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Discussion of some problems concerning the measurement of noise characteristics of transmission systems

by H.-K. Pfyffer and M. Suremann, Berne

It is well known that the distribution of the instantaneous power of a speech wave differs considerably from a normal or gaussian distribution. The use of signals having a normal amplitude distribution may therefore lead to inaccurate results when measuring the noise and limiting characteristics of channels in small capacity telephone transmission systems (including for example channel translating equipment and pulse code modulation systems). In this article some of these problems are discussed. A mathematical expression describing the probability distribution of a speech wave is defined. A generator producing a speech simulating signal is described which is capable of simulating both the instantaneous amplitude distribution and the frequency spectrum of speech signals in telephone channels. Some curves show the different results obtained by measurements using signals having either speech simulating character or a normal amplitude distribution.

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Hot-dip Galvanization of Cable Ducts

by A. Brunold, Berne

Since 1966, hot-galvanized cable ducts made from cold-rolled steel strips have been used by the Swiss Telecommunications Services instead of bituminized iron ducts. In spite of complaints about insufficient thickness and adhesive strength of the zinc layers, galvanizing firms have not been able to produce better-quality coating. Chemical and spectral analyses of the coating have shown that not unsuitable raw materials but the process of galvanizing is at fault (overheated baths, immersion time too short, excessive air pressure applied for cooling, etc.).

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New Telecommunication Equipment Catalogue

by A. Müller, Berne

At the beginning of 1971, the Stores and Workshop Division of the Swiss PTT General Directorate published a new telecommunication equipment catalogue. This article outlines the decadic system, which has been used for the first time to classify the various items, and describes type-setting by means of the IBM composer process.

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Teasting a New Type of Exchange in the Swiss Telephone Network

by A. Widrig, Berne

See summary in No. 2, p. 92

News Items

Telephone

In 1970, calling equipment for 157,079 subscribers was installed in 936 Swiss exchanges. Furthermore, **179,244 telephones** (18,500 more than in 1969) were put into operation. This number included 111,514 main stations (14,250 more than in 1969). At the end of last year, the Swiss network comprised 1,945,168 main connections with a total of 3,025,779 sets. The **telephone density** per 100 inhabitants was **31 and 48**, respectively.

By the end of 1970, **period pulse metering** was introduced in 911 exchanges. The remaining 25 exchanges still applying 3-minute charging and serving approximately 42,000 subscribers (2.3%) will either be replaced or converted to PPM in 1971/72.

By the end of 1970, 111 exchanges serving 776,000 subscribers were equipped for **international automatic dialling**. In January 1971, Winterthur (with approximately 36,000 subscribers) and 5 more exchanges were converted, so that the service is now available to nearly 40% of the telephone users.

In the first 10 months of 1970, **international calls dialled by the Swiss subscribers** increased by 7% to 56.8% (corresponding to 14.2 million charged minutes of a total of 23 million).

In the years 1971-73, the Swiss PTT intend to set up **16 PCM line-installations**.

Telegraphs, Telex

At the end of 1970, **878 rented telegraph lines and data communication circuits** (100) were in operation in Switzerland. This number included 603 purely national lines (data 67), 184 European (24) and 91 overseas circuits (9).

On 1st February, the **Gentex** service between Switzerland and Denmark, in which only Copenhagen had been taking part, was extended to **15 Danish telegraph offices**.

For the **Ice-Hockey World Championships**, taking place in Switzerland from 5th March to 3rd April, 83 telex installations, 4 punched-tape transmitters and 4 phototelegraphy transmitters will be set up in Berne, Lyss, La Chaux-de-Fonds and Geneva.

An additional channel for **calls to the Western Union telex system** has been opened between Zurich and New York. For outgoing calls from Switzerland to the 5 US telex networks there are now 55 channels available.

Radio, Television

In 1970, **51,271 radio licences** – the highest figure in 10 years – were issued. At the end of last year, 1,851,612 listeners, including 434,033 subscribers to the wire broadcasting service over telephone lines, were registered in Switzerland.

A plan for the **gradual introduction of stereophony in the Swiss FM network** is being worked out. The project will be submitted to the Swiss Broadcasting Corporation, and co-ordination of programmes discussed, in autumn. The initial stage will probably be limited to broadcasting recorded programmes over one of the chains attributed to each language region, and to serve major population centres only.

In 1970, **TV licences** increased by 129,739 to 1,273,893. The annual growth was about the same as in previous years. At the end of 1970, the number of registered **colour TV sets** amounted to 75,200, having doubled within one year.

Since 1st January 1971, **suppression of radio interference of motor vehicles** has been obligatory in Switzerland.

Miscellaneous

In 1970, Swiss industry won **contracts for telecommunication equipment** (exchanges, cable and line equipment, tools, etc.) to the value of 876.5 million francs, which is 141 million more than in the previous year.