

Network analysers

ANTENNA AND NETWORK ANALYSER - ANA 2700



- Frequency range 1 MHz to 2700 MHz
- Exact measurement of Return loss / VSWR
- Location of faults
- Exact measurement of RF cables and antennas
- Insensitive to RF interference
- Insertion loss / gain
- Synthesizer uncertainty 5×10^{-6}
- 40 internal memory positions for up to 200 data blocks
- Time, date
- Battery operation
- Print-out via RS 232 interface or IEEE interface
- Remote control over IEEE bus
- Robust metal housing
- Modular design

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The antenna and network analyser ANA 2700 is the ideal instrument for measuring new transmission cable and antenna installations as well as for servicing work on these installations.

Using the antenna and network analyser ANA 2700 is the best way of reducing servicing costs and increasing quality. It replaces complex, heavy, expensive measurement setups. The measuring technology employed makes it possible to easily detect and localise problems while also providing a saving in costs.

The ANA 2700 is a precise, handheld instrument for the measurement of return loss / VSWR and for the location of faults. The ANA 2700 has a large frequency range, from 1 MHz to 2700 MHz. The light but robust design and a large operating temperature range make this instrument suitable for use in the field. The design of the antenna and network analyser ANA 2700 optimises the immunity of the instrument to RF radiation; an important factor for measurements outdoors.

The software LOG 600 is a Windows-compatible application included with the antenna and network analyser ANA 2700. This software provides a significant amount of assistance, a "drag-n-drop" superimposition feature for comparing measured results, the possibility of loading data from the ANA 2700 to a PC, and loading data from a PC to the ANA 2700, e.g. customer-specific cable lists and calculation of the distance to the location of the fault based on the measurement of the return loss or the VSWR.

Modern printing features are provided by the software tools for the ANA 2700 including the user-defined scaling of graphics and the display of several graphics on a page. The ANA 2700 is an instrument with the necessary accuracy, reproducibility of results and adequate protection against radiated interference for measurements on transmission cables and antennas during acceptance measurements and servicing.

Technical data ANA 2700

Parameters measured

VSWR
 Reflection coefficient rV
 Insertion loss I.L.
 Location of faults

Operating modes

Sweep, 1x and continuous operation (200 points);
 fixed frequency

Dynamic display range

VSWR: 1.0 ... 1.8
 1.0 ... 3.0
 1.0 ... 21
 rV: 0.0 ... 0.4
 0.0 ... 0.8
 0.0 ... 1.0
 rdB: 0 ... 20 dB
 0 ... 40 dB
 10 ... 50 dB
 I.L.: 0 ... 10 dB
 0 ... 20 dB
 0 ... 30 dB
 Location of faults: 5 cm to 856 m (*) for e = 1.3 (1)
 3.8 cm ... 966 m (*) for e = 2.3

* Ideal cable with constant attenuation per unit length

Uncertainty with calibration standards

Standard calibration standards:
 Short-circuit + open circuit + 50 Ω
 rV (2): 0.025 ... 0.07
 3.8 cm ... 966 m (*) for e = 2.3

* Ideal cable with constant attenuation per unit length

Uncertainty with calibration standards:
 Standard calibration standards:
 Short-circuit + open circuit + 50 Ω
 rV (2): 0.025 ... 0.07 + 0.01
 0.071 ... 0.20 + 0.025
 0.21 ... 0.50 + 0.05
 0.51 ... 0.80 + 0.15

Uncertainty with optional calibration standards

VSWR 3-L + VSWR 3-H + 50 W
 rV (2): 0.025 ... 0.07 + 0.01
 0.071 ... 0.20 + 0.025
 0.21 ... 0.40 + 0.05
 0.41 ... 0.60 + 0.10
 0.61 ... 0.80 + 0.15
 P.I. : + 0 ... 20 dB ± 0.5 dB (± 0.25 dB typ.)

Location of faults

Resolution = 5×10^{-3} x max. distance on the scale (3)
 Field operation (antenna measurements):
 Permissible RF overload < +25 dBm/50 W (4)
 Suppression of RF interference > 30 dB (5)
 Max. level at output and input: + 19 dBm

Impedance

50 Ω

RF connection

N socket

Display

Alphanumeric or graphic on the backlit LCD
 (240 x 128 dots)

Generator

Operating mode: Swept or fixed frequency
 Frequency range: 1 MHz ... 2700 MHz
 Frequency steps: 10 kHz
 Frequency uncertainty: < ± 5 x 10⁻⁶ (6)
 Ageing: < ± 1 x 10⁻⁶ /year
 Frequency reproduction: Error < ± 1 x 10⁻⁵ after 1 minute (7)
 Spectral purity:
 Harmonic and non-harmonic: < 35 dB (40 dB typ.)
 Output level (at centre frequency): 0 dBm ± 1 dB

Remote operation

IEEE 488 bus

Printer connection: Via RS 232 or IEEE 488 interface
 or analogue output 0 to 1 V/1 kW, on BNC socket
 Storage of results: 40 memory positions for 200 pairs
 "Frequency (VSWR or r)"
 or "Distance VSWR" (8)

Measurement processing

Further processing of the measured results and fully
 automatic storage on PC using the LOG 600 software.

Power supply

Internal battery (Ni-MH), typ. operating time: 3 h (9)
 - Ext. charger (115 ... 230 V ± 10%, 48 ... 63 Hz)
 - External DC voltage 12 to 24 V

Dimensions

245 mm x 140 mm x 290 mm

Weight

5 kg

Electrical safety (IEC 1010, ed. 08/93):

Overvoltage category I (10)

Degree of soiling 2 (11)

Electromagnetic compatibility:

Emissions in accordance with LF EN 50 081.1

Immunity in accordance with LF EN 50 082.1

Ambient conditions:

Temperature: Reference: 23 °C ± 1 °C

Operation: - 10 °C to + 55 °C

Humidity:

Operation: < 70% (non-condensing)

Accessories supplied

1	Transport pouch
1	Charger
1	Overload protection
1	Short-circuit / open circuit
1	50 W termination
1	Adapter N socket / N socket
1	Adapter N plug 7 N plug
1	Coaxial cable, N plug/N plug, 50 cm long
1	T-piece, N connector

Order codes

Antenna and network analyser ANA 2700

German menu Order number 86830.000

Antenna and network analyser ANA 2700

English menu Order number 86830.001

Accessories:

Amplifier AMP601, 1 MHz ... 1 GHz 30 dB
Order number 86830.101

Amplifier AMP602, 0,8 GHz ... 2 GHz 30 dB
Order number 86830.102

Reference set for VSWR:
N plug; 1,2; 1,5; 2,0 Order number 86830.103

Reference set for attenuation
3 dB; 6 dB; 10 dB; 20 dB Order number 86830.104