



## Test Report - FCC PART 95 - CB Transceiver

### Applicant: Uniden America Corporation

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature 1/26/2022

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## 1. Customer Information

Applicant: Uniden America Corporation  
 Address: 6225 N. State Highway 161  
 Suite 300  
 Irving, Texas, 75038-2224, United States

### 1.1 Part 95 Test Result Summary

The following test procedure and guidance were used for measuring FCC PART 90 (PRIVATE LAND MOBILE RADIO SERVICES) known as Licensed Land Mobile; ANSI C63.26-2015. Full test results are available in this report.

| Applicable Clauses                                       |                                   |                  |                           |
|--|-----------------------------------|------------------|---------------------------|
| FCC/IC Rule Parts  | Description of the requirements   | Requirement      | Result: (Pass, Fail, N/A) |
| 2.1046(a), 95.967, RSS-236 5.2                           | RF Power Output                   | < 4 W            | Pass                      |
| 2.1047(a)(b), 95.975, RSS-236 5.3.2                      | Modulation Characteristics        | 85% < dev < 100% | Reported                  |
| 2.1049(c)(1), 95.973, 95.979(1)(3), RSS-236 5.4.2, 5.4.4 | Occupied Bandwidth                | Comply with Mask | Pass                      |
| 2.1051, 95.979(5)(6), RSS-236 5.4.2, 5.4.4               | Antenna Conducted Emissions       | Comply with Mask | n/a                       |
| 2.1053, 95.979(5)(6), RSS-236 5.4.2, 5.4.4               | Field Strength Spurious Emissions | Comply with Mask | Pass                      |
| 2.1055(a)(b)(d), 95.965, RSS-236 5.3.2                   | Frequency Stability               | < 50 ppm         | Pass                      |

No additions to the test methods were needed. There were no deviations, or exclusions from the test methods. No test results are from external providers or from the customer. The test results relate only to the items tested. Timco does not offer opinions and interpretations, only a pass/fail statement.

## 2. Location of Testing

### 2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA").

Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

FCC test firm # 578780

FCC Designation # US1070

FCC site registration is under A2LA certificate # 0955.01

ISED Canada test site registration # 2056A

EU Notified Body # 1177

For all designations see A2LA scope # 0955.01

### 2.2 Testing was performed, reviewed by

Dates of Testing: 1/3/2022 – 1/14/2022

Signature:



Sr. EMC Engineer  
EMC-003838-NE

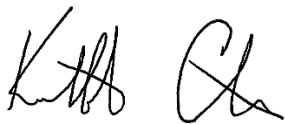


Name & Title:

Tim Royer, EMC Engineer

Date of Signature

1/26/2022



Name & Title:

Kristoffer Costa, EMC Technician

Date of Signature

1/26/2022

### 3. Test Sample(s) (EUT/DUT)

The test sample was received: 1/3/2022

#### 3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

| Identification    |                       |
|-------------------|-----------------------|
| FCC ID:           | AMWUT434              |
| Brief Description | 40 CH AM/FM CB SILVER |
| Model(s) #        | PC78LTXFM             |
| Firmware version  | V1.03                 |
| Software version  | n/a                   |
| Serial Number     | n/a                   |

| Technical Characteristics    |                       |
|------------------------------|-----------------------|
| Technology                   | 40 CH AM/FM CB SILVER |
| Frequency Range              | 26.965 MHz-27.405 MHz |
| RF O/P Power (Max.)          | 4W                    |
| Duty Cycle                   | 100%                  |
| Antenna Connector            | N type                |
| Voltage Rating (AC or Batt.) | 13.8VDC               |

| Antenna Characteristics |                 |             |              |
|-------------------------|-----------------|-------------|--------------|
| Antenna                 | Frequency Range | Mode / BW   | Antenna Gain |
| 1                       | n/a             | Operational | 0 dBi        |

- Note: Information such as antenna gain, firmware/software numbers are provide by manufacturer and cannot be validated by the test lab..

### 3.2 Configuration of EUT

| Test Modes |         |                        |                    |
|------------|---------|------------------------|--------------------|
| Mode (#)   | Channel | Test Frequencies (MHz) | BW (nominal) (MHz) |
| 1- (FM)    | 1       | 26.965 MHz             | 2.82               |
|            | 19      | 27.185 MHz             | 2.82               |
|            | 40      | 27.405 MHz             | 2..82              |
|            |         |                        |                    |
| 2- (AM)    | 1       | 26.965 MHz             | 2.82               |
|            | 19      | 27.185 MHz             | 2.82               |
|            | 40      | 27.405 MHz             | 2..82              |

#### Operating conditions during Testing:

The device was operated without the provided antenna(s).

No other modifications of the device under test (including firmware, specific software settings, and input/output signal levels to the EUT) were made.

#### Peripherals used during Testing:

A laptop was used to program the EUT.

### 3.3 Test Setup of EUT

Equipment, antenna, and cable arrangement. The setup of the equipment and cable or wire placement on the test site that produces the highest radiated and the highest ac power line conducted emissions shall be shown clearly and described. Information on the orientation of portable equipment during testing shall be included. Drawings or photographs may be used for this purpose.

Test Setups are included in the test report.

#### 4. Test methods & Applicable Regulatory Limits

##### 4.1 Test methods/Standards/Guidance:

Test procedures and guidance for measuring Licensed Part 95 & RSS 236 Licensed Devices

- 1) ANSI C63.10

##### 4.2 Applied Limits and Regulatory Limits:

FCC CFR 47 Part 2, FCC CFR 47 Part 95 D, RSS-Gen Issue 4, RSS-236 Issue 5, EIA/TIA-382-A, ANSI C63.10, NOTICE 2012-DRS0126

#### 5. Measurement Uncertainty

| Parameter   | Uncertainty (dB) |
|---|------------------|
| Conducted Emissions   | $\pm 3.14$ dB    |
| Radiated Emissions (9kHz – 30 MHz)  | $\pm 3.08$ dB    |
| Radiated Emissions (30 – 200 MHz)   | $\pm 2.16$ dB    |
| Radiated Emissions (200 – 1000 MHz)   | $\pm 2.15$ dB    |
| Radiated Emissions (1 GHz – 18 GHz)   | $\pm 2.14$ dB    |
| Radiated Emissions (18 GHz – 40 GHz)  | $\pm 2.31$ dB    |
| <b>Note:</b> The uncertainties provided in this table represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of K=2. |                  |

#### 6. Environmental Conditions

##### 6.1 Temperature & Humidity

Measurements performed at the test site did not exceed the following:

| Parameter   | Measurement |
|---|-------------|
| Temperature   | 23 C +/- 5% |
| Humidity  | 55% +/- 5%  |
| Barometric Pressure   | 30.05 in Hg |
| <b>Note:</b> Specific environmental conditions that are applicable to a specific test are available in the test result section. |             |



## 7. List of Test Equipment and Test Facility

The test equipment used identified by type, manufacturer, serial number, or other identification and the date on which the next calibration or service check is due.

Description of the firmware or software used to operate EUT for testing purposes.

A complete list of all test equipment used shall be included with the test report. The manufacturer's model and serial numbers, and date of last calibration, and calibration interval shall be included. Measurement cable loss, measuring instrument bandwidth and detector function, video bandwidth, if appropriate, and antenna factors shall also be included where applicable.

### 7.1 List of Test Equipment

| Test Equipment     |                              |                 |         |             |             |            |
|--------------------|------------------------------|-----------------|---------|-------------|-------------|------------|
| Type               | Device                       | Manufacturer    | Model   | SN#         | Current Cal | Cal Due    |
| Antenna            | Biconical 1057               | Eaton           | 94455-1 | 1057        | 10/16/20    | 10/16/2023 |
| Antenna, NSA       | Log-Periodic 1243            | Eaton           | 96005   | 1243        | 5/4/21      | 5/3/2024   |
| CHAMBER            | CHAMBER                      | Panashield      | 3M      | N/A         | 3/12/19     | 3/11/2022  |
| Receiver           | EMI Test Receiver R&S ESU 40 | Rohde & Schwarz | ESU 40  | 100320      | 5/27/21     | 5/26/2024  |
| Function Generator | Function Generator           | Standford       | DS340   | 25200       | 1/13/21     | 1/13/2024  |
| Signal Generator   | Signal Generator HP 8648C    | HP              | 8648C   | 35537A01679 | 3/29/19     | 3/28/2022  |
| Frequency Counter  | Frequency Counter Small      | HP              | 5385A   | 3242A07460  | 9/9/20      | 9/9/2023   |
| Thermometer        | Type K J Thermometer         | Martel          | 303     | 080504494   | 1/18/20     | 1/17/2023  |

| Software       |                 |                          |               |
|----------------|-----------------|--------------------------|---------------|
| Software       | Author          | Version                  | Validation on |
| ESU Firmware   | Rohde & Schwarz | 4.43 SP3; BIOS v5.1-24-3 | 2018          |
| RSCCommander   | Rohde & Schwarz | 1.6.4                    | 2014          |
| ScopeExplorer  | LeCroy          | v2.25.0.0                | 2009          |
| Field Strength | Timco           | v4.10.7.0                | 2016          |

## 8. Test Results

The results of the test are usually indicated in the form of tables, spectrum analyzer plots, charts, sample calculations, as appropriate for each test procedure.

A description and/or a block diagram of the test setup is usually provided.

The measurement results, along with the appropriate limits for comparison, may be presented in tabular or graphical form. In addition, any variation in the measurement environment may be reported if applicable (e.g., a significant change of temperature that could affect the cable loss and amplifier response).

Unless noted otherwise in the referenced standard, the measurements of **ac power-line conducted emissions and conducted power output** will be reported in units of dBμV. Unless noted otherwise in the referenced standard, the measurements of **radiated emissions** will be reported in units of decibels, referenced to one microvolt per meter (dBμV/m) for electric fields, or to one ampere per meter (dBA/m) for magnetic fields, at the distance specified in the appropriate standards or requirements. The measurements of antenna-conducted power for receivers may be reported in units of dBμV if the impedance of the measuring instrument is also reported. Otherwise, antenna-conducted power will be reported in units of decibels referenced to one milliwatt (dBm). All formulas for data conversions and conversion factors, if used, will be included in this measurement report.

### Example:

|            |               |              |          |                    |
|------------|---------------|--------------|----------|--------------------|
| Freq (MHz) | Meter Reading | + ACF        | +CL      | = FS               |
| 33         | 20 dBμV       | + 10.36 dB/m | +0.40 dB | =30.36 dBμV/m @ 3m |

$EIRP = P_{cond} (dBm) + dBi$

## 8.1 Power at the Final Amplifier

Limits from FCC Part 2.1033 (c)(8). No method of measurement is specified.

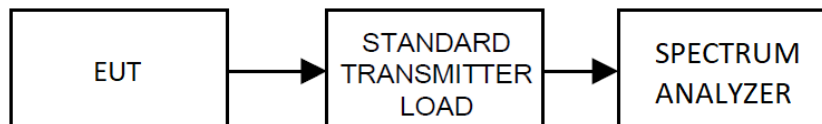
| Test Results              |                 |                                  |
|---------------------------|-----------------|----------------------------------|
| EUT Operating Voltage (V) | EUT Current (A) | Power at the Final Amplifier (W) |
| 13.8                      | 0.289855072     | 4                                |

## 8.2 RF Output Power

Limits from FCC Parts 2.1046(a), 95.967; RSS-236 5.2 and test procedure from ANSI C63.10

Test Requirements: 4 W Mean Carrier power when transmitting emission type A1D or A3E

### Test Setup



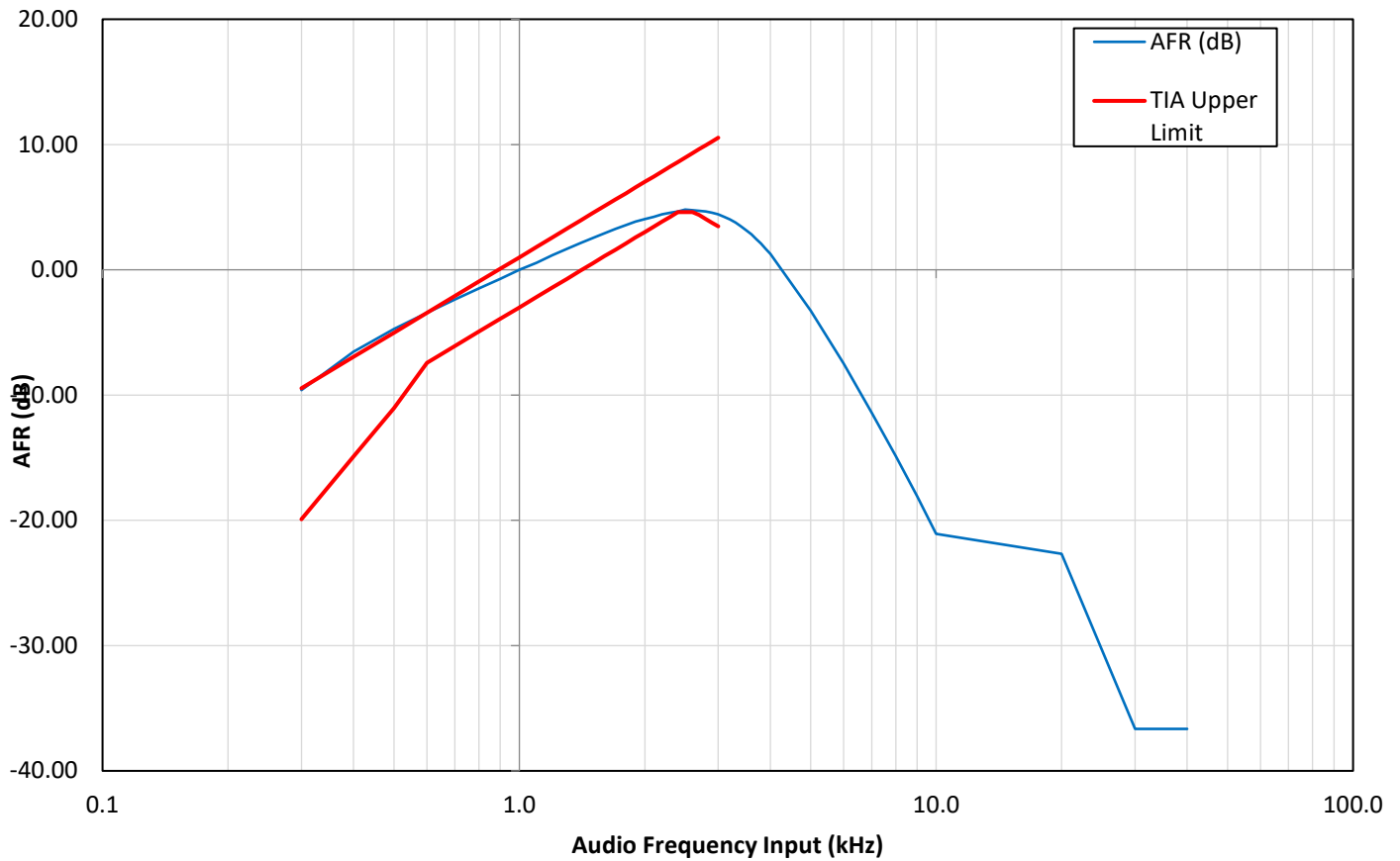
| Test Results, FM |                       |                    |                  |           |
|------------------|-----------------------|--------------------|------------------|-----------|
| Channel          | Tuned Frequency (MHz) | Power Output (dBm) | Power Output (W) | Limit (W) |
| 1                | 26.965                | 35.63              | 3.65             | 4         |
| 19               | 27.185                | 35.61              | 3.63             | 4         |
| 40               | 27.405                | 35.58              | 3.61             | 4         |

| Test Results, AM |                       |                    |                  |           |
|------------------|-----------------------|--------------------|------------------|-----------|
| Channel          | Tuned Frequency (MHz) | Power Output (dBm) | Power Output (W) | Limit (W) |
| 1                | 26.965                | 35.81              | 3.81             | 4         |
| 19               | 27.185                | 35.73              | 3.74             | 4         |
| 40               | 27.405                | 35.65              | 3.67             | 4         |

### 8.3 Audio Frequency Response

Limits from: FCC Pt. 2.1047(a), 95.975; RSS-236 5.3.2

**Method of Measurement:** The audio frequency response was measured in accordance with ANSI C63.26 with no exception. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 – 5000 Hz shall be submitted. The audio frequency response curve is shown below.

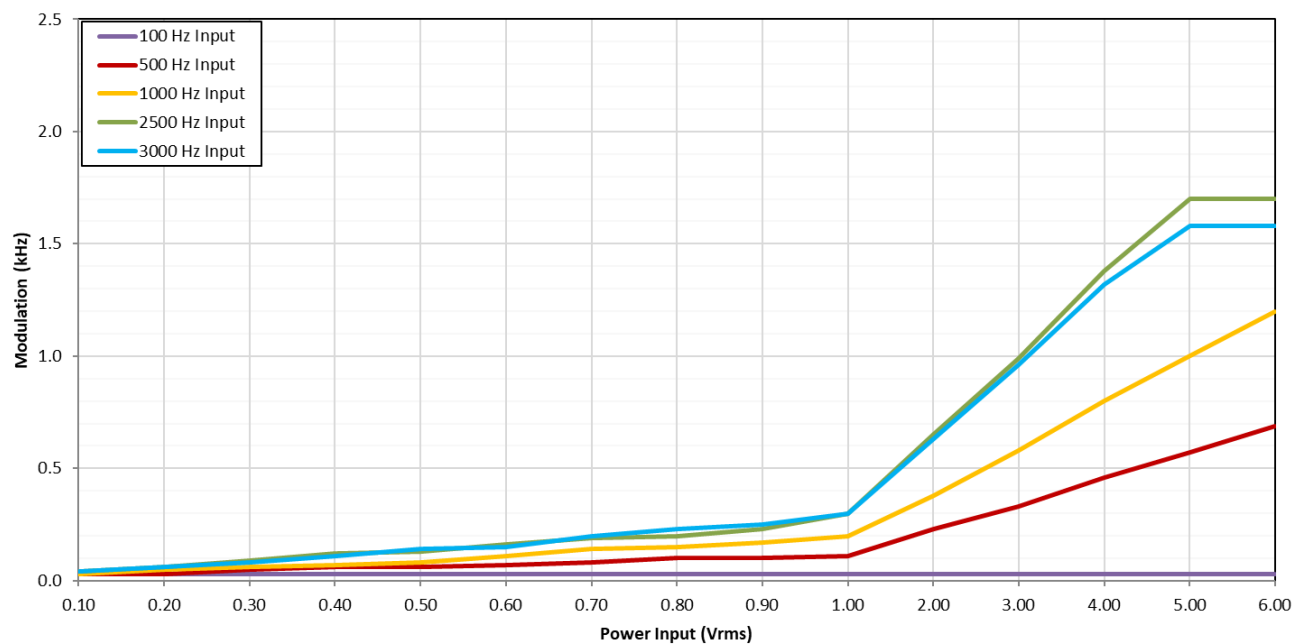


## 8.4 Audio Input Vs Modulation

Limits from: FCC Pt. 2.1047(b), 95.975; RSS-236 5.3.2

Test Requirements: Modulation must be greater than 85% and cannot exceed 100%

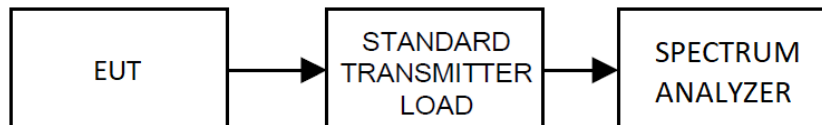
**Method of Measurement:** The audio input level needed for a particular percentage of modulation was measured in accordance with ANSI C63.26. The audio input curves versus modulation are shown below. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.



## 8.5 Occupied Bandwidth

Limits from FCC Parts 2.1049(c)(1), 95.973, RSS-236 5.4.2, and test procedure from ANSI C63.26-2015.

### Test Setup



### Test Results, Authorized Bandwidth

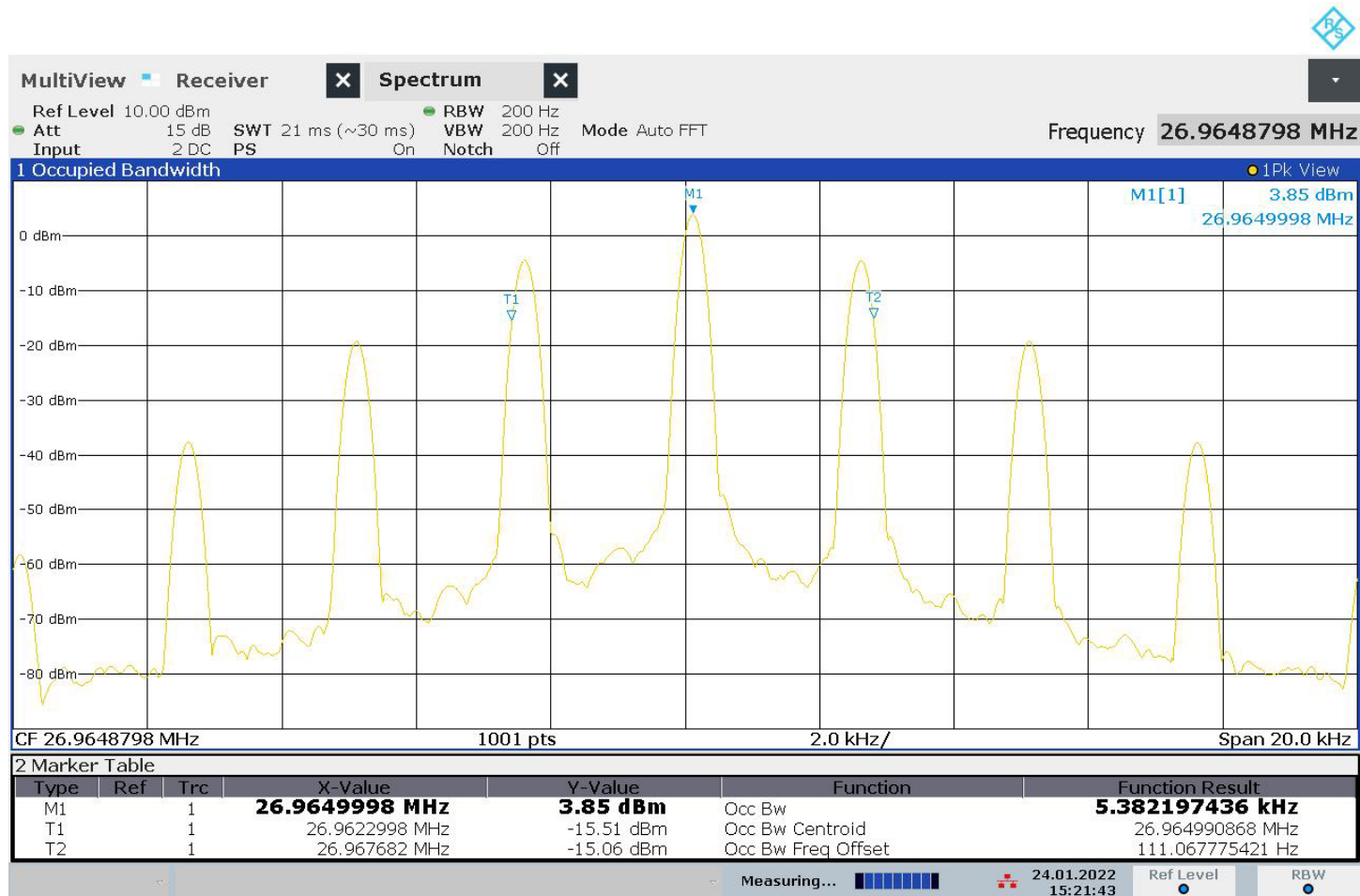
| Rule Part | Operating Range (MHz) | Authorized Bandwidth (kHz) |
|-----------|-----------------------|----------------------------|
| Part 95   | 26.965-27.405         | 8                          |

| Test Results, Occupied Bandwidth |       |                     |                          |                |
|----------------------------------|-------|---------------------|--------------------------|----------------|
| Tuned Frequency (MHz)            | Mode  | Emission Designator | Occupied Bandwidth (kHz) | Bandwidth Type |
| Ch 1<br>26.965                   | 1- FM | F3E                 | 5.38                     | 99%            |
|                                  | 2- AM | A3E                 | 5.30                     | 99%            |
|                                  |       |                     |                          |                |
| Ch 19<br>27.185                  | 1- FM | F3E                 | 5.37                     | 99%            |
|                                  | 2- AM | A3E                 | 5.30                     | 99%            |
|                                  |       |                     |                          |                |
| Ch 40<br>27.405                  | 1- FM | F3E                 | 5.39                     | 99%            |
|                                  | 2- AM | A3E                 | 5.30                     | 99%            |



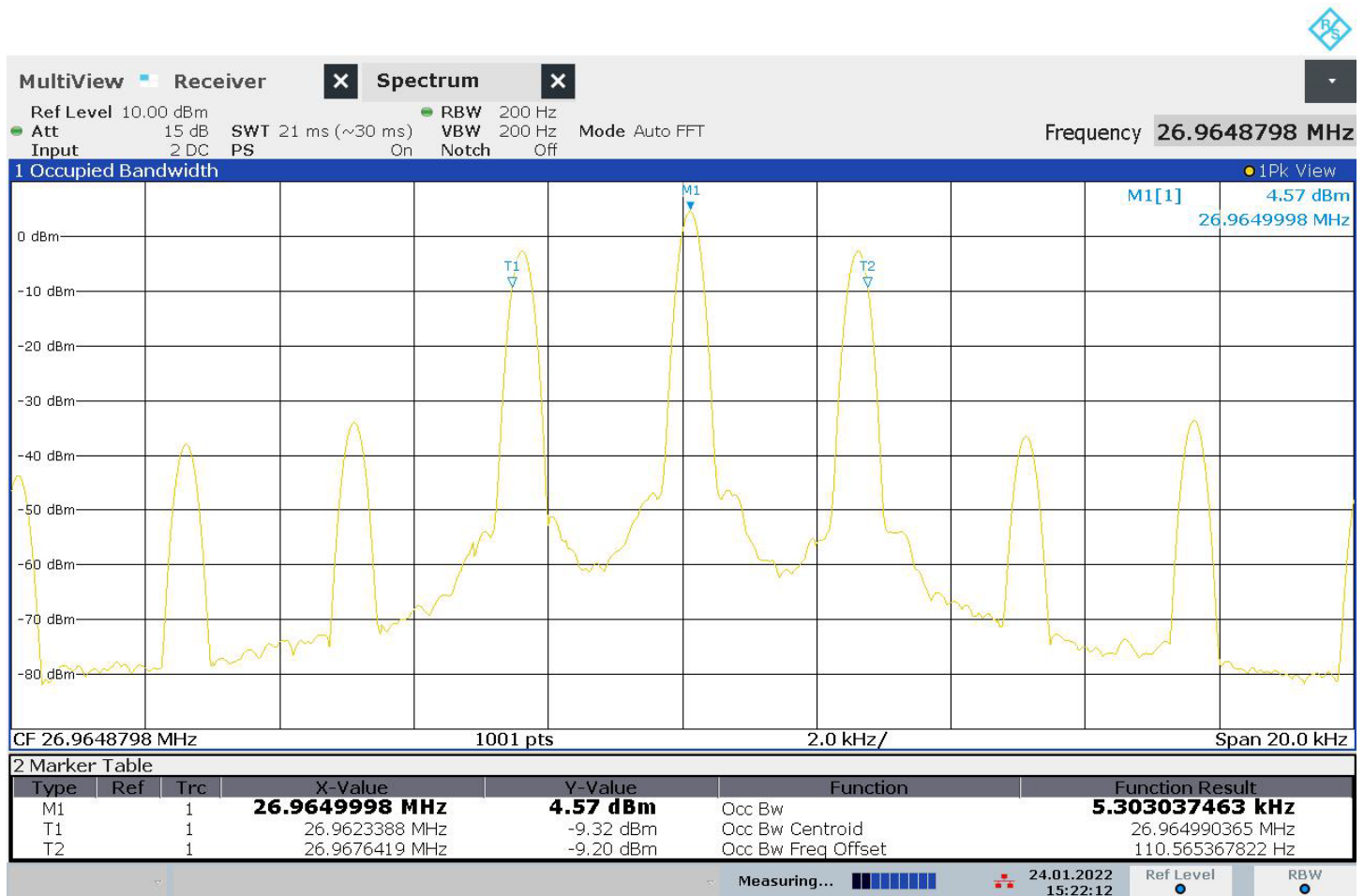
## Occupied Bandwidth, Spectrum Plots

### 8.5.1 Bandwidth Plot, 99%, Ch 1, FM 26.965 MHz



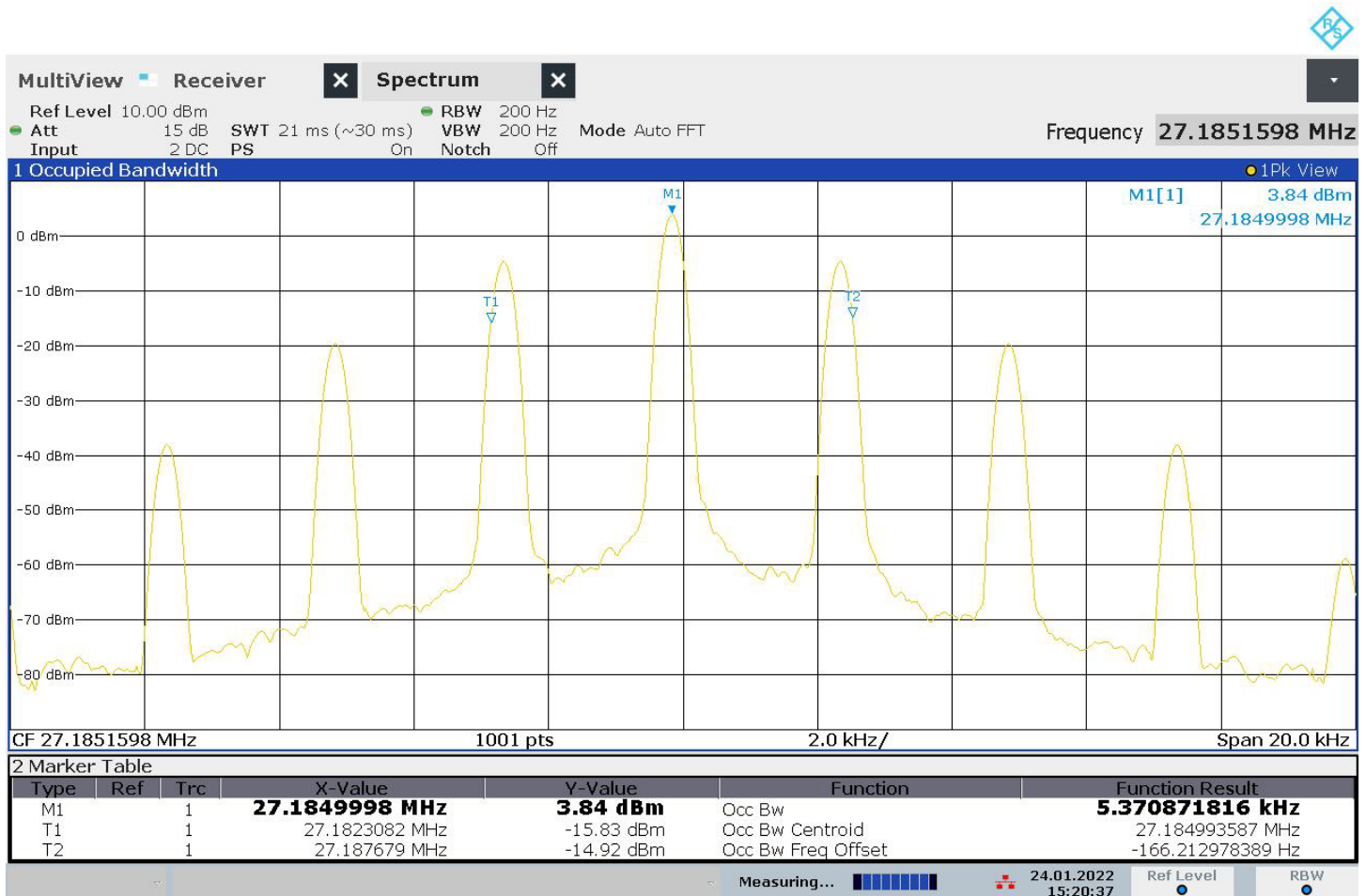
15:21:44 24.01.2022

## 8.5.2 Bandwidth Plot, 99%, Ch 1, AM 26.965 MHz



15:22:12 24.01.2022

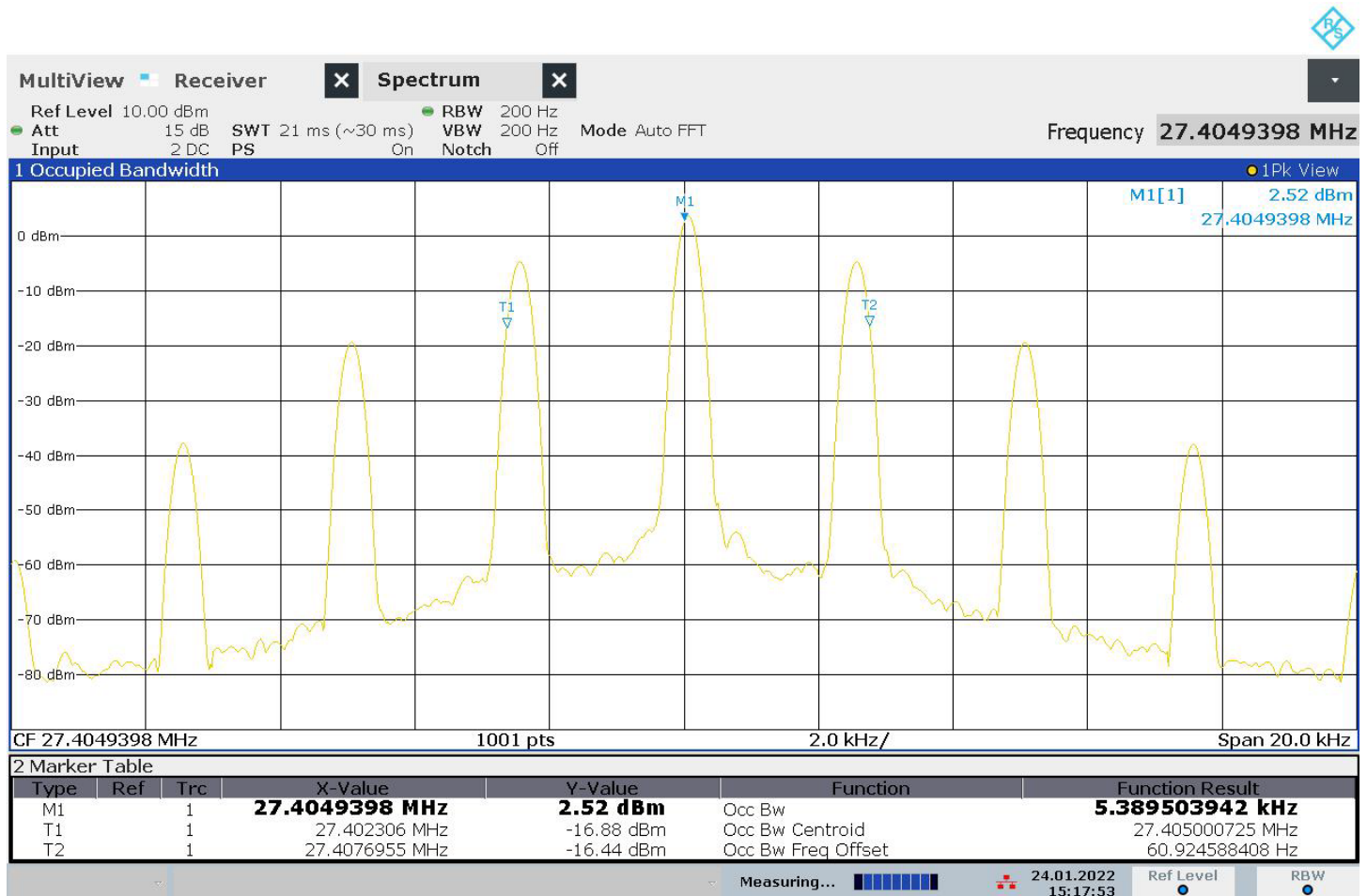
### 8.5.3 Bandwidth Plot, 99%, Ch 19, FM 27.185 MHz



15:20:37 24.01.2022

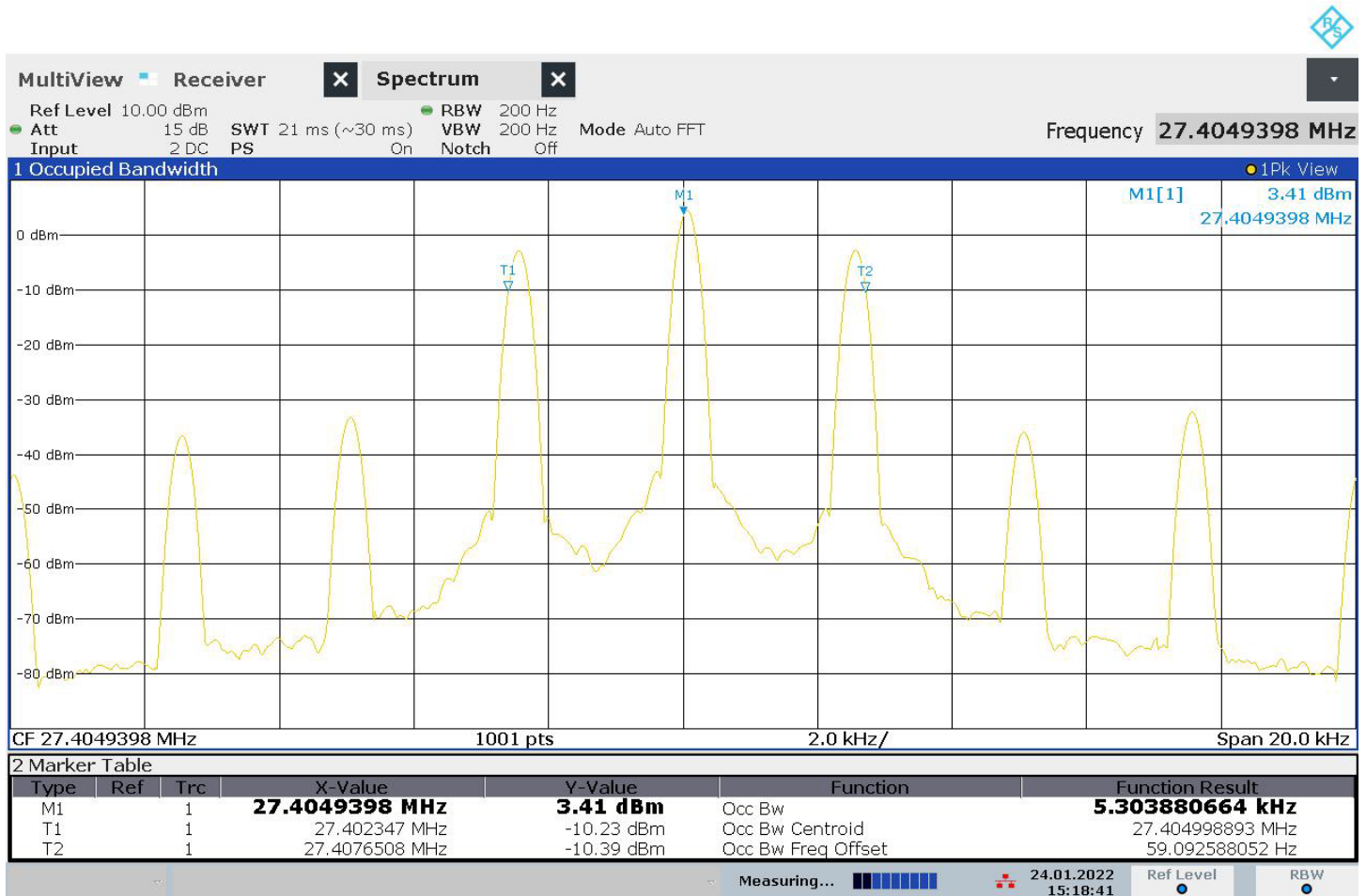


### 8.5.5 Bandwidth Plot, 99% Ch 40 FM 27.405 MHz



15:17:53 24.01.2022

## 8.5.6 Bandwidth Plot, 99% Ch 40 AM 27.405 MHz

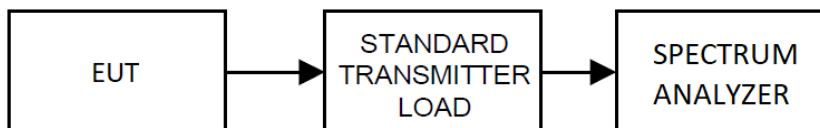


15:18:41 24.01.2022

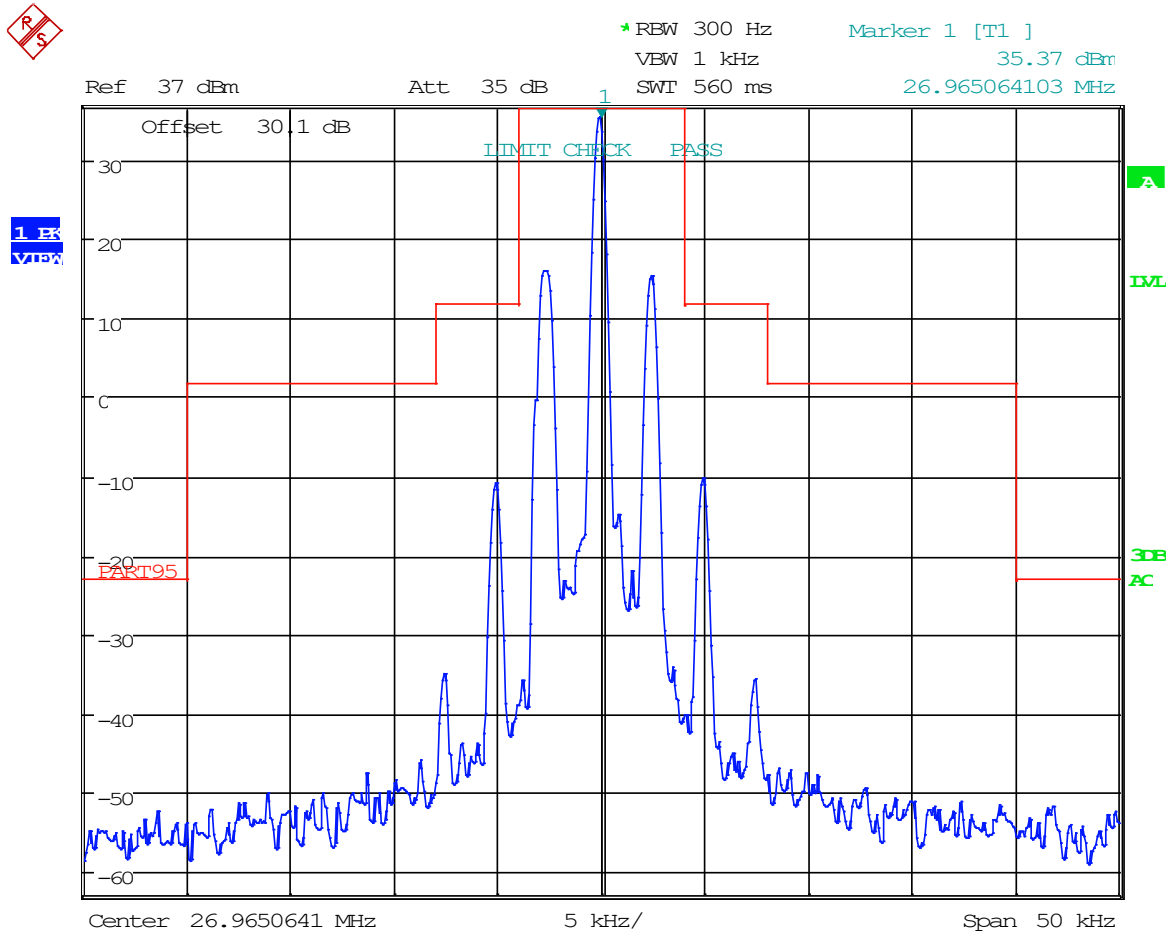
## 8.6 Occupied Bandwidth, Emission Mask Part 95

Limits from FCC 2.1049(c)(1), 95.979, RSS-236 5.4.2; and test procedure from ANSI C63.26-2015.

### Conducted Test Setup



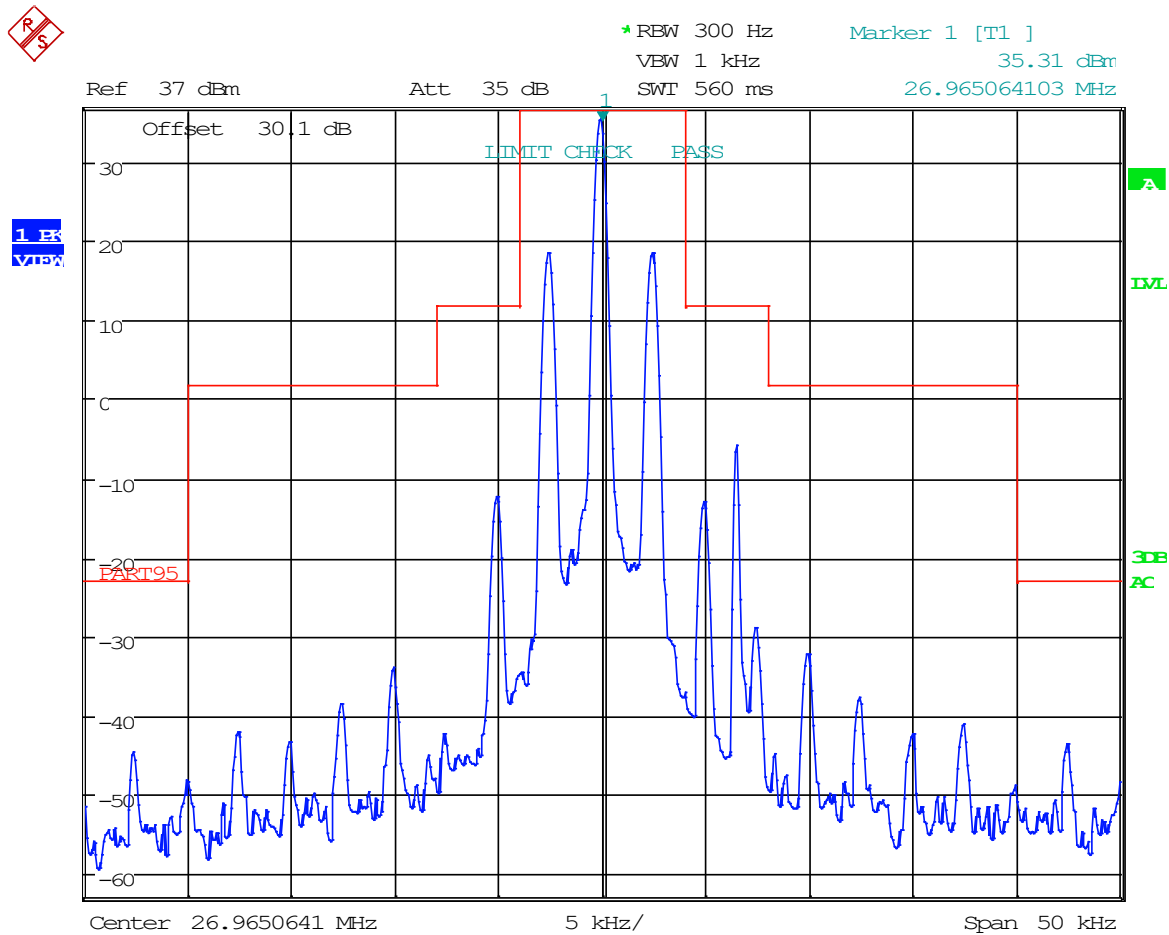
## 8.6.1 Emission Mask, Ch 1, FM 26.965 MHz



Date: 13.JAN.2022 09:41:57

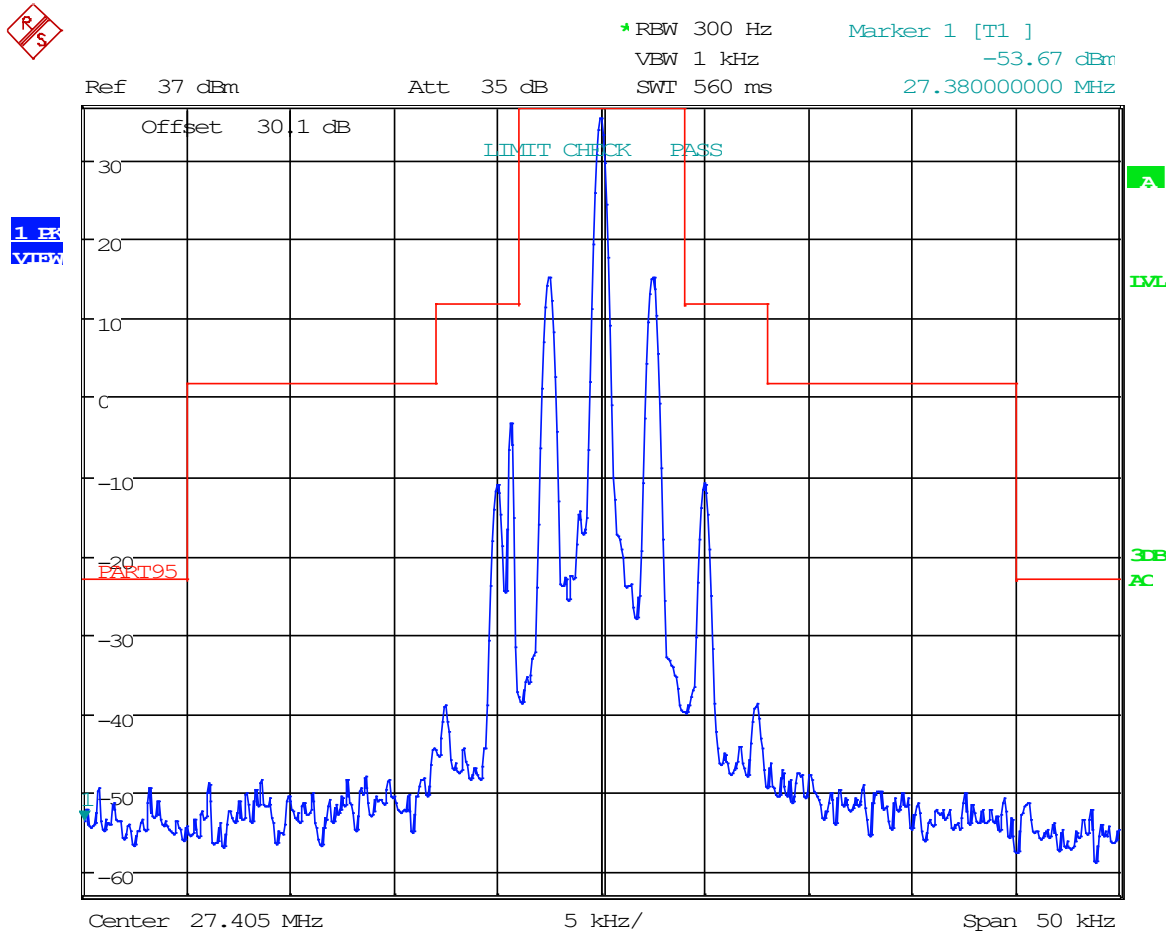


## 8.6.2 Emission Mask, Ch 1, AM 26.965 MHz



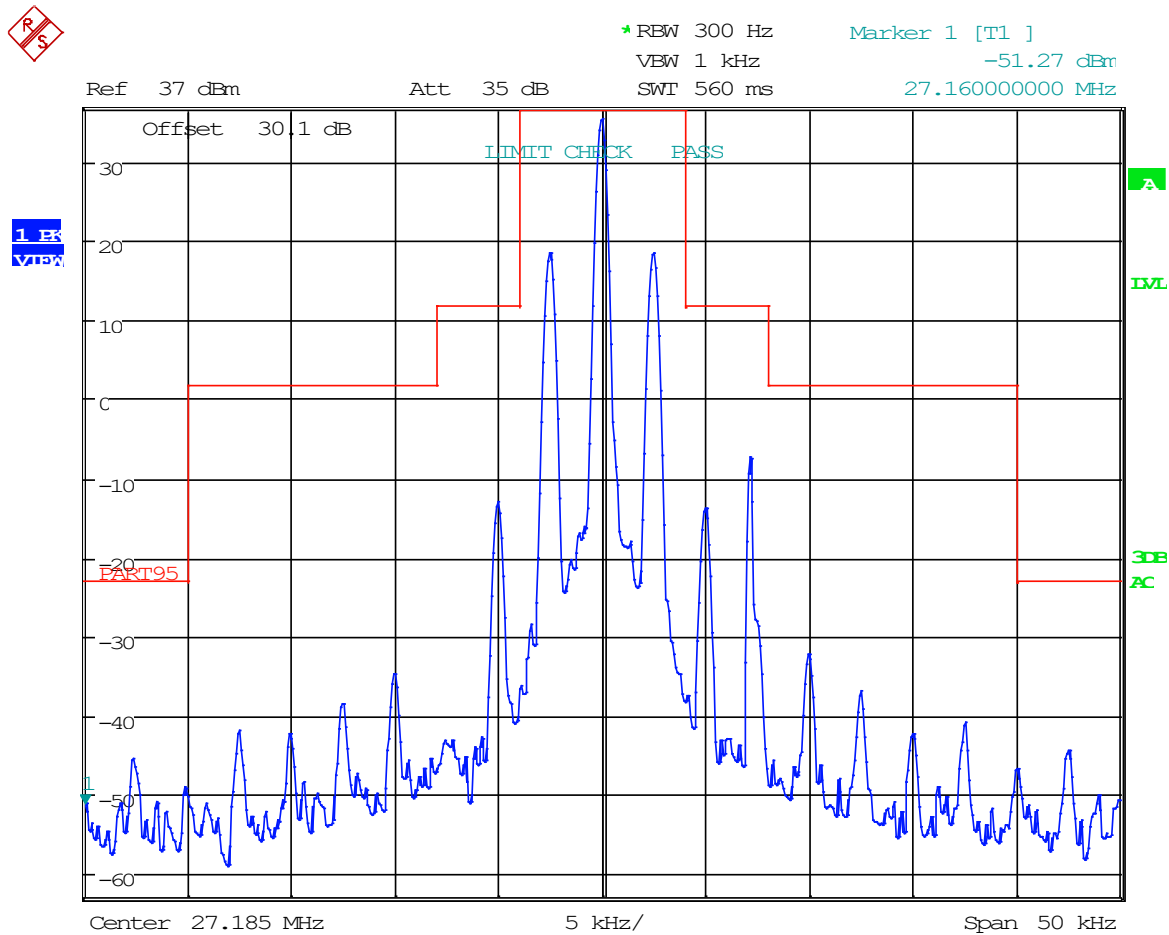
Date: 13.JAN.2022 09:40:24

### 8.6.3 Emission Mask, Ch 19, FM 27.185 MHz



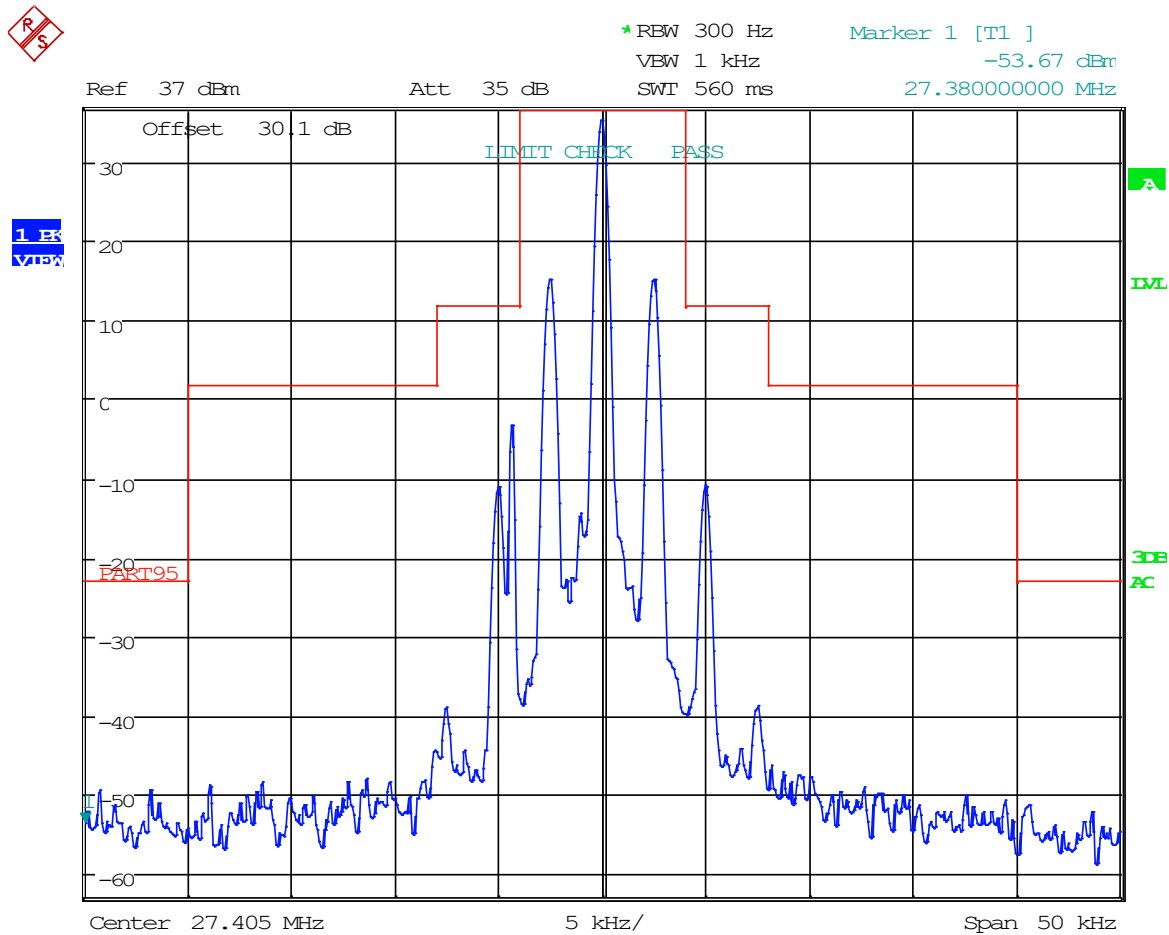
Date: 13.JAN.2022 09:45:09

#### 8.6.4 Emission Mask, Ch 19, AM 27.185 MHz



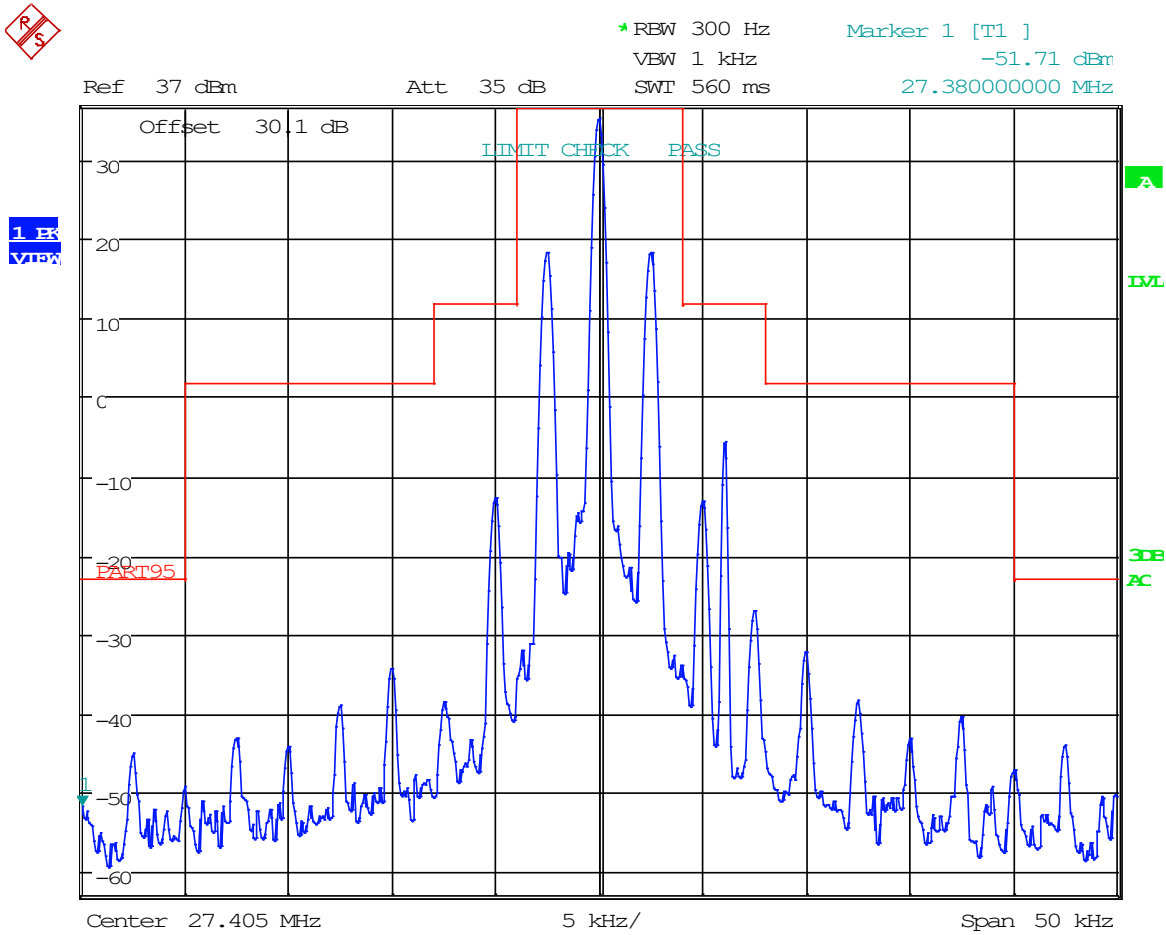
Date: 13.JAN.2022 09:44:33

## 8.6.5 Emission Mask, Ch 40, FM 27.405 MHz



Date: 13.JAN.2022 09:45:09

## 8.6.6 Emission Mask, Ch 40, AM 27.405 MHz



Date: 13.JAN.2022 09:45:32

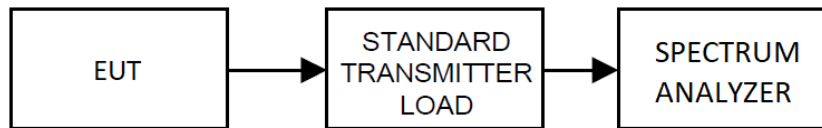
## 8.7 Spurious Emissions At Antenna Terminals (Conducted)

Limits from FCC Part 2.1051(a), 95.979(5)(6), RSS-236 5.4.4 and test procedure from ANSI C63.26-2015.

**Requirements:**  $53 + 10\log(P)$  dBc. Any harmonic emissions must be  $> 60$  dBc.

**Method of Measurement:** The carrier was modulated with a 2500 Hz tone at a level 16 dB above the level to produce 50% modulation at frequency of highest response. The spectrum was scanned from 9 KHz to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard TIA-603 D.

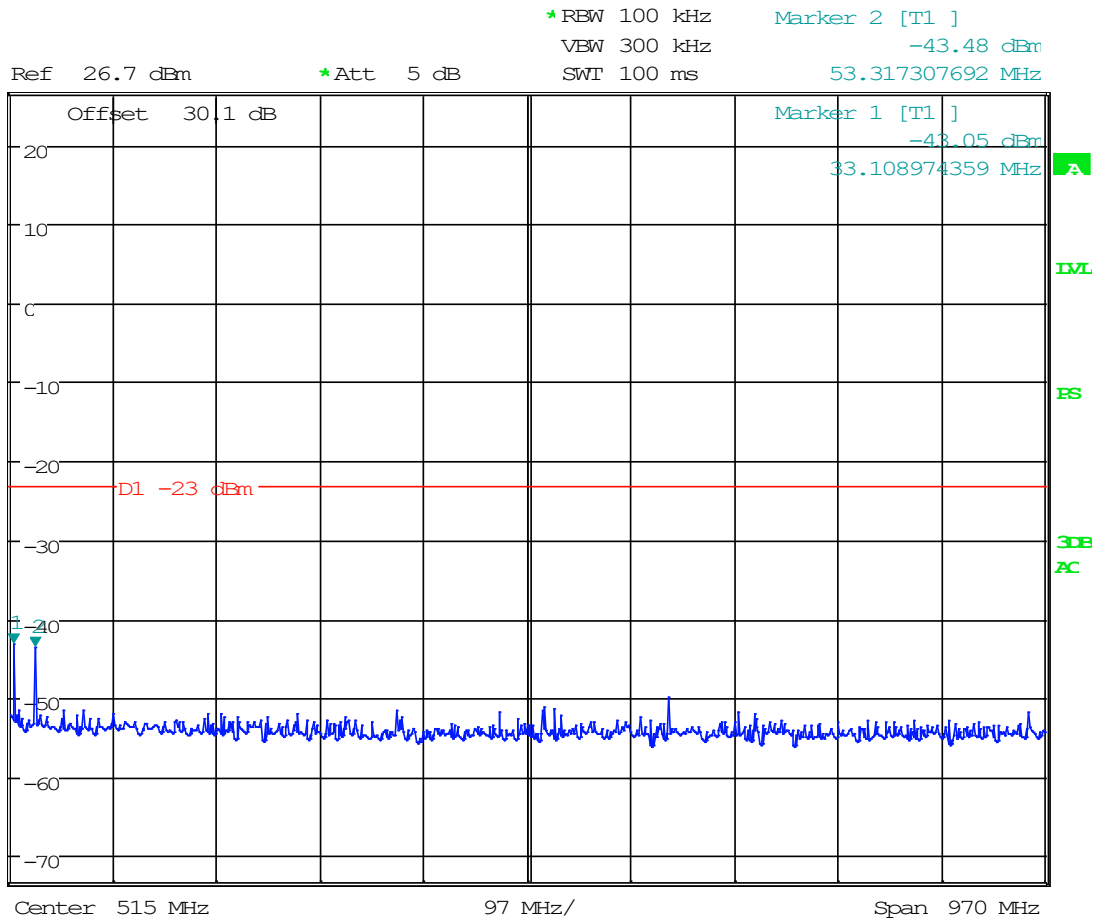
### Conducted Test Setup



### 8.7.1 Spurious Emissions, Ch 1, FM 26.965 MHz

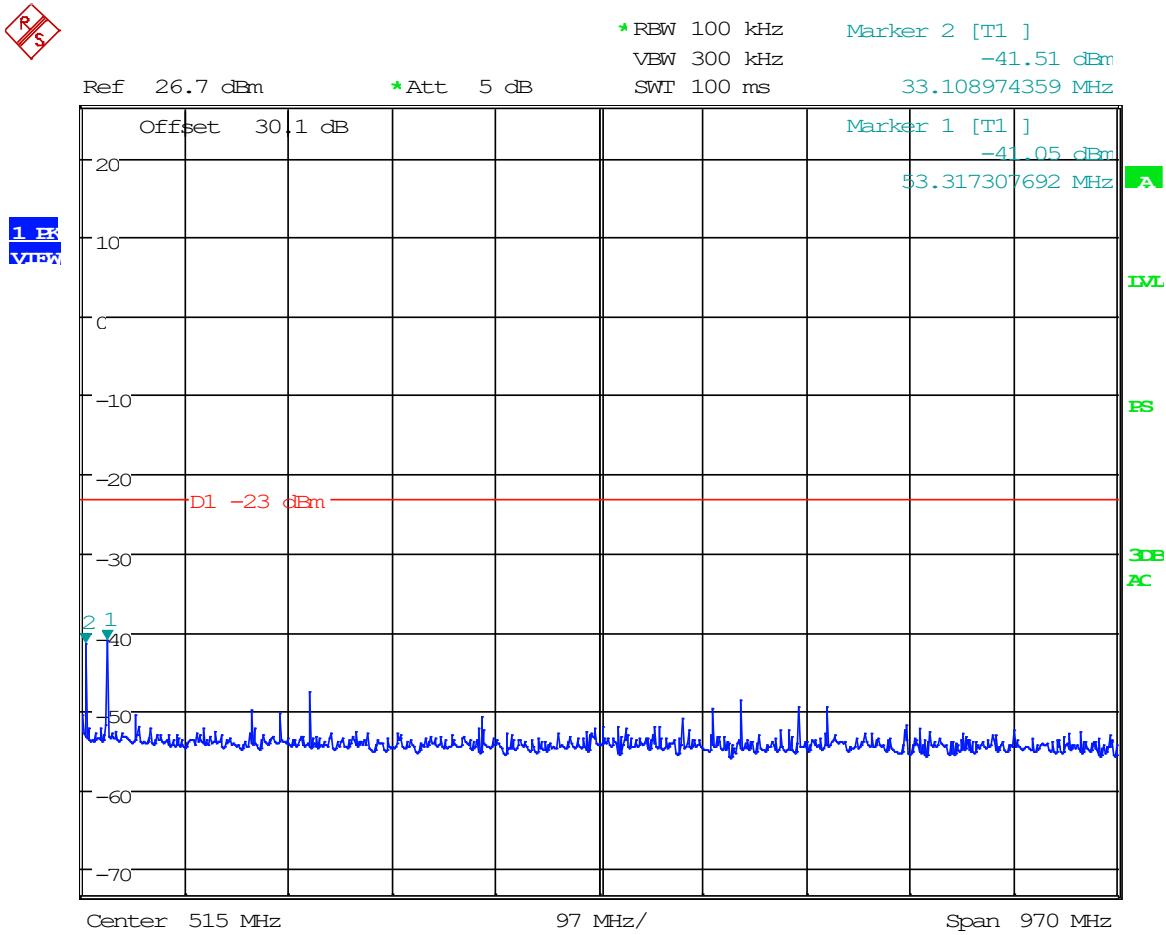


1. BK  
VIA



Date: 4.JAN.2022 13:55:53

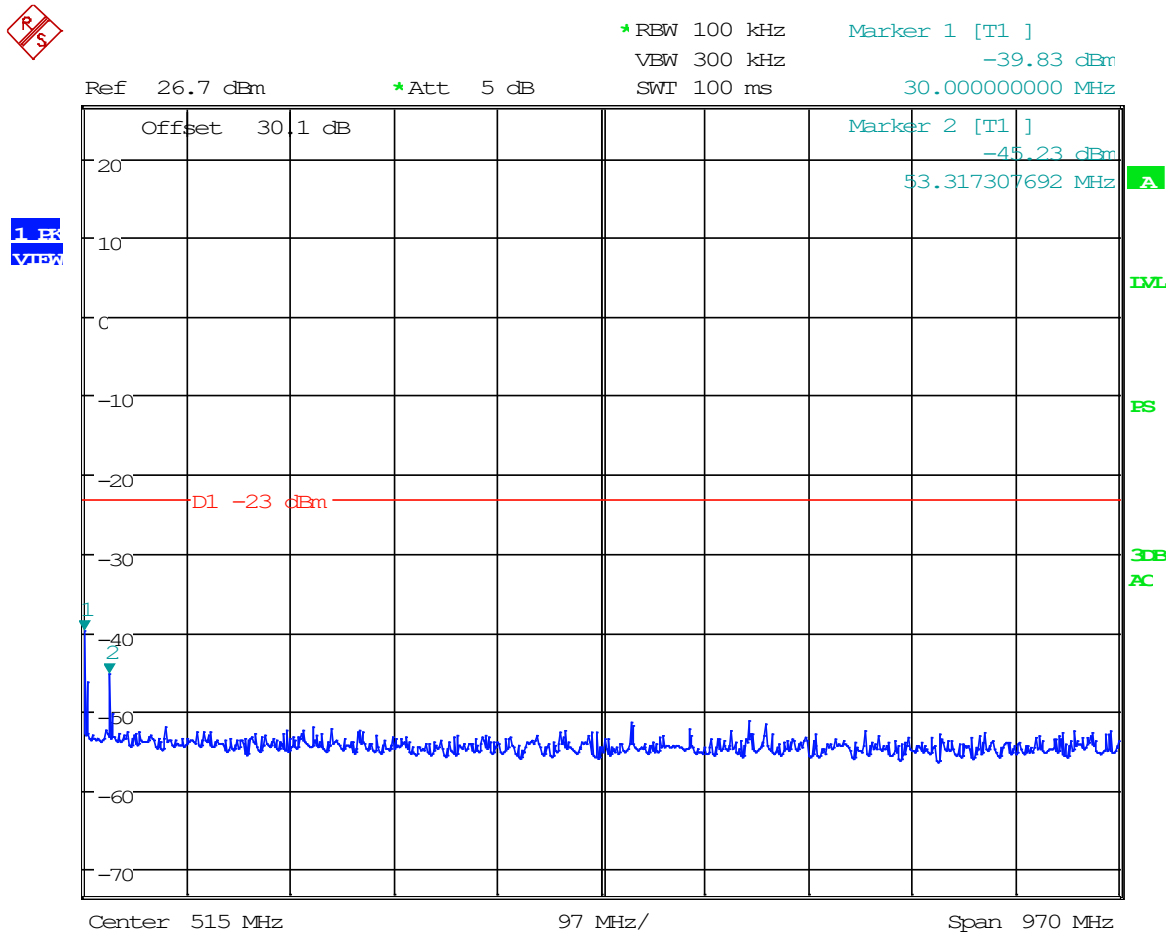
## 8.7.2 Spurious Emissions, Ch 1, AM 26.965 MHz



Date: 4.JAN.2022 13:55:21

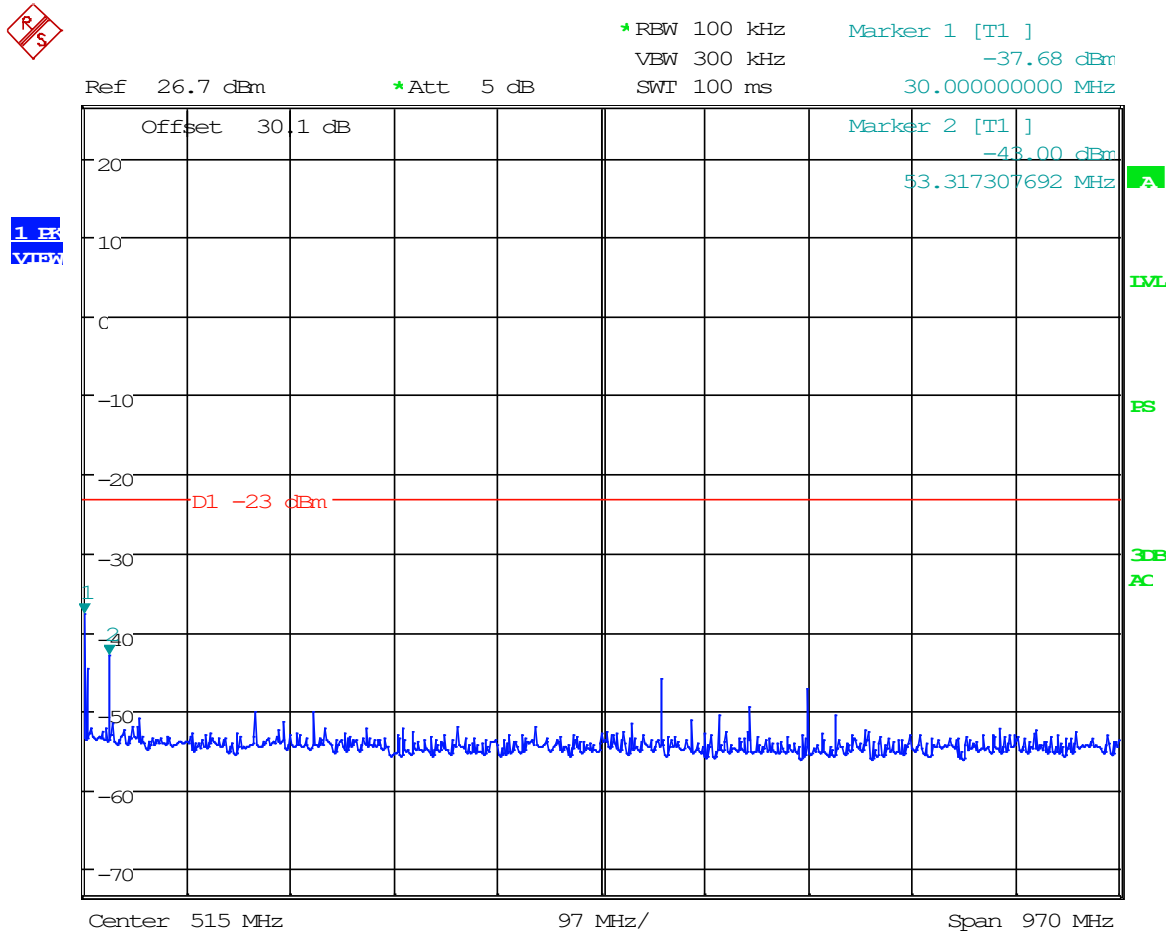


### 8.7.3 Spurious Emissions, Ch 19, FM 27.185 MHz



Date: 4.JAN.2022 13:52:21

#### 8.7.4 Spurious Emissions, Ch 19, AM 27.185 MHz



Date: 4.JAN.2022 13:53:26





## 8.8 Field Strength of Spurious Emissions

Limits from FCC Part 2.1053, 95.979(5)(6), RSS-236 5.4.4 and test procedure from ANSI C63.26-2015.

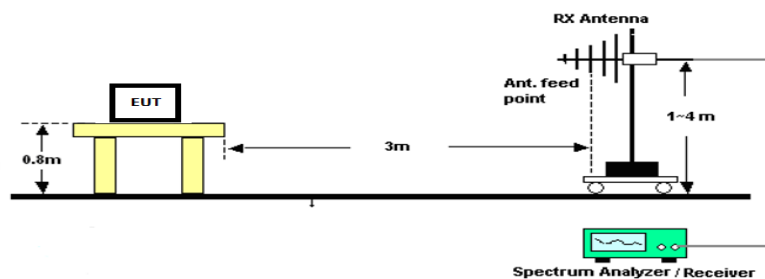
**Requirements:** Emissions must be attenuated by at least the following below the output of the transmitter.

At least  $53 + 10 \log(P)$  dBc on any frequency removed from the center of the authorized bandwidth by more than 250%. At least 60dB on any harmonic frequency.

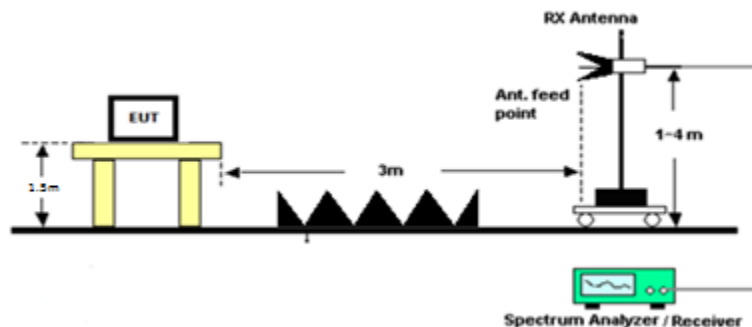
### METHOD OF MEASUREMENT

The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 9 kHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA-603 E using the substitution method

#### Radiated Test Setup, 30 – 1000 MHz



#### Radiated Test Setup, Above 1000 MHz



### 8.8.1 Radiated Emissions, Ch 1, 26.965 MHz

| Tuned Frequency (MHz) | Emission Frequency (MHz) | Detector | Meter Reading (dBuV) | Antenna Polarity | Coax Loss (dB) | Antenna Correction Factor (dB/m) | Distance (m) | Field Strength (dBuV/m) | ERP (dBm) | Spurious Limit (dBm) | Margin (dB) |
|-----------------------|--------------------------|----------|----------------------|------------------|----------------|----------------------------------|--------------|-------------------------|-----------|----------------------|-------------|
| 26.97                 | 53.93                    | PK       | 17.47                | H                | 0.86           | 9.82                             | 3.00         | 28.15                   | -69.23    | -23.00               | 46.23       |
| 26.97                 | 53.93                    | PK       | 19.93                | V                | 0.86           | 9.82                             | 3.00         | 30.61                   | -66.77    | -23.00               | 43.77       |
| 26.97                 | 80.90                    | PK       | 19.85                | H                | 1.09           | 8.76                             | 3.00         | 29.69                   | -67.68    | -23.00               | 44.68       |
| 26.97                 | 80.90                    | PK       | 26.67                | V                | 1.09           | 8.76                             | 3.00         | 36.51                   | -60.86    | -23.00               | 37.86       |
| 26.97                 | 107.86                   | PK       | 20.92                | H                | 1.19           | 10.31                            | 3.00         | 32.43                   | -64.95    | -23.00               | 41.95       |
| 26.97                 | 107.86                   | PK       | 24.87                | V                | 1.19           | 10.31                            | 3.00         | 36.38                   | -61.00    | -23.00               | 38.00       |
| 26.97                 | 134.83                   | PK       | 35.76                | H                | 1.31           | 14.25                            | 3.00         | 51.32                   | -46.06    | -23.00               | 23.06       |
| 26.97                 | 134.83                   | PK       | 33.81                | V                | 1.31           | 14.25                            | 3.00         | 49.37                   | -48.01    | -23.00               | 25.01       |
| 26.97                 | 161.79                   | PK       | 35.60                | H                | 1.46           | 16.40                            | 3.00         | 53.46                   | -43.91    | -23.00               | 20.91       |
| 26.97                 | 161.79                   | PK       | 35.55                | V                | 1.46           | 16.40                            | 3.00         | 53.41                   | -43.96    | -23.00               | 20.96       |
| 26.97                 | 188.76                   | PK       | 38.25                | H                | 1.59           | 13.68                            | 3.00         | 53.51                   | -43.87    | -23.00               | 20.87       |
| 26.97                 | 188.76                   | PK       | 43.85                | V                | 1.59           | 13.68                            | 3.00         | 59.11                   | -38.27    | -23.00               | 15.27       |
| 26.97                 | 215.72                   | PK       | 39.80                | H                | 1.67           | 10.39                            | 3.00         | 51.86                   | -45.52    | -23.00               | 22.52       |
| 26.97                 | 215.72                   | PK       | 34.92                | V                | 1.67           | 10.39                            | 3.00         | 46.98                   | -50.40    | -23.00               | 27.40       |
| 26.97                 | 242.69                   | PK       | 37.09                | H                | 1.80           | 10.66                            | 3.00         | 49.55                   | -47.82    | -23.00               | 24.82       |
| 26.97                 | 242.69                   | PK       | 33.12                | V                | 1.80           | 10.66                            | 3.00         | 45.58                   | -51.79    | -23.00               | 28.79       |
| 26.97                 | 269.65                   | PK       | 20.07                | H                | 2.07           | 12.09                            | 3.00         | 34.22                   | -63.15    | -23.00               | 40.15       |
| 26.97                 | 269.65                   | PK       | 20.32                | V                | 2.07           | 12.09                            | 3.00         | 34.47                   | -62.90    | -23.00               | 39.90       |

## 8.8.2 Radiated Emissions, Ch 19, 27.185 MHz

| Tuned Frequency (MHz) | Emission Frequency (MHz) | Detector | Meter Reading (dBuV) | Antenna Polarity | Coax Loss (dB) | Antenna Correction Factor (dB/m) | Distance (m) | Field Strength (dBuV/m) | ERP (dBm) | Spurious Limit (dBm) | Margin (dB) |
|-----------------------|--------------------------|----------|----------------------|------------------|----------------|----------------------------------|--------------|-------------------------|-----------|----------------------|-------------|
| 27.19                 | 54.37                    | PK       | 14.98                | H                | 0.86           | 9.65                             | 3.00         | 25.49                   | -71.89    | -23.00               | 48.89       |
| 27.19                 | 54.37                    | PK       | 17.85                | V                | 0.86           | 9.65                             | 3.00         | 28.36                   | -69.02    | -23.00               | 46.02       |
| 27.19                 | 81.56                    | PK       | 17.97                | H                | 1.09           | 8.91                             | 3.00         | 27.97                   | -69.41    | -23.00               | 46.41       |
| 27.19                 | 81.56                    | PK       | 26.46                | V                | 1.09           | 8.91                             | 3.00         | 36.46                   | -60.92    | -23.00               | 37.92       |
| 27.19                 | 108.74                   | PK       | 20.90                | H                | 1.19           | 10.23                            | 3.00         | 32.32                   | -65.06    | -23.00               | 42.06       |
| 27.19                 | 108.74                   | PK       | 23.66                | V                | 1.19           | 10.23                            | 3.00         | 35.08                   | -62.30    | -23.00               | 39.30       |
| 27.19                 | 135.93                   | PK       | 34.87                | H                | 1.32           | 14.49                            | 3.00         | 50.67                   | -46.70    | -23.00               | 23.70       |
| 27.19                 | 135.93                   | PK       | 32.14                | V                | 1.32           | 14.49                            | 3.00         | 47.94                   | -49.43    | -23.00               | 26.43       |
| 27.19                 | 163.11                   | PK       | 34.47                | H                | 1.47           | 16.27                            | 3.00         | 52.21                   | -45.17    | -23.00               | 22.17       |
| 27.19                 | 163.11                   | PK       | 33.41                | V                | 1.47           | 16.27                            | 3.00         | 51.15                   | -46.23    | -23.00               | 23.23       |
| 27.19                 | 190.30                   | PK       | 38.56                | H                | 1.59           | 13.93                            | 3.00         | 54.08                   | -43.30    | -23.00               | 20.30       |
| 27.19                 | 190.30                   | PK       | 40.73                | V                | 1.59           | 13.93                            | 3.00         | 56.25                   | -41.13    | -23.00               | 18.13       |
| 27.19                 | 217.48                   | PK       | 39.35                | H                | 1.68           | 10.35                            | 3.00         | 51.38                   | -45.99    | -23.00               | 22.99       |
| 27.19                 | 217.48                   | PK       | 37.05                | V                | 1.68           | 10.35                            | 3.00         | 49.08                   | -48.29    | -23.00               | 25.29       |
| 27.19                 | 244.67                   | PK       | 36.17                | H                | 1.83           | 10.78                            | 3.00         | 48.73                   | -48.60    | -23.00               | 25.60       |
| 27.19                 | 244.67                   | PK       | 36.12                | V                | 1.83           | 10.78                            | 3.00         | 48.73                   | -48.65    | -23.00               | 25.65       |
| 27.19                 | 271.85                   | PK       | 20.81                | H                | 2.07           | 12.29                            | 3.00         | 35.16                   | -62.22    | -23.00               | 39.22       |
| 27.19                 | 271.85                   | PK       | 20.32                | V                | 2.07           | 12.29                            | 3.00         | 34.67                   | -62.71    | -23.00               | 39.71       |

### 8.8.3 Radiated Emissions, Ch 40, 27.405 MHz

| Tuned Frequency (MHz) | Emission Frequency (MHz) | Detector | Meter Reading (dBuV) | Antenna Polarity | Coax Loss (dB) | Antenna Correction Factor (dB/m) | Distance (m) | Field Strength (dBuV/m) | ERP (dBm) | Spurious Limit (dBm) | Margin (dB) |
|-----------------------|--------------------------|----------|----------------------|------------------|----------------|----------------------------------|--------------|-------------------------|-----------|----------------------|-------------|
| 27.41                 | 54.81                    | PK       | 15.47                | H                | 0.86           | 9.48                             | 3.00         | 25.81                   | -71.57    | -23.00               | 48.57       |
| 27.41                 | 54.81                    | PK       | 16.54                | V                | 0.86           | 9.48                             | 3.00         | 26.88                   | -70.50    | -23.00               | 47.50       |
| 27.41                 | 82.22                    | PK       | 17.59                | H                | 1.09           | 9.06                             | 3.00         | 27.75                   | -69.63    | -23.00               | 46.63       |
| 27.41                 | 82.22                    | PK       | 25.78                | V                | 1.09           | 9.06                             | 3.00         | 35.94                   | -61.44    | -23.00               | 38.44       |
| 27.41                 | 109.62                   | PK       | 22.84                | H                | 1.20           | 10.20                            | 3.00         | 34.24                   | -63.14    | -23.00               | 40.14       |
| 27.41                 | 109.62                   | PK       | 24.03                | V                | 1.20           | 10.20                            | 3.00         | 35.43                   | -61.95    | -23.00               | 38.95       |
| 27.41                 | 137.03                   | PK       | 37.16                | H                | 1.33           | 14.70                            | 3.00         | 53.19                   | -44.19    | -23.00               | 21.19       |
| 27.41                 | 137.03                   | PK       | 30.97                | V                | 1.33           | 14.70                            | 3.00         | 47.00                   | -50.38    | -23.00               | 27.38       |
| 27.41                 | 164.43                   | PK       | 30.23                | H                | 1.48           | 15.96                            | 3.00         | 47.67                   | -49.71    | -23.00               | 26.71       |
| 27.41                 | 164.43                   | PK       | 33.02                | V                | 1.48           | 15.96                            | 3.00         | 50.46                   | -46.92    | -23.00               | 23.92       |
| 27.41                 | 191.84                   | PK       | 38.80                | H                | 1.60           | 14.25                            | 3.00         | 54.65                   | -42.73    | -23.00               | 19.73       |
| 27.41                 | 191.84                   | PK       | 38.46                | V                | 1.60           | 14.25                            | 3.00         | 54.31                   | -43.07    | -23.00               | 20.07       |
| 27.41                 | 219.24                   | PK       | 39.93                | H                | 1.69           | 10.32                            | 3.00         | 51.94                   | -45.44    | -23.00               | 22.44       |
| 27.41                 | 219.24                   | PK       | 37.29                | V                | 1.69           | 10.32                            | 3.00         | 49.30                   | -48.08    | -23.00               | 25.08       |
| 27.41                 | 246.65                   | PK       | 37.17                | H                | 1.85           | 10.93                            | 3.00         | 49.95                   | -47.43    | -23.00               | 24.43       |
| 27.41                 | 246.65                   | PK       | 36.01                | V                | 1.85           | 10.93                            | 3.00         | 48.79                   | -48.59    | -23.00               | 25.59       |
| 27.41                 | 274.05                   | PK       | 19.55                | H                | 2.06           | 12.51                            | 3.00         | 34.12                   | -63.26    | -23.00               | 40.26       |
| 27.41                 | 274.05                   | PK       | 19.17                | V                | 2.06           | 12.51                            | 3.00         | 33.74                   | -63.64    | -23.00               | 40.64       |

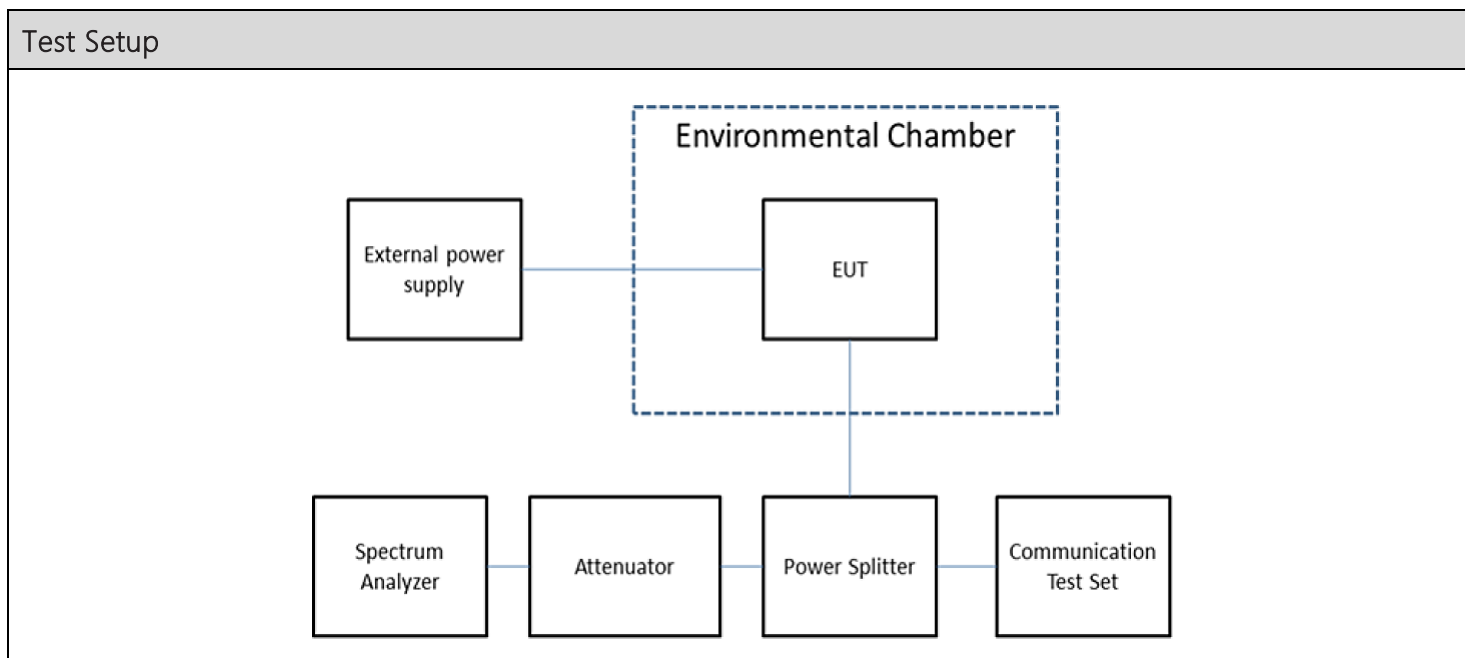


## 8.9 Frequency Stability

Limits from FCC 2.1055(a) (b) (d), Part 95.965, RSS-236 5.3.2; and test procedure from ANSI C63.26-2015.

**Requirements:** Maintain a frequency tolerance of less than 50 ppm

Temperature and voltage tests were performed to verify that the frequency remains within the 50 ppm specification limit. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 °C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worst case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 °C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 °C.

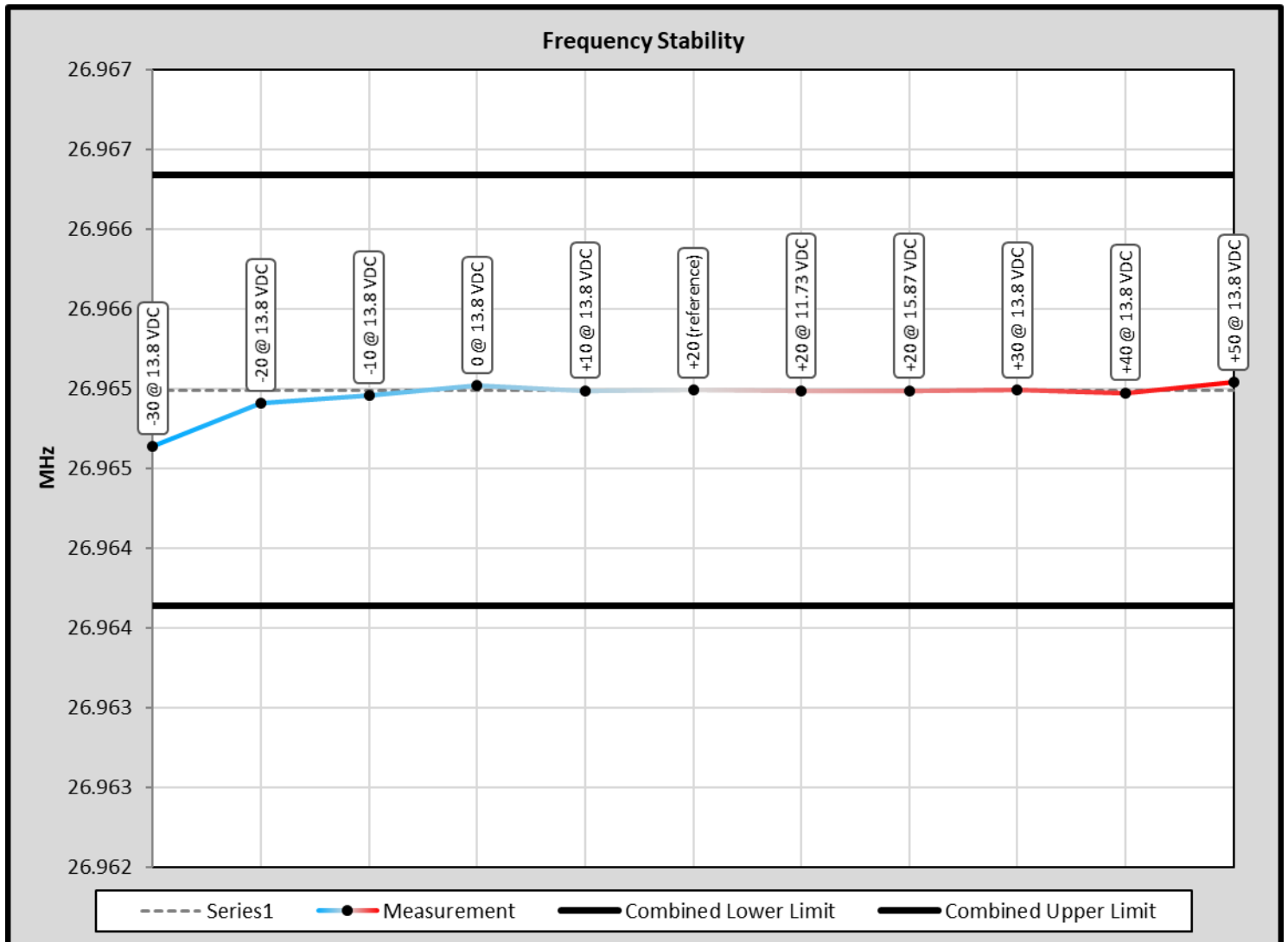


| Test Results, Mode 1  |                     |             |
|-----------------------|---------------------|-------------|
| Tuned Frequency (MHz) | Max Deviation (kHz) | Limit (ppm) |
| FM, (Ch 1) 26.965     | 0.351               | 50          |
| AM, (Ch 1) 26.965     | 0.032               | 50          |

### 8.9.1 FM, Frequency Stability Data

|                                 |                      |  |                 |
|---------------------------------|----------------------|--|-----------------|
| Limit                           | 50.0                 | ppm  |                 |
| Limit, as ppb                   | 50000                | ppb (Parts per Billion)                                      |                 |
| Limit, as %                     | 0.00500              | %  |                 |
| Strictest Combined Limit, as Hz | 1348.249             | Hz   |                 |
| Combined Lower Limit            | 26.963640            | MHz  |                 |
| Combined Upper Limit            | 26.966336            | MHz  |                 |
| Rated Supply Voltage            | 13.8                 | <input type="radio"/> AC <input checked="" type="radio"/> DC |                 |
| Temperature / Voltage Variation |                      |  |                 |
| Temperature (°C)                | Supplied Voltage (V) | Frequency (MHz)  | Deviation (kHz) |
| -30                             | 13.8                 | 26.964637  | 0.351           |
| -20                             | 13.8                 | 26.964905  | 0.083           |
| -10                             | 13.8                 | 26.964953  | 0.035           |
| 0                               | 13.8                 | 26.965016  | -0.028          |
| +10                             | 13.8                 | 26.964987  | 0.001           |
| +20 (reference)                 | 13.8                 | 26.964988  | 0.000           |
| +20                             | 11.7                 | 26.964985  | 0.003           |
| +20                             | 15.9                 | 26.964985  | 0.003           |
| +30                             | 13.8                 | 26.964989  | -0.001          |
| +40                             | 13.8                 | 26.964973  | 0.015           |
| +50                             | 13.8                 | 26.965039  | -0.051          |

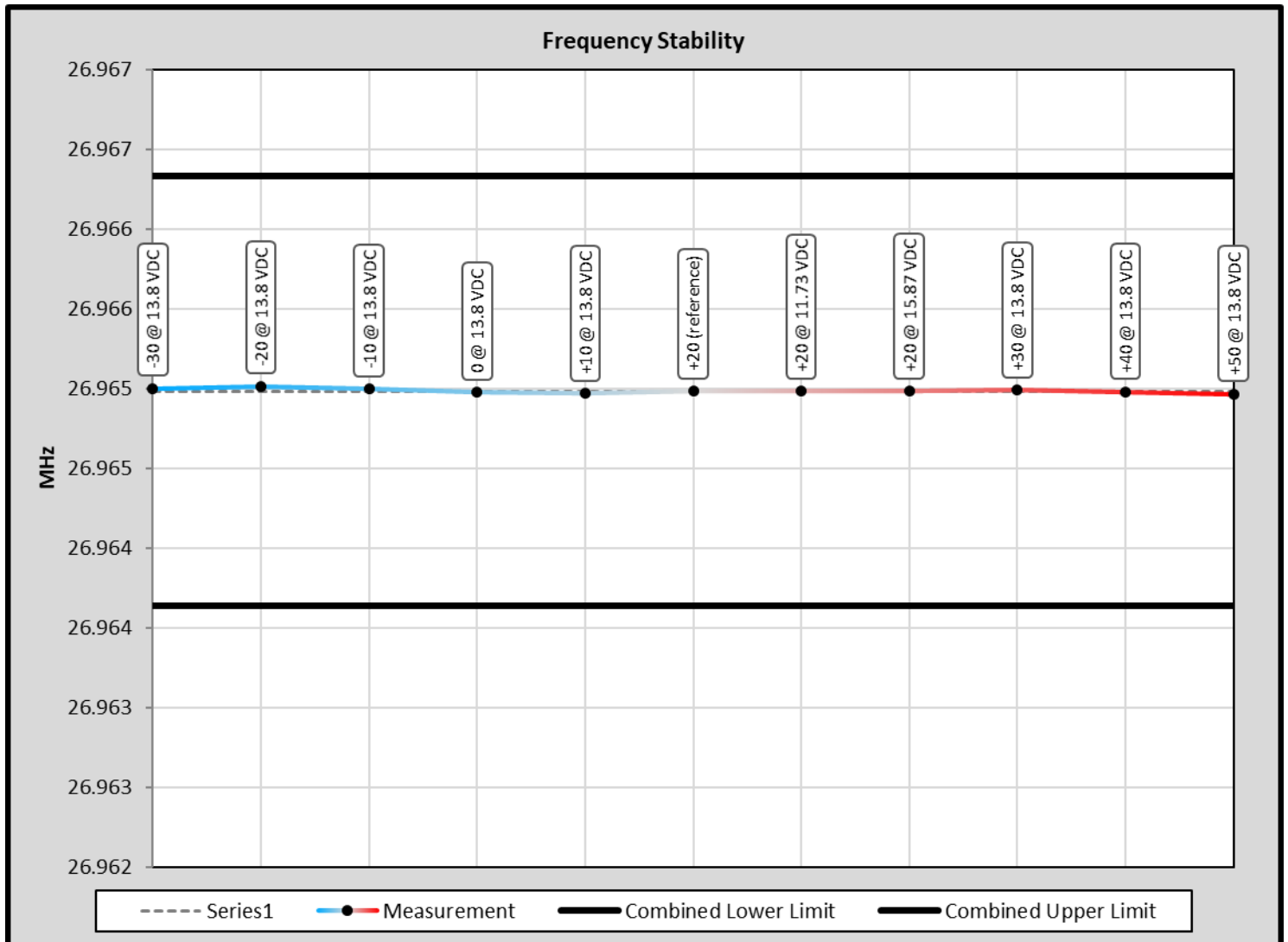
## 8.9.2 FM, Frequency Stability Plot



### 8.9.3 AM, Frequency Stability Data

|                                 |                      |  |                 |
|---------------------------------|----------------------|--|-----------------|
| Limit                           | 50.0                 | ppm  |                 |
| Limit, as ppb                   | 50000                | ppb (Parts per Billion)                                      |                 |
| Limit, as %                     | 0.00500              | %  |                 |
| Strictest Combined Limit, as Hz | 1348.249             | Hz   |                 |
| Combined Lower Limit            | 26.963634            | MHz  |                 |
| Combined Upper Limit            | 26.966330            | MHz  |                 |
| Rated Supply Voltage            | 13.8                 | <input type="radio"/> AC <input checked="" type="radio"/> DC |                 |
| Temperature / Voltage Variation |                      |  |                 |
| Temperature (°C)                | Supplied Voltage (V) | Frequency (MHz)  | Deviation (kHz) |
| -30                             | 13.8                 | 26.965001  | -0.019          |
| -20                             | 13.8                 | 26.965014  | -0.032          |
| -10                             | 13.8                 | 26.964996  | -0.014          |
| 0                               | 13.8                 | 26.964977  | 0.005           |
| +10                             | 13.8                 | 26.964968  | 0.014           |
| +20 (reference)                 | 13.8                 | 26.964982  | 0.000           |
| +20                             | 11.7                 | 26.964981  | 0.001           |
| +20                             | 15.9                 | 26.964982  | 0.000           |
| +30                             | 13.8                 | 26.964991  | -0.009          |
| +40                             | 13.8                 | 26.964978  | 0.004           |
| +50                             | 13.8                 | 26.964966  | 0.016           |

#### 8.9.4 AM, Frequency Stability Plot



## 9. ANNEX-A - Photographs of the EUT

Photographs of the EUT and any manufacturer supplied accessories to be used with the EUT are in separate supplementary documents labelled EXTERNAL PHOTOS and INTERNAL PHOTOS.

## 10. ANNEX-B – Test Setup Photographs

Test setup photographs are located in a separate supplementary ANNEX-B document.

## 11. History of Test Report Changes

| Test Report #        | Revision # | Description     | Date of Issue |
|----------------------|------------|-----------------|---------------|
| TR_0003-22_FCC_PT95_ | 1          | Initial release | 1/18/2022     |
|                      |            |                 |               |
|                      |            |                 |               |

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END OF TEST REPORT

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