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Title: **Clarifications on V.18 & Possible future evolutions of GTT/CTM**

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1. Introduction

The ITU-T SG16 has developed the V.18 standard that gathers pre-existing regional standards and technologies used by PSTN terminals in Text Telephone Mode. It tries to unify these different solutions in a common framework. This will facilitate the interworking of these old-fashioned terminals with the evolving world of nowadays telecommunication which more and more involves text communications.

The 5-bit or Baudot standard is one of the text telephone type included in the V18 standard.

It has been several times argued that in the future it may be required in the context of GTT to support the other types. In this contribution we try to see how much this is compatible with the CTM standard that has been adopted by the 3GPP.

2. Brief overview of V.18

The text telephone types supported by this recommendation are EDT, 5-bit or Baudot, DTMF, V.21, V.23, Bell 103 and V.18-based devices.

EDT uses the V.21 frequency shift-keyed modulation. The data signalling rate is 110 bits/s.

5-bit or Baudot use a frequency shift-keyed modulation. The data signalling rate is 45.45 bits/s in North America and 50 in the rest of the world.

DTMF is used by few terminals for transmitting text. A table is provided in the V.18 for the coding of the characters using the DTMF tones.

V.21 is a modem working in duplex at 300 bits/s.

V.23 is a 600/1200 baud modem. It is used by the Minitel for example with a 1200 bit/s forward channel and a 75 bit/s backward channel.

Bell 103 defines a duplex communication circuit whereby data transmission in both directions simultaneously is possible at 300 bit/s.

3. CTM & compatibility with V.18 text telephone types

The CTM (Cellular Text Modem) adopted by the 3GPP offers a 80 bits/s net signalling rate. It is used over a voice path.

CTM includes, at the moment, the detection and decoding of Baudot, the conversion of the 5-bit characters to ISO 10 646-1 UTF-8.

Due to its 80 bits/s signalling rate it is clear that the CTM standard cannot be used with EDT, V.21, V.23 and Bell 103. Regarding V.21 and V.23, they are used for data communications only, there's no possible speech/data mix.

Therefore the only standards that can be considered are DTMF & Baudot. The EFR and AMR, as shown during their respective characterisations, are transparent to DTMF. Furthermore the terminals using DTMF to transmit text have almost disappeared and no new models have been released for years.

It appears that the only text telephone type that needs some effort is the so-called TTY terminals that are quite popular in certain regions of the world. The baud rate distinction, if required, can be based on the national location of the PLMN.

4. Conclusion

The CTM standard can be used with Baudot terminals. No other need has been identified.