



Turban S1 Country of origin: GDR

DATA SUMMARY

Organisation: MfS Abt III.
Year of Introduction: 1982.
Purpose: Automatic reception, demodulation and storage of encrypted short wave teletype signals.
Receivers: 12x type EKD 100, modified for remote control; one EKD 100 and a Russian R-399A (Katran) monitor receiver, both used at the receiver operating position.
Data storage: 12x Uher SG 561 Royal tape recorder.
Controllers: TSG 7 and 12x TSG 7.1/1. These had an Intel SBC 80/10 board with an 8080 processor.

REMARKS

Turban S1 was an automatic system for information gathering of short wave teletype networks, with microprocessor control of receiver frequencies and other parameters. Decryption of the stored data was at a central MfS location HA XI.
 Developed in the GDR during 1981/early 1982, the system prototype was operationally active from July 1982 onwards, used for intercepting teletype traffic of the Turkish diplomatic service. This shortwave based network operated on one or more channels of 300 possible frequencies. The Turban S1 system was installed in a special fully air-conditioned and electrically screened operating room at Stützpunkt (base) 'Lux'. At least two other Turban systems were built later, used for interception of teletype radio traffic of the West German BND, French Ministry of Internal affairs and Interpol.



System data terminal 2 at the data processing operating position was connected to a second separate TSG 7 controller and two tape recorders. This part of Turban S1 was basically used for data processing of a tape before being sent to another department for decryption.

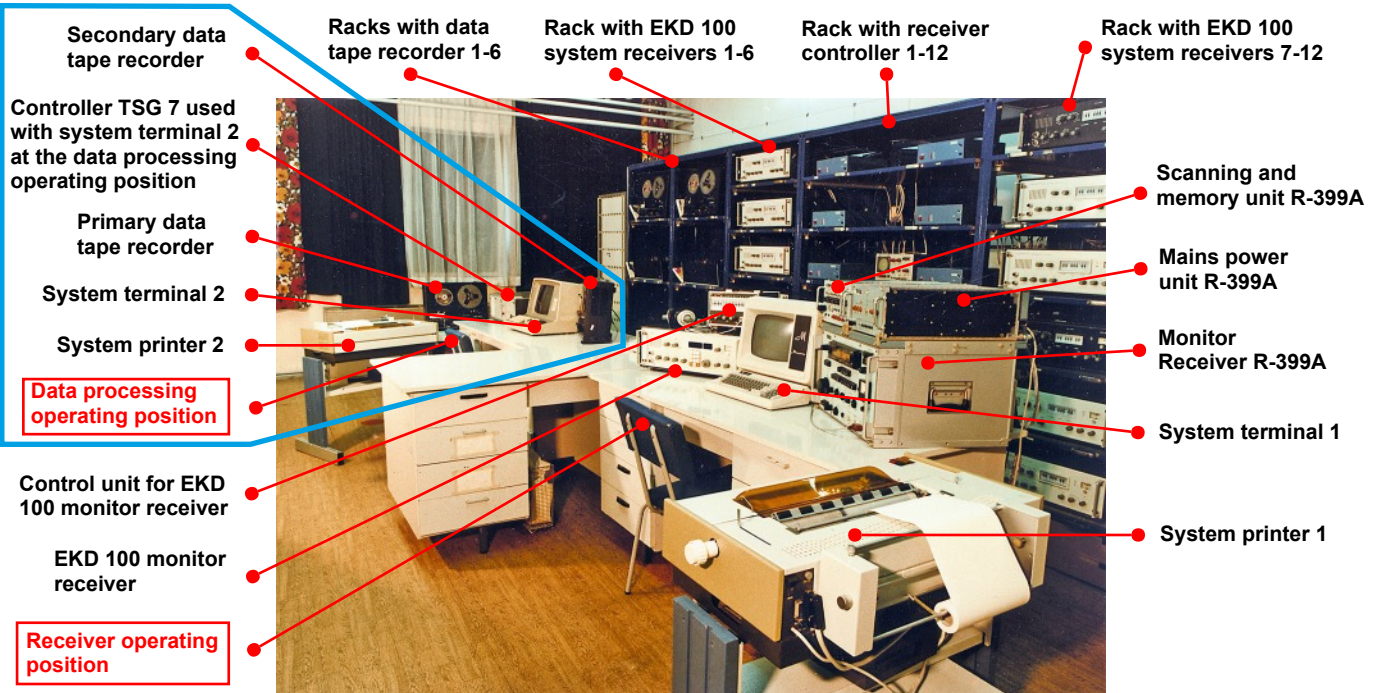
The system, built into 7 racks, comprised principally 12 receivers and 12 tape recorders, controlled by microprocessors.
 A couple of racks carried each 6x EKD 100 shortwave receivers for reception and demodulation of teletype signals. These receivers were modified for this project to allow remote control of their operating frequencies. Each receiver was connected to a system controller TSG 7.1-1 which determined the frequency, decoded the encrypted teletype signals and stored this information on a tape recorder as primary digital data. The main controller was a TSG 7 connected to the 12 system controllers via an interface unit. Monitoring the receiving system was at the receiver operating position on data terminal 1, and a couple of monitor receivers. It should be noted that most of the components and sub-units of the system were (apart from the software) 'off the shelf' and partly (probably illegally) imported from the West.
 The received data was stored on commercial Uher SG 561 Royal tape recorders, one for each system receiver.
 At the data processing operating position the primary data from the system tape recorders was processed and written to the secondary tape recorder, before being sent to HA XI for decryption.



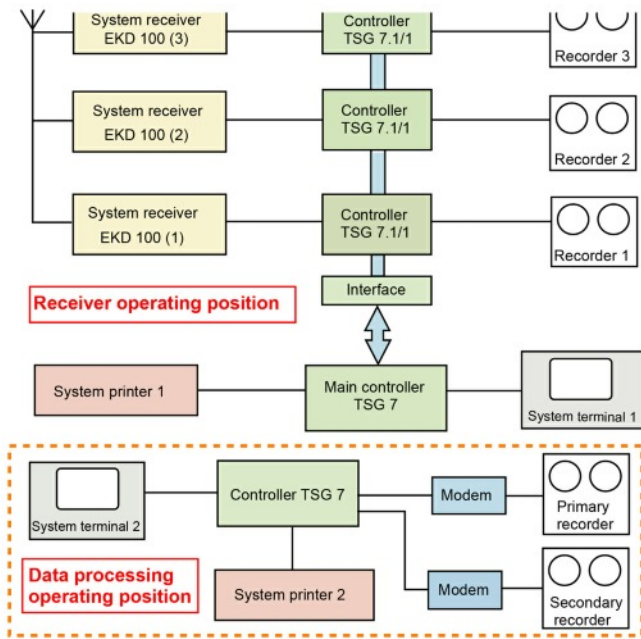
Front panel view of an EKD 100 receiver.

References:

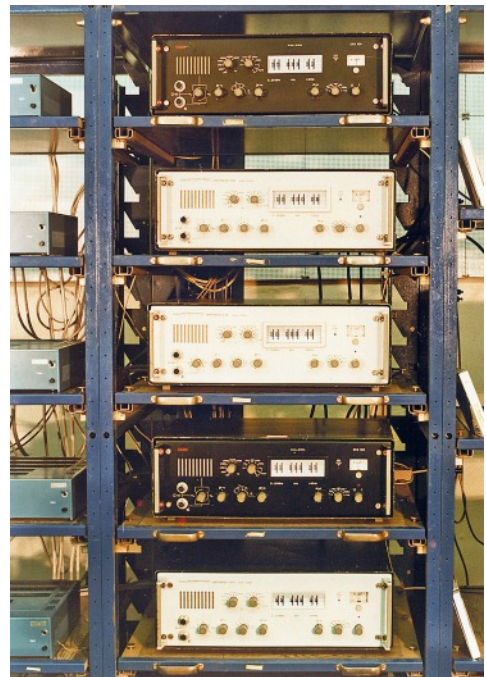
- Turban S1, *Automatisches system zur Informationsgewinnung*, report (probably dated mid-1982) by the system developers.
- Without the encouragement, information, and photographs by Detlev Vreisleben this chapter would not have been possible.



General view of the Turban S1 system installed at a Stützpunkt (base) 'Lux' as seen from the right hand side. Not visible in this picture were tape recorders 7 through 12. The Main Controller TSG 7 and interface unit to receiver controllers were located in a lower shelf of the receiver controller rack, not visible in the photo.



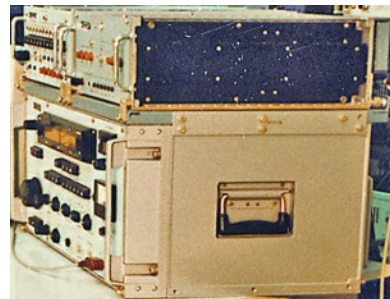
Simplified block diagram of Turban S1 system showing only three of the 12 receivers and associated units.



System rack with EKD 100 receivers and TSG 7.1/1 controllers (blue units in the rack at the left).



Processed secondary data tapes from the Turban system were sent to the decryption centre at MfS HA XI.



The main monitor receiver was a Russian R-399A (Katran). On top were mounted a scanning and memory unit (left), and an AC mains power unit.