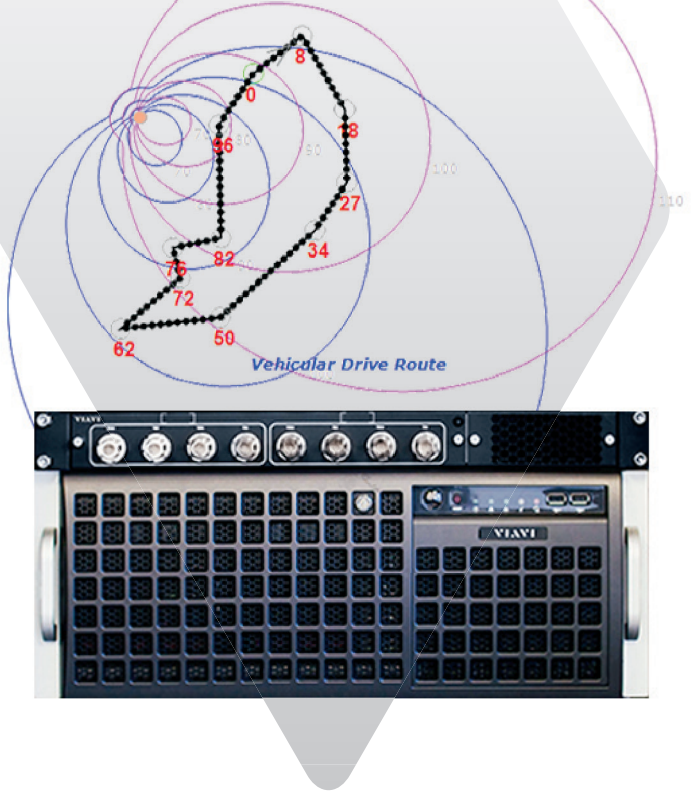

CapacityAdvisor™ 9400 for LTE

Measuring user experience with real-world traffic generation

The Viavi Solutions™ CapacityAdvisor product family provides advanced load generation for 3G and 4G networks, giving customers an unmatched ability to test equipment and services under realistic traffic loads in their labs. CapacityAdvisor enables LTE network performance and capacity testing where coverage, capacity, and performance are load-dependent. Testing under load with the CapacityAdvisor 9400 LTE system ensures optimal wireless network performance to give end users the best possible experience.

Key Applications

- Functional feature tests — quantify performance of LTE subsystems, measured at the Uu interface
- System performance tests — with mixed data applications measuring maximum data throughput, packet latency, and jitter, among other things, under dynamic RF environments
- Call model tests — to verify system performance under real-world traffic scenarios
- Stress testing under traffic load — to measure the impact on RF resources, scheduler performance, as well as the integrity of signaling under load
- Data application performance tests — to measure quality of service (QoS) and its impact on data throughput for mixed data traffic for new applications such as VoLTE
- VoLTE-specific performance tests — utilize the R-Factor MOS to characterize changes in VoLTE performance when other VoLTE users and Internet traffic are present
- Scheduler analysis — to measure scheduler performance and analyze resource allocation
- Mobile perspective — to provide logging and performance analysis
- Deterministic analysis — unlike mobile-based test beds, the capacity test provides repeatable and deterministic performance.

CapacityAdvisor 9400 for LTE helps bring new products and services to market faster, with better quality, and at a reduced cost.

Key Benefits

- Accelerated network life-cycle testing
- Faster time to revenue and reduced test-cycle time
- Repeatable and deterministic test behavior
- Find defects earlier in the development cycle
- Higher-quality products to market in less time
- Ultra-high terminal density in a server footprint
- Easy-to-define real-world traffic models
- Low-maintenance platform

Key Features

- 6000 simultaneous data sessions per baseband unit
- Eight 2x2 and 4x2 MIMO sectors per baseband unit
- Support for 5, 10, 15, and 20 MHz bandwidths
- Support for all major FDD and TDD bands
- LTE-Advanced carrier aggregation
- UE Category 6 transfer rates of 300 Mbps downlink/50 Mbps uplink
- Logging at multiple protocol layers
- Performance analysis tools
- Proven SDR platform
- Common user interface supporting concurrent LTE/UMTS load
- Virtual drive-test environment

Specifications

System Configuration
Up to 6000 UEs per baseband unit
OFDM 2x2 and 4x2 MIMO
1 to 8 MIMO sectors
5, 10, 15, and 20 MHz
Up to 150 Mbps downlink throughput at 20 MHz bandwidth
LTE-Advanced carrier aggregation (PCC + nCC aggregation) Dynamic downlink SCC activation/deactivation Handover using intuitive drive-test map
User-configurable mix of R8 and R10 UEs on each PCC
User-configurable RF bandwidth and band pairings for PCC and SCC
High-Capacity VoLTE Solution 900+ VoLTE UE per sector Up to 8 DRB per UE across multiple APN
Traffic Model
Traffic Mix
Ping
UDP streaming
FTP file transfer
HTTP browsing
SMTP/POP3 e-mail
Custom application development available
VoLTE
SIP/RTP
STT Identities and Grouping
Create groups from USIM database
Coordinated or random behavior
Supports Multiple RAB/SRB Combinations
SDR Test Terminal (STT) Control
GUI-based test case definition
Create virtual propagation environment, virtual pilot strength/path loss within a drive test map ; includes BLER and SINR degradation to trigger channel performance enhancers in the eNodeB such as TTI bundling
Control of STT mobility including support for handover
Test termination conditions and triggers Time-based Until statistic achieved Until pass or fail condition achieved
Terminal ramping based on: Number of terminals (control of single or multiple STTs in group) Ramp up/down period
Statistical or time-based conditions under which ramping is considered complete
Air Interface/Protocols
R8 LTE Dec 09
R10 LTE Dec 12

Statistics Collection
Logging at PHY, MAC, RLC, PDCP, RRC, NAS, and application
Statistical analysis by STT group, by sector carrier, or eNodeB
Statistics (total counts, averaged) such as: Session originations Registrations Access attempts Network release Terminal release Soft handover Call control Data application Connection reconfiguration
Management and Administration
GUI-based workbench (Windows 7)
Configure eNodeB connections
Configure system resources
Log and storage management
Import/export and group USIM records
Manage user accounts and software licenses
Backup/restore test cases and system configurations
Automation tool SDK

RF Bands

Band	Uplink (UL) (MHz)	Downlink (DL) (MHz)	Band	Uplink (UL) (MHz)	Downlink (DL) (MHz)
1	1920 to 1980	2110 to 2170	23	2000 to 2020	2180 to 2200
2	1850 to 1910	1930 to 1990	24	1625.5 to 1660.5	1525 to 1559
3	1710 to 1785	1805 to 1880	25	1850 to 1915	1930 to 1995
4	1710 to 1755	2110 to 2155	26	814 to 849	859 to 894
5	824 to 849	869 to 894	27	807 to 824	852 to 869
7	2500 to 2570	2620 to 2690	28	703 to 748	758 to 803
8	880 to 915	925 to 960	30	2305 to 2315	2350 to 2360
9	1749.9 to 1784.9	1844.9 to 1879.9	33	1900 to 1920	1900 to 1920
10	1710 to 1770	2110 to 2170	34	2010 to 2025	2010 to 2025
11	1427.9 to 1447.9	1475.9 to 1495.9	35	1850 to 1910	1850 to 1910
12	699 to 716	729 to 746	36	1930 to 1990	1930 to 1990
13	776 to 787	746 to 757	37	1910 to 1930	1910 to 1930
14	788 to 798	758 to 768	38	2570 to 2620	2570 to 2620
17	704 to 716	734 to 746	39	1880 to 1920	1880 to 1920
18	815 to 830	860 to 875	40	2300 to 2400	2300 to 2400
19	830 to 845	875 to 890	41	2496 to 2690	2496 to 2690
20	832 to 862	792 to 821	42	3400 to 3600	3400 to 3600
21	1447.9 to 1462.9	1495.5 to 1510.9	43	3600 to 3800	3600 to 3800
22	3410 to 3500	3510 to 3600	44	703 to 803	703 to 803

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