

TM500 - Helping Network Operators Grow

Base Station Development and Validation Fact Sheet

"Industry standard, used by all network equipment manufacturers and leading operators"

First to market leading 3GPP features and most comprehensive roadmap

- Rel-13 CAT-M1/NB-IOT, LTE-U/LAA, 5G

High performance

- Best peak rate demonstrated under all kinds of CA & MIMO scenarios
- When different 3GPP features, traffic & mobility models are enabled, no decreasing of connected UE numbers (same as the committed Rel-8 UEs in each carrier)

Real-world network scenario emulation

- Mixed 3GPP features (CA or Non-CA) per UE
- Data application generation (Netflix, Facebook, YouTube, etc) per UE
- Slow/fast fading mobility models per UE

The challenge

To ensure the complete network infrastructure performs under loaded conditions, delivering an optimum experience to the end-user, resulting in an excellent Quality of Experience for the wireless subscriber.

There have been several well-publicised cases of existing mobile networks straining under the load of data-hungry devices to the extent that the network can no longer function. To avoid such situations, you need the reassurance that the network can at the very least manage the requested capacity without failure. And of course, no-one wants to find out that expensively marketed new services are not working via customer complaints on social media or negative press coverage.

The solution

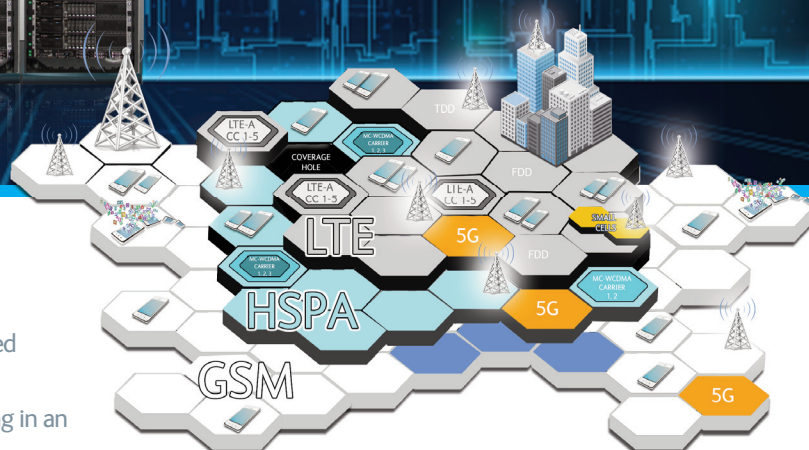
The TM500 system is the most comprehensive and scalable 3GPP performance and capacity test system and can be regarded as the industry standard for base station development and testing.

With the ability to emulate thousands of mobile devices across multiple cells and different radio access technologies, the TM500 provides a test solution that validates network performance as experienced by end users.

Ran to core validation

The TM500 with integrated data services can measure the complete performance from RF through the packet core including interaction with other users, the simulated RF environment and mobility.

This is essential to accurately replicate real-world user behaviour profiles such as web browsing, emails, downloading, video streaming and VoLTE, together with mobility across the radio access network.



TM500 Use Cases

Service validation



In base station and EPC R&D and test, only limited data services are covered - therefore the mobile network may not be robust enough to ensure the QoS/QoE of mixed user applications. Including services such as Netflix and data-hungry services such as YouTube and Facebook.

TM500 can help you validate the performance of your network by generating mixed user applications/services.

Check the overall impact to your network when 1000's of devices are running data-hungry services.

The benefit

- ✓ Reduce the risk of network not functioning by validating the new services and applications in a load test environment.

IoT validation

IoT technologies (NB-IOT, CAT-M1) have many real-world applications such as healthcare devices, connected cars, smart home, wearables. It is critical that these devices maintain an excellent consistent QoS/QoE.



The devices all have different traffic and mobility patterns, which are not well covered by the network vendors R&D testing.

TM500 is an essential solution in IoT validation and evaluation before live deployment.

Check IoT device performance with specific traffic patterns (e.g. send data every 30s, 60s, etc) and specific mobility patterns (e.g. 80km/h for connected car, 5km/h for healthcare devices, etc)

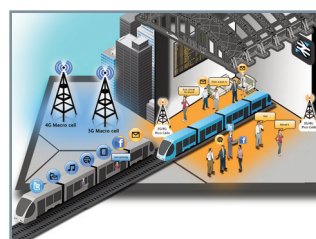
Check the network capacity and the impact between IoT and legacy LTE devices

The benefit

- ✓ Maximally reduce the network failure rate after IoT deployment
- ✓ Make better decision on planning the IoT network

Content delivery & capacity management

TM500 can help you deliver the content and manage the capacity with complete confidence by testing a train station scenario in the lab:



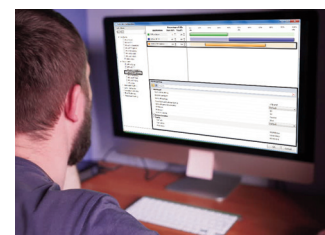
Content delivery and capacity management goals:

- Maintain data QoS to application users on platform
- Handle VoLTE capacity bursts as the train arrives and maintain good voice quality
- Manage the handover requests as the network load balances between macro and small cells, located on platform
- UEs are running mixed data applications (Video streaming, web browsing, VoLTE, etc) with the following mobility configurations:
 - Stationary users are located on the station platform (750 UEs)
 - 3 x trains arrive at the platform (800 UEs)
 - 2 x trains leave the platform (600 UEs)

The benefit

- ✓ Optimal delivery and quality of the user content is assured
- ✓ Maximum capacity of network is utilised

Network optimisation



TM500 enables you to optimise the network in a test lab with the following steps:

1. Collect the base station and EPC configurations (live or to be deployed)
2. Apply the same network configurations to the base station and EPC in the test bed
3. Run different test cases with TM500
4. Tweak the network parameters until satisfactory results are achieved
5. Configure the optimized parameters to the live network

The benefit

- ✓ Increase network robustness with higher test coverage

TM500 industry-firsts

1st 3G Test Solution

1st 4G Test Solution

1st 5G Test Solution

1st TDD-FDD handover with a 4G test mobile

1st to offer carrier aggregation on a 4G test mobile