Television Analyser - TVA97

Multi-functional instrument
for RF applications

swires research

Feature	Description
Frequency, Gain and Relative Gain Cursors	Cursors to allow measurments to be made anywhere on the screen. The Gain and Relative-Gain cursors are parallel to the screen allowing all the channels to be checked simultaneously. The frequency cursor gives the frequency of unknown carrier
Variable Frequency Span	Alter the span continuously between 0 and 1400 MHz, in 1 MHz steps.

Automated Measurements
    CTB
    CNR
    SVR
    Tilt
	Quickly calculate important measurments by placing the frequency cursor on a carrier and letting the TVA97 do the work for you.
	
	The frequencies used for the noise, CTB and tilt measurements are all user definable.

User Programmable Data Table	Step through your network or channels in the clear, without having to remember the frequencies. Quickly download different plans for different jobs from a PC
Global Function	Preset the span, gain and centre frequency with a single key. Quickly step through the 10 most commonly used displays.
Demodulators	View the picture, while observing the carrier signal strength. Ideal for checking picture quality and fine tuning a carrier.
Keypad and cursor keys	Use the cursor keys for fine adjustment. While jumping straight to the required value by using the keypad for speed and accuracy. No other external switches or potentiometers makes the instrument environmentally safe, less prone to breaking down and easier to upgrade.

- Place the cursor on a carrier and start the measurement
    - Saves you time
    - Increases your accuracy
    - Ensures every measurement is exactly the same each time.

- Single-key Measurements:
    - Carrier - Noise Ratio (CNR)
    - Sound - Vision - NICAM (SVR)
    - Network Tilt
    - Composite Triple Beat (CTB)
    - Digital Quality Margin (DQM)

- Expandable for when new measurements or standards are devised.
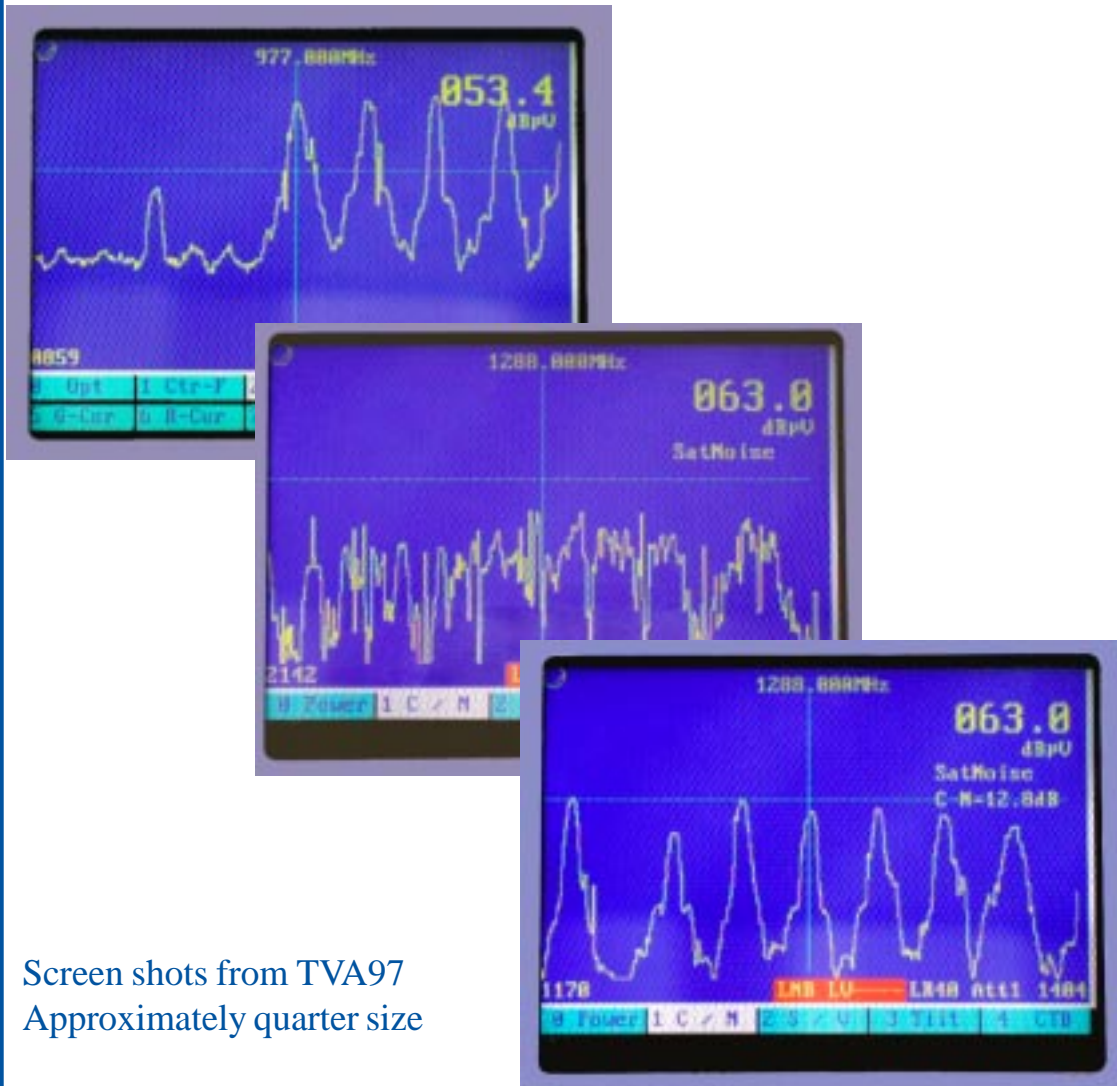
Screen shots from TVA97
Approximately quarter size

built-in functions

save time and
better accuracy

• Latest triangular element, TFT screen
- • Sharp picture.
- • Life-Like colours.
- • No impurities from cathode ray tube.

• Correction free display.
- • No automatic gain control.
- • No brightness of contrast adjustment.
- • No colour-mask.

• Simultaneously check signal strength and observe for abnormalities.

• Step between preset channels, with a single button press.

• Check the sound quality.

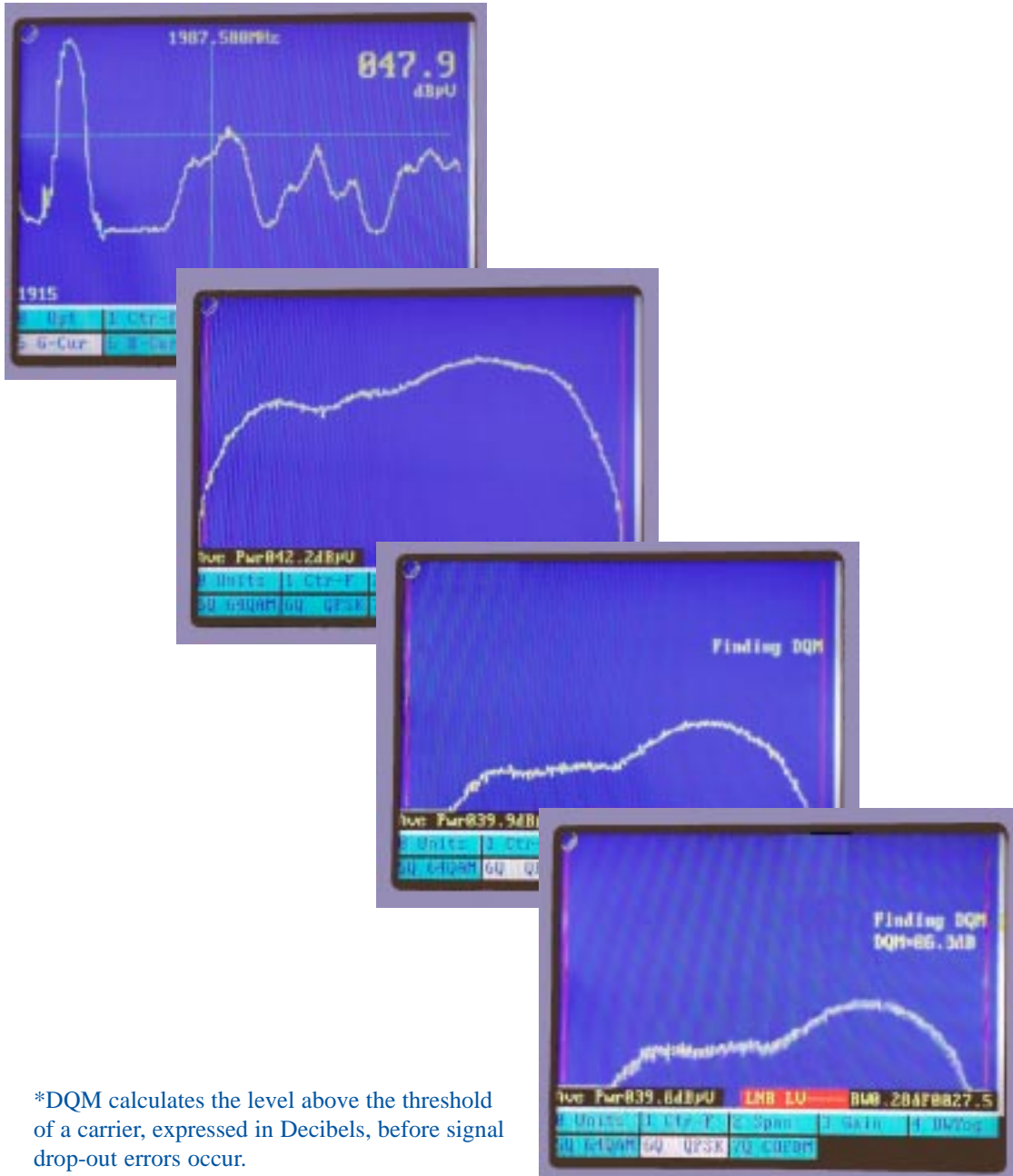• Switch menus off.

• Power the LNB from the unit.
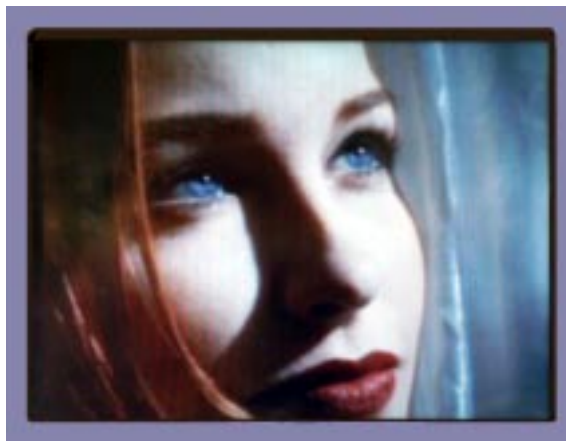
see the picture

hear the sound

check the quality

Actual live screen shots

• Check average power of digital carriers easily and quickly.

• Find the quality of the signal, using the Digital Quality Margin, DQM[*], function:

> • In seconds, accurately find margin left in the system.

> • Be certain that rain or snow will not "kill" your signal.

• Works with:

> • Terrestrial digital - COFDM

> • Cable digital - 16QAM, 32QAM, 64QAM

> • Satellite digital - QPSK
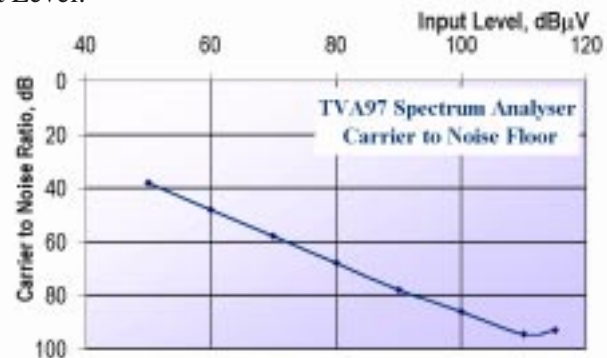
• All included as standard

*DQM calculates the level above the threshold of a carrier, expressed in Decibels, before signal drop-out errors occur.

measurments
for a digital age

- Ranges
    - Frequency: 5 - 2150 MHz
    - Input Amplitude: 35 - 120 dBµV
    - Instrument IF Bandwidth: 30 kHz, 280 kHz, 3 MHz (User selectable)
    - On-Screen Frequency Span: 0 - 1400 MHz, in 1 MHz steps
    - On-Screen Gain Range: 20, 40, 80 dB (User selectable)
    - Carrier to Noise Floor versus Input Level:
    - Temperature Ranges:
        Calibrated: -10 to +40 °C
        Working: -25 to +60 °C
        Storage: -30 to +60 °C

Input Level, dBµV

40   60   80   100   120

Carrier to Noise Ratio, dB

0
20
40
60
80
100

TVA97 Spectrum Analyser
Carrier to Noise Floor

- Accuracy
    - Frequency: < ± 0.01 MHz
    - Amplitude Response:
        Typically   ± 0.6 dB
        Guaranteed ± 1.0 dB between 5 - 1000 MHz
                      ± 1.25 dB between 1000 - 2150 MHz
   - Log Range: ± 1.0 dB

- Automated measurements
    - Carrier to Noise Ratio (CNR)
        Samples the peak value of the selected carrier, and compares it with the value of a user selectable noise frequency. Separate noise frequencies can be selected depending whether the selected frequency is above or below 1 GHz. Values are automatically normalised for 280 kHz bandwidth.
    - Sound to Vision Ratio (SVR)
        Automatically calculates relative ratios between the selected vision carrier's sound and NICAM carriers.
    - Network Tilt
        Samples the carrier values at two user selectable points and gives the ratio between them.
    - Composite Triple Beat (CTB)
        Compares the value at a given frequency when the carrier is switched on, to when it is switched off. It is recommended that narrow pass filter is used to increase accuracy.
        Option includes internally mounted, custom specified frequency filter.
    - Digital Quality Margin (DQM)
        Instantly calculates the quality of a digital signal and gives the working margin in decibels for the signal. Measurement is applicable to 64QAM, QPSK or COFDM signals.

- Processor
    - 1932847 Xilinx field programmable gate array.
    - Upgradable from with software download via the instrument's RS232 port.
    - On-board memory for:
        - 60 locally stored screen-shots
        - 1000 channel, user-loaded preset plan.
        - 10 user-loaded global profiles.

- Physical
  - Case:
    - Material: Shell - Single piece, glass fibre reinforced polycarbonate
      Back panel - Aluminium
    - Size: 270 mm × 250 mm × 90 mm
    - Weight: 3.5 kg
  - Screen:
    - Type: Triangular element, TFT
    - Size: 14.6 cm (6")
    - Resolution: 750 × 650 pixels (1.125 million transistors)
  - Keyboard:
    - Size: 148 mm × 48 mm
    - Lifetime: Guaranteed > 2 million key presses per button
    - Styling: Light reflective finish for use at night or in poorly lit locations.
  - Carrying Case:
    - Material: Padded nylon
   - Weight: 470 g
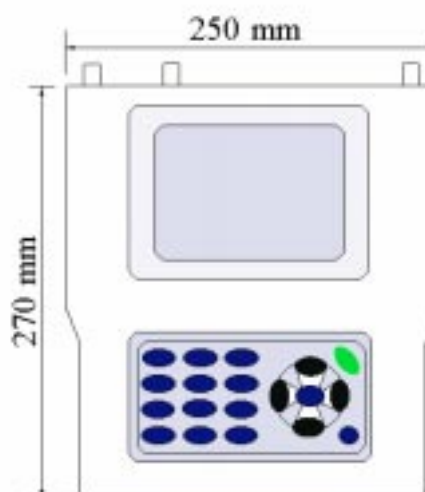
- Inputs / Outputs:
  - BNC connectors:
    - 75 Ω RF input
    - 1 V peak - peak video input
    - 1 V peak - peak video output
    - Line Powering:
      - 13 V / 18 V
      - 22 kHz tone
  - D type RS232 socket for:
    - Uploading channel plans
    - Downloading saved screen-shots
    - Connecting to a PC for data-logging
    - Changing stored software in flash ROM
  - Speaker for listening to demodulated sound
  - 3.5 mm headphones jack for listening to demodulated sound
  - 2.1 mm power input. Accepts:
    - 240 V from mains charger
    - 12 V from car cigarette lighter charger

| RF IN | Power | RS232 | Video in | Speaker | Video Out | Phones |

CE

- Supplied accessories:
  - Carrying case, PC software, RS232 lead, headphones, mains charger, car cigarette lighter charger, quick reference card.
- Optional accessories:
  - Composite Triple Beat measurement option, internal data logger, 15 kHz IF bandwidth substitution for 30 kHz.
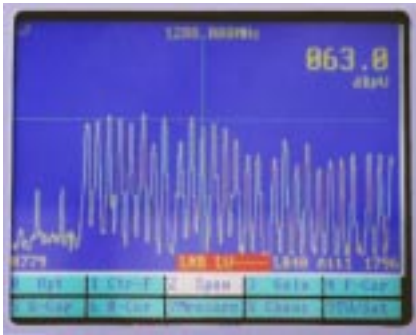
- 5 MHz - 2150 MHz frequency band
- 0 MHz - 1400 MHz variable span
- Variable log range display
- Variable resolution bandwidths
- TFT screen
- Demodulators to check final quality of pictures and audio:
    - Terrestrial
    - Satellite
    - Video
- Guaranteed to ± 1dB gain accuracy
- Rugged, compact design:
    - 270 mm × 250 mm × 90 mm
    - 3.5 kg
    - Reinforced composite housing
    - Padded case with light-hood
    - Sealed against moisture and dust
- Temperature compensated -10 - +40 °C
- 3 hour continuous run-time
- Charge from mains, car & while in use
- Built in automatic measurements:
    - Carrier to Noise (CNR)
    - Sound to Vision (S-V)
    - Network Tilt
    - Composite Triple Beat (CTB)
    - Digital Average Power
    - Digital Quality Margin (DQM)
- User programmable frequency tables
- Speaker and headphones outputs
- Storage of screens for later retrieval
- Data logging for monitoring projects