WWG IBT-5

ISDN BRA S/T Tester

For quick installation of ISDN lines and equipment:

- *Test of all ISDN Basic Rate Access interfaces*
- *Updates by software download*
- *Intuitive user interface*

Applications

- **Installation of ISDN BRA**
- **Commissioning of ISDN BRA**
- **Installation of ISDN equipment**
- **Maintenance of ISDN BRA**

The WWG IBT-5 has been designed to reduce the time required for ISDN line and equipment installation. This is why the efficient WWG IBT-5 is easy to use. Thanks to clearly displayed results, it enables rapid and reliable diagnostics.

- During BRA installation, the WWG IBT-5 checks the access to the ISDN network, the availability of services and teleservices and the subsequent transmission quality.
- The Commissioning function is ideal for operators and users seeking a quick, easy means of defining the ISDN services provided. The WWG IBT-5 automatically tests supplementary services and X.25 in the D channel.
- When installing ISDN equipment (e.g. a PBX), the NT simulation function available on the WWG IBT-5 provides an easy means of simulating the ISDN network before connecting up the equipment.
- ISDN accesses may be affected by problems relating to the setting up or implementation of supplementary services. Thanks to the simulation and real-time trace on PC functions, the WWG IBT-5 analyzes and solves these problems.

Functions

- **TE and NT simulation**
- **Automatic test of services and teleservices**
- **Bit Error Rate Test, G.821 analysis**
- **Automatic test of all supplementary services**
- **Test of X.25 in the D channel**
- **Loopbox mode (B1+B2)**
- **S_0 and U interfaces (2B1Q or 4B3T)**
- **Real-time trace on PC**

The basic version of the WWG IBT-5 provides the tests and functions required for the installation of basic rate accesses, i.e. terminal simulation, BER Test, test of services and loopback function, test of supplementary services and of the X.25 in the D-channel service. There are two types of units, one with both S and U interfaces and one equipped only with the S interface. Both are robust, compact and designed for intensive daily use.

The WWG IBT-5 can be powered from the voltage supplied by the access being tested or from a long-life NiMH battery pack (option, particularly necessary with the NT Simulation option).

The WWG IBT-5 is easy to update with new software in just minutes, either through a software download (option) or by exchanging a chip (PROM).

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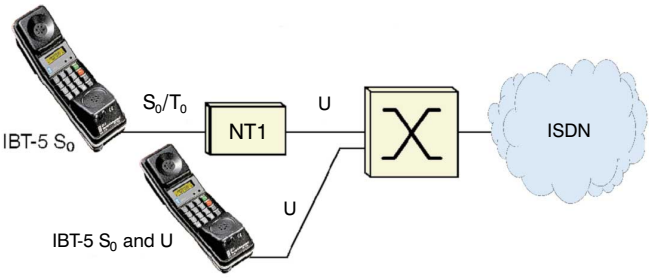
Communications Test Solutions

Telephone mode

The WWG IBT-5 can be used just like an ordinary telephone. It enables the generation of DTMF (touch tones 0 to 9, * and #) and allows testing of Keypad facilities before a call is established. The WWG IBT-5 can simply repeat the last test sequence (Recall facility) and has a built-in memory for storing six numbers to simplify use when making repeated calls to the same destination (remote loopbox for example).

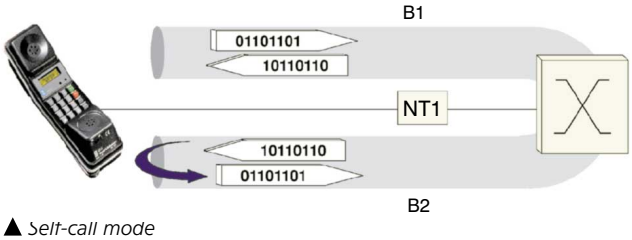


▲ *Terminal Simulation mode (TE)*

In addition to information on the cost of the call, the WWG IBT-5 displays the calling number (even if the call has been transferred) or the reason why the number was not displayed.

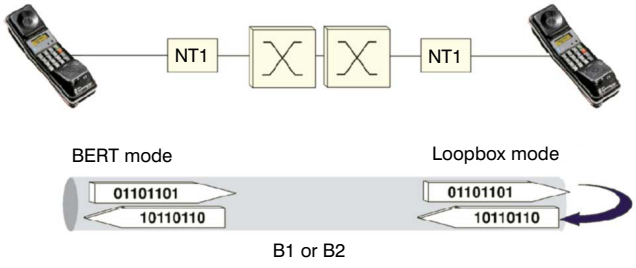
Bit Error Rate Test (BERT), G.821 analysis

The WWG IBT-5 can test the quality of transmission of an ISDN access in self-call mode or through end-to-end measurements.



▲ *Self-call mode*

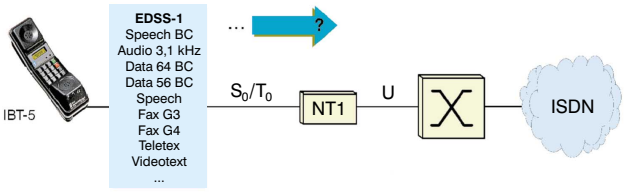
Bit errors can be inserted manually and the level of quality displayed at any time during the test.



▲ *End-to-end measurements*

Test of services and teleservices

The WWG IBT-5 tests the availability of the various services offered with ISDN: Bearer Capability, services and teleservices. A special mode allows the services associated with the protocol used to be tested automatically.



▲ *Test of services and teleservices*

Loopbox mode (B1 and B2)

This feature enables the WWG IBT-5 to act as a loopbox at the U and S_0 interfaces.
The instrument, which is compatible with other products in the WWG IBT family, then automatically accepts incoming calls and loops back the affected B channel.

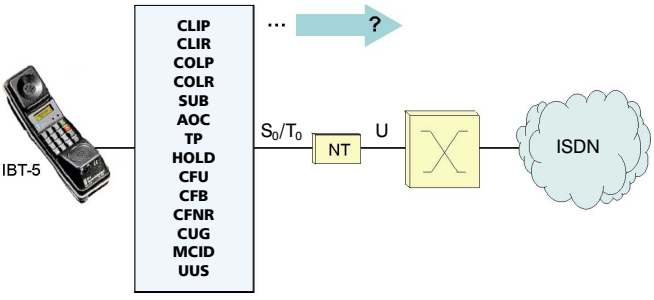
Rapid diagnostics

Two LEDs show the user the bus activation states and power feeding states (normal or restricted mode and battery voltage). In case of failure whilst establishing a connection, the WWG IBT-5 informs the user about the source and the location of the problem (layers 1, 2 and 3) using a simplified and interpreted protocol trace. Layer 3 protocol causes and all the test results are provided in plain text.

Test of supplementary services

The WWG IBT-5 very simply lets users launch an automatic test to check for the presence of supplementary services on the basic access being tested. The choice of supplementary services tested depends on the services actually implemented in the network. This avoids the risks of incorrect results caused by unnecessary tests. The WWG IBT-5 indicates availability, non-availability or the causes of error for each of the tested supplementary services.

This test is available for EDSS-1, EDSS-CH (SN3), 1TR67 and VN6 protocols.



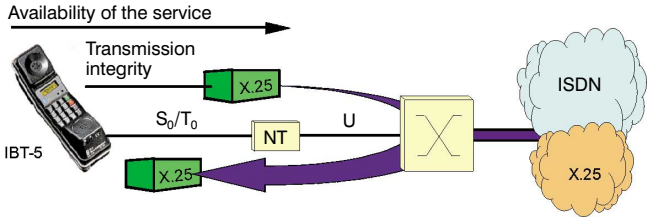
▲ *Test of supplementary services*

Activation, deactivation and interrogation of call transfers

Through the 'Generic Functional Protocol', the WWG IBT-5 enables users to obtain the actual configuration of supplementary services concerning the call transfer (CFU, CFB, CFNR) on a given access. Users can also interrogate, activate and deactivate each call transfer using criteria based on the address and service of their choice.

Test of X.25 in the D channel

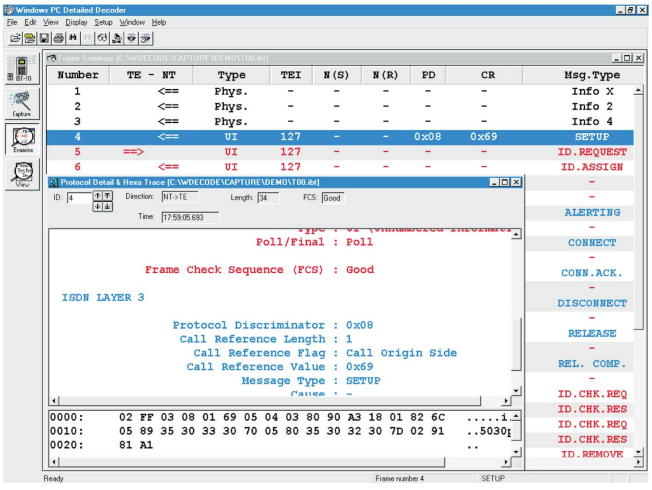
This test permits simple verification of the global quality of the X.25 service provided in the D channel. The WWG IBT-5 establishes an X.25 link (by self-call or via a loop) and analyses the reception quality of a previously transmitted data packet. The WWG IBT-5 indicates the possibility of using this service and the integrity of data transmissions in the favourable case. Last but not least, the WWG IBT-5 also includes an X.25 in D channel loopback function to allow complete testing.



▲ *Test of X.25 services*

Real-time trace with analysis software for Windows™

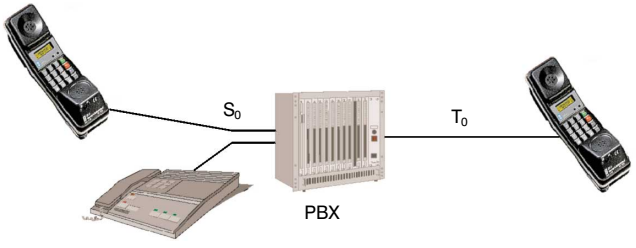
The WWG IBT-5 connects to a PC via the serial interface, thereby providing a real-time trace function. Using the Windows™ PC Detailed Decoder software, you can store and analyze traces. The software includes a very powerful decoder function for the ISDN D-channel protocol, making it easy to troubleshoot any ISDN connection problems.



NT simulation option

The WWG IBT-5 equipped with the 'NT Simulation' option can simulate the ISDN at the S_0 interface before equipment is connected for the following protocols: EDSS-1, Q.SIG, Q.931, 1TR6, 1TR67, EDSS-CH (SN3), VN3/VN4/VN6, TPH1962, Telenokia, Televerket.

This operating mode is additional to TE simulation and it enables the user to make use of existing tests and functions (call, automatic test of services, teleservices, BER test, loopback, etc.).



▲ *Network Simulation mode (NT)*

Result printouts

With the WWG IBT-5, you can print out the results of any measurement on any printer with a serial interface (BERT, tests of services and supplementary services, X.25 test). This function provides a hard copy proof of access qualification that can also be given to customers.

User interface

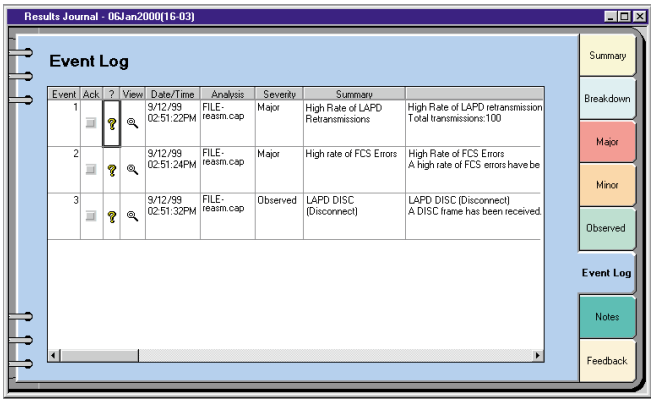
The WWG IBT-5 has clear, individual scrolling menus for each test. The intuitive nature of the user interface is particularly evident when a test is run - the user is prompted to enter certain data as and when it is required. Inversely, the user can choose to save all or some of the necessary data if he wants to rerun the tests on the same type of access.

Expert System: WWG ISDNpartner

The WWG ISDNpartner software, the first PC-based expert system specifically designed for ISDN applications, is the ideal WWG IBT-5 add-on for first-level maintenance.
In contrast to conventional protocol analyzers that require an in-depth knowledge of the ISDN signaling protocol, WWG ISDNpartner enables any technician to correct most problems on site in a single visit whatever their level of skill or experience.

WWG ISDNpartner starts by launching an 'Expert Interview', which prompts the user to describe his problem. In response, it suggests a range of suitable preliminary checks and tests to carry out before launching a more advanced analysis phase. The interview may find a solution. Otherwise it will trigger an 'Expert Analysis', which automatically searches in real time through the WWG IBT-5 trace for the signature of known problems.

WWG ISDNpartner also suggests a list of possible corrective actions for every fault it identifies. If no fault is detected by the end of the analysis, the user can save the trace to a file so that a more experienced colleague can analyze the data.
WWG ISDNpartner is compatible with the entire WWG range of testers/analyzers (contact your local dealer for further details).



▲ *Event Log screen*

Technical Specifications

WWG IBT-5

S_0 /T_0 Basic Rate Access
Electrical characteristics ..... to Rec ITU-T I.430, ETS 300 012
Connector.....1 x RJ-45
Impedance..... high impedance, 100 Ω
Protocols..... EDSS-1, Q.931, BTNR 191, ... V1, Q.SIG, 1TR67, TN1R6, 1TR6, TPH1962, ... VN3/VN4/VN6, SN2, EDSS-CH (SwissNet 3), ... DMS-100 (funct.), N.ISDN, ATT, NTT, ... CorNet-T/TS®, Telenokia, Televerket
® Registered trademark, Siemens AG Munich/Berlin

Interface ..... auto-configuration, ... point-to-point, point-to-multipoint, ... no protocol (leased line mode)
Coding law ..... A, µ
Display..... 2 lines x 16 characters, backlit
Keypad.....16 keys

Dimensions (w x h x d) in mm.....240 x 45 x 55

Weight of the basic instrument....approx. 0.5 kg

Serial interface..... jack connector

U interface (BN 7522/10 and BN 7522/70)
Connector.....2-wire
Layer 1 characteristics.....to ANSI, ETSI
Line code.....2B1Q, 4B3T

General specifications
Menu languages.....French, English, ...German, Spanish

Power supply.....phantom power .....or rechargeable batteries (option)
Operating time from
NiMH batteries.....more than 8 hours
Charging time.....less than 3 hours from AC line

Safety.....to EN 60950
Drop and shock test ...ETS 300 019-2 class 7M2

Permitted ambient
temperature.....ETS 300 019-1 class 7.1
Operational range.....-5 to +50 °C
Storage and transport range.....-25 to +70 °C
Humidity...20 to 80% relative, 525 g/m³ absolute

Test functions

Telephone function (TE simulation and option for NT simulation)
Selection..... address, sub-address, channel, ... service, self-call
Phone-book.....6 telephone numbers
Recall facility
Keypad facilities test..... on connection
DTMF generation..... 0 to 9, *, #
Dialling..... overlap or "en bloc"
Interpreted trace..... layers 1, 2, 3
Network charge analysis..... keypad ..... and functional protocols
Screen display
Information on the current call, called address, calling address, connected address, billing statement, service, channel, reason for non-display of the address, cause of connection failure and location parameter, Call Waiting display, DISPLAY information element

Bit error rate test
Analysis to G.821 (ITU-T Blue Book)
Pseudo-random bit sequence..... 2^{11}-1
Measurement time.....1 min, 15 min, ... 1 h, 24 h, infinite
Manual insertion of bit errors

Automatic test of services
Predefined tests..Bearer Capability, teleservices

Loopbox mode (B1 and B2)
Selection mode.....ISDN (all incoming calls or ...user-to-user signalling) / X.25 in the D channel

Real-time trace on PC
Detailed decoding of D-channel signalling on a PC.

Result printouts
Results from various measurements with the WWG IBT-5 can be printed directly on a printer with an RS-232 serial interface.

Commissioning
Testing of all supplementary services (EDSS-1, VN6, 1TR67, SN3) ..... automatic mode
Test of X.25 in the D channel (layers 1, 2 and 3):
- Set-up of an X.25 connection (SAPI 16),
- Transfer of a data packet,
- Checking for correct data transmission.

Generic functional protocol.....CFU, CFB, CFNR

Option: Rechargeable battery pack including NT simulation
This option is highly recommended for configuring and commissioning ISDN equipment in a network.
Protocols..... EDSS-1, Q.SIG, Q.931, 1TR6, ...1TR67, EDSS-CH (SN3), VN3/VN4/VN6, ... TPH1962, Telenokia, Televerket.
Telephone function, BERT (bit error rate test), automatic testing of services and teleservices, loopback function.

Ordering Information

WWG IBT-5 basic instrument:
S_0 /T_0 interface..... **BN 7522/20**
S_0 /T_0 and U (2B1Q) interfaces..... **BN 7522/10**
S_0 /T_0 and U (4B3T) interfaces.....**BN 7522/70**
Includes operating manual, Quick User Guide, carrying bag and test cables for the S_0 /T_0 and U interfaces.

Menu available in the following languages:
English, French, German, Spanish

Complete packages:
WWG IBT-5 2B1Q ..... **BN 7522/11**
WWG IBT-5 4B3T ..... **BN 7522/71**
Includes WWG IBT-5 basic instrument (S_0 /T_0 and U interfaces), all software options and rechargeable battery pack option with serial interface (NiMH cells with universal charger).

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