



ADSL Wireline Simulators for Chinese Standard YD/T 1055-2000

DLS 400C

Part Number DLS 400C ADSL Wireline Simulator and Impairment Generator System (China)

Overview

The Spirent DLS 400C System simulates Chinese industry defined standard test loops to evaluate the performance of xDSL technologies. The DLS 400C System also simulates impairments, such as white noise and impulse noise in order to determine the margin upon which this technology will operate.

Features

Supports Telecommunication Industry Standard of People's Republic of China YD/T 1055-2000

High degree of accuracy

Repeatability

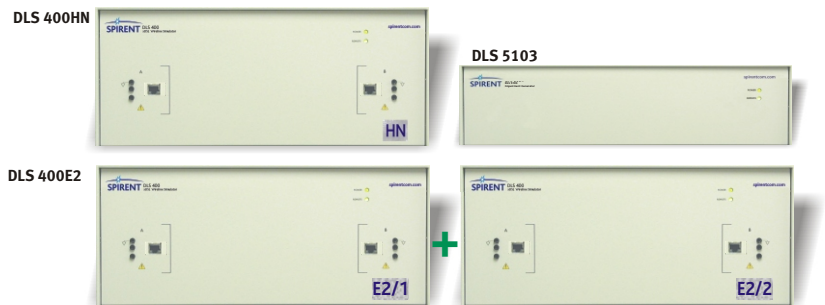
Modular design

Common control interface

Remote control capability

Pre-packaged noise files

Global support and standards participation



Benefits

- Permits simulation of all loops and noise impairments required by the specification. Using this test set-up enables the user to be certain that the product under test will pass government certification testing. Being able to test to exacting standards in their own lab enables the network equipment manufacturer to develop their product faster and more cost-effectively and as a result differentiate themselves from their competition.
- Enables simulation of real-world environment. This provides the user with a high level of confidence that the behaviour of the equipment in the field is well-understood.
- Using Spirent's wireline simulators enables the user to obtain consistent and repeatable results, time after time, as compared to an in-house assembled test set-up. This allows comparison of results regardless of time, location or test environment. The DLS400C is the ideal regression test bed.
- The modular design of the DLS400C enables the user to only pay for the loops that are necessary to meet their testing requirements. This also ensures that an upgrade path is available to meet the testing needs of the product through its entire development life-cycle
- The DLS 1100 Control Software provides a flexible GUI and can simultaneously control multiple simulators and noise impairment sources, making testing easier and more efficient in today's complex testing environments.
- The DLS400C may be controlled remotely via the DLS 1100 GUI installed on a Windows-based PC. This makes it very easy to use; setting up tests can be done with simple point and click operations. Automation is also possible via Spirent ScriptCenter and the DLS1200 ScriptCenter library.
- Everything that is required to test the YD/T 1055-2000 loop impairment specifications are included with the DLS400C. This enables one stop shopping for your complete test set-up requirements.
- Spirent Communications is the world leader in wireline simulators and participates actively in standards development. The DLS400C embodies all of this experience and know-how from a trusted partner.

Sales Information Call

North America:
(800) 927 2660
International:
+33(0) 1 61 37 2250

Spirent DLS/AE Products

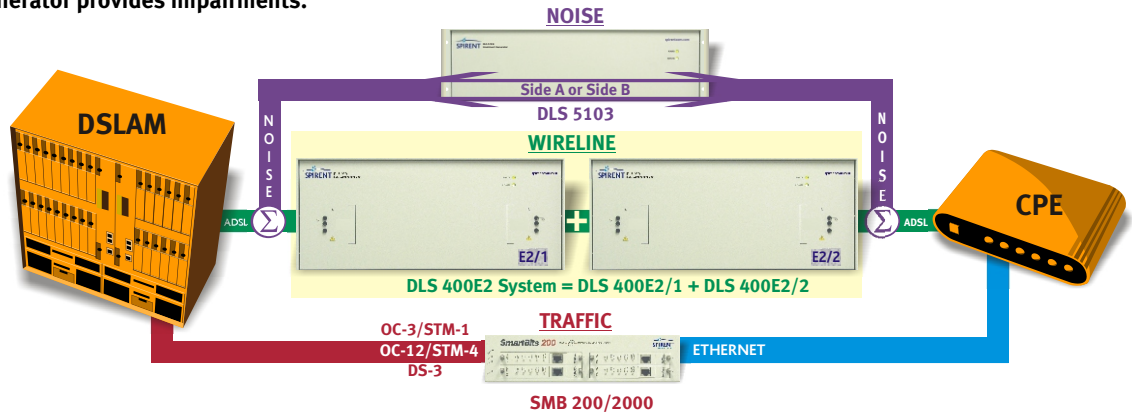
Tel: (613) 592 2661
Fax: (613) 592 0522
ae.spirentcom.com



Analyze | Assure | Accelerate™

Diagram: DLS 400C Test Solution

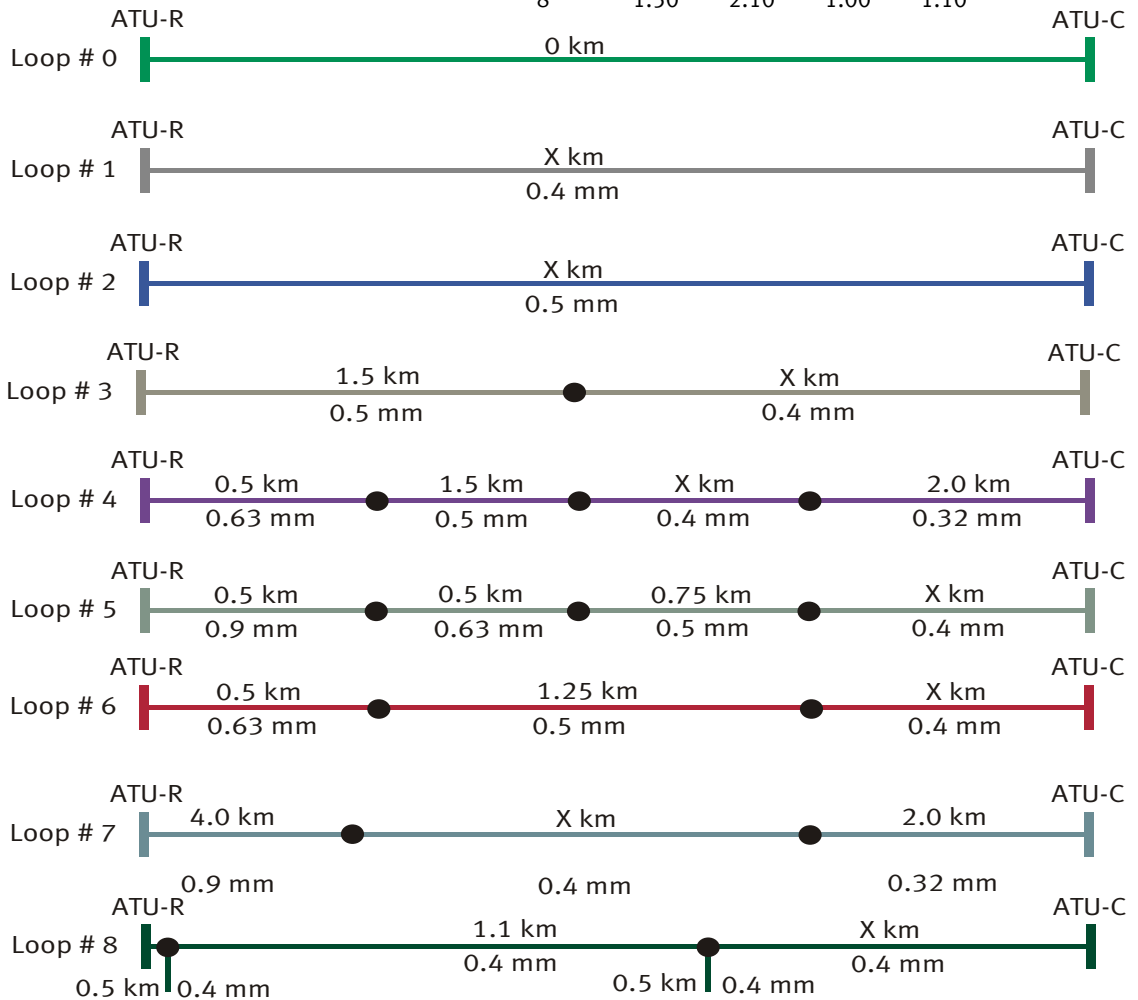
Spirent Communications offers its customers an end-to-end test solution to meet Specification YD/T 1055-2000. In a typical test set-up, the DLS 400C Wireline Simulator provides wireline simulation and the DLS 5103 Impairment Generator provides impairments.



Loop Topologies
Simulated By The
Spirent DLS 400E2

Values for X

Loop #	2M-3/1 X (km)	2M-3/2 X (km)	2M-3/1 X (km)	2M-3/2 X (km)
1	3.45	3.60	2.45	2.55
2	4.55	4.80	3.20	3.40
3	2.30	2.50	1.30	1.40
4	1.80	2.00	0.80	0.90
5	2.40	2.55	1.40	1.50
6	2.25	2.40	1.25	1.35
7	1.35	1.55	0.40	0.50
8	1.50	2.10	1.00	1.10



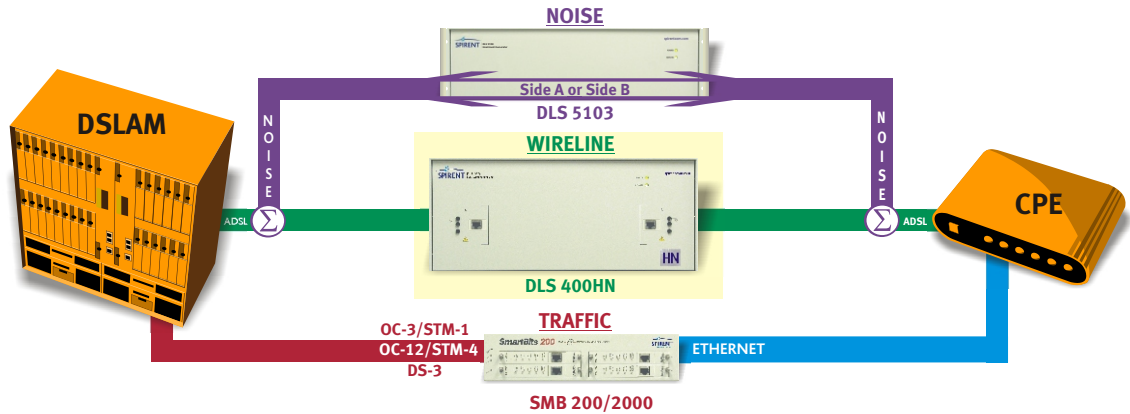
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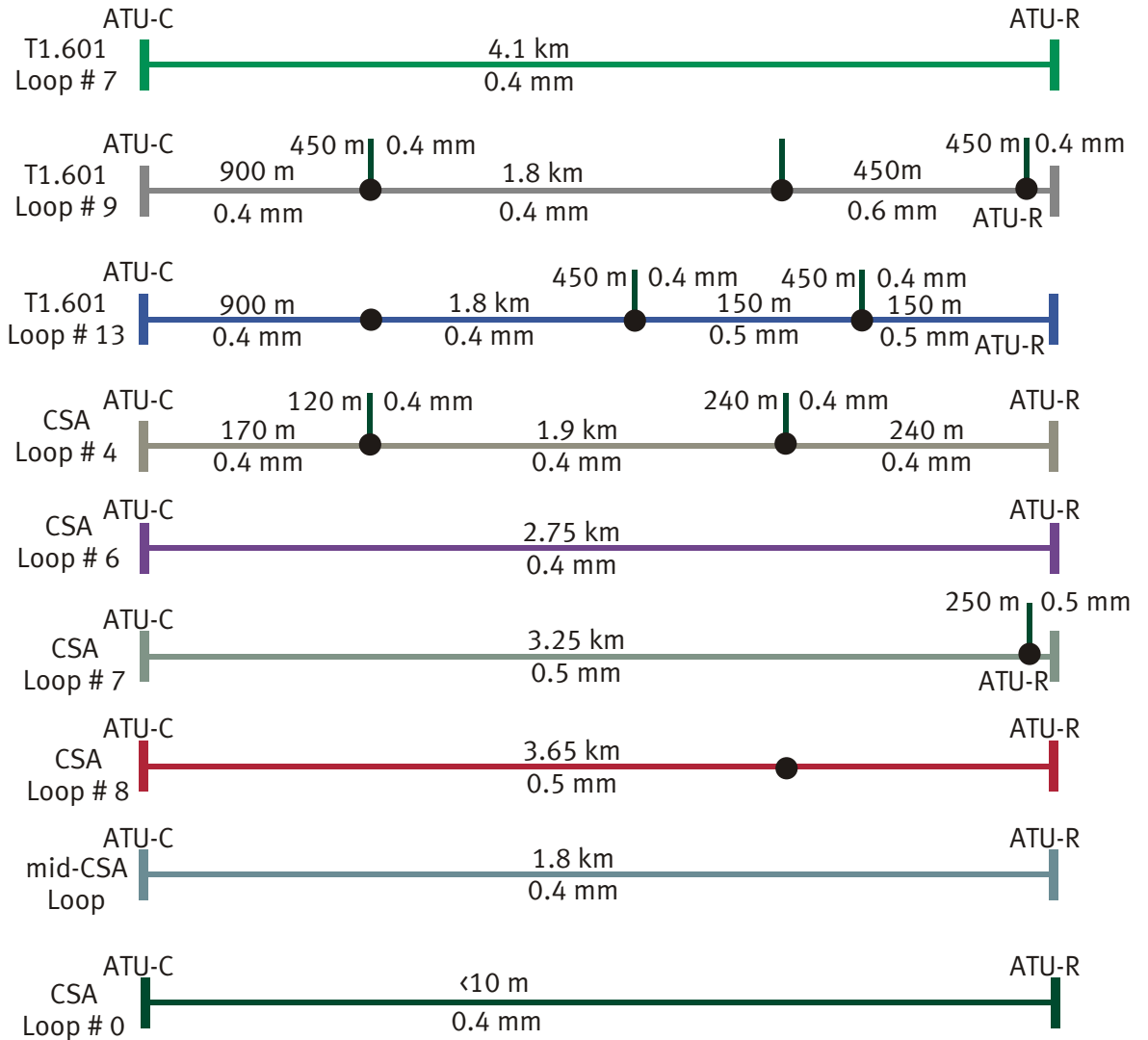
Spirent DLS/AE Products

Tel: (613) 592 2661
 Fax: (613) 592 0522
 ae.spirentcom.com

Testing equipment configuration that supports Telecommunication Industry Standard of People's Republic of China YD/T 1055-2000



Loop Topologies Simulated By The Spirent DLS 400HN



Sales Information Call
 North America:
 (800) 927 2660
 International:
 +33(0) 1 61 37 2250

Spirent DLS/AE Products
 Tel: (613) 592 2661
 Fax: (613) 592 0522
 ae.spirentcom.com

Wireline Simulator Specifications

Technology

Cable simulation using networks of discrete R, L & C components

Cable Simulation

Balanced twisted copper pair

Cable Impedance

Complex, varies over frequency with length and gauge

Number of Conductors

Two

Types of Cables

0.32mm, 0.4mm, 0.5mm, 0.63mm and 0.9mm cables specified in ETSI ETR 328 & ANSI T1.413, Annex "H"

DC Rating

Up to 300V peak AC + DC across tip and ring

DC Current Rating

100mA (150mA peak)

Bandwidth

DC to 1.5MHz, smooth response to 2.0 MHz

Accuracy

For the specified bandwidth, +/- 0.5 dB for all attenuations up to 20 dB, for attenuation from 20 to 70dB the tolerance is within 5% of design to a maximum of 1.5 dB.

System

DLS 400HN, 400E2/1 and 400E2/2 chassis

DLS 5103 Impairment Generator

DLS 1100 Control software

DLS 1200 ScriptCenter™ library Manual

Power Cord

2 Fuses

Options

National Instrument IEEE 488 card for the controlling PC

Electrical (AC Power)

Rated Input Voltage: 100-240 VAC (+/- 10%) auto. line voltage sensing

Rated Frequency: 50-60 Hz

Rated Power Consumption: 120VA max

Line Fuses: Type "T" 2A/250V SLOW BLOW (2 required, 5 mm x 20 mm)

Environmental

Operating Temperature: +10 °C to +40 °C (50°F to 104°F)

Storage Temperature: -20°C to +70°C (-4°F to 158°F)

Cable Reference Temperature: 22°C (72°F)

Humidity: 90% non-condensing max.

Mechanical

Weight: 28 kg (61 lb) per chassis

Dimensions: 194 mm x 452 mm x 494 mm (7.6" x 17.8" x 19.4")

(H x W x D) per chassis.

Impairment Generation

The DLS 400C may be used with the Spirent DLS 5103 impairment generator.

The user can select the length, line configuration and set the various impairments using the IEEE 488 or the RS-232 interface. The command language is based on the Standards Commands for Programmable Interfaces (SCPI) standard.

The DLS 5103 consists of seven discrete generator sections the outputs of which are individually controlled, and if needed, can be summed together.

The seven sections are: White noise generator, Three high frequency (50-2.0 Mhz) crosstalk PSD generators, Shaped noise generator, Powerline related noise, Metallic noise, Longitudinal noise, Impulse noise

White Noise Generator

Level: -90.0 to -140.0 dBm/Hz, variable in 0.1 dB steps

Form: Gaussian amplitude distribution

Bandwidth: 50 Hz to 2.0 Mhz

Crosstalk Generators A,B,C

Level: Levels vary in 0.1 dB steps over a range from 6dB below the 1 disturber level to 6 dB above the 49 disturber level

Power: The total power of each shape is accurate to within +/- 1.0 dBm.

Accuracy: Each shape will track the reference shape to within +/- 1.0 dB, down to a level 45 dB below the peak. Each reference may deviate its null frequencies by +/- 2.0%

Shapes: Capable of meeting all of the noise shape (frequency response) generation requirements of T1.413 Issue II ADSL, T1.601 ISDN, ETR 328 ADSL and many others.

Shaped Noise Generator

Noise: Shaped to either ETSI, ISDN, ETSI HDSL or FTZ 1TR 220

Noise Level: -10.0 to +20.0 dB relative to the published reference level (ETSI)

"10 Tone": As per ETSI ETR 328 for Model A noise

Tone Level: -20.0 dB to + 20.0 dB relative to the published reference level

Impulses

Types: 4 standard multi-level, 2 complex as per ANSI T1.413 Annex C, 1 ETSI Cook pulse

Timing: Duration of 4 multi-level pulses can be varied between 20 and 120 microseconds in 1 microsecond steps

Levels

Multi-level: 0.5 to 100.0 mV, 0.1 mV steps

ANSI: 5.0 to 100 mV, 0.1 mV steps

Cook: -20 to +6 dB relative to the reference, 0.1 dB steps

Powerline Related Metallic Noise

Type: Dual tones as per ANSI T1.601

Level: -15.0 to +9.0 dB relative to ANSI reference levels, 0.1 dB steps

Longitudinal Noise

Type: Triangular waveform

Frequency: 50 or 60 Hz

Level: ETSI:0-25V relative to ground on each side

ANSI:0-60V relative to ground on one side only

DLS 1100 Control Software is compatible with the following operating systems: Windows 98™, Windows 2000™, and Windows NT 4.0™

Ordering Options

- DL4-E-OM** Operating Manual DLS 400E
- DL4-OM** Operating Manual DLS 400A/H/HH/N
- DLS-9154** DLS 400C Extended Warranty
- DLS-9254** DLS 400C 3 Year Calibration Service

