Anritsu

CMA 3000
SPECIFICATIONS

SS7 Protocol Functionality Option

Effective installation, operation and maintenance of SS7 signaling links

CMA 3000 is Anritsu's new portable, compact and user-friendly field tester. It's designed specifically for field technicians who install and maintain mobile-access and fixed-access networks, transmission networks and switching. With the basic SS7 protocol functionality option and additional decoder options the the battery-powered Anritsu CMA 3000 is an easy-to-use, portable test instrument for the installation, operation and maintenance of SS7 signaling links, capable of analyzing a wide range of international and national SS7 protocols.

CMA 3000 captures signaling information from up to four 64 kbps signaling channels from a 2 Mbps signaling link, or if equipped with optional SDH interfaces, from a 2 Mbps link embedded in the SDH signal. You get powerful functions, such as message monitoring with decode of all levels, result presentation in mnemonics, signaling statistics and easy-to-use filter facilities, for protocol analysisof the captured signaling.

The instrument's transmitter generates the test signals required for commissioning testing of 2 Mbps PCM systems before they are taken into operation as SS7 signaling links. The transmitter also allows drop-and-insert testing for in-service measurement of transmission quality. The basic instrument's measurement functions include traffic channels supervision (together with audio access) as well as line-status and transmission performance measurements.

Key Features	Key Applications
- All-layer analysis of SS7 protocols: - International SS7 (ITU-T, ETSI) protocols - A wide range of national SS7 protocols - GSM protocols: MAP and A-interface - Signaling channel traffic statistics - Full-featured 2 Mbps transmission test set - Simultaneous monitoring of both directions on a line	- Installation testing - Rapid in-service diagnostics and troubleshooting - Signaling link performance and load - Protocol analysis and troubleshooting - Signaling message sequences - Call completion analysis

Protocol analysis

During installation or troubleshooting, the CMA 3000's event log provides valuable, detailed information on the signaling by collecting signaling messages from the connected SS7 signaling link.

All protocol layers are decoded completely into mnemonics. The mnemonics can be translated to plain language and the use and possible values of the field are explained. The CMA 3000 presents the recorded information in different ways: The Result List gives a one-line indication of each message for a rapid overview of the signaling information. This makes it simple to identify the input on which the message was detected. Intuitive color indications highlight messages that could not be correctly decoded. With the search facility you can easily find such messages.

The Result List overview presentation may be expanded to contain a couple of lines per message, stating the most important information in the message. The contents of a message can also be shown, either presenting the main information elements or all parts of the signaling message and the hexadecimal values for detailed inspection and analysis.
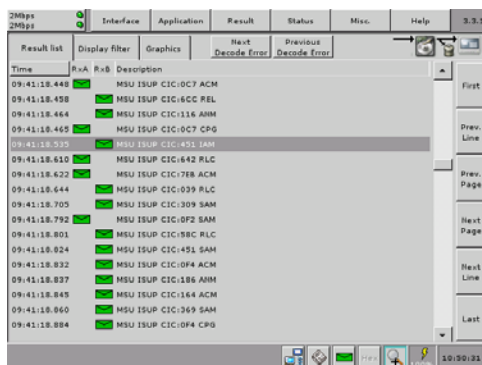

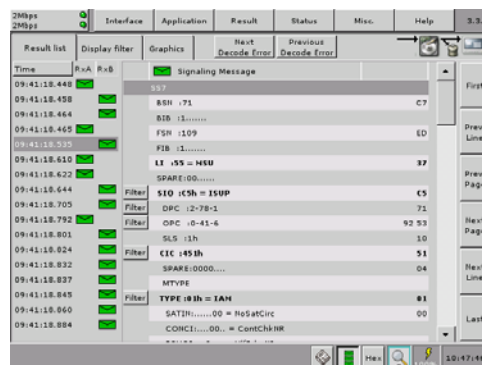Fig.1 The Result List presentation of the signaling.

Fig.2 The detailed presentation of the message contents.

Messages are stored in the CMA 3000's memory and can be examined during or after the measurement. Filters can be applied to select the most essential information for storage and display.

For ISUP type protocols, you may set the filter to display only IAM messages, providing a quick overview of calls on the line. It's easy to import OPC, DPC and CIC parameter values to display filters. This turns extraction of messages that belong to the same call into a very simple task.
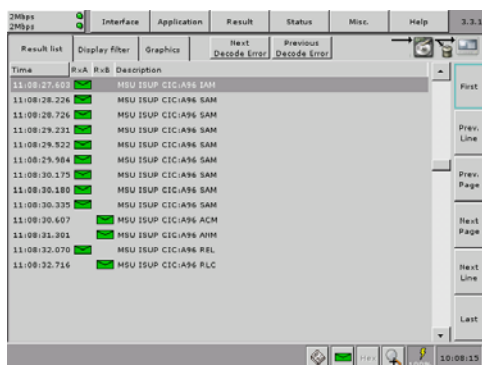

Fig.3 Extraction of messages for a call.

You can automatically configure the CMA 3000 to the monitored 2 Mbps line, including identification of signaling channels.

Signaling statistics

The CMA 3000's signaling statistics provide data on the total traffic load and the quality of the signaling link.

With the CMA 3000 you can get information on the occurrence of and load from the different SS7 User Parts divided by the SIO value. The SS7 ISUP message statistics open up a vast range of opportunities for network optimization.

You can examine call completion in ISUP protocols by comparing counts of IAMs on one side of the line with answer messages (ANM) on the other. In addition, release cause statistics are available for ISUP type protocols.

Specifications

The specifications below cover the functionality when installing the basic SS7 protocol functionality option. Please refer to the CMA 3000 Basic instrument specifications sheet for further information on the basic functionality.

General	
Optional SS7 protocol decoders	Basic SS7 protocol functionality option is required • International SS7 (ITU-T and ETSI) protocols • A wide range of national SS7 protocols • GSM protocols: MAP and A-interface Please contact your local Anritsu representative for detailed information on available protocol decoders
Signaling channel access	For signaling analysis 1 x 64 kbps channel can be selected. Alternatively, up to 4 x 64 kbps channels can be selected for signaling analysis (audio access to traffic channels is disabled in this case)
Display of logged events	Messages are shown in mnemonics. Display modes: • Result List: displays one line with message type • Result List, Details: displays message type and main information elements • Message Contents: displays all information elements • Message Contents, Details: displays all parts of the message plus a hex presentation • Plain text help for individual fields • Hex-only presentation of messages
Message filter	Message filter conditions: • FISU, LSSU, PCR, SIO, OPC, DPC, CIC, up to eight user-defined TUP, ISUP, SCCP, SNM or SNT message types (SS7 white book protocol) For display filters also a message filter string of four user-defined digits (4 bit values)
Signaling statistics	Traffic load: • Total, retransmitted and errored signaling frames. Traffic divided into MSU, LSSU and FISO Configurable statistics: • Up to 32 counters per receiver. 8 counters per receiver may be fixed by the user, the remaining are assigned in the order that the messages occur The user defines the counter usage: • Traffic load per user part (i.e. SIO value) • For ISUP and TUP type protocols: statistics on message types • For ISUP type protocols: statistics on release cause values

Memory capacity	
Internal memory capacity	32 Mbytes are available for measurement results Storage capacity for protocols: up to 8 protocols can be installed

Miscellaneous	
Options related to the SS7 protocol options	• GSM/GPRS Abis and Gb interface protocol options • ISDN and V5.x protocol options

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