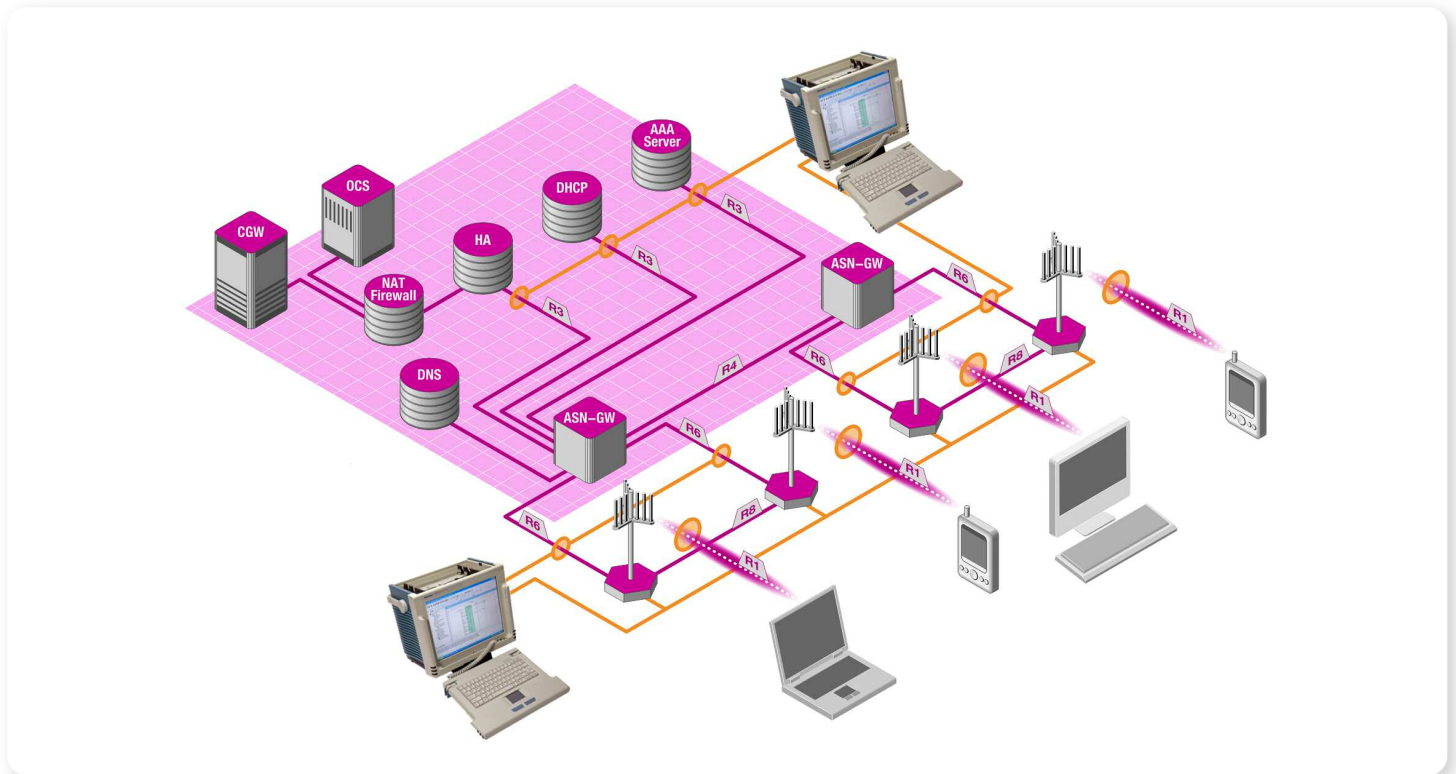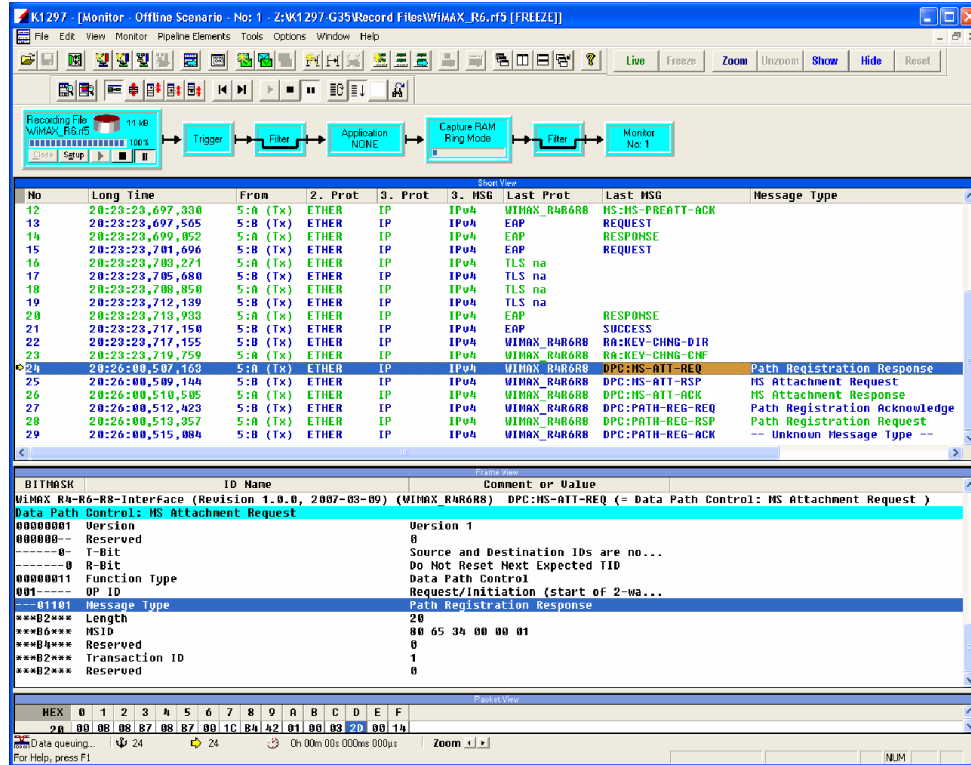# WiMAX Functional & Load Testing with the K1297-G35

Key WiMAX Interfaces for Functional and Load Testing

Scaling Up WiMAX Interface Testing with the K1297-G35

With the addition of mobility to WiMAX, involved network elements must handle control-plane and user-plane procedures at a level of complexity that was unseen for in fixed WiMAX networks. The challenges lie not only in the verification of Mobile WiMAX network element's functionality but also in verifying their scalability in the network. A key requirement for the launch of any WiMAX infrastructure products is their ability to handle a large number of mobile devices and subscribers. This is especially applicable to network elements located in the network's core and handling a multitude of interfaces, such as the Access Services Network (ASN) Gateway.

► Support of key WiMAX interfaces
► Functional and load testing
► Scalable ready-to-use scenarios
► Straightforward configuration

The versatile K1297-G35 protocol test platform supports functional testing on the Mobile WiMAX interfaces R1, R3, R4 and R6 as well as load testing on the R3, R4 and R6 interfaces. Simulation scenarios that have been developed for functional tests can easily be scaled to load test scenarios just by adapting subscriber/mobile device – and, if applicable, network topology – related configuration parameters. These parameters are conveniently located in a dedicated database emulation. By reusing these simulation scenarios for different test applications, you can significantly reduce the time needed for the execution of your test plans.

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WiMAX Monitoring Window

Software modules for WiMAX testing provide you with a set of ready-to-use test scripts that will enable you to start right away with simulation tasks. Individual WiMAX procedures (e.g. Mobile Subscriber Station pre-attachment on the R6 interface) can be triggered manually to perform bug-fixing on the implementation under test. Or you can include these test scripts in automatic call scenarios that trigger all necessary message exchanges required to complete e.g. an initial network entry procedure.

The K1297-G35 provides the necessary flexibility to address the evolving nature of WiMAX standards. It provides a broad range of test case development tools You can adapt existing test cases or develop entirely new test cases according to the feature specification of your WiMAX products. The monitoring application that is an intrinsic element of the K1297-G35 platform provides full visibility over message exchanges between the protocol tester and the device under test.

Depending on the availability of an appropriate mirror port on the WiMAX Base Station (BS) that supports also active testing, the K1297-G35 provides on the R1 interface the protocol layer support required to enable you to build scenarios for simulating MAC management procedures such as:

▶ network entry
▶ radio resource management
▶ mobility management

Sample R1 simulation scenarios are available to enable you to quickly adapt them to your needs. Bracket testing of the BS is also enabled with the support of active testing on the R6 interface.

Benefits & Features

Benefits

▶ Optimize your test plans to secure time-to-market of your WiMAX products, with the help of ready-of-use scenarios that scale from functional to load testing, and with eficient and easy-to-use configuration options

▶ Optimize your capital expenditures by functionally testing, stress testing and decoding your WiMAX network element traffic with one single tool

▶ Improve the efficiency of stress testing network elements at multiple sites by leveraging the WiMAX load test capabilities of the K1297-G35 portable base unit.

▶ Future-proof multi-technology platform supporting also 2G and 3G mobile network protocols that will enable you to address complex future interworking scenarios, such as Mobile WiMAX – 3G Interworking.

Features

▶ Coverage of key test requirements:
  ▶ Simulation of ASN towards CSN, and CSN towards ASN on the R3 interface.
  ▶ Simulation of MSS/BS towards ASN-GW and ASN-GW towards BS/MSS on the R6 interface.
  ▶ ASN-GW bracket testing on the R3 and R6 interfaces.
  ▶ WiMAX R1 MAC Management simulation

▶ Create real-world scenarios for R3 and R6 load tests.

▶ Flexible protocol test platform to address test needs according to your WiMAX product's specifications.

▶ Comprehensive protocol support: R1, R3, R4 and R6 interfaces according to the latest IEEE 802.16e and WiMAX Forum specifications.

▶ Trigger individual sub-procedures or simulate automatically complete WiMAX procedures such as Initial Network Entry.

▶ Wide range of test tools available for test case definition as well as for WiMAX interface monitoring.

Please contact our Sales Representative for a more detailed specification of our WiMAX functional and load test product.

For Further Information

Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology.

Please visit www.tektronix.com

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