

CENTRAL INTELLIGENCE AGENCY

25X1

# INFORMATION REPORT

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COUNTRY **East Germany**  
SUBJECT **VEB Werk fuer Fernmeldewesen  
Tube Production in May 1955**

REPORT [Redacted]  
DATE DISTR. **13 July 1955**

DATE OF INFO. [Redacted]  
PLACE ACQUIRED [Redacted]  
DATE ACQUIRED [Redacted]

NO. OF PAGES **4**  
REQUIREMENT [Redacted]  
REFERENCES [Redacted]

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The status of tube development at VEB Werk fuer Fernmeldewesen WF as of late May 1955 was as follows:

- 1. Tube, Type 5D21 - a high-power modulation tetrode tube copied from an existing Telefunken tube; developmental work has been completed and the tube is being put into production. 25X1
- 2. Tube Type SA 100 and SA 101 - diodes for measuring devices, likewise copied from a Telefunken tube. The shortage of qualified technical personnel has caused great difficulties in the production of these tubes. They are currently produced only as replacement tubes for television transmitters. The available substitute types of tubes for television transmitters cannot be used because they have too high a self-capacitance (Eigenkapazitaet). 25X1
- 3. Ceramic Tubes - developed and produced for the USSR in late 1954. Development and production has now been stopped because the USSR has levied no further requirements for ceramic tubes. 25X1
- 4. Radio Tubes - the quality of the tubes produced is very low. 25X1
- 5. Miniature Tubes - nothing is known concerning developmental work. Miniature tubes are being produced in VEB Funkwerk Erfurt. Requirements for these tubes are large, since they are exported to China. As a result, it is difficult to meet East German demands. 25X1
- 6. Tube Type P50 - a copy of Telefunken Type IS 50. The P50 is of considerably poorer quality than its Telefunken model. The limit wave between medium and high frequency (Grenzwellenlaenge) is much longer than that of the Telefunken. At 75 MHz considerable difficulties are incurred. Also, the characteristics of the tubes change during operation. The P50 is put out in three models: 25X1
  - Model I - normal; very poor quality
  - Model II - tubes provided with grooved grids (Kerbgitter); somewhat better
  - Model III - tubes with gold-plated grooved grids; the best of the three but not on a par with the IS 50.

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7. Ultra-Short-wave Tubes - The following are currently in development: 25X1

a. Tetrode SRS 451 [redacted] 25X1

Filament voltage ( $U_h$ ) - 4 V

Filament current ( $I_h$ ) - 15 A

Anode voltage ( $U_a$ ) - 3 kV

Power ( $N_a$ ) - 400 W

Limiting frequency (Grenzfrequenz) ( $f_{\text{grenz}}$ ) - 200 MHz

Capacity between grid and cathode ( $C_{\text{gk}}$ ) - 4.4 pF

Capacity between anode and cathode ( $C_{\text{ak}}$ ) - 0.049 pF

Capacity between grid and anode ( $C_{\text{ga}}$ ) - 0.1 pF

Capacity between cathode and grid 2 (screened grid) ( $C_{\text{kg2}}$ ) - 2.4 pF

Capacity between grid 1 (control grid) and grid 2 (screened grid) ( $C_{\text{g1g2}}$ ) - 9 pF

Capacity between grid 2 (screened grid) and anode ( $C_{\text{g2a}}$ ) - 4.3 pF

Grid power loss ( $Q_g$ ) - 10 W

Cathode current ( $I_k$ ) - 0.3 A

Inverse amplification factor (Durchgewinn) (D) - 18%

Grid plate transconductance (S) - 4.25 mA/V

Anode current ( $I_a$ ) - 0.2 A

b. Triode SRL 351, [redacted] 25X1

Filament voltage ( $U_h$ ) - 5 V

Filament current ( $I_h$ ) - 50 A

Anode voltage ( $U_a$ ) - 4 kV

Anode current ( $I_a$ ) - 0.5 A

Power ( $N_a$ ) - 1.5 kW

Limiting frequency ( $f_{\text{grenz}}$ ) - 200 MHz

Capacity between grid and cathode ( $C_{\text{gk}}$ ) - 16 pF

Capacity between anode and cathode ( $C_{\text{ak}}$ ) - 0.06 pF

Capacity between grid and anode ( $C_{\text{ga}}$ ) - 13 pF

Grid power loss ( $Q_g$ ) - 80 W

Cathode current ( $I_k$ ) - 1.5 A

Inverse amplification factor (D) - 3.5%

Grid plate transconductance (S) - 14 mA/V

c. Triode SRL 352 [redacted] 25X1

Filament voltage ( $U_h$ ) - 7.5 V

Filament current ( $I_h$ ) - 75 A

Anode voltage ( $U_a$ ) - 4.1 kV

Anode current ( $I_a$ ) - 1.2 A

Power ( $N_a$ ) - 5 kW

Limiting frequency ( $f_{\text{grenz}}$ ) - 200 MHz

Capacity between grid and cathode ( $C_{\text{gk}}$ ) - 21 pF

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Capacity between anode and cathode ( $C_{ak}$ ) - 0.5 pFCapacity between grid and anode ( $C_{ga}$ ) - 11 pFGrid power loss ( $Q_g$ ) - 100 to 150 WCathode current ( $I_k$ ) - 2 A

Inverse amplification factor (D) - 4.5%

Grid plate transconductance (S) - 24 mA/V

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## d. Triode SRL 353

Filament voltage ( $U_h$ ) - 5.3 VFilament current ( $I_h$ ) - 160 AAnode voltage ( $U_a$ ) - 7.5 kVAnode current ( $I_a$ ) - 4 APower ( $N_a$ ) - 12 kWLimiting frequency ( $f_{\text{grenz}}$ ) - 120 MHzCapacity between grid and cathode ( $C_{gk}$ ) - 54 pFCapacity between anode and cathode ( $C_{ak}$ ) - 2 pFCapacity between grid and anode ( $C_{ga}$ ) - 31 pFGrid power loss ( $Q_g$ ) - 300 WCathode current ( $I_k$ ) - 4.5 A

Inverse amplification factor (D) - 2.5%

Grid plate transconductance (S) - 40 mA/V

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## e. Tetrode SRL 452

Filament voltage ( $U_h$ ) - 7.5 VFilament current ( $I_h$ ) - 72 AAnode voltage ( $U_a$ ) - 4 kVAnode current ( $I_a$ ) - 1.2 APower ( $N_a$ ) - 3.5 kWLimiting frequency ( $f_{\text{grenz}}$ ) - 120 MHzCapacity between grid and cathode ( $C_{gk}$ ) - 15 pFCapacity between anode and cathode ( $C_{ak}$ ) - 0.1 pFCapacity between grid and anode ( $C_{ga}$ ) - 0.9 pFCapacity between cathode and grid 2 (screened grid) ( $C_{kg2}$ ) - 10 pFCapacity between grid 1 (control grid) and grid 2 (screened grid) ( $C_{glg2}$ ) - 33 pFCapacity between grid 2 (screened grid) and anode ( $C_{g2a}$ ) - 13 pFGrid power loss ( $Q_g$ ) - 100 WCathode current ( $I_k$ ) - 2 A

Inverse amplification factor (D) - 15 %

Grid plate transconductance (S) - 17 mA/V

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f. Triode SRL 354

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Filament voltage ( $U_h$ ) - 7.5 V

Filament current ( $I_h$ ) - 160 A

no further data known

g. Triode SRW 353 (water cooled)

Filament voltage ( $U_h$ ) 5.3V

Filament current ( $I_h$ ) - 160 A

Anode current ( $I_a$ ) - 3 A

Anode voltage ( $U_a$ ) - 6 kV

Power ( $N_a$ ) - 20 kW

Limiting frequency ( $f_{grenz}$ ) - 200 MHz

Capacity between grid and cathode ( $C_{gk}$ ) - 59 pF

Capacity between anode and cathode ( $C_{ak}$ ) - 0.8 pF

Capacity between grid and anode ( $C_{ga}$ ) - 35 pF

Grid power loss ( $Q_g$ ) - 400 W

Cathode current ( $I_k$ ) - 5 A

Inverse amplification factor (D) - 2.5%

Grid plate transconductance (S) - 40 mA/V

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