F-Tester 5G

Efficient, reliable and accurate testing of data networks

Efficient testing of wireless network quality on mobile LTE and 5G or Wi-Fi technologies

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DATASHEET

F-Tester® 5G can verify performance parameters and reliability of fixed and wireless data communication networks.

- **Testing platform for NGA** (Next Generation Access), **VHCN** (Very High Capacity Network), **IoT, Industry** and **Smart Grid networks** (including SLA compliance).
- **Mobile network drive tests** with continuous GPS coordinates and radio-interface parameters recording.
- **Device or service.** F-Tester can be deployed as a terminal device by a customer or purchased as a service delivered by our expert team.
- **Customized tests.** F-Tester contains a set of pre-configured tests comprising the most common network performance benchmarking tasks. These tests can be easily customized to reflect the specific needs of the specific application.
- **Results understanding at a glance.** F-Tester plots the measurement results using time diagrams, histograms and box-plots, so that the results are quickly and easily understood, with visualizations designed to show relationships among the displayed parameters. The statistical extension provides quantification of important parameters for extremely comprehensive setups and compares these results with pre-set limits.

F-Tester is designed to measure parameters of communication networks that use TCP/IP protocols. These measurements rely on traffic definitions based on predefined traffic patterns and the results of such measurements are given as time-sequence of parameters such as response time of the network, round-trip time and error rate.
Analyses can be conducted by F-Tester itself or using a master computer that can interconnect several F-Testers and subsequently analyze the data and control measurements in a 24/7 mode of operation.

Testing options

- predefined traffic pattern measurements (traffic patterns of time-varying loads and packet lengths): constant, steps, saw traffic pattern or other traffic patterns
- measurement of network throughput in time (using UDP and TCP flows)
- multiple flows between several F-Testers in the network
- simulation of traffic patterns based on captured traffic, e.g., industrial protocols, http, VoIP, IPTV, etc.
- DoS and DDoS attacks

Types of tests:

- Short-term measurements
  - brief verification of a network
  - bottleneck detection
- Long-term measurements
  - detailed analyses scaled to hours, days or weeks
  - communication stability tests

Network topologies:

- point-to-point
- point-to-multipoint
- mesh

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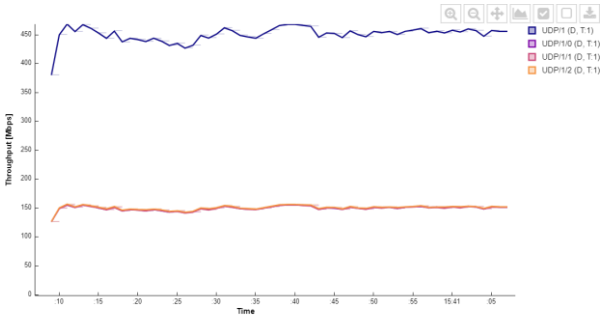
HTTPS://F-TESTER.FEL.CVUT.CZ
HTTPS://COMTEL.FEL.CVUT.CZ

Outputs:

- time charts (combination of multiple graphs in a single chart)
- histograms (distribution of a measured parameter frequency)
- statistics and box-plots (mean, variance, median, min-max value)
- threshold detection

Technical parameters



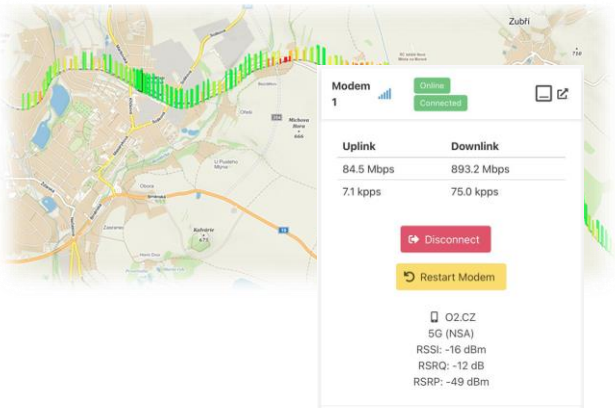
- data interfaces:
  - 2 x RJ-45 Ethernet 10/100/1000BASE-T
- monitoring interfaces:
  - 1 x RJ-45 Ethernet 10/100/1000BASE-T
  - 1 x DB9 – RS232

Wireless networks

- RF interfaces – SMA, impedance – 50 Ω
- Modem 4G/5G (3GPP Rel. 15)
  - 4x4 MIMO
  - Data rates:
    - 4G – to 2 Gbps downlink and 211 Mbps uplink (Cat 20), for downlink max. 7 aggregate bands
    - 5G – to 5.5 Gbps downlink and 1.5 Gbps uplink
  - Chip Qualcomm SDX55
  - 5G frequency bands
    - n1 (2100), n2 (1900), n3 (1800), n5 (850), n7 (2600), n12 (700), n14 (700), n20 (800), n28 (700), n30 (2300), n41 (TDD 2500), n66 (AWS-3), n71 (600), n77 (TDD 3700), n78 (TDD 3500), n79 (TDD 4500)
- Navigation system GNSS: GPS, GLONASS, Galileo, Beidou
- Wi-Fi module IEEE 802.11ac/a/b/g/n, 3x3 MIMO Wave 1, 2.4/5 GHz
  - Data rate to 1.3 Gbps
  - Chip Qualcomm Atheros QCA9880 v2
  - 2.4 GHz max. 21 dBm output power
  - 5 GHz max. 20 dBm output power
- NB-IoT module (special option)
  - Mode LTE Cat M1/ NB1/ EGPRS
  - Bands LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B251/B26/B28 LTE TDD: B39 (for Cat M1) EGPRS: 850/900/1800/1900 MHz
  - LTE Cat NB1 data rate 32 (DL)/ 70 (UL) kbps
  - LTE Cat M1 data rate 375 kbps

Other technical parameters:

- data storage: SSD 256 GB
- power supply: 12V DC, maximum power 16 W
- environmental conditions: 0–85 °C
- control: web interface, terminal
- IP Code: IP40



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