

# 5G Mobile Network Quality Evaluation

Network Master Pro MT1000A

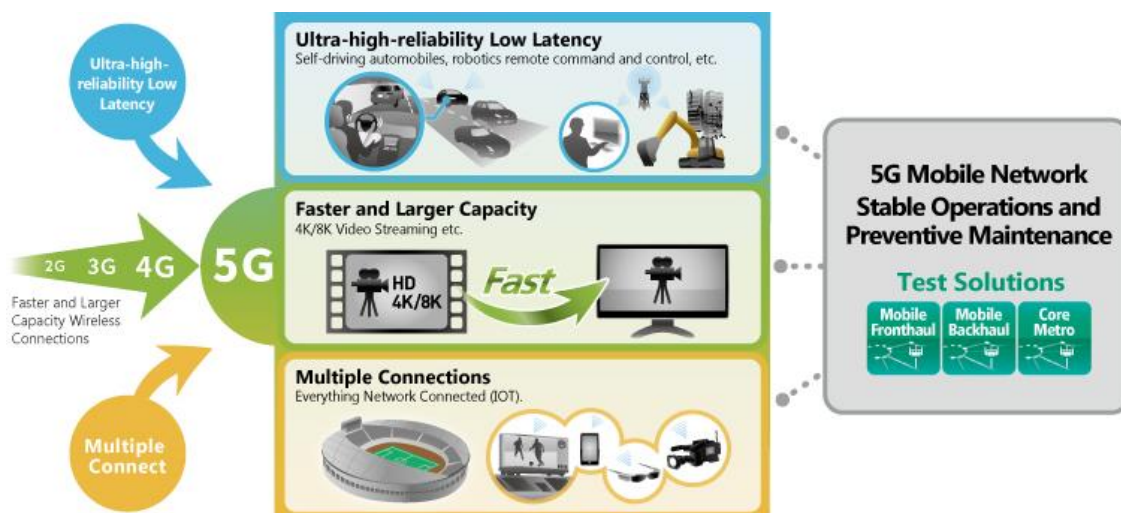
10G Multirate Module MU100010A

100G Multirate Module MU100011A

High Performance GPS Disciplined Oscillator MU100090A



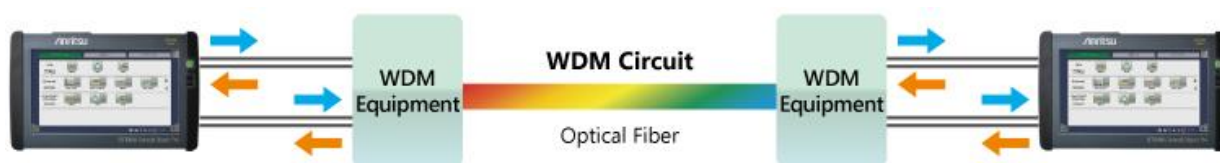
Preparations for rollout of 5G mobile networks are progressing with high expectations as a new social infrastructure based on the enhanced Mobile BroadBand (eMBB), Ultra-Reliable and Low Latency Communications (URLLC), and massive Machine Type Communications (mMTC) features of 5G.



Rollout of commercial 5G mobile networks requires major advances in wired network segments, including Backhaul and Fronthaul, which are supported by the Network Master Pro’s MT1000A highly efficient performance and measurement capabilities.

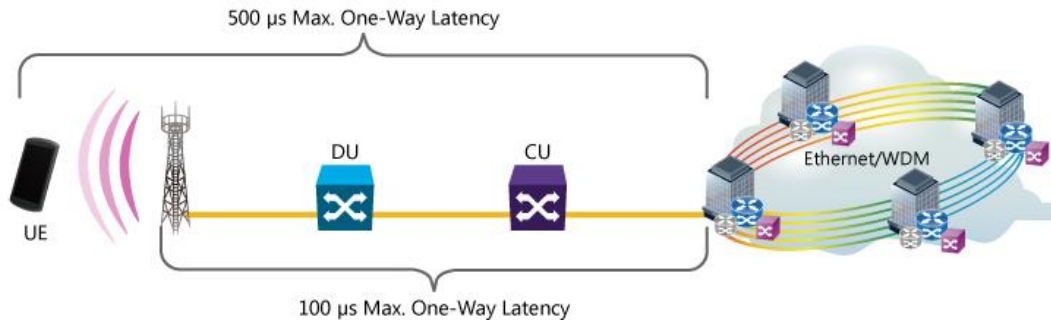
## New Transport Interface for High Speeds/Large Capacity

To achieve the high-speed/large-capacity processing features 5G base stations requires switching to the new Ethernet-based eCPRI or RoE transport interfaces instead of CPRI or OBSAI. The MT1000A supports eCPRI and RoE testing at wire rates up to 100 Gbps.

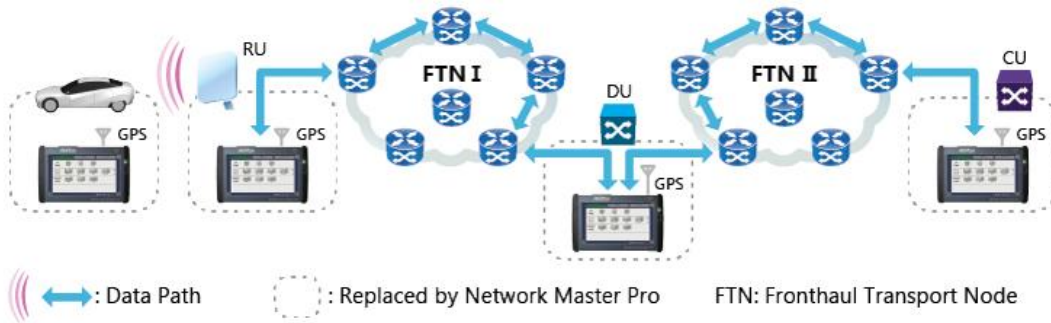


## Network High-Reliability Evaluation and 1 ms Latency Measurement

5G mobile networks supporting URLLC do not permit packet loss and out-of-order packet arrival. Additionally, the required one-way latency is  $\leq 500 \mu\text{s}$  for networks including the wireless sections, and only  $\leq 100 \mu\text{s}$  for wired sections.



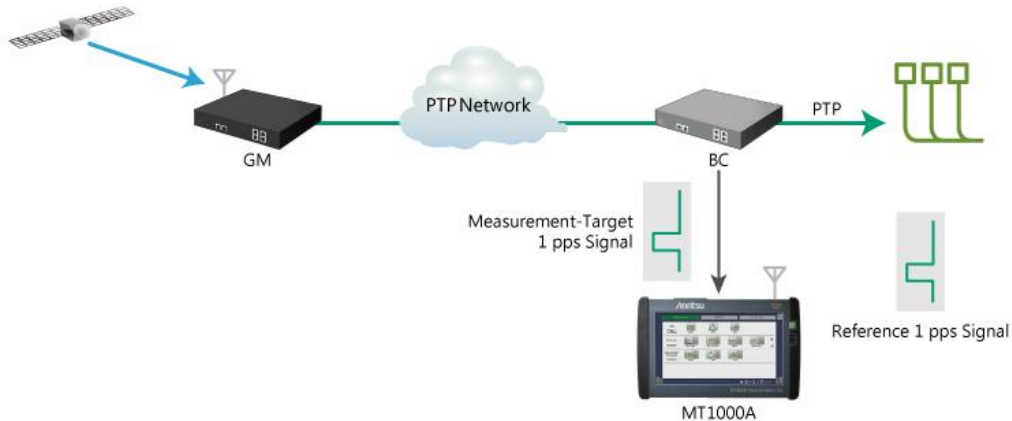
The MT1000A can distinguish between packet loss and out-of-order packet arrival, and measures both errors. Additionally, one-way latency between two geographically separate sections can be measured with high accuracy and high resolution using the MU100090A GPS-disciplined time synchronization module, maintaining synchronizing error between two MT1000A units to just several hundred nanoseconds.



## Precision Time Synchronization Supports Fast, High-Density Communications

Since mmWave frequency band used by 5G only propagates over short distances, many more base stations each with precisely synchronized timing are required to achieve high-speed communications. Consequently, adjacent base stations must be precisely time-synchronized.

Utilizing the MU100090A GPS receiver with built-in high-performance rubidium reference clock in the MT1000A supports Time Error measurement evaluations based on the Grand Master clock.



The Network Master Pro MT1000A is the ideal all-in-one test solution for high-reliability and high-accuracy measurements of eCPRI/RoE, reliability of packet communications and latency, as well as for evaluating PTP time synchronization required for installing and configuring 5G mobile networks.