**IKUSI**

| Handheld Terrestrial Analyzer | **T 80** |
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**T 80** is a compact lightweight portable handheld field strength meter capable of analysing digital terrestrial and analogue TV installations in the VHF-UHF range. Its large dot matrix graphic LCD readout allows signal spectra to be finely displayed for analysis. Besides, the unit is ideally suited to display the different control menus and measuring data provided.

DVB-T

### MEASUREMENTS

Frequency coverage is from 45 to 860 MHz. Many of the measurements which are typically taken on TV systems are performed by the unit automatically, others are made simple to take.

True BER (Bit Error Ratio) as well as MER (Modulation Error Ratio) are easily measured for overall link quality, the unit being fitted with an OFDM card as a standard feature.

Useful is the BER estimation function too, of a QAM (DVB-C) signal in the entire VHF-UHF range; the QAM BER estimation is derived from a true C/N measurement according to ETSI ETR 290 publication.

### SPECTRUM ANALYSER

Spectral analysis, an unusual capability in an unit of its class, covers the entire 45-860 MHz range; it is expandable from full band down to a 10 MHz zoom. A double frequency marker is available for measurements on both digital and analogue channels. The measuring bandwidth (RBW) of the unit is 200 kHz.

Tuning is by frequency, channel o recalling a program. Most of the international channel formats are available, so are the TV-standards.

Specific spurious signal analysis can be carried out with the Hold MAX, MIN and FREEZE functions.

A 28 program mode allows user-defined programs to be monitored for level equalisation. A 28 Adjacent Channel Mode is also available. The Tilt function provided is useful to measure level differences among programs.

### DATA LOGGER

The data logger function provided can capture up to 1500 digital or analogue programs. The capture of a digital program includes Ch- BER/MER and locking status for OFDM signals, DCP, C/N and BER estimation for QAM signals, while an analogue capture includes frequency, C/N and V/A ratios and level.

### NIT CARD

An useful NIT card, optional, allows the installer to identify all digital OFDM channels in a transponder even after frequency convertion.

### OUTPUT

Interconnectivity between the unit and a PC or an external printer is achieved through an RS232 port.

Analogue signals can be demodulated through an output to a set of earphones.

### POWER SUPPLY

Powered via a high capacity Ni-MH battery, standard feature, or through an external PSU/charger, again standard, the unit can optionally be fitted with an external waistband-held Ni-MH battery pack whenever extended operational runs in the field are required.

## TECHNICAL SPECIFICATIONS

### ■ INPUT

- **Level :** 25 to 120 dBμV in the 45-860 MHz range
- **Unit of Measure :**
  dB for ratios.
  dBμV — dBmV — dBm for level and power measurements. Switchable.
- **Attenuator :**
  0 to 70 dB in 10 dB steps (manual or autoranging). Switchable.
  Indication of an external attenuator, 20/30 dB. Switchable.
- **Attenuator Accuracy :** ± 1 dB
- **Frequency Response :** ± 1.5 dB over the entire frequency range.
- **Measurement Technique :** Peak and Average, switchable.
- **Measuring Bandwidth (RBW) :** 200 kHz
- **Input impedance :** 75 ohm unbalanced. See (1) under Special Versions.
- **Input Connector :** Female "F" connector with "L-shaped" input adapter for greater protection.
- **Maximum Applicable Voltage :** ±100 VDC and 5 Vpp RF
- **Readout Indication :**
  - Numeric for level, 4 digit, 0.1 dB resolution.
  - Numeric for DCP, 4 digit, 0.1 dB resolution.
  - Numeric for C/N, 3 digit, 1 dB resolution.
  - Numeric for V/A, 3 digit, 1 dB resolution.
  - Analogue for DCP and level by means of a bargraph.
  - Analogue by means of a histogram.

### ■ FREQUENCY

- **Frequency Range :** 45 to 860 MHz
- **Tuning :**
  - Frequency. PLL frequency synthesis tuning in 50 kHz steps.
  - Channel. According to channel format selected.
  - Recalling a program (100 panel storage locations).
- **Channel Format :** Choice of different channel formats according to country selected.
- **TV Standard :** BG, I, L, DK, M, N (for V/A).

### ■ SPECTRUM ANALYSER

- **Functions :**
  - Full spectrum scan from 45 to 860 MHz in different bands; 200, 100, 50, 20, 10 MHz expansion steps.
  - Histogram up to 28 adjacent channels.
  - Histogram up to 28 user-defined programs.
  - Tilt up to 28 programs per group.
  - Hold max, Hold min, Freeze.
- **Marker :** Two independent markers for level and frequency deltas. Readings on readout.

### ■ DATA LOGGER

- 1500 data captures of a single program.

### ■ OFDM BER & MER MEASUREMENT

- **Frequency Range :** 50 to 860 MHz
- **Modulation :** 16 QAM; 64 QAM; QPSK. Auto.
- **Code Rate :** 1/2, 2/3, 3/4, 4/5, 5/6, 6/7, 7/8, 8/9. Auto.
- **Guard Interval :** 1/4, 1/8, 1/16, 1/32. Auto.
- **Operating Mode :** 2000, 8000 carriers. Auto.
- **Bandwidth :** 7 MHz, 8 MHz
- **CH BER :** 0 to 1. Resolution 1,5 E-6.
- **DCP Sensitivity :**
  (pre-Viterbi).
  1E-4: - (@ 64 QAM, 2/3, Dir, 8 MHz, 1/32, 8000, LNB off, 45-860 MHz : 45 dBμV)
  - (@ 64 QAM, 2/3, Dir, 8 MHz, 1/32, 8000, LNB on, 45-860 MHz : 40 dBμV)
- **MER :** 6 to 26 dB
- **RU :** Uncorrected errors past the Reed Solomon stage.

### ■ BER QAM ESTIMATION

- QAM BER is estimated from C/N measurement which is according to ETSI ETR 290 publication curves, within 47 to 860 MHz for 64, 128 and 256 QAM modulation.

### ■ NIT CARD (optional)

- **Standard :** DVB compatible.

### ■ LCD READOUT

- **Type :** Dot matrix graphic LCD; 128 x 64; LCD retroilluminated.
- **Dimensions :** 71 x 39 mm.

### ■ OUTPUT

- **Source of Power :**
  For remote control. Sourced from the RF IN connector: 0, 13, 24 V ± 0.5V / 350 mA max; switchable.
  Overload and continuity indication of the external circuitry.
- **RS 232 :** Female, 9 pole, "D" connector for data exchange with an external PC or printer.
- **Earphones :**
  1 Vpp on 32 ohm (jack diameter 3.5 mm).
  Sound demodulation output for analogue carriers.

### ■ POWER SUPPLY

- **Internal VDC Power :**
  6V / 3.8 Ah Ni-MH battery, rechargeable. 1 1/2 hrs continuous operational run.
  Overload and continuity indication of the external circuitry.
- **External VDC Power :**
  7.5 to 8 V 3 A max for operation and battery charge.
  5.5 to 8 V 3 A max for operation only.
- **VAC :**
  100-240 VAC through a stand alone PSU/Adapter-Charger, provided.
- **Battery Charger :**
  Through a stand alone PSU/Adapter-Charger, provided.
  Charging time: approximately 8 hrs

### ■ MECHANICAL

- **Dimensions :** 200 x 105 x 45 mm
- **Weight :** 0.9 kg (with battery and rubber holster fitted).
- **Finishing :** The instrument comes with a protective rubber holster for shock prevention.

### ■ AMBIENT

- **Calibrating Temperature :** The accuracy values quoted refer to an ambient temperature @ 23 °C ±5 °C
- **Operating Temperature :** +5 °C to +40 °C
- **Relative Humidity :** 80% for temperatures up to 31 °C (with linear derating to 50% @ 40 °C).
- **Storing Temperature :** -10 °C to +60 °C

### ■ STANDARD ACCESSORIES

- "L-shaped" F/F adapter.
- Rubber Holster.
- Bag shoulder strap.
- Instruction manual.
- PSU/Adapter-Charger, external, BCH 7.5/3.3.
- 6 V / 3.8 Ah Ni-MH battery-pack.

### ■ OPTIONS

- NIT card.
- Auxiliary waistband-held battery BP6.
- Printer, external STP 165.
- Nylon bag for transport only C20.


bag

### ■ SPECIAL VERSIONS

(1)  50 ohm input impedance