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Transmission of Frequency-modulated IF Signals over Coaxial Cable between Microwave Station and Relay

R. Vallotton, Berne

If, for geographical reasons, a line-of-sight path cannot be established between two neighbouring microwave stations, they are linked over a relay. In some cases a coaxial cable can be used for transmission between the relay and the near station. The problems associated with this type of link are outlined and illustrated by calculations and practical examples.

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Computer Output to Microfilm

M. Herzig, Berne

Efficiency, economy, large storage density and easy handling are some of COM's advantages over conventional printed output. In addition, it provides an alternative to a number of expensive real-time applications. Types and sizes of film, methods of retrieval and technical equipment are described. Two examples of COM application (one by Swiss PTT) are given.

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Alarm Systems in PTT Buildings

E. Montandon, Berne

The article deals with the alarm processing, transmission and signalling requirements in large PTT buildings. The planning, installation and main technical characteristics of a relay-controlled system are described.

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Reduction Factor Measuring Apparatus

P. Benoît, Cortaillod

The automatic measuring apparatus described consists of a 2 kVA generator operating in the 11-3500 Hz range, a control unit, a loop simulating earth induction, and a ratiometer indicating the logarithm of the real effective input voltages. The proposed measuring method is compared with current procedures. Further applications, such as measurements of induced voltages on telecommunication lines, are briefly outlined.

News Items

Posts

Swiss PTT has purchased 1,500 plastic letter boxes of a new, uniform design, which is to replace the seven types used up to now. As a result of its corrosion resistance and lower price, a saving of 160,000 francs per year will be achieved in future.

Telephone

Overvoltage arresters of a new type, used in place of carbon arresters on **overhead connections** at cable junctions, result in yearly net savings of 635,000 francs for PTT. By the end of 1974, 200,000 subscribers' lines out of a total of 550,000 were equipped with the new device.

By the end of 1974 **international subscriber dialling**, whose beginnings go back to 1968, accounted for 87.4 per cent of international calls and was accessible to 82.5 per cent of all main stations. A saving of 241 million francs was achieved up to the end of 1973, mainly thanks to the fact that the number of operators could be reduced by 3,000.

On the **4 GHz microwave link Berne-Geneva** carrying 1,800 voice channels, which came into operation last April, newly developed **4 GHz space double reception equipment** has been installed. **New transmitter-receiver equipment in the 6.8 GHz band** has been placed in service on the stations of **Mt-Pèlerin, Ravoire and Savièse** for the **1,800-channel microwave link Lausanne-Savièse (-Sion)**. In the new multi-purpose facility at Ravoire **parabolic horn antennas** are being used for the first time in the Swiss microwave system.

At the end of May the **25th mobile telephone exchange** was delivered. It will be placed in service at Embrach (canton Zurich).

At the beginning of April a new **automatic exchange for 3-digit-number service calls** came into operation in **St. Gallen**.

In the first quarter of 1975 the **number of telephone mainstations** increased by 20,016 (1974: 31,147) to 2,410,868, that of **telephone sets** by 37,763 (1974: 56,227) to 3,828,114. During the same period, facilities for 30,500 additional subscribers were made available in new exchanges and extensions.

At the end of 1974 the **Swiss telephone network** comprised a total of 174,049 inter-exchange and trunk lines, 11,437 lines more

than a year earlier. This total was made up of 67,796 (39%) interexchange lines, 62,836 (36%) junction lines, 36,635 (21%) trunk lines, and 6,782 (4%) international lines.

Telegraph, Telex

Since the end of March **two manual circuits** have been in operation between **Zurich and Casablanca**. Via these circuits the international position in Zurich sets up calls to telex subscribers in Morocco who are not yet connected to automatic exchanges.

In the first quarter of 1975 the **number of telex subscribers** increased by 440 (1974: 560) to 21,244. This amounts to a 21.4% reduction of the growth rate as compared with the previous year. The reduction is mainly due to an increased number of cancellations.

In March Swiss PTT purchased the 3000th modem for data transmission.

Radio, Television

The 1,562 kHz (=192 meter) **vertical radiation transmitting station** of Beromünster has been **replaced by the new Sarnen station**, whose air-time has been fixed anew for 1 May. Outside the hours 08.00-18.00, when no broadcasts are possible, its air-time corresponds to that of the German Swiss Broadcasting Service (first program).

PTT has developed a plastic axial thrust bearing used in open terrain for plotting **calibration and error curves of the testing van with built-in direction finders**.

Miscellaneous

The **disastrous snowfalls** at the beginning of April had their **impact on the telephone system** as well as on the **radio and television services**, particularly in the Grisons and Uri cantons. In the Grisons some aerial cable installations were damaged. Owing to the failure of the mains supply, several telephone exchanges had to be powered from batteries recharged by emergency generating sets, some of which were taken to the site on board helicopters. Mains failures caused radio and television programme interruptions in the service areas of some television transposers and VHF radio transmitters (the stations of Morissen, Camuns, Vals, Splügen, Piz Lagalb and Ca d'Faret in the Grisons, and Andermatt, Gurtellen, Göschenen, Nät-schen in Uri canton).