

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

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

**Band:** 55 (1977)

**Heft:** 3

**Rubrik:** Summaries and notices

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# Summaries and Notices

## Summaries

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### The AZ 44 Pay Station

P. Guyer, Berne

At the beginning of 1977, a new pay station will be introduced. In addition to the main specifications, the mechanical construction and functioning are described of this electronically controlled apparatus, which can be connected to any normal subscriber's line. The article ends with a glance at the easy operating procedure and the installation of this apparatus of modern design.

p. 127...131

### The New Multipurpose Installation on Ulmizberg

W. Weibel, Berne

The Ulmizberg multipurpose installation serves first of all as a relay station for microwave links. The requirements resulting from this and the additional demand for flexibility as well as ease of installing equipments of other services have determined the design of the structure.

p.132...139

### Teaching Material Used by Swiss PTT for the Training of Telecommunication Personnel

A. Gachet, Berne

The PTT attaches great importance to training and continued education at all levels. It produces its own teaching material, which is tailored to the specific needs of the various services and staff categories. An outline is given of the material and aids used for the training of telecommunication personnel.

p. 140...144

### Progress in the 35...90 GHz Region of the Millimeter Wave Band

A. Troost, Ulm/Donau (BRD)

Since the successful reproduction of the Gunn-effect in semiconductor technology, it has been possible to make use of certain interrelations between fieldstrength and electron mobility to produce oscillations in the centimeter and millimeter wavelength regions. This prompted AEG-Telefunken some years ago to undertake a fundamental study of the millimeter wave technique and its range of application. The article discusses certain aspects of research and some applications, one of which - a distance warning radar - is used to examine the problems encountered in practice.

## News Items

### Posts

In 1976 the **Giro Service's computing centre** processed over 22.8 million **OCR vouchers**, which is 8 million or 55 pc more than in 1975.

Some 1180 letters addressed to **Santa Claus** or **Father Christmas** arrived at Swiss post offices last year. Replies were sent to some 900 children at home and abroad.

### Telephone

By dividing the **Swiss telephone directory** into 18 volumes instead of the former 10, it has been possible to reduce **production costs** by 24 pc to 5.50 francs a volume.

Directory volume No 8 (German-speaking parts of Canton Bern), scheduled for publication in May, will be the first to use a **standard entry for local, recorded tourist information and reports on skiing conditions**. A reference to the new service will be found on the blue pages of the directory.

In January, two direct **satellite circuits** were opened between Zurich and **Hong Kong**. At the same time, a second circuit was made available to **Riyadh** (Saudi Arabia) via Plemeur-Bodou, and a third circuit to **Singapore** via Raisting.

With a **telephone penetration** of 61.09 for 100 population at the beginning of 1976, Switzerland remained third behind the USA (69.49) and Sweden (66.07).

**International subscriber dialling** has been extended to **Yverdon** subscribers and is now available from 26 of Switzerland's 51 network groups.

In 1976, **telephone main stations** increased by 61,189 to 2,523,198, and the number of **sets** rose by 103,351 to 4,016,322. Customers on the waiting list dropped by 4110 to 6197. Telephone density at the end of December was 39.8 main stations and 63.4 sets for 100 population.

The **microwave telephone network** was last year extended by 21 links, increasing its overall length by 918 to 10,244 km of wideband circuit, or by 513,000 to 3,372,540 km of voice channel.

In 1976, **satellite circuits via Leuk earth station** increased by 48 to 173. They were operated to Brazil (5), Iran (10), Israel (12), Canada (20), Mexico (5), South Africa (7), Sudan (2), USA (112).

**Eighty tours of Leuk satellite earth station** were arranged for **1924 visitors** last year (97 for 1917 visitors in 1975). These figures do not include visitors to the exhibition pavilion.

### Telegraph, Telex

Since 1 February **automatic telegram transmission** has been available over a point-to-point circuit between computer systems **ATECO (Switzerland)** and **TAURA (Radio-Austria)**

**Telex stations** increased by 1665 to 24,079 last year. Cancellations were up by 37 on 1975 (1025). Telex penetration rose from 35 to 38 for 10,000 population.

**Leased circuits** totalled 1813 at the end of 1976 (1975: 1603). Teleprinter channels accounted for 53 pc and voice circuits for 47 pc. **Modems** for data transmission rose by 31 pc to 5755; of these, 44.4 pc were used on the public switched telephone network and 55.6 pc on leased lines.

To compensate for a shortage of trunk cable facilities, 12 **microwave links** totalling 492 km of wideband circuit, or 29,520 km of voice channel, were made available for **data communication** for the first time last year.

### Radio, Television

In 1976, **radio broadcast receiving licences** increased by 32,280 (1.6 pc) to 2,107,854, and **television licences** went up by 49,913 (2.8 pc) to 1,809,029. Growth in 1975 had been 39,143 and 44,780 respectively. The number of licences per 1000 population was 333 for radio and 286 for television. **Wire broadcast receiving licences** dropped by 1309 to 418,252.

The **microwave network for television** was extended by 9 links, increasing its overall length by 178 to 13,730 km of wideband channel.

A microwave link supplying television programmes Austria I and II to **CATV systems** has been opened between Ulmizberg and Weissenstein.

### Miscellaneous

In 1976 the number of **PTT staff** dropped by 627 to 50,164.

PTT employees put forward 637 (336) **suggestions** last year. Those adopted will result in annual net savings of about 241,000 (170,000) francs.