

**Recommendation T/CS 34-15 (Cannes 1983)****TEXT TELEPHONE**

Recommendation proposed by Working Group T/WG 11 "Switching and Signalling" (CS)

*Text of the Recommendation adopted by the "Telecommunications" Commission:*

"The European Conference of Postal and Telecommunications Administrations,

*considering*

- that there is a need for telecommunication equipment to be used by severely hard-of-hearing or speech-retarded people;
- that new technologies opened up different possibilities to communicate via the public switched network;
- that there are different signalling system possibilities already standardised;
- that to minimise the variation of telecommunications equipments to appear on the market, two methods of communication are recommended, the first based on CCITT Recommendation V.21 [1], the second based on MFPB according to Recommendation T/CS 46-02 [2];
- that in cases where CCITT Recommendation V.21 [1] is used no further standardisation is necessary;
- that the text telephone should allow telecommunication within Europe over normal switched international connections,

*recommends*

that members use the following technical specifications when introducing Text Telephones with MFPB signalling."

1. **GENERAL**

This specification contains the requirements for a text telephone system based on MFPB signalling. Because MFPB signals are related to the digits 0-9, ★ and #, signal combinations (codes) are used to represent alpha numeric characters and punctuation. This system makes use of text telephone mainly consisting of a simplified keyboard and a display. The text telephone can be a separate unit together with a normal telephone set, or a combined equipment with both functions in it.

Two versions can be distinguished:

*A basic set*

A basic set contains an MFPB receiver and a display for alphanumeric characters.

*An extended set*

An extended set is a basic set plus an alphanumeric keyboard which initiates sending of MFPB signals. Both communication between text telephones, and between a normal MFPB telephone and a text telephone are foreseen.

In the case of communication from a normal MFPB set to a text telephone, code combinations must be dialled separately. Therefore this way of communication is a restricted one, but useful to extend the possibilities of the retarded user of a text telephone to communicate with the majority of non-ear-retarded people using normal MFPB sets.

Paragraph 2. of this recommendation deals with the coding principles under two headings, paragraph 2.1. giving the basic coding set to be used from a standard MFPB telephone set and paragraph 2.2. giving an extended one that can be used between two text telephones.

2. CODING PRINCIPLES

2.1. Basic coding

Figure 1 (T/CS 34-15) gives the coding list for the basic coding.

Prefix	★		#	★ #	# ★
Figure					
1	a	b	c	1	nat
2	d	e	f	2	nat
3	g	h	i	3	nat
4	j	k	l	4	nat
5	m	n	o	5	nat
6	p	q	r	6	nat
7	s	t	u	7	nat
8	v	w	x	8	nat
9	y	z	.	9	nat
0	Cor	space	?	0	no meaning

Figure 1 (T/CS 34-15).

On each button of the set three characters of the alphabet are placed, from left to right from top to bottom. Figure 2 (T/CS 34-15) gives the basic lay-out.

To point to the wanted character a prefix is used. The left handed character must be preceded by code ★, the right handed by code #. The character in the middle is dialled by activating the respective button only. The four places left unmarked on keys 9 and 0 are used for punctuation and control functions.

★ and # have a unique meaning as prefixes.

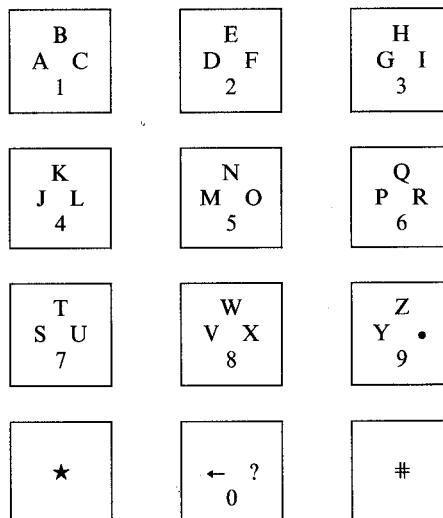


Figure 2 (T/CS 34-15).

Because the use of the figures 0-9 in normal conversation is relatively small, the ★# combination is used as prefix for digits. In this way a minimum number of typings can be achieved.

Diacritical symbols can be chosen by national administrations in the series with prefix #★. These symbols can e.g. be placed at the bottom of the push button.

Every country can specify national messages that can be sent with the prefix #★.

## 2.2. Extended coding

Figure 3 (T/CS 34-15) gives a full coding list of the extended coding including the basic coding already defined in 2.1.

Prefix	★		#	★ #	# ★	★★	# # ★	# #	# # #
Figure									
1	a	b	c	1	nat	+	A	B	C
2	d	e	f	2	nat	—	D	E	F
3	g	h	i	3	nat	=	G	H	I
4	j	k	l	4	nat	:	J	K	L
5	m	n	o	5	nat	%	M	N	O
6	p	q	r	6	nat	(	P	Q	R
7	s	t	u	7	nat	)	S	T	U
8	v	w	x	8	nat	,	V	W	X
9	y	z	•	9	nat	LF	Y	Z	;
0	cor	space	?	0	no meaning			space	!

Figure 3 (T/CS 34-15).

- The prefix ★★ is used for extra characters and the extra control character, line feed.
- If the designer or the national administration wishes to use small characters and capitals together, three symbol prefixes have to be used for capitals in the sense that # # is added to the basic prefix. This gives also room for some extra characters. These prefixes are derived by inserting # # before the prefixes for the basic coding.

When only one character-type is used, the basic set may be interpreted as capitals.

## 2.3. Erasure procedures

If the user has typed a wrong character he can rub this out by typing ★ 0,

e.g. ★1 # 1 | ★ 0 | becomes ★1

The user can also decide during the typing of the character to rub out already typed prefixes (or part of prefixes), e.g.

★ 1 ★ # 1 ★ 0  
or ★ 1 ★ # ★ 0  
or ★ 1 ★ 1 ★ 0  
or ★ 1 # ★ 1 ★ 0  
or ★ 1 # 1 ★ 0

This means that codes ending with ★ 0 cannot be used.

The correction procedure after reception of a ★ 0 is as follows:

- Look for the symbol received before the ★ 0.
- If this is a figure symbol, then erase last code combination to which this figure symbol belongs.
- If this is not a figure, then rub out all ★'s and #'s until last figure symbol.

On reception of a series of ★'s and #'s that has no defined meaning, the longest prefix followed by a figure may be interpreted as a valid character. The other prefix elements are to be deleted.

## 2.4. Interpretation of short codes as whole messages

It seems practical to use some short codes to be interpreted as whole messages.

When messages are needed, 3 symbol prefixes must be used, beginning with ★★. It is possible to standardize 19 messages. When more messages are needed, 4 symbol prefixes must be used.

*Note:* Whether or not international standardisation is necessary, is for further study.

Figure 4 (T/CS 34-15) gives examples of how the codes can be used.

These examples are only intended to be a guide.

*Examples of short codes for messages are:*

Remarks—answers

- ★ ★ # 1: Hello—this is a call from:
- ★ ★ # 2: Please repeat last message.
- ★ ★ # 3: I am ill.

Questions

- ★ ★ # 4: Can I come home to you?
- ★ ★ # 5: Can you come home to me?
- ★ ★ # 6: Have you understood what I said?
- ★ ★ # 7: Are you ill?
- ★ ★ # 8: Do you need help from me?
- 0: Can you help me?

Others

- ★ ★ # 9: I will call you later.
- ★ ★ ★ 1: Goodbye, I am breaking now.
- ★ ★ ★ 2: Up to ★ ★ ★ 9 inclusive: reserve.
- ★ ★ ★ 0: No meaning.

Figure 4 (T/CS 34-15).

### 3. MAIN FUNCTIONAL ELEMENTS

#### 3.1. Microphone switch

In the case of a connection to a text telephone the handset is not used for speech. Ambient noise can give disturbances in MFPB reception. Therefore it must be possible to switch off the microphone, or to insert an attenuation bringing the noise level to the value stated in Recommendation T/CS 46-02 [2].

The laying down of the handset must lead to disconnection.

#### 3.2. Display

During the exchange of text the symbols must be displayed without delay. It should be possible to display at least 40-alpha numeric characters at a time.

The legibility should be according to the SF Handbook [3].

#### 3.3. Key-board

The text may be typed in with an alpha numeric key-board with at least the following characters:

- a to z (26)
- 0 to 9 (10)
- • (full stop)
- ? (question mark)
- erasure/back space (correction last sign)
- space

#### 3.4. Tone detector

During set-up of the call an optical indication should be given related to audible tones on the line. No specific detection of tones is intended.

#### 3.5. Call-detector

The text telephone should give an optical indication of an incoming call.

### 4. TECHNICAL REQUIREMENTS

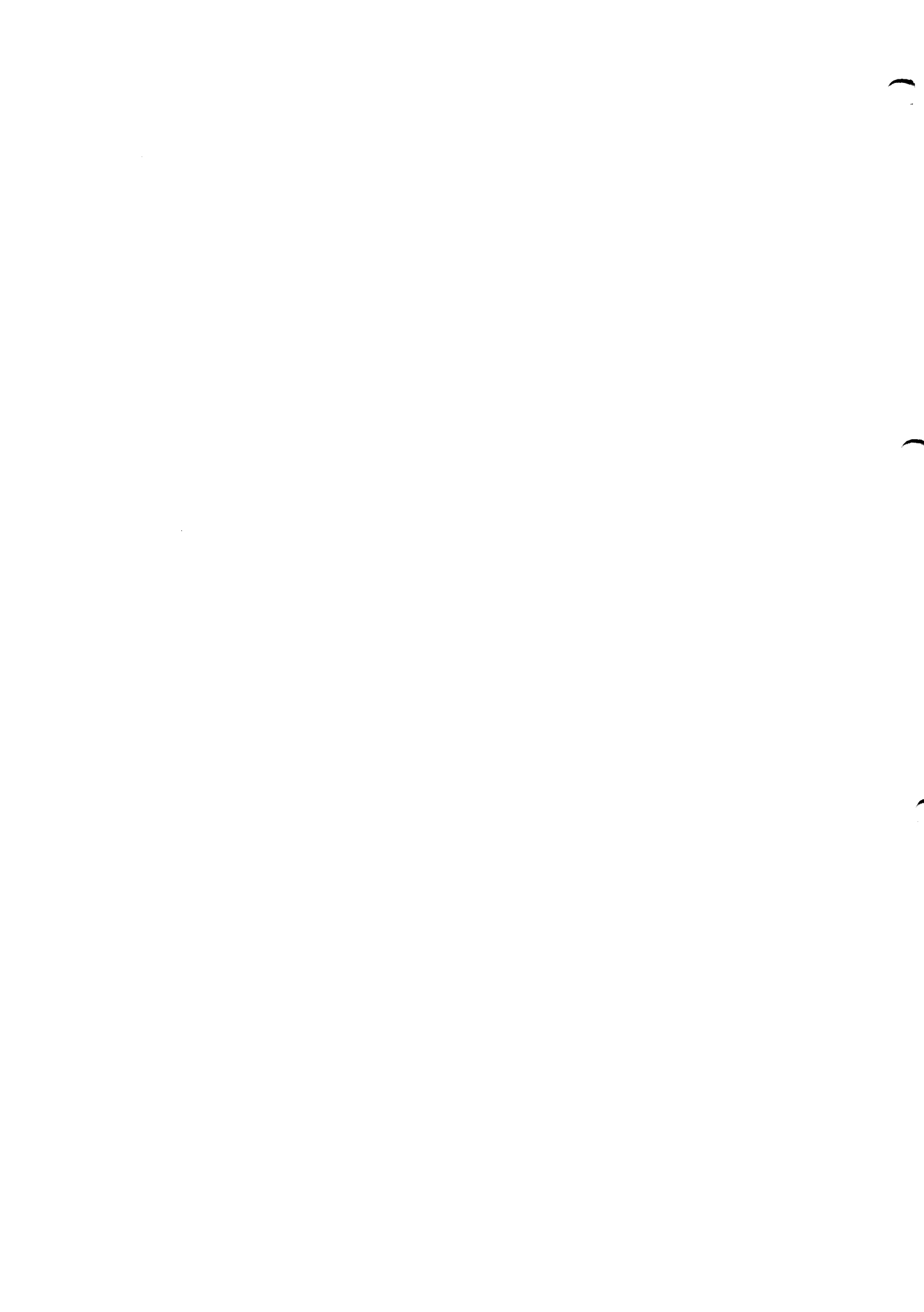
The following requirements should be met:

- The text telephone should satisfy Recommendation T/CS 30-02 [4], Technical requirements for privately owned equipment at subscribers premises.
- The underlying requirements should be fulfilled whether exceeding the recommendations of T/CS 30-02 [4] or replacing them.
- The sender is controlled by the keys on the key-board in the sense that the sender is only connected to the line during sending of tone codes.

- The MFPB receiver should fulfil the requirements of Recommendation T/CS 46-02 [2].
- The receiver should not interpret dial tones as valid characters. It is not required that the receiver will act on tone codes during dial tone.
- The text telephone should be able to send and receive with speeds according to what is recommended the recommendation on automatic sending devices, Recommendation T/CS 34-08 [5].
- If according to the wish of the designer, MFPB signals sent to the network for setting up a call are to be displayed, measures must be taken to prevent that the signals are interpreted as alphanumeric characters.
- During the sending of text it should be possible to receive MFPB signals of the partner (break in) during sending pauses between characters. It is not required that display will function properly in that case.

#### References

- [1] CCITT Recommendation V.21. *300 bits per second duplex modem standardized for use in the general switched telephone network.*
- [2] Recommendation T/CS 46-02. *Multifrequency signalling system to be used for push-button telephones.*
- [3] CEPT Handbook SF on services and facilities offered to the users in modern telephone systems.
- [4] Recommendation T/CS 30-02. *Technical requirements for privately owned equipment at subscriber premises connected to the public switched telephone network.*
- [5] Recommendation T/CS 34-08. *Automatic sender for push-button multifrequency signalling.*



## Recommandation T/CS 34-15 (adoptée en 1983)

### Information de la suite donnée

a = La Recommandation est appliquée.

b = L'application de la Recommandation est prévue.

c = L'application de la Recommandation n'est pas prévue.

N°	Pays	Infor- mation	Remarques
1	2	3	4
1	<i>Allemagne (Rép. féd. d')</i>		A l'étude.
2	<i>Autriche</i>	c	
3	<i>Belgique</i>	a	
4	<i>Chypre</i>		
5	<i>Danemark</i>		
6	<i>Espagne</i>		
7	<i>Finlande</i>		
8	<i>France</i>	c	
9	<i>Grèce</i>		
10	<i>Irlande</i>		
11	<i>Islande</i>		
12	<i>Italie</i>		
13	<i>Liechtenstein</i>		
14	<i>Luxembourg</i>		
15	<i>Malte</i>		
16	<i>Monaco</i>		
17	<i>Norvège</i>		
18	<i>Pays-Bas</i>		
19	<i>Portugal</i>		
20	<i>Royaume-Uni</i>		
21	<i>Saint-Marin</i>		
22	<i>Suède</i>	c	
23	<i>Suisse</i>	b	
24	<i>Turquie</i>		
25	<i>Vatican (Cité)</i>		
26	<i>Yougoslavie</i>	b	