Data Sheet

Spirent **E2010 Mobile Device Test System**

For System Design and Platform Testing

Spirent's E2010 Wireless Device Design Tester is the perfect testing platform for developers of LTE UEs. A single hardware platform can be used in every stage of mobile device development.

Applications

Mobile Device Development

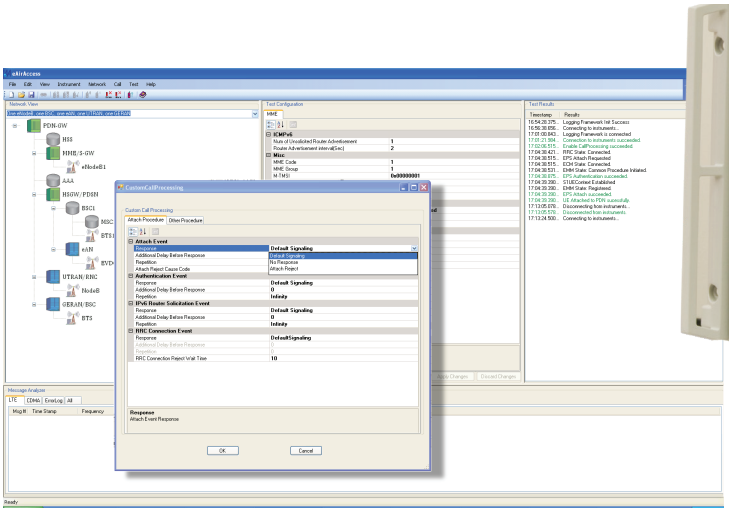
- RF/Baseband Design Verification Testing (DVT)
- Radio Protocol DVT
- System-Level DVT
- Chipset Platform DVT

Benefits

- Reduced development time – With efficient development and debugging tools for R&D teams, the E2010 reduces overall development time
- Optimize data service capabilities – Testing against data and application servers is as simple as plugging into the port... directly, through a LAN, or via the Internet
- Maximize Return on Investment – Cost-effective, scalable test platform minimizes long-term spending and brings value to every stage of the product life-cycle… all the way from early-stage development to operator acceptance and deployment

Spirent's E2010 is a state-of-the-art platform that provides a wide range of multi-technology testing scenarios for the device development engineer. Multiple test modes tailor the interfaces and functionality to most efficiently address the task at hand, making this single platform the ideal solution at all stages of the design cycle.

E2010 introduces the world's most advanced Evolved Packet Core (EPC) emulation. This state-machine-based EPC brings realistic IPv4/v6 network-side message responses and timing to the lab…without requiring a single line of script. E2010 boasts multi-cell, capability, integrated MIMO support and purpose-specific interfaces designed to ensure efficiency and optimal testing workflow.



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Key Features

- Powerful purpose-specific applications to support device testing
- System/platform testing
  - The industry's only complete and realistic Evolved Packet Core (EPC) emulation
  - Powerful GUI for easy test scenario creation without script generation or software programming
  - Real IPv6 connections (not just address assignments)
  - Real-time state machine for realistic messaging and message timing
  - Real-time message and event analyzer displays and logs Layer 3 messages
  - Multi-path fading and integrated 2x2 MIMO (options)

Key Facts—Platform

- UL signal capture and in-band measurement capabilities
- Integrated SISO, SIMO, MIMO 2x2, MIMO 4x2
- Multi-cell support
- Integrated fading
- Support for 3GPP LTE bands (380MHz to 3 GHz)
- Support for LTE bandwidths (1 MHz – 20 MHz)
- L1-L3 protocol stacks comply with 3GPP Release 10

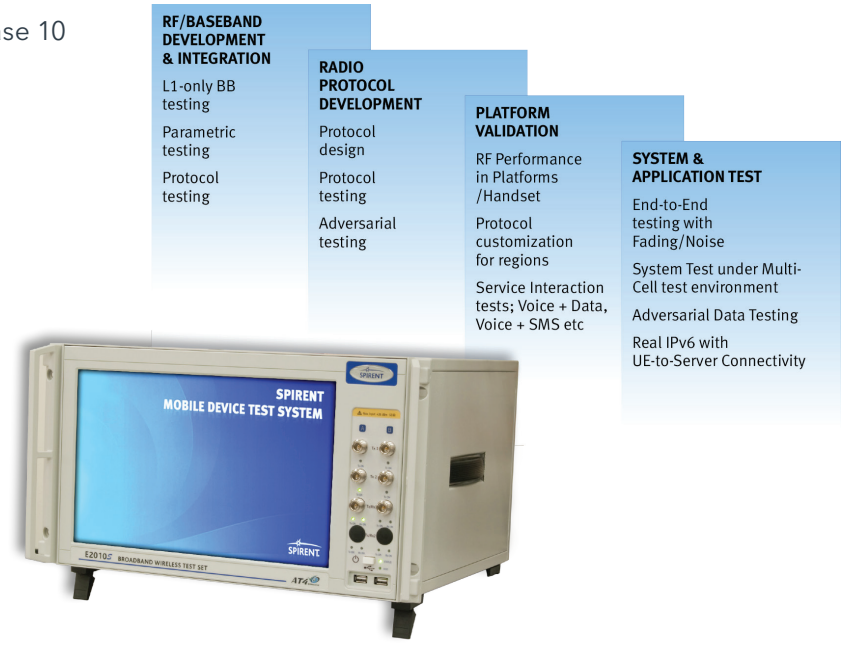
E2010 for System/Platform DVT

For system-level DVT of UEs or chipset platforms, E2010 integrates a fully developed real-time Evolved Packet Core (EPC) emulation, The result is the industry's only system with realistic connection anchoring points, message timing and complete network-side message realization. This is the same EPC used by network equipment manufacturers to ensure proper operation of network products.

A real-time state machine emulates an entire network for testing mobile devices designed for LTE networks. An intuitive GUI makes it easy to set up network scenarios for adversarial testing, data testing, handover testing, and much more. Message logging and decoding minimizes the time required for analysis and debugging.

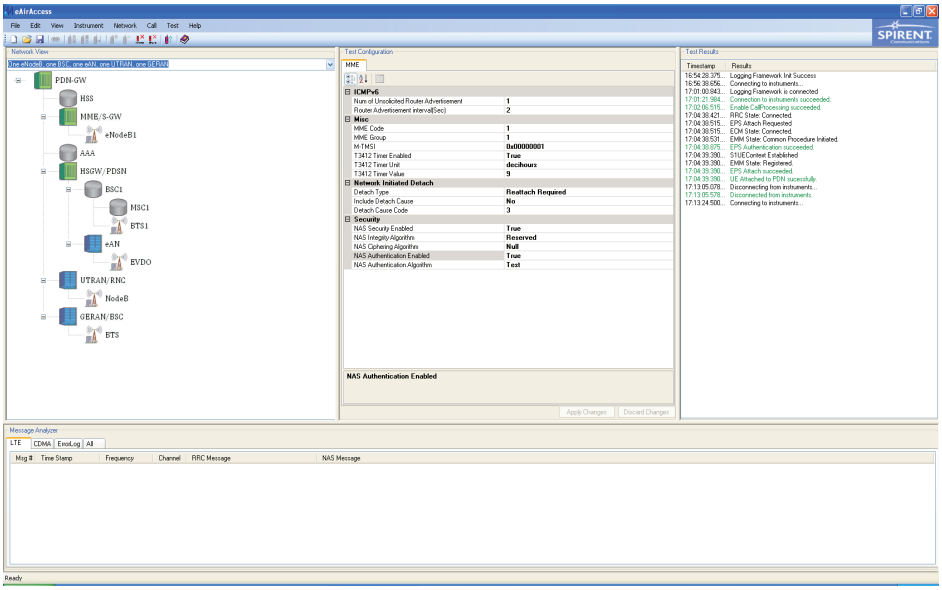
E2010 further accelerates LTE device development and debugging with the E2010 Software Development Kit (SDK). The SDK provides deep control of LTE Network Emulation functions and events. With the hundreds of functions and commands available, users can create and run custom tests to meet R&D needs and internal test plans. For rapid test protoyping/development, E2010's Development Library UI offers a clean interface to get your test up and running quickly and efficiently.

Other E2010 modes address RF/baseband development and radio protocol development. Please separate Spirent data sheets for more details.



Intuitive GUI for Fast, Error-Free Setup

- DVT, debugging and testing should not be bottlenecks in achieving your time-to-market goals.
- E2010's graphical software lets you zoom in on low-level parameters without having to pore through manuals or specifications. Designed by engineers for engineers, the GUI's clean interface makes it easy to "dive deep" and control the fine details of emulating a complete network.
- With E2010, details are coded into drop-down boxes and laid out so that the most complex network configuration can be set up in a few minutes, with just a few mouse clicks. Once a configuration has been set, it can be saved and stored for future use.

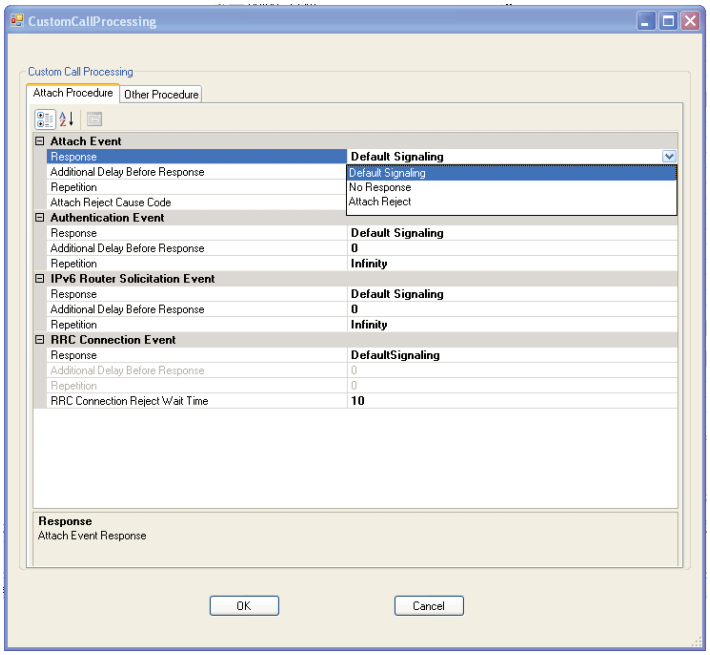


Drop-down boxes and intuitive layout make configuration fast, clean, and efficient.

Real-Time State Machine

E2010 uses a real-time state machine rather than the script-driven simulations common in most conformance testing solutions. Overhead, Layer 2 and Layer 3 messages are delivered with the same timing and with the same real-life responses as a live network.

Never again miss a timing bug because a script-driven state machine wasn't capable of catching it. Never miss a protocol bug because a "call box" or "one-box radio test set" in the lab did not fully implement real-world network/packet core responses.



E2010 Enables custom call processing for instant adversarial testing and "what if" test cases. This feature alone can shave weeks off your time-to-market schedule, and in many cases prevent you from deploying a buggy product.

Message and Event Analysis

As you work with E2010, the software continually parses and logs the Layer 3 messaging required in the interface between a mobile and a network. Unlike script-based protocol testers, E2010's full-featured protocol engine constantly verifies message contents, just as a live network will.

Double-clicking a message in the Message Analyzer window displays a fully parsed and decoded message for "deep-dive" analysis of message fields. Bugs that might otherwise take hours to find (or never be caught) are brought to the forefront in a matter of seconds.

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Technical Specifications

RF Connectors		
Front panel (per transceiver) N female, 50 Ω	TX1, TX2	RF output
	RX/TX1, RX/TX2	Combined input/output RF port
Control Interfaces		
Rear panel	LAN	3 x Ethernet RJ-45, 10/100/1000 Mbps
Other Interfaces		
Front panel	USB	2 x USB 2.0 type A connector
Rear panel	USB	2 x USB 2.0 type A connector
	External display	VGA Sub-D15 connector
	Reference clock input/output	2 x BNC connector
	IF input/output	4 x BNC connector (per transceiver)
	External trigger	2 x BNC connector (per transceiver)
	Digital IQ input/output	2 x InfiniBand™ (per transceiver)

Signal Generator			
Frequency specifications	Frequency range	380 MHz-3 GHz	
	Frequency resolution	10 Hz	
	Modulation bandwidth	20 MHz	
	Phase noise	10 kHz	< -90 dBc/Hz
		5 MHz	< -120 dBc/Hz
Output level specifications	Output power level range for connector configured as		
	TX	CW	-110 dBm to 0 dBm
		PEP	Up to +15 dBm
	TX/RX	CW	-110 dBm to -7 dBm
		PEP	Up to +8 dBm
	Output power level uncertainty for any connector	±2 dB	
	Output level resolution	0.1 dB	
	Output level repeatability	0.1 dB	
	Reference impedance	50 Ω	
	VSWR	1.4	
	2nd harmonic level	<-36 dBc	
	3rd harmonic level	<-36 dBc	
	Non-harmonics level	<-36 dBc	
	SNR at maximum output power	70 dB	
	Maximum leakage power for disabled RF outputs	-145 dBm	
	Origin offset	<-60 dBc	

Technical Specifications (cont'd)

Time Base			
Standard frequency reference	Maximum frequency drift	±0.7 ppm/year	
	Short term stability	±0.05 ppm	
	Warm-up time	1 hour	
High stability frequency reference (option)	Maximum frequency drift	±0.1 ppm/year	
	Short term stability	±0.01 ppm	
	Warm-up time	1 hour	
Capture size	Minimum	1 ms (1 sub-frame)	
	Maximum	500 ms (50 frames)	
Reference frequency inputs/outputs (input A)	Connector type	BNC connector SYNC IN, rear panel	
	Frequency	Sine wave	10 MHz
		Square wave	10 MHz
			40/60 duty cycle or better
	Maximum frequency variation	TBD	
	Input voltage range	0.4 – 2 Vpp	
	Impedance	50 Ω	

Required Environmental Conditions		
Operation ranges	Temperature	15°C to 35°C (60°F to 95°F)
	Humidity	5% to 85% (non condensing)
Storage ranges	Temperature	-10° to 50° Celsius (15°F to 120°F)
	Humidity	5% to 85% (non condensing)
EMC	EN61326-1 (2006)	
Electrical safety	EN 61010-1	
Mechanical resistance	EN60068-2-6	
	EN60068-2-27	
	EN60068-2-64	
Power supply	Input range	100-240V AC / 50-60 Hz
	Power consumption	550W max
Dimensions	448.7(W) x 265.9(H) x 375.5(D), all units in mm 171.7(W) x 10.5 (H) x 14.8 (D), all units in inches	
Weight	23 kgs (51 lbs)	
Recommended calibration interval	1 year	

About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks.

We help bring clarity to increasingly complex technological and business challenges.

Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information, visit: www.spirent.com

Accessories

Complete Annual Service Agreements are available for hardware and software components.

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