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Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!

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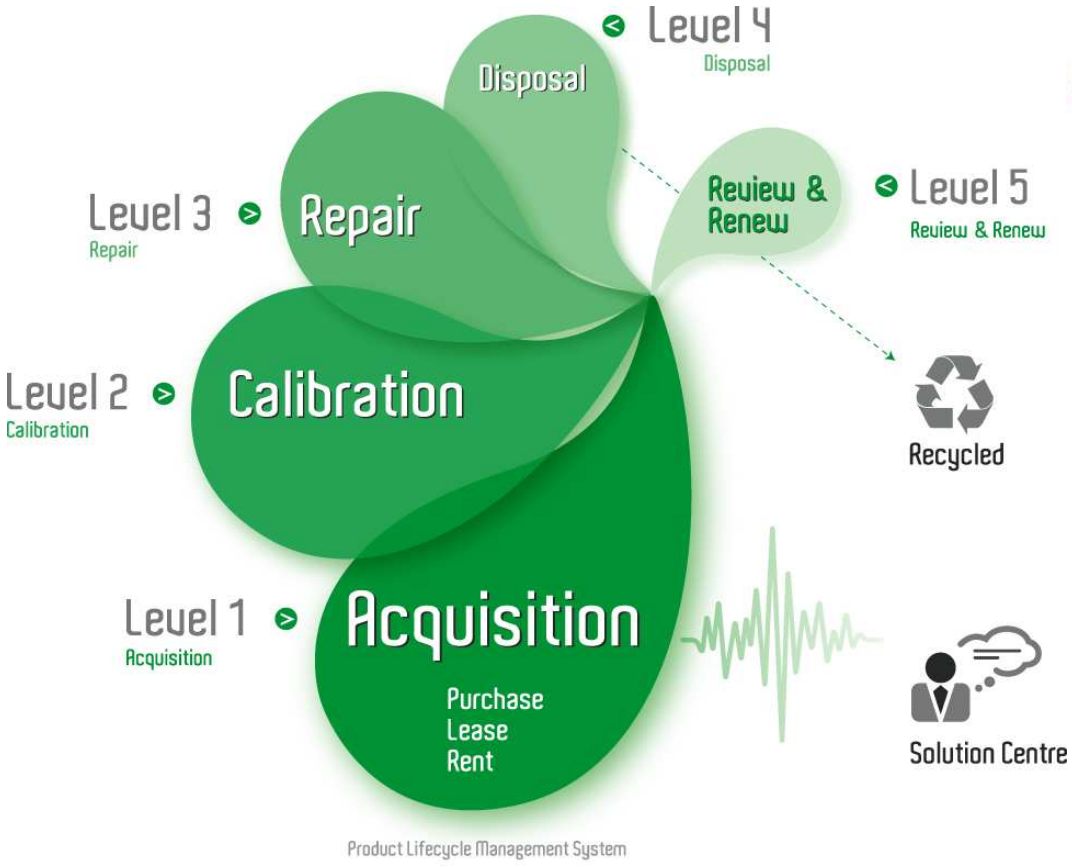


DST 2000 E1

DATA SERVICES TESTER

tools of the trade

GN Nettest
Navtel Division

TODAY – BEYOND THE BER TEST

The DST 2000 is a new generation of tester designed to meet the challenges of supporting new "protocol dependent" services such as Frame Relay and X.25. These new services can only be deployed if **ALL** relevant layers perform cohesively.

By verifying all performance and configuration parameters needed to successfully deploy complex data services, the DST 2000 helps to ensure quality service deployment and high network up-time.

The DST 2000 offers more. Its modular architecture combined with ongoing development to test complex new services at speeds up to 34 mbits/s will protect your investment until the year 2000 and beyond.

POWERFUL RANGE OF TESTS

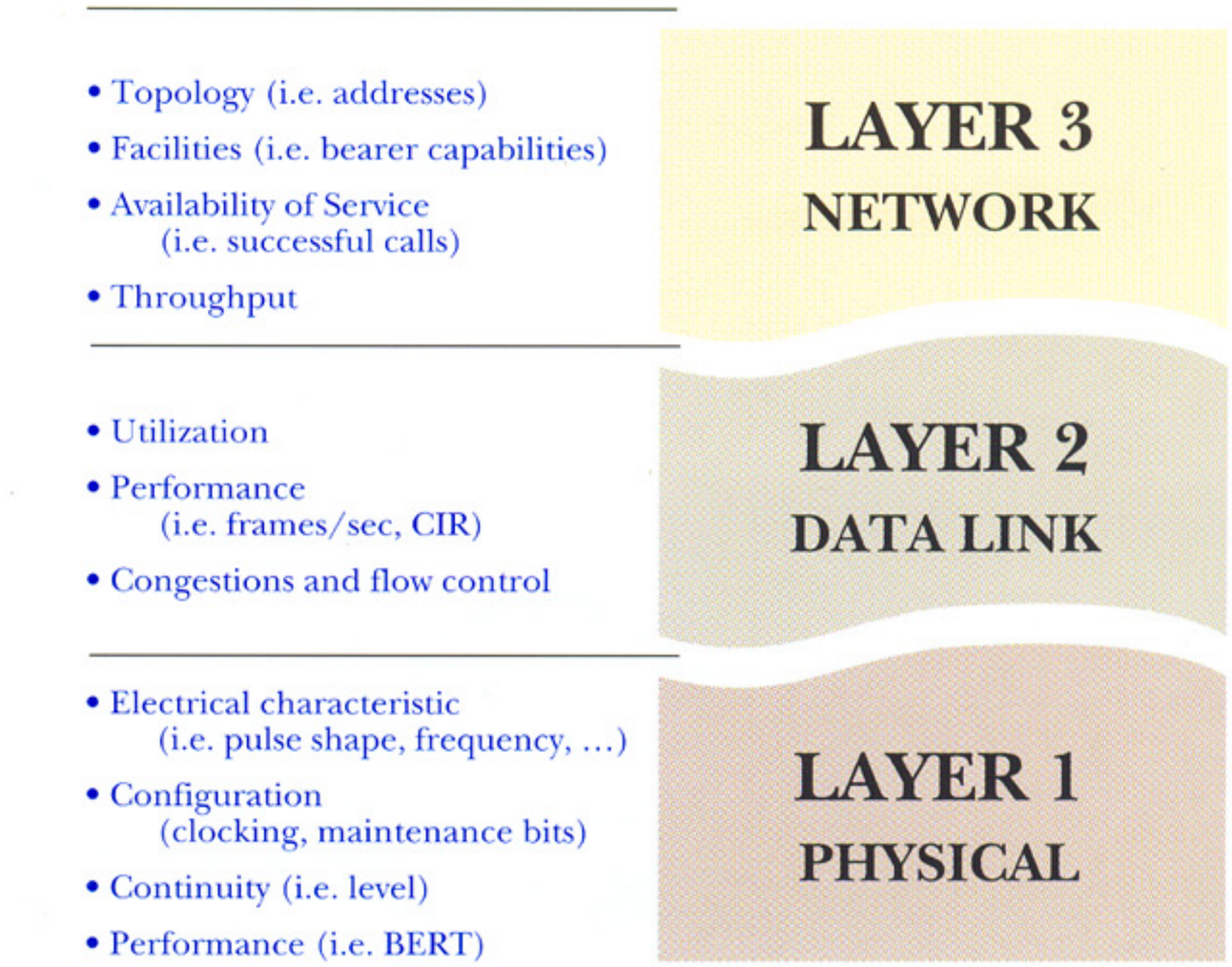
DST 2000 performs extensive service emulation tests as well as Layer 1 signal analysis and BER tests. With just one instrument and one network connection, service integrity, configuration and performance are completely analyzed. Emulation tests can be performed from either the G.703 interface or via one of the DST 2000's many built-in data (V.XX) interfaces.

SUPERIOR SERVICE TO YOUR CUSTOMER

When an outage occurs or a service is suspect, the DST 2000 performs a number of in or out of service tests to quickly isolate the problem to the CPE, local loop or the carrier's network. In-service monitoring, combined with the Drop & Insert capabilities of the instrument, maintain the best possible service to your customer. Testing unattended round the clock, or via remote control, the DST 2000 also helps diagnose elusive intermittent problems.

WIDE CHOICE OF RESULT FORMATS

The start and end of each test, as well as the occurrence of errors or significant events, are time stamped. Test results can be displayed, autosaved to memory or printed. The extensive array of LEDs provides instant recognition of errors, protocol and service violations. More detailed information is available through statistics on the LCD display.

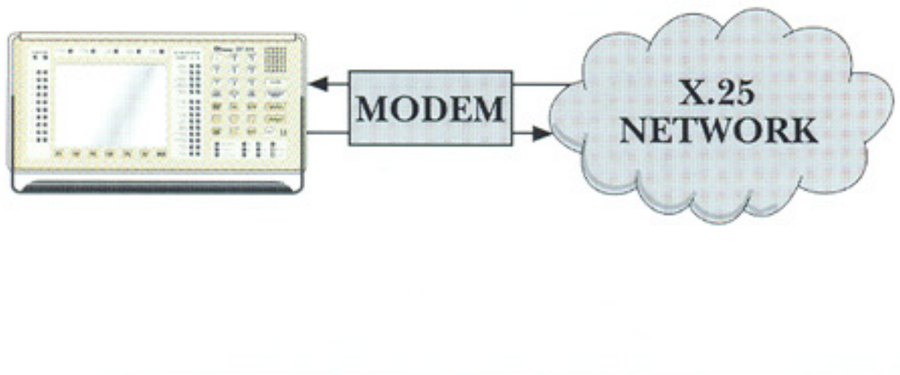


DST 2000 verifies presence, configuration, connectivity, performance and capacity of all relevant layers needed to deploy the service.

The remote control option allows the placement of the DST 2000(s) in unmanned or partially manned offices and controlled from a central diagnostic centre via an IBM or compatible personal computer. The PC can "talk" to the DST 2000 via leased, dial or X.25 connections.

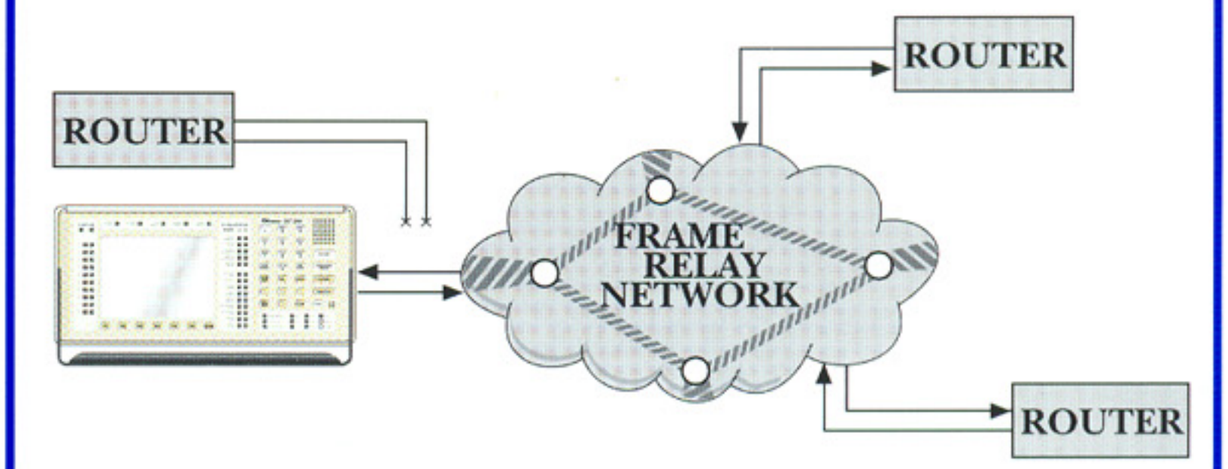
APPLICATIONS

The DST 2000 incorporates the widest test range of any single instrument on the market today. Vital to all tests are the DST 2000's extensive Drop and Insert capabilities, which maintain service to channels not under test. The G.703 interface, designed with 2 transmitters and 2 receivers, allows the user to test in both directions. This extensive interface flexibility is combined with concurrent protocol tests for complete service testing.

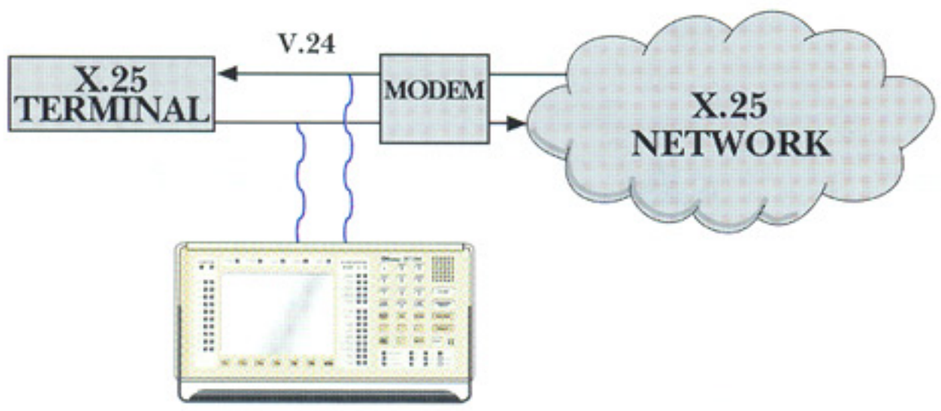


CHECK FOR THE 'PRESENCE' OF X.25 SERVICE
Originate Call to verify physical and logical connection to the packet network.

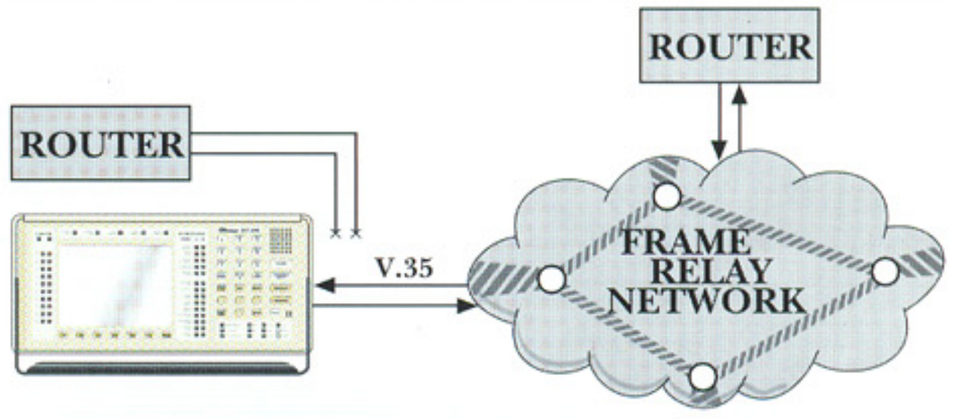
plus The performance of Layer 1 can be evaluated by running a BERT and/or tracking Layer 1 info-states.



"PING TEST" **Test end to end connectivity by running a "PING" or ICMP (Internet Control Message Protocol) echo test. Allows user to verify connectivity and measure service imposed delays.**

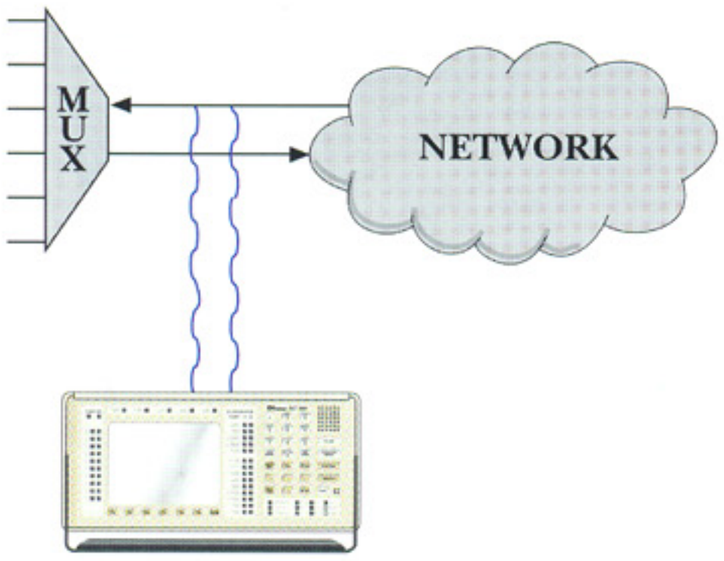


SERVICE QUALITY ANALYSIS **Detailed packet and frame layer analysis up to 2.048 Mb/s.**



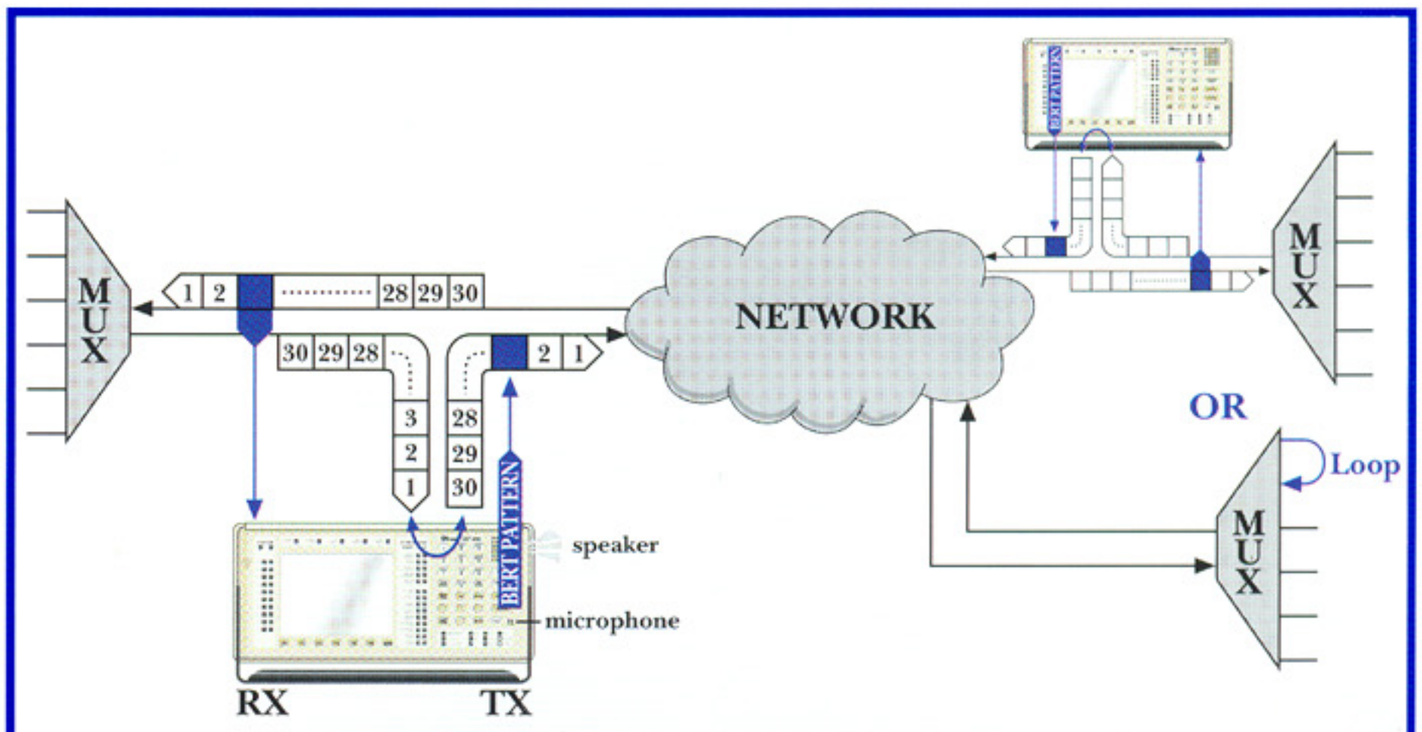
STRESS TEST **Frame Relay Stress Test verifies packet sizes and network load within set boundaries relative to information transfer rates – verifies the expected level of service that is available without frame losses. (i.e. CIR).**

plus These tests can be conducted through the data interfaces (V.35, X.21 etc.) or on selected time slots on the E1 interface.



LAYER 1 STATISTICS **Evaluation of Layer 1 performance (Framing, Errors, CRC, BPV, Alarms, etc.).**

plus An evaluation of higher layers (i.e. Frame Relay throughput measurement) can occur simultaneously.



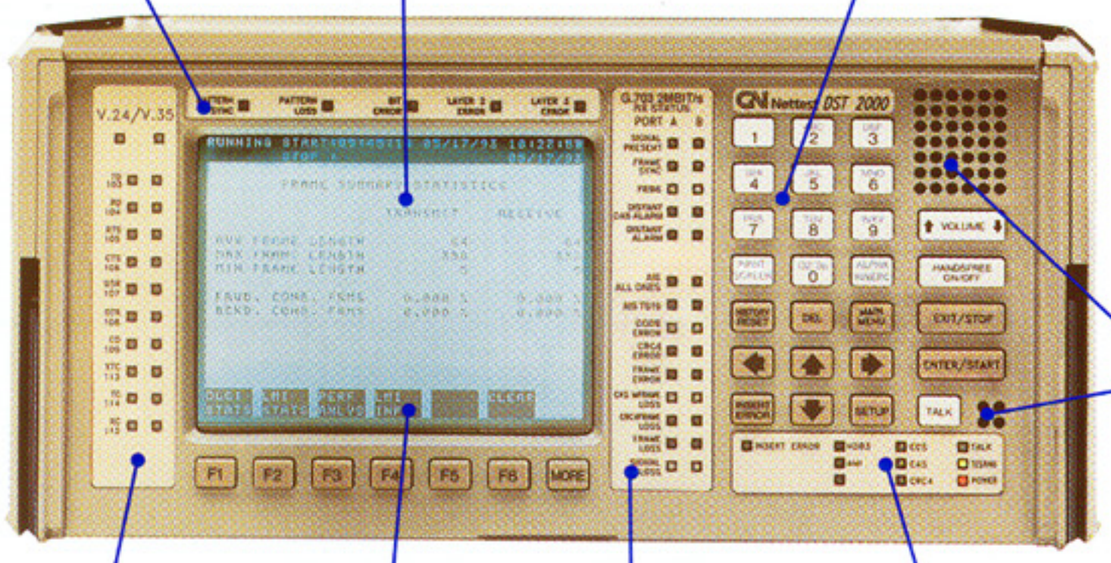
DROP & INSERT **The availability of most channels to the user is maintained while a BERT is performed on one or more time slot(s).**

plus The built-in handset can be used to listen and talk on PCM encoded voice channels.

Vital signs for Layers 1, 2, and 3

Large 40x20 LCD display allows logical grouping of all pertinent information on one screen!

Simplified, user-friendly keyboard



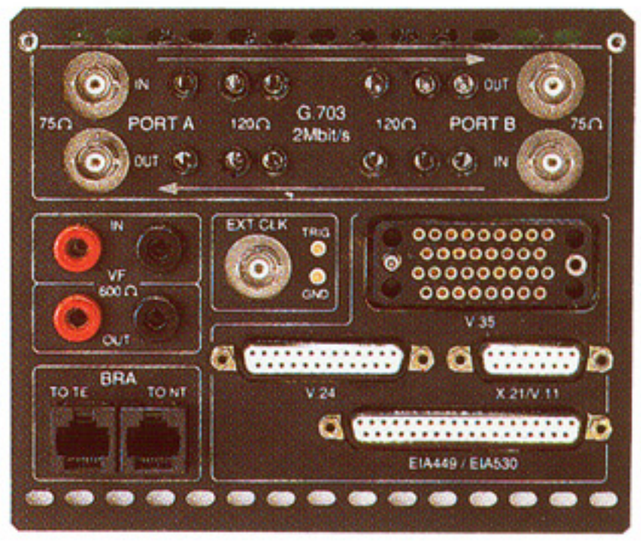
Built-in speaker and microphone

Data interface signal activity panel

Soft key labels

Layer 1 activity panel displays signal/error presence

Panel displays the framing and coding used by the Layer 1 under test



The DST 2000 supports many common interfaces making local or remote testing very convenient. The V.24, V.35, X.21, EIA-449/530 data interfaces are software selectable.

THE DST 2000 *simply sophisticated*

KEY FEATURES	DESCRIPTION	BENEFITS
Ability to monitor and emulate protocol dependent services (ie Frame Relay, X.25).	The functionality of all service layers are tested simultaneously.	Complex services can be tested in minimal time & with higher accuracy.
Eliminates the need to cope with protocol decodes.	The DST 2000 provides service analysis by verifying the presence, configuration, connectivity & calculates network performance & capacity.	Saves time, eliminates errors & simplifies technician training requirements. Service verification & problem isolation made easy.
Multi layer automatic configuration on Layers 1-3 to simplify setup.	Auto configures on service specific options (ie Frame Relay LMI standard) as well as Layer 1.	Minimizes setup time and eliminates configuration errors.
Non-intrusive monitoring.	Calculating statistical results based on user data.	Customer's service is not interrupted during service analysis.
Fractional or Full E1 G.821 BERT from E1/G.703 or Data Interfaces.	Checks Layer 1 performance in out-of-service or Drop & Insert mode.	Accurate & complete Layer 1 verification according to approved standards.
Extensive Drop & Insert capability using 2 receivers & 2 transmitters.	Allows inserting service dependent traffic or BER patterns on selected channels. Dropping channel(s) to a VF or data interface to connect external test sets. (TIMS or protocol analyzer).	Maintain service on good channels while testing suspect channels. Minimizes service & customer interruptions.
Multiple connector options for connecting to E1/G.703 local loop.	Allows connection to 4 x 3 prong banana (120Ω) or 4 x BNC (75Ω) connectors.	Permits use of the most convenient connector & cable type. No external interface modules required.
Software selectable multiple integral data interfaces.	Interfaces supported include X.21, V.24, V.35, EIA-422 with EIA-449/530.	Easy local or remote testing of most common data interfaces. Enables user to test CPE equipment.
Investment protection. Field upgradeable for services you require.	Support for existing and future high speed data services.	The DST provides a platform that grows with your testing needs beyond the year 2000.
Portability.	Rugged and lightweight the unit can also be placed "on-end" when space is at a premium.	Take it anywhere and place it anywhere.

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E1 SPECIFICATIONS

The E1 function is part of the basic configuration of the DST 2000 product for CEPT markets. The interface side panel provides connectors suitable for terminating the G.703 2 Mbit/s facility and CCITT type data interfaces.

Key capabilities include:

- Non-intrusive monitor of Layer 1 characteristics.
- Bit Error Rate Tests (BERT) in either terminate or "Drop and Insert" mode using either industry standard or user defined patterns and output of the results using G.821 interpretation.
- Automatic configuration to simplify setup.
- Monitor and talk through of PCM voice using A-law or μ-law encoding using built in or external handset.
- Two transmitters and two receivers provide simplified drop and insert testing.
- Mapping of data interfaces (i.e. X.21, V.35) to selected contiguous or non-contiguous time slots per G.736

CONNECTIVITY:

- Terminate line.
- High impedance bridge.
- Patch bay compensation.
- Drop and insert.
- Three prong banana jacks for 120Ω and BNC connectors for 75Ω.

E1 FORMATS:

- G.703 at 2 Mbit/s using Alternate Mark Inversion (AMI) or HDB3.
- Unframed E1 or G.704 frame format.
- Channelized or fractional E1 support using 64 kbit/s per time slot.
- Signal bits can be displayed as appropriate for framing standard using CAS on all 30 time slots concurrently.

BERT FORMATS:

- 511 (2^9-1), 2047 (2^{11}-1), 4095 (2^{12}-1), 2^{15}-1 (feedback from stages 17 and 20),2^{15}-1 (feedback from stages 3 and 20 per CCITT V.57), 2^{20}-1, 2^{20} CCITT, 2^{23}-1 (CCITT O.151), alternating 1-0, mark, space, QRSS (ANSI T1.403), 16 bit user defined pattern.
- Drop and insert mode allows tests on the time slot(s) selected (at N x 64) while passing the user traffic on the remaining time slots unaffected.
- G.821 results and English interpretation.
- BERT on externally or internally clocked rates at n x 64 kbit/s up to 2.048 Mbit/s via the G.703 interface.
- Subrate BERT capability on integral X.21, V.24, V.35, EIA-449, or EIA–530 interfaces (externally clocked from 2.4 kbit/s to 2.048 Mbit/s).

G.821 RESULTS:

- BER, errored seconds, severely errored seconds, % of Error Free Seconds,
- Logic bits received, bit errors
- Blocks received, block errors
- Sync losses, Sync Loss seconds, pattern slips

DATA SERVICE TESTING:

- When data service testing is in progress on the G.703 interface, monitoring of layer 1 events and errors is continuously operating in the background.
- Results of this monitoring can be accessed at any time by pressing the "LYR 1 MON" softkey.

AUTOMATIC CONFIGURATION:

- At layer 1 determines frame format and line coding.

RECEIVER SENSITIVITY:

- -20 dB from 3V peak @ 120Ω or from 2.37V @ 75Ω.
- -30 dB patch bay compensation.
- Weak signal notification below 300 mV peak.

CLOCK SLIP:

- Difference between PORT A receive and PORT B receive or PORT A receive and external clock.
- Resolution: 1 bit

ERROR LOGGING:

- To printer or to memory.
- On error or at timed intervals or combination.

LIFE SIGN INDICATORS:

- LEDs include:

  Signal present, frame synchronization and pattern synchronization.

  CCS, CAS, CRC4 and HDB3 or AMI (indicate format of facility under test).

ERROR/ALARM CONDITION NOTIFICATIONS:

- LEDs include:

  Signal, pattern and frame and CRC4 loss
  AIS, AIS TS 16 (CAS), Local and Remote framing alarms
  Local and remote loss of multiframe
  BPVs

PHYSICAL PARAMETERS OF THE DST 2000:

- Dimensions:

Height:	155mm
Width:	330mm
Depth:	235mm
Weight:	approx. 6.1kg
Power:	80W, 100-240Vac, 50-60Hz (Auto-Ranging)

ORDERING INFORMATION

DST 2000 Base Unit E1	P/N 01-102456A
Frame Relay Option	P/N 01-102531A
Remote Control	P/N 01-102532A
X.25	P/N 01-102537A
Soft Pak	P/N 01-102515A
Handset with Cable	P/N 01-102520A
EIA-449 to EIA-530 Adapter	P/N 59-102545A

For other features/accessories please contact your nearest sales office.

Also Available in T1 Format.

Specifications subject to change without notice.
ISO 9001 Registered.

DA-056-02-A4 *PM/06/95*

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