Test of Alcatel Mobile IPTouch 600 Device

To FCC 47 CFR Part 15.247/IC RSS-210

Test Report Serial No.:
TUVR04A-AL/REV A



# TEST REPORT

FROM

MiCOM Labs

Test of Alcatel Mobile IPTouch 600 Device

To FCC 47 CFR Part 15.247/IC RSS-210

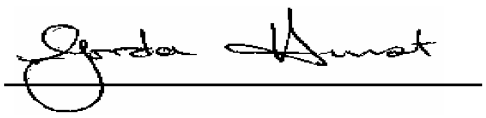
Test Report Serial No.:
TUVR04A-AL/Rev A

This report supersedes NONE

**Remarks:**

| | |
|---|---|
| Equipment complied with the specification | [X] |
| Equipment did not comply with the specification | [ ] |

**This Test Report is issued Under the Authority of:**



*Gordon Hurst President & CEO*

Copy No: pdf

Issue date: 2nd September '04

| | |
|---|---|
| Company: | Alcatel |
| Address: | 1 route du Dr Albert Schweitzer<br>67408 Illkirch Cedex, FRANCE. |
| Equipment Category: | 802.11b DSSS Wireless Telephone |

UKAS TESTING

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# 1 Executive Summary

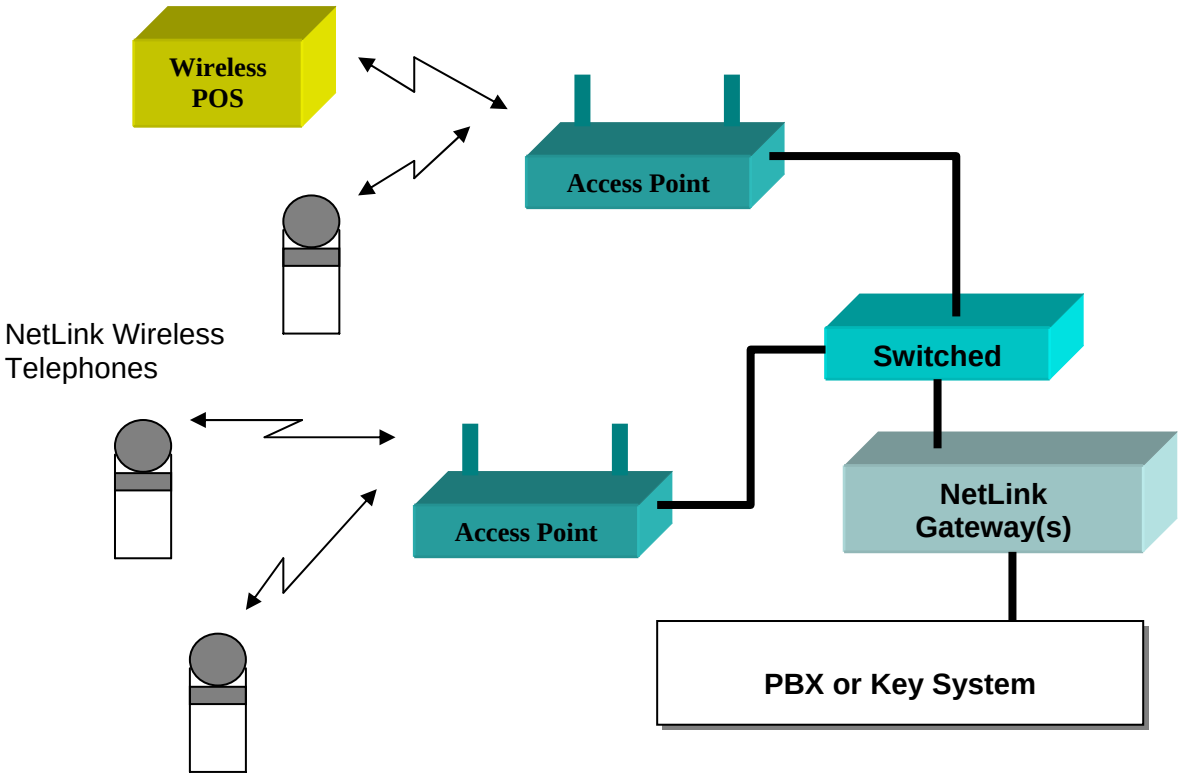
The purpose of this test program was to demonstrate compliance of the Alcatel Wireless Telephone against the current USA and Canadian specifications for short-range device certification requirements. This report was created to accompany test report TUVR03a/REVA (Mobile IPTouch 300 telephone). The manufacturer declared that the Mobile IPTouch 600 telephone utilizes identical RF components, boards, layout and circuitry that was tested and reported within TUVR03a/REVA (Mobile IPTouch 600) report. As a result of the physical change in case dimension and style only radiated and conducted emissions are reported.

NetLink Wireless Telephone is designed and manufactured by SpectraLink Corporation, and used for NetLink Wireless Telephone System (WTS) also designed and manufactured by SpectraLink Corporation. The WTS is a fully featured, 802.11-b (DSSS) based wireless telephone system, providing both voice and data communications over a single integrated wireless network at in the 2.4GHz frequency band. NetLink WTS has two components, Wireless Telephones and Telephony Gateways.

NetLink Wireless Telephones operate as clients on the WLAN, alongside other mobile 802.11 devices. Wireless LAN fixed radios, called access points (APs), receive IP voice packets from Wireless Telephones and forward them to the NetLink Telephony Gateway over the Ethernet LAN.

The NetLink WTS simplifies LAN management and improves the cost-effectiveness of the network. With the NetLink Wireless Telephone, employees will have a phone whenever they need one, wherever they are in the facility. Wireless Telephones work just like a desktop telephone, with all the features and capabilities that employees desire, including: Display capabilities, Multiple line appearances, Host switch features, Message waiting indication, Messaging.

The following diagram identifies the NetLink system architecture and its position in a typical voice/data network.



# 2 Technical Details

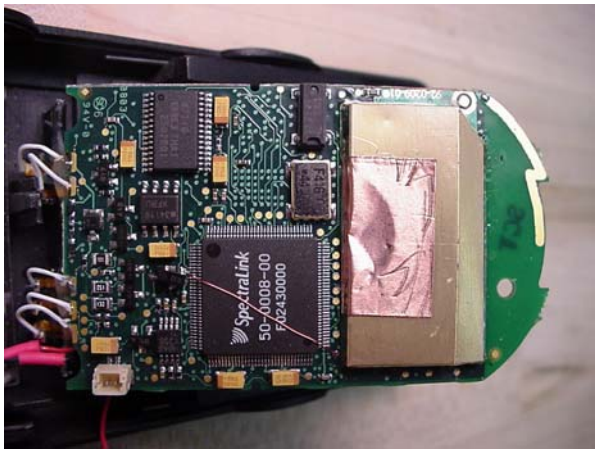
| | |
|---|---|
| Purpose | To verify compliance of the MOBILE IPTOUCH 600 Wireless Telephone to FCC and Industry Canada specifications for emission measurements |
| Applicant / Client | TUV Rheinland<br>1279 Quarry Lane, Suite A<br>Pleasanton, CA 94566 |
| Manufacturer | SpectraLink<br>5755 Central Avenue<br>Boulder, Colorado 80301 USA |
| Laboratory performing the tests | MiCOM Labs, Inc.<br>3922 Valley Avenue, Suite "B"<br>Pleasanton, California 94566 USA |
| Test report reference number | TUVR04A-AL/Rev A |
| Date EUT received | 22nd January '03 (main test program)<br>11th May '04 (AC Wireline - report update)<br>9th June '04 (headset emissions - report update) |
| Standard applied | FCC 47 CFR Part 15.247/IC RSS-210 |
| Dates of test (from - to) | 11th – 16th February '03 (main test program)<br>Test Report Updates<br>11th – 12th May '04 (AC Wireline testing)<br>11th – 12th June '04 (Headset emission testing) |
| No of Units: | One |
| Equipment Category: | 802.11b Spread Spectrum Device |
| Trade Name: | Alcatel |
| Type Number: | NetLink Wireless Telephone |
| Type of Equipment: | Standalone Telephone |
| Type Designation: | Mobile IPTouch 600 |
| ITU Emission Code(s): | 11M0D7E |
| Full Frequency Range: | 2,400 – 2,483.5MHz |
| Frequency Channel Range: | 2,412 – 2,462MHz (Channels 1 – 11) |
| Modulation: | DSSS |
| Microprocessor(s): | Texas Instruments 54xx |
| Operating Frequency (ies): | 2,400 – 2,483.5MHz |
| Clock/Oscillator(s) | 32.768KHz, 44MHz |
| Rated Input Voltage: | Nominal: +4.2Vdc<br>Min - Max: +3.5V – 4.9Vdc |
| Aggregate Bit Rates: | 1Mbit/s, 2Mbit/s, 5.5Mbit/s, 11Mbit/s |
| Antenna Gain: | 0dBi |
| Nominal Output Power: | +20dBm |
| Temperature Range: | 0 to +40°C |
| Primary Function Evaluation: | To initiate and receive telephone calls |
| Intended function in accordance with accompanying documentation | To initiate and receive telephone calls without perceptible degradation of voice quality or loss of correct keypad & display operation |
| Normal Test Modulation, Error Correction and Control Signals: | IEEE 802.11b |

# 3 Test Summary

## 3.1 Test Configurations

***Fundamental RF Frequency Generation***

The manufacturer declared that the RF Frequency Generation section within the EUT (Mobile IPTouch 600) was identical to the Alcatel Mobile IPTouch 300, 2.4GHz 802.11b DSSS telephone,. Both products utilize the same part numbers for RF PCB board and components. Verification of the fundamental RF Frequency Generation PCB board and components utilized in telephone design are identified below;




**Mobile IPTouch 600** RF Generation Board – Side A




**Mobile IPTouch 600** RF Generation Board – Side B




**Mobile IPTouch 300** RF Generation Board – Side A




**Mobile IPTouch 300** RF Generation Board – Side B

For the reason above measurements for conducted RF measurements were replicated from the Mobile IPTouch 300 telephone and reported within this document, see MiCOM Labs test report TUVR03A-AL Rev A. Section 3.2, List of Measurements summarize all measurements extracted from this report. AC Wireline Conducted Emissions and General Field Strength measurements were targeted on this EUT.

### *EUT Modes of Operation*

The Mobile IPTouch 600 test configuration is a standalone telephone unit with integral antenna. The unit was pre-programmed to simultaneously transmit and receive on the low, mid and high channels or could be set in a continuous receive mode of operation. The following configurations were available:

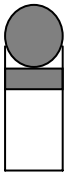
### *Simultaneous Transmit and Receive Modes:*

- Mode I: Channel 1 (2,412MHz) Display "Norm, Tx Chan 1" : Low Channel
- Mode II: Channel 6 (2,437MHz) Display "Norm, Tx Chan 6" : Mid Channel
- Mode III: Channel 11 (2,462MHz) Display "Norm, Tx Chan 11" : High Channel

### *Continuous Receive Modes:*

- Mode VII: Continuous receive mode on Channel 6 (2,437MHz)

The telephone was supplied with an integral antenna, which was used to demonstrate compliance for all emission testing performed.



Mobile IPTouch 600 Wireless Telephone
Equipment Under Test (EUT) with Integral Antenna

The required tests demonstrated compliance as per client declaration of test configuration, monitoring method and associated pass/fail criteria.

This report provides summarised test results of each test performed. Detailed test results were recorded in Test Results Sheets and retained within the laboratory.

No equipment modification was required to achieve the results reported in this document.

## 3.2 List of Measurements

The following table represents the list of measurements for Spread Spectrum, Direct Sequence devices under the **FCC, Part 15 Subpart C** and **Industry Canada RSS-210**.

List of Measurements

| Section(s) | Test Items | | Condition |
|---|---|---|---|
| | ***Transmit mode (TX):*** | | |
| **15.247(a)(2)** **5.9.1** | Bandwidth at 6 dB below | *1 | Conducted |
| **15.247(c)** **5.9.1** **6.2.2 (o) (e1)** | Occupied BW (or Bandedge) Out of Band Emissions (Bandwidth at 20 dB below) | *1 -The radiated emission in any 100kHz of out-band shall be at least 20dB below the highest in-band spectral density. | Conducted |
| **15.247(b)** **6.2.2 (o) (b)** | Transmitter output power | *1 - Shall not exceed 1.0 W | Conducted |
| **15.247(d)** **6.2.2 (o) (b)** | Transmitter power spectral density | *1 - Shall not be greater than 8 dBm in any 3kHz band | Conducted |
| **15.247(e)** **6.2.2 (o) (b)** | Processing gain | N/A | N/A*2 |
| **15.207** **6.6** | AC Wireline Conducted Emissions 150kHz–30MHz | Class B: 250μV | Conducted |
| **15.205/ 209** **6.2.1 / 6.3** | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Shall not exceed the limits specified in FCC 15.209 or RSS-210 Table 3 | Radiated (30MHz -1GHz) |
| | | | Radiated (1GHz-25GHz) |
| | ***Receive mode (RX):*** | | |
| **15.207** **7.4** | AC Wireline Conducted Emissions 150kHz–30MHz | Class B: 250μV | Conducted |
| **15.209** **7.3** | General Field Strength Limits (Radiated Emission Limits) | Shall not exceed the limits specified in RSS-210. | Radiated (30MHz-1GHz) |
| | | | Radiated (1GHz-25GHz) |

*Note 1: These results were extracted from MiCOM Labs test report #: TUVR03a Rev A, see Section 3.1 'Test Configurations'*

*Note 2: The current specification does not require test of this parameter. The Processing Gain data is excluded from this application according to the FCC rule change on 16 May 2002*

## 3.3 Operational Mode of EUT

Three kinds of modulation are used for transmission with bit rates 1Mbit/s, 5.5Mbit/s and 11Mbit/s. The equipment will be marketed with one antenna (no direct connection from the end user is permitted). The EUT was delivered with an integral antenna for the emission measurements.

Table 3.3(a) – Transmit mode (TX)

| ***OPERATING FREQUENCY (GHZ)*** | **Rated Output Power (Conducted) [dBm]** | | | **Test Performed*** |
|---|---|---|---|---|
| | Bit Rate 1Mbit/s | Bit Rate 5.5Mbit/s | Bit Rate 11Mbit/s | |
| 2.412 (Ch. 1) | +20 | +20 | +20 | X |
| 2.417 (Ch. 2) | +20 | +20 | +20 | |
| 2.422 (Ch. 3) | +20 | +20 | +20 | |
| 2.427 (Ch. 4) | +20 | +20 | +20 | |
| 2.432 (Ch. 5) | +20 | +20 | +20 | |
| 2.437 (Ch. 6) | +20 | +20 | +20 | X |
| 2.442 (Ch. 7) | +20 | +20 | +20 | |
| 2.447 (Ch. 8) | +20 | +20 | +20 | |
| 2.452 (Ch. 9) | +20 | +20 | +20 | |
| 2.457 (Ch. 10) | +20 | +20 | +20 | |
| 2.462 (Ch. 11) | +20 | +20 | +20 | X |

***** Radiated and Conducted emission testing, bit rate 1Mbit/s

Table 3.3(b) – Receive mode (RX)

| ***OPERATING FREQUENCY (GHZ)*** | **Test Performed*** |
|---|---|
| 2.412 (Ch. 1) | |
| 2.417 (Ch. 2) | |
| 2.422 (Ch. 3) | |
| 2.427 (Ch. 4) | |
| 2.432 (Ch. 5) | |
| 2.437 (Ch. 6) | X |
| 2.442 (Ch. 7) | |
| 2.447 (Ch. 8) | |
| 2.452 (Ch. 9) | |
| 2.457 (Ch. 10) | |
| 2.462 (Ch. 11) | |

***** Full emission testing, bit rate 1Mbit/s

***Note 1:*** *The manufacturer declared that the EUT was operated in worst case conditions, simultaneous transmit, receive and standby modes through a single antenna port, therefore only one set of radiated measurements were taken for each channel of interest – refer to transmitter characteristics.*

***Note 2:*** *Two EUT's were delivered for test purposes*

- *Mobile IPTouch 600 with integral antenna*
- *Mobile IPTouch 600 with coaxial flying lead, terminated in an SMA connector*

***Note 3:*** *The Mobile IPTouch 600 telephone with coaxial connector was used for conducted testing*

***Note 4:*** *The Mobile IPTouch 600 telephone with integral antenna was utilised for all emission measurements reported within this document*

***Note 5:*** *The Mobile IPTouch 600 telephone with integral antenna complete with two types of headset were utilised for radiated emission measurements (11th – 12th Masy'04).*

# 4 Measurements, Examinations and Derived Results

## 4.1 General observations

Equipment model and serial number(s)

| Module: | Model Number: | Serial Number: |
|---|---|---|
| Netlink Telephone (integral antenna) | 3BN78106AA | RNPFCC#1* |
| Netlink Telephone (coaxial connector) | Mobile IPTouch 600 | SNPFCC#2* |

*The telephones submitted for testing was a pre-production model

Test Report Update 11th - 12th May 2004

Equipment Details - AC Wireline Conducted Emissions

| Module: | Model Number: | Part Number: | Serial Number: |
|---|---|---|---|
| Netlink Telephone (integral antenna) | 3BN78106AA | PTX150 | 640127998* |
| Class 2 AC/DC Wall Transformer (Input 120Vac 60Hz 18W) | D7-10-01 | Not Available | Not Available |
| Mobile IPTouch 600 Desktop Charger | DCX100 | 84-0508-00 Rv A | None Available |

*The models submitted for emission testing were manufactured products

Test Report Update 11th - 12th June 2004

Equipment Details – Headset Emission Testing

| Module: | Model Number: | Part Number: | Serial Number: |
|---|---|---|---|
| Netlink Telephone (integral antenna) | 3BN78106AA | PTX150 | 640129597* |
| Plantronics Headset + cable adapter (48586-03) | PTH100 | 61394-11 | None Available |
| Plantronics Headset + cable adapter (48586-03) | PTH200 | 61935-01 | AA1511 B4 |

*The models submitted for emission testing were manufactured products

Additional notes:

1. *This report contains the test results only. Details of the test methods used have been recorded and are kept on file by the laboratory. Wherever possible, the test methods described in ETSI document EN 301 126 have been used.*

2. *The measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95% in accordance with UKAS document M 3003.*

## 4.2 Test Results

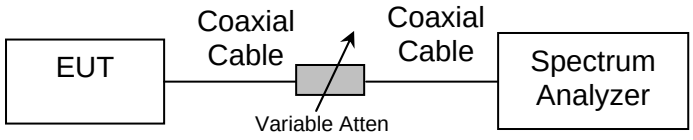
### 4.2.1 Transmitter characteristics

#### 4.2.1.1 6dB Bandwidth

**Test Procedure**

The bandwidth at 6 dB down from the highest in-band spectral density is measured with a spectrum analyser connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate centre frequency. The spectrum analyzer was set to:
RBW=100kHz, VBW=100kHz*1, Span=50MHz, Sweep = suitable duration based on the EUT specification
*1: To be adjusted accordingly based on the spectrum stability

**Test Measurement Setup**




Measurement setup for 6dB bandwidth test

**Measurement Results**

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Radio parameters.
Data Rate(s): 1, 5.5, 11 Mbit/s

Test date: 23rd January '03

TABLE OF RESULTS – **1Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | 6dB Bandwidth (MHz) |
|---|---|---|---|---|
| 2412 (Ch.1) | 2,406.04 | 2,417.96 | TUVR04a/01 | 11.92 |
| 2437 (Ch.6) | 2,430.92 | 2,443.09 | TUVR04a/04 | 12.17 |
| 2462 (Ch.11) | 2,456.34 | 2,467.67 | TUVR04a/07 | 11.33 |

TABLE OF RESULTS – **5.5Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | 6dB Bandwidth (MHz) |
|---|---|---|---|---|
| 2412 (Ch.1) | 2,406.04 | 2,417.96 | TUVR04a/02 | 11.92 |
| 2437 (Ch.6) | 2,431.42 | 2,442.59 | TUVR04a/05 | 11.17 |
| 2462 (Ch.11) | 2,456.34 | 2,467.67 | TUVR04a/08 | 11.33 |

TABLE OF RESULTS – **11Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | 6dB Bandwidth (MHz) |
|---|---|---|---|---|
| 2412 (Ch.1) | 2,406.04 | 2,417.96 | TUVR04a/03 | 11.92 |
| 2437 (Ch.6) | 2,431.50 | 2,442.50 | TUVR04a/06 | 11.00 |
| 2462 (Ch.11) | 2,456.71 | 2,467.29 | TUVR04a/09 | 10.58 |

## Specification.

### Limits

| | |
|---|---|
| Minimum 6dB Bandwidth | 500KHz |

### Measurement Uncertainty

| | | |
|---|---|---|
| Measurement uncertainty (ppm) | ±0.86 | 2.074KHz |

### Traceability

| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-03 | Bar 1, RVA 01, K-CBL 8, K-CBL 10, S-Anlr 1 |

*Note 1: The unit was tested in Tx, Rx and Standby modes simultaneously*

### 4.2.1.2 Occupied Bandwidth / Band-Edge (at 20dB below), Out of Band Emissions

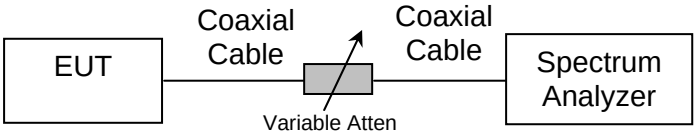
**Test Procedure**

The bandwidth at 20 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to:
RBW=100kHz, VBW=100kHz*1, Span=50MHz, Sweep = suitable duration based on the EUT specification

*1: To be adjusted accordingly based on the spectrum stability

**Test Measurement Setup**




Measurement setup for Occupied Bandwidth / Band-edge (at 20db below), and Out of Band Emissions

**Measurement Results of Occupied Bandwidth (20dB)**

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Radio parameters.
Data Rate(s): 1, 5.5, 11 Mbit/s

Test date: 24th January '03

TABLE OF RESULTS – **1Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | 20dB Bandwidth (MHz) |
|---|---|---|---|---|
| 2412 (Ch.1) | 2,404.25 | 2,421.17 | TUVR04a/25 | 16.92 |
| 2437 (Ch.6) | 2,429.25 | 2,445.75 | TUVR04a/28 | 16.50 |
| 2462 (Ch.11) | 2,454.67 | 2,470.17 | TUVR04a/31 | 15.50 |

TABLE OF RESULTS – **5.5Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | 20dB Bandwidth (MHz) |
|---|---|---|---|---|
| 2412 (Ch.1) | 2,404.17 | 2,420.92 | TUVR04a/26 | 16.75 |
| 2437 (Ch.6) | 2,429.67 | 2,445.42 | TUVR04a/29 | 15.75 |
| 2462 (Ch.11) | 2,454.92 | 2,470.58 | TUVR04a/32 | 15.67 |

TABLE OF RESULTS – **11Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | 20dB Bandwidth (MHz) |
|---|---|---|---|---|
| 2412 (Ch.1) | 2,404.25 | 2,421.17 | TUVR04a/27 | 16.92 |
| 2437 (Ch.6) | 2,429.58 | 2,445.50 | TUVR04a/30 | 15.92 |
| 2462 (Ch.11) | 2,454.75 | 2,470.58 | TUVR04a/33 | 15.83 |

## Measurement Results of Band-edge

Test date: 24th January '03

TABLE OF RESULTS – **1Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | Margin to Lower Limit (MHz) | Margin to Upper Limit (MHz) |
|---|---|---|---|---|---|
| 2412 (Ch.1) | 2,404.17 | | TUVR04a/10 | 4.17 | |
| 2462 (Ch.11) | | 2,470.92 | TUVR04a/13 | | 12.58 |

TABLE OF RESULTS – **5.5Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | Margin to Lower Limit (MHz) | Margin to Upper Limit (MHz) |
|---|---|---|---|---|---|
| 2412 (Ch.1) | 2,404.17 | | TUVR04a/11 | 4.17 | |
| 2462 (Ch.11) | | 2,470.92 | TUVR04a/14 | | 12.58 |

TABLE OF RESULTS – **11Mbit/s**

| Center Frequency (MHz) | Low Frequency (MHz) | Upper Frequency (MHz) | Plot # | Margin to Lower Limit (MHz) | Margin to Upper Limit (MHz) |
|---|---|---|---|---|---|
| 2412 (Ch.1) | 2,404.17 | | TUVR04a/12 | 4.17 | |
| 2462 (Ch.11) | | 2,470.92 | TUVR04a/15 | | 12.58 |

## Measurement Results of Out of Band Emissions

All conducted emissions in any 100KHz bandwidth outside of the spread spectrum band were at least 20dB lower than the highest in-band power level.

## Specification

## Limits

| Minimum 20dB Bandwidth @ Band-edge | Lower Limit Band-edge | Upper Limit Band-edge |
|---|---|---|
| | 2,400MHz | 2,483.5MHz |

| Out of Band Emissions | Down on maximum power |
|---|---|
| | >= 20dB |

## Measurement Uncertainty Occupied Bandwidth / Band-edge

| | | |
|---|---|---|
| Measurement uncertainty (ppm) | ±0.86 | 2.074KHz |

## Measurement Uncertainty Out of Band Emissions

| | |
|---|---|
| Measurement uncertainty (dB) | +1.38 / -1.84dB |

## Traceability

| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-01 & 05 | Bar 1, RVA 01, K-CBL 8, K-CBL 10, S-Anlr 1 |

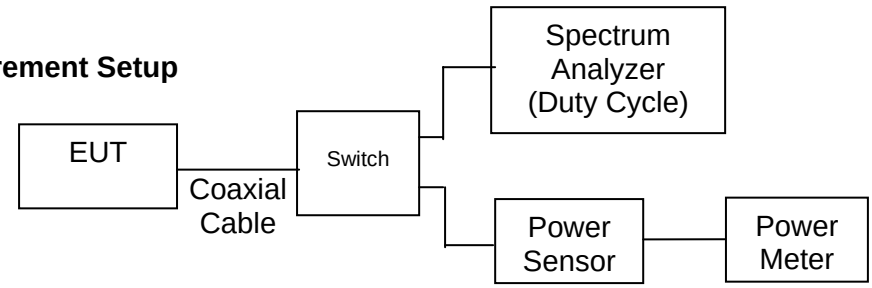
*Note 1: The unit was tested in Tx, Rx and Standby modes simultaneously*

### 4.2.1.3 Transmitter Output Power

**Test Procedure**

- A transmitter antenna terminal of EUT is connected to the input of a RF power sensor.
- Measurement is made while EUT is operating in transmission mode at the appropriate center frequency.

**Test Measurement Setup**




Measurement setup for Transmitter Output Power

**Measurement Results for Transmitter Output Power**

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Radio parameters.
Data Rate(s): 1, 5.5, 11 Mbit/s

Test date: 23th January '03

TABLE OF RESULTS – **1Mbit/s**

| Center Frequency (MHz) | Duty Cycle (%) | Measured on Period (mS) | Measured off Period (mS) | Measured O/P Power (dBm) | Path Loss (dB) | Conducted Power (dBm) |
|---|---|---|---|---|---|---|
| 2412 (Ch.1) | 5.9 | 1.18 | 18.82 | 19.06 | 0.5 | 19.56 |
| 2437 (Ch.6) | 5.9 | 1.18 | 18.82 | 18.08 | 0.5 | 18.58 |
| 2462 (Ch.11) | 5.9 | 1.18 | 18.82 | 17.08 | 0.5 | 17.58 |

TABLE OF RESULTS – **5.5Mbit/s**

| Center Frequency (MHz) | Duty Cycle (%) | Measured on Period (mS) | Measured off Period (mS) | Measured O/P Power (dBm) | Path Loss (dB) | Conducted Power (dBm) |
|---|---|---|---|---|---|---|
| 2412 (Ch.1) | 1.89 | 0.364 | 18.936 | 19.50 | 0.5 | 20.00 |
| 2437 (Ch.6) | 1.89 | 0.364 | 18.936 | 18.70 | 0.5 | 19.20 |
| 2462 (Ch.11) | 1.89 | 0.364 | 18.936 | 17.56 | 0.5 | 18.06 |

TABLE OF RESULTS – **11Mbit/s**

| Center Frequency (MHz) | Duty Cycle (%) | Measured on Period (mS) | Measured off Period (mS) | Measured O/P Power (dBm) | Path Loss (dB) | Conducted Power (dBm) |
|---|---|---|---|---|---|---|
| 2412 (Ch.1) | 1.48 | 0.283 | 18.817 | 19.59 | 0.5 | 20.09 |
| 2437 (Ch.6) | 1.48 | 0.283 | 18.817 | 18.42 | 0.5 | 18.92 |
| 2462 (Ch.11) | 1.48 | 0.283 | 18.817 | 17.05 | 0.5 | 17.55 |

## Specification

### Limits

| Transmitter Output Power | Watts | dBm |
|---|---|---|
| | <= 1 | <= +30 |

### Measurement Uncertainty Output Power

| | |
|---|---|
| Measurement uncertainty (dB) | ±1.33 |

### Traceability

| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-01 | Bar 1, RVA 01, K-CBL 8, K-CBL 10, S-Anlr 1, PMtr 1, PSnsr 1 |

*Note 1: The unit was tested in Tx, Rx and Standby modes simultaneously*

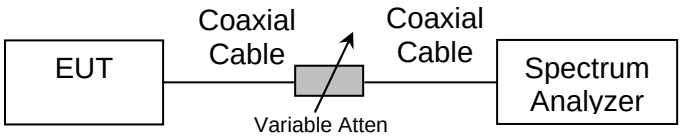
### 4.2.1.4 Transmitter Power Spectral Density

**Test Procedure**

The peak power density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set as follows:
RBW= 3kHz, VBW=100kHz, Suitable Span and Sweep time

**Test Measurement Setup**




Measurement setup for Transmitter Power Spectral Density

**Measurement Results for Transmitter Power Spectral Density**

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Radio parameters.
Data Rate(s): 1, 5.5, 11 Mbit/s

Test date: 23th January '03

TABLE OF RESULTS – **1Mbit/s**

| Center Frequency (MHz) | Spectrum Analyzer Reading (dBm) | Plot # | Path Loss (dB) | Actual Value (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 2412 (Ch.1) | -13.50 | TUVR03/16 | 8.5 | -5.00 | +8.00 | 13.00 |
| 2437 (Ch.6) | -15.33 | TUVR03/19 | 8.5 | -6.83 | +8.00 | 14.83 |
| 2462 (Ch.11) | -14.83 | TUVR03/22 | 8.5 | -6.33 | +8.00 | 14.33 |

TABLE OF RESULTS – **5.5Mbit/s**

| Center Frequency (MHz) | Spectrum Analyzer Reading (dBm) | Plot # | Path Loss (dB) | Actual Value (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 2412 (Ch.1) | -14.33 | TUVR03/17 | 8.5 | -5.83 | +8.00 | 13.83 |
| 2437 (Ch.6) | -15.17 | TUVR03/20 | 8.5 | -6.67 | +8.00 | 14.67 |
| 2462 (Ch.11) | -16.17 | TUVR03/23 | 8.5 | -7.67 | +8.00 | 15.67 |

TABLE OF RESULTS – **11Mbit/s**

| Center Frequency (MHz) | Spectrum Analyzer Reading (dBm) | Plot # | Path Loss (dB) | Actual Value (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 2412 (Ch.1) | -15.00 | TUVR03/18 | 8.5 | -6.50 | +8.00 | 14.50 |
| 2437 (Ch.6) | -16.83 | TUVR03/21 | 8.5 | -8.33 | +8.00 | 16.33 |
| 2462 (Ch.11) | -15.83 | TUVR03/24 | 8.5 | -7.33 | +8.00 | 15.33 |

## Specification

### Limits

| Transmitter Power Spectral Density | dBm |
|---|---|
| | <= +8.0 |

### Measurement Uncertainty Spectral Density

| Measurement uncertainty (dB) | ±1.33 |
|---|---|

### Traceability

| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-01 | Bar 1, RVA 01, K-CBL 8, K-CBL 10, S-Anlr 1 |

*Note 1: The unit was tested in Tx, Rx and Standby modes simultaneously*

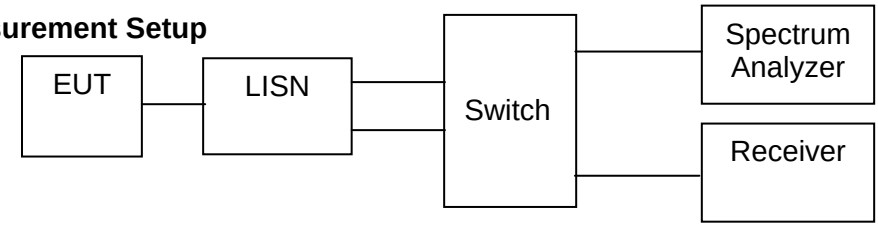
### 4.2.2 Emission characteristics

#### 4.2.2.1 AC Wireline Conducted Emissions (150KHz – 30MHz)

**Test Procedure**

The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9KHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

**Test Measurement Setup**




**Measurement Results for AC Wireline Conducted Emissions (150KHz – 30MHz)**

The EUT was found to comply to the limits of FCC Part 15, Subpart C and RSS-210 with a margin of 33.124dB. The six highest emissions relative to the limit are reported for two modes of operation. Spectrum analyzer pre-scan data plots are held in the laboratory for reference purposes.

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Test date: 11th May '04

EUT **MOBILE IPTOUCH 600** LINE - LIVE

| Frequency (MHz) | Peak Voltage (dBµV) | Average Voltage (dBµV) | Average Limit (dBµV) | Margin (dB) |
|---|---|---|---|---|
| 0.230 | 57.169 | 18.622 | 52.449 | -33.827 |
| 0.246 | 56.781 | 18.321 | 51.891 | -33.570 |
| 0.254 | 56.522 | 18.210 | 51.626 | -33.416 |
| 0.286 | 55.031 | 17.515 | 50.639 | -33.124 |
| 0.294 | 54.765 | 16.928 | 50.411 | -33.483 |
| 0.306 | 54.227 | 16.530 | 50.078 | -33.548 |

EUT MOBILE IPTouch 600 LINE - NEUTRAL

| Frequency (MHz) | Peak Voltage (dBµV) | Average Voltage (dBµV) | Average Limit (dBµV) | Margin (dB) |
|---|---|---|---|---|
| 0.250 | 55.707 | 18.199 | 51.757 | -33.558 |
| 0.474 | 47.390 | 10.033 | 46.444 | -36.411 |
| 0.510 | 45.722 | 9.530 | 46.000 | -36.470 |
| 0.518 | 45.153 | 9.356 | 46.000 | -36.644 |
| 0.562 | 42.088 | 8.204 | 46.000 | -37.796 |
| 0.778 | 38.774 | 7.726 | 46.000 | -38.274 |

Photographs of the test setup are provided in Section 5.1 'AC WIRELINE CONDUCTED EMISSION TEST SETUP'

### Measurement Uncertainty Spectral Density

| | |
|---|---|
| Measurement uncertainty (dB) | ±2.64 |

### Traceability

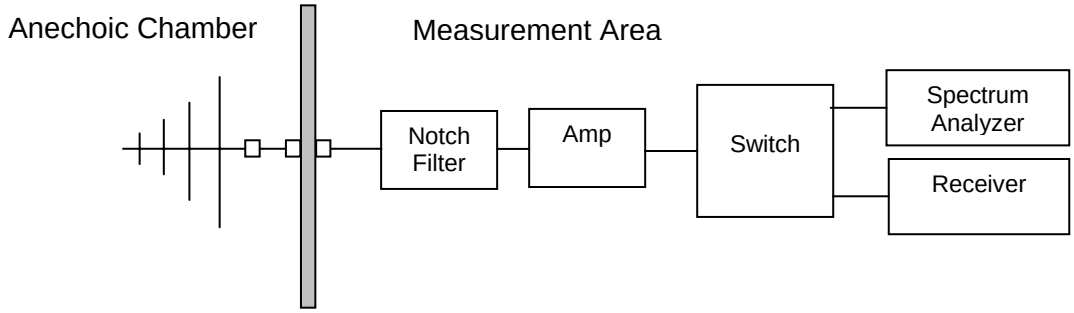
| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-EMC-01 | Bar 1, LMT1, 15F50B001, 15F50B002, LISN1, ReCVR1 |

### 4.2.2.2 Restricted Bands Radiation (30MHz – 1GHz)

**Test Procedure**

Preliminary radiated emissions are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarity. The emissions are recorded with a spectrum analyzer in peak hold mode. A notch filter was used to remove the fundamental frequency, see Notch Filter Response plots 05-08 in Section 6, Graphical Results. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120kHz on the Open Area Test Site (OATS). The highest emissions relative to the limit are listed. A photograph of the product tested at the OATS site is available, see Section 5.2.

**Preliminary Test Measurement Setup**




**Final Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

$$FS = R + AF + CORR$$

where:

FS = Field Strength
R = Measured Receiver Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain

For example:
Given Receiver input reading of 51.5dBμV; Antenna Factor of 8.5dB, Cable Loss of 1.3dB, an Amplifier Gain of 26dB. The Field Strength of the measured emission is:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 = 35.3 dB\mu V/m$$

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

$$Level\ (dB\mu V/m) = 20\ \%\ Log\ (Level\ (\mu V/m))$$

40dBμV/m = 100μV/m
48dBμV/m = 250μV/m.

## Measurement Results for Restricted Bands Radiation (30MHz – 1GHz)

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Test date: Pre-scans 25th/26th January '03 and OATS 7th February '03

EUT **MOBILE IPTOUCH 600**, Ch 1 (2,412MHz), Tx/Rx/Standby Mode 1Mbit/s

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(QP)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(QP)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 219.99 | V | 11.20 | 10.50 | 16.3 | 17.74 | 28.24 | 46 | 25.82 | 200 |
| 307.98 | V | 17.57 | 17.18 | 12.9 | 14.87 | 32.05 | 46 | 40.04 | 200 |
| 373.99 | V | 21.10 | 19.24 | 15.8 | 17.93 | 37.17 | 46 | 72.19 | 200 |
| 483.99 | V | 22.00 | 20.94 | 17.4 | 20.09 | 41.03 | 46 | 112.59 | 200 |
| 573.22 | V | 13.59 | 11.90 | 19.1 | 22.00 | 33.90 | 46 | 49.55 | 200 |
| 639.24 | V | 11.00 | 6.86 | 19.6 | 22.83 | 29.69 | 46 | 30.51 | 200 |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Tx/Rx/Standby Mode 1Mbit/s

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(QP)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(QP)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 307.99 | V | 19.08 | 18.97 | 12.9 | 14.87 | 33.84 | 46 | 49.20 | 200 |
| 395.99 | V | 19.72 | 19.19 | 16.6 | 18.86 | 38.05 | 46 | 79.89 | 200 |
| 484.00 | V | 22.43 | 21.97 | 17.4 | 20.09 | 42.06 | 46 | 126.77 | 200 |
| 573.23 | V | 12.87 | 10.87 | 19.1 | 22.00 | 32.87 | 46 | 44.00 | 200 |
| 615.99 | V | 13.76 | 11.28 | 19.6 | 22.49 | 33.77 | 46 | 48.81 | 200 |
| 659.99 | V | 14.13 | 12.79 | 20.1 | 23.33 | 36.12 | 46 | 63.97 | 200 |

EUT **MOBILE IPTOUCH 600**, Ch 11 (2,462MHz), Tx/Rx/Standby Mode 1Mbit/s

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(QP)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(QP)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 219.99 | V | 12.20 | 11.10 | 16.3 | 17.74 | 28.84 | 46 | 27.67 | 200 |
| 307.98 | V | 20.93 | 20.61 | 12.9 | 14.87 | 35.48 | 46 | 59.43 | 200 |
| 395.99 | V | 21.62 | 20.71 | 16.6 | 18.86 | 39.57 | 46 | 95.17 | 200 |
| 483.99 | V | 23.25 | 21.28 | 17.4 | 20.09 | 41.37 | 46 | 117.08 | 200 |
| 573.25 | V | 15.71 | 14.31 | 19.1 | 22.00 | 36.31 | 46 | 65.39 | 200 |
| 659.98 | V | 15.45 | 14.20 | 20.1 | 23.33 | 37.53 | 46 | 75.25 | 200 |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Receive Mode 1Mbit/s

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(QP)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(QP)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 219.99 | V | 11.80 | 10.60 | 16.3 | 17.74 | 28.34 | 46 | 26.12 | 200 |
| 307.99 | V | 20.86 | 19.31 | 12.9 | 14.87 | 34.18 | 46 | 51.17 | 200 |
| 310.03 | V | 23.58 | 10.95 | 12.9 | 14.87 | 25.82 | 46 | 19.54 | 200 |
| 395.98 | V | 20.99 | 19.68 | 16.6 | 18.86 | 38.54 | 46 | 84.53 | 200 |
| 573.26 | V | 14.03 | 12.20 | 19.1 | 22.00 | 34.20 | 46 | 51.29 | 200 |
| 660.00 | V | 17.74 | 15.54 | 20.1 | 23.33 | 38.87 | 46 | 87.80 | 200 |

**Follow-up Test Program 11th – 12th June '04**

Follow-up testing performed with two separate types of headset, worst case emissions are reported.

EUT **MOBILE IPTOUCH 600**, Ch 1 (2,412MHz), Tx Mode 1Mbit/s (with headset)

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV) **(Peak)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(Peak)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 154.00 | V | 21.92 | - | 7.91 | 1.10 | 30.93 | 43.5 | 35.20 | 150 |
| 176.00 | V | 24.16 | - | 8.52 | 1.20 | 33.88 | 43.5 | 49.43 | 150 |
| 220.00 | V | 23.05 | - | 10.03 | 1.40 | 34.48 | 46.0 | 52.97 | 200 |
| 220.00 | H | 20.94 | - | 10.03 | 1.40 | 32.37 | 46.0 | 41.54 | 200 |
| 264.00 | H | 17.89 | - | 12.12 | 1.60 | 31.61 | 46.0 | 38.06 | 200 |
| 819.64 | H | 15.43 | - | 21.69 | 2.80 | 39.92 | 46.0 | 99.08 | 200 |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Tx Mode 1Mbit/s (with headset)

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(Peak)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(Peak)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 154.00 | V | 21.78 | - | 7.91 | 1.10 | 30.79 | 43.5 | 34.63 | 150 |
| 176.00 | V | 23.08 | - | 8.52 | 1.20 | 32.80 | 43.5 | 43.65 | 150 |
| 220.00 | V | 21.72 | - | 10.03 | 1.40 | 33.15 | 46.0 | 45.45 | 200 |
| 220.00 | H | 21.07 | - | 10.03 | 1.40 | 32.50 | 46.0 | 42.17 | 200 |
| 264.00 | H | 17.75 | - | 12.12 | 1.60 | 31.47 | 46.0 | 37.45 | 200 |
| 396.00 | H | 12.54 | - | 16.04 | 2.00 | 30.58 | 46.0 | 33.81 | 200 |

EUT **MOBILE IPTOUCH 600**, Ch 11 (2,462MHz), Tx Mode 1Mbit/s (with earphone)

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(Peak)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(Peak)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 176.00 | V | 23.21 | - | 8.52 | 1.20 | 32.93 | 43.5 | 44.31 | 150 |
| 220.00 | V | 21.72 | - | 10.03 | 1.40 | 33.15 | 46.0 | 45.45 | 200 |
| 264.00 | H | 19.03 | - | 12.12 | 1.60 | 32.75 | 46.0 | 43.40 | 200 |
| 352.00 | V | 20.15 | - | 14.49 | 1.80 | 36.44 | 46.0 | 66.37 | 200 |
| 440.00 | H | 13.26 | - | 16.17 | 2.05 | 31.48 | 46.0 | 37.50 | 200 |
| 660.00 | V | 17.45 | - | 20.26 | 2.20 | 39.91 | 46.0 | 98.97 | 200 |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Receive Mode 1Mbit/s (with earphone)

| Frequency (MHz) | Polarity (H/V) | Measured (dBµV) **(peak)** | Measured (dBµV/m) **(QP)** | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) **(Peak)** | Limit (dBµV/m) **(QP)** | Field Strength (µV/m) **(Peak)** | Limit (µV/m) **(QP)** |
|---|---|---|---|---|---|---|---|---|---|
| 154.00 | V | 23.66 | - | 7.91 | 1.10 | 32.67 | 43.5 | 43.00 | 150 |
| 176.00 | V | 23.89 | - | 8.52 | 1.20 | 33.61 | 43.5 | 47.92 | 150 |
| 220.00 | V | 28.46 | - | 10.03 | 1.40 | 39.89 | 46.0 | 98.74 | 200 |
| 352.00 | H | 14.66 | - | 14.49 | 1.80 | 30.95 | 46.0 | 35.28 | 200 |
| 352.00 | V | 19.20 | - | 14.49 | 1.80 | 35.49 | 46.0 | 59.50 | 200 |
| 396.00 | H | 12.54 | - | 16.04 | 2.00 | 30.58 | 46.0 | 33.81 | 200 |

## Measurement Uncertainty Radiated Emissions

| | |
|---|---|
| Measurement uncertainty (dB) | +5.6 / -4.5 |

## Traceability

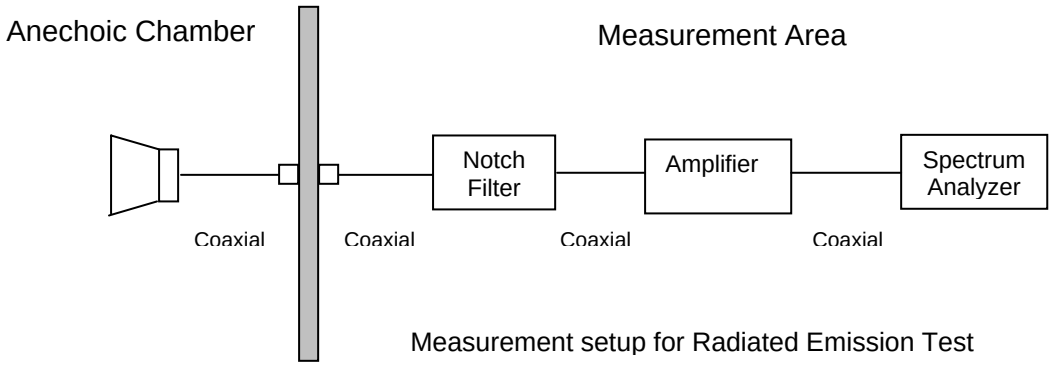
| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-EMC-07 | Bar 1, Notch, AMP 3, ANT 1, K-Cbl 11, 10F50N003, 15F50N001, 5F50N001, ReCVR1, SSwpr 1, PSnsr 3 |

### 4.2.2.3 Restricted Bands Radiation (1GHz-25GHz)

**Test Procedure**

Radiated emissions were measured in the frequency range 1GHz to 25GHz in transmitting mode and 1GHz to 12.5GHz in receiving mode. All tests were performed in the anechoic chamber at a 1-meter distance on both horizontal and vertical polarities and extrapolated to 3m. The emissions are recorded with a spectrum analyzer in peak hold mode. The identified emissions are further maximized as a function of azimuth by rotation through 360°. The six highest emissions relative to the limit are listed. A notch filter was used to remove the fundamental frequency, see Notch Filter Response plots 05-08 in Section 6, Graphical Results. After notch filter cut-off waveguide were utilized as high-pass filters from 12.75-25GHz. Frequencies not covered by the 'Restricted Bands of Operation' are compared to the fundamental carrier per 47 CFR 15.247(c).

**Test Measurement Setup**




Measurement setup for Radiated Emission Test

**Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR - FO

where:

FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss

For example:
Given a Receiver input reading of 51.5dBμV; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 % Log (Level (μV/m) )

40dBμV/m = 100μV/m
48dBμV/m = 250μV/m.

## Measurement Results for Restricted Bands Radiation (1GHz - 25GHz)

Ambient conditions.
Temperature: 17 to 22 °C Relative humidity: 34 to 65% Pressure: 999 to 1012 mbar

Test date: 25th/26th January '03

### Results for Variant MOBILE IPTOUCH 600

EUT **MOBILE IPTOUCH 600**, Ch 1 (2,412MHz), Tx/Rx/Standby Mode 1Mbit/s

| Frequency (GHz) | Polarity (H/V) | Measured (dBµV) (**peak**) | Measured (dBµV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) (**peak**) | FCC/IC Limit (dBµV/m) | Field Strength (dBµV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 2.038 | V | 56.8 | - | 28.9 | -24.38 | 61.32 | - | - | NRB* |
| 2.038 | H | 57.4 | - | 29.1 | -24.38 | 62.12 | - | - | NRB* |
| 2.046 | H | 36.6 | - | 29.1 | -24.38 | 41.32 | - | - | NRB* |
| 2.090 | V | 36.5 | - | 28.9 | -23.95 | 41.45 | - | - | NRB* |
| 2.112 | V | 40.3 | - | 29.4 | -23.95 | 45.75 | - | - | NRB* |
| 2.112 | H | 37.9 | - | 29.5 | -23.95 | 43.45 | - | - | NRB* |
| 2.412 | V | 56.83 | - | 30.7 | 8.0 | 95.53 | OB* | - | OB* |
| 2.412 | H | 66.67 | - | 30.7 | 8.0 | 105.37 | OB* | - | OB* |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Tx/Rx/Standby Mode 1Mbit/s

| Frequency (GHz) | Polarity (H/V) | Measured (dBµV) (**peak**) | Measured (dBµV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) (**peak**) | FCC/IC Limit (dBµV/m) | Field Strength (dBµV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 2.0625 | V | 57.2 | - | 28.9 | -23.95 | 62.15 | - | - | NRB* |
| 2.0625 | H | 58.8 | - | 29.1 | -23.95 | 63.95 | - | - | NRB* |
| 2.178 | V | 34.4 | - | 29.4 | -22.44 | 41.36 | - | - | NRB* |
| 2.222 | V | 34.8 | - | 30.0 | -22.44 | 42.36 | 54.0 | - | |
| 2.222 | H | 35.0 | - | 29.8 | -22.44 | 42.36 | 54.0 | - | |
| 2.266 | H | 33.4 | - | 30.0 | -19.44 | 43.96 | 54.0 | - | - |
| 2.437 | V | 53.17 | - | 30.7 | 8.0 | 91.87 | OB* | - | OB* |
| 2.437 | H | 67.67 | - | 30.7 | 8.0 | 106.37 | OB* | - | OB* |

EUT **MOBILE IPTOUCH 600**, Ch 11 (2,462MHz), Tx/Rx/Standby Mode 1Mbit/s

| Frequency (GHz) | Polarity (H/V) | Measured (dBµV) (**peak**) | Measured (dBµV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) (**peak**) | FCC/IC Limit (dBµV/m) | Field Strength (dBµV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 2.089 | V | 59.4 | - | 28.9 | -23.95 | 64.35 | - | - | NRB* |
| 2.089 | H | 56.7 | - | 29.1 | -23.95 | 61.82 | - | - | NRB* |
| 2.267 | H | 33.5 | - | 30.0 | -19.44 | 44.06 | 54.0 | - | - |
| 2.310 | H | 34.5 | - | 30.0 | -19.44 | 45.06 | 54.0 | - | - |
| 4.924 | H | 27.9 | - | 35.1 | -16.96 | 46.04 | 54.0 | - | - |
| 4.924 | V | 32.1 | - | 34.9 | -16.96 | 50.04 | 54.0 | - | - |
| 2.462 | V | 61.0 | - | 30.7 | 8.0 | 99.70 | OB* | - | OB* |
| 2.462 | H | 68.67 | - | 30.7 | 8.0 | 107.37 | OB* | - | OB* |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Receive Mode 1Mbit/s

| Frequency (GHz) | Polarity (H/V) | Measured (dBµV) (**peak**) | Measured (dBµV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) (**peak**) | FCC/IC Limit (dBµV/m) | Field Strength (dBµV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 1.012 | V | 30.1 | - | 24.9 | -27.40 | 27.60 | 54.0 | - | - |
| 1.056 | V | 30.2 | - | 24.9 | -27.40 | 27.70 | 54.0 | - | - |
| 1.145 | V | 29.8 | - | 24.9 | -27.00 | 27.70 | 54.0 | - | - |
| 2.0625 | H | 38.0 | - | 29.1 | -23.95 | 43.15 | - | - | NRB* |
| 2.437 | H | 67.67 | - | 30.7 | 8.0 | 106.37 | OB* | - | OB* |

**Follow-up Test Program 11th – 12th June '04**

Follow-up testing performed with two separate types of headset, worst case emissions are reported.

EUT **MOBILE IPTOUCH 600**, Ch 1 (2,412MHz), Tx Mode 1Mbit/s (with headset)

| Frequency (GHz) | Polarity (H/V) | Measured (dBµV) (**peak**) | Measured (dBµV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBµV/m) (**peak**) | FCC/IC Limit (dBµV/m) | Field Strength (dBµV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 2.036 | V | 53.13 | - | 28.9 | 31.59 | 50.44 | - | - | NRB* |
| 2.036 | H | 52.69 | - | 29.1 | 31.59 | 50.20 | - | - | NRB* |
| 2.412 | V | 56.83 | - | 30.7 | 8.0 | 95.53 | OB* | - | OB* |
| 2.412 | H | 66.67 | - | 30.7 | 8.0 | 105.37 | OB* | - | OB* |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Tx Mode 1Mbit/s (with headset)

| Frequency (GHz) | Polarity (H/V) | Measured (dBμV) (**peak**) | Measured (dBμV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBμV/m) (**peak**) | FCC/IC Limit (dBμV/m) | Field Strength (dBμV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 5.214 | V | 40.48 | - | 35.4 | 30.41 | 45.47 | - | - | NRB* |
| 5.214 | H | 45.05 | - | 35.3 | 30.41 | 49.94 | - | - | NRB* |
| 2.437 | V | 53.17 | - | 30.7 | 8.0 | 91.87 | OB* | - | OB* |
| 2.437 | H | 67.67 | - | 30.7 | 8.0 | 106.37 | OB* | - | OB* |

EUT **MOBILE IPTOUCH 600**, Ch 11 (2,462MHz), Tx Mode 1Mbit/s (with headset)

| Frequency (GHz) | Polarity (H/V) | Measured (dBμV) (**peak**) | Measured (dBμV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBμV/m) (**peak**) | FCC/IC Limit (dBμV/m) | Field Strength (dBμV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 2.083 | V | 57.99 | - | 28.9 | 31.59 | 55.3 | - | - | NRB* |
| 2.083 | H | 58.40 | - | 29.1 | 31.59 | 55.91 | - | - | NRB* |
| 2.462 | V | 61.0 | - | 30.7 | 8.0 | 99.70 | OB* | - | OB* |
| 2.462 | H | 68.67 | - | 30.7 | 8.0 | 107.37 | OB* | - | OB* |

EUT **MOBILE IPTOUCH 600**, Ch 6 (2,437MHz), Receive Mode 1Mbit/s

| Frequency (GHz) | Polarity (H/V) | Measured (dBμV) (**peak**) | Measured (dBμV) (**average**) | Antenna Factor (dB) | Correction Factor (dB) | Field Strength (dBμV/m) (**peak**) | FCC/IC Limit (dBμV/m) | Field Strength (dBμV/m) (**average**) | NRB/OB* |
|---|---|---|---|---|---|---|---|---|---|
| 12.75 | H | 42.44 | - | 40.7 | 28.1 | 55.73 | - | - | NRB* |
| 12.75 | V | 43.13 | - | 40.7 | 28.1 | 27.70 | - | - | NRB* |
| 2.437 | V | 53.17 | - | 30.7 | 8.0 | 91.87 | OB* | - | OB* |
| 2.437 | H | 67.67 | - | 30.7 | 8.0 | 106.37 | OB* | - | OB* |

***Note:** OB implies Operational Band (2,400 - 2,462MHz); in this case the limit +20dBm was measured with a power meter

NRB implies “Non Restricted Bands of Operation”

Frequencies not covered by the ‘Restricted Bands of Operation’ are compared to the fundamental carrier per 47 CFR 15.247(c). ‘OB’ – Operational Band in the matrix identifies the fundamental carrier.

The Notch Filter Response plots 05-08 are available in Section 6, Graphical Results

## Measurement Uncertainty Radiated Emissions

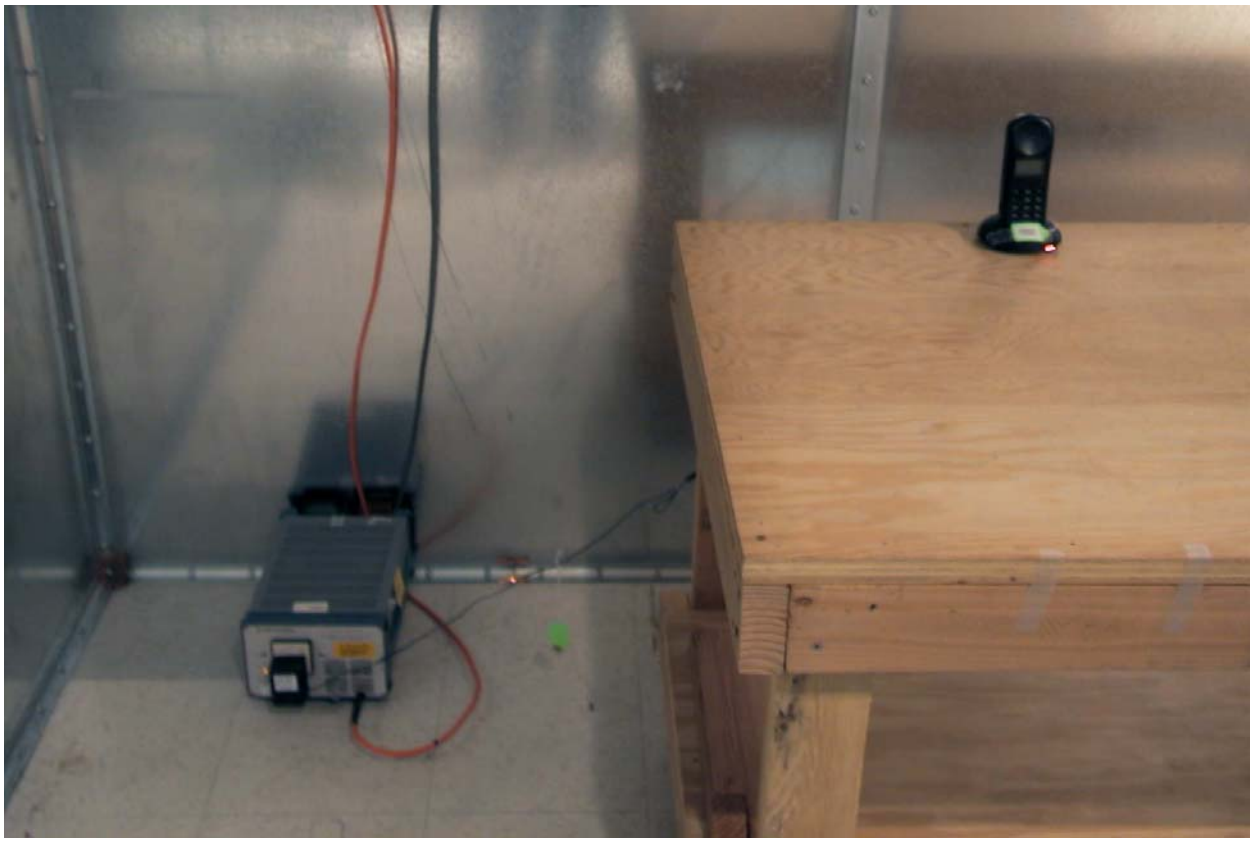
| | |
|---|---|
| Measurement uncertainty (dB) | +5.6/ -4.5 |

## Traceability

| METHOD | TEST EQUIPMENT USED |
|---|---|
| Measurements were made per work instruction WI-EMC-07 | Bar 1, Notch, AMP 3, ANT 1, K-Cbl 11, 10F50N003, 15F50N001, 5F50N001, ReCVR1, SSwpr 1, PSnsr 3 |

# 5 Photographs

## 5.1 AC Wireline Conducted Emission Test Setup



## 5.2 Restricted Bands Radiation (30MHz – 1GHz)



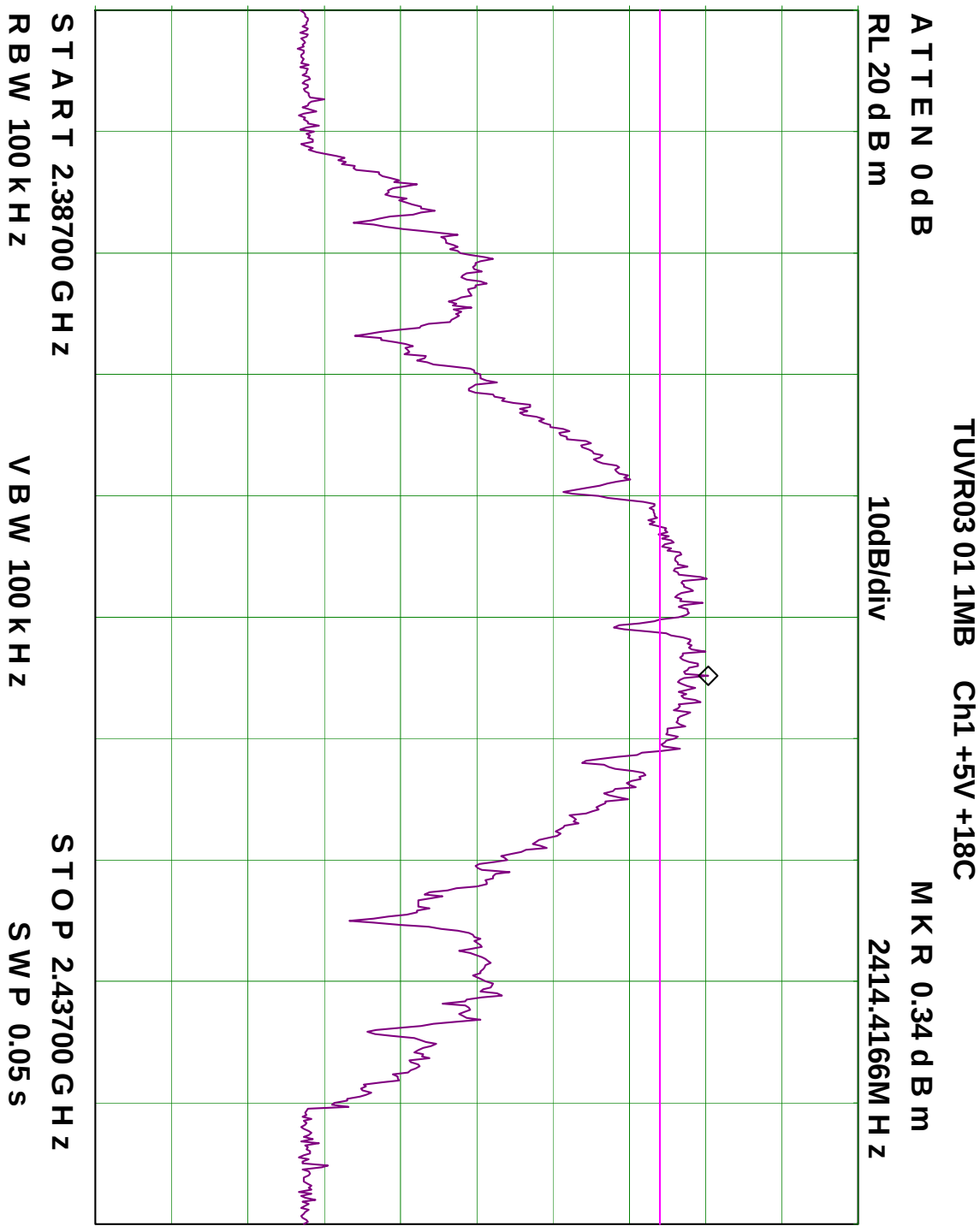
## 5.3 Headset Spurious Emissions Test Setup

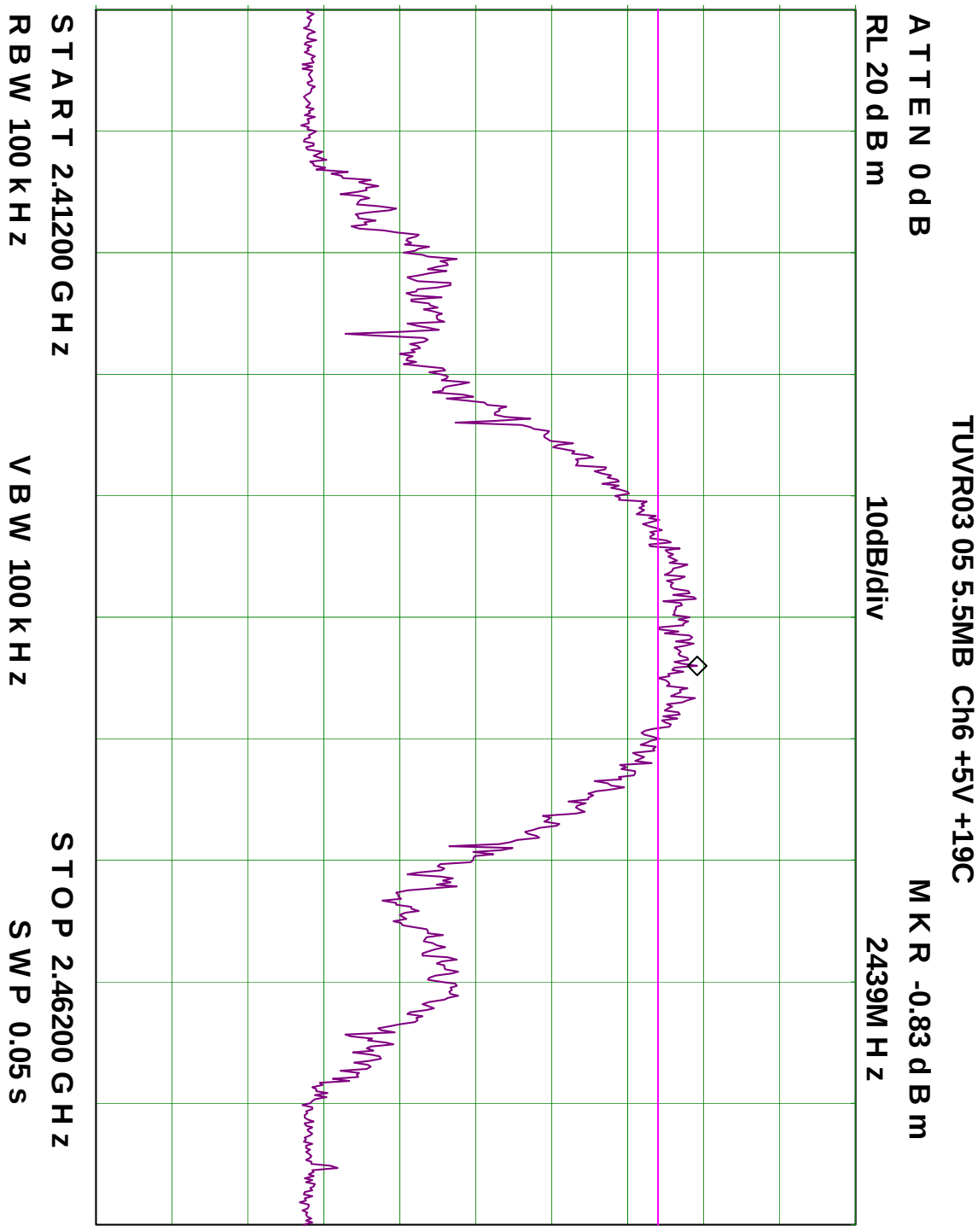


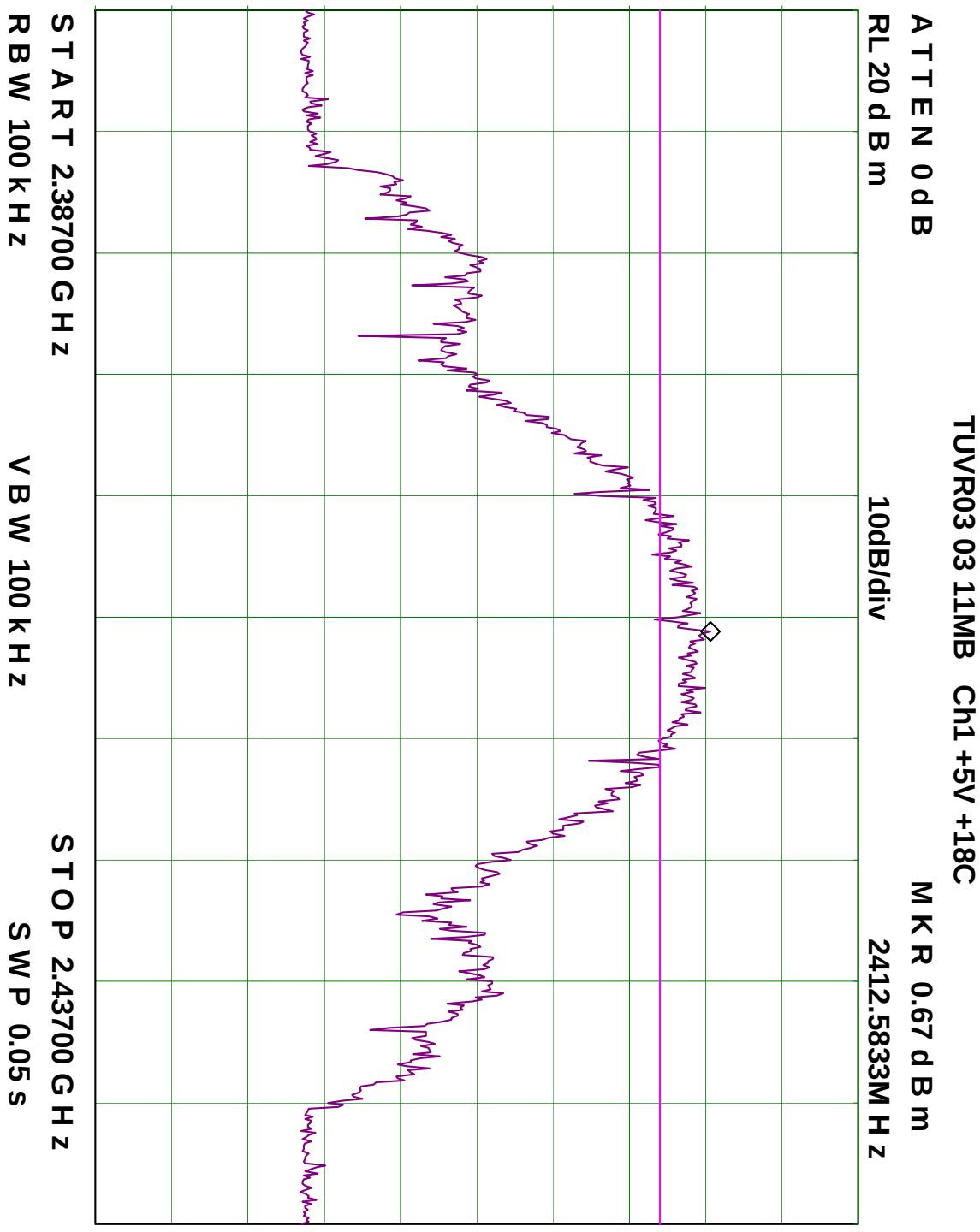
# 6 Graphical Results

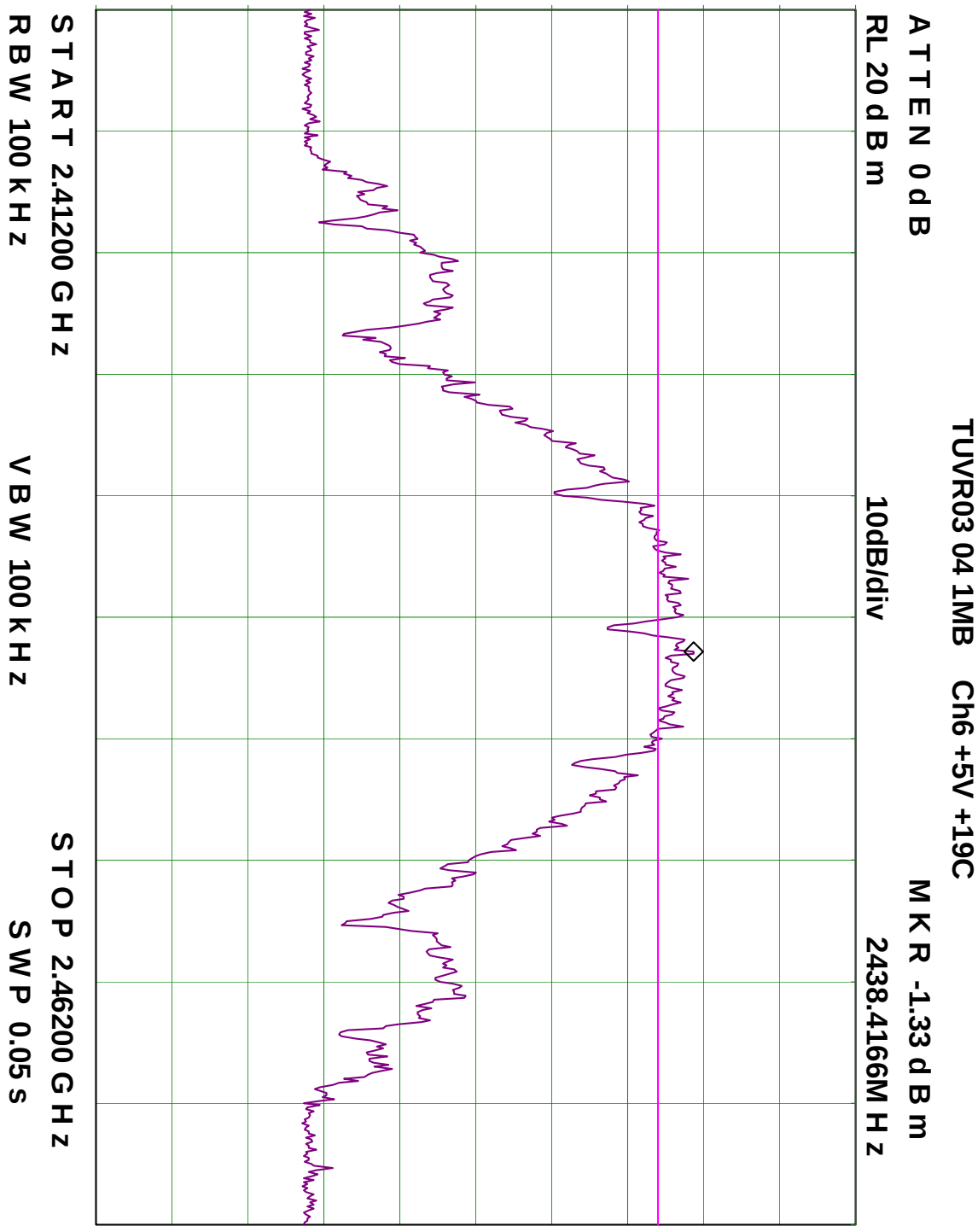
This report contains the following plots as referenced in the test results section

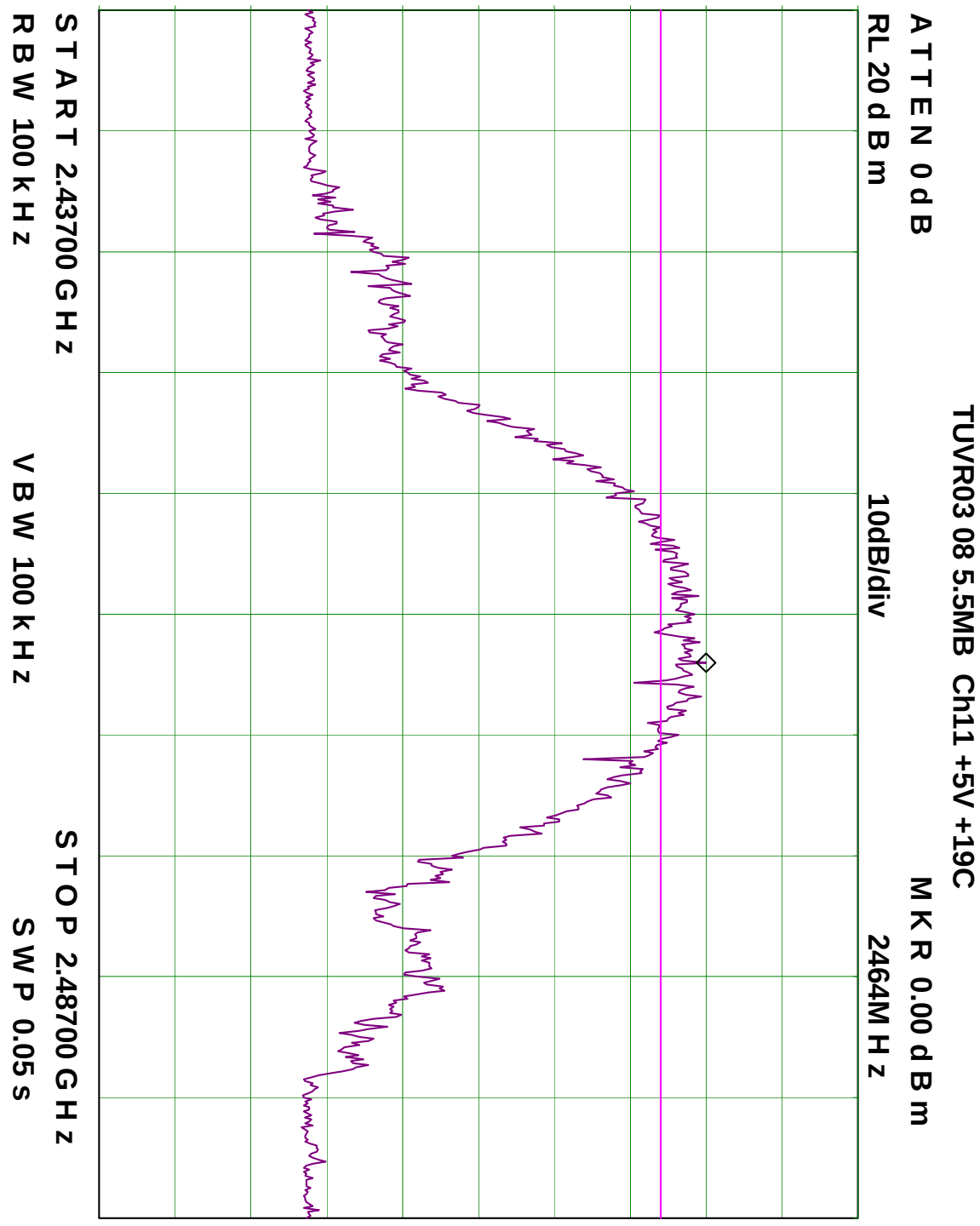
| BANDWIDTH AT 6dB | BAND-EDGE |
|---|---|
| TUVR04a/01 | TUVR04a/10 |
| TUVR04a/02 | TUVR04a/11 |
| TUVR04a/03 | TUVR04a/12 |
| TUVR04a/04 | TUVR04a/13 |
| TUVR04a/05 | TUVR04a/14 |
| TUVR04a/06 | TUVR04a/15 |
| TUVR04a/07 | |
| TUVR04a/08 | |
| TUVR04a/09 | |
| | |
| **SPECTRAL POWER DENSITY** | **OCCUPIED BANDWIDTH 20dB** |
| TUVR04a/16 | TUVR04a/25 |
| TUVR04a/17 | TUVR04a/26 |
| TUVR04a/18 | TUVR04a/27 |
| TUVR04a/19 | TUVR04a/28 |
| TUVR04a/20 | TUVR04a/29 |
| TUVR04a/21 | TUVR04a/30 |
| TUVR04a/22 | TUVR04a/31 |
| TUVR04a/23 | TUVR04a/32 |
| TUVR04a/24 | TUVR04a/33 |
| | |
| **CONDUCTED EMISSION PLOTS** | **NOTCH FILTER RESPONSE** |
| TUVR04a/34 | TUVR04a/38 |
| TUVR04a/35 | TUVR04a/39 |
| | TUVR04a/40 |
| | TUVR04a/41 |

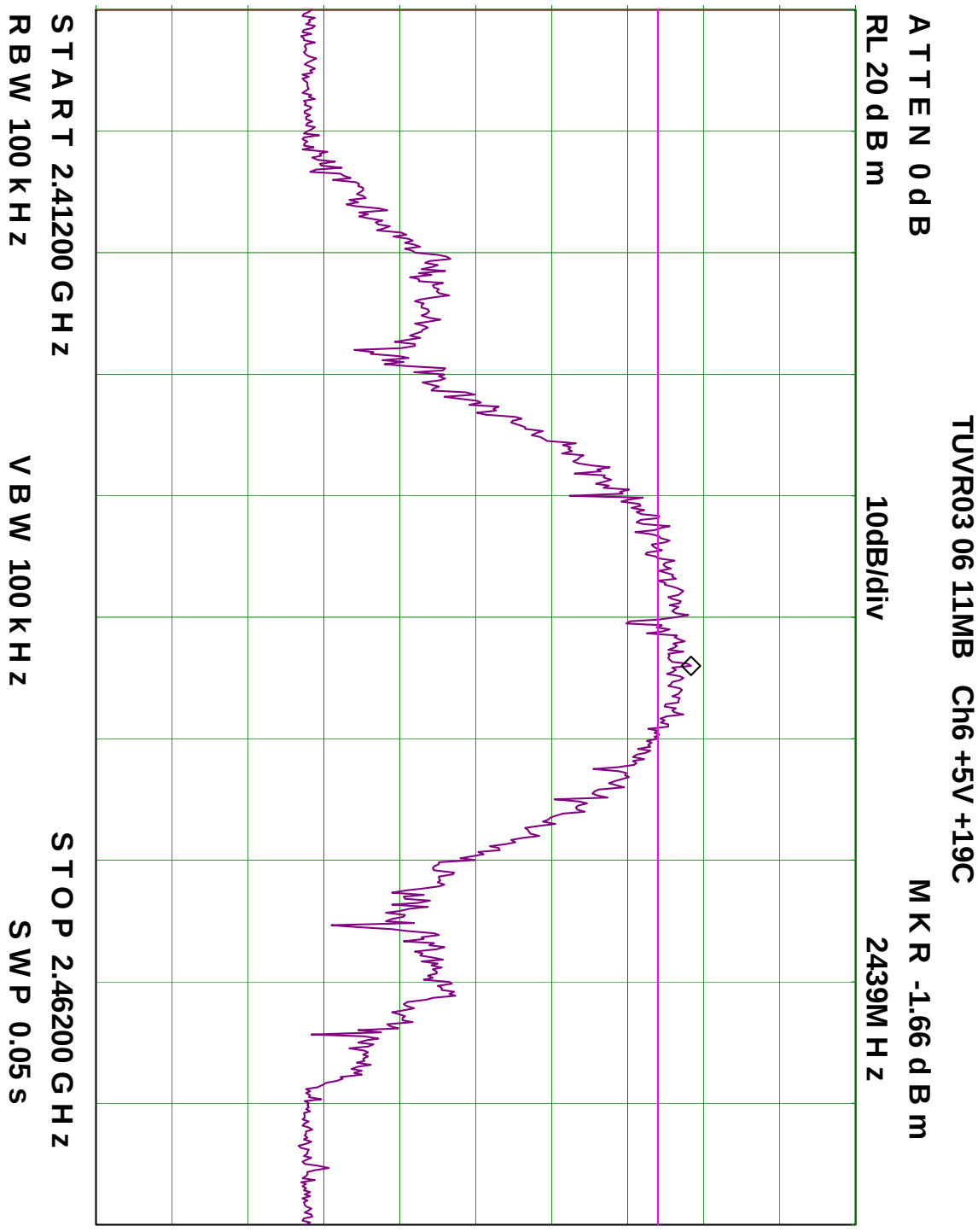

TUVR03 01 1MB Ch1 +5V +18C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 0.34 dBm
2414.4166MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

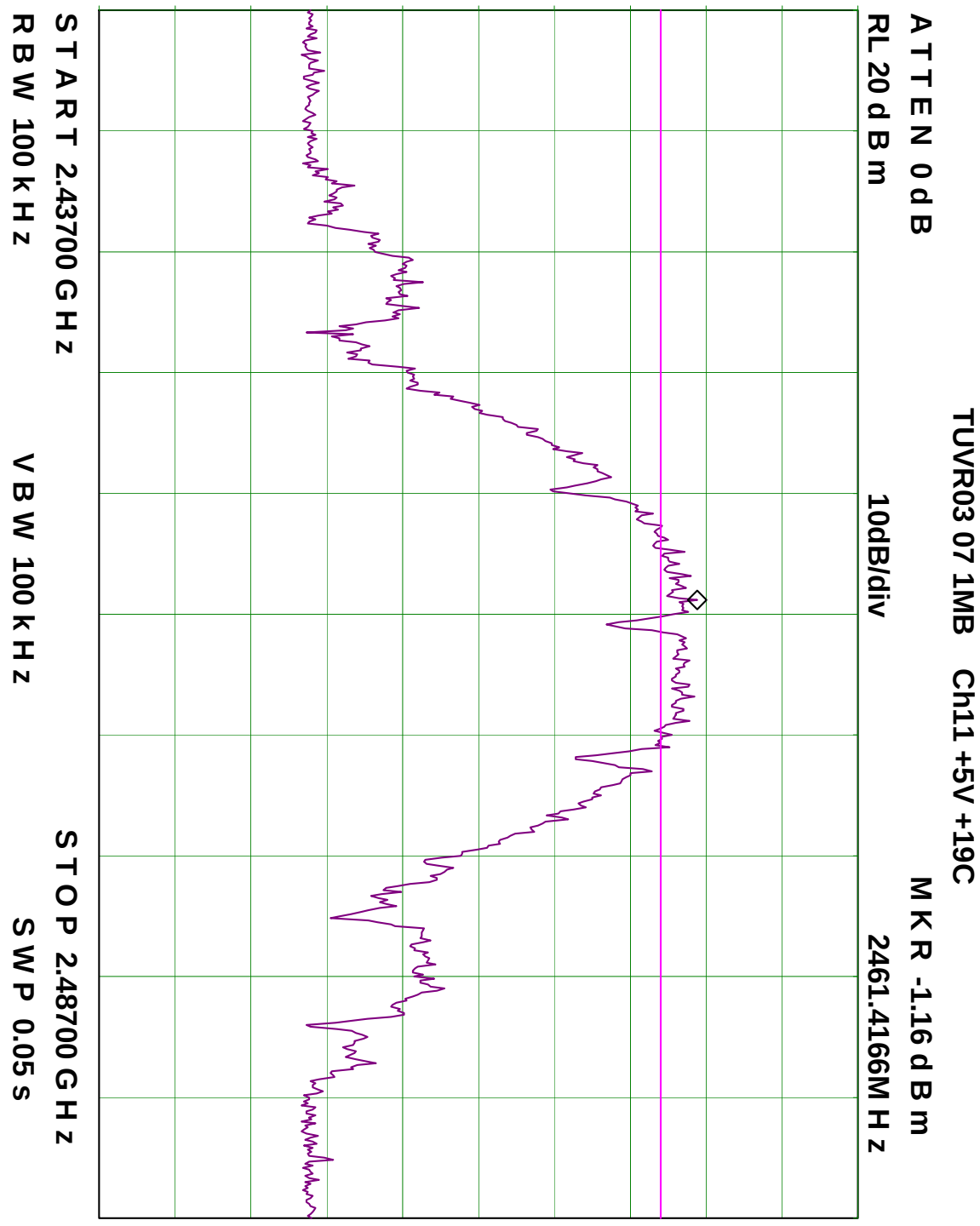

TUVR03 05 5.5MB Ch6 +5V +19C
ATTEN 0dB
RL 20dBm
10dB/div
MKR -0.83dBm
2439MHz
START 2.41200GHz
RBW 100kHz
VBW 100kHz
STOP 2.46200GHz
SWP 0.05s

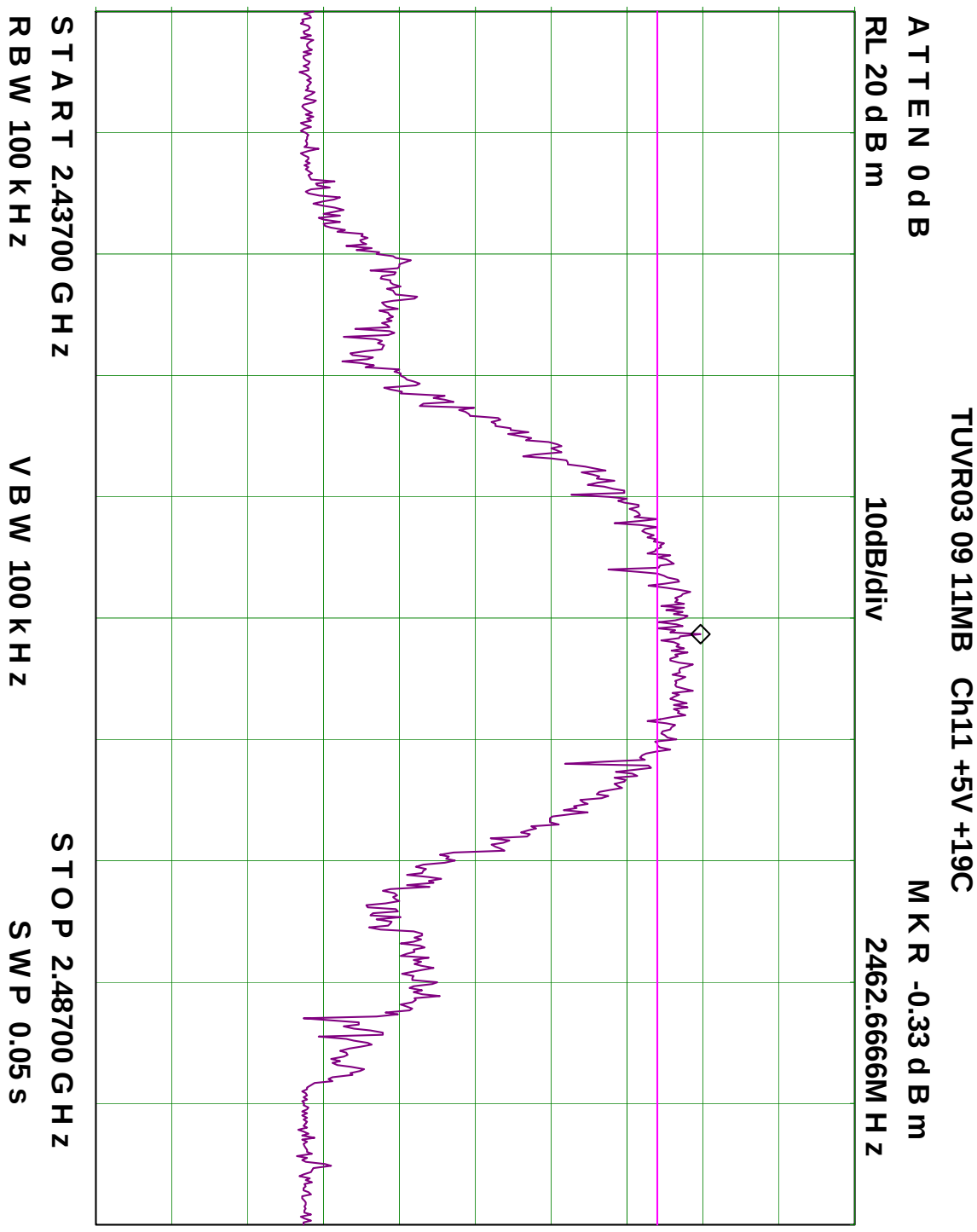

TUVR03 03 11MB Ch1 +5V +18C
ATTEN 0 dB
RL 20 d B m
10dB/div
MKR 0.67 d B m
2412.5833M H z
START 2.38700 G H z
RBW 100 k H z
VBW 100 k H z
STOP 2.43700 G H z
SWP 0.05 s

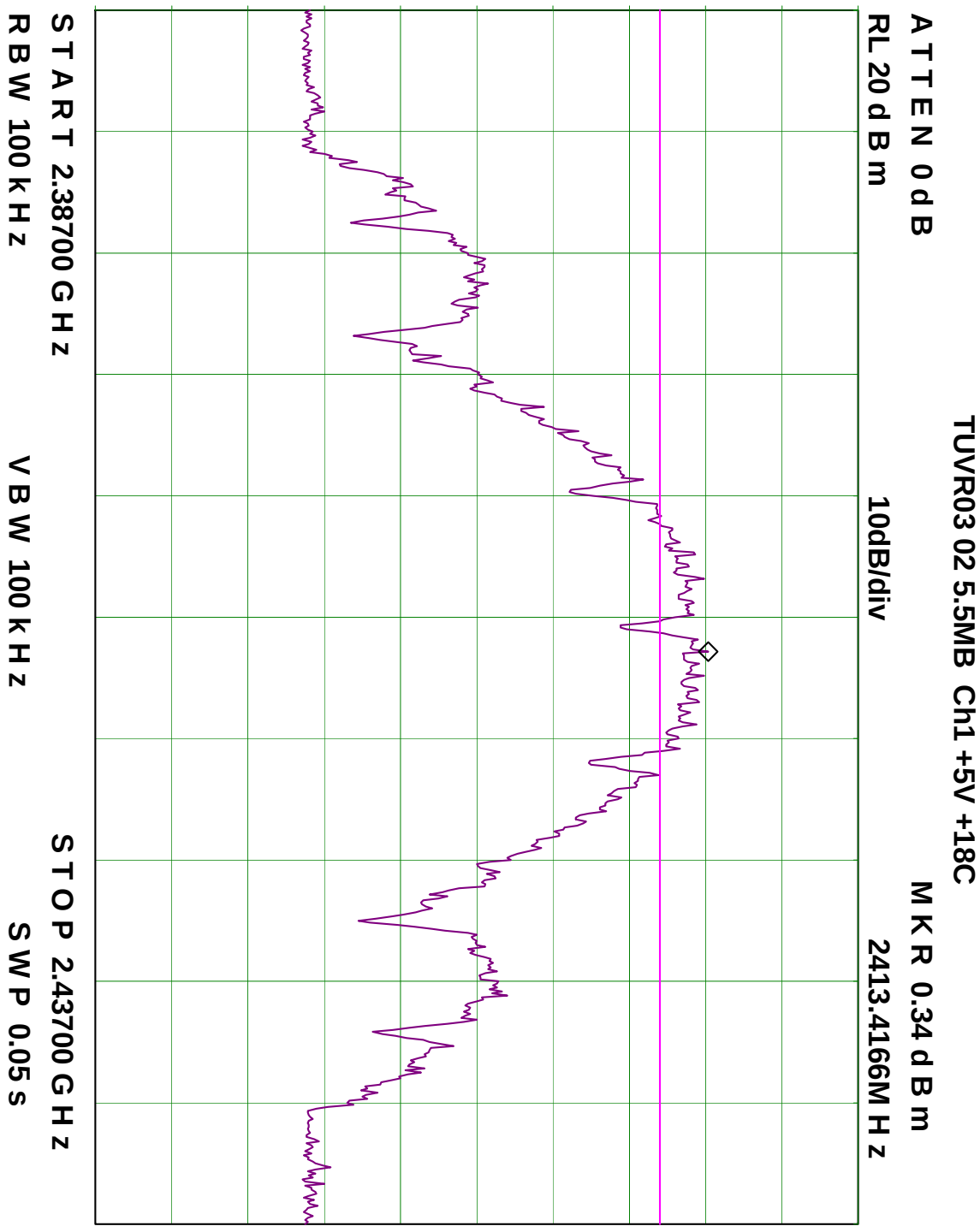

TUVR03 04 1MB Ch6 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -1.33 dBm
2438.4166MHz
START 2.41200 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.46200 GHz
SWP 0.05 s

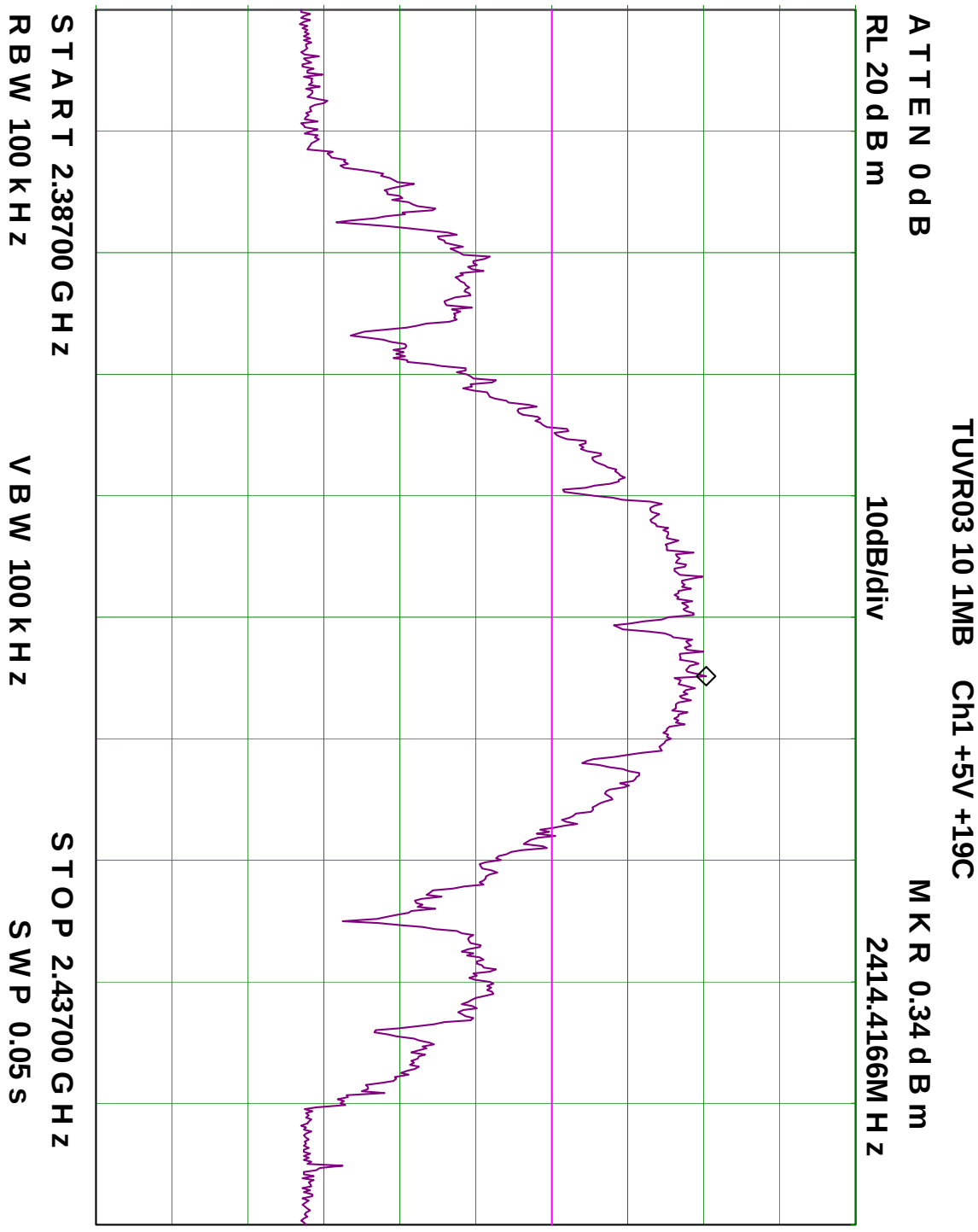

TUVR03 08 5.5MB Ch11 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 0.00 dBm
2464M Hz
START 2.43700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48700 GHz
SWP 0.05 s

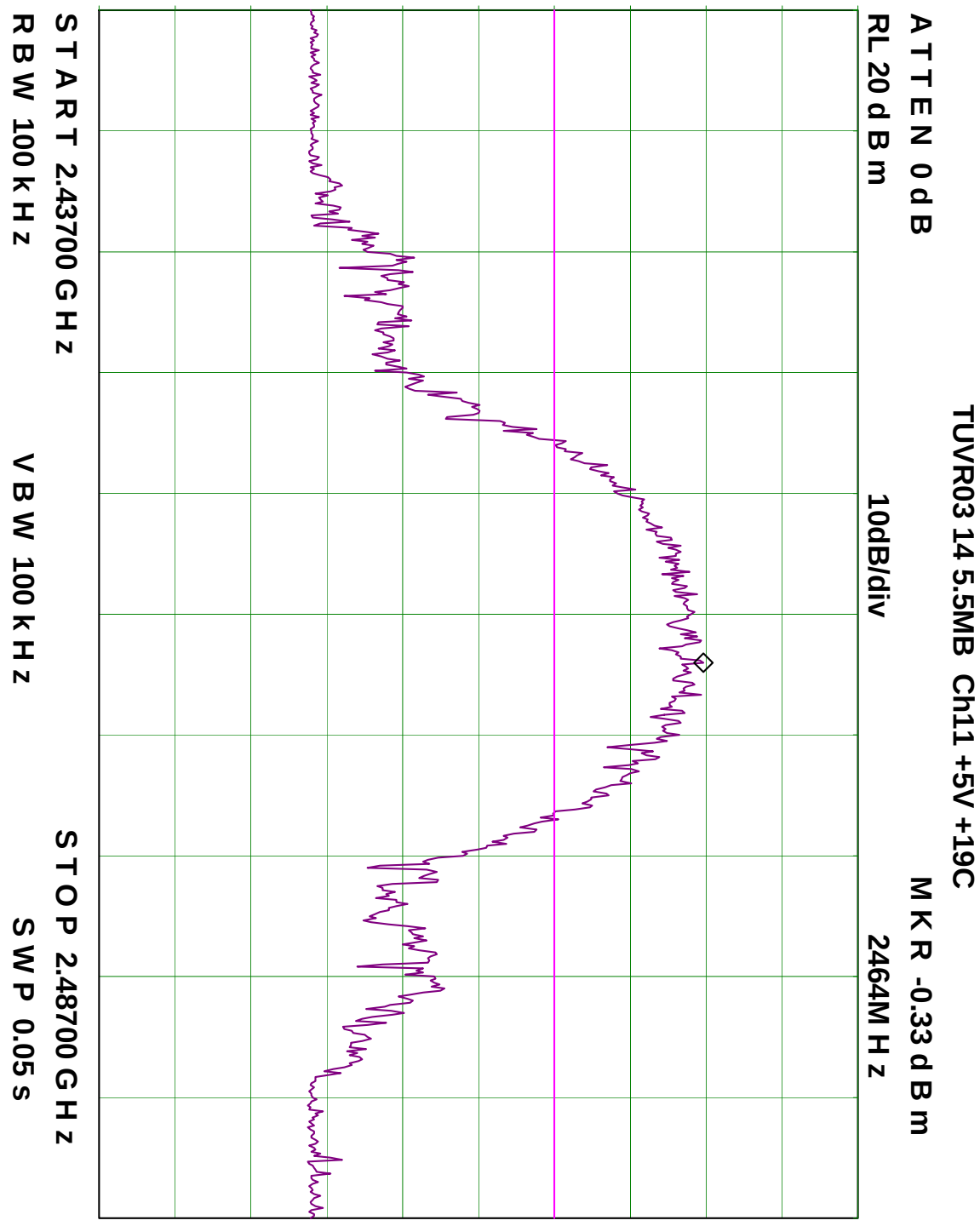

TUVR03 06 11MB Ch6 +5V +19C
ATTEN 0dB
RL 20dBm
10dB/div
MKR -1.66dBm
2439MHz
START 2.41200GHz
RBW 100kHz
VBW 100kHz
STOP 2.46200GHz
SWP 0.05s

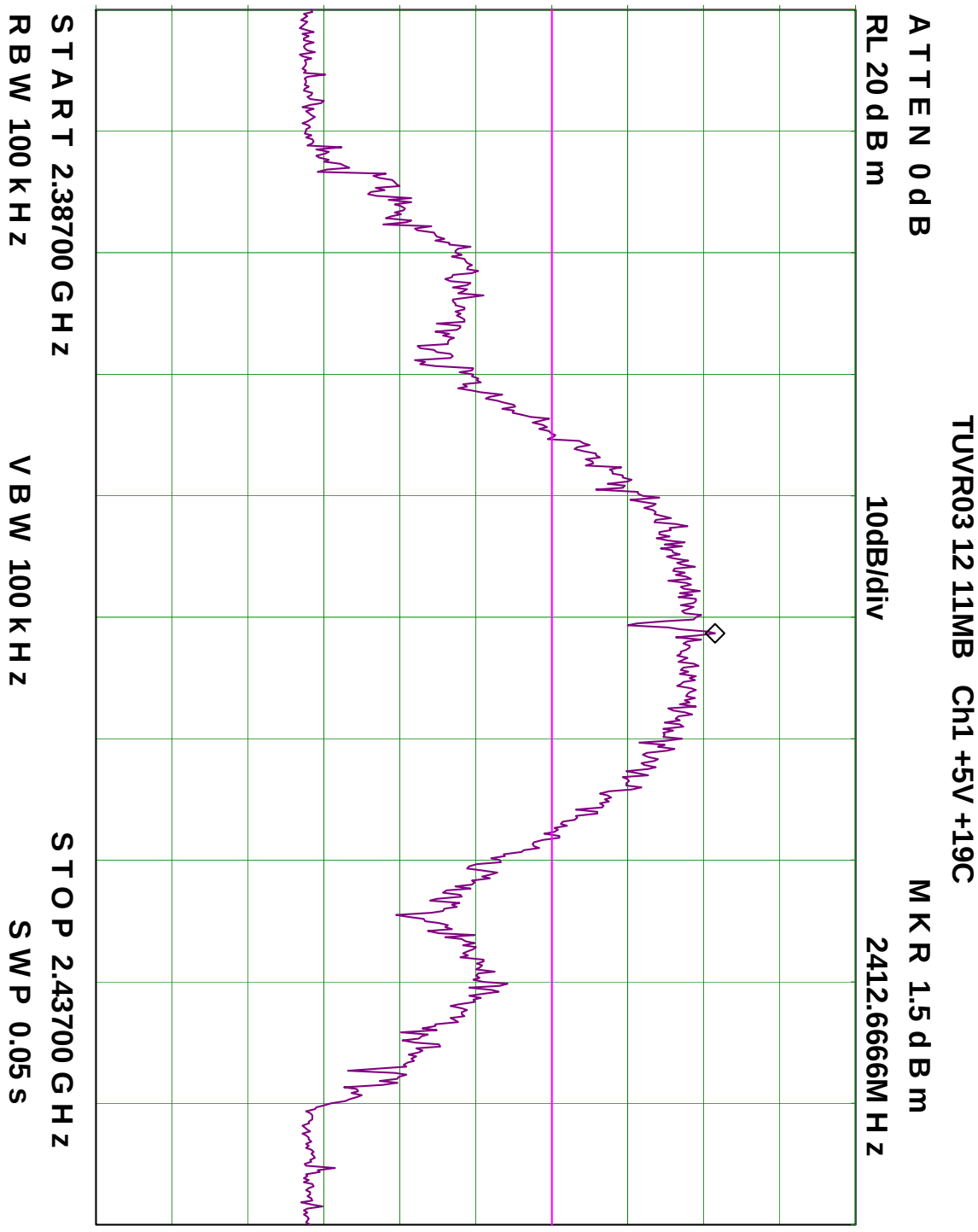

TUVR03 07 1MB Ch11 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -1.16 dBm
2461.4166MHz
START 2.43700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48700 GHz
SWP 0.05 s

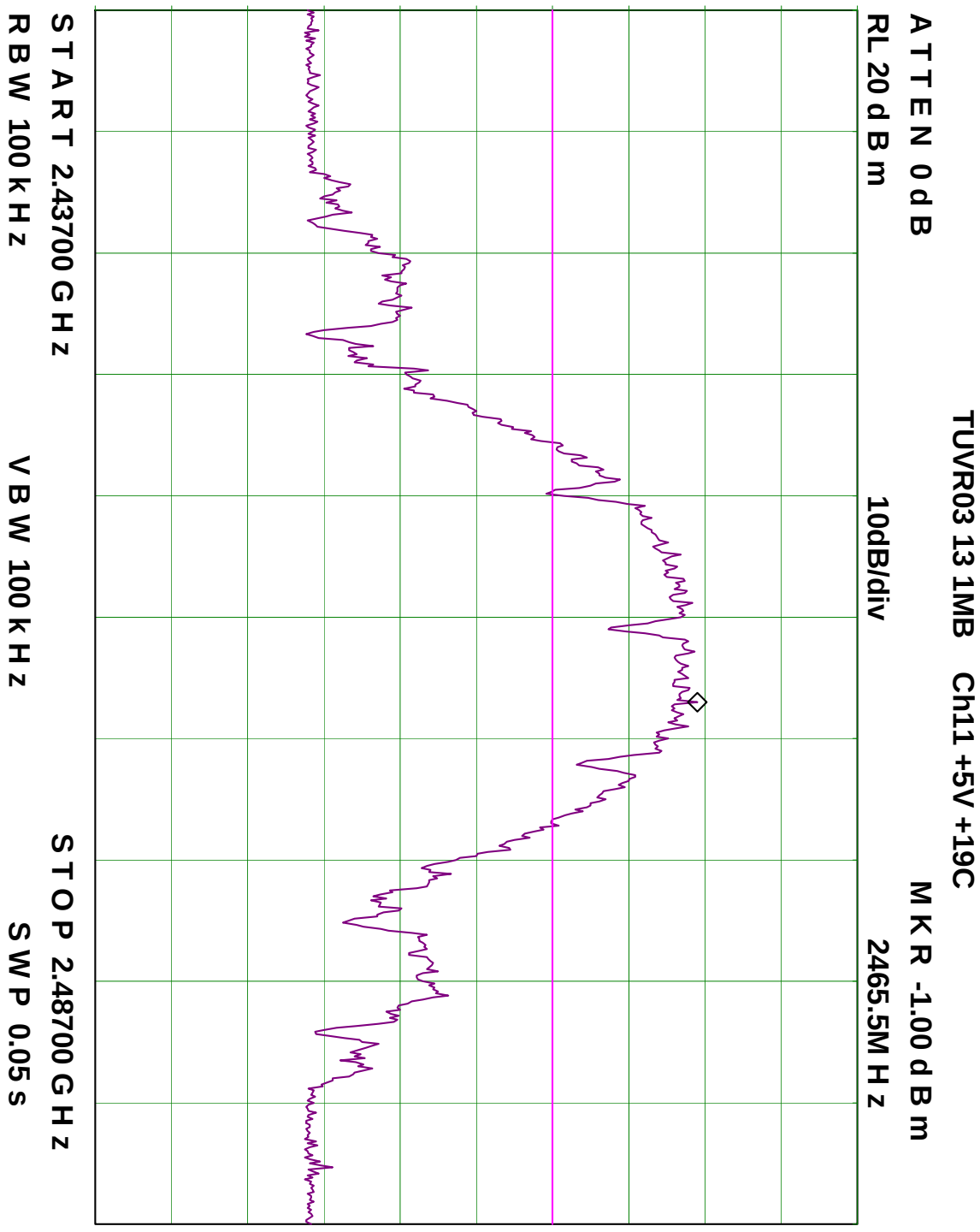

TUVR03 09 11MB Ch11 +5V +19C
ATTEN 0 dB
RL 20 dB m
10dB/div
MKR -0.33 dB m
2462.6666M Hz
START 2.43700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48700 GHz
SWP 0.05 s

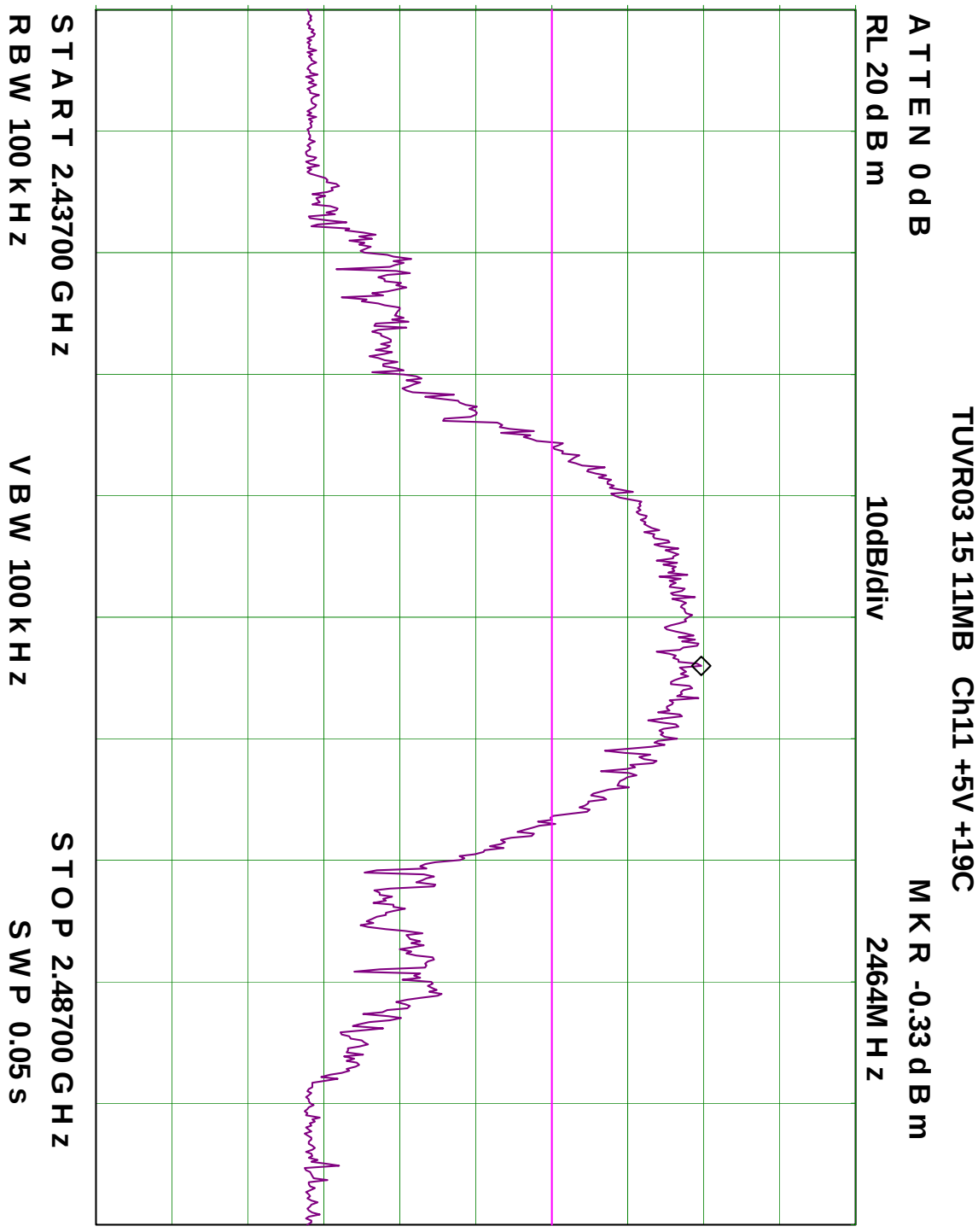

TUVR03 02 5.5MB Ch1 +5V +18C
ATTEN 0dB
RL 20dBm
10dB/div
MKR 0.34dBm
2413.4166MHz
START 2.38700GHz
RBW 100kHz
VBW 100kHz
STOP 2.43700GHz
SWP 0.05s

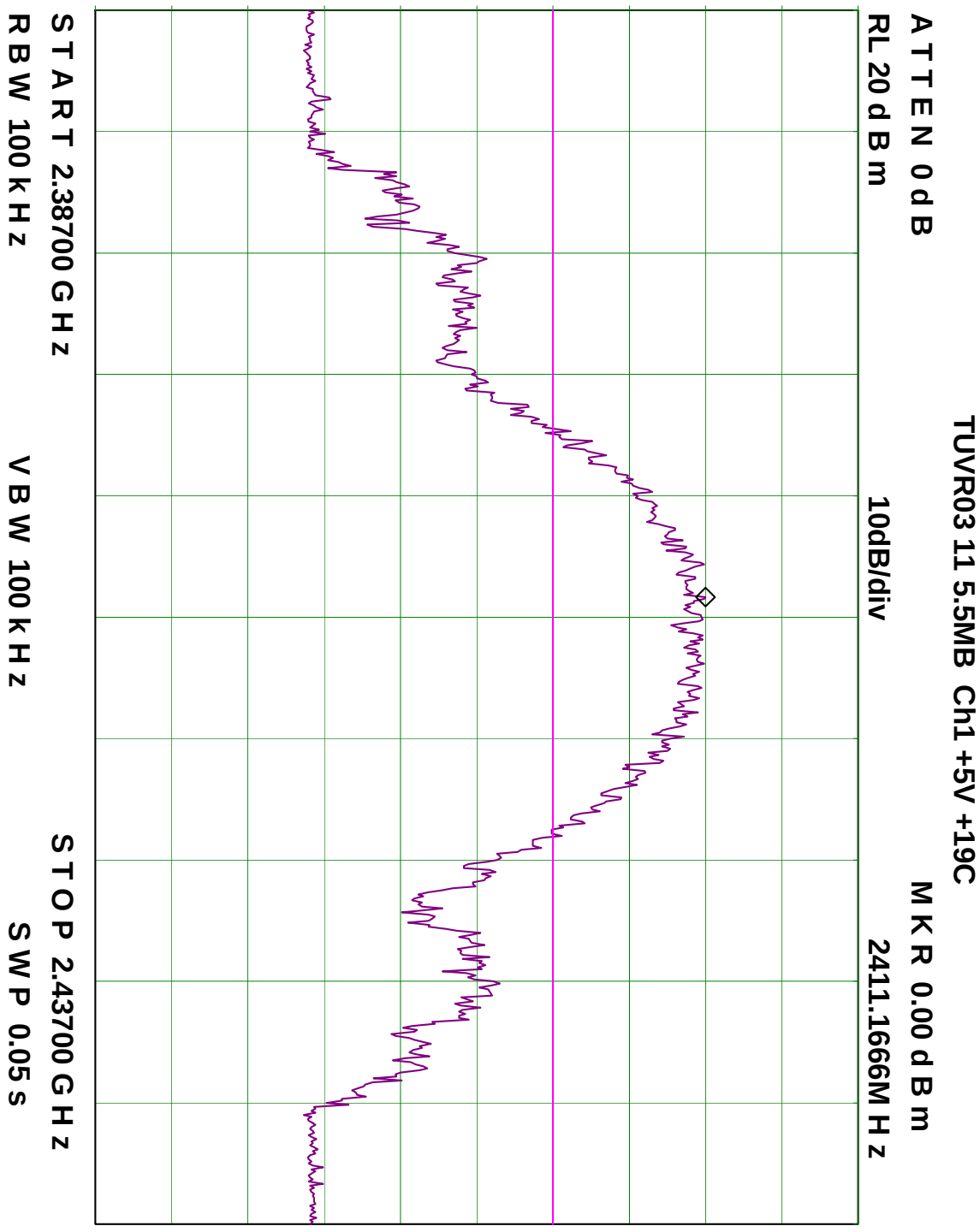

TUVR03 10 1MB Ch1 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 0.34 dBm
2414.4166MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

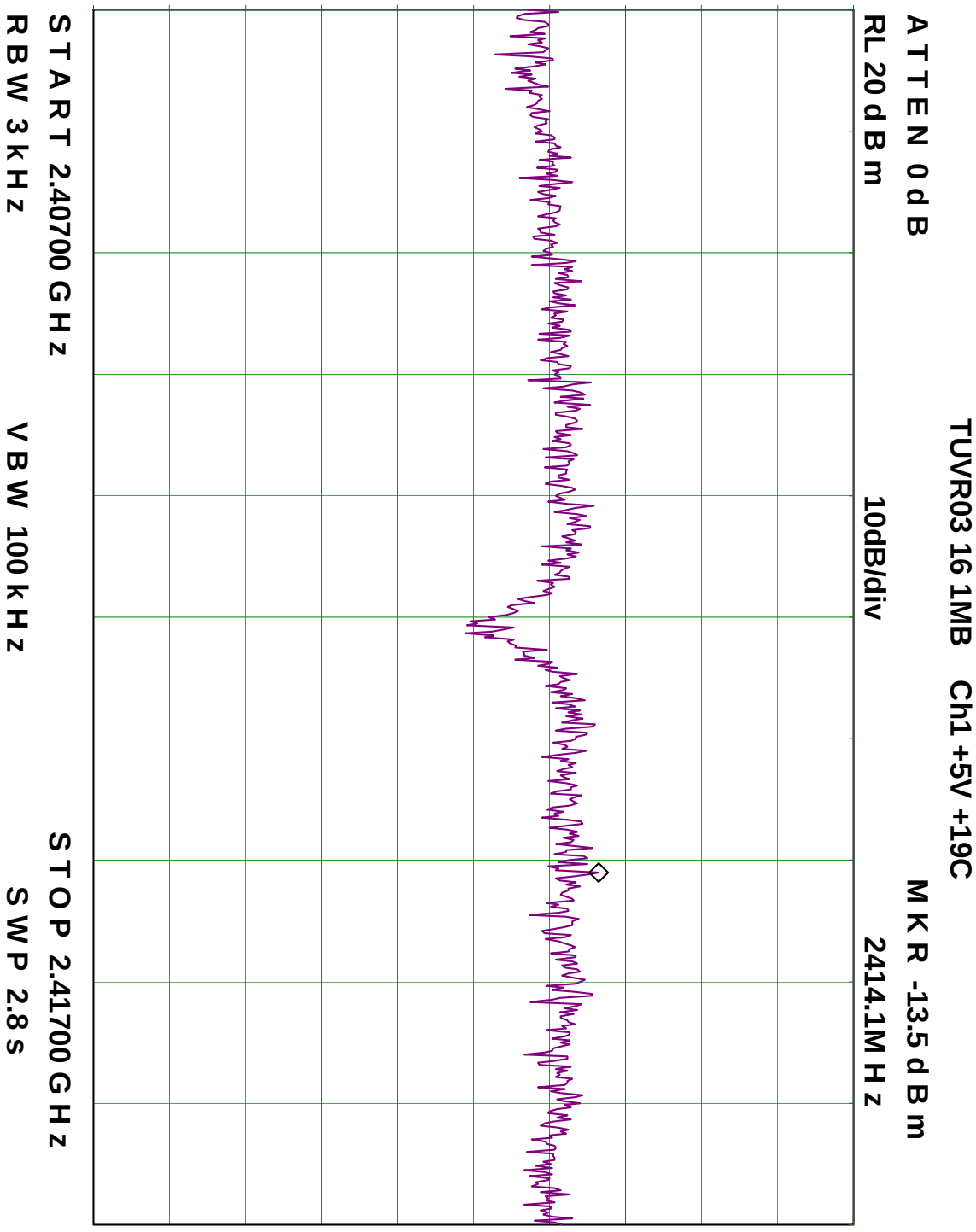

TUVR03 14 5.5MB Ch11 +5V +19C
ATTEN 0 dB
RL 20 dB m
10dB/div
MKR -0.33 dB m
2464M Hz
START 2.43700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48700 GHz
SWP 0.05 s

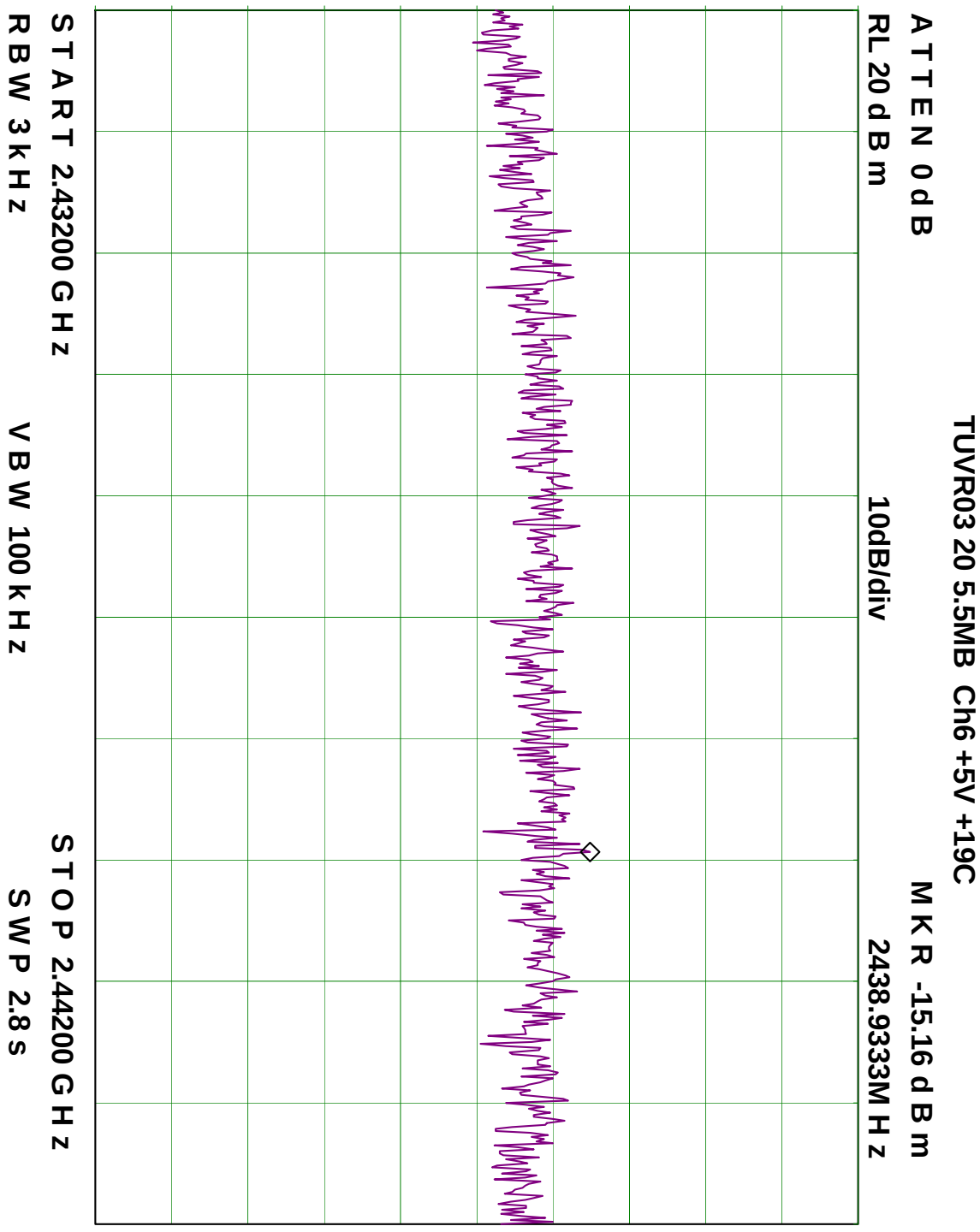

TUVR03 12 11MB Ch1 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 1.5 dBm
2412.6666MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

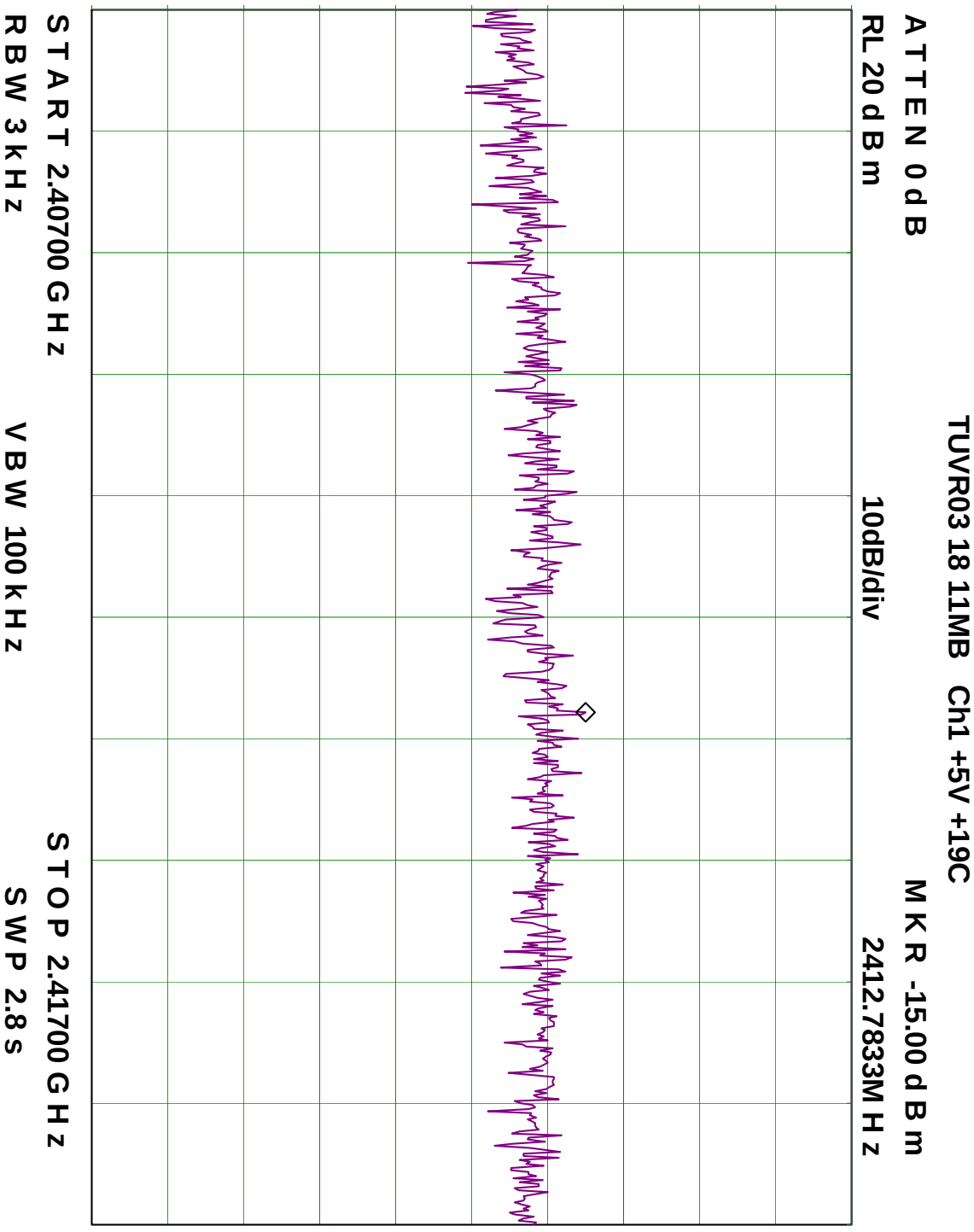

TUVR03 13 1MB Ch11 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -1.00 dBm
2465.5MHz
START 2.43700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48700 GHz
SWP 0.05 s

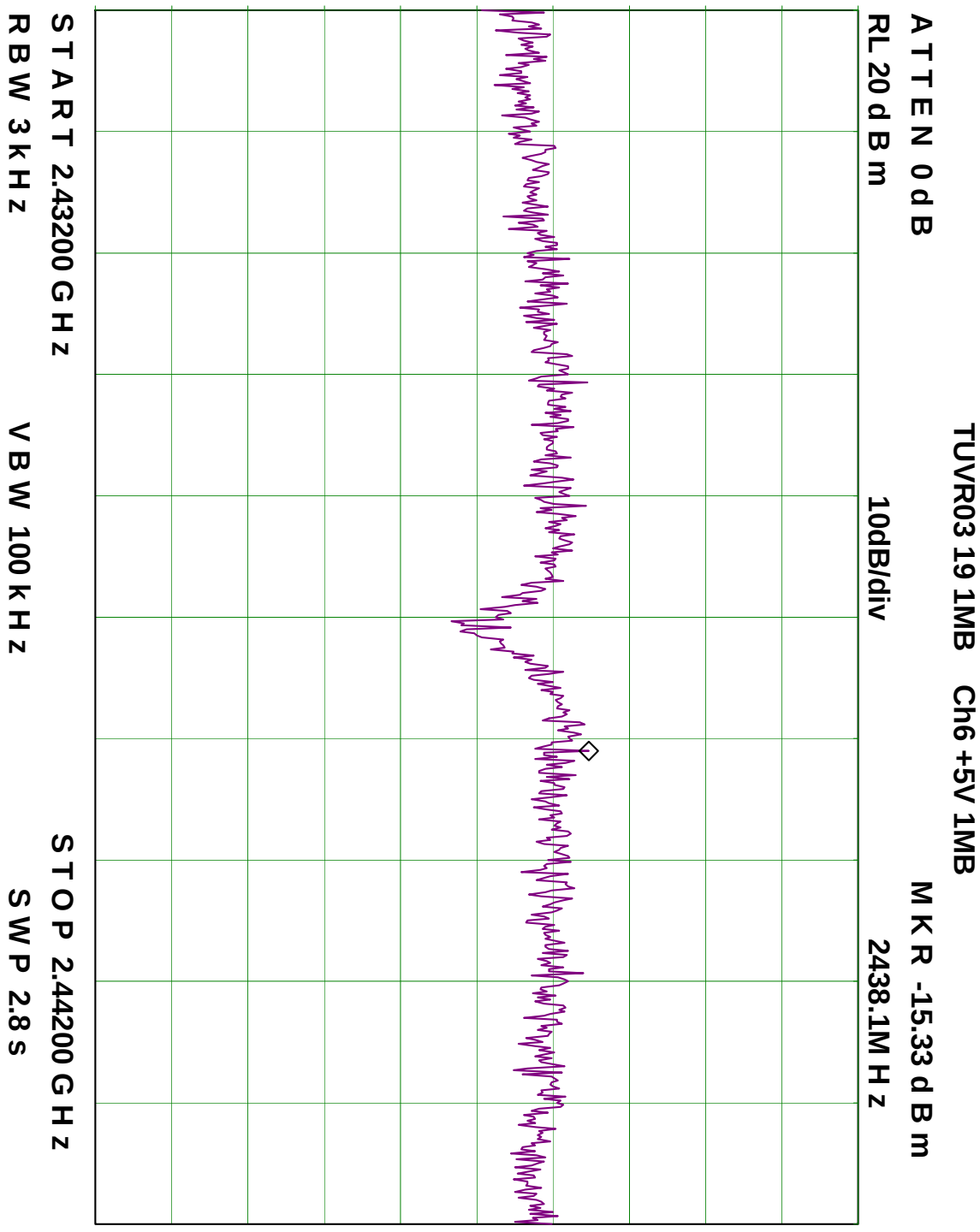

TUVR03 15 11MB Ch11 +5V +19C
ATTEN 0 dB
RL 20 dB m
10dB/div
MKR -0.33 dB m
2464M Hz
START 2.43700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48700 GHz
SWP 0.05 s

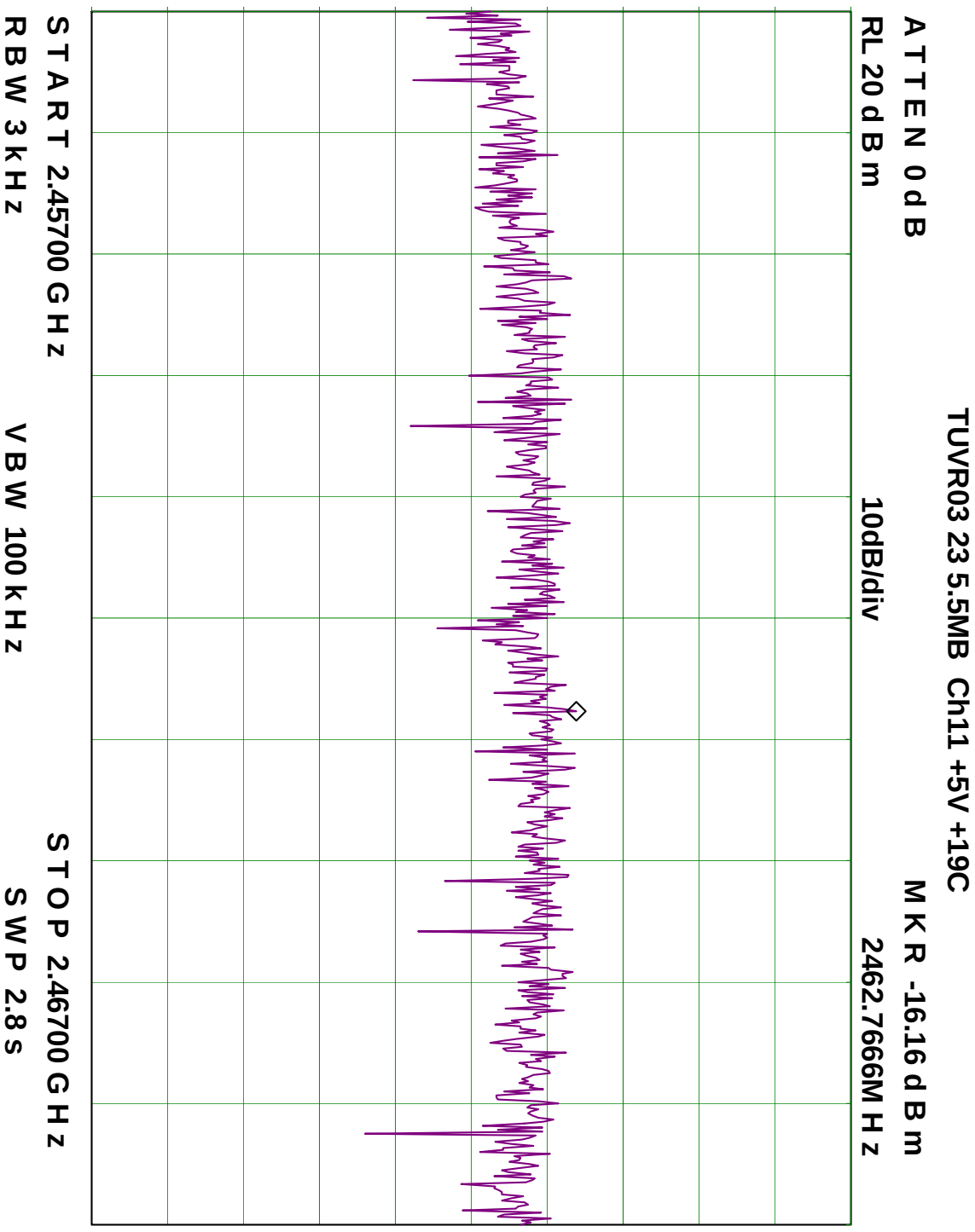

TUVR03 11 5.5MB Ch1 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 0.00 dBm
2411.1666MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

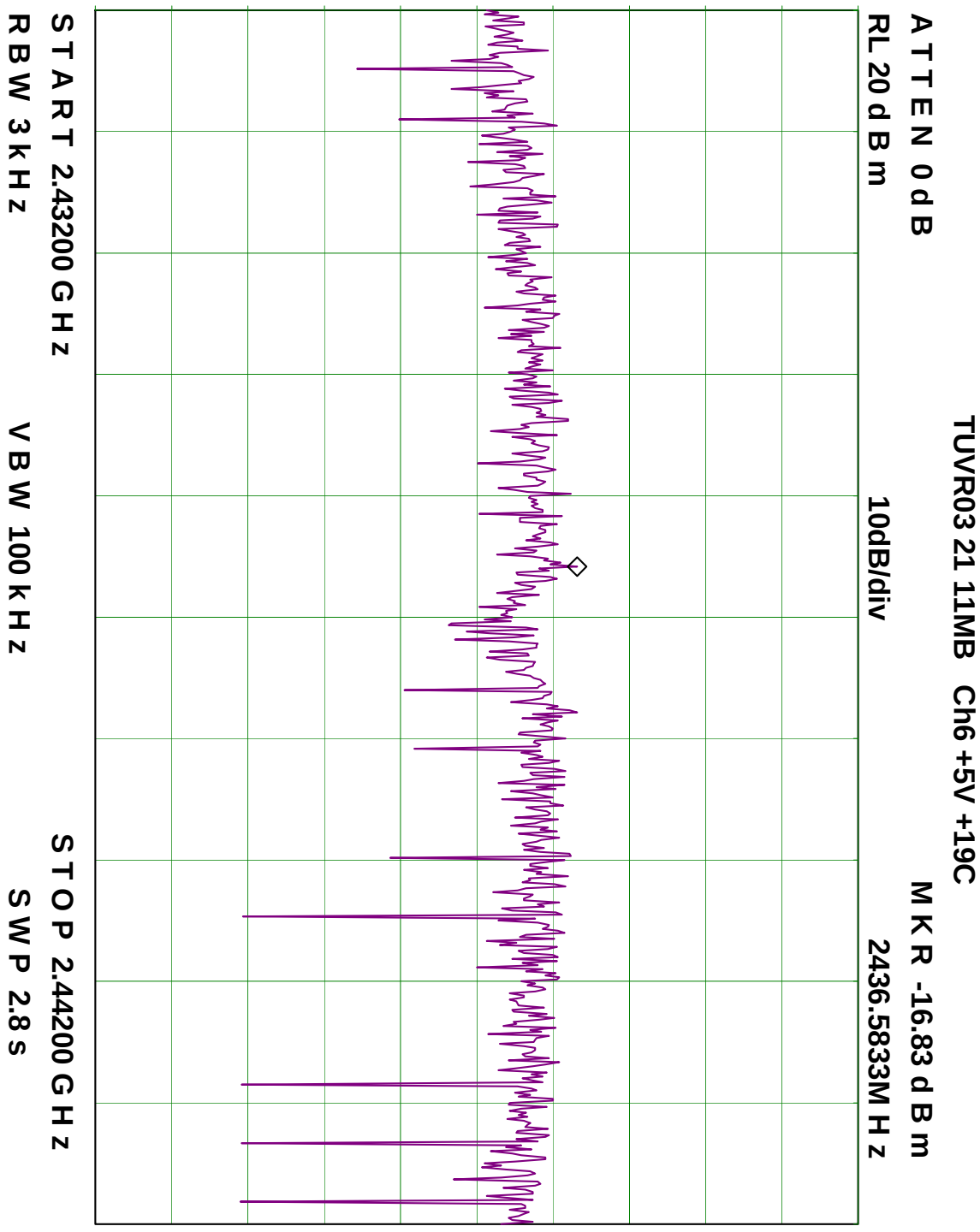

ATTEN 0dB
RL 20dBm
10dB/div
TUVR03 16 1MB Ch1 +5V +19C
MKR -13.5dBm
2414.1MHz
START 2.40700 GHz
RBW 3kHz
VBW 100kHz
STOP 2.41700 GHz
SWP 2.8s

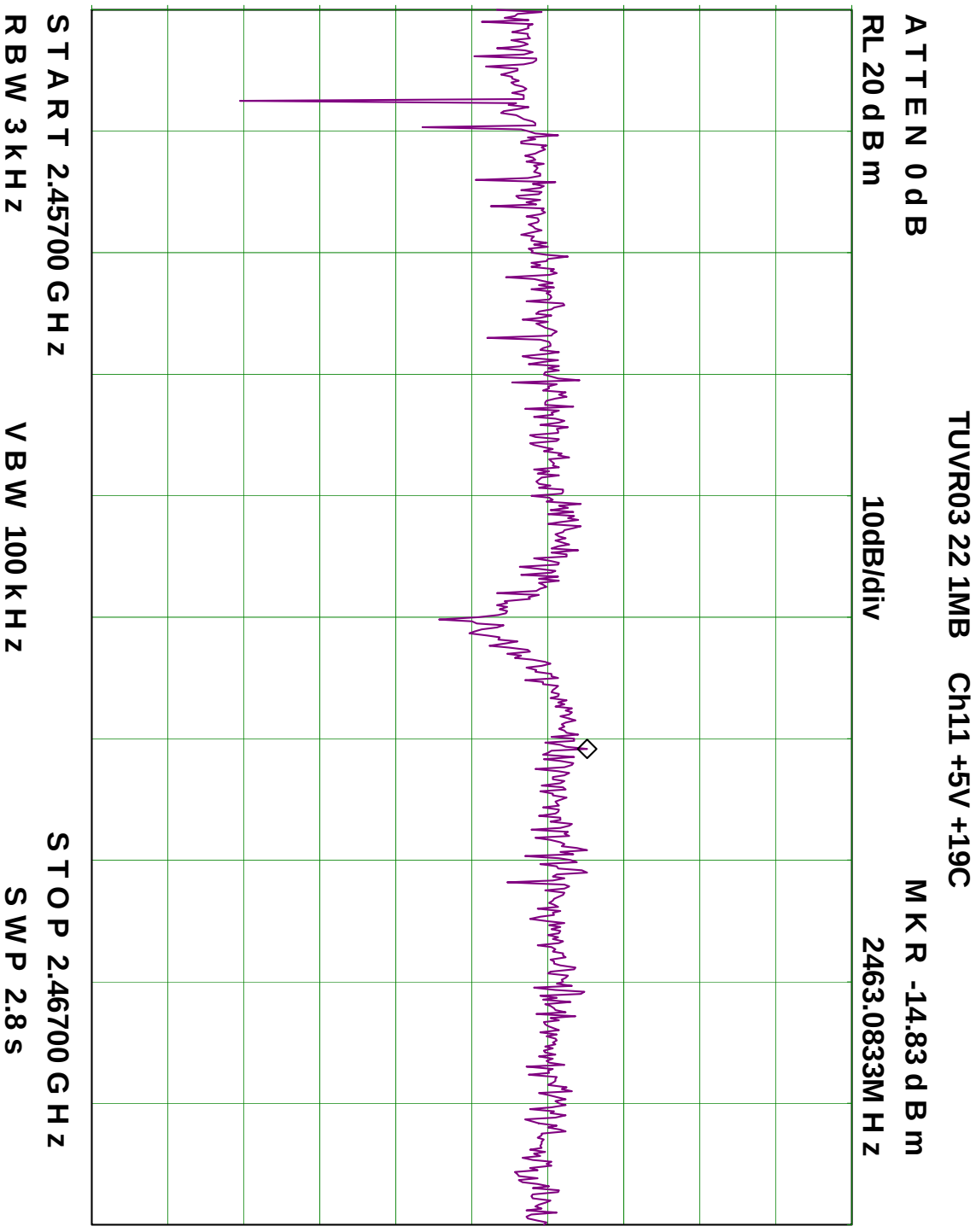

TUVR03 20 5.5MB Ch6 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -15.16 dBm
2438.9333MHz
START 2.43200 GHz
RBW 3kHz
VBW 100kHz
STOP 2.44200 GHz
SWP 2.8s

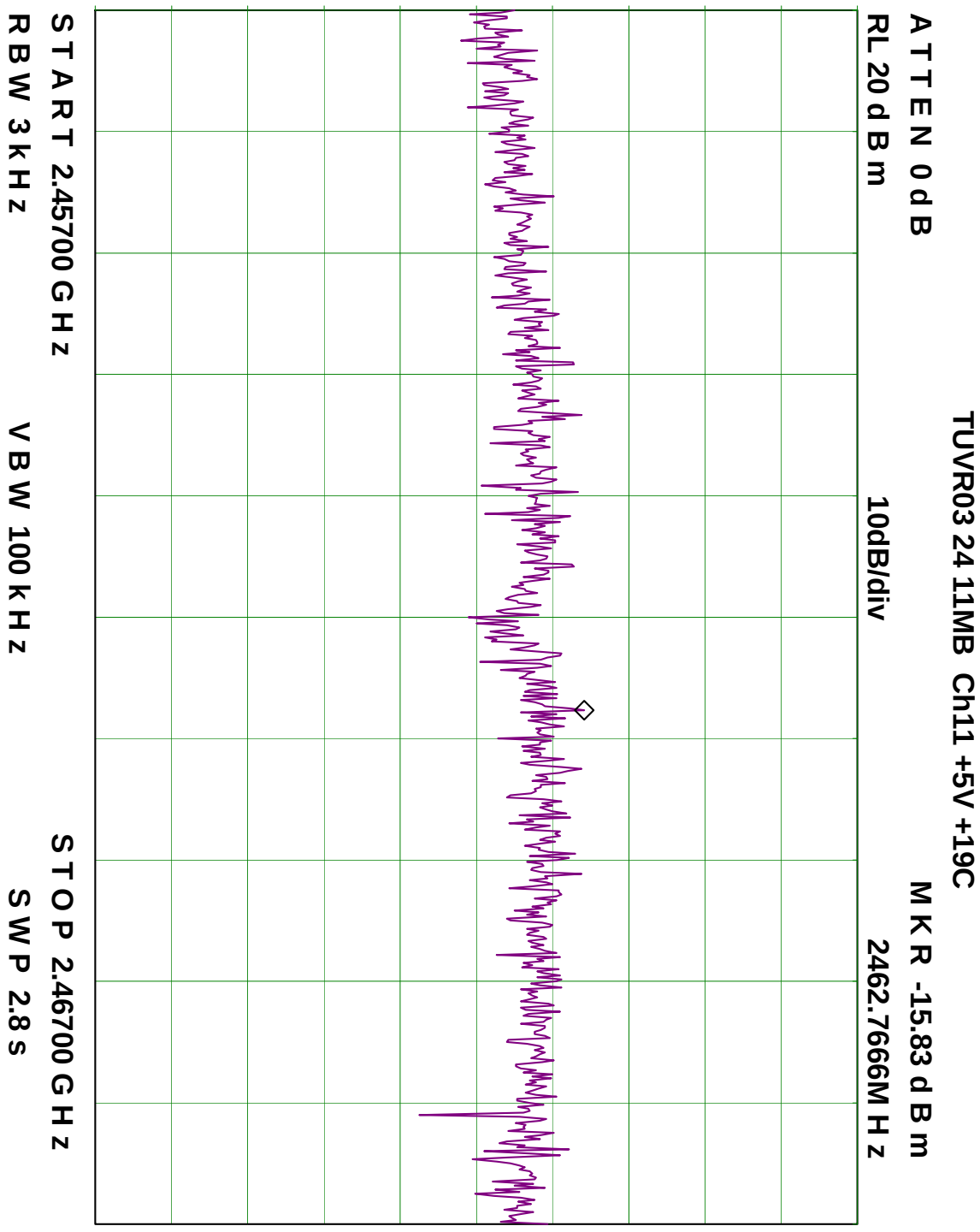

ATTEN 0 dB
RL 20 d B m
10dB/div
TUVR03 18 11MB Ch1 +5V +19C
MKR -15.00 d B m
2412.7833M H z
START 2.40700 G H z
RBW 3 k H z
VBW 100 k H z
STOP 2.41700 G H z
SWP 2.8 s

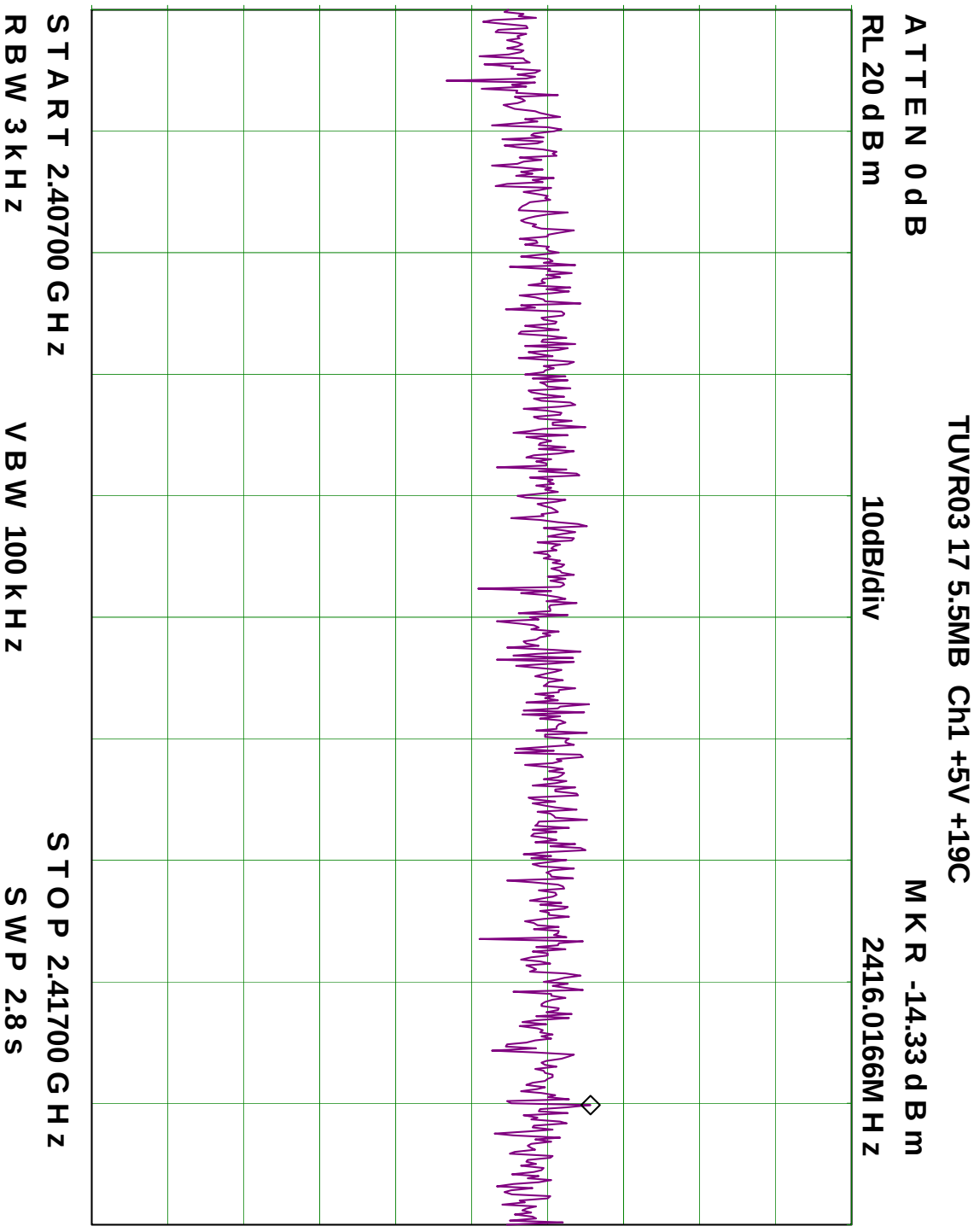

TUVR03 19 1MB Ch6 +5V 1MB
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -15.33 dBm
2438.1MHz
START 2.43200 GHz
RBW 3kHz
VBW 100kHz
STOP 2.44200 GHz
SWP 2.8s

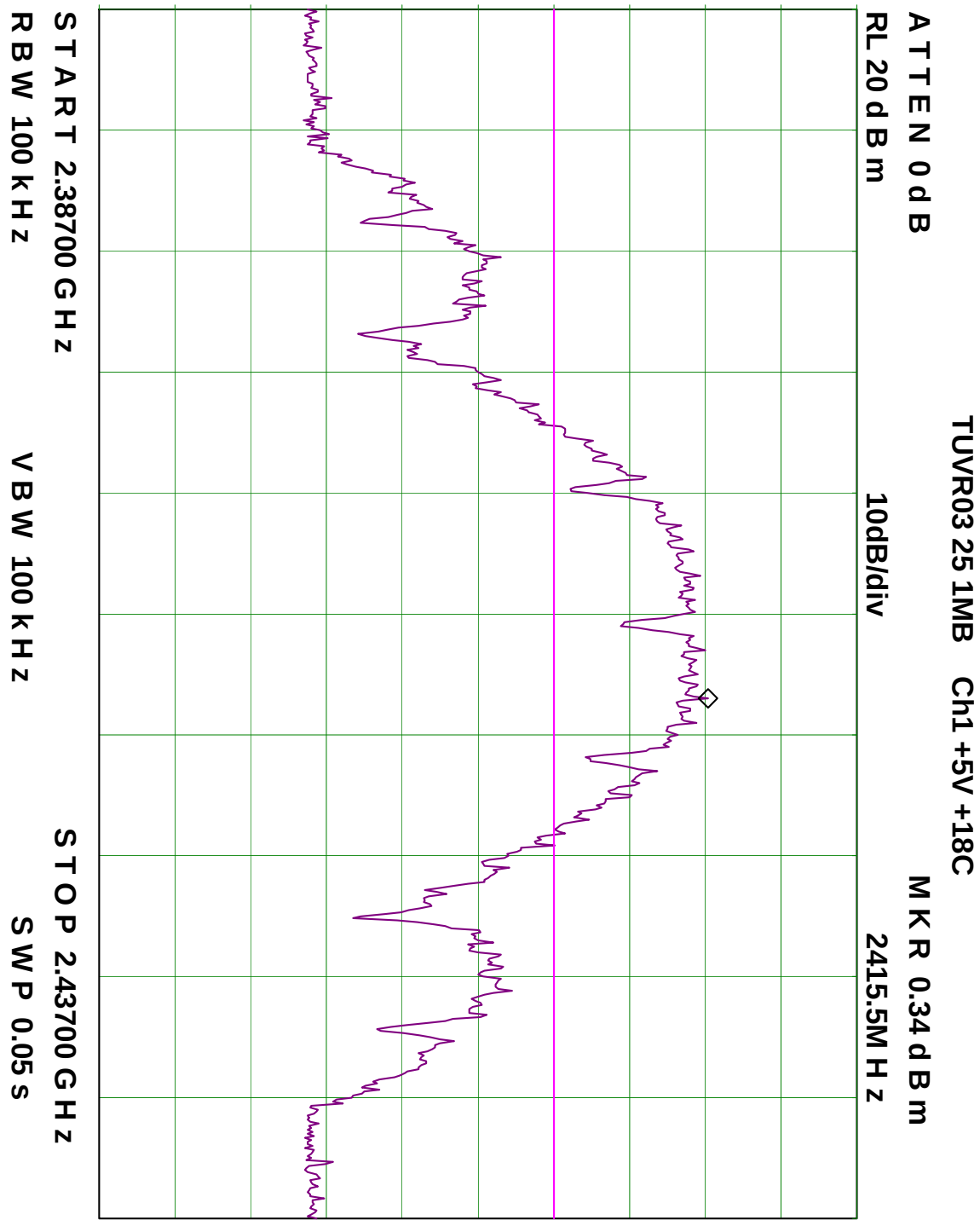

TUVR03 23 5.5MB Ch11 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -16.16 dBm
2462.7666MHz
START 2.45700 GHz
RBW 3kHz
VBW 100kHz
STOP 2.46700 GHz
SWP 2.8s

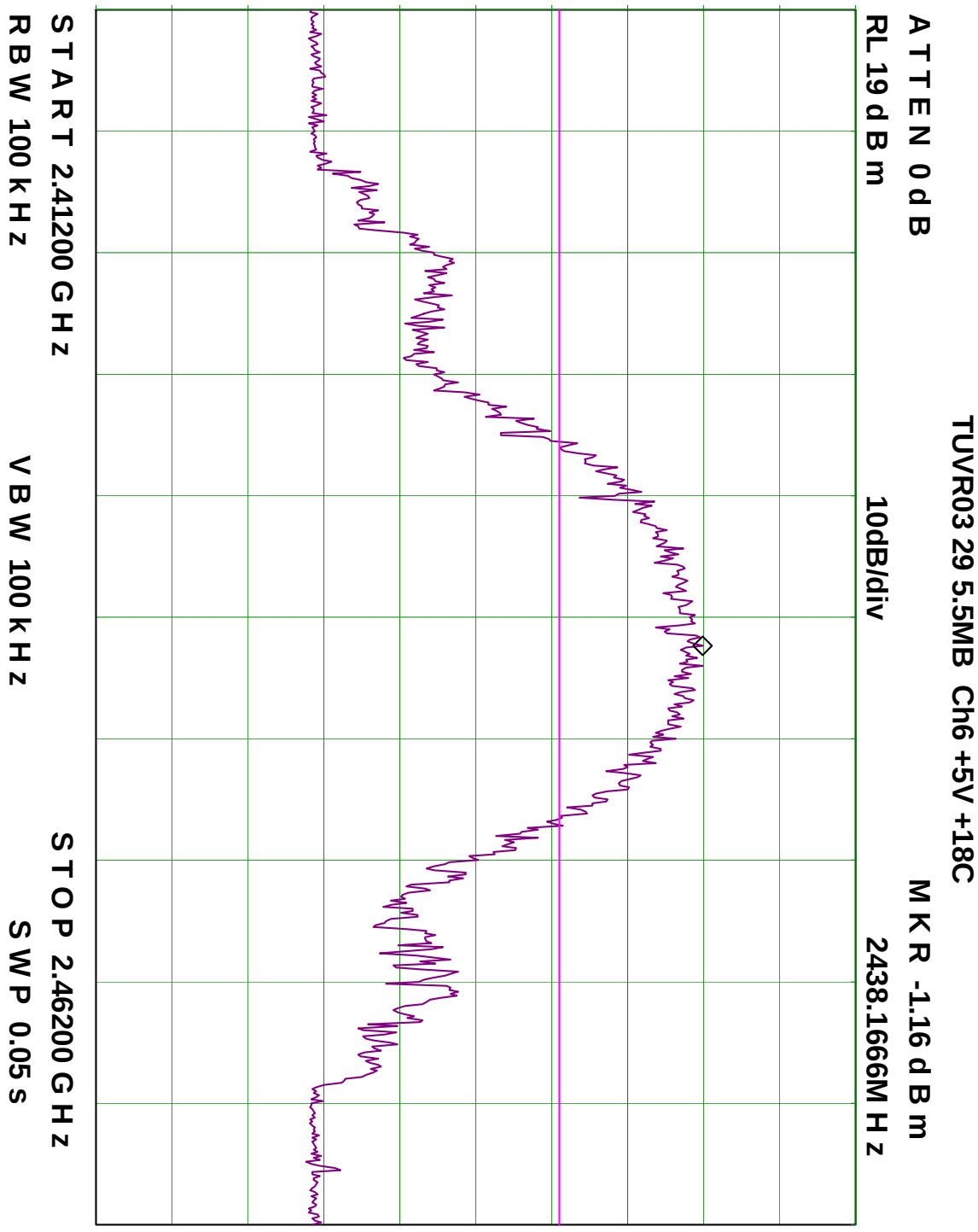

TUVR03 21 11MB Ch6 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -16.83 dBm
2436.5833MHz
START 2.43200 GHz
RBW 3kHz
VBW 100kHz
STOP 2.44200 GHz
SWP 2.8s

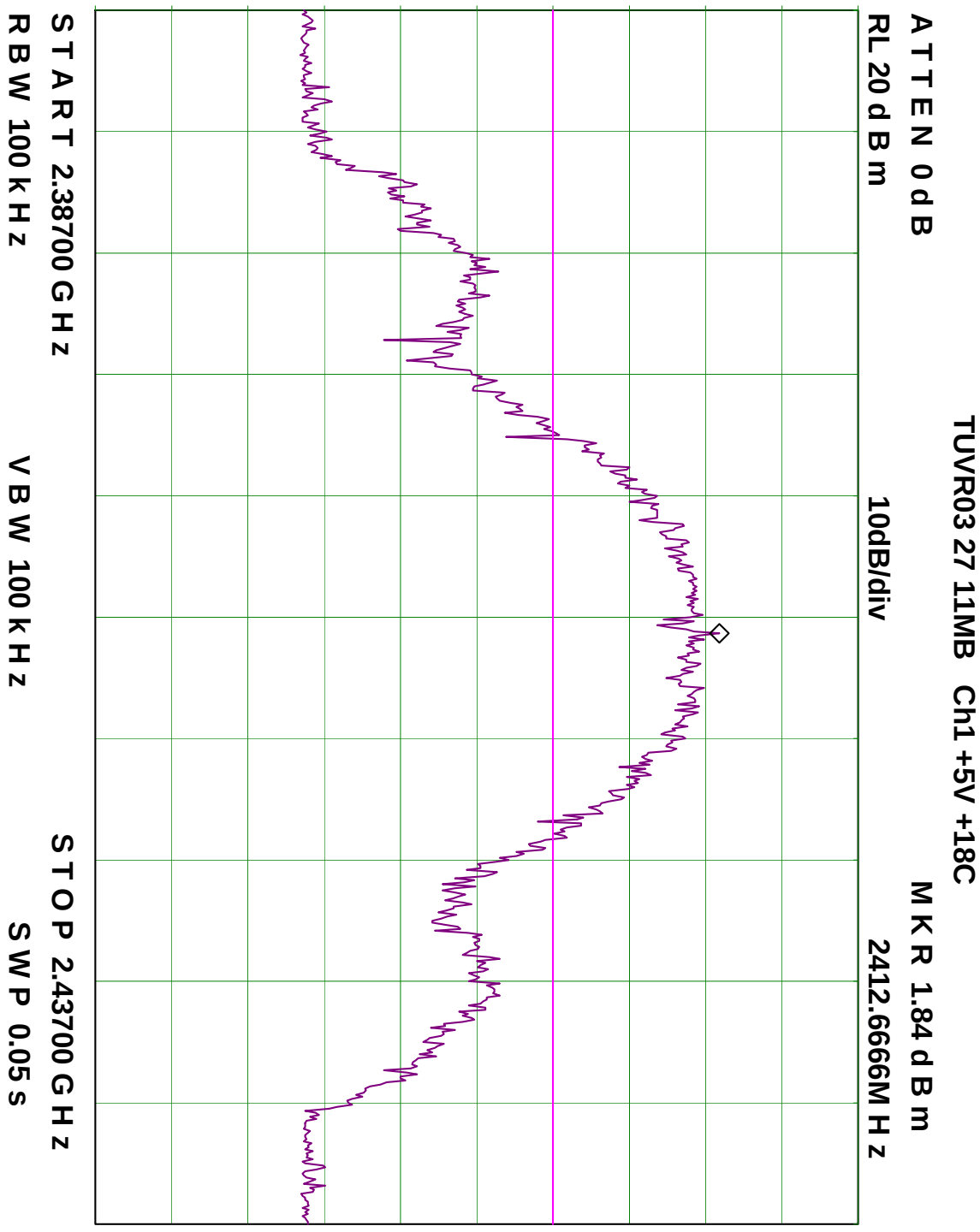

TUVR03 22 1MB Ch11 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -14.83 dBm
2463.0833MHz
START 2.45700 GHz
RBW 3kHz
VBW 100kHz
STOP 2.46700 GHz
SWP 2.8s

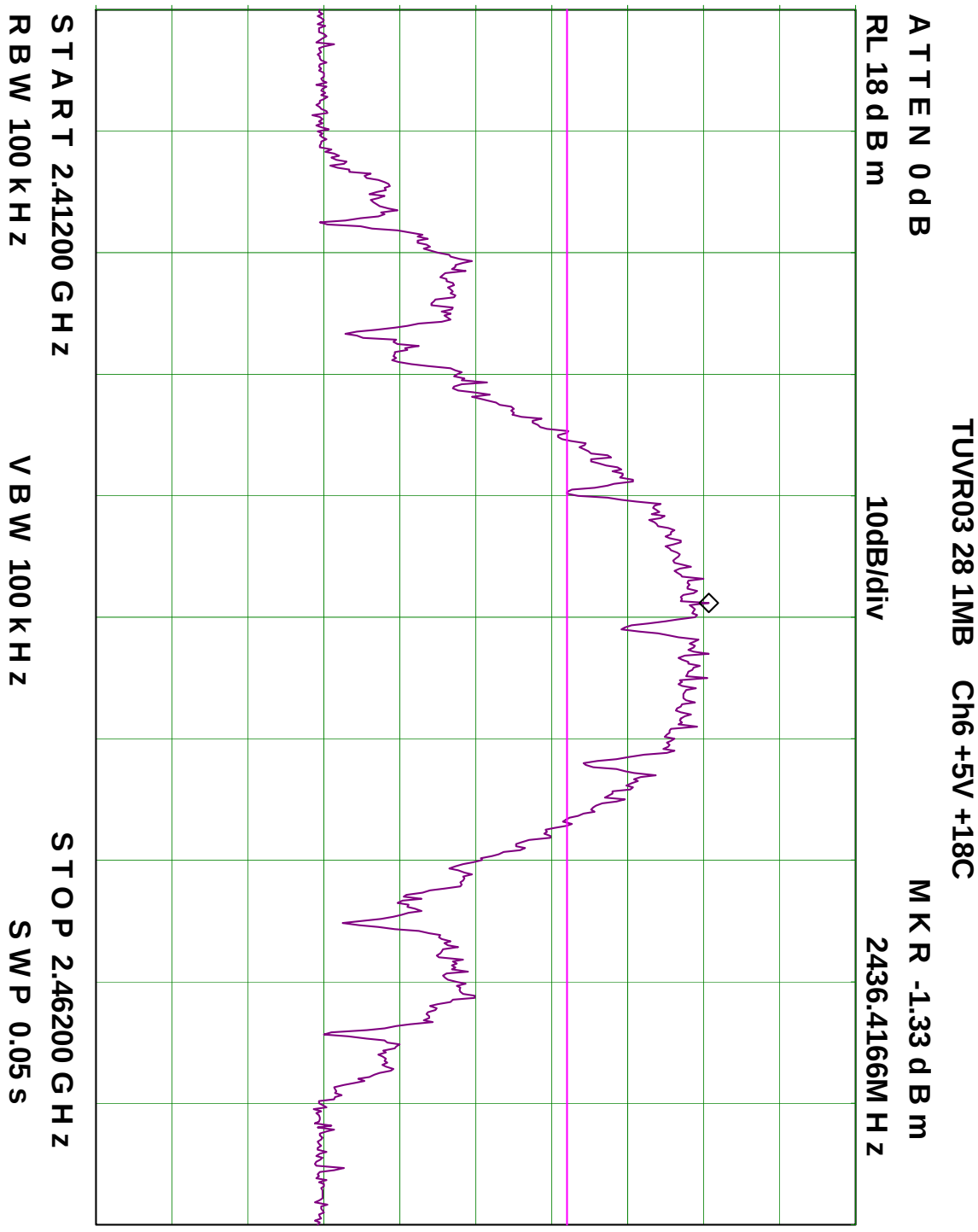

TUVR03 24 11MB Ch11 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -15.83 dBm
2462.7666MHz
START 2.45700 GHz
RBW 3kHz
VBW 100kHz
STOP 2.46700 GHz
SWP 2.8s

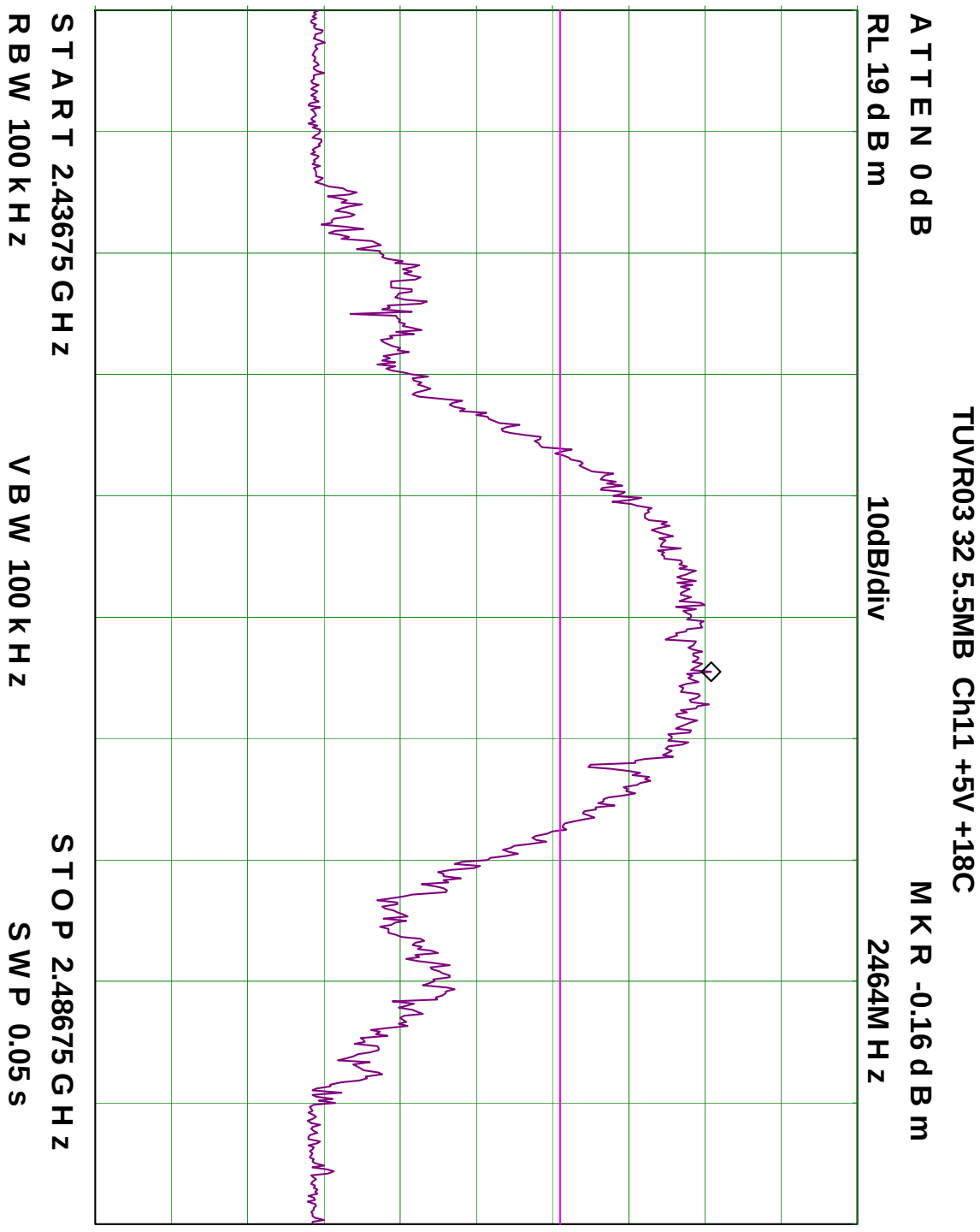

TUVR03 17 5.5MB Ch1 +5V +19C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR -14.33 dBm
2416.0166MHz
START 2.40700 GHz
RBW 3kHz
VBW 100kHz
STOP 2.41700 GHz
SWP 2.8s

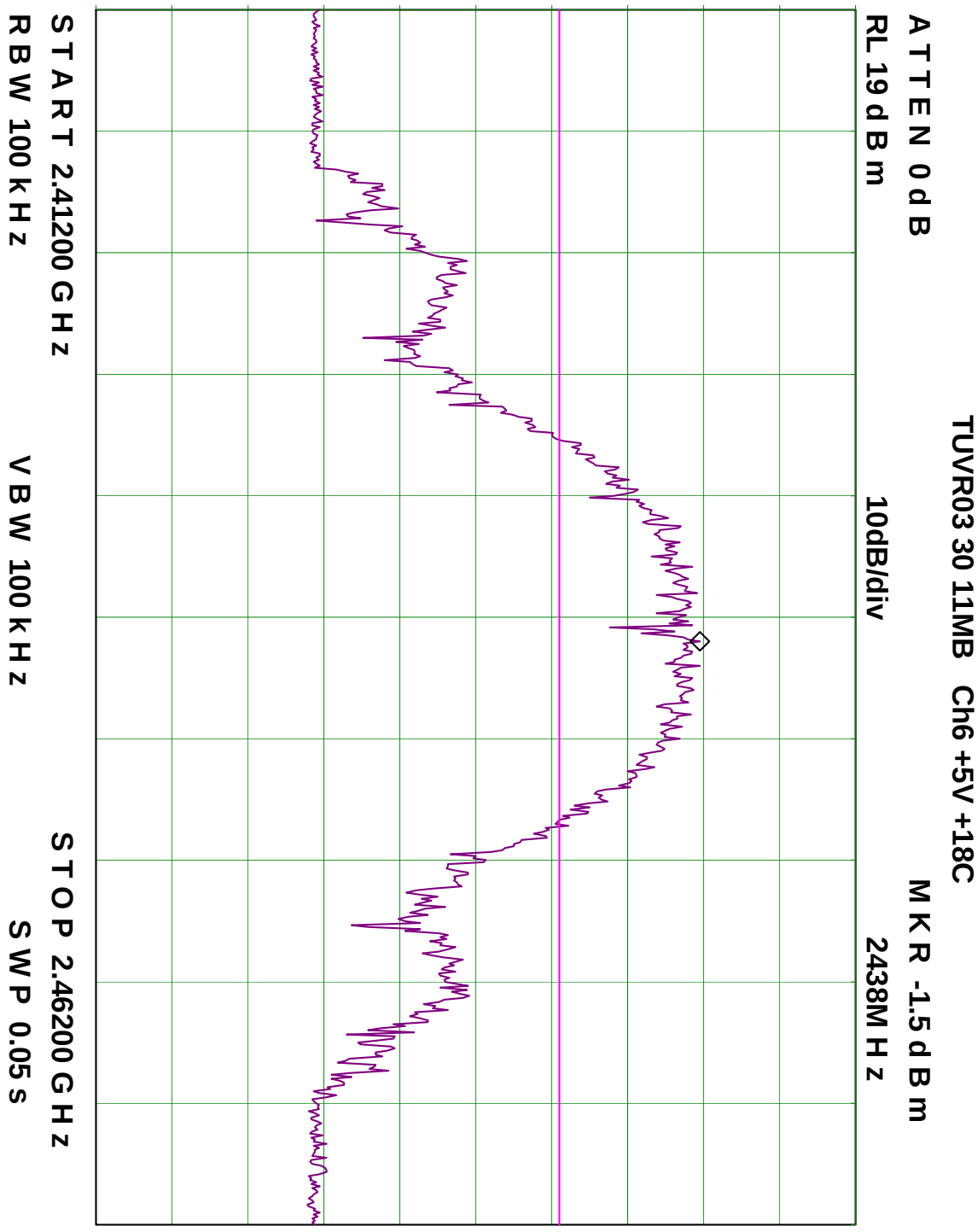

TUVR03 25 1MB Ch1 +5V +18C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 0.34 dBm
2415.5MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

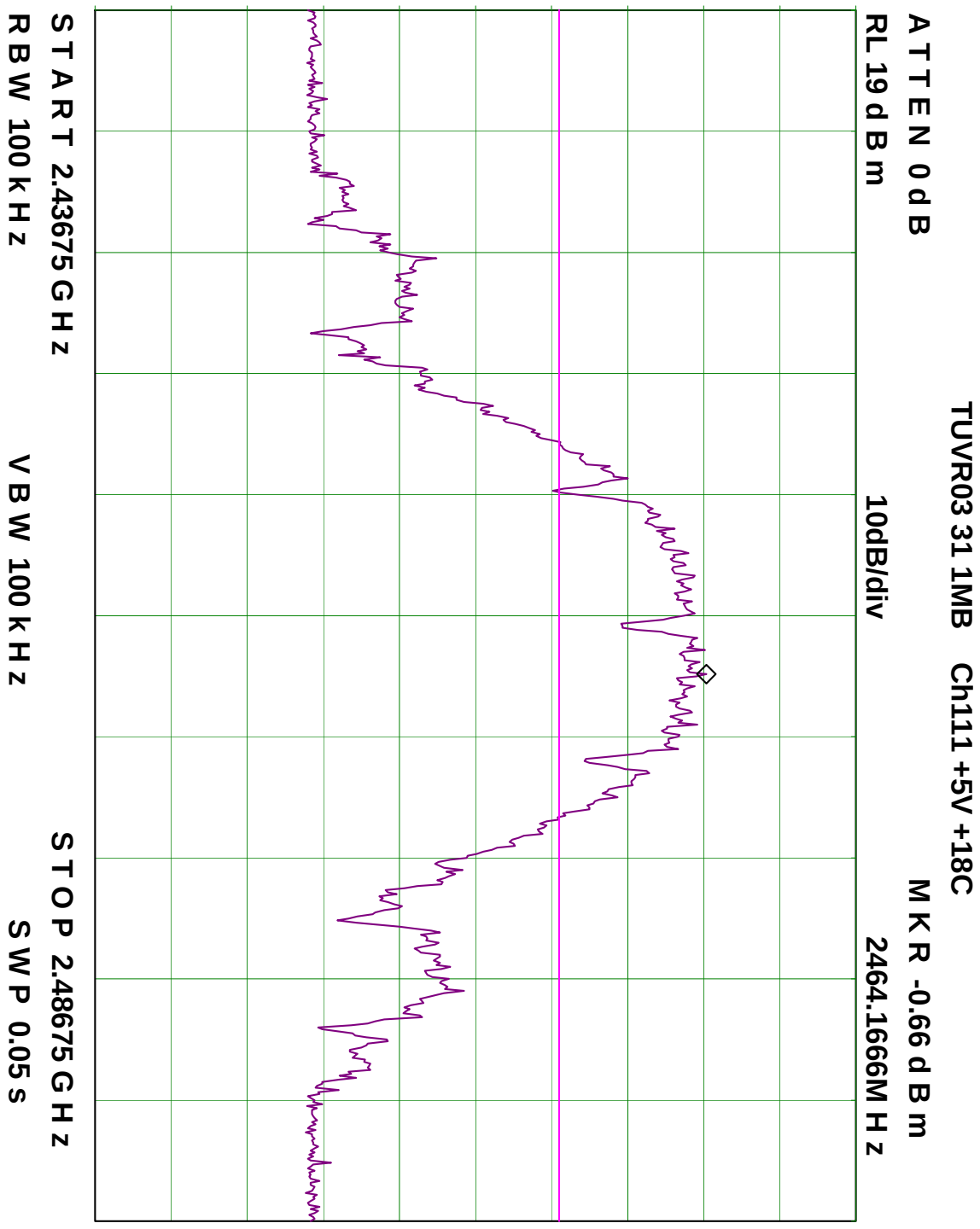

TUVR03 29 5.5MB Ch6 +5V +18C
ATTEN 0dB
RL 19 dBm
10dB/div
MKR -1.16 dBm
2438.1666MHz
START 2.41200 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.46200 GHz
SWP 0.05 s

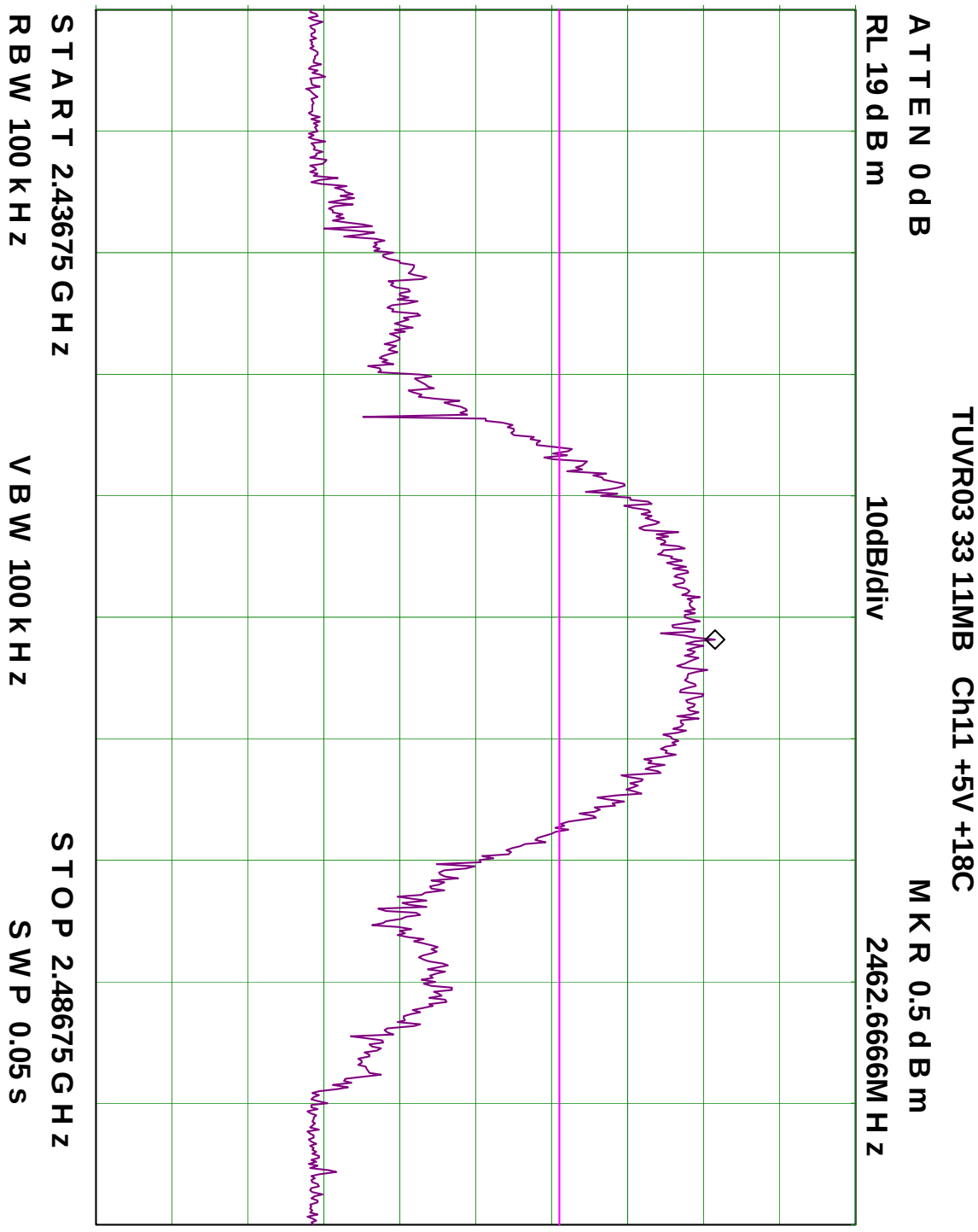

TUVR03 27 11MB Ch1 +5V +18C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 1.84 dBm
2412.666MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

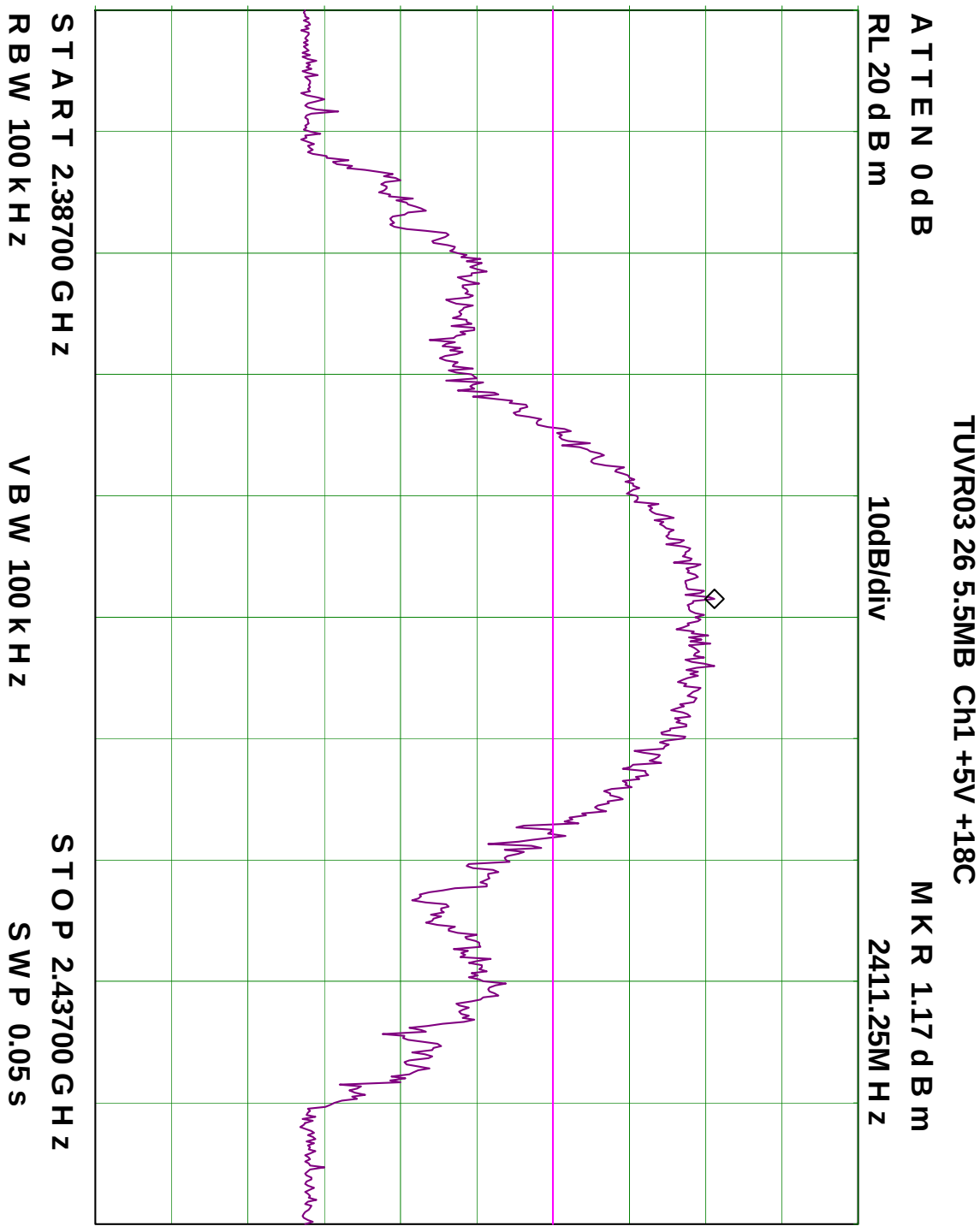

TUVR03 28 1MB Ch6 +5V +18C
ATTEN 0dB
RL 18 dBm
10dB/div
MKR -1.33 dBm
2436.4166MHz
START 2.41200 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.46200 GHz
SWP 0.05 s


TUVR03 32 5.5MB Ch11 +5V +18C
ATTEN 0dB
RL 19dBm
10dB/div
MKR -0.16dBm
2464MHz
START 2.43675GHz
RBW 100kHz
VBW 100kHz
STOP 2.48675GHz
SWP 0.05s

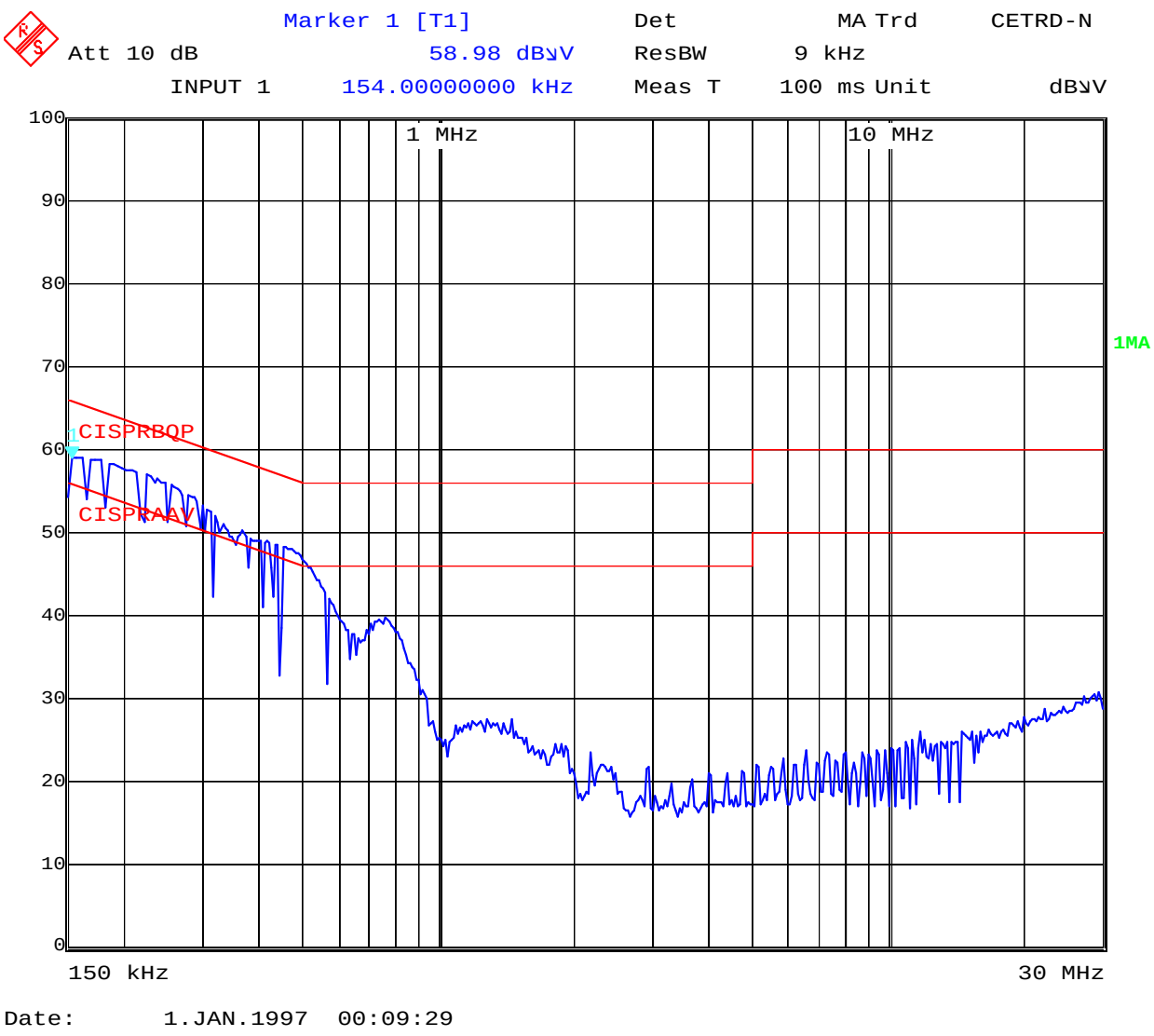

TUVR03 30 11MB Ch6 +5V +18C
ATTEN 0dB
RL 19dBm
10dB/div
MKR -1.5dBm
2438MHz
START 2.41200GHz
RBW 100kHz
VBW 100kHz
STOP 2.46200GHz
SWP 0.05s


TUVR03 31 1MB Ch111 +5V +18C
ATTEN 0dB
RL 19 dBm
10dB/div
MKR -0.66 dBm
2464.1666MHz
START 2.43675 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48675 GHz
SWP 0.05 s

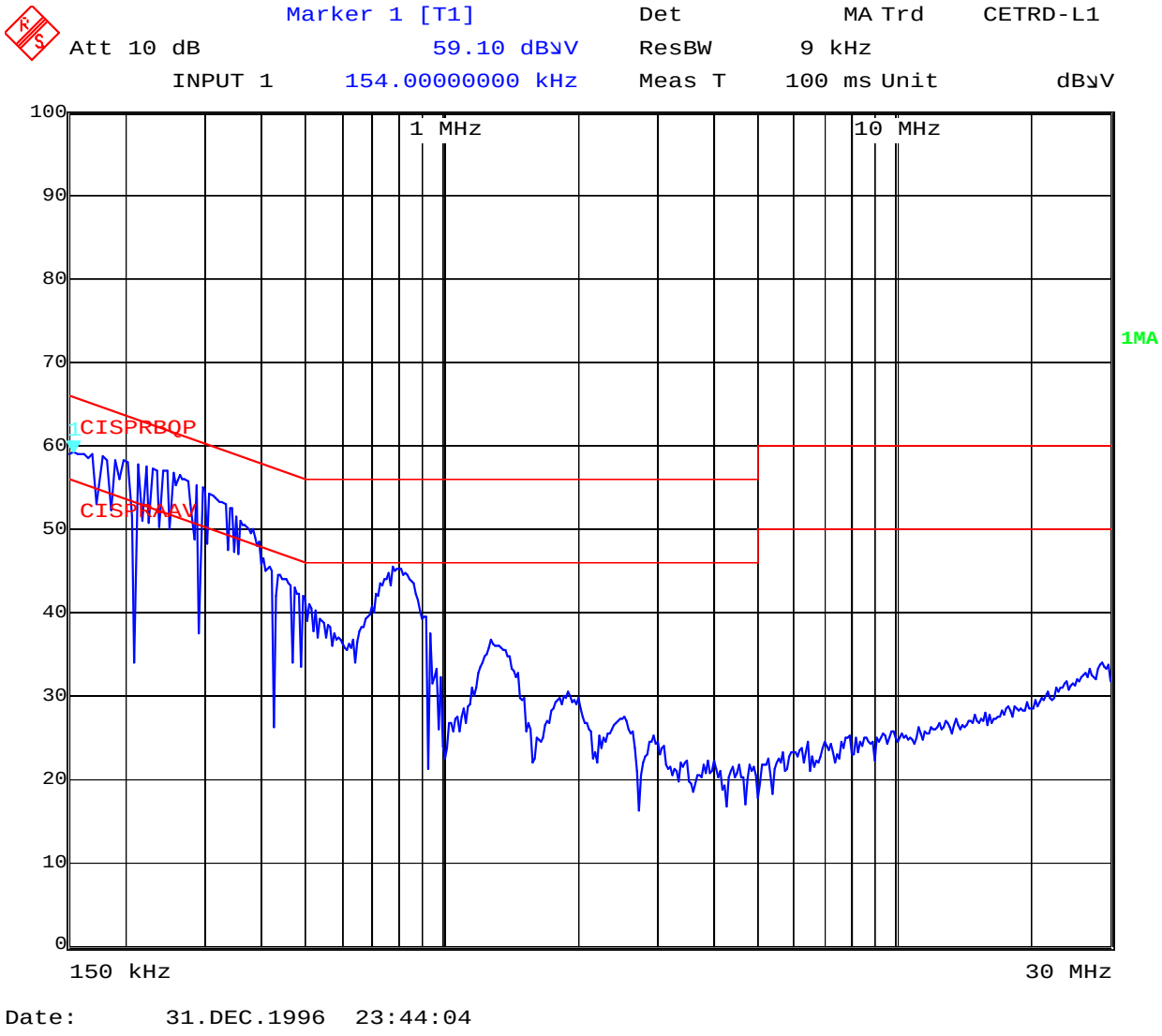

TUVR03 33 11MB Ch11 +5V +18C
ATTEN 0 dB
RL 19 dB m
10dB/div
MKR 0.5 dB m
2462.6666M Hz
START 2.43675 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.48675 GHz
SWP 0.05 s


TUVR03 26 5.5MB Ch1 +5V +18C
ATTEN 0dB
RL 20 dBm
10dB/div
MKR 1.17 dBm
2411.25MHz
START 2.38700 GHz
RBW 100 kHz
VBW 100 kHz
STOP 2.43700 GHz
SWP 0.05 s

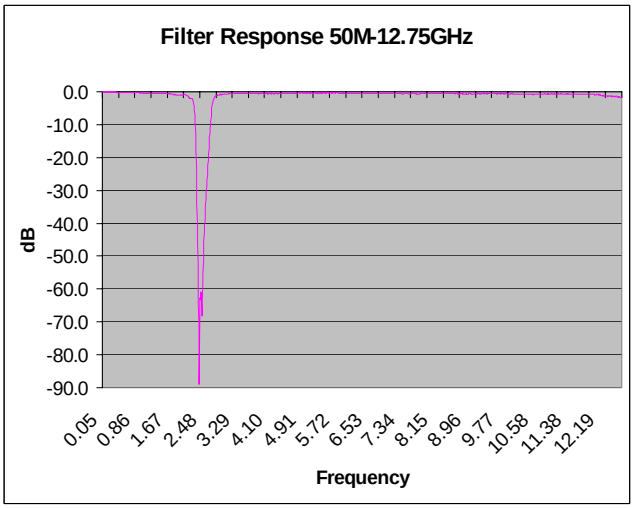
## Plot 34, AC Wireline Conducted Emissions Line N (Neutral)



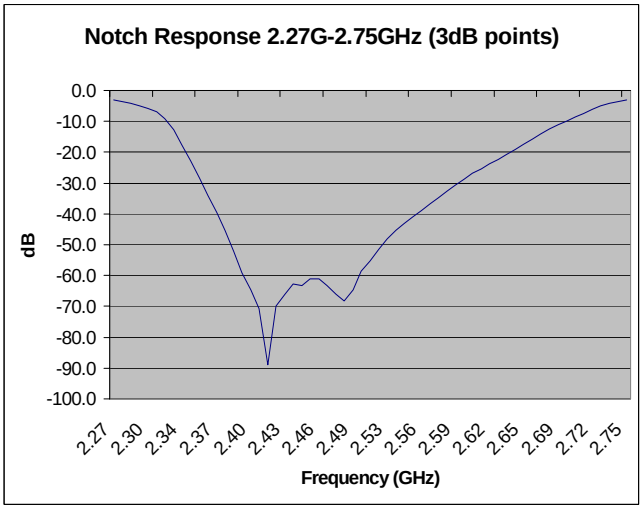
## Plot 35, AC Wireline Conducted Emissions Line L (Live)



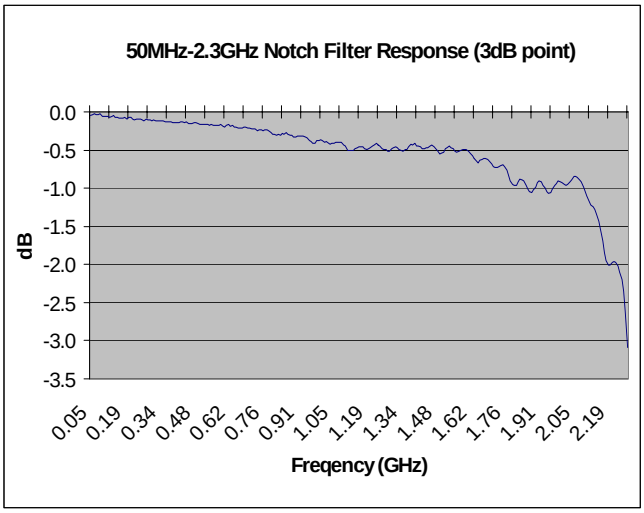
## Plots 38, 39, 40, 41 Notch Filter Response



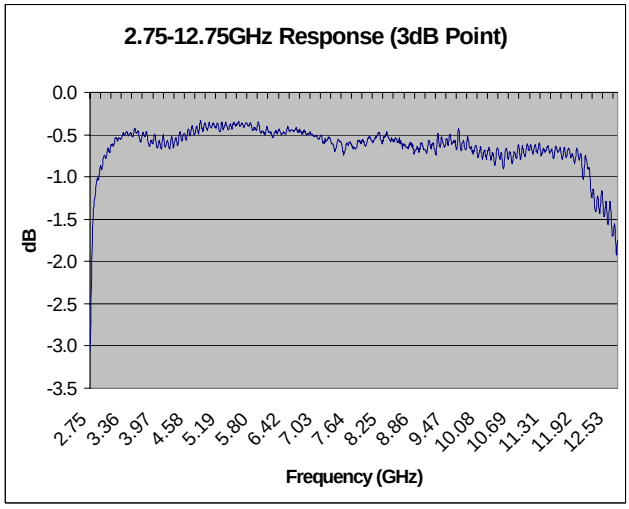

**TUVR04a/38**




**TUVR04a/39**




**TUVR04a/40**




**TUVR04a/41**

# 7 Test Equipment

| Asset Abbrev. # | Instrument | Manufacturer | Part # | Calibration Due Date | Serial # |
|---|---|---|---|---|---|
| Bar 1 | Barometer/Thermometer | Control Co. | 4196 | 8 Jun '05 | E2844 |
| RVA 01 | Variable Coaxial Attenuator | Weinschel | 940-60-33 | 22 Jun '04 | A6595 |
| K-CBL 08 | SMA Cable | Megaphase | Sucoflex 104 | 27 Jun '04 | Unknown |
| K-CBL 10 | SMA Cable | Megaphase | Sucoflex 104 | 24 Oct '04 | Unknown |
| K-CBL 11 | SMA Cable | Megaphase | Sucoflex 104 | 27 Jun '04 | Unknown |
| 15F50B001 | BNC Cable | Megaphase | Unknown | 26 Oct '04 | Unknown |
| 15F50B002 | BNC Cable | Megaphase | Unknown | 26 Oct '04 | Unknown |
| 10F50B003 | BNC Cable | Megaphase | Unknown | 26 Oct '04 | Unknown |
| 15F50N001 | N-Type Cable | Megaphase | Unknown | 26 Oct '04 | Unknown |
| 10F50N003 | N-Type Cable | Megaphase | Unknown | 26 Oct '04 | Unknown |
| 5F50N001 | N-Type Cable | Megaphase | Unknown | 26 Oct '04 | Unknown |
| ANT 1 | Antenna (30M-2GHz) | Schaffner and Chase | CBLG140A | Not Applicable | 1195 |
| ANT1-18 | Horn Antenna | The Electro-Mechanics Company | 3115 | 21 Oct '04 | 9205-3882 |
| CHMBR 1 | Environmental Chamber | Thermotron | SE-300-2-2 | 17 Jun '04 | 27946 |
| Thcpl 3 | Resistance Thermocouple | Thermotronics | 9340 | 24 Oct '06 | #3 |
| Notch 1 | 2.4GHz | Microtronics | BRM50701 | Not Applicable | 001 |
| ReCVR 1 | EMI Receiver | Rhode & Schwartz | ESI 7 | 16 Mar '05 | 838496/007 |
| LISN 1 | LISN | Rhode & Schwartz | ESH3Z5 | 25 Oct '04 | 836679/006 |
| PMtr 1 | Power Meter | Hewlett Packard | 437B | 13 May '05 | 3125U13552 |
| PSnsr 1 | Power Sensor | Hewlett Packard | R8485A | 16 Mar '05 | 3318A19694 |
| PSnsr 3 | Power Sensor | Hewlett Packard | 8487D | 14 May '05 | 3318A00371 |
| S-Anlr 1 | Spectrum Analyzer | Hewlett Packard | 8565E | 30 Jun '04 | 3425A00181 |
| SSwpr 4 | Synthesized Sweeper | Hewlett Packard | 83640A | 30 Jun '04 | 2927A00105 |

# 8

## Summary Of Test Results

Test results reported in this document relate only to the items tested

| Parameter | C | NC | NT | NA | Reference to remark |
|---|---|---|---|---|---|
| **Transmitter characteristics** | | | | | |
| Bandwidth at 6dB | X | | | | |
| Occupier Bandwidth 20dB | X | | | | |
| Band-Edge | X | | | | |
| Out of Band Emissions (20dB) | X | | | | |
| Processing Gain | | | | X | |
| Transmitter Output Power | X | | | | |
| Power Spectral Density | X | | | | |
| AC Wireline Conducted Emissions (450KHz-30MHz) | X | | | | |
| Restricted Band Radiation (30MHz-1GHz) | X | | | | |
| Restricted Band Radiation (1GHz-25GHz) | X | | | | |

*Note:* *C:* *The parameter is compliant with the requirements.*
*NC:* *The parameter is not compliant with the requirements.*
*NT:* *The parameter is not tested.*
*NA:* *The test of this parameter is not applicable.*




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