

# Summaries and notices

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## Summaries

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### The PTT's approach to the realization of the CCITT signalling system No 7

R. Hugli, Berne

The author provides an insight to the possibilities and the functional aspects of the signalling system No 7. This was worked out by the CCITT for the utilization with exchanges of modern telecommunication networks. The article shows further the current efforts for international standardization as well as the status of the introduction at the Swiss PTT. The article serves mainly to offer a broad view on the new and the future strategic area. A detailed description of the individual aspects will follow in future articles.

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### The system 12: A digital telecommunication exchange for Switzerland

R. Metzger, Zürich

System 12 is a digital exchange that meets the requirements of all types and sizes of exchanges. The system architecture is based on systematic modular structure with distributed control. This architecture allows the employment of very large scale integrated circuits and modern software technology. Extension and new performance, such as ISDN, can be realized by the introduction of the corresponding module. Operation and maintenance are conducted with video terminal which can be placed locally or at the operational centre. The article describes the essential characteristics of the system.

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### The new generation of MXC.2-multiplex equipment for telegraph lines

F. Kocher, Berne

The data multiplexer C for 50 bit/s to 300 bit/s has been employed in Switzerland since 1979. About 1200 multiplexers of the first generation were delivered till 1985 by the two suppliers. Since spring 1986 the multiplexers of the second generation have been utilized. They are newly designed or adapted to the latest technical know-how. This led to a price reduction of around 50 pc. It is now economical to use the MXC even on shorter paths. Siemens has newly developed or partly adapted the existing MXC.1. Zellweger offers a newly developed equipment.

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### Multipath propagation in hilly regions

W. E. Debrunner, Berne

The planning of broadband radio systems requires the consideration of distortions due to multipath propagation. It has been shown that the occurrence of relevant multipath propagation depends on the topography and on the near environment of

the receiver. Results carried out in hilly regions are shown. Observations within the city are in good agreement with the data given by Cox and Leck. At sites with an unhindered view to scattering hills however, Delay Spreads  $S$  exceeding 10  $\mu$ s have been measured. The observed delay profiles depend considerably on the topography and on the near surroundings of the receiver and differ quantitatively and qualitatively from site to site.

## News Items

### Telephone

At the end of 1986, the **subscriber lines** increased by **104 466** to 3 381 492 and the **telephone stations** by **187 156** to 5 622 976. This corresponds to **517 subscriber lines and 860 telephone stations per 1000 inhabitants**.

In 1986, the **subscriber line** was extended by 407 193 wire-pair km and the **junction line** by 18 513 wire-pair km. The installed mini-coaxial cable went up to a conduit run of 765 km and the glass fibre cable of 2258 fibre-km. The **trunk line** was elongated to a conduit run of 146 km and of 1569 fibre-km.

As **cadmium is very harmful to the environment**, the PTT decided to abandon the use of **copper wire** alloyed with cadmium. The experiment shows that the telephone wire made of **pure copper** has similar resistivity.

The post offices providing **bureaufax service** (public facsimile service) transmitted 428 000 A4-sized pages last year (1985: 246 000 pages). This service was extended to 61 countries (1985: 58).

At present, the **telex service** is available to 13 000 subscribers. About one-third of them are leased from the PTT.

The **public telephone centres** served by the operator will be equipped with **telex terminal** for private use from April onwards.

### Teleinformatics

At the end of last year, the number of **telex lines** amounted to **40 129**, which was 1118 more than in the previous year. The density of telex lines was 614 (1985: 600) per 100 000 inhabitants. 72 pc of the lines were connected to the electronic exchanges. More than 30 000 subscribers were equipped with electronic telex terminal SP 300 and 300 subscribers to PACT 250 (with video display unit).

At the end of 1986, the number of **leased circuits** on trunk routes consisted of **6463**, of which 917 in Europe or in overseas (+7.1 pc) and 5546 (+15.5 pc) in inland for data transmission. The **data terminals** increased by 24 pc to **18 700** in the switched telephone network.

3110 subscriber lines were connected to the **Telepac** (packet switching data network) at the end of last year.

Before the official introduction, the **Videotex service** counted 4187 subscribers as information users and 275 information providers with 32 data banks at the end of year.

### Radio, Television

**6 VHF/FM radio transmitters** came into operation at Biel-Magglingen, Feschel (Wallis) and Les Diablerets.

**TV programme reception via satellites** is already well established in Switzerland with 140 antennas in operation and 150 approved. More than 90 pc of all equipment serves over 800 CATV networks with 1.1 million subscribers. 785 networks receive «Sky Channel», 703 «RAI uno», 649 «Music Box», 160 «TV 5», 116 «3-SAT» and 421 «Teleclub» (Pay TV) programmes.

### Miscellaneous

The PTT ordered in 1986 **telecommunication equipment worth around 2205 million Swiss francs** which is 365 million francs more than in the previous year.

The number of subscribers to **radio broadcasting programmes via telephone lines** dropped by 11 767 to 360 677 in 1986. Still about 5 pc of the population keep subscribing to this service.

This year's winter sport events proved that more and more **journalists** prefer **portable electronic text processing equipment** for their reporting. They transmit their text directly by acoustic couplers on the **public telephone network** to telex or telefax terminals.