | Semi-Annual   | Oct. 08, 2025 |
| Coaxial Cable     | RFONE                       | PL360P-292M292M-1.5M-A               | 20200324002            | Apr. 11, 2025 | Semi-Annual   | Oct. 11, 2025 |

**Note:**

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

## 1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

| <b>APPLIED STANDARD: FCC Part 95 Subpart C, RSS-210 Issue 11 and RSS-Gen Issue 5</b> |                                 |                     |               |
|--|---------------------------------|---------------------|---------------|
| <b>Section in FCC</b>  | <b>Section in IC</b>            | <b>Test Item(s)</b> | <b>Result</b> |
| 95.767 (b)   | RSS-210 Issue 11 Annex A.2.1(c) | RF Output Power     | Pass          |
| 95.773   | RSS-210 Issue 11 Annex A.2.1(e) | Occupied Bandwidth  | Pass          |
| 95.779 (a)(1)(2)   | RSS-210 Issue 11 Annex A.2.1(g) | Emission Mask       | Pass          |
| 95.779 (a)(3)  | RSS-210 Issue 11 Annex A.2.1(g) | Unwanted Emissions  | Pass          |
| 95.765 (b)   | RSS-210 Issue 11 Annex A.2.1(f) | Frequency Accuracy  | Pass          |

## 1.7. Measurement Uncertainty

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

| <b>Parameter</b>                   | <b>Uncertainty</b> |         |
|------------------------------------|--------------------|---------|
| RF Output Power                    | 0.32               | dB      |
| Occupied Bandwidth                 | 0.04               | MHz     |
| Conducted Spurious Emission        | 0.89               | dB      |
| Frequency Accuracy                 | 0.11               | kHz     |
| Radiated Emission, 9 kHz to 30 MHz | H                  | 3.40 dB |
|                                    | V                  | 3.40 dB |
| Radiated Emission, below 1 GHz     | H                  | 4.60 dB |
|                                    | V                  | 5.00 dB |

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

## 1.8. Test Report Revision

| <b>Revision</b> | <b>Report Number</b> | <b>Date of Issue</b> | <b>Description</b> |
|-----------------|----------------------|----------------------|--------------------|
| 0               | F690501-RF-RTL005954 | 2025.04.22           | Initial            |

### 1.9. Description of Variant model(s)

| Model                            | Description   |
|----------------------------------|---|
| TD50UT                           | <ul style="list-style-type: none"><li>- Basic model</li><li>- It includes one Tx and One Rx</li></ul> |
| 200iQ                            |   |
| 200iQ 1-DOG UNIT                 |   |
| CA 200iQ 1-DOG UNIT              |   |
| 200iQ 2-DOG UNIT                 |   |
| CA 200iQ 2-DOG UNIT              |   |
| TOM DAVIS EDITION 200iQ          |   |
| TD200iQ                          |   |
| 200iQ 1-DOG UNIT SPECIAL EDITION |   |
| 200iQ SPECIAL EDITION            |   |
| 200iQ SE                         |   |

**Note:**

The all the test were performed with basic model.

## 2. RF Output Power

### 2.1. Test Setup



### 2.2. Limit

#### 2.2.1. FCC

According to §95.767 (b), 26-28 MHz frequency band. For an RCRS transmitter operating on 26.995, 27.045, 27.095, 27.145, or 27.195 MHz, the mean transmitter output power must not exceed 4 Watts.

#### 2.2.2. IC

According to RSS-210 Issue 11 Annex A.2.1(c), For double sideband (DSB), digital or frequency modulation (FM), the transmitter unmodulated carrier power shall not exceed 4 W.

## 2.3. Test Procedures

### 2.3.1. Mean Transmitter Output Power

1. The equipment under test is connected to the spectrum analyzer.
2. The spectrum analyzer is set to the as follow;

RBW: 1 % to 5 % of the OBW

VBW: 3 x RBW

Detector: RMS

Trace Average at least 100 traces in power averaging mode.

3. Using the instrument's channel power measurement function.

### 2.3.2. Unmodulated Carrier Power

1. The equipment under test is connected to the spectrum analyzer.
2. The spectrum analyzer is set to the as follow;

RBW: 10 kHz

VBW: 3 x RBW

Detector function: Peak

Trace: Max hold

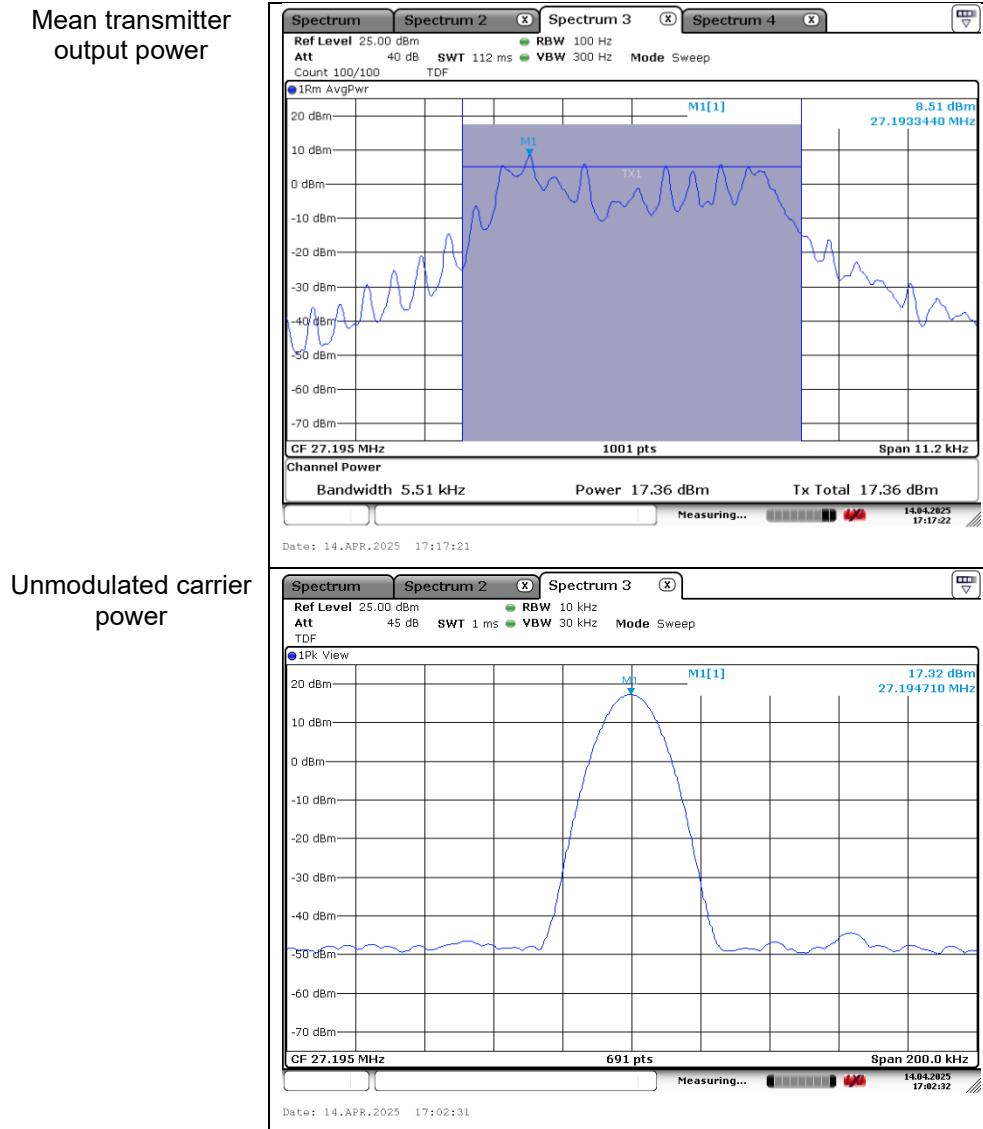
3. The output power of fundamental frequency was measured and recorded.

## 2.4. Test Result

Ambient temperature :  $(23 \pm 1)^\circ\text{C}$   
Relative humidity : 47 % R.H.

| Frequency<br>(MHz) | Mean Transmitter<br>Output Power |       | Unmodulated Carrier<br>Power |       | Limit<br>(W) |
|--------------------|----------------------------------|-------|------------------------------|-------|--------------|
|                    | (dB m)                           | (W)   | (dB m)                       | (W)   |              |
| 27.195             | 17.36                            | 0.054 | 17.32                        | 0.054 | 4            |

### - Test plots



### 3. Occupied Bandwidth

#### 3.1. Test Setup



#### 3.2. Limit

##### 3.2.1 FCC

According to §95.773, Each RCRS transmitter type must be designed such that the occupied bandwidth does not exceed 8 kHz for any emission type.

##### 3.2.2 IC

According to RSS-210 Issue 11 Annex A.2.1(e), The authorized bandwidth is 8 kHz for DSB, digital or FM, and 4 kHz for SSB modulations. For SSB modulations, either upper or lower sideband may be used.

#### 3.3. Test Procedure

1. The equipment under test is connected to the spectrum analyzer.
2. The spectrum analyzer is set to the as follow;  
RBW: 1 ~ 5 % of 99 % Occupied bandwidth  
VBW: 3 x RBW  
Detector function: Peak  
Trace: Max hold
3. The 99%occupied bandwidth of fundamental frequency was measured and recorded.

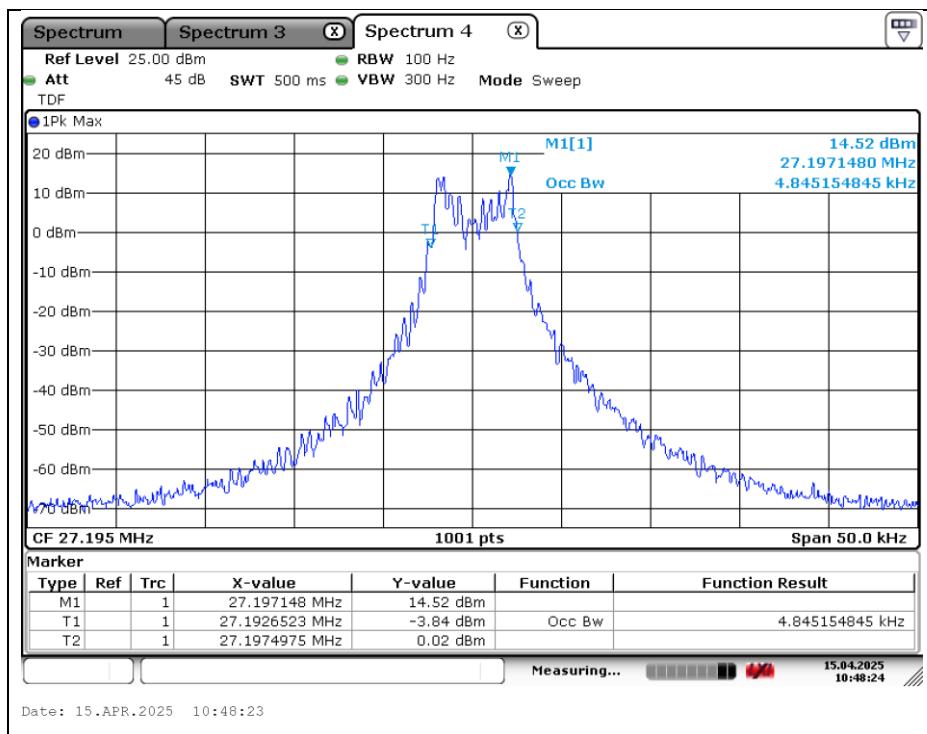
### 3.4. Test Result

Ambient temperature :  $(23 \pm 1)^\circ\text{C}$

Relative humidity : 47 % R.H.

| Frequency (MHz) | 99 % Occupied Bandwidth (kHz) | Limit (kHz) | Test result |
|-----------------|-------------------------------|-------------|-------------|
| 27.195          | 4.845                         | 8           | Compliance  |

#### - Test plot



## 4. Emission Mask

### 4.1. Test Setup



### 4.2. Limit

#### 4.2.1 FCC

According to §95.779(a), 26 – 28 MHz frequency band. For an RCRS transmitter operating in the 26-28 MHz frequency band, the power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) by at least:

- (1) 25 dB (decibels) in the frequency band 4 kHz to 8 kHz removed from the channel center frequency;
- (2) 35 dB in the frequency band 8 kHz to 20 kHz removed from the channel center frequency;

#### 4.2.2 IC

According to RSS-210 Issue 11 Annex A.2.1(g), The average power of unwanted emissions, measured with a resolution bandwidth of 300 Hz for A.2.1(g)(i) and A.2.1(g)(ii), and 3 kHz for A.2.1(g)(iii), shall comply with the following limits, where  $P_{MEAN}$  is the mean transmitter power in dB W:

- (i)  $(P_{MEAN} - 25)$  dB W on any frequency removed from the centre of the authorized bandwidth by more than 50%, up to and including 100% of the authorized bandwidth.
- (ii)  $(P_{MEAN} - 35)$  dB W on any frequency removed from the centre of the authorized bandwidth by more than 100%, up to and including 250% of the authorized bandwidth.

### 4.3. Test Procedure

1. The equipment under test is connected to the spectrum analyzer.

2. The spectrum analyzer is set to the as follow;

Span: 40 kHz

RBW: 300 Hz

VBW: 1 kHz

Detector function: Peak

Trace: Max hold

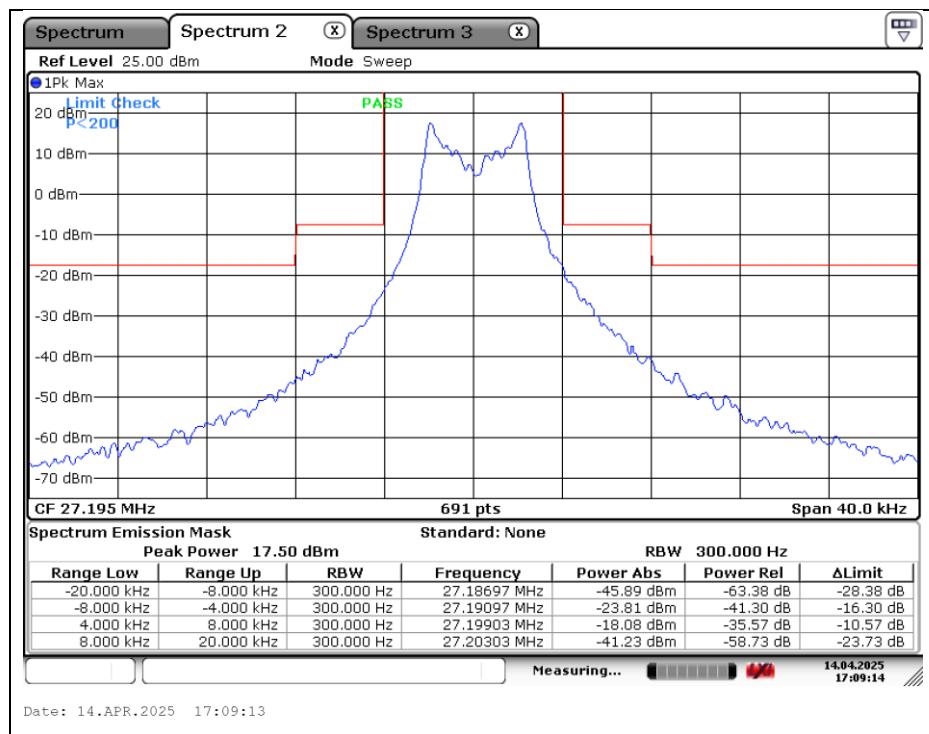
3. The fundamental frequency was measured and recorded.

#### 4.4. Test Result

Ambient temperature : (23 ± 1) °C

Relative humidity : 47 % R.H.

##### - Test plot

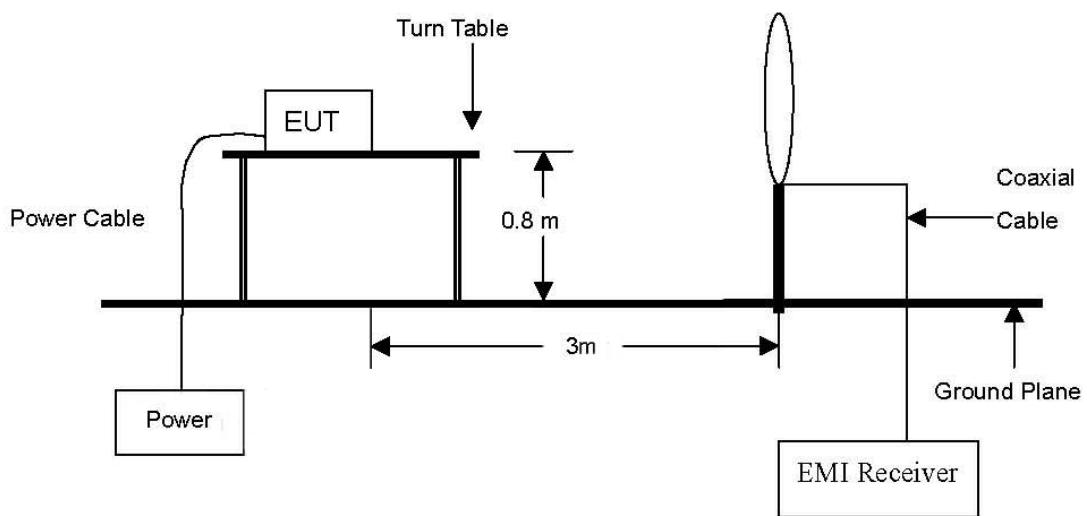


## 5. Transmitter Unwanted Emissions

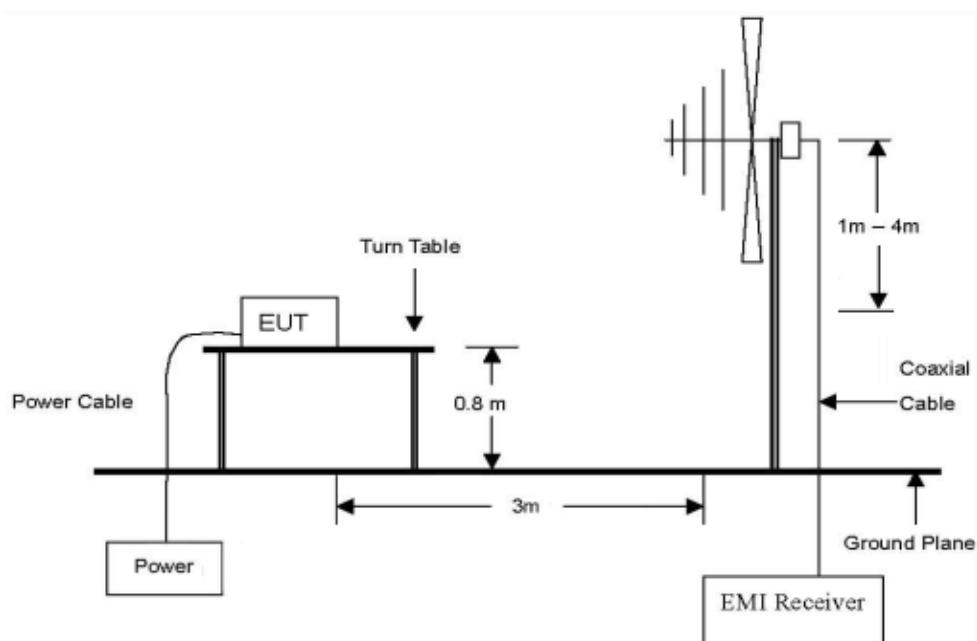
### 5.1. Test Setup

#### 5.1.1. Radiated

The diagram below shows the test setup that is utilized to make the measurements for emission below 30 MHz.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz.



### 5.1.2. Conducted



### 5.2. Limit

#### 5.2.1 FCC

According to §95.779(a), 26 – 28 MHz frequency band. For an RCRS transmitter operating in the 26-28 MHz frequency band, the power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) by at least:

(3)  $43 + 10 \log(P)$  dB in any frequency band removed from the channel center frequency by more than 20 kHz.

#### 5.2.2 IC

According to RSS-210 Issue 11 Annex A.2.1(g), The average power of unwanted emissions, measured with a resolution bandwidth of 300 Hz for A.2.1(g)(i) and A.2.1(g)(ii), and 3 kHz for A.2.1(g)(iii), shall comply with the following limits, where  $P_{mean}$  is the mean transmitter power in dB W:

(iii)  $-43$  dB W or the general field strength limits specified in RSS-Gen, whichever is less stringent, on any frequency removed from the centre of the authorized bandwidth by more than 250% of the authorized bandwidth.

### 5.3. Test Procedure

#### 5.3.1. Radiated

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.10-2013.

##### 5.3.1.1. Test Procedures for emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. Then antenna is a loop antenna is fixed at one meter above the ground to determine the maximum value of the field strength. Both parallel and perpendicular of the antenna are set to make the measurement.
- c. For each suspected emission, the EUT was arranged to its worst case and then the table was turned from 0 degrees to 360 degrees to find the maximum reading.
- d. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

### **5.3.2.1. Test Procedures for emission from 30 MHz to 271.95 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference-receiving antenna.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.

### **5.3.2. Conducted**

1. The equipment under test is connected to the spectrum analyzer.

2. The spectrum analyzer is set to the as follow;

RBW: 100 kHz

VBW: 300 kHz

Detector function: Peak

Trace: Max hold

3. The trace was measured and recorded.

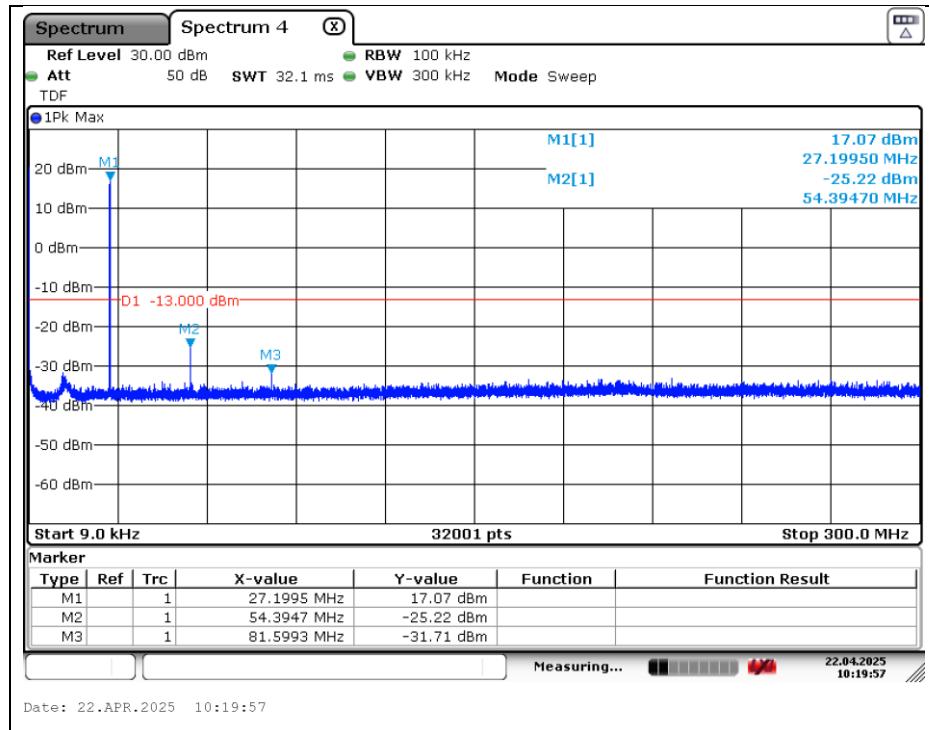
## 5.4. Test Result

Ambient temperature :  $(23 \pm 1)^\circ\text{C}$   
Relative humidity : 47 % R.H.

### ▪ Conducted

| Frequency (MHz) | Level (dB m) | Limit (dB m) | Margin (dB) |
|-----------------|--------------|--------------|-------------|
| 54.395          | -25.22       | -13          | 12.22       |
| 81.599          | -31.71       | -13          | 18.71       |

### - Test plot



**▪ Radiated  
Below 30 MHz**

| Radiated Emissions |                      |              | Ant. | Correction Factors |         | Total                 |         |               | Limit        |             |
|--------------------|----------------------|--------------|------|--------------------|---------|-----------------------|---------|---------------|--------------|-------------|
| Frequency (MHz)    | Reading (dB $\mu$ V) | Detect Mode  | Pol. | AF (dB/m)          | CL (dB) | Actual (dB $\mu$ V/m) | CF (dB) | E.R.P. (dB m) | Limit (dB m) | Margin (dB) |
| 0.019              | 45.90                | Quasi - Peak | V    | 18.72              | 0.10    | 64.72                 | -97.41  | <b>-32.69</b> | -13.00       | 19.69       |
| 0.034              | 39.70                | Quasi - Peak | V    | 18.49              | 0.11    | 58.30                 | -97.41  | -39.11        | -13.00       | 26.11       |
| 0.069              | 34.50                | Quasi - Peak | V    | 18.39              | 0.14    | 53.03                 | -97.41  | -44.38        | -13.00       | 31.38       |
| 0.150              | 30.10                | Quasi - Peak | V    | 18.30              | 0.08    | 48.48                 | -97.41  | -48.93        | -13.00       | 35.93       |
| 1.509              | 23.20                | Quasi - Peak | V    | 18.55              | 0.14    | 41.89                 | -97.41  | -55.52        | -13.00       | 42.52       |
| 13.801             | 16.70                | Quasi - Peak | V    | 18.98              | 0.58    | 36.26                 | -97.41  | -61.15        | -13.00       | 48.15       |

**Above 30 MHz**

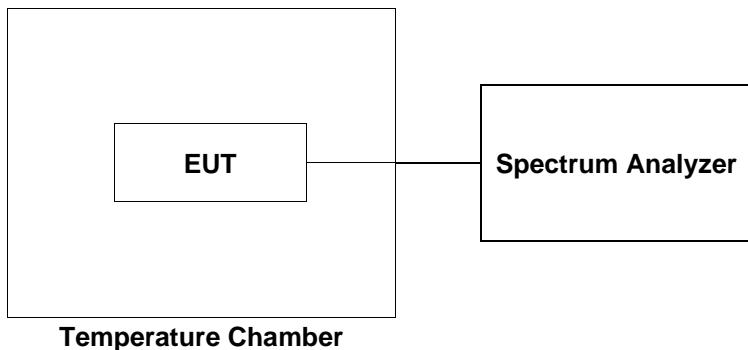
| Radiated Emissions |                      |              | Ant. | Correction (dB/m) | Total                 |         |               | Limit        |             |
|--------------------|----------------------|--------------|------|-------------------|-----------------------|---------|---------------|--------------|-------------|
| Frequency (MHz)    | Reading (dB $\mu$ V) | Detect Mode  | Pol. |                   | Actual (dB $\mu$ V/m) | CF (dB) | E.R.P. (dB m) | Limit (dB m) | Margin (dB) |
| 54.30              | 29.66                | Quasi - Peak | V    | -7.72             | 21.94                 | -97.41  | -77.62        | -13.00       | 64.62       |
| 81.46              | 23.27                | Quasi - Peak | H    | -13.70            | 9.57                  | -97.41  | -89.99        | -13.00       | 76.99       |
| 108.68             | 23.94                | Quasi - Peak | V    | -8.92             | 15.02                 | -97.41  | -84.54        | -13.00       | 71.54       |
| 163.16             | 34.05                | Quasi - Peak | V    | -11.20            | 22.85                 | -97.41  | -76.71        | -13.00       | 63.71       |
| Above 200.00       | Not detected         | -            | -    | -                 | -                     | -       | -             | -            | -           |

**Remark;**

1. AF = Antenna Factor, CL = Cable Loss, CF = Conversion Factor
2. Actual (dB $\mu$ V/m) = Reading (dB $\mu$ V) + Antenna Factor (dB/m) + Cable Loss (dB).
3. E.I.R.P. (dB m) = Actual (dB $\mu$ V/m) + CF (dB).
4. E.R.P. (dB m) = Actual (dB $\mu$ V/m) + CF (dB) - 2.15 (dB); where E.R.P. and E.I.R.P. are expressed in consistent units.
5. Test from 30 MHz to 271.95 MHz was performed using the software of ELEKTRA(V5.02) from Rohde & Schwarz GmbH & Co. KG.
6. Correction = Antenna Factor (dB/m) + AMP Factor (dB) + Cable Loss (dB).
7. CF (dB) =  $20 \log D - 104.8$ ; where D is the measurement distance in meters, According to ANSI C63.26-2015
8. The frequency spectrum is examined from 9 kHz to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

## 6. Frequency Accuracy

### 6.1. Test Setup



### 6.2. Limit

#### 6.2.1 FCC

According to §95.765(b), Except as allowed under paragraph (c) of this section, each RCRS transmitter type capable of transmitting in the 26-28 MHz frequency band must be designed such that the carrier frequencies remain within  $\pm 50$  ppm of the channel center frequencies listed in § 95.763(a) during normal operating conditions.

#### 6.2.2 IC

According to RSS-210 Issue 11 Annex A.2.1(f), The carrier frequency stability shall be maintained to  $\pm 50$  ppm. However, devices with output powers of 2.5 W or less can have a frequency stability of  $\pm 100$  ppm.

### 6.3. Test Procedure

1. The equipment under test is connected to a spectrum analyzer
2. The EUT is placed inside the temperature chamber.
- 3.. After the temperature stabilized for approximately 20 minutes, the frequency accuracy was recorded.

## 6.4. Test Results

Ambient temperature :  $(23 \pm 1)^\circ\text{C}$   
Relative humidity : 47 % R.H.

| <b>Reference Frequency: 27.195 MHz</b>         |                           |   |            |
|--|---------------------------|---|------------|
| <b>Frequency Stability versus Temperature</b>  |                           |   |            |
| <b>Environment Temperature (°C)</b>            | <b>Power Supplied (V)</b> | <b>Frequency Measure with Time Elapse</b> |            |
|  |                           | <b>Frequency Error (Hz)</b>               | <b>ppm</b> |
| 50   | 3.70                      | 563                                       | -1.802     |
| 40   |                           | 656                                       | 1.618      |
| 30   |                           | 625                                       | 0.478      |
| 20(Ref.)                                       |                           | 612                                       | -          |
| 10   |                           | 734                                       | 4.486      |
| 0  |                           | 796                                       | 6.766      |
| -10  |                           | 796                                       | 6.766      |
| -20  |                           | 828                                       | 7.942      |
| -30  |                           | 813                                       | 7.391      |
| <b>Frequency Stability versus Power Supply</b> |                           |   |            |
| <b>Environment Temperature (°C)</b>            | <b>Power Supplied (V)</b> | <b>Frequency Measure with Time Elapse</b> |            |
|  |                           | <b>Frequency Error (Hz)</b>               | <b>ppm</b> |
| 20   | 4.26 (115 %)              | 674                                       | 2.280      |
|  | 3.15 (85 %)               | 299                                       | -11.509    |

**- End of the Test Report -**