

# Universal Wireless Tester

Uses of new wireless technologies such C-V2X, 5G, LTE, 802.11 ax/ac/p, and BT-LE are expanding rapidly in the automotive industry. Production test of these technologies in TCUs, smart antennas, infotainment systems, e-call modules and other components requires a fast and flexible wireless test system optimized for the high antenna counts and high unit volumes typical in the industry. Noffz and NI have partnered to create the Universal Wireless Tester (UWT) to address these test challenges.

## Application Requirements

- **Flexibility and long-term support** – Test Coverage of legacy, current, and future wireless standards.
- **High RF port count** – Connections to DUTs with 8+ antennas for multiple wireless standards in one system.
- **Cost-effective** – Combine fast test times, high instrument utilization, and competitive ‘cost per RF port’ to provide the best possible total cost of test

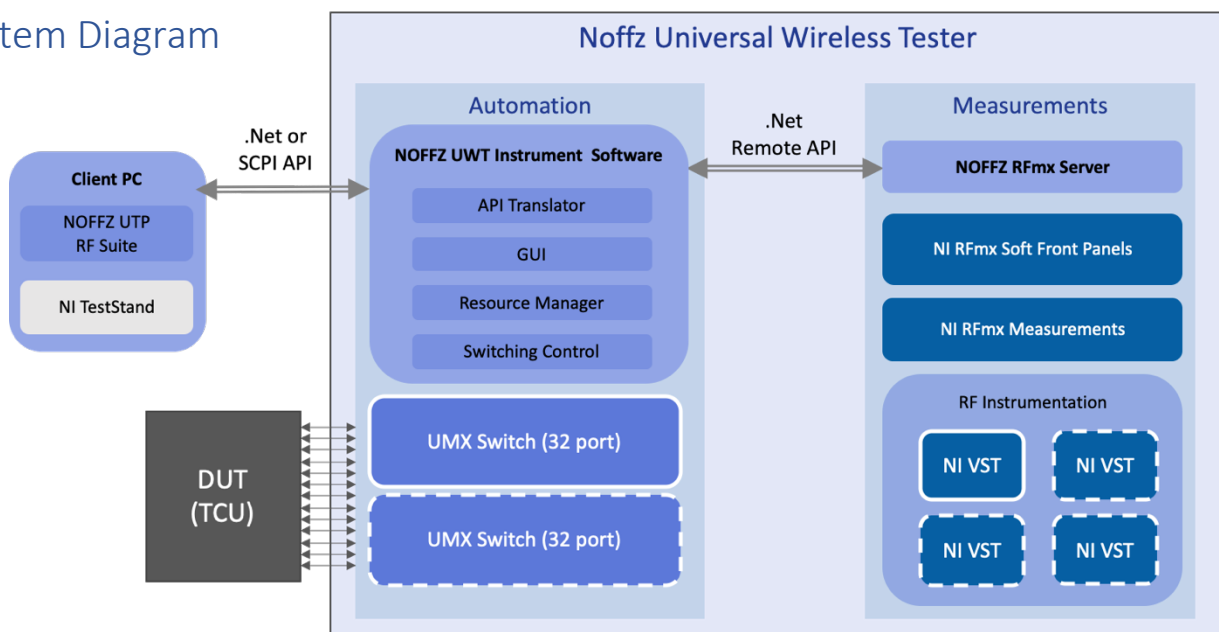
## The Noffz UWT Advantage

- Minimize downtime through automatic re-linking between test adapters and transceivers, allowing production to continue in case of failure of components
- Reduce test time through parallel DUT testing, automatic RF port routing and automatic resource sharing
- Reduce total cost of test through a faster test time, high port count, DUT control, signal conditioning integrated in the RF switch and system scalability to 5G NR, 802.11ax, 6GHz Wi-Fi

## Noffz Solution

- Open, scalable and software-centric system-based on NI PXI to test 5G NR, LTE, WCDMA, GSM, 802.11 a/b/g/n/ac/ax/p, BT, BT-LE through interactive soft front panels
- 32 bi-directional DUT ports with integrating signal conditioning, instrument SW for test resource management through Noffz UMX switch, and scalability to 64 ports per test system.
- RF Test suite for DUT Control, test sequencing, hardware abstraction and automatic switching

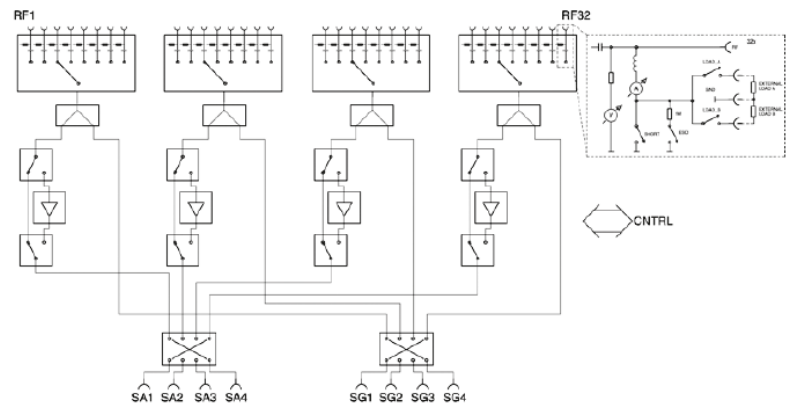
## System Diagram



## Key Specifications

Wireless Standards	5G NR, LTE, WCDMA, GSM, cV2X, 802.11 a/b/g/n/ac/ax/p, BT, BT-LE, GNSS, custom, ....
UMX Switch	32 bi-directional DUT ports, 4 RF analyzer, 4 RF generator ports, integrated signal conditioning w/ LNA, bias-T's, loads, bias voltage & current measurements
Operating Frequencies	100 kHz to 6GHz (8GHz w/ additional options)
Available Configurations	1, 2 or 4 NI Vector Signal Transceivers for operation with up to 64 simultaneous ports
Software Features	Interactive 'soft front panel' GUI with live debug; remote LabVIEW, SCPI & .Net APIs; Resource Manager for multi-DUT scheduling, port management, switching; Timing diagrams; Path loss calibration, ...

## UWT Configurations and Components



Noffz Universal Wireless Tester (UWT-21) and UMX Switch Block Diagram



### Full Turn-key 4-Up TCU/Infotainment Production Test System:

- 4 independent RF shielded chambers
- Exchangeable DUT fixtures for product variants
- Power, CAN, Ethernet, audio/A2B, video interfaces for complete DUT test coverage
- Service and support for global deployments

## Noffz Technologies

Noffz Technologies is a Platinum NI Alliance Partner that creates test systems for Automotive with focus areas in Infotainment/HMI, Connectivity, and ADAS. With offices in 6 countries, NOFFZ provides engineering consulting services, system integration, and turn-key tester development in applications including HIL, product validation, and high-volume production test.

**Contact** your NI account manager or call or e-mail Noffz Technologies to learn more about how NI + Noffz can help you increase product quality and accelerate testing timelines.

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