



8100 Mobile Device Test System

UMTS CALL RELIABILITY MODULE

Delivers an automated solution for repeatable call establishment and maintenance analysis of HSPA, WCDMA and GSM/GPRS devices.

APPLICATIONS

Manufacturers:

- Research & Development
- Design verification
- Performance analysis
- Benchmarking
- Regression test

Operators:

- Pre-launch evaluation
- Acceptance test
- Mobile applications test
- Software regression test
- End user and network KPI analysis

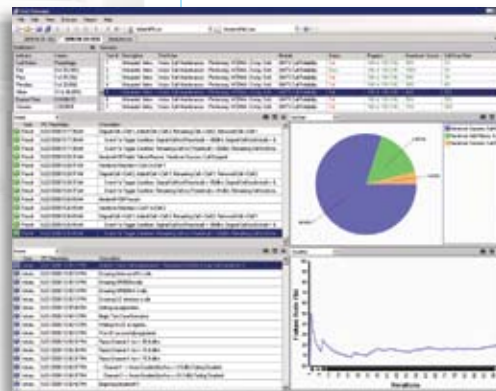
The UMTS Call Reliability module decreases the time and cost required to comprehensively verify a fundamental and critical capability of mobile devices – reliably making and maintaining Voice and Data Calls – that is not fully addressed by today's conformance/certification testing.

The system has the ability to reliably make hundreds of calls under real-world network conditions, across 2G and 3G networks with interfering cells and realistic channel conditions. This is coupled with powerful data analysis and reporting tools that deliver call reliability KPIs for individual devices as well as enabling benchmarking of multiple devices.

UMTS Call Reliability is a key module of Spirent's 8100 Mobile Device Test System which offers an open, scalable multi-purpose test system that is expandable beyond initial testing needs. The module meets a range of high-value mobile device testing requirements. It makes use of highly capable components including an SR3420 Network Emulator with network-grade protocol stacks to enable delivery of high-quality devices to end users.

BENEFITS

- *Reduce time to market* – run more tests on a single, automated platform
- *Reduce device returns and customer churn through improved device quality* – identify call reliability issues across 2G and 3G networks under real-world conditions in the lab
- *Address the entire lifecycle of testing needs with a single solution* – R&D, DVT, Benchmarking/Evaluation, Acceptance, Applications, Regression
- *Purchase only the capability you need, when you need it* – offered with turnkey and user-customizable test modules and scenarios; upgradeable to data performance, A-GPS or video test capability



KEY FEATURES

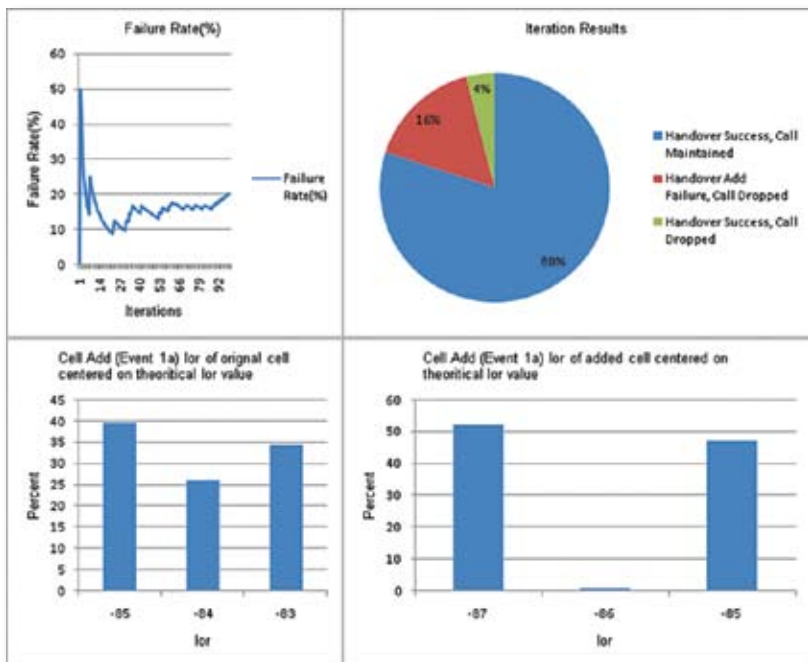
- Measurement and reporting of End User KPIs, including call drop rate, call setup failure rate
- Measurement and reporting of Parametric KPIs including handover success rate, reselection success rate and connection establishment time
- Repeatable, reliable real-world emulation of multi-cell 3G and 2G networks with fading, noise and interfering cells
- Rapid root-cause analysis and debug of call reliability issues through comprehensive results analysis and reporting
- Identifies call reliability issues often not caught by standard 3GPP conformance testing
- Complete device automation through configurable AT commands or pre-defined API interface
- Multiple cell option to create interference and neighbor cells for a more realistic network experience
- Configurable test case parameters enable rapid generation of customer test cases

ADVANCED AUTOMATION AND POWERFUL USER INTERFACE

Spirent's industry-leading Test Manager provides the highest level of test automation and visibility into the performance of the device under test. Event charts and logging greatly simplify the reporting of device performance, in real time and during post-test analysis. A Procedure Chart provides insight into performance of the device relative to network-defined conditions during testing, which enables benchmarking of key performance metrics between devices or across firmware versions. Root cause failure analysis is aided by integrated network logging and reporting.

Advanced test cases such as Inter-RAT Handover, Inter-RAT Reselection, and Out of Service Recovery provide modeling of real-world issues not covered by conformance/certification testing. Customizable parameters such as network reselection and hand-over criteria allow device performance to be fully characterized under a wide range of operators' network settings. Users can develop automated test suites for regression or pre-compliance testing against network operators' performance test requirements through Test Manager without the need to write complex scripts or code.

The ability to make run-time changes to test case parameters greatly simplifies device debugging. Pending test case parameters can be changed after a test session has begun to adjust the focus of an investigation while working through test scenarios to isolate issues.



Powerful analysis and reporting capabilities

REAL NETWORK AND CHANNEL EMULATION

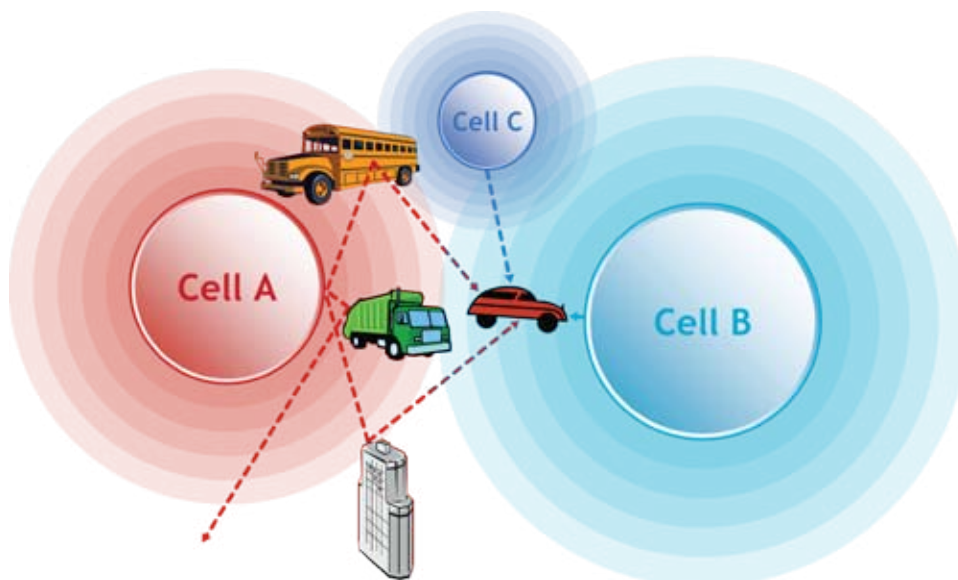
The UMTS Call Reliability module is equipped with Spirent's SR3420 Network Emulator which provides the ability to simulate realistic multi-cell 2G and 3G network conditions. The SR3420 offers a wide range of configurable network parameter options from SIBs to Physical Channels to help match real-network settings. SIB Parameters such as Cell Quality Level "Qqualmin" and Handover "Reporting Range" can be all configured to test call performance under various network scenarios. Leading network operators to make use of these configurable parameters to model their network for effective acceptance testing.

With the SR3420's ability to configure core network parameters, the RNC and the Node B, UCR provides complete repeatable and reliable testing of mobile device call reliability performance with real-network emulation capability. In addition to providing full Inter-RAT capability in a single Network Emulator, the SR3420 also supports testing of GSM, GPRS, EDGE and WCDMA with Co-Channel and Adjacent Channel Interference rather than Noise, since Interfering cells create a more realistic scenario.

The UMTS Call Reliability module is also equipped with Spirent's industry leading SR5500 Wireless Channel Emulator which generates realistic fading conditions. The SR5500 allows you the flexibility to choose from a suite of pre-programmed 3GPP-recommended models or to develop custom fading profiles that reflect other real-world fading scenarios.

PROVIDES ANSWERS TO KEY PERFORMANCE QUESTIONS

- How well does the device set up a call?
- How well does the device maintain a call?
- How good is the device's call reliability performance in handover scenarios?
- How good is the device's performance in 2G to 3G and 3G to 2G reselection scenarios?
- How good is the device's call reliability performance in the presence of noise or interfering cells?
- How much downlink power level does the device require and what is the impact on network capacity?
- How does fading impact call reliability?
- Which mobile device performs better in terms of call reliability and why?
- How do devices behave while roaming on different networks?
- How well does a device recover from extended loss of service?



Enables performance testing with real-world scenarios

Technical Specification

Parameter	Options
WCDMA Operating Bands	1, 2, 4, 5, 6, 8, 9
GSM Operating Bands	850, 900, 1800, 1900
WCDMA Cell Power Level	-90.0 to -50.0 dBm in 0.1 dB steps (Fading Enabled) -115.0 to -50.0 dBm in 0.1 dB steps (Static)
GSM Cell Power Level	-90.0 to -50.0 dBm in 0.1 dB steps (Fading Enabled) -105.0 to -50.0 dBm in 0.1 dB steps (Static)
S/N Ratio	-30 to 32 dB
WCDMA Cell Quality Measurement Metrics	CPICH_RSCP, CPICH_Ec/No
Primary Common Pilot Channel Power (CPICH)	-15.0 to -3.0 dB
WCDMA Cell Quality Level in terms of CPICH_Ec/No	-24 to 0 dB
Standard UMTS Fading Models	UMTS: Case 1, Case 2, Case 3, Case 6, PA3, PB3, VA30, VA120 GSM: HT100, RA250, TU3, TU50
Advanced Fading Profile Supported	Delay (Sliding Delay, Birth Death), Log Normal Shadowing, Doppler Spectrum
Network Emulator Configuration	Spirent Pre-Programmed 3GPP compliant configuration, User Defined Network Configuration
Channel Emulator Configuration	Spirent Pre-Programmed 3GPP recommended models, User Defined Fading models
Test Execution Options	Iterations, Test Time

SPIRENT GLOBAL SERVICES

Spirent Global Services provides a variety of professional services, support services and education services – all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services' Web site at www.spirentcom.com/gs or contact your Spirent sales representative.

ORDERING INFORMATION

The UMTS Data Performance Module is supported on the 8100-A300 and A600 platform configurations.

Due to the modularity and wide range of available 8100 Mobile Device Test System configurations, please contact your regional Spirent sales representative for detailed ordering information.



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