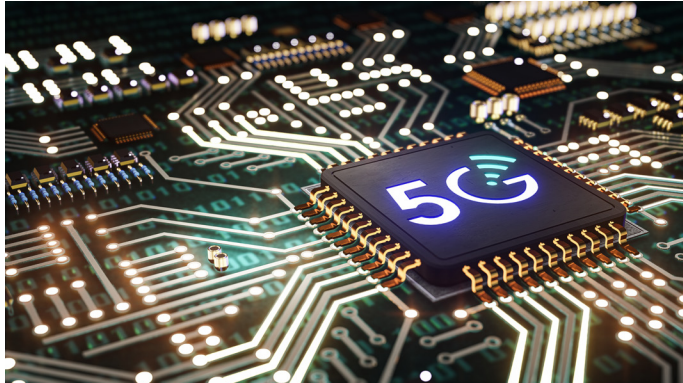


5G Open RAN Testing

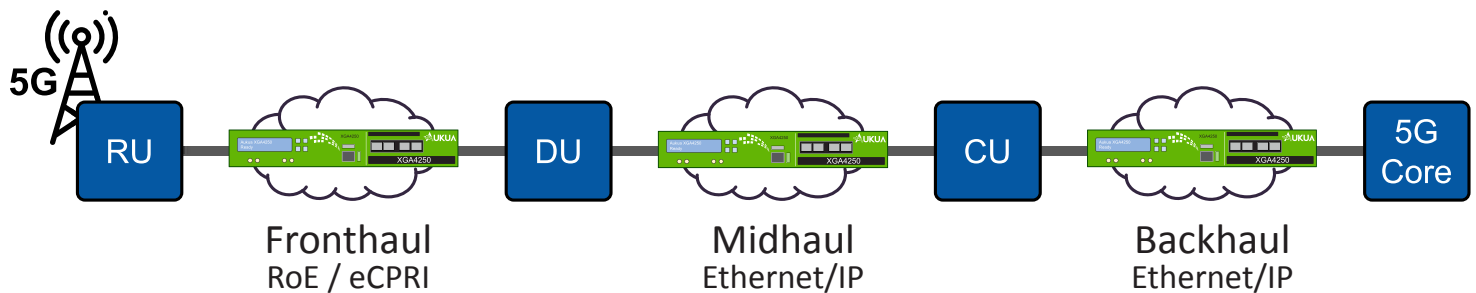


5G mobile technology promises to support the demand for higher bandwidth services, lower latency requirements, and to cope with the rapidly rising number of devices connecting to the network. To meet this challenge, while also reducing deployment costs, operational costs and increasing flexibility, 5G networks utilize an open model of the Radio Access Network (RAN). This splits functions between the Centralized Unit (CU), Distributed Unit (DU) and the Radio Unit (RU), and the O-RAN Alliance was formed to create open interface specifications.

In addition, the RAN is moving to a packet switched architecture to increase bandwidth efficiency and add flexibility. These packet based networks like Ethernet introduce new issues such as delay variation and packet loss, causing problems with timing protocols and latency sensitive applications being transported over the RAN. For this reason the RAN hardware and applications running over the RAN must be thoroughly tested and qualified while under the presence of real-world network delay and impairments. Gaining visibility by performing packet captures with high precision time-stamps between different RAN elements is critical for timely trouble-shooting and debugging of issues.

Real-World Testing Solution For The 5G Open RAN

Aukua's XGA4250 is perfectly positioned to help, with our powerful and flexible 3-in-1 architecture supporting network impairment emulation, traffic generation and inline packet capture and protocol analysis.



Network delay, congestion and impairment conditions of the RAN are emulated with the Aukua XGA4240

Test for Reliability

Ensure high availability of your RAN by introducing real-world packet delay and impairments in your testing.
Verify and demonstrate fail-over mechanisms.
Determine how packet loss, congestion, and other network impairments affect functionality and stability.

Test for Performance

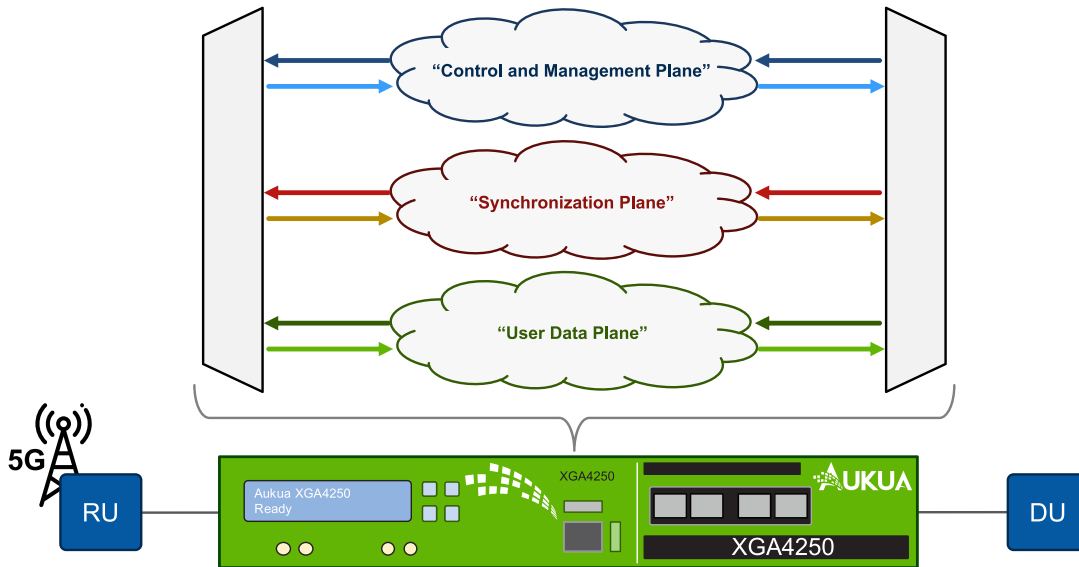
Precisely measure latency to confirm it meets minimum design requirements.
Prove synchronization can be properly delivered across a packet network in the presence of packet delay variation (PDV).

Test with Ease

Gain better visibility when troubleshooting with line rate packet capture and nanosecond timestamp resolution. A simple intuitive GUI design and full api support for automation, remove barriers to testing operation.

Network Impairment Emulation of 10GbE / 25GbE Fronthaul Network

The XGA4250 targets specific protocols or streams to insert unique delay, packet jitter (PDV), drop, corruption and more. For example: target eCPRI packets within the User Plane or PTP and SyncE packets within the Synchronization Plane.



Inserting delay and real-world impairments

Solution Highlights

- Unrivaled precision necessary for testing Open RAN is provided by a powerful FPGA-based architecture
- Supports SyncE operation by passing physical layer frequency through the Network Emulator
- Widest variety of interfaces up to 25GBASE-R are supported
- True line-rate performance and delay insertion with nanosecond level precision
- Classifier technology enables targeting eCPRI, RoE, PTP, SyncE, OAM and other protocols, devices or streams for impairment
- Accurately measure and characterize latency of live application packets through the DU, CU and switches
- Unique 3-in-1 test and visibility platform brings the highest value in the industry
- Lossless packet capture with advanced filters and triggers enables fast trouble-shooting and validation Open RAN protocols and applications



Capture for visibility and troubleshooting