♦ **802.11 Station Emulation.** Create fully configurable *Virtual Stations (vSTA*™) that emulate 802.11 Wireless Local Area Network stations each with its own IP and MAC address.

♦ **64 Stations on a single emulator.** Emulate 1 to 64 concurrent 802.11 users on a single small device, greatly reducing the cost, complexity and control issues of testing with multiple PCs.

♦ **Scalability and capacity testing of Wireless LANs and 802.11 products.** Multi-station traffic load and stress testing of performance, end-user capacity and system scalability.

♦ **Support for 802.11a, b or g.** Emulator comes in three product versions:

   o EmulationEngine 11a: 802.11a support

   o EmulationEngine 11b: 802.11b support

   o EmulationEngine 11a/b/g: multi-mode emulator with selectable support for 11a, b and g

♦ **Each *vSTA* is an individually authenticated, associated 802.11 station.**

♦ **WEP support.** 64, 128, 152 bit shared static keys

♦ **802.11 traffic generated per individual *vSTA*.**

   o **Internal** – Data traffic is generated by each *vSTA* in the EmulationEngine (Ping) and actively injected through the 802.11 *vSTAs* into AP and WLAN system under test.

   o **External** - Data is sourced from a third party load generator, injected over 802.3 Ethernet, mapped to each *vSTA* by IP address, and forwarded over the WLAN by the emulator.
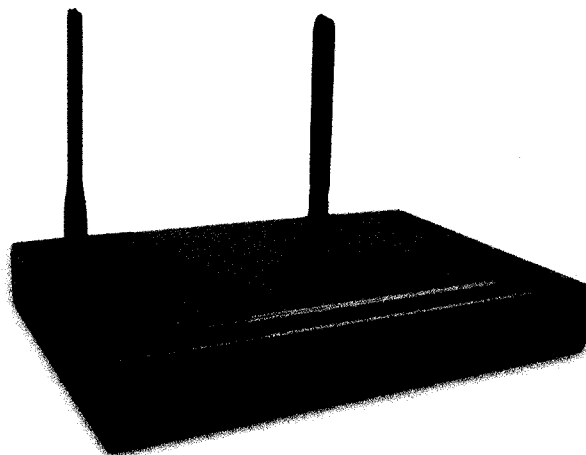
Major System Components

vSTA - Virtual 802.11 Station
● Each *vSTA* has unique, user-configurable MAC and IP addresses.
● *VSTAs* support 802.11 Authentication, Association, Deauthentication and Disassociation.
● WLAN 802.11 frames are transmitted and received using configurable *vSTA* MAC addresses.
● *vSTA* traffic loading applications based on per *vSTA* configuration.
● User-defined *vSTA* groups emulate departments or processes.
● Maintain persistent *physical* station state & perform Scan/Join portion of 802.11 association state machine.

User Interface – Command and Control
● Web-based user interface for command, control and configuration.
● Command Line Interface (CLI) supports automation and scripting control.
● User interacts with *vSTAs* in real-time.
● Full user control of *vSTA*, load application attributes, statistics and monitoring

EEDashBoard™ - Monitor a Test
● Collect and log performance data in real-time.
● Graphically display system and *vSTA* statistics during test execution.
● Export monitor data to PC in a comma-separated values (CSV) text file.

EEScheduling™– *vSTA* Sequence Control
● Inject *vSTAs* into a running test at a user pre-defined quantity and rate.
● Emulates real world user loading environment for more accurate user-in-the-loop testing.

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EEScenario™ – Test Definition File
- Logical construction encompassing key aspects of a multiple *vSTA* test run.
- Aggregate *vSTA*s into logical Groups to simulate processes or other significant loading profiles.
- Save within non-volatile memory in the EmulationEngine or to a PC for repeat tests and sharing of test set-up.

Internal Mode – Traffic Generator, Ping
- Fully configurable ICMP Echo Request/Reply traffic is sent to selectable hosts from each *vSTA*.
- Separate receive and transmit processes use each individual *vSTA*'s IP address then increments *vSTA* statistics and computes packet round trip times.

External Mode – 3rd Party Traffic Integrator
- Data traffic loading is applied from a 3rd party traffic generator over 802.3 Ethernet and forwarded over the WLAN as 802.11 traffic by the emulator.
- Data streams from the traffic generator are mapped to each *vSTA* through user-configured *vSTA* IP addresses and appear to the system under test as 1 to 64 individual 802.11 users.

EEAnalyst™ - Analyze Test Data
- Collect test summary and individual *vSTA* statistics from test run.
- View and print multiple types of reports by group or by *vSTA*.
- Collect time stamped (µSec) log/audit trail of commands, responses and notifications per each *vSTA* executed during testing.
- Archive test statistics and data logs to PC in a comma-separated values (CSV) file.

Monitoring and Results - Statistics Counters
- Counters from the following categories can be selected for viewing as monitors in the Web browser and as reports at the end of a test:
  - Management Counters
  - Ping Statistics
  - Signal Quality Indication
  - Frame Counts
  - Error Statistics
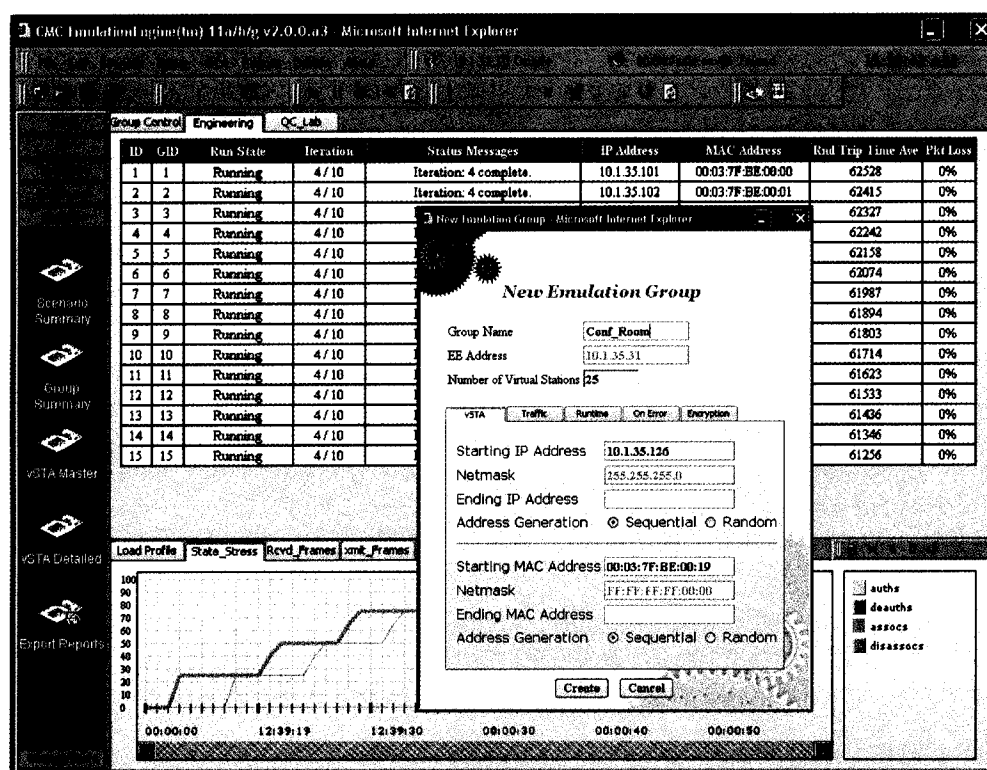
EmulationEngine

Dimensions
L = 9.25 inches
W= 6.38 inches
H = 1.63 inches

Ports
(1) 10/100Base-T, RJ-45(UTP)
(1) RS-232 (DB9)
(1) Power - 5V DC, 2.5A

Standards
IEEE 802.11a
IEEE 802.11b
IEEE 802.11g
IEEE 802.3
IEEE 802.3u
IEEE 802.1d