



Linkbit AnyTest

SS7 ISUP
R2 MFC
V5.2
SIP
ISDN PRI
CAMEL
R1 MF
RBS
G.826
Q-SIG
PRI DSS1
SS7 ITU-T

PRI DMS100
GSM
Loop Start
MAP
R2 DTMF
H.323
IS-41
T1/E1

The image shows a laptop with a software interface displaying a pie chart and a waveform. The interface includes a tree view on the left and a main display area with a pie chart and a waveform. The software is surrounded by various protocol labels connected by lines to the laptop.



Advanced Telecom Multiprotocol Analyzer-Call Emulator



Introduction

Advanced Portable Network Analyzer and Call Emulator

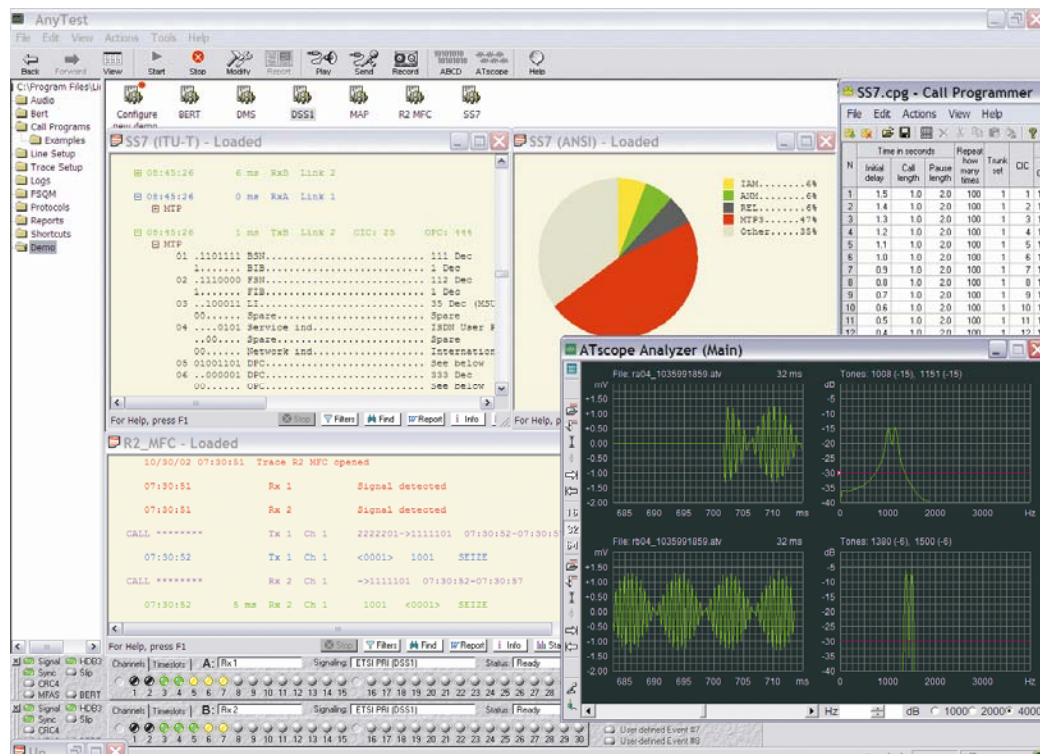
Maintenance and troubleshooting for today's complex communication networks require powerful signaling analysis tools. As networks proliferate throughout the world, telecom specialists frequently have to travel with their test equipment to remote locations. Meanwhile, the majority of full-featured network analysis systems are large, heavy and inconvenient to transport.

The Linkbit AnyTest addresses the demand for a highly capable, compact multi-protocol signaling analyzer-emulator. It transforms any Windows-based laptop computer into a powerful network troubleshooting tool. A highly portable instrument, the AnyTest enables telecom professionals to quickly solve complex network problems in a development lab, as well as out in the field.

The AnyTest supports a wide array of protocols used in today's wireline and wireless networks, including SS7, GSM/GPRS, 3G cellular, ISDN/PRI, IS-41, and VoIP. It was designed by telecom engineers for telecom engineers and provides many timesaving features that simplify network testing and analysis. The familiar Windows-based user interface makes the system easy-to-learn and use.

Both the CAS and CCS protocols can be monitored by the AnyTest. It can decode and analyze incoming data in real-time and record it onto the laptop's hard disk for post-capture analysis. In addition to AnyTest's extensive network monitoring capabilities, it can also emulate CAS and CCS protocols and generate bulk phone calls. The graphical protocol builder and powerful scripting capabilities speed up the complex tasks of modifying protocol stacks and developing network test functions. The AnyTest can be easily updated in the field by a simple download from the Internet.

Telecommunication professionals will find this product to be an indispensable tool in solving network problems at customer sites and installing new network services. It can be a great tool in any R&D environment.



Key features and benefits

Leverages industry-standard Windows laptops

- Highly portable system, convenient to use in a development lab and in the field.
- No need to carry a separate system
- Runs as a standard Windows application
- Lowers total cost of ownership
- Easily upgradeable over the Internet
- Seamlessly integrates with standard Windows applications such as MS Office, email, Web access etc.

Has familiar Windows-based user interface and powerful graphical analysis tools

- Easy to learn
- Solves problems faster by focusing on troubleshooting, rather than learning a new tool

Monitors and emulates a wide variety of wire-line and wireless communication protocols

- Quickly finds problems in today's complex networks: SS7, GSM, GPRS, IS-41, CDMA, ISDN, R2, RBS, SIP, H.323 and many more
- Analyzes MF/DTMF signals in real-time with ATscope virtual oscilloscope

The PCMCIA WAN interface card is built around a powerful combination of CPU, DSP and real-time data processing architecture.

- Dual line WAN interface
- Real-time data capture and analysis
- Compact size
- Supports any Windows-based computer with PCMCIA interface

- **Highly portable, easy- to-transport system**
- **Low total cost of ownership**
- **Runs on any Windows Laptop**
- **Supports SS7, 3G, GSM/GPRS, R2, RBS, ISDN/PRI, IS-41, and VoIP protocols**
- **Real-time data capture and decoding**
- **Graphical analysis tools help to pinpoint network failures**



Supported Protocols

SS7 Protocols

ISUP

GR-246-CORE, 1999
ANSI T1.113, 1995
ITU-T Q.763, 1997
ETSI 300 356-1, 2/95

MTP

ITU-T Q.703-704, 1988
ITU-T Q.703-704, 03/93
ITU-T Q.703-704, 07/96
ANSI T1.111, 1997
GR-246-CORE, 1999
ETSI 300-008-1
Chinese GF 001-9001, 1994

SCCP

ITU-T Q.711-Q.716
ANSI T1.112
GR-246-CORE, 1999
ETS 300 009

TUP

ITU-T Q.721-725 11/88
ITU-T Q.721-725, 1997
Chinese GF 001-9001, 1994

TCAP

ANSI T1.114, 1996
GR-246-CORE, 1999
ETS 300 134
ETS 300 287

INAP

INAP-CS1:
ITU-T Q.1218, 10/95
ETSI 300 374-1, 9/94
INAP-CS2:
ITU-T Q.1228, 9/97
ETSI 301 140-1, 6/99

CAS Protocols

R2 MF/DTMF ITU-T Q.4XX
Robbed Bit Signaling
China #1
China R2

IP Protocols

SIP, RFC 3261, June 2002
RTP, RFC 1889, Jan 1996
H323, H.245, H.225, H.235
(H.248=Megaco)
MGCP, RFC 3435
MEGACO, RFC 3015 (ASN.1 and text)

V5 Protocol

V5.1:

G.964 (06/94)
ETS 300 324-1 (2000-04)

V5.2:

G.965 (03/95)
ETS 300 347-1 (1999-12)

ISDN PRI Protocols

DSS1 ITU-T Q.931 (03/93)
DMS 100 NA007 NIS-A211-1
Rel. 7, May 1997
QSIG ETS 300 172, Jan 1994
5ESS AT&T TR41459, June 1999

IP Protocols

SIP, RFC 3261, June 2002
RTP, RFC 1889, Jan 1996
H323, H.245, H.225, H.235
(H.248=Megaco)
MGCP, RFC 3435
MEGACO, RFC 3015
(ASN.1 and text)

IS41 Protocols

ANSI/TIA/EIA-41-D-1997
IS-801
IS-725-A
IS-824
A1-interface, IOS v4.1.1

GSM Protocols

MAP

TS 09.02, Apr 1995, v. 3.11.0
TS 09.02, 02-1998, v. 4.17.1
TS 09.02, Dec 2000, v. 4.19.1
TS 09.02, Rel. 1998, v. 7.9.0
TS 29.02, Rel. 2001, v. 7.9.0

A-Interface

GSM 08.08 v. 5.8.0

Abis

GSM 08.58, Rel. 1996, v. 5.8.0

CAMEL

CAP2, Phase2+:
GSM 09.78, Rel. 1996, v. 6.5.0
3GPP TS 23.078, 2002-03, v.3.12.0
CAP3, Phase 3:
GSM 29.78, Rel. 4, v. 4.2.0
3GPP TS 29.078, 2002-03, v.3.11.0

Updates

We are constantly adding new protocols to the available selection. Please contact us if you don't see a protocol you need in the above list.

Custom Protocol Development

Custom protocols can be supported according to your specifications. Please contact the Linkbit Professional Services department for more details.

System Overview

Architecture Optimized for Performance and Portability

The AnyTest is designed to operate on any Windows laptop with a PCMCIA slot. It leverages the processing power, memory, storage, long-lasting batteries, large high-resolution display and Windows operating system of a laptop computer. This allows for powerful data analysis and intuitive user interface.

An efficient system architecture separates real-time data capture and processing from data presentation and analysis. The AnyTest WAN PC Card adapter uses embedded CPU and DSP to offload real-time data processing from the host laptop. The DSP performs real-time signaling analysis and emulation of MF/DTFM tones and CAS inter-register signaling. The card's CPU runs embedded protocols stacks and facilitates the communication link with the laptop.

Taking full advantage of the Internet communication capabilities provided by a laptop and Windows, the AnyTest simplifies system upgrades, customer support, and user collaboration. The software upgrades are easily performed by obtaining new software license keys by email. All system data and set-up files can be e-mailed for remote evaluation or technical support.

AnyTest's architecture is the key to its unique combination of portability, powerful test capabilities, connectivity and ease-of-use.

It also offers a significantly lower total cost of ownership in comparison with proprietary systems.

- Leverages the processing power and resources of a laptop
- Intuitive Windows-based graphical user interface
- Includes PCMCIA network interface card with dual T1 or E1 interfaces
- Easily upgradable



Telecom Interface

The WAN interface card provides dual E1 or T1 physical interfaces and offers both monitor and terminal emulation modes. In the monitor mode, the AnyTest connects to an active network as a non-intrusive listening device. In the terminal emulation mode, it acts as an active network node and generates phone calls in addition to monitoring network activities. The integrated RJ45 connectors assure simple and reliable connections and do not require fragile and inconvenient "dongles". The system comes with all the cables and connectors required to quickly link the AnyTest to a network.

WAN Interface Specifications

Line interface	Compliant with ITU G.703 (ANSI T1.408)
Interfaces	2 Rx & 2 Tx via RJ45 connectors
Isolation	1.5 kV standard, 3.0 kV - optional
Bit Rate	2048 (1544) Kb/sec
Clock source	Internal, or recovered from an incoming E1 (T1) span Internal clock 2048 (1544) Kb/sec +/- 2 PPM
Line Coding	HDB3/B8ZS/AMI
Impedance	120/75-Ohm – Terminal 2kOhm – Monitor

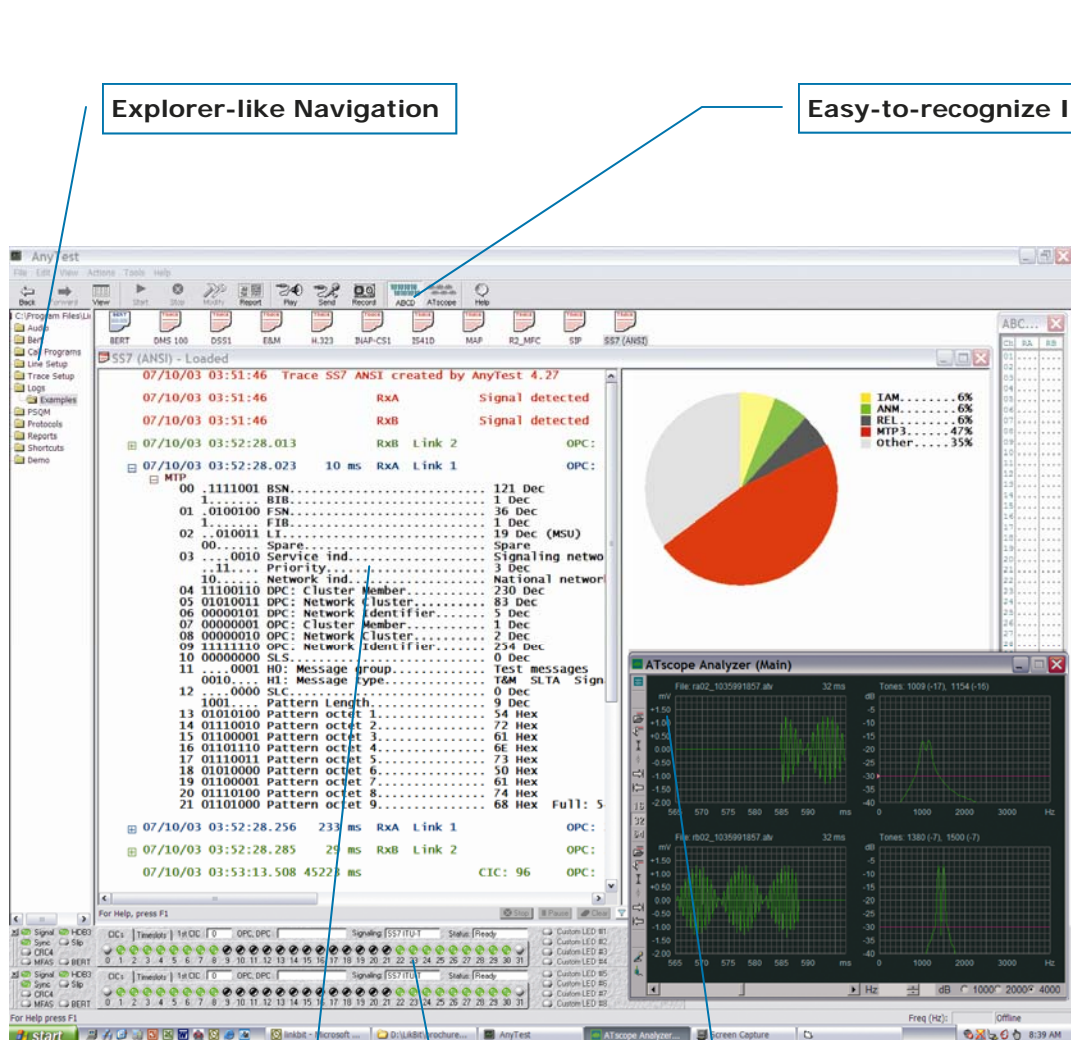
Laptop Recommendations

Supported Operating Systems	Microsoft Windows™ 98, NT, 2000 and XP
System	IBM PC compatible laptop Vacant PCMCIA slot CD-ROM drive TFT display - recommended
Processor	Pentium II processor- minimum, Pentium III or higher - recommended
Memory	64 MB - minimum, 128 MB - recommended
Available Disk space	30 MB - minimum, 500MB - recommended

Test Tools and Features

Test Explorer Graphical User Environment

The Test Explorer has the familiar look-and-feel of the MS Windows™ Explorer. Folders and icons provide quick access to test configurations, captured data, and other system files. The Test Explorer toolbar contains shortcuts to the most often-used commands. Status Bars inform the user of activities in each channel. Each contains a row of Virtual LED's indicating the state of every bearer channel during the test. With a click of a mouse on a Virtual LED, the user gains access to channel recording and playback controls. An additional set of Virtual LED's reserved for user-defined alerts. The Test Explorer enables telecom engineers to focus on solving network problems, instead of spending valuable time learning the test tool.



Explorer-like Navigation

Easy-to-recognize Icons

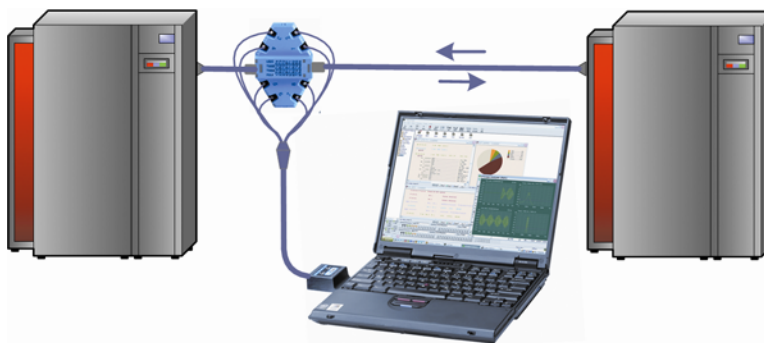
Trace Window

Status bars
Virtual LED's

ATscope
Software Oscilloscope provides graphical presentation of analog signals for easy troubleshooting

Monitor Mode

The Linkbit AnyTest simplifies the time-consuming tasks of monitoring and analyzing networks with complex multi-layer protocol stacks. Network traffic at multiple data links and bearer channels can be captured for a variety of CAS and CCS protocols. The data can be displayed in real-time and recorded onto the laptop's hard disk for post capture analysis. The AnyTest provides many time saving tools and features:



- Support for both CAS and CCS protocol types
- Incoming and Outgoing channel discrimination
- Reception, recording, display and analysis of all Rx & Tx data for each channel, including: Signaling patterns, Digits, and Channel statistics
- Recording of all individual channel events during test
- Playback capabilities
- Real-time display of each link status and channel signaling events in text format
- Real-time and post capture Fourier analysis of inter-register CAS signaling events
- Capacity for reviewing and searching events on all channels
- Voice channel monitoring in both directions
- Recording of multiple voice channels
- Traffic measurement, recording and analysis at data link and bearer channel levels

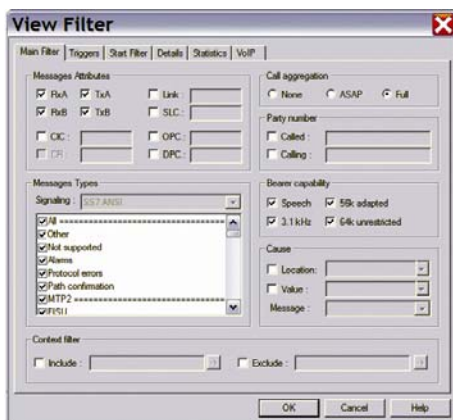
- Detailed decoding of protocol stacks
- Recording of bearer channels
- Direct monitoring of any bearer channel
- Detection of MF/DTMF tones
- Powerful filtering capabilities
- Flexible, intuitive triggering mechanism

Easy-to-read protocol traces

The signaling data captured by the AnyTest is presented in the trace windows of the hierarchical format. The user can scroll to the area of interest and drill down into the details of the protocol event. To further improve readability, messages and signaling events are color coded according to user preference. Multiple trace windows provide different views of the captured data. The real-time ABCD bits display helps you quickly find timing and protocol problems in CAS line signaling protocols.

Advanced Filters and Triggers

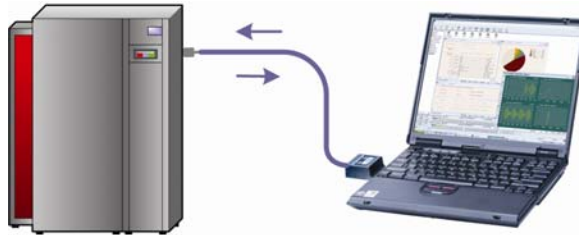
Filters and triggers enable users to control the capture and display of protocol data. The user can easily focus on a specific area of interest because filters only display relevant data in the trace window. Triggers specify conditions to start and stop protocol trace at the exact or elapsed time, or upon occurrence of an event defined by the trigger's control filter. The AnyTest simplifies trigger and filter configuration by maintaining a consistent filter definition approach. Filters can be programmed according to following parameters:



- Message types and attributes
- Call aggregation
- Call duration
- Originating and terminating party numbers
- Bearer capability
- Location and value cause codes (CCS protocols)
- Context filter (characters in a message)

Terminal Mode

Testing in the terminal mode permits verification of network functionality and optimizes network operations. This is done by performing call generation, path confirmation, voice quality (PSQM), echo delay and loss measurements. In this mode, AnyTest actively loads and terminates T1/E1 lines on the customer's communications equipment.



Call Generation

Placing and receiving phone calls is an effective way to test the overall functionality of a communication system. The AnyTest Call Programmer is a flexible and powerful tool, enabling users to define and execute user-defined call sequences.

It can generate network traffic load from a single call to thousands of calls per minute and can place calls using CAS, PRI, SS7 and SIP protocols. It uses simple table driven interface to specify protocol-specific and common call parameters.

BERT

The AnyTest provides comprehensive error performance testing according to ITU-T G.821, G.826, and M.2100 standards. It supports both in-service and out-of-service operation and can be attached to any point in the T1/E1 span. The user can select appropriate PRBS and custom test patterns. The system can also send loop code commands. The AnyTest displays error statistics according to the familiar industry standards.

Voice QoS Testing

The AnyTest supports the PSQM standard for testing quality of voice service on data communication systems. The AnyTest sends voice frequency signals over selected timeslots and receives them over other timeslots. It compares the received signal to the original, and calculates the Mean Opinion Score index. The user can then select a source for the signal stream from a file in .wav format or the laptop's microphone.

The AnyTest can evaluate voice path in open-loop and closed-loop modes. The open-loop requires the AnyTest system on both ends of the link. It allows for the verification of each direction in a communication link, separately. In the closed-loop mode, the AnyTest measures the quality of a voice loop.

3-tone Path Confirmation

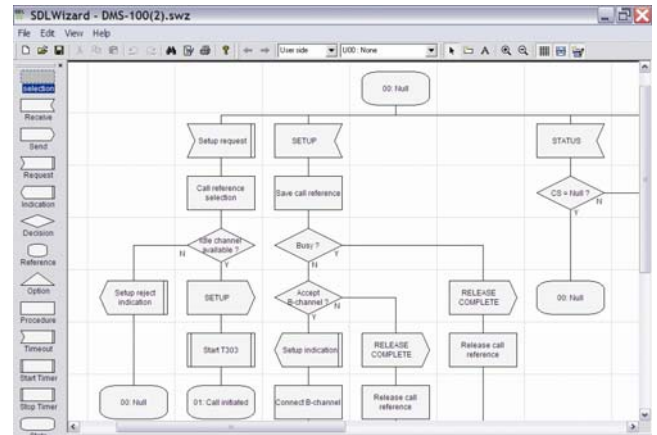
The AnyTest can perform the industry standard 3-tone path confirmation tests to verify the integrity of a voice path after a call is established.



- Generates bulk calls for CAS and CCS protocols
- SDL diagram editor for CCS protocols
- CAS protocol editor
- Powerful scripting capabilities
- 3-tone path confirmation
- Echo delay and loss measurement
- In-service and out-of-service BERT

Protocol Builder

The Protocol Builder enables the user to develop, verify and troubleshoot a variety of CAS and CCS communication protocols. The Graphical SDL Diagram Editor simplifies creation and modification of CCS protocols. It complies with the Specification and Description Language (SDL) standard and offers an easy-to-read graphical representation of protocol stacks and convenient drag-and-drop editing. The user can modify protocol states, messages and control paths. The AnyTest also includes the CAS protocol editor. This feature enables the user to create new, or alter existing line and interregister signaling protocols.



SS7 Scripting Environment

The AnyTest offers a powerful Java Script-based development environment to emulate SS7 call dialogs. It provides the user with complete control over construction of SS7 signaling transactions including ISUP, ANSI-41, GSM MAP, TCAP, INAP, CAMEL, AIN and WIN. This flexible programming environment enables the user to configure messages, send them to the network, analyze incoming data, select appropriate responses and flag errors. When designing a call structure, users can select from a built-in palette of standard messages, minimizing the possibility of an error and reducing test creation time. With this feature, the user can define custom test cases to pinpoint the most elusive protocol problems.

VBScript work space

Class View Pane displays standard IN message classes that the user can drag and drop into the VBScript work space.

```

Set MTP parameters
TX.opc = 123
TX.dpc = 345
TX.linkset = 1

' Create SCCP UDT message (see Q.713), fill header
set udt = TX.sccpUDT

' TIP: this value UDT_Unitdata is drag/dropped by left mouse button from
' 'SCCP UDT/Message type' trees in the 'Types' sheet of 'Type Browser' toolb
udt.message_type = UDT_Unitdata ' Q.713 subclause 2.1
udt.message_handling = Return_message_on_error ' Q.713 subclause 3.6
udt.protocol_class = class_0
'udt_ptr_to_called_party = null ' will be initialized by suite
'udt_ptr_to_calling_party = null
'udt_ptr_to_data = null

' fill called_party_address information element (Q.713 subclause 3.4)
set party_address = udt.called_party_address
'party_address.parameter_length = null ' will be initialized by suite

set indicator = party_address.address_indicator ' Q.713 subclause 3.4.1
indicator.designated_for_national_use = 0
indicator.routing_indicator = Routing_should_be_based_on_the_global_title_in
indicator.global_title_indicator = Global_title_includes_translation_type_number;
indicator.ssn_indicator = Address_contains_a_subsystem_number
indicator.point_code_indicator = nope

set address = party_address.address ' Q.713 subclause 3.4.2
' signalling_point_code is optional and not included (see indicator.point_code_in
address.signalling_point_code = null
address.subsystem_number = MSC_Mobile_Switching_Centre_

address.global_title_0100 = present
set title = address.global_title_0100 ' Q.713 subclause 3.4.2.3.4
title.translation_type = Not_used
title.numbering_plan = ISDN_Telephony_Numbering_Plan_see_Recommendations_E_16
title.encoding_scheme = BCD_odd_number_of_digits ' beware - see title.ad
title.square = 0
    
```

Provider: MAPCSM

- SCCP UDT ::= STRUCT
- Message type ::= CHOICE
 - unidirectional ::= SEQUENCE
 - begin ::= SEQUENCE
 - end ::= OCTET STRING
 - dialogue_fork ::= SEQUENCE
 - external ::= SEQUENCE
 - dialogue_as_id ::= OBJECT IDENTIFIER
 - single_type_tag ::= SEQUENCE
 - components ::= SEQUENCE OF
 - end ::= SEQUENCE
 - continue ::= SEQUENCE
 - abort ::= SEQUENCE

Data type "SCCP UDT" derived from non-ASN struct type.

ASN.1 notation would have been:

```

SCCP-UDT ::= SEQUENCE {
...
}
    
```

To insert the name of this data type into a script, drag-and-drop the item into the script editor window with the left mouse button. To generate a block of code that creates, initializes and sends the object of this type down the stack, drag-and-drop the item into the script with the right mouse button. Use this code as a starting point in your programming.

The name of this data type is visible to the scripts as "SCCP UDT" at the global scope and can be used to create variables of this type using 'create' function.

The icon signifies top-level data type that can be both sent and received by the script. The icon signifies the structured type.

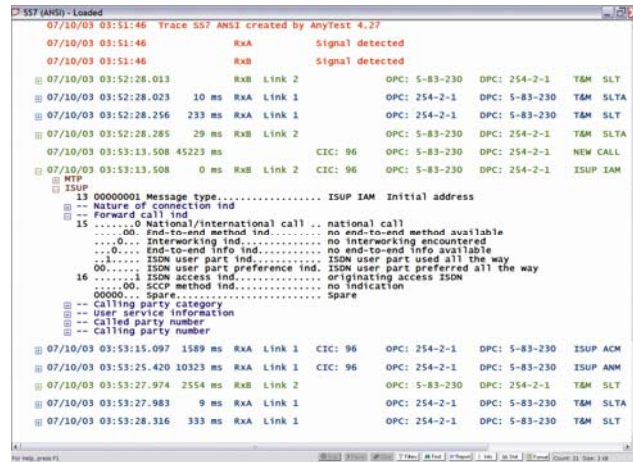
SS7 Protocol Testing

The AnyTest offers a wide range of tools for testing and analyzing networks based on the Signaling System No.7 (SS7) protocol. Problems associated with user parts , application layers, and lower protocol layers can be quickly resolved. AnyTest can function as a non-intrusive network monitor and as an originator or terminator of signaling traffic. Protocol messages for all CICs can be fully decoded and CRC errors highlighted. AnyTest supports MTP2, MTP3, ISUP (ANSI, ITU-T, China, Korea, Russia), and many popular mobile communication protocols based on SS7.

SS7 Monitoring

The AnyTest supports up to 2 bi-directional T1 (48 links) or E1 (62 links) bearers and can monitor up to 10 fully loaded signaling links simultaneously. Monitored data is displayed in real-time and automatically stored on the laptop's hard disk for post-capture analysis.

The multi-level display of trace messages simplifies the reading of captured data. Users can quickly browse through high-level descriptions of protocol events, then drill-down with a click of the mouse. The user can filter SS7 messages by OPC-DPC, CIC, SLC or link number, and completely block PCR messages.

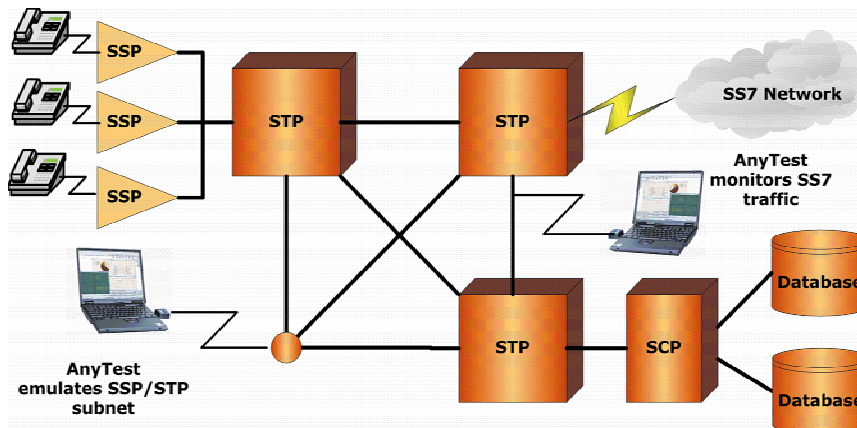


SSP and STP nodes emulation

The Signaling Switching Point (SSP), from where calls are originated or terminated, can easily be emulated. It can also act as a network of SSP and Signaling Transfer Point (STP) nodes. The user can generate ISUP bulk calls and develop custom ISUP protocol event scripts.

AnyTest SS7 testing capabilities

- 2 T1 (1.544kb/sec) or E1 (2.048kb/sec) bearers
- 1 to 10 fully loaded signaling links
- 1 to 48 partially loaded signaling links
- 1 to 10 SS7 signaling link sets
- 1 to 256 point codes assigned to ISUP messages
- 1 to 256 trunk groups for virtual trunks
- 1 to 256 OPC-DPC pairs
- 1 to 65537 CICs per each OPC-DPC pair



Mobile Communications Testing

The AnyTest is an effective and economical solution for testing, installing and maintaining mobile communications systems and services for GSM/GPRS, PCS and CDMA networks. It offers sophisticated signaling analysis and call generation capabilities required for verifying functionality and optimization performance of today's mobile systems. AnyTest's call generation capabilities can be used for verifying functionality and optimizing the performance of the most common mobile interfaces and protocols. It allows the user to quickly identify problems in the complicated process of transferring a call between the various elements of a mobile network infrastructure. Moreover, it is a capable tool for installing and maintaining advanced mobile services(e.g. location based information delivery, 911 emergency services, e-commerce, etc.).

- Monitor both PCM and IP-based PLMN interfaces
- Emulate GSM MAP and IS-41 network elements
- Develop complex test scenarios with flexible VBScript environment
- Create application-specific dialogs
- Test Intelligent Networking applications

Protocol analysis and emulation for A, A-bis, Gb and other mobile interfaces is provided. Flexible call generation enables insertion of voice and signaling messages at various points in a signal path. The AnyTest can emulate system components, such as MSC and VLR. The Intelligent Networking scripting development environment allows for the testing of functionality in advanced mobile services.

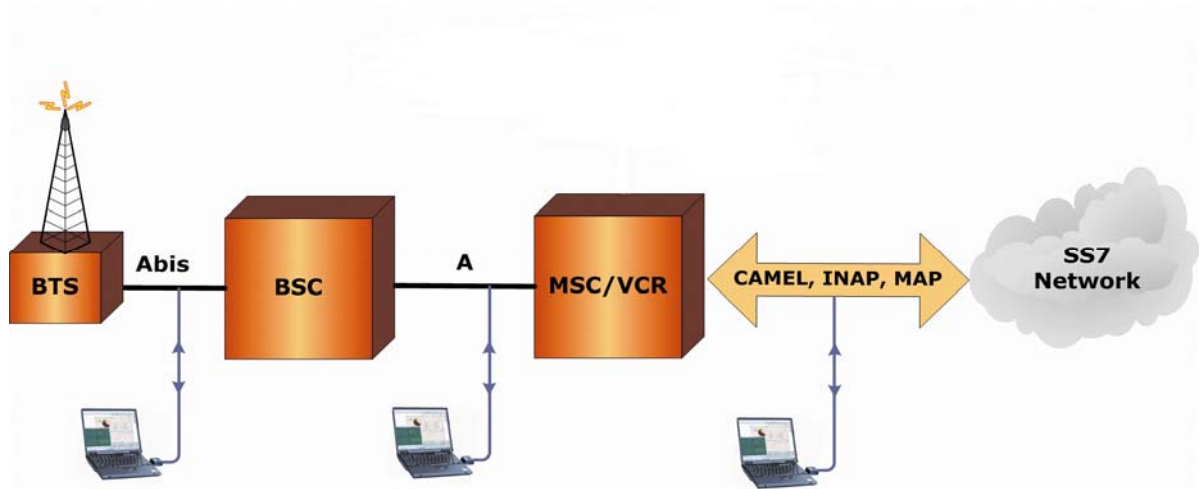
Mobile Protocols Analysis

The AnyTest can decode ANSI-41, GSM MAP, TCAP, INAP, CAMEL, AIN and WIN protocols. The large graphical display provides easy-to-read protocol traces, visual links status, and graphical call traffic statistics.

Network Applications Testing

Mobile communication networks offer a constantly expanding selection of value-added services utilizing a variety of protocols. Testing these advanced services demands the power and flexibility of a full-featured programming scenario. The AnyTest scripting development environment is based on the familiar JScript, which simplifies the development of complex test scenarios.

It provides complete control over all call parameters and enables the user to design SS7 call dialogs and processes. It can construct signaling transactions in various protocols including ANSI-41, GSM MAP, TCAP, INAP, CAMEL, AIN and WIN.



VoIP Testing

The AnyTest delivers comprehensive analysis and emulation of SIP and H.323 VoIP protocols and fully supports legacy signaling protocols (SS7, ISDN, GSM, R2, V5.x etc). The integration of WAN and LAN analysis in the same instrument significantly reduces the complexity of testing networks with both PSTN and new VoIP protocols.

The consistent user interface, full decoding for each protocol level, powerful filters, triggers and graphical protocol statistics, all enable the user to quickly resolve signaling problems in both environments. The AnyTest provides VoIP call quality analysis, packet jitter and loss rate calculation in a RTP stream. Users can also listen to live VoIP phone calls and record them onto the laptop's hard disk.

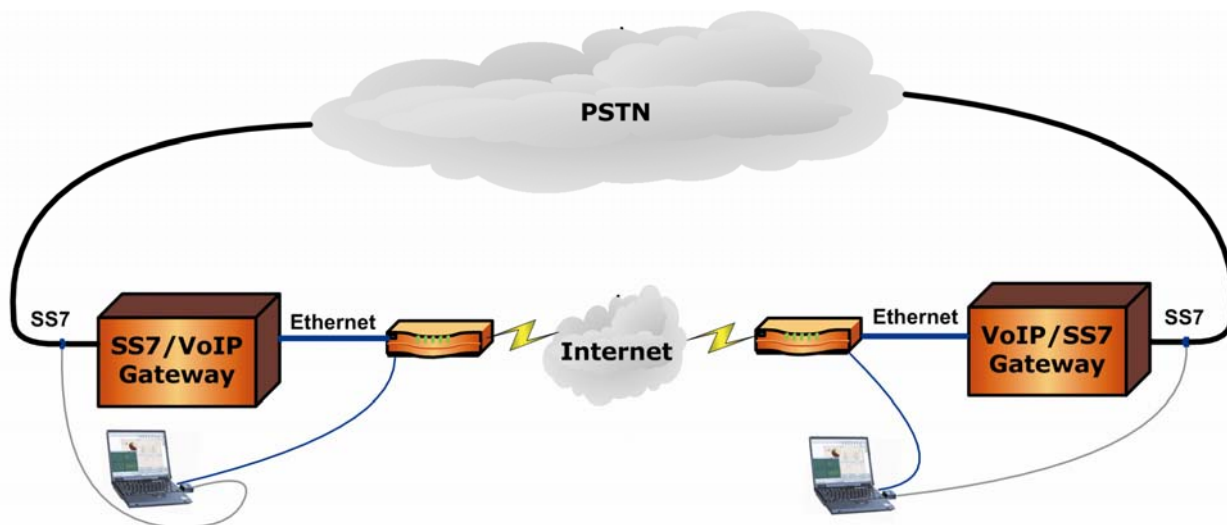
SIP Call Generator

Multiple simultaneous SIP phone calls can be generated. SIP parameters can also be fully controlled. The VoIP LAN and PSTN call generators operate concurrently to stress test both sides of PSTN-to-VoIP gateways.

SIP/SS7 protocol conversion testing

A highly effective tool, the AnyTest can test and troubleshoot signaling conversion between SIP and SS7 formats. It is capable of generating and decoding calls in both SIP and SS7 formats in real-time and can display both formats in the same trace windows for easy analysis.

```
SIP - Loaded
04/07/03 10:34:53 Trace ETSI PRI (SS7) + IP created by AnyTest 4.20 SP1
04/07/03 10:34:53 Rx 1 Signal detected
04/07/03 10:34:53 Rx 2 Signal detected
04/07/03 10:34:53.000 Rx 1 Ch NEW CALL CR= 1 -> 10:34:53-10:34:53
04/07/03 10:34:53.000 0 ms IP SIP INVITE 192.168.12.179 -> 192.168.12.120
  IP,UDP
  SIP
    28 INVITE sip:1000@192.168.12.120:5060 SIP/2.0
    Via: SIP/2.0/UDP 192.168.12.179:5060
    From: <sip:192.168.12.179:5060>
    To: 1000<sip:1000@192.168.12.120:5060>
    Call-ID: b1c8f917a82d2b082d00000000000000192.168.12.179
    Cseq: 1 INVITE
    Subject: VovidaINVITE
    Contact: <sip:192.168.12.179:5060>
    Content-Type: application/sdp
    Content-Length: 135
    v=0
    o=- 218467941 218467941 IN IP4 192.168.12.179
    s=VOVIDA Session
    c=IN IP4 192.168.12.179
    t=325769741 0
    m=audio 3456 RTP/AVP 0
04/07/03 10:34:53.000 0 ms IP SIP 100 Trying 192.168.12.120 -> 192.168.12.179
04/07/03 10:34:53.000 0 ms IP SIP 180 Ringing 192.168.12.120 -> 192.168.12.179
04/07/03 10:34:53.000 0 ms IP SIP 200 OK 192.168.12.120 -> 192.168.12.179
04/07/03 10:34:53.000 0 ms IP SIP ACK 192.168.12.179 -> 192.168.12.120
04/07/03 10:34:53.000 0 ms IP SIP BYE 192.168.12.179 -> 192.168.12.120
04/07/03 10:34:53.000 0 ms IP SIP 200 OK 192.168.12.120 -> 192.168.12.179
04/07/03 10:34:53.000 0 ms Rx 1 ch END CALL CR= 1 -> 10:34:53-10:34:53
04/07/03 10:34:54 Rx 1 ALARM: Loss of Signal
```



ISDN PRI Testing

The AnyTest is a full-featured ISDN PRI test system. It can monitor and emulate ETSI, DSS1, Q.SIG, V5.1, V5.2, DMS100/250, 4/5ESS, and NI2 protocols and fully decode messages on multiple D-channels. The AnyTest features BERT analysis for testing the quality of a physical link and supports PESQ voice quality measurements. The call generator can place calls on selected bearer channels and generate bulk call traffic for stress testing customer equipment.

Voice channels and call recording and monitoring

In addition to monitoring and call generation, the AnyTest offers versatile voice channel recording capabilities. It can record audio signals on user specified bearer channels, up to the capacity of a laptop's hard disk. The user can also monitor bearer channels through laptop speakers. The DSP-based architecture of the AnyTest T1/E1 interface card makes it possible to identify the MF/DTMF tones transmitted over bearer channels after a connection is established.

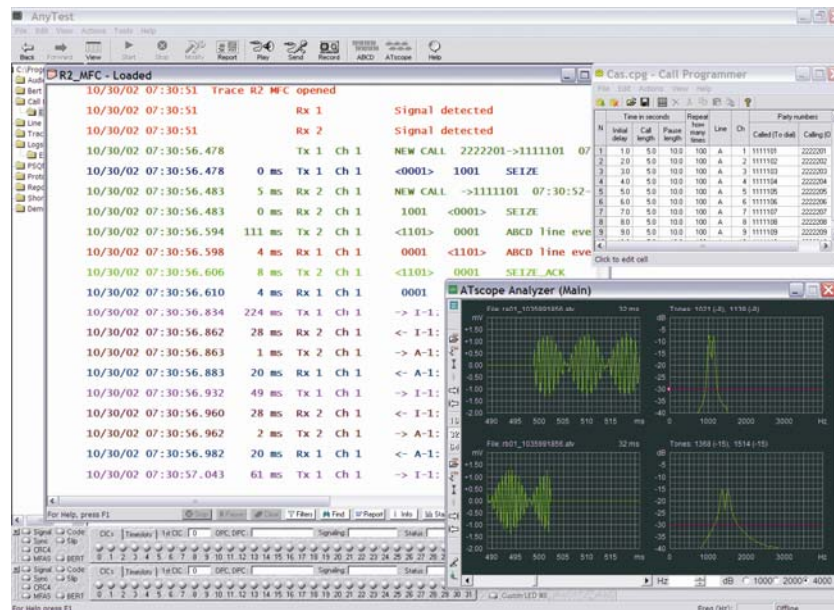
CAS Protocols Testing

In addition to supporting the SS7, GSM, VoIP and ISDN protocols, the AnyTest monitors and emulates CAS tone-based signaling (e.g. R2-MF, R2-DTMF and Robbed Bit Signaling (RBS)). The DSP in the AnyTest WAN interface card provides necessary computing power for accurate tone analysis and generation. It offers bi-directional, non-intrusive monitoring, full-duplex drop-and-insert testing, the decoding of ABCD bits line signaling, detection of MF/DTMF digits and inter-register signaling tones.

The user can view decoded line signaling and MF/DTMF dual tones in the trace window. The ATscope Virtual Oscilloscope allows the user to analyze tone signals in time and frequency domains, and listen to a bearer channel through the laptop's speakers.

CAS Call Generator and CAS Protocol Editor

The AnyTest Call Generator can generate individual and bulk CAS phone calls for load and stress testing of communication links and telephone equipment. The CAS protocol editor can modify both line signaling and inter-register state machines to create custom call structures.



How to Order AnyTest

Linkbit offers unprecedented flexibility in configuring the AnyTest system to cater to our Customers' requirements and budget.

The AnyTest system consists of WAN interface hardware, system software, user manual, protocol test applications and test tool licenses, as required.



Hardware components

- AnyTest PC Card with 2 T1 or E1 interfaces
- Interconnecting cables and adapters

Software Test Application Options

The AnyTest system supports a wide range of signaling protocols. The test applications include protocol decoding, emulation and scripting for various protocols. The user can customize software options at the time of the initial order, then expand the system's capabilities by purchasing additional software licenses via the Internet.

Software Test Tool Options

In addition to the test application software, Linkbit offers optional test tools such as:

- Statistical Analysis package
- Voice channel/call recording and monitoring
- ATscope Virtual Oscilloscope
- BERT Error Injection
- Path confirmation
- ABCD bits real-time display
- PSQM voice quality testing package

For the complete list of supported protocols and other options, please contact us at:

(408) 969-9940 ph.
(408) 273-6009 fax
sales@linkbit.com

Our professional sales associates will be happy to assist you in configuring a system that will match your needs.

Contact Information

Linkbit products are available through a worldwide network of authorized resellers and directly from the company. To locate a reseller near you and for other sales related questions, please contact Linkbit sales at:

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