Scorpius DT

High frequency measuring system well suited for EMC parameters or coaxial cables up to 18 GHz

Illustrative non contractual picture

DESCRIPTION

Scorpius DT is an automatic measuring system designed to measure the high frequency parameters of coaxial cables, up to 18 GHz depending on the model. Inside its compact desktop housing, the system includes all the required components, including embedded VNA (Vector Network Analyser), computer and control software.

Its dedicated N-type (N50 and N75/F75) interfaces let you quickly connect your different products while ensuring perfect electrical contact of both the core and the shield of your coaxial cable.

This fully integrated system is not only offering operating comfort, but is also providing high measurement accuracy.

KEY FEATURES

- Complete solution
  - Embedded VNA (Vector Network Analyser)
  - Integrated computer and software
- For major types of coaxial cable
  - 50 Ohms
  - 75 Ohms (optional)
- High Accuracy
  - Checked against traceable standards according to ISO/IEC 17025
  - Gating" and "RL fitting" functions
    (to remove the effects of the connector and cable preparation)
- Easy to operate
- Fast measurements
- Overall accuracy
  - specifications related to the whole system, not the VNA only

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TECHNICAL SPECIFICATIONS

Measuring range	50 ohms: 100 kHz – 18 GHz (frequency extension on request) 75 ohms: 100 kHz – 8 GHz (frequency extension on request)		
Accuracy	See table below		
Integrated equipment	• Network Analyser for HF measurements • Embedded windows based PC with Windows 10 operating system		
Standards	Performs all electrical tests on cables responding to: • ANSI/TIA-568.4-D for Broadband Coaxial Cabling and Component Standard • IEC 61196-x • EN 50117-x		
Supply voltage	100 - 240 VAC / 50-60Hz		
Interfaces	6 x USB (e.g. for printer) 1 x VGA Display Port connector for external monitor (delivered with the system) 1 x DVI Display Port 1 x HDMI 1 x RJ45 for LAN connection		
Components	• Embedded network analyser • Embedded PC with Windows operating system, external display, keyboard & mouse • 1 license AESA measurement and result management software • Power supply, interface and connecting cables		
Dimensions	400 x 410 x 250 mm (15.8" x 16.1" x 9.9") / 500 x 410 x 250 for Scorpius DT 18		
Weight	≈ 11 kg (24 lbs) (17 kg with LF option) / ≈ 14 kg (31 lbs) for Scorpius DT 18		
Versions (50Ω and 75Ω outputs)	Scorpius DT 1 (1.3GHz max)	Scorpius DT 6 (6GHz max)	Scorpius DT 18 (18GHz max)
Article No	20.9701.0001.00	20.9706.0001.00	20.9718.0001.00
Versions (50Ω or 75Ω output)	Scorpius DT 1 (1.3GHz max)	Scorpius DT 6 (6GHz max)	Scorpius DT 18 (18GHz max)
Article No	20.9718.0002.00	20.9706.0002.00	20.9718.0002.00

ACCURACY

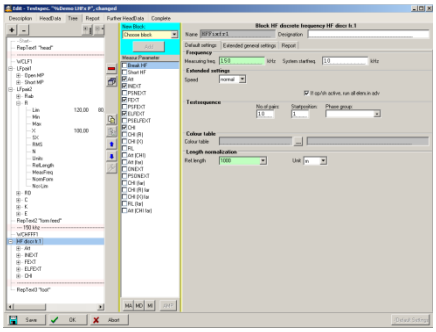
					Scorpius DT 1		Scorpius DT 6	Scorpius DT 18
	From	**To**		**100 kHz 500 MHz**	**500 MHz 1.3 GHz**	**1 GHz 3 GHz**	**3 GHz 6 GHz**	**6 GHz 18 GHz** (typical)
S21 transmission (Attenuation, NEXT) corrected at 20°C	-80	-50	dB	± 1.7 dB	± 1.9 dB	± 2.4 dB	± 3.0 dB	± 3.5 dB
	-50	-25	dB	± 0.6 dB	± 0.7 dB	± 0.9 dB	± 1.5 dB	± 2.0 dB
	-25	-10	dB	± 0.3 dB	± 0.4 dB	± 0.8 dB	± 1.3 dB	± 1.8 dB
	-10	0	dB	± 0.2 dB	± 0.4 dB	± 0.8 dB	± 1.3 dB	± 1.8 dB
Impedance	50	50	Ω	± 0.7 Ω	± 1.0 Ω	± 1.5 Ω	± 4.0 Ω	± 4.5 Ω
	75	75	Ω	± 1.2 Ω	± 1.5 Ω	± 2.0 Ω	± 6.0 Ω	± 7.0 Ω

OPTIONS

- Low frequency option
- Gating (to remove the connector influence)
- Regularity of impedance
- Universal connector (for a fast and reliable connection)
- Fastcon
  (customized connector for a fast and reliable connection)
- EMC parameters (Electro Magnetic Compatibility)
  (Transfer Impedance TI, Screening Attenuation AS)
- Mode conversion parameters (TCL, ELTCTL, …)
- Calibration kits (different kits)
- ISO 17025 certified HF standards set
- Printer
- Warranty extension
- Maintenance contract

AESA proposes other specific equipment for high and low frequency measurements.

KEY BENEFITS



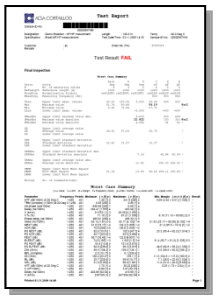
USER-FRIENDLY

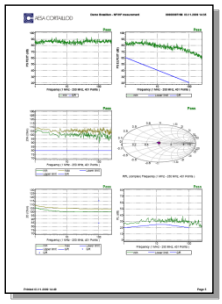
- AESA software is multilingual
- Direct results without post calculation
- Calibration automatically managed/saved by computer
- Test orders library

ISO 17025 ACCREDITED

ACCURATE

- The equipment is checked against traceable calibration standards according to ISO/IEC 17025
- The risk of human error is reduced to its minimum





SMART

- All data (results and conditions) are saved in its internal PC
- Reports can be printed
- Data can be exported through the LAN in an ASCII or XLS file

UNIVERSAL

- All Coaxial cables can be measured

Options

1. *LF 9100 measuring parameters option*

Article No: 50.0001.00078.0

The low frequency parameters measuring technology provides a self-calibration. Different measuring frequencies (from 12.5Hz to 1'000Hz) are integrated in the capacitance bridge in two versions: one version provides measurements at 12.5Hz, 125Hz and 800Hz, the second one at 12.5Hz, 125Hz and 1'000Hz. Please specify which type you prefer when ordering.

Description	Designation	Accuracy	Scale
Resistance (core and screen)	Ra, Rb	± 0,1% + 10 mΩ	0 - 19,999 kΩ
Capacitance	C	± 0,25% ± 10pF @800 Hz / 1kHz ± 0,25% ± 10pF @125 Hz ± 0,25% ± 50pF @12,5Hz	0 – 2'000nF

Calculated parameters at 800Hz – 1 kHz

- Attenuation:
- Characteristic Impedance:
- Phase
- Velocity of propagation (VOP)

Statistical parameters

- Maximum and minimum measured values:
- Absolute minimum measured value:
- Average value:
- Quadratic average:
- Standard deviation:
- Quality factor up
- Quality factor down
- RC product
- Standard deviation RC
- Variance

2. *Gating option*

Article No: 52.0001.0009.0

Gating for cables is used to remove the connector influence. This function allows selectively removing or reducing unexpected mismatches in transmission occurring out of the defined gate. Gating is a function designed to set a measuring "gate" in the "time domain", meaning to set start and stop positions.

3. *Regularity of impedance*

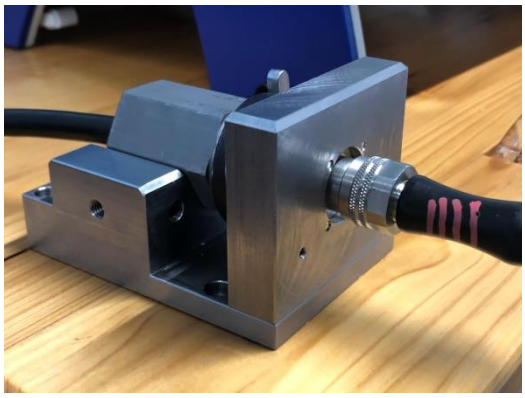
Article No: 52.0001.0010.0

Regularity of impedance for coaxial cables is used to measure the impedance along the cable length, means in the time domain. As described in IEC 62153-1-1(Measurement of the pulse/step return loss in the frequency domain using the Inverse Discrete Fourier Transformation (IDFT)), the measurement in frequency domain is transformed into time domain by IDFT. The maximum measured length is 500m for measurements from one side and 1000m for measurements applied from both sides

4. *Universal Connector*

Article No: 50.0100.0019.0

AESA proposes universal connector covering ∅ 4 to 16mm (on shield) for a fast and reliable connection of your coax to the N-type ports



5. *Fastcon connectors*

Article No: 50.0100.0013.0

AESA proposes customized connectors for a fast and reliable connection of your coax to the N-type ports

6. *EMC parameters* *(Transfer Impedance, Screening Attenuation)*

To perform EMC measurements with the tri-axial method, following accessories are required :
- the hardware package to prepare the sample and take care for the impedance adaptation
- the software package (specific measurement module)

These accessories allow measuring the transfer impedance and the screening attenuation according to IEC 62153-4-3 for TI and IEC 62153-4-4 for AS when knowing the impedance of the internal coaxial cable created with the sample under test.

- Transfer Impedance Kit, ∅ 2.3 - 9.8 mm

Article No: 50.0001.0072.0

- Transfer Impedance Kit, ∅ 6 - 22 mm

Article No: 50.0001.0073.0

7. Mode conversion parameters (TCL, ELTCTL, …)

To perform Mode conversion parameters measurements, following accessories are required

- One hardware connecting frame with special balun
- One software package (specific measurement module)

These accessories allow measuring all Mode conversion parameters like TCL, TCTL, LCL, LCTL, EL LCTL and EL TCTL.

- **TCL & ELTCTL option 4 pairs for UTP cables** Article No: 51.0001.0024.0
- **TCL & ELTCTL option 4 pairs shielded version for FTP cables** Article No: 51.0001.0089.0

8. Calibration kits

The calibration kit allows performing the periodical zero correction (open-short-load). This operation is essential to obtain reliable measurements. The calibration kit is offered as an option because it could be that the user does already have one.

➢ ***50 Ohms 18 GHz calibration kit***

This N type kit contains of a male-male thru cable, a male load, open and short circuit. Article No: 45.8503.0010.0

➢ ***50 Ohms 6 GHz calibration kit***

This N type kit contains of a male-male thru cable, a male load, open and short circuit. Article No: 45.8503.0008.0

➢ ***75 Ohms 12 GHz calibration kit***

This N type kit contains of a male-male thru cable, a male load, open and short circuit. Article No: 45.8503.0007.0

➢ ***75 Ohms 3 GHz calibration kit***

This N type kit contains of a male-male thru cable, a male load, open and short circuit. Article No: 45.8503.0009.0

9. ISO 17025 certified HF 3.0GHz standards set type 9800

Article No: 51.0500.0021.0

This set of "coaxial" primary standards, certified ISO 17025, allows the periodic calibration, thus proving the accuracy of the complete measurement system (Vector Network Analyzer + RF multiplexer + connecting frame). This set of "coaxial" primary standards should not be mixed up with the zero correction kit, which is used to carry out the periodical zero correction files of the equipment, required to measure LAN cables.
The set of certified HF 3.0GHz standards is composed of:

- 2 attenuation references type 9801 – 3dB
- 2 attenuation references type 9802 – 6dB
- 2 attenuation references type 9803 –10dB
- 2 attenuation references type 9804 –20dB
- 2 attenuation references type 9805 –30dB
- 2 x 50Ω terminations
- 2 special connectors for the terminations
- 4 HF connecting cables for the attenuation
- 1 set of miscellaneous HF material

10. Printer

Article No: 51.0500.0021.0

LaserJet printer.

11. Warranty Extension

Article No: 60.0900.0001.0

AESA is confident with its technology and the quality of its goods.This is why the system is supplied with a 2-years warranty period. In order to protect its customer's investment, AESA offers the possibility to extend the warranty period to 3 years.

12. Maintenance contract

Article No: 60.0100.0002.0

Even the most reliable systems require regular, planned and preventive maintenance as well as periodical calibrations. AESA proposes service packages to extend the operating life of your equipment, control of your maintenance costs and ensure optimal performances.