

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 with Developer and Production licenses available
- License options available for Bluetooth LE Production tester to support multiple DUT testing (2, 4, and 8)
- 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 with two modes of functionality for Developer and Production line test environments, 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 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.

Developer Tester

The TLF3000 developer configurations are 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, the developer 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.

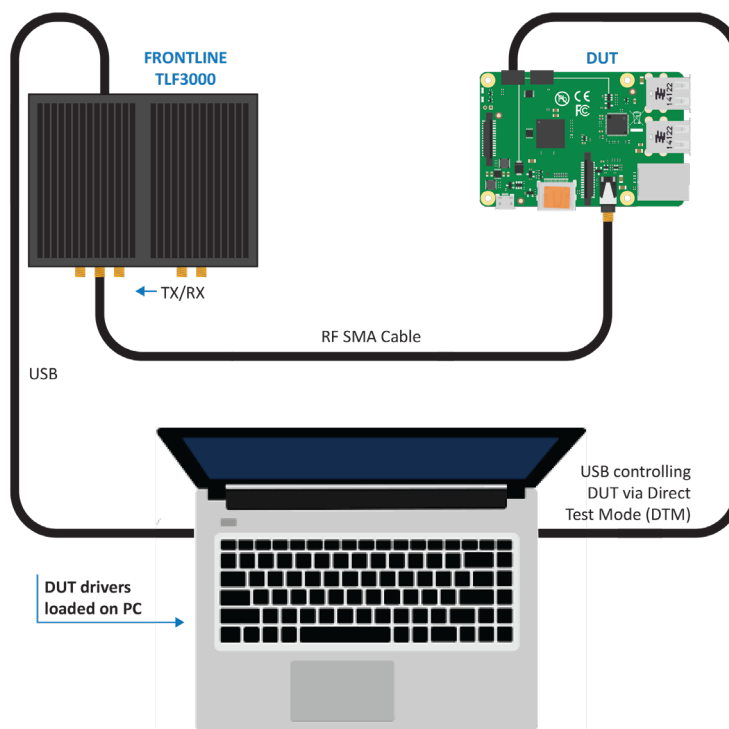
Production Tester

The TLF3000 production configurations, which also cover **Bluetooth Classic (BR/EDR) and Bluetooth LE**, provide a limited GUI allowing the user to preselect relevant test cases which, when saved as a script, can then be run remotely in a production line test environment. The TLF3000 has a native language to control test case functionality and an API that can be driven via Python or C/C++ scripts.

For Bluetooth LE, there are licenses available to support testing of multiple (2, 4, 8) DUTs simultaneously.

Specifications

- **Supported Host OS**
Windows 7, 10 and 11
- **Host Interfaces**
USB
- Connector type: Micro-USB
- Speed Rating: High Speed
- VBUS Load: 2.2 μ F, > 10 k Ω
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

TLF3000 RF PHY Tester Hardware
TLF3000 RF Tester Suite - Bluetooth LE Developer
AoA/AoD Test Case Support (requires 2013-22250-003)
TLF3000 RF Tester Suite - BR/EDR Developer
TLF3000 RF Tester Suite - 802.15.4 Developer

Product Code

2014-25000-000
2013-22250-003
2013-22250-020
2013-22250-025
2013-22250-026

Production Configuration

TLF3000 RF PHY Tester Hardware
TLF3000 RF Tester Suite - BR/EDR Production
TLF3000 RF Tester Suite - Bluetooth LE Production
AoA/AoD Test Case Support (requires 2013-22250-004)
2 DUT support (requires 2013-22250-004)
4 DUT support (requires 2013-22250-004)
8 DUT support (requires 2013-22250-004)

Product Code

2014-25000-000
2013-22250-005
2013-22250-004
2013-22250-007
2013-22250-009
2013-22250-010
2013-22250-021



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