

# RTX2201

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## TEST EQUIPMENT FOR 2.4GHZ

### General Description

The RTX2201 2.4 GHz Communication Tester supports a range of different RF tests and can be used for high throughput manufacturing applications, and also as a development or service tool.

The tester can basically be setup as either a handset or a base station, with added test capabilities.

Used in fixed part testing, the 2.4GHz RF Communication Tester acts as a handset and the Device Under Test (DUT) acts as a base station. Used in Portable Part testing, the 2.4 GHz RF Communication Tester acts as a base station and the Device Under Test (DUT) act as the handset.

You can operate the tester using the supplied Windows® based user interface or by sending SCPI format commands, either in the Windows environment or from within a test executive.

The operation of the DUT is controlled via the Air Interface. Using a RF tool program or with a batch file execution, you can set the DUT into test mode and carry out Transmitter and Receiver test.

2.4 GHz RF components that are unable to establish a link can be tested using the implemented RF Analyzer and RF Generator modes.

In addition to the RF IN/OUT port for connection with the DUT, several additional rear panel connections are provided.

**Functionality**

**Portable Part test**

– Ability to act as a base station fixed part, let the DUT (handset) lock onto the applied dummy signal and establish a test mode connection with a DUT (handset), measuring the RF characteristics.

**Fixed Part test**

– Ability to act as a Handset part, locking onto a base station under test. With the Base station test mode enabled, the RF characteristics can be measured.

Using the Windows based MMI, all transmitter and receiver measurements are shown in a separately window, with bars and graphs for identifying pass/fail limits.

**Operating frequency**

Under test, all frequencies can be used either as a single channel or after a hopping scheme, simulating a normal transmission environment.

**RF level**

The RF output level can be adjusted “on the fly” for determining sensitivity of the device under test. The RF Level output range is between -100 to -40 dBm.

**Signaling mode**

The RTX 2201 2.4GHz Communication Tester is using loop back signaling, transmitting data to the DUT and receive the looped data for RF analyses.

This method makes it possible to measure several RF parameters transmitted by the Device under test, as well as determine the DUT receiver sensitivity.

**Modulation**

Several different RF test signal modulation can be selected to obtain accurate measurements.

- PSRB – Pseudo random bit sequence, similar to the signals sent in a real-life operation.
- SPSR - Static pseudo random bit sequence.
- BS55 - Alternating zeroes and ones. Has the smallest deviation.
- BS33 - Alternating double zeroes and ones.
- BS0F - Four times zeroes and four times ones repeatable.

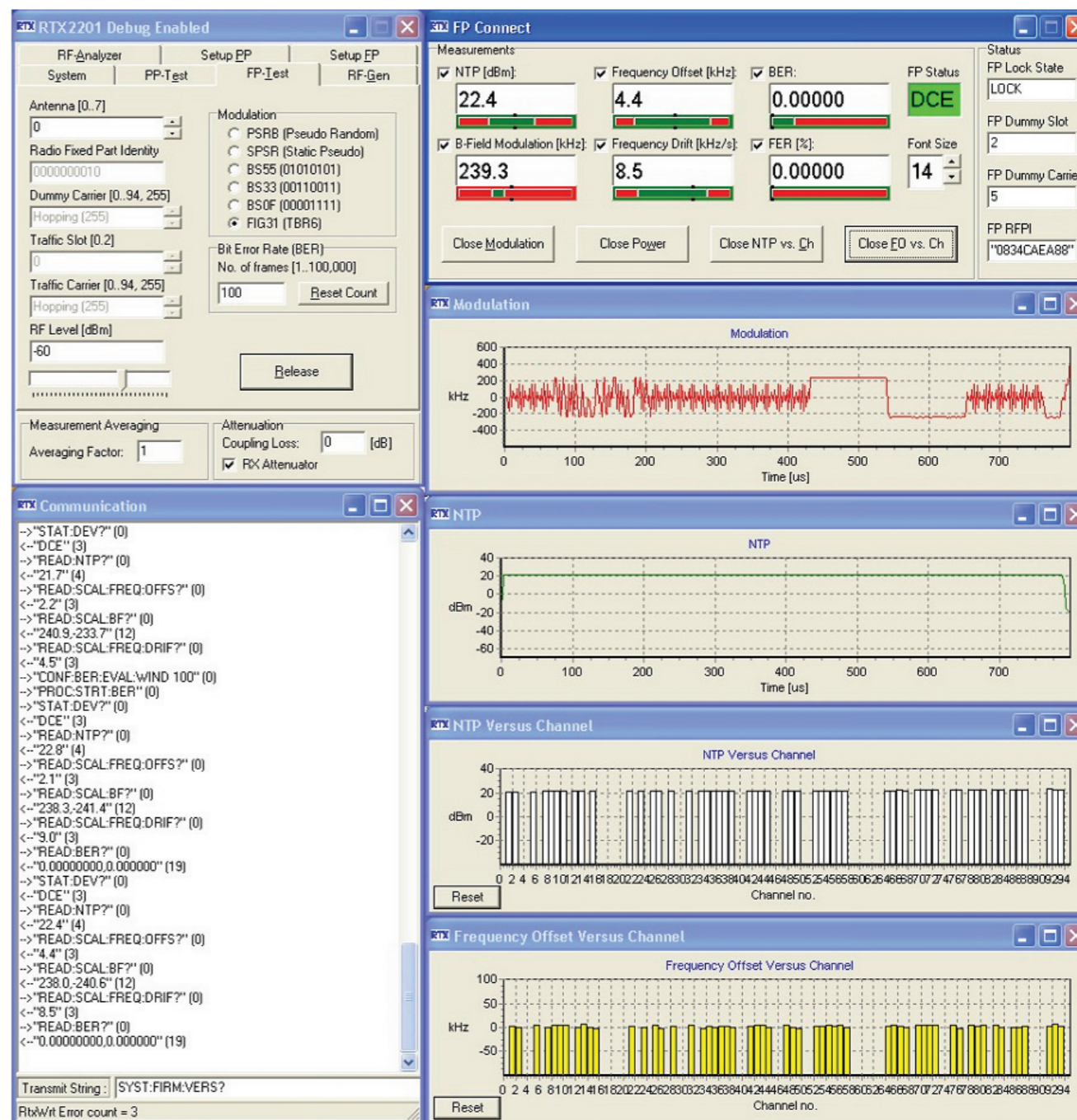


Figure – Windows user interface showing a fixed part test. The Communication window is very useful creating your own production test program.

**RF measurements**

The listed measurements are available with the tester.

- NTP
- Frequency Offset
- Frequency Drift
- Frequency Deviation
- Bit Error Ratio
- Frame Error Ratio

Graphical results showed using the MMI:

- NTP
- Modulation
- NTP versus channel
- Frequency offset versus channel



# TECHNICAL SPECIFICATIONS

## Performance and characteristics

### Signal generator

RTX2201-79-9-1024

Ranging from 2400.9833 to 2481.6018 MHz

RTX2201-79-10-1033

Ranging from 2400.9833 to 2481.6018 MHz

RTX2201-95-4-576

Ranging from 2401.0560 to 2482.2720 MHz

RTX2201-47-10-1152

Ranging from 2401.9200 to 2481.4080 MHz

Accuracy  $\pm 1.5$  ppm

Aging rate  $\pm 1.0$  ppm/year

### Output Power

Level range: -100 to -40 dBm

Resolution: 0.1 dB

Error <  $\pm 1.6$  dB (-95 to -40 dBm)

Error <  $\pm 2.2$  dB (-100 to -95 dBm)

### Analyzer

RTX2201-79-9-1024

Ranging from 2400.9833 to 2481.6018 MHz

RTX2201-79-10-1033

Ranging from 2400.9833 to 2481.6018 MHz

RTX2201-95-4-576

Ranging from 2401.0560 to 2482.2720 MHz

RTX2201-47-10-1152

Ranging from 2401.9200 to 2481.4080 MHz

### Power measurement

- Input level (NTP): +30 to -40 dBm
- Resolution 0.1 dB
- NTP Error <  $\pm 1.5$  dB
- FM Demodulator
- Range -450 to 450 kHz deviation
- Resolution 1 kHz
- Modulation error (Fig31) approx. 20 kHz at max deviation

## General Specifications

### Input/output connectors

- RF In/Out N(f), 50  $\Omega$
- Parallel Port 25-pin D-sub (m)
- Serial Port (RS 232) 9-pin D-sub (m)
- Analog Outputs, BNC(f)
  - Receive Data (inverted)
  - Power Envelope
- Digital outputs, BNC(f)
  - Timeslot
  - CLK 100

### Environmental Conditions

Rated operating temperature range

**15°C to 35°C**

Storage temperature range

**-20°C to 60°C**

Operating Humidity

Up to **95% relative humidity to 40°C** (non-condensing)

### Power Supply

Supply Voltage

**100-120VAC, 200- 250VAC 50-60 Hz**

Power consumption

**30 VA maximum**

Physical Dimensions

**92 mm (H) x 484 mm (W) x 280 mm (D)**

Weight

**3.0 kg**

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