

emutel™ | Harmony

Telecommunications Test Platform for VoIP & PSTN

emutel™ | **Harmony** is a highly efficient, cost-effective and flexible tool, invaluable for use in the development, performance verification and pre-deployment testing of many types of VoIP, ISDN and Analog equipment.

Versatility

The emutel™ | **Harmony** combines comprehensive load testing and network simulation capabilities, detailed protocol analysis, extensive call statistics and quality of service measurements in an easily affordable and user-friendly package.

Scalability

An advanced Bulk Call generator, the emutel™ | **Harmony's** modular architecture provides a powerful, robust platform that can be tailored to meet your current testing requirements and expanded to include options as your needs evolve.

A single system can provide anything from 1 to 15 ethernet interfaces, 8 to 120 E1/T1 interfaces, 16 to 240 Analog interfaces or any combination of the above.

Interoperability

emutel™ | **Harmony** provides an integrated IP and TDM platform allowing you to completely surround a device under test. This wrap-around performance testing enables end-to-end call routing and ensures seamless communication between IP-based equipment and legacy TDM networks.

Reliability

An extremely dependable platform, emutel™ | **Harmony** provides a consistently high performance level no matter how many line cards are added to the system. Product measurements may be consistently repeated providing accurate performance benchmarking.

Affordability

Not only does the emutel™ | **Harmony** enable you to stretch your budget further by offering great value for money, but it can also significantly reduce time to market and ensure you obtain the quickest possible return on your investment.

Controllability

A suite of powerful and intuitive Windows-based applications lets you quickly and easily design, run and review test sequences on the emutel™ | **Harmony**:

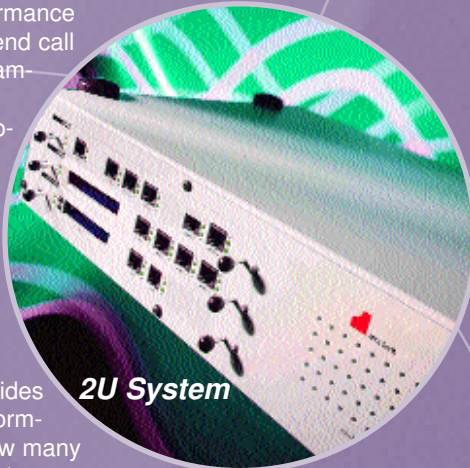
- The **Harmony Composer** application has a unique drag-and-drop functionality providing a painfree approach to writing complex test scripts. Simply choose from an extensive gallery of call components, set the required parameters for each component and build the script.
- The **Harmony Conductor** is the control application which lets you run scripts and view call statistics, call rates, QoS measurements and Protocol Analysis.

Simplicity

Test results and analysis are clearly presented in both tabular and graphical format enabling you to easily pinpoint and rectify any performance, protocol or functional difficulties. Results can be recorded and exported to other standard applications for further review and analysis.

High Capacity

emutel™ | **Harmony** allows high capacity testing generating up to 75,000 simultaneous SIP calls, 15,000 simultaneous H.323 calls or 3,600 ISDN calls per system. When running Bulk Call tests, you can achieve rates of over 3 million ISDN calls per hour, 1 million SIP calls per hour and 300,000 H.323 calls per hour.



2U System



4U System

emutel™ Harmony

emutel™ Harmony is invaluable throughout the product life cycle:

- Development testing (fault diagnosis)
- Product evaluation & performance testing
- Manufacturing (functional testing)

Interface Options:

- LAN: 4 x 10/100BaseT auto-sensing Ethernet and 1 GigaBit Ethernet interfaces
- E1/T1/J1: 8 interfaces (NT/TE switchable)
- BRI: 8 port U Interfaces
- BRI: 8 port S Interfaces
- Analog FXO: 16 interfaces
- Multi-function:
 - 2 Port E1/T1/J1
 - 8 Port FXO
 - optional: 8 Port FXS
 - optional: 4 Port BRI-S

Protocol Options:

- LAN : SIP, H323
- DASS2, DPNSS
- ISDN PRI: Euro-ISDN, North American & NTT
- ISDN BRI: Euro-ISDN, North American & NTT
- T1 CAS, Robbed Bit Signalling and pulse dialling
- Analog Loop Start

Supported CODECs:

- G.711 μ law and A-law
- G.723.1, G.728, G.729A, G.729AB, G.729E

Chassis Options:

- **2U Chassis: Desktop**
 - 1 x Line card (Rackmount or Desktop)
 - W: 482mm x H: 84.5mm x D: 347mm
- **4U Chassis:**
 - 5 or 6 x Line card
 - W: 449mm x H: 177mm x D: 431mm

Electrical Specification:

- Power Supply:
 - Nominal AC input: 100 to 240 Vac, 50 to 60 Hz
- Power Rating:
 - 400 Watts maximum for 4U Chassis
 - 800 Watts maximum for 8U Chassis

Analysis Options:

- PESQ
- Protocol Analysis

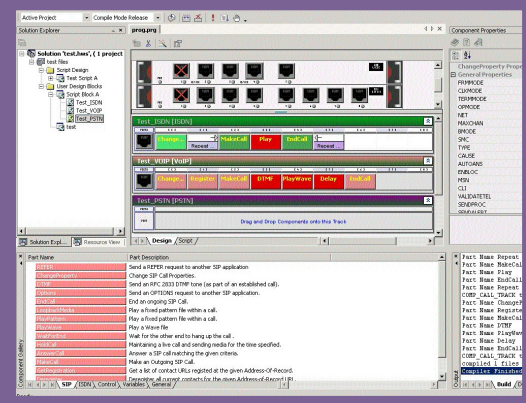
Powerful Bulk Call Generation:

- **SIP Call Rates** (per VoIP Card):
 - up to 80 calls per second (signalling only)
 - 5000 simultaneous calls
 - 1000 endpoints
- **H.323 Call Rates** (per Card):
 - up to 22 calls per second (signalling only)
 - 1000 simultaneous calls
 - 1000 endpoints
- **SIP Call Rates** (per LAN Card):
 - up to 17 calls per second (signalling only)
 - 5000 simultaneous calls
 - 1000 endpoints
- **ISDN Call Rates** (per E1/T1/J1 Line Card):
 - 35 completed call attempts per second
 - 240 simultaneous calls

Intuitive Test Creation Environment:

- Easy to use, drag-and-drop script building using Harmony ScriptComposer
- Off-line script creation ensures most productive use of emutel™ Harmony at all times
- Pre-written scripts provided for most typical test scenarios
- Pre-defined call load distribution sequences to simulate real world conditions.

emutel | Harmony ScriptComposer Application



Comprehensive Test Results:

- Real time call statistics to measure performance, functionality and capacity of the device under test.
- Voice Quality Measurement using PESQ and path verification.
- Extensive, built-in Protocol Analysis helps you locate, identify and rectify any performance, protocol or functional issues.
- Download and play any G.711 wave files (μ law and A-law) or record your own and upload to the emutel™ Harmony.
- Generate fixed pattern RTP streams in any of the supported CODECs
- Audio Monitoring of channels

Highlights:

- Design, schedule and run multiple test scenarios to verify performance, functionality, capacity and interoperability.
- Bulk Call Generation and Termination for high capacity tests.
- Scalability with no performance degradation
- Network Simulation provides comprehensive test capabilities.
- Simultaneous wrap-around TDM and VoIP testing.
- Multiple Protocols and Traffic types including SIP, H.323, ISDN and analog support.
- Highly intuitive Script Composer Application for flexible, fast and user-friendly script building.
- Load Profiling to re-create realistic call patterns.
- Built-in Protocol Analysis for quick and easy fault finding and debugging.
- Transmit and receive tones, speech and video with wide range of CODECs.
- Real time statistics show call rates per second, completed call attempts, packet loss, delay etc..
- Verify Quality of Service on both TDM and VoIP channels using PESQ.

Use emutel™ Harmony to test:

- IP-PBXs and TDM PBXs
- VoIP Gateways
- Switches and Routers
- Proxy and Registration Servers
- Redirect and Application Servers
- Multi-point Control Units
- Call Agent / SIP Terminals
- IP Phones

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