

# RWC2500A

## Modulation Analyzer



### Description

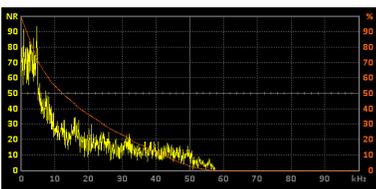
The RWC2500A is an advanced instrument specifically designed to offer valuable functionalities for analyzing and measuring FM/AM modulation characteristics with great precision. Its exceptionally low oscillator tolerance and high Signal-to-Noise Ratio (SNR) enable it to accurately measure broadcast transmission signals. This equipment offers remarkable performance as a monitoring device for broadcasters' quantitative analysis values, including transmission level, frequency error, FM deviation, and pilot level of FM broadcasting signals. Furthermore, it can provide MPX power and peak deviation measurements in line with the ITU-R SM.1268-1 standard. Its user-friendly touch screen function makes it incredibly easy to select the desired demodulation method or switch to the desired screen, further enhancing its usability.

### Key Features

- High SNR measurement: > 80dB
- Left-Right audio Isolation: > 70dB
- Very low oscillator tolerance: < 1.0ppb
- RF and MPX spectrum measurement
- FM deviation distribution analysis
- FM signal analysis and measurement
- RDS (RBDS) analysis (TBD)
- AM signal analysis and measurement
- Integrated audio analyzer
- Audio spectrum and waveform measurement
- Stereo crosstalk measurement
- Audio frequency response measurement
- Reference audio signal generator
- Demodulated audio output
- Modulation and audio measurement data logger

### FM Analyzer

The RWC2500A boasts an extensive array of advanced functionalities that enable thorough analysis of FM signals, catering to the intricate requirements of the broadcasting industry. Among these capabilities is an advanced RF spectrum analyzer that facilitates meticulous analysis of the RF characteristics of FM signals. Additionally, its FM deviation analyzer can



perform a detailed assessment of the quality of FM modulation, including modulation power, to ensure optimal audio quality. The MPX analyzer integrated into the RWC2500A is capable of analyzing the frequency characteristics of MPX composite signals, thereby enabling broadcasters to detect and eliminate any potential issues with utmost precision.

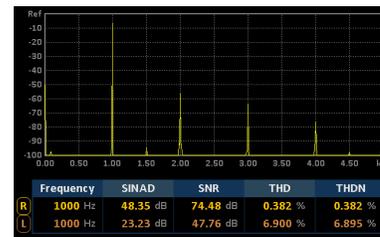


### AM Analyzer

The RWC2500A offers a range of sophisticated functionalities for thorough analysis of AM signals. With its RF spectrum analyzer, this equipment enables meticulous analysis of the RF characteristics of AM signals, providing detailed insights into the intricacies of the modulation process. Additionally, the equipment incorporates essential features to examine the waveform and spectrum of the demodulated audio signal, facilitating comprehensive analysis of the signal's characteristics. Moreover, the RWC2500A can accurately identify and assess the frequency response of the AM signal, further enhancing its analytical capabilities.

### Audio Analyzer

The RWC2500A incorporates a sophisticated audio analyzer that provides valuable insights into the characteristics of the demodulated audio signal. The RWC2500A accurately shows the spectrum and waveform of the signal, enabling thorough analysis of the audio quality. Moreover, the



RWC2500A can quantify the signal quality using a tone audio signal, generating numerical data on critical parameters such as Level, Signal-to-Noise Ratio (SNR), Signal-to-Noise and Distortion Ratio (SINAD), Total Harmonic Distortion (THD), and Total Harmonic Distortion plus Noise (THDN). This feature further enhances the



equipment's analytical capabilities, enabling broadcasters to obtain valuable data on the performance of their transmission signals. Furthermore, the RWC2500A also incorporates sophisticated features to

examine the waveform and spectrum of the demodulated stereo/mono audio signals, as well as identify cross-talk and frequency response, providing a comprehensive overview of the signal's characteristics.

### Demodulated Audio Output

The RWC2500A is equipped with versatile output ports on the rear panel, enabling broadcasters to output the demodulated FM/AM audio signal in real-time. The equipment supports balanced, unbalanced, and digital formats (AES/EBU), which can be conveniently routed through the BNC and XLR ports. This feature enables seamless integration of the RWC2500A with an external audio measurement equipment.

### Reference Audio Generator

The RWC2500A is capable of generating a reference audio signal, which can be output through its versatile BNC and XLR ports located on the rear panel, and it supports balanced, unbalanced, and digital formats (AES/EBU), providing flexibility in routing the signal to various test and measurement equipment. The RWC2500A can produce pure sine wave tones for both left and right channels, covering a broad frequency range from 0.1kHz to 20.0kHz. This feature further enhances the RWC2500A's versatility, allowing users to utilize it for various kinds of audio testing purposes.

### RDS Analyzer (TBD)

The RWC2500A comes with a comprehensive RDS analyzer that enables the demodulation and real-time analysis of RDS signals within the FM broadcast. The RDS analyzer can analyze all the RDS raw data and store it internally within the RWC2500A. The RDS raw data can also be outputted in real-time through the USB-C (VCOM) port located on the rear panel or dumped to a user PC through LAN.

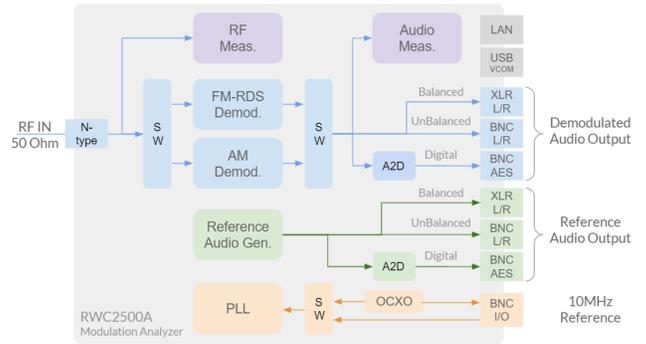
### Measured Data Logging Function

The RWC2500A offers the capability to store and retrieve measured data within a specified time frame, ranging from hours to days. It also includes an alert function that triggers if the measured value deviates from the preset threshold during monitoring.

### RF Specifications

- Input Frequency: 500kHz to 30MHz, 76MHz to 108MHz
- RF Frequency Resolution: 1Hz
- Stability of 10MHz OSC: < 1.0ppb, aging of < 1x10<sup>-9</sup>/day
- Low Noise Local Oscillator: < Typ. -130dBc @1GHz
- Input Power Level: 30dBm to -30dBm
- RF Measurement SNR: > 80dB
- Power Measurement Error: < Typ. 0.5dB
- Frequency Measurement Error: < 10Hz @100MHz

### Block Diagram



### Interfaces

#### RF signal Input

- N type (50 Ohm)

#### Demodulated Audio Signal Output Port

- Balanced: 2 XLR (Left, Right, 600 Ohm or 8 Ohm)
- Unbalanced: 2 BNC (Left, Right, 75 Ohm)
- Digital: 1 BNC (AES/EBU, 110 Ohm)

#### Reference Audio Signal Generator Output Port (optional)

- Balanced: 2 XLR (Left, Right, 600 Ohm or 8 Ohm)
- Unbalanced: 2 BNC (Left, Right, 75 Ohm)
- Digital: 1 BNC (AES/EBU, 110 Ohm)

#### 10MHz Reference Clock Port

- Input: 1 BNC (50 Ohm)
- Output: 1 BNC (50 Ohm)

#### Digital IO

- LAN: RJ45
- RS232: USB-C type (VCOM)

### Miscellaneous

- Display: 5" Graphic LCD (800x480, touch enabled)
- Operating temperature: 5 ~ 40°C
- Line Voltage: 100 to 240 VAC, 50/60Hz
- Dimensions: 250(w) x 110(h) x 348(d) mm
- Weight: 5kg

### Contact

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