

**Zeitschrift:** Technische Mitteilungen / Schweizerische Post-, Telefon- und Telegrafienbetriebe = Bulletin technique / Entreprise des postes, téléphones et télégraphes suisses = Bollettino tecnico / Azienda delle poste, dei telefoni e dei telegrafi svizzeri

**Herausgeber:** Schweizerische Post-, Telefon- und Telegrafienbetriebe

**Band:** 52 (1974)

**Heft:** 2

**Rubrik:** Summaries and notices

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## Summaries

p. 44...46

### **Gas Leaking Into Underground Telecommunication Cable Systems**

M. Wüthrich, Berne

The author first describes a number of accidents caused over the last few years by gas leaking into underground telecommunication plant. He then outlines the gas-pipe system and the technical faults leading to gas leaks. The third chapter deals with the composition and properties of gas used in Swiss towns. This is followed by a description of protective measures such as training of staff, cooperation with gas works, installation and use of alarms, measuring equipment and ventilation systems. The costs and legal aspects are also commented on briefly. The decreasing number of gas accidents illustrates the success of the applied measures.

p. 47...51

### **Development of a Microwave Broadband Matching Network and its Application in a Waveguide Directional Coupler**

Chr. Staeger Berne

A new principle of a broadband matching network in waveguide and other transmission line circuits is described which, similar to the well-known quarterwave structure, can be used for transformer, coupler and other multistructure applications. In the new structure the distance between succeeding impedance steps or coupling holes is much smaller than a quarter of a wavelength.

Maintaining the same coupling function or overall impedance transform ratio, this results in a greater number of steps or holes and lower single step reflections. The overall performance is therefore considerably improved. As an illustrative example a waveguide directional coupler using the new network principle is described.

p. 52...57

### **Keypad Dialling with the Swiss PTT Model 70 Telephone**

B. Nuoffer, Solothurn

The model 70 telephone set will be available in three versions: conventional dial-type station, multi-frequency keyphone, and keyphone with built-in storage and loop-

pulse retransmission facility for working to conventional exchanges. The author gives the reasons for introducing keypad dialling in Switzerland and briefly outlines currently used systems, before entering into details of the circuitry and application of the two model 70 keyphones.

## News Items

### Telephone

In the last quarter of 1973, **International Subscriber Dialling** was made available in 27 local exchanges accommodating 35,000 subscribers. Of the 51 Swiss network groups, 13 are now ISD equipped throughout.

In 1973, Swiss PTT paid **10.5 million francs** for the **lease of European transit lines** (1 million kilometres) as well as **overseas cable and satellite circuits**.

The **satellite circuits between Switzerland and the USA** were increased by 6 in December 1973. Swiss PTT now operates a total of 77 direct cable, 124 satellite and 19 radiotelephone circuits to **overseas countries**. An additional 37 circuits will become available over the CANTAT 2 cable in 1974.

Switzerland's largest and most modern **telecommunications power supply** has come into operation at the **Leuk (Valais) satellite earth station**.

**Communication facilities between Switzerland and Italy** are to be improved by increased use of the Martigny-Aosta coaxial cable, construction of two Lugano-Milan microwave systems and conversion of the existing Lugano-Milan coaxial cable from 4 to 12 MHz working.

### Telegraphs, Telex

A number of little-used **service indications for inland and international telegrams** were discontinued on 1 January.

On 15 January, Radio-Suisse Ltd opened **telex service to ships at sea**.

For the about 1000 journalists, radio and television reporters covering the first round of the **Middle East peace talks**, which opened in Geneva on 21 December, Swiss PTT provided an extra 50 telephone, 20 telex and 3 picture booths at the call offices of the United Nations building and the new inter-

national conference centre. In addition, temporary telex connections were made available to 14 news agencies and many private organizations at short notice. Up to 50 technicians were engaged in the installation and testing of equipment and lines before 16 December. At the call offices of the conference buildings, up to 25 experienced multi-lingual telephone and telegraph operators were on duty. Besides a substantial number of temporary international cable, satellite and shortwave circuits for the telecommunication services, cable and microwave links were provided for radio and television.

### Radio, Television

In December 1973, **new TV transmitters and transposers** were installed in 15 different locations. The Swiss network now comprises 305 stations with 516 transmitters and transposers providing 99%, 74% and 65% coverage respectively for the three national networks.

Following Swissair, Balair and Phoenix Airways of Basle, three more companies, African Safari Airways of Basle, Austrian Airlines of Vienna, and Aero Leasing of Geneva, have joined the **Swiss PTT short-wave radiotelephone service for airlines**. This service was also able to assist KLM when one of their Boeing 737's was hijacked on a flight from Amsterdam to the Far East in November 1973.

### Miscellaneous

Swiss PTT is testing **two new parabolic horn antennas** whose directivity and transmission performance are expected to be better than those of the currently used standard parabolic aerials.

**CEPT and ESRO** have agreed on closer cooperation for the purpose of developing a **European telecommunications satellite**. Their common objective is to complete an experimental satellite (ESRO-OTS) by 1975 and bring it into orbit the year after. This satellite will operate in the 11 and 14 GHz band. The CEPT coordinating committee has also discussed the various projects for a marine satellite and decided to pursue the matter further, with a view to submitting proposals acceptable to all CEPT members in due course.

**Four Swiss PTT staff advertising films** won a silver medal at the **16th Film and Television Festival** held in New York in November 1973.