

31225 (GDR bugs IX) Country of origin: GDR

### DATA SUMMARY

**Organisation:** MfS Abt. 26, GDR.

**Design and manufacturer:** Außenstelle Beucha, ITU.

**Year of Introduction:** Around 1982.

**Purpose:** Reception of wireless 'bugs'.

**Receiver:** Double conversion superheterodyne. FM only.

**Frequency coverage:** 940-980MHz. (Band V)

**IF:** 120MHz and 10.7MHz; Bandwidth 220kHz at -3dB  
650kHz at -60dB Max.  $\pm 75$ kHz deviation;

**Sensitivity:** 5 $\mu$ V.

**Power Supply:** Nominal 12V (8-15V). Normally taken from an external battery pack. Battery drain 150mA; 380mA with loudspeaker on.

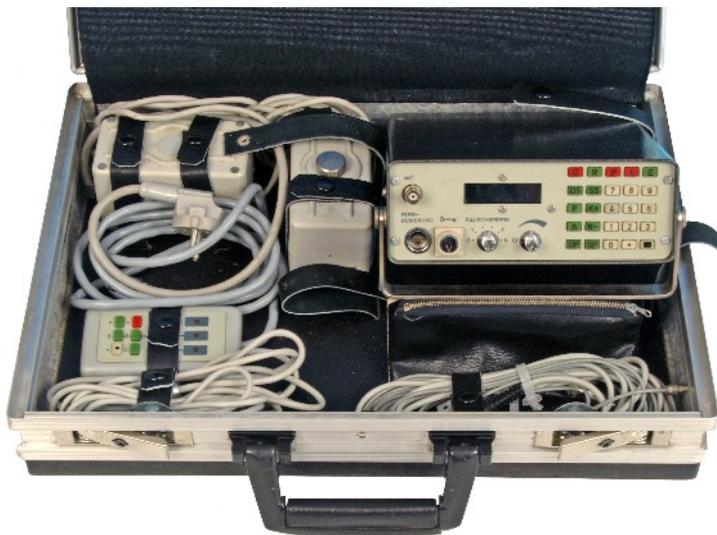
**Size (cm):** Height 7, Length 185, Width 195. Weight: 3.2kg

**Accessories:** Remote control unit, vertical rod aerial, flat panel aerial (8dB gain), aerial mount with clamp, coax feeder, mains power supply unit, battery box, headphones, various mains/battery/vehicle battery and audio connectors. (See photo below).

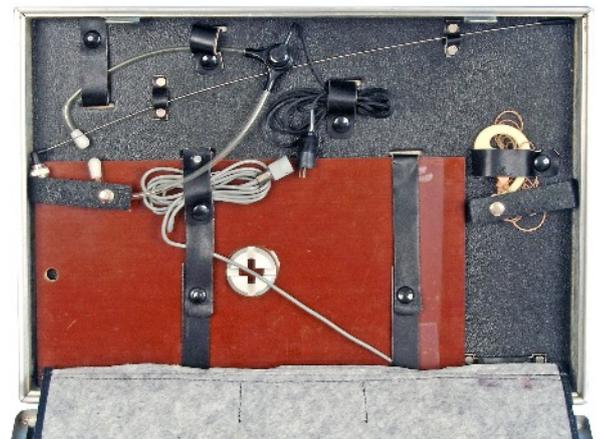
### REMARKS

31225 was a microprocessor controlled UHF FM receiver used by the East German MfS, Abt. 26, for receiving UHF 'bugs' in the frequency range of 940 to 980MHz. (band V) Direct entering the receiving frequency, operation from a remote location and lock of local control by a key were a few of its features. The receiver was at the time a highlight in the technical achievement of the GDR. It was developed and produced by Außenstelle (Branch) Beucha of ITU (Institut für Technische Untersuchungen = Institute for Technical Developments), a cover factory of OTS.

The 31225 had a wide IF bandpass and an AFC with a large tracking range in order to follow reception of the free running oscillator of an associated bug. A later variation of the receiver had an extra module to enable reception of bugs where the microphone audio was modulated on a sub carrier, known as the dual FM system. This was primarily used when a bug was placed near the border to deceive reception in West Germany. This module was a later addition and probably retrofitted in a number of earlier produced receivers. Four different audio outputs were available of which three were controlled by the squelch.



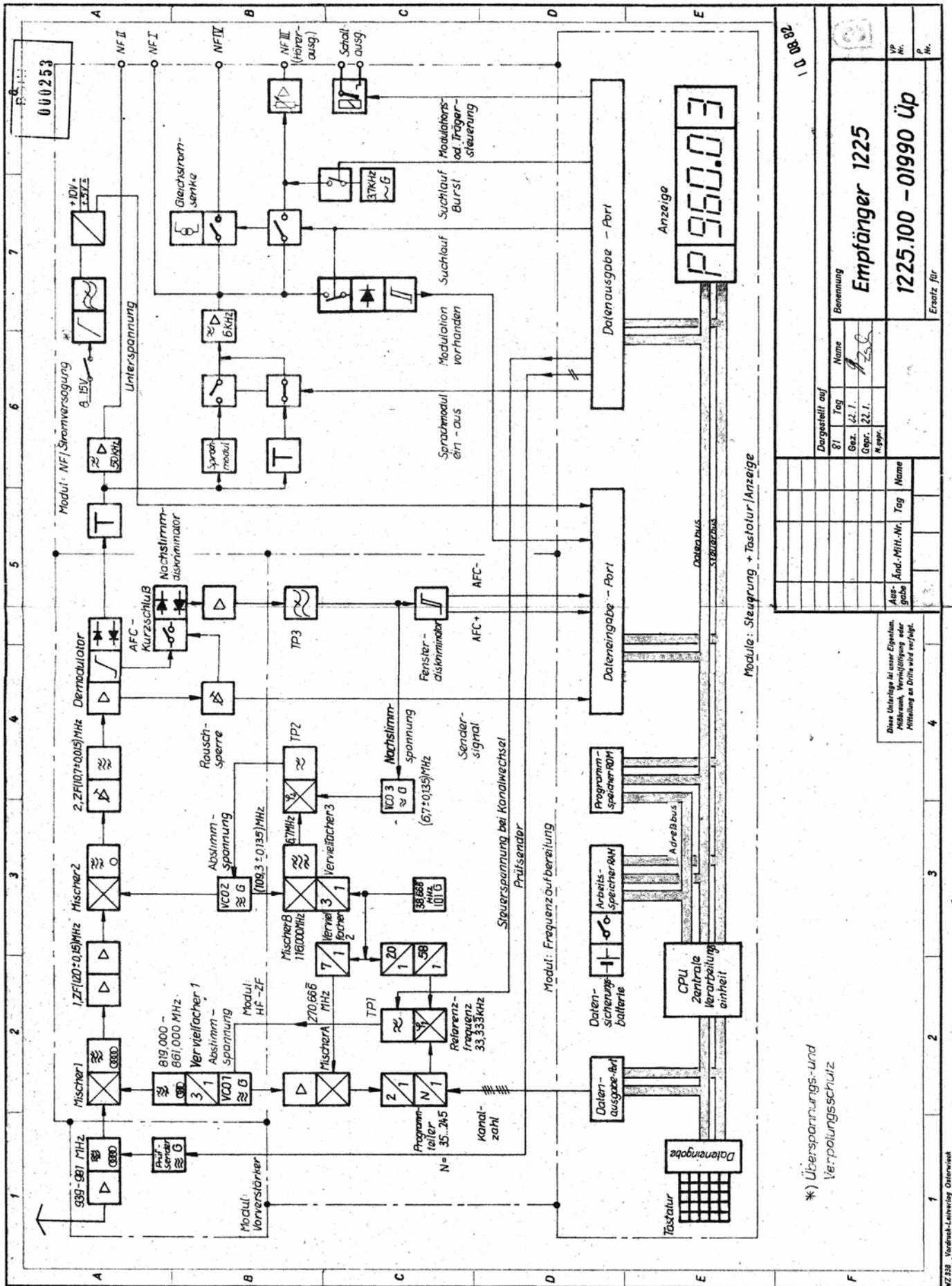
31225 receiver packed in an attache case for storage or transport. The directional flat panel aerial, shown in the picture right, could be used still fitted in the attache transport case lid, or attached on a mount.



Aerials and other accessories for the 31225 were stowed in the lid of the case. The brown oblong object was a directional flat aerial, also known as planar- or panel aerial.

### References:

- With thanks to Detlev Vreisleben, DC7KG, Germany for taking excellent photographs and providing all further historical and technical information of his 31225 receiver.



Block diagram of UHF receiver 31225. The receiver had five main modules.



UHF FM receiver 31225 (left) mounted in a metal cabinet along with line and remote control equipment (right). Telephone line terminals and a 5-pt headphones socket were located on the right hand side of the front panel. This assembly was primarily used at unattended locations within wireless range of the bug.

Flat panel aerial. Microphone. 31225 receiver. LWE6-2 demodulator. Audio line terminals.

Radio path

Power socket. 31217-1 bug. 31131-112 TF-B tx (2D)<sup>1)</sup> Local side. Remote side.

Showcase of a dual FM system setup used with a band V wireless bug.

Audio from the microphone was frequency modulated on a 40kHz carrier (channel 2) in the 31131-112 TF-B tx (2D) unit, actually a carrier frequency based bug. The output of this unit was fed to a 31217-1 bug which transmitted a dual FM signal on band V which could not be received with a normal receiver (this was at the time an effective speech concealment). A demodulator unit type LWE6-2<sup>1)</sup> was therefore connected to the AF output of the 31225 receiver. The 31217-100, and other (later) models of bugs had an integrated dual FM modulator unit, whilst still later models had an additional 80-100Hz masking hum.

<sup>1)</sup> The 31131-112 TF-B tx (2D) (see Chapter 172) and LWE6-2 (Chapter 175) were basically components of the TF-B 2 carrier frequency line based system, in this application used over a radio path.