TLF3000®
RF PHY Test Solution for 2.4GHz ISM Band Technologies

Key Features and Benefits

- TLF3000 is at the core of the Bluetooth SIG-recognized FRVS Bluetooth RF Test System

- Highly versatile solution covering multiple 2.4 GHz technologies including Bluetooth Classic BR/EDR, Bluetooth LE and 802.15.4

- Bluetooth Classic (BR/EDR) and LE Licenses include test scripts to run all test cases from Bluetooth RF Test specification – provides pre-compliance test solution prior to formal testing at test house

- Eliminates the need for multiple pieces of test equipment and simplifies test case set-up

- High-speed test solution e.g. In-band emissions test completes in 2.5 ms

- Packetized and interferer signal generation and analysis in one package

- Simple and intuitive GUI quickly identifies faults

- Standalone mode - test scripts can reside on a USB drive

- Test results can be exported to HTML, XML, CSV, and raw data formats

- Python + C API available for production environment

TLF3000 Wireless RF PHY tester is a wideband, ultra-high dynamic range 2.4 GHz software-defined receiver, signal analyzer and signal generator. It captures and analyzes the entire 2402-2480 MHz band, simultaneously providing RF PHY testing, signal generation, signal analysis in one powerful package.

Licensing options are available to cover Bluetooth® Classic (BR/EDR), Bluetooth LE and 802.15.4 technologies, making the TLF3000 a highly versatile RF PHY tester.

One-Box Test Solution

A significant challenge for wireless product manufacturers has traditionally been the daunting range of test equipment and test set-up required for thorough testing of the RF interface. Often, issues are not found until products are submitted for testing at a qualification test house. With one portable package, the TLF3000 negates the need for multiple pieces of RF test equipment, and simplifies the test set-up using pre-defined test scripts that set all the parameters for each test. TLF3000 combines packetized signal and CW generation, in-band and out-of-band interferers, and a signal analyzer all combined into one box.

The TLF3000 can be used as a pre-compliance tester to ensure that products are ready for formal testing.

The TLF3000 is designed for in-depth analysis of the RF PHY layer enabling developers to create products with a robust RF foundation that comply with the relevant specifications for **Bluetooth Classic (BR/EDR)**, **Bluetooth LE** and **802.15.4**.

For Bluetooth Classic (BR/EDR) and Bluetooth LE, licenses provide access to predefined RF PHY test scripts to execute test cases from the Bluetooth RF test specifications. In addition to testing to the specification as the default mode, the user has the ability to change the parameters so that the DUT can be tested beyond the limits of the test specification. Users also have access to signal generator and signal analysis modes to test RX and TX interfaces independently.
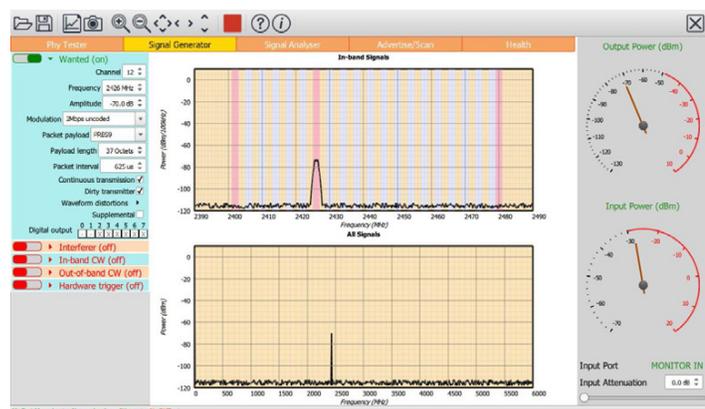
Specifications

- **Supported Host OS**
  Windows 7, 10 and 11

- **Host Interfaces**
  USB
  - Connector type: Micro-USB
  - Speed Rating: High Speed
  - VBUS Load: 2.2 µF, > 10 kΩ
  Ethernet
  - Connector type: RJ45
  - Speed: 10 / 100 / 1000

- **Input Power**
  - Connector type: 2.5 mm jack
  - Input voltage: 12 V DC
  - Power: 10 W typ (application dependent)
  - Reverse polarity protection: Yes
  - Over voltage protection: Yes
  - Under voltage protection: Yes

- **Dimensions**
  158.5 mm x 160.0 mm x 47.0 mm (6.3" X 1.9" X 6.3")

- **Weight**
  1.3 kg (2.87 lb)

- **Operating Temperature**
  0°C to 40°C

- **Humidity**
  0% - 90% (0 °C – 35 °C), non-condensing
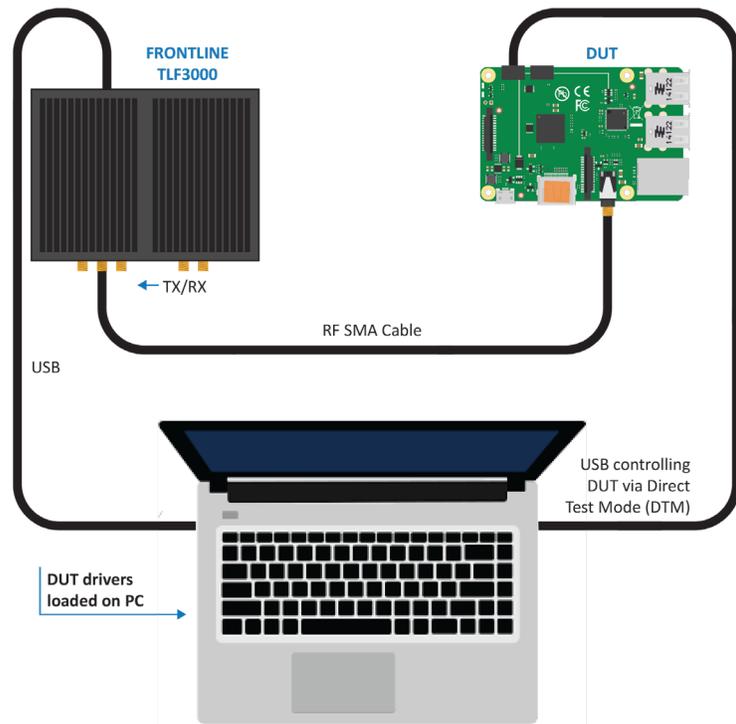
Typical Testing Configuration

TX/RX Port

Function	Low sensitivity 2.4 GHz RF input and signal generator output / Suitable for conducted measurements
Connector Type	SMA
Impedance	50 Ω
Coupling	AC
Maximum DC Voltage	50V

Receiver Specification for TX/RX Port

Noise figure	4.6 dB typ
IP3 @ max sensitivity	+47 dBm typ
SNR in 1MHz bandwidth	80 dB typ
Maximum input signal	27 dBm
Maximum usable signal	27 dBm typ
Frequency range	2401-2481 MHz

Ordering Information

Developer Configuration	Product Code
TLF3000 RF PHY Tester Hardware	2014-25000-000
TLF3000 RF Tester Suite - Bluetooth LE Developer	2013-22250-003
AoA/AoD Test Case Support (requires 2013-22250-003)	2013-22250-020
TLF3000 RF Tester Suite - BR/EDR Developer	2013-22250-025
TLF3000 RF Tester Suite - 802.15.4 Developer	2013-22250-026

Local sales offices are located throughout the world. Visit our website to find the most convenient location.

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