

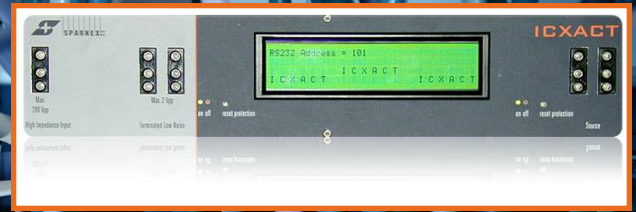
ICXACT 1.0 - 2.0 - 3.0 - 3.2

Non-Intrusive Network Analyzer & Spectrum Analyzer

Sparnex
instruments

xDSL analyzer for compliance and performance tests in the field and in the lab.

Now extended to VDSL2 - 35 MHz Spectrum Analysis.



Upgrade unit ICSACT for the high-end product range of Sparnex Instruments' LSX 2030 (EP/V), for Standards compliance verification of broadband access equipment.

BENEFITS

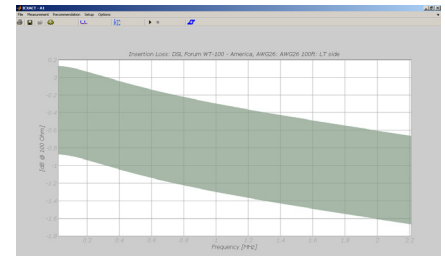
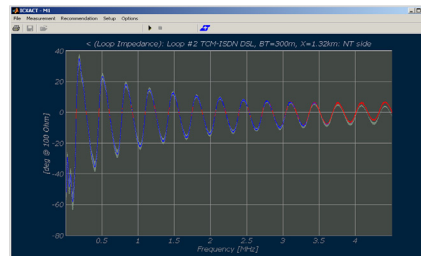
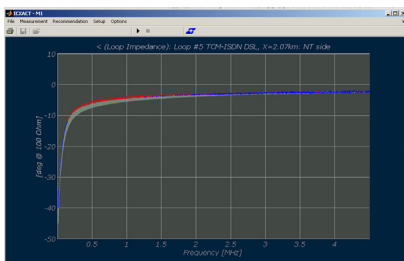
It is the first analyzer in its kind that gives a full report on all analog information of the DSL layer between modem and DSLAM.

The unique combination of spectrum and network analysis capabilities, makes this tester the preferred tool of the equipment manufacturer and DSL development groups. They use the ICSACT to debug and improve the data throughput up to the limits imposed by the Physical Layer, keeping up with the recommendations as set by the national Spectrum Regulator and the international Telecommunication Bodies. Service Providers are using it to probe the quality of the service over the network.

The ICSACT is part of the DSL Test Platform that is based on the LSX 2030 xDSL test platform.

SIGNAL & PSD TESTING

- POTS
- ISDN
- E1 / T1
- ADSL - RE-ADSL - ADSL2
- ADSL2plus
- VDSL2 (ICSACT 3.2)
- SDSL - SHDSL
- HDSL - HDSL2 - HDSL4
- BONDING
- REPEATERS
- SPLITTERS



5 GOOD REASONS TO USE SPARNEX INSTRUMENTS

1. Capture with ICSACT field problems impairing QoS and simulate the field problems in the lab using the Sparnex Instruments DSL Test Platform.
2. Characterize the telephony network in the field with ICSACT in order to simulate the same in the lab to test and qualify transmission equipment before truck roll-out. Performance results in the lab will match with performance in the field.
3. Verify the PSD of modems and DSLAMs or any other transmission device that is connected to the public network in order to verify compliance to the International Standards of G.ITU as well as according to country specific regulations rules.
4. Reproduce Carrier specific problems, using the Sparnex Instruments Noise Data base contains over 1.000.000 noise files and noise combinations with over 3.000 different line types and loops of Service Operators worldwide.
5. Sparnex Instruments' service and physical layer competence is a guarantee for on-line assistance at any moment. With Sparnex Instruments you always have a Physical Layer expert at your side.

ICXACT 1.0 - 2.0 - 3.0 - 3.2

Non-Intrusive Network Analyzer & Spectrum Analyzer



KEY FEATURES

The technical specifications of the ICXACT surpass the requirements of an all-in-one reference in the laboratory. It can serve even the most stringent demands of the DSL expert when it comes to:

- measuring PSD masks of CPE and DSLAM in compliance to Spectrum Regulations and ITU Standards
- defining maximum noise floors (the ICXACT noise floor is better than -160dBm/Hz!)
- measuring noise levels in labs and in the field
- measuring repetitive impulse noise and AM signals
- memorizing random or pre-defined noise events during long term physical layer observation
- measuring electrical network characteristics, like i.e. attenuation (better than 0,2 dB), impedance and delay
- measuring correlation and effects between physical layer simulators and noise generators
- checking Physical Layer simulation/noise generation accuracy and compliance to Mean Average Error (MAE)

APPLICATIONS

- Qualification of Third Party Arbitrary Noise Generators and Loop simulators
- Qualification of PSD of modems and DSLAMs
- Characterization of the wire line physical layer
- Certification of DSL laboratories
- Troubleshooting on physical layer level
- Calibration purposes of analog test instruments

BENEFITS

- Supports all G.991.x & G.992.x standards
- Supports TR-67, TR-100 v.1 Europe, TR-100 v.1 US, WT-105 v.1 Europe, WT-105 v.1 US
- Ultra sensitive for testing new generation of DSL chips
- Multi-functional application in analog domain
- Non-Intrusive for network analysis
- High Voltage signals measurements for field applications
- Extensive memory for noise and line characterization
- Special Events Noise recording for modeling Noise, setting deployment rules and for troubleshooting
- Compatible with LSX 2030 Physical Layer Simulation laboratory platform in CNB and NBS file format
- Easy to use menu driven measuring system for technicians, without need of special training or competence
- Extremely fast and accurate under all conditions
- Auto calibrating with built-in probes and baluns for network analysis
- Unique Physical Layer verification platform

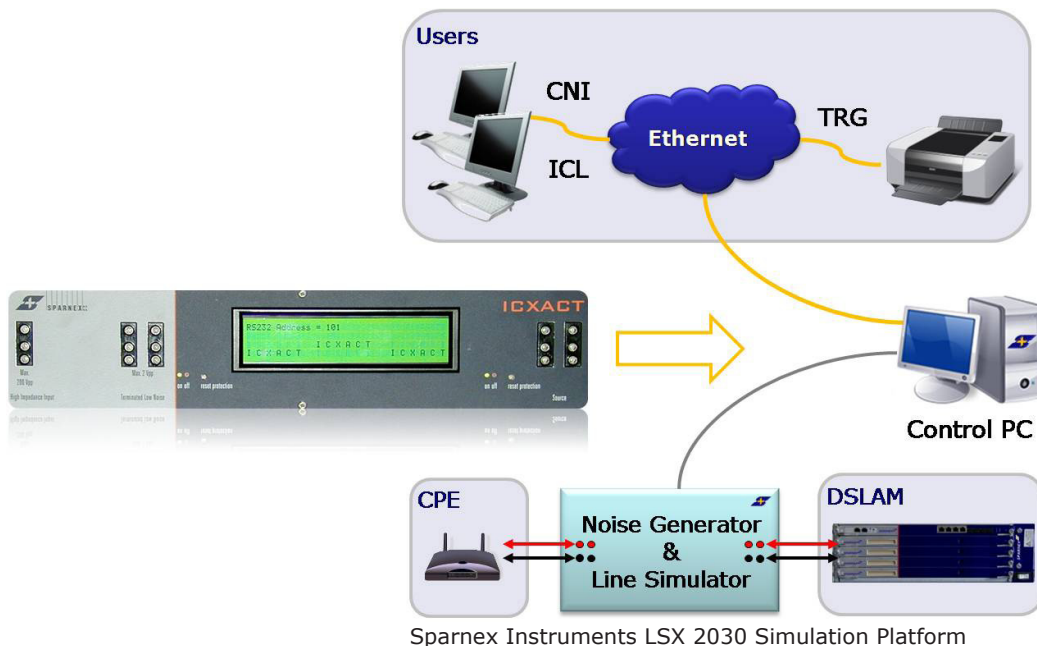
ICXACT 1.0 - 2.0 - 3.0 - 3.2

Non-Intrusive Network Analyzer & Spectrum Analyzer



SPECIFICATIONS ICXACT 1.0 - 2.0 - 3.0

- Probe
 - High impedance – Non Intrusive Analyzer
- Spectrum Analysis Measurement accuracy
 - 3 Hz – 300 kHz / 0,2 dB
 - 400 Hz – 5 MHz / 0,3 dB
- Network Analysis Measurement accuracy
 - 3 Hz – 300 kHz / 0,2 dB
 - 400 Hz – 4.5 Mhz / 0,4 dB
- High impedance input stage
 - AC + DC Differential Signal up to 200 V peak
 - Differential impedance 2 MOhm, 7 pF
 - Typical accuracy from DC up to 100 MHz: 0,5 dB
- Low Noise input stage
 - Gain up to 60 dB
 - AC differential signal up to 2V peak
 - Standard termination 100, 135 and 600 Ohm
 - Noise floor -160 dBm/Hz
 - Reference Loading for Noise calibration 100, 135 Ohm and Zcal



ICXACT 3.2

Non-Intrusive Network Analyzer & Spectrum Analyzer



The ICXACT 3.2 extends the ICXACT 3.0 with high sensitive Spectrum Analysis up to 35 MHz for measurements like noises, PSD levels, etc.

KEY FEATURES

The 35 MHz extension is realized with digital-analog electronics that is a high-end 14 bit ADC 100 MHz sampling instrument allowing for measuring the signal output level and PSD mask of any 5 Volt signal in a range from 100 Hz up to 35 MHz, with an accuracy better than 0,5 dB in specified range. This is about 4 times better than classic Spectrum Analyzers.

The custom wide-band analog front-end probes the signal and filters the spectrum in order to zoom in on the spectrum range under study, as such allowing for a much higher accuracy of the measurement result.

The ICXACT 1.0 and 3.0 allows to verify the PSD mask as defined in the ITU standards for SDSL, ADSL, ADSL2plus. The ICXACT 2.0 and 3.0 also allow for impedance measurements and network analysis (attenuation and group delay measurements).

The ICXACT 3.2 exists of the ICXACT 3.0 with the extension of the frequency range to VDSL and VDSL2 (all profiles from Profile 8 up to profile 30) for Spectrum measurements.

The graphical software interface works in the same way: it displays on the background the output level as defined in the Standard Recommendation and plots the measured results in the same graph in order to verify the compliance of the Device Under Test (DUT) to the Standard.

Measurements of maximum allowable Up- and Downstream PSD output level can be done at the DSLAM or Modem side. The DUT is measured in transmission mode directly connected to the measurement probe of the ICXACT 3.2 without connection to the counterpart of the DSL link.

It is possible to increase the dynamic range to view the spectrum beyond the start and stop signal frequency at the DSLAM site with a special filtering upgrade package. This is mainly for engineering purpose.

Please contact sales@sparnexinstruments.com for more information.

ICXACT 3.2 is the first in its kind to measure DSL transmission signals, disturbers and PSD masks up to VDSL2 in an appropriate and pre-programmed way, with the major benefit that all functionality for PSD compliance verifications are included in the system package.

STANDARDS

- Supports all G.993.x standards
- Supports WT-114 v.1 US, WT-114 v.1 Europe, WT-115 v.1 US, WT-115 v.1 Europe

ICXACT 3.2

Non-Intrusive Network Analyzer & Spectrum Analyzer



SPECIFICATIONS ICXACT 3.2

- Spectrum Analysis Measurement accuracy
 - 3 Hz – 300 kHz / 0,2 dB
 - 400 Hz – 5 MHz / 0,3 dB
 - 5 MHz – 35 MHz / 0,5 dB
- Low Noise input stage
 - Gain up to 60 dB
 - AC differential signal up to 2V peak
 - Standard termination 100, 135 Ohm
 - Noise floor -140 dBm/Hz in the range up to 35 MHz

ORDERING INFORMATION

- ICXACT 1100 Spectrum analyzer: specify ITU, ETSI, ATIS, Broadband Forum recommendations
- ICXACT 1200 Network analyzer: specify ITU, ETSI, ATIS, Broadband Forum recommendations
- ICXACT 1300 Spectrum & Network analyzer: specify ITU, ETSI, ATIS, Broadband Forum recommendations
- ICXACT 3200 Spectrum analyzer: specify ITU, ETSI, ATIS, Broadband Forum recommendations