



31216-1

(GDR bugs V)

Country of origin: GDR

DATA SUMMARY

Organisation: MfS, Abt. 26, GDR.

Manufacturer: OTS ³⁾, GDR.

Year of Introduction: Around 1975.

Purpose: Wireless bug for covert overhearing.

Transmitter: Free running oscillator. Electret microphone embedded in the enclosure. FM without pre-emphasis.

AF freq response: 200Hz to 8kHz. Dual FM (SV) with a sub-carrier of 22 or 24kHz. (In var. 31216-143)

Deviation: Maximum ± 75 kHz.

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

Range: 30m in lightly build-up town area.

RF output: > 0.162 mW at 1.3V in 50 Ω .

Aerial: $\frac{1}{4}$ wave; 110mm long flex wire.

Power Supply: 1.3V Mallory MP 675/1 mercury battery. Battery drain ca. 2mA. Estimated life about 100 hours.

Dimensions: 7mm high, 16.5mm wide, 32mm long, weight 10g.

Production deliveries from OTS, the maker of the wireless bugs to MfS Abt. 26, were in batches of 5 or 10 units. Each unit was issued with a certificate (See Chapter 128), containing serial number, DC voltage and current, frequency, AF input (microphone) sensitivity at ± 75 kHz deviation and RF output into 50 Ω

The AF sensitivity was divided into three groups:
 Group 1 with an acoustic pressure of 0.5 ± 0.3 μ bar.
 Group 2 with an acoustic pressure of 1.1 ± 0.3 μ bar.
 Group 3 with an acoustic pressure of 1.7 ± 0.3 μ bar.

REMARKS

The 31216-1¹⁾ was the first model in a series of subminiature 3rd generation wireless bugs operating in the frequency range of 940-980MHz (band V), primarily developed for covert overhearing. The nominal range to an associated receiver in a normal town build-up was about 30m.

The design of the RF part of the 31216 and later 31217 and 31218 models was basically similar. The RF oscillator was free running to keep the size of the unit small, but consequently relative unstable and dependent on temperature and battery voltage. It was for this reason that the associated receivers (31215 or 31225, see Chapters 128 and 132) had a very wide tracking range. For stable operation the transmitter SMD components were mounted on a 0.8mm thick AL₂O₃ (Alumina) ceramic plate, copper plated on both sides.

The complete transmitter was fitted in a silver plated copper box with removable lid in a white PVC enclosure. It differed to the other models that it was self contained with a separate battery compartment.

The subminiature electret microphone was placed in the transmitter compartment with its speech opening fed through a tube at the side. Variation 31216-143 did not have a built-in microphone and was used in combination with a SV⁴⁾ module without M (Maskerator).

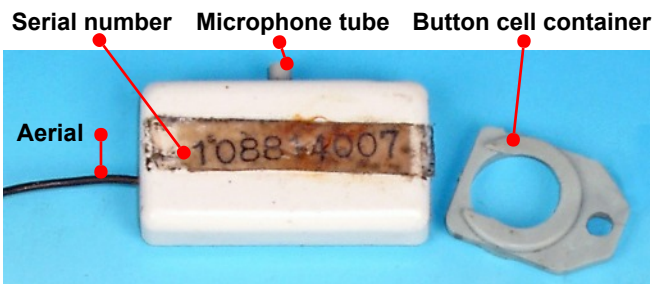
Variation 33216-101, principally a redevelopment of the 31216-143, was planned after 1987²⁾ but most probably never came into production.

¹⁾ Known as 'Sender kleine Leistung mit batteriehalter Band V' (Low power transmitter with battery container Band V)

²⁾ When the 'Decknummernschlüssel' (Covert number key) was changed in January 1977, the RF bugs (and other types of bugs), previously designated 31 ..., were renamed 33....

³⁾ Developed and produced at Außenstelle Beucha des ITU (Institut für Technische Untersuchungen), an OTS covert firm.

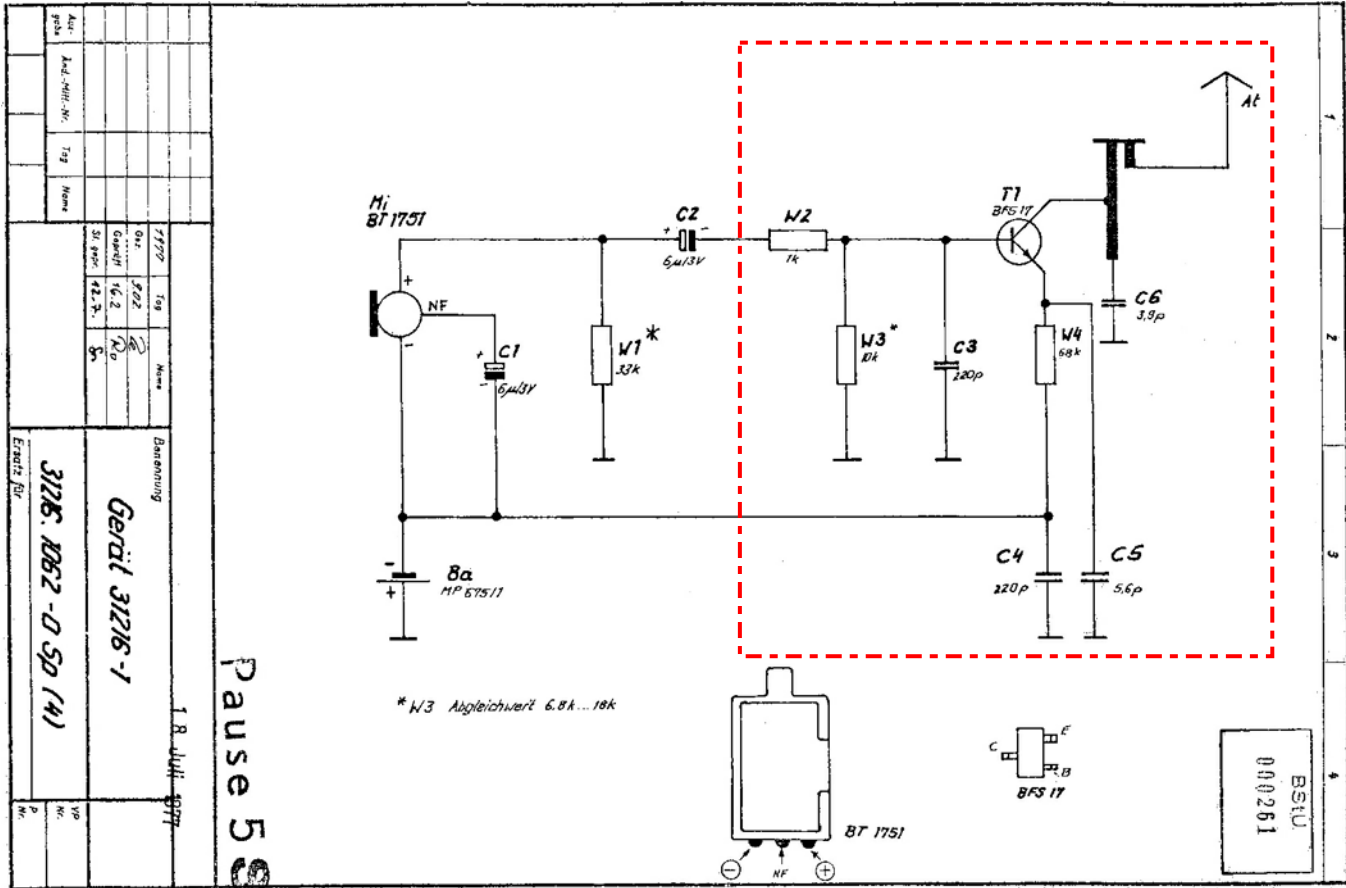
⁴⁾ SV = Sprachverschleierung (speech concealment), M=(Maskerator), 80 or 100Hz masking hum; (see Chapter 122 for more details.)



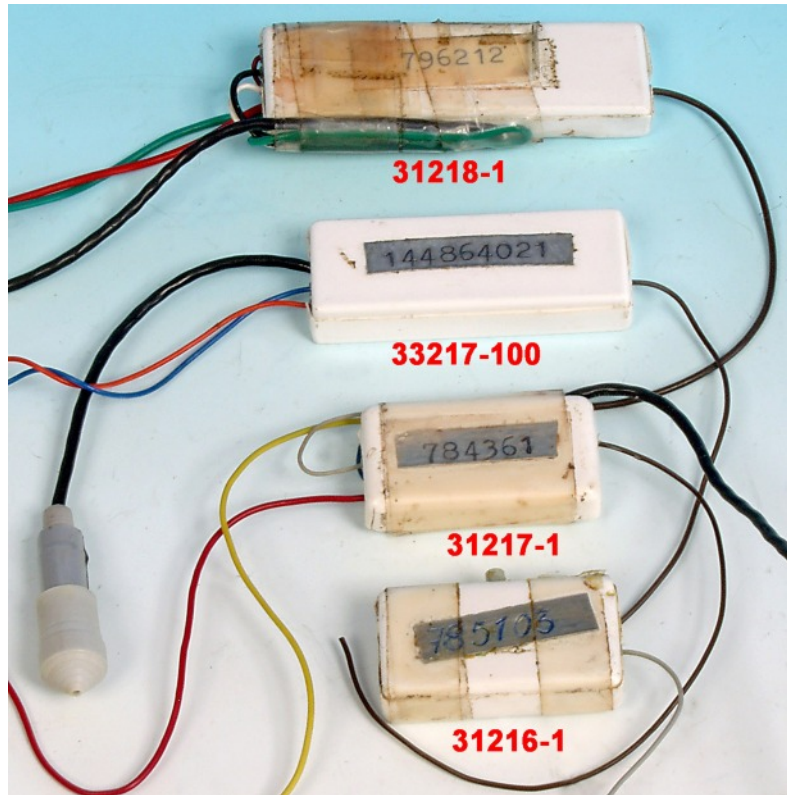
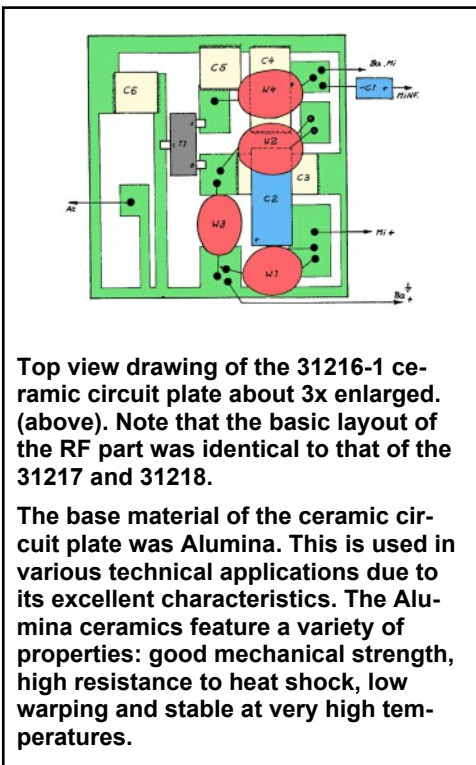
General view of 31216-1 shown at actual size.

References:

- With thanks to Detlev Vreisleben, DC7KG, Germany for taking excellent photographs and scans, and providing detailed historical and technical information.
- OTS document: Kennblatt Gerät 31216-1 (Data summary Equipment), July 1977.
- Inventurlisten der operationellen Technik, MfS Abt. 26, Berlin, Sept. 1987.
- Deckbezeichnungen UHF-B-Technik, 10-08-1984.



Circuit diagram of the 31216-1 wireless bug. The circuit and design of the free running oscillator within the red dotted lines was basically similar in all models.



Basic models of the 3rd generation wireless bugs operating in Band V (940-980MHz). Each model had variations according its application e.g. the 33217-100 had dual FM and masking (SVM⁴) for speech concealment.