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## Summaries

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### Data communications protocols: Principles and definitions

J.-J. Jaquier, Berne

The article deals with the concept of data communications protocol. The relationships between interfaces and protocols are explained as well as the possible system structure (concatenated circuit, hierarchical nesting), the end-to-end flow control, the flow of information exchange in a hierarchical protocol structure.

p. 120...137

### Digital coding of speech and music signals and their qualitative assessment by computer

R. Mury, Berne

In a concise form the article presents a general view of the essential processing technique for digital compression of speech and music signals. It refers to the speech synthesis that can be used in the automatization of the PTT's customer information service. Also, a brief description is presented concerning the basic concepts of coding methods most often used in telecommunications. Then, an outline is given of the hardware and software structures on which this study of signal compression algorithms is based. The article concludes with a partial description of specifications for subjective tests and the conditions of recording, processing and listening to the qualitative assessment of speech samples.

p. 138...143

### Teletex/Telex converter

W. Schmutz, Berne

The teletex/telex converter is an important element for the proper development of the new teletex service. This allows connection with all other telex subscribers. The Swiss Teletex customers can now reach 1.3 million communication partners worldwide. Telex like teletex is the transmission of texts. The character set of telex is a subset of the teletex. The converter adapts to codes, speeds and procedures such that the subscribers can carry on their normal operation.

## News Items

### Telephone

**More than 70 pc or 2.75 million telephone directories** were returned last year to the recycling centres by the subscribers. This amounted to 1900 tons of old paper. With this money the campaign for radio and television bought 225 television sets and 30 radios as well as 6 video recorders for needy invalids, old people, homes and schools.

At the end of 1985, the **subscriber lines** increased by 92 625 to 3 277 026 and the **telephone stations** by 166 125 to 5 435 820. This corresponds to 504 subscriber lines and 836 telephone stations per 1000 inhabitants (based on 6.505 million Swiss population).

In 1985, the local **subscriber line** was extended by 384 344 wire-pair km and the **junction line** by 18 101 wire-pair km. The installed **coaxial cable** went up to a conduit run of 2010 km and the **glass fibre cable** of 1582 fibre km. Switzerland was connected with 18 641 telephone circuits to **foreign countries**, of which 1887 to overseas.

At the end of 1985, **1000 satellite circuits** – 83 more than the previous year – were connected permanently via Leuk earth station to 52 extra-European countries. 18 permanent circuits were still maintained via foreign earth stations.

### Teleinformatics

Since 20 January, the public **bureaufax service** has been opened to **Peru** via telephone network with Lima. The service was extended from 52 to 58 countries and transmitted 246 000 A4-sized pages in 1985. Also, the private **telex service** was available to 1355 subscribers (1984: 851) with 277 lines (1984: 210).

At the end of last year, the number of **telex lines** amounted to 39 011. About 61 pc of the lines were connected to electronic exchanges and 67 pc of the subscribers were equipped with the **electronic telex terminal SP 300**. The **density of telex lines** went up to 600 (1984: 577) per 100 000 inhabitants.

In 1985, the **automatic message switching system (SAM)** connected 48 customer networks with 5444 terminals. The system processed over 14.3 million messages.

At the end of 1985, the number of **leased circuits** on trunk routes consisted of 5654 for data transmission. The number of **data terminals** increased by 23.8 pc and that of leased circuits by 15.1 pc in the switched telephone network during this time. 1770 subscribers were connected with **Telepac** (national packet switching) data network.

At the operational trial of **videotex**, 2856 subscribers took part in the last year. 216 information providers and 22 external data banks supported this service.

### Radio, Television

The **television studio of the Swiss Broadcasting Corporation** for the German and Raeto-Romansch speaking region received a new mobile 2-inch magnetic videorecorder. This is equipped with an additional electronic editing set which allows direct transmission from the place of the happenings.

At the **Hoher Kasten** multipurpose station, a **second VHF simplex relay network** came into operation for radiophone service between fixed and mobile stations during the month of January. This is not connected to the public telephone network.

The pilot trial with the **digital local paging system B** has been started in Lausanne, Basel, Zurich, Lucerne, Winterthur, Grindelwald and Davos. The regular operational service is expected to commence on 1 May 1986. Already, this service was opened in Zurich and Berne on 15 January 1982.

**Radio receiver licenses** amounted to 379 (1984: 373), **television receiver licenses** to 336 (1984: 330), and **wire broadcasting licenses** to 54 per 1000 inhabitants in 1985.

### Miscellaneous

The PTT ordered **telecommunications equipment** worth around 1640 million francs last year.