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Testing a New Type of Exchange in the Swiss Telephone Network

by Anton Widrig, Berne

As a result of the rapid development of electronic components for switching systems, new types of exchanges will probably be integrated into the Swiss public telephone network in the near future. This article outlines the general characteristics of a new partly electronic system by Hasler Ltd, Berne, in which hard-magnetic reed switches are used as coupling points. The author also deals with the construction and reliability of a prototype secondary exchange that will be put to a field test in 1971.

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New microwave telephone links for temporary use

by Pius A. Breu, Berne

In this article two new microwave systems of different construction, transmission capacity and modulation are being introduced. Over the frequency-modulated system by Marconi Italy for practically independent working, up to 300 telephone channels can be operated. The high frequency gear is for continuous tuning in the range of 7425...7750 MHz. The amplitude-modulated microwave system by Hasler Ltd. is equipped only for transmitting PCM signals in B code (30 or 60 telephone channels) and tuned to fixed channels in the 7.5 GHz frequency band.

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Stability Considerations in Terms of Scattering Parameters for Linear Active Twoports (Transistors)

by E. R. Hauri

General stability conditions and stability factors for linear active twoports in terms of "classical" twoport parameters, which include the terminations, have been derived earlier, but the analogous relations in terms of scattering parameters apparently are not yet known. Considering the condition for oscillation of a twoport with terminations, a general stability condition and a general stability factor in terms of scattering relations are derived in this paper. The design of an amplifier with a given power gain for optimum stability is described. The derivations are paralleled by the equivalent in terms of y parameters. Finally it is shown how to proceed in case the absolute value of the parameter s_{11} (or s_{22}) is greater than or equal to one.

Posts

In November 1970, the members of a training-course at the **British Transport Staff College** (Woking, Surrey) visited the **Swiss PTT**. As senior managers from various sectors of British transport industry they were interested in the organization and management of the PTT in general, and of the Automobile service in particular. Lectures and discussions were followed by a tour of the PTT data processing centre and the postage stamp printing-office.

A report on the **long-term changes in the number of staff needed for the Swiss Postal services** has recently been published. This document outlines the external and internal factors influencing staff requirements and procurement, shows the possibilities of recruitment and suggests the policy to be followed, as well as a number of measures to overcome temporary shortages.

Since 7th December 1970, the postal coach services between Switzerland and the Principality of Liechtenstein have again been able to use the direct route across the border, as an **emergency bridge** over the river Rhine has been built between **Buchs and Schaan** to replace the road bridge which collapsed earlier last year.

Tests with **30 cubic-metre (33 cubic-yard) containers for regional mail transport** between Berne and Thun ended in December 1970. In 1971, a new series of tests will be conducted between **Lausanne and Yverdon**, as the operational requirements are somewhat different in this region.

Telephone

The **last overhead junction line of Switzerland**, which linked St. Ursanne and Ocourt-Epauvillers (Jura), has been replaced by a cable.

Telegnas and Scharans (the Grisons) have been linked by an **"Isoport" cable** covering the **widest span** known so far (1300 meters) and a difference in elevation of 740 meters. The cable holds 40 pairs of wires mounted on a 17.5 mm steel rope.

An additional 4 **satellite circuits** have been opened between **Switzerland and the USA**. Of the 61 lines now available, 15 are routed over the Frankfurt/Main pool.

At the beginning of December 1970, an additional **satellite circuit** was opened between **Switzerland and Canada**. There are now 6 satellite and 5 cable circuits in operation.

An additional 4 cable circuits have been opened between **Switzerland and Israel**, increasing the total number of lines to 12. Moreover, 2 "Lincompex" radio links for semi-automatic calls are being tested.

Four manual lines have been opened between **Zurich and Beyrouth** (Lebanon).

The French and the Swiss PTT have agreed to change the **coaxial cable links Basle-Strasbourg and Neuchâtel-Morteau to 12 MHz-working** in 1972/73.

Telegraphs, Telex

The first of a series of **automatic conveyer installations for telegrams** has been set up at the ATECO primary office of Basle, and is now being tested.

Telex calls to Turkey are now handled by the manual position of Radio-Suisse Ltd, Berne, and routed over the Berne-Istanbul radio link.

In December 1970, Radio-Suisse Ltd opened a **direct radio link between Berne and Nairobi**, permitting quicker handling of telex calls to Kenya, Tanzania and Uganda.

Radio, Television

In both **Fribourg and Sissach**, two **FM transmitters** have been installed for broadcasting the two German-spoken Swiss radio programmes.

At the end of 1970, **148 FM transmitters** were in operation in **71 different locations**. Of these transmitters, 78 broadcast the first, and 70 the second radio programme of their respective linguistic areas.

In December 1970, **39 TV transmitters and frequency transposers** were put into operation in various parts of Switzerland (**1st chain**: the Grisons, Central Switzerland, Valais, Jura, Ticino; **2nd chain**: Jura, Central Switzerland, Ticino; **3rd chain**: 3 installations).

At the end of 1970, the Swiss TV transmission network comprised **318 transmitters and frequency transposers** (1st chain: 230, 2nd chain: 81, 3rd chain: 7) in **225 different locations**. While programme 1 now reaches 98% of the population, programme 2 can be received by 50%, and programme 3 by 38%.

By providing an additional 8 **microwave TV links**, the radial network connecting the Berne, Zurich and Lugano **TV studios** has been changed into a triangular duplex network of greater capacity.

In 1970, **legal action** was taken in 163 cases of **unauthorized transmission**. In one instance, portable equipment was used as a warning device by a gang of burglars who were also liable to prosecution for listening-in to police radio.

Miscellaneous

One of a series of **4-month courses for trainees from foreign postal administrations** ended in November 1970. The members, most of them from French-speaking African countries, were given theoretical training, followed by weeks of practice in various offices in Berne, Lausanne and Geneva.

During a visit to the Swiss PTT, **two leading officials of the Indian Post Office** have studied problems of postal engineering and post-office organization, as well as the automation of the Swiss postal cheque system.