

RECOMMENDATION: GSM 03.43

TITLE: TECHNICAL REALIZATION OF VIDEOTEX

DATE : JUNE 3, 1988

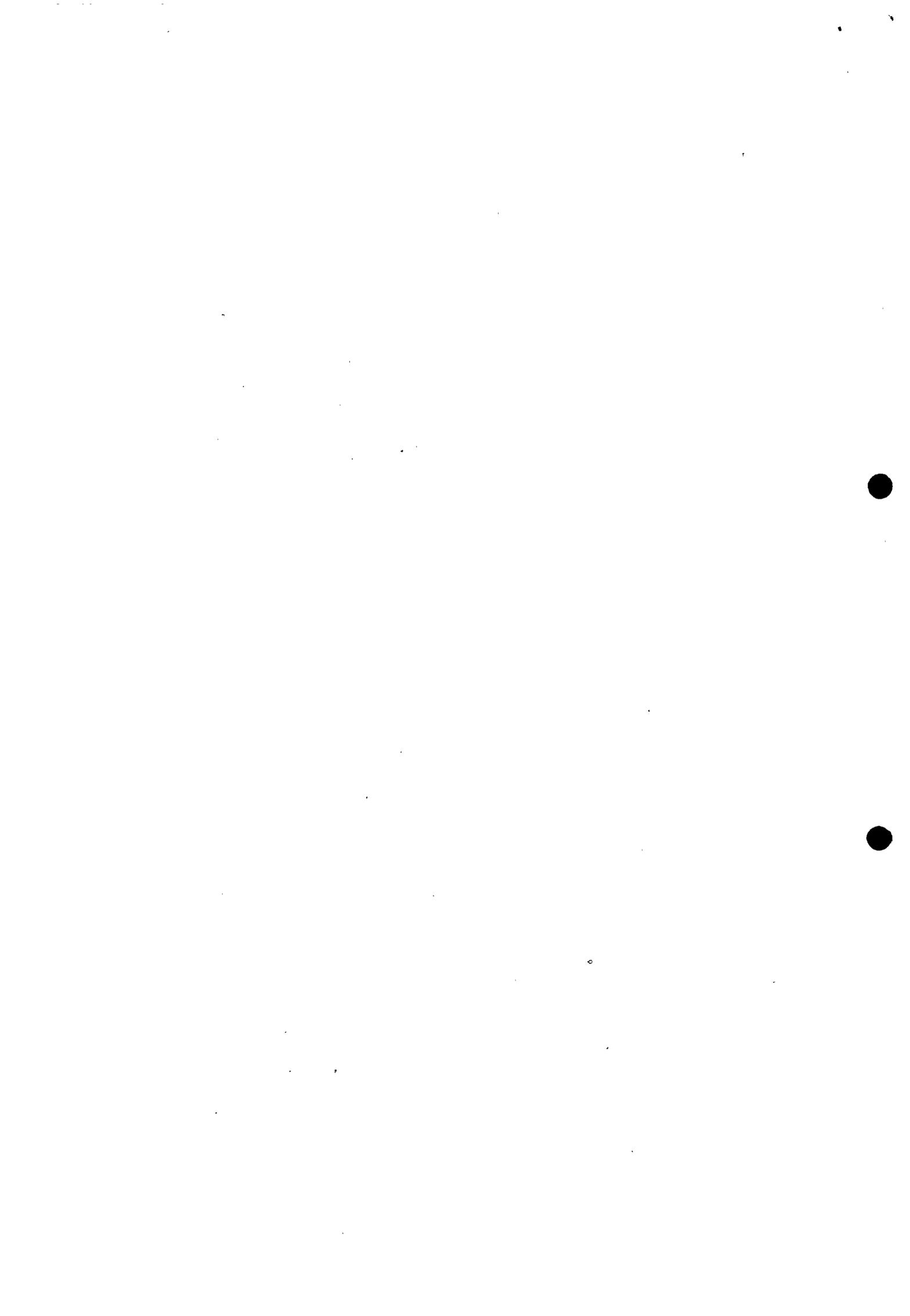
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## 0 SCOPE

This recommendation describes the technical realization of Videotex service within the GSM-PLMN network, taking into account the Teleservices 41, 42, 43 as specified in the GSM Rec 02.03.

It defines:

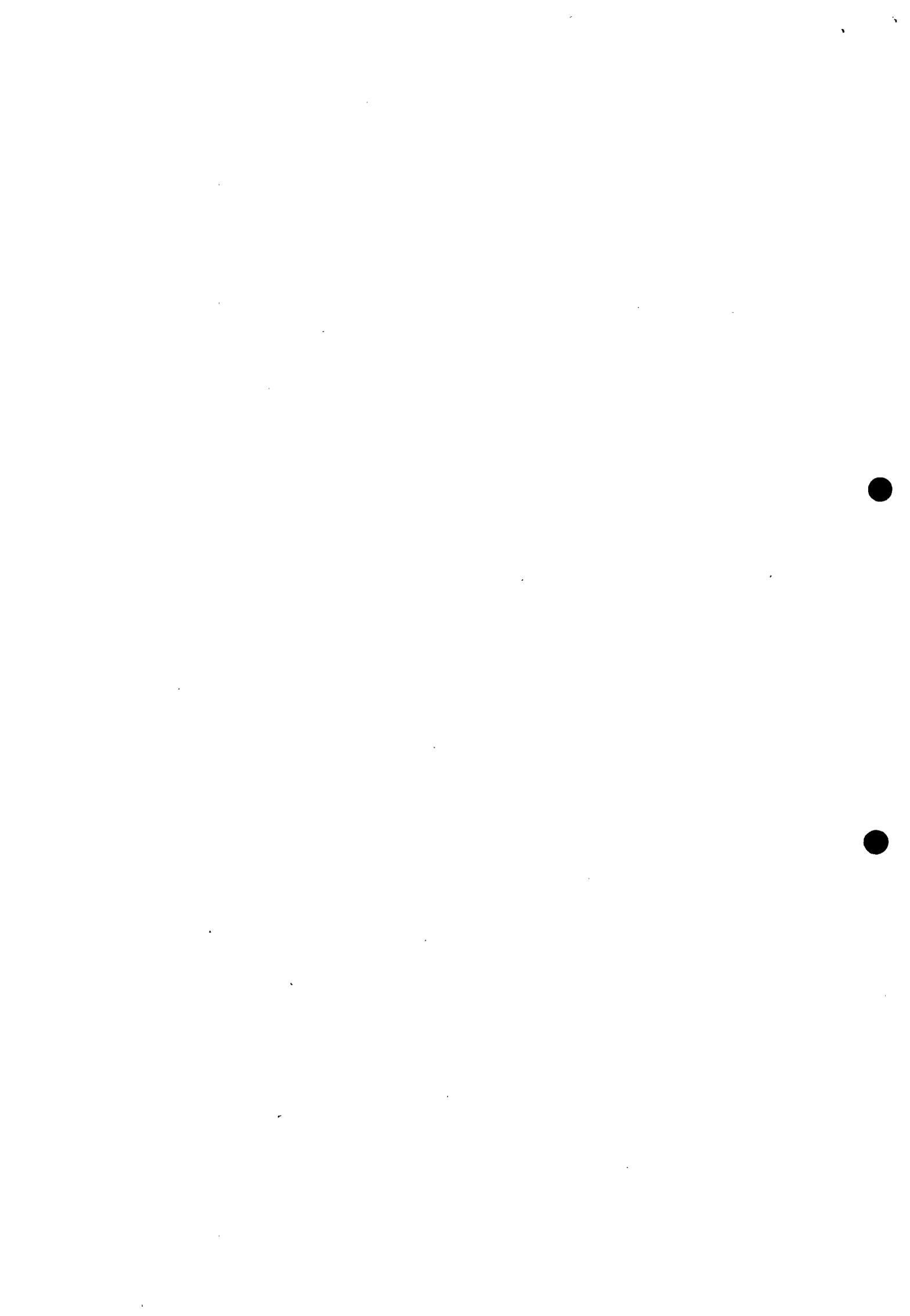
- the service and service elements
- the network architecture
- the reference configuration of the MS
- the signalling aspects
- the use of TAF
- the interworking with existing networks
- the support of roaming subscribers
- the access to foreign Videotex services
- the link layer protocol structure

## 1 SERVICE DEFINITION

The Videotex service is an interactive service that by means of proper access points and standardized procedures provide the access to computer-based information stored in data bases, utilizing public transmission networks.

The basic elements considered for the Videotex system are:

- the user terminal
- the telecommunication network
- the service access center (Videotex center)
- the data bases

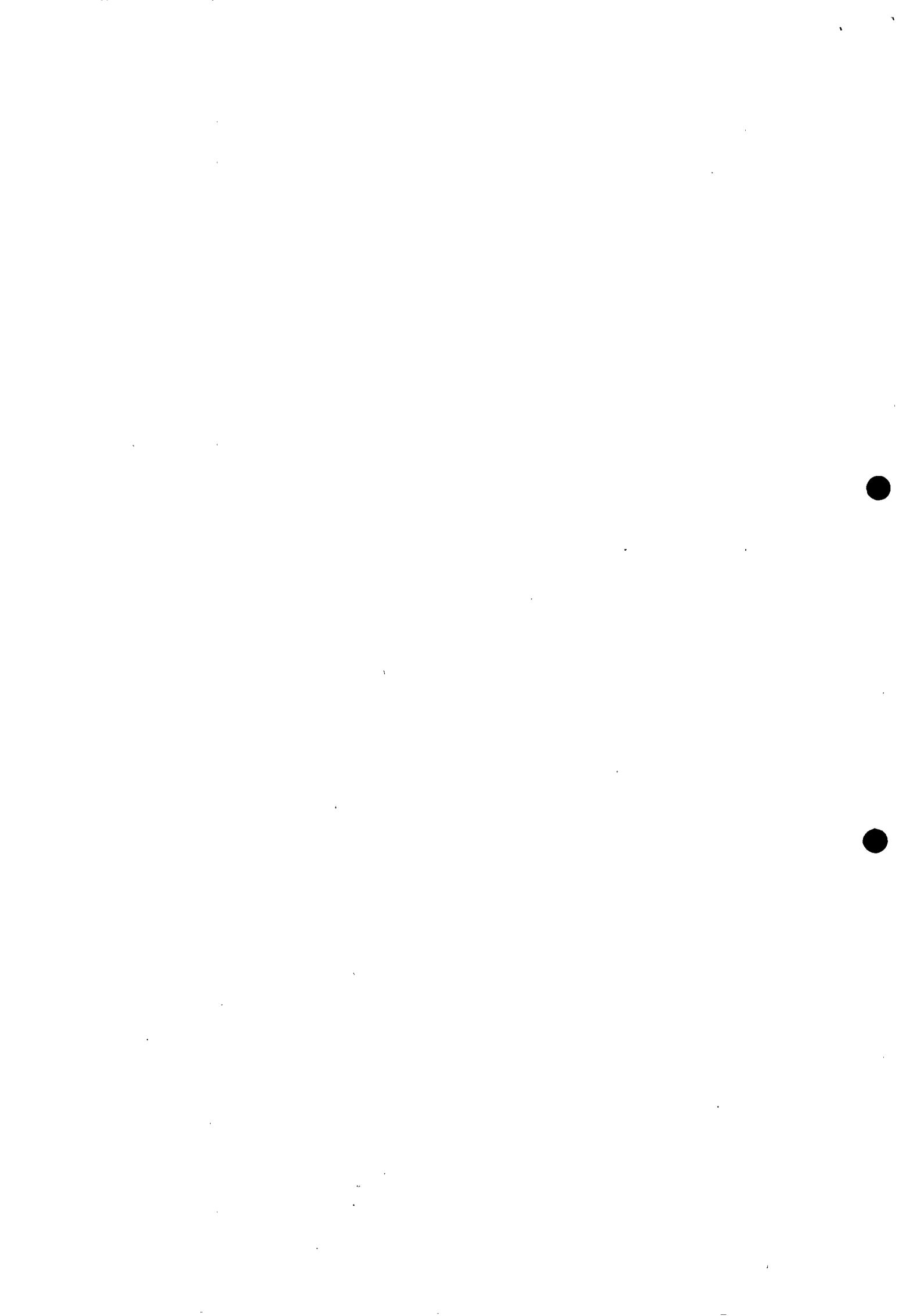


The specific features that are relevant to the service are:

- a Videotex call is always a mobile-originated call
- it is an interactive service
- the requested information is generally in form of text and/or pictures.
- the information access is under the control of the user.
- there are three different types of service access profiles, depending on high layer attributes of the teleservice.

The teleservice attributes of the different Videotex access profiles are defined in GSM Rec 02.03, in term of:

- high layer capabilities
- terminal capabilities
- low layer capabilities
- general attributes



## 2 NETWORK ARCHITECTURE

The following network schemes are considered to operate the Videotex service in a GSM PLMN :

### 2.1 Videotex Centre Connected To PSTN/ISDN

When it is assumed that the Videotex centre is connected to the PSTN, the possible network scheme is shown in Fig 03.43/1.

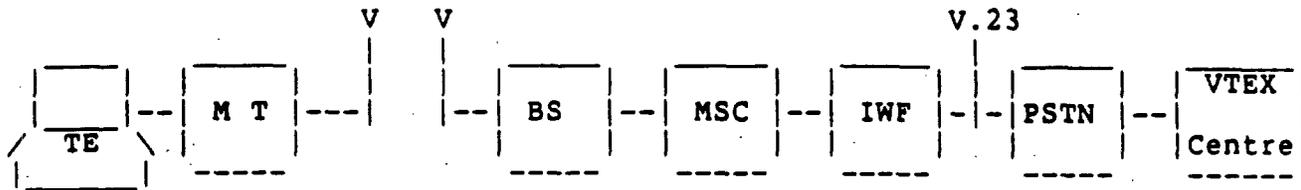


Fig. 03.43/1

Access to the Videotex Centre via the ISDN is for further study: the applicability of this solution will depend on the provision of ISDN Videotex access in the fixed network.

### 2.2 Videotex Centre Connected To PSPDN Via PAD

Access to the Videotex centre via PSPDN is for further study; the possible network scheme is reported in Fig. 03.43/2.

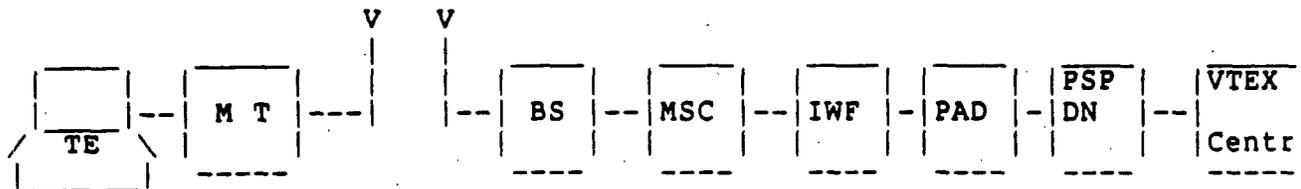
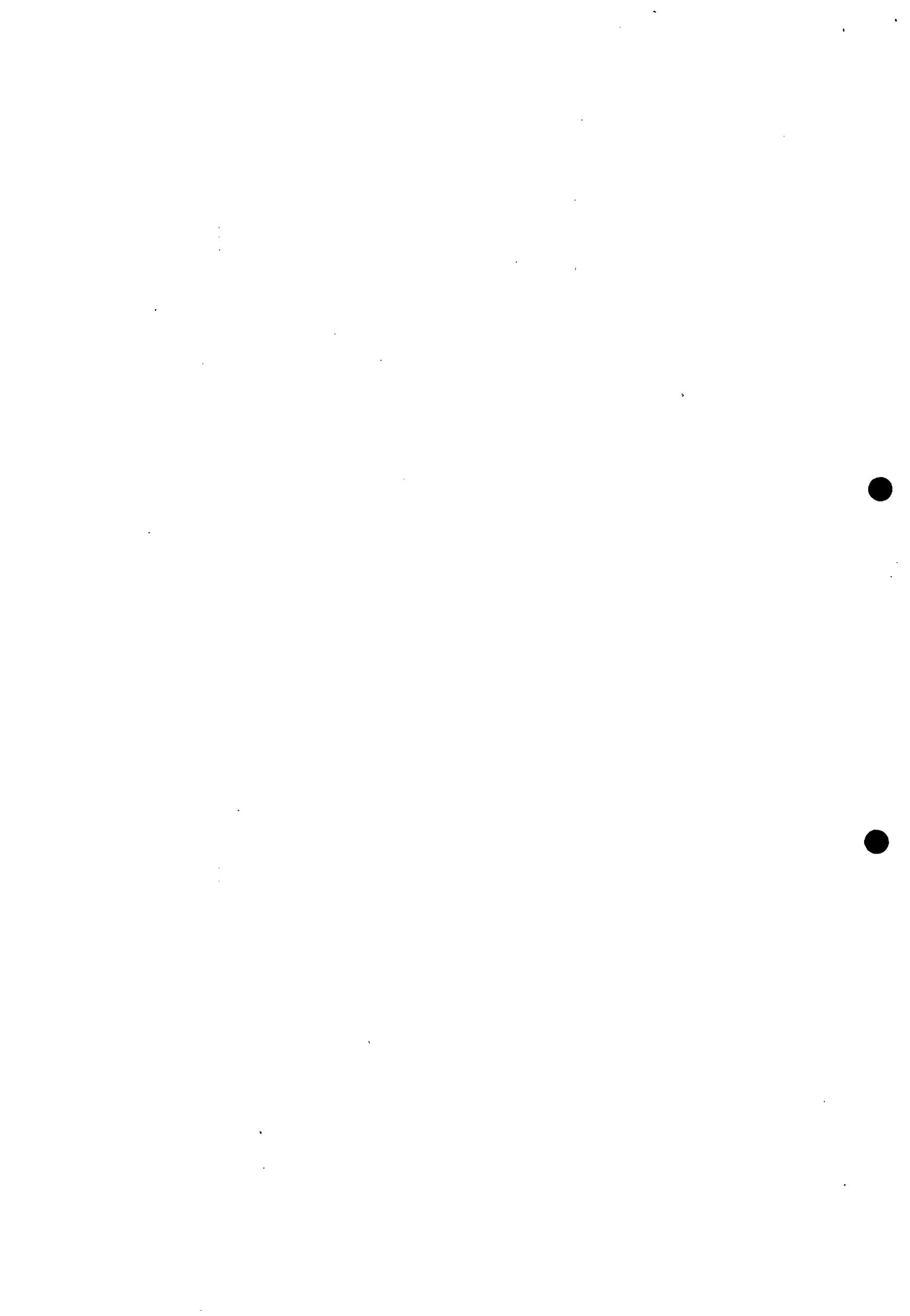


Fig. 03.43/2



### 2.3 Videotex Centre Connected Directly To The IWF

Direct connection between the IWF and the Videotex centre via a Videotex Access Point (VAP), as shown in Fig. 03.43/3, is for further study.

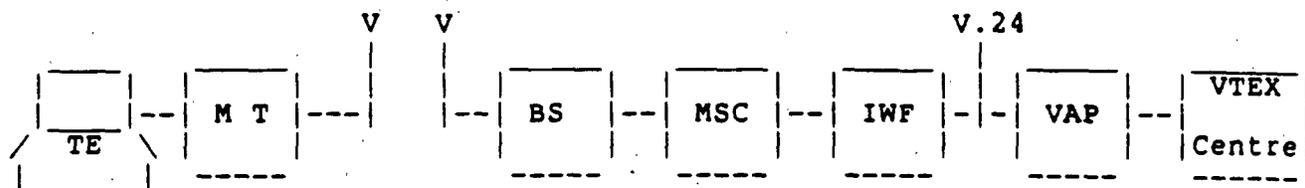
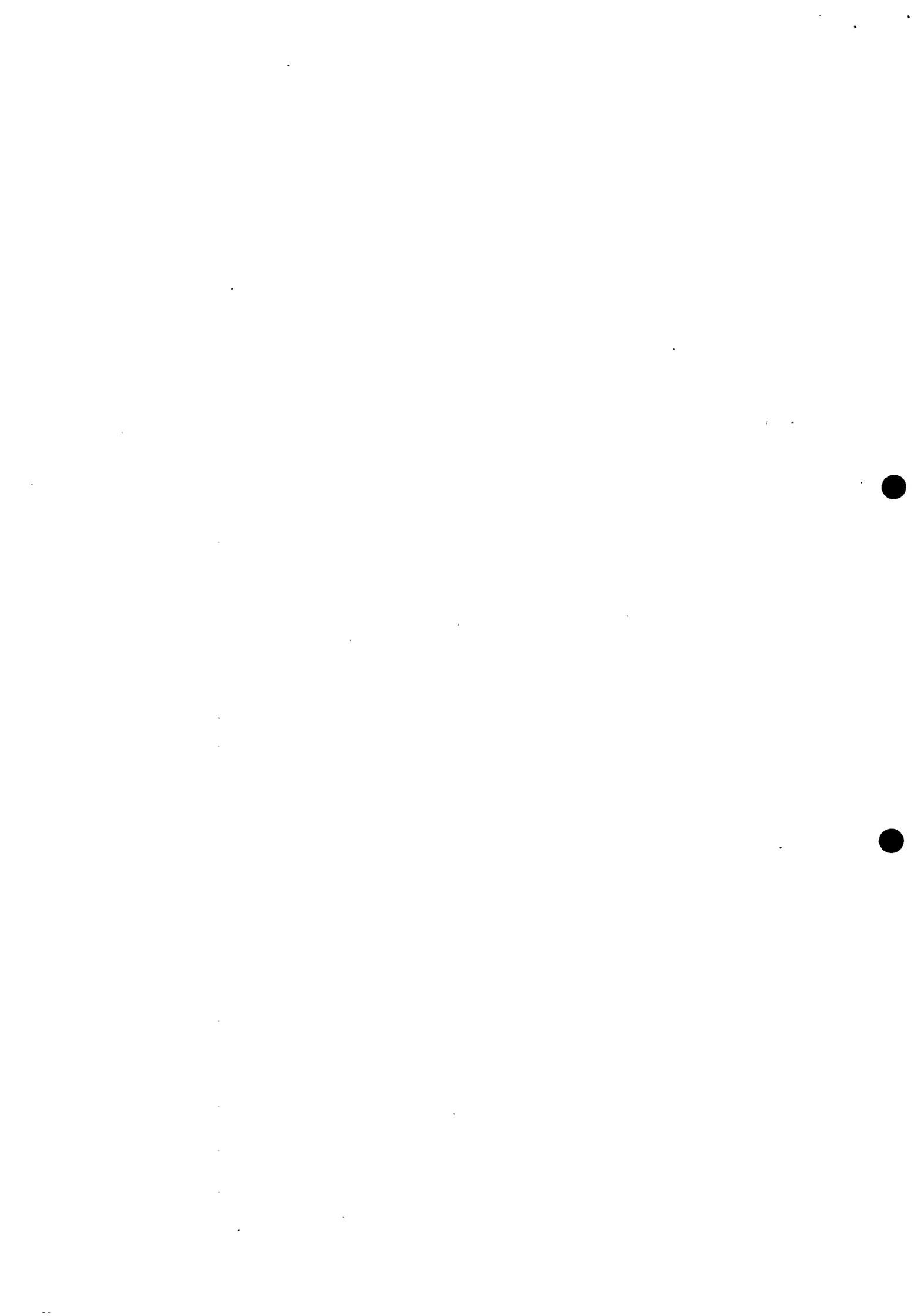


Fig. 03.43/3



### 3 REFERENCE CONFIGURATION OF THE MOBILE STATION (MS)

The following types of reference configuration of the mobile station are considered:

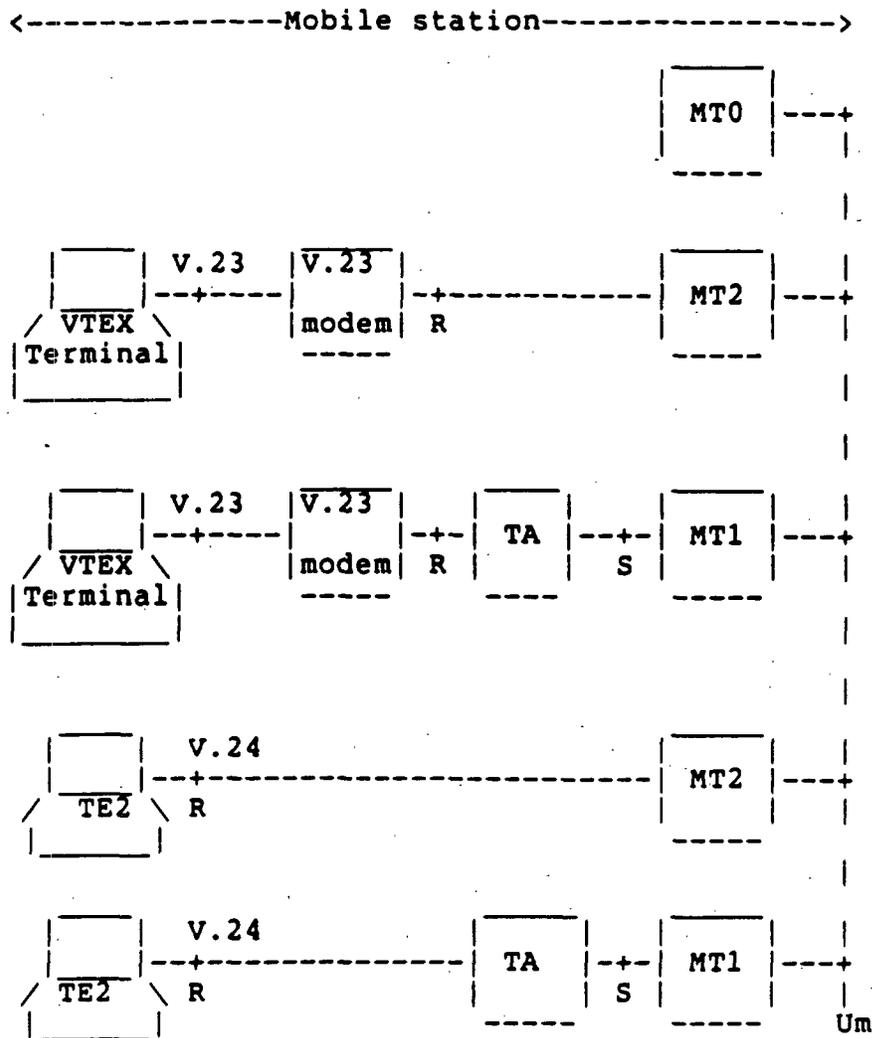
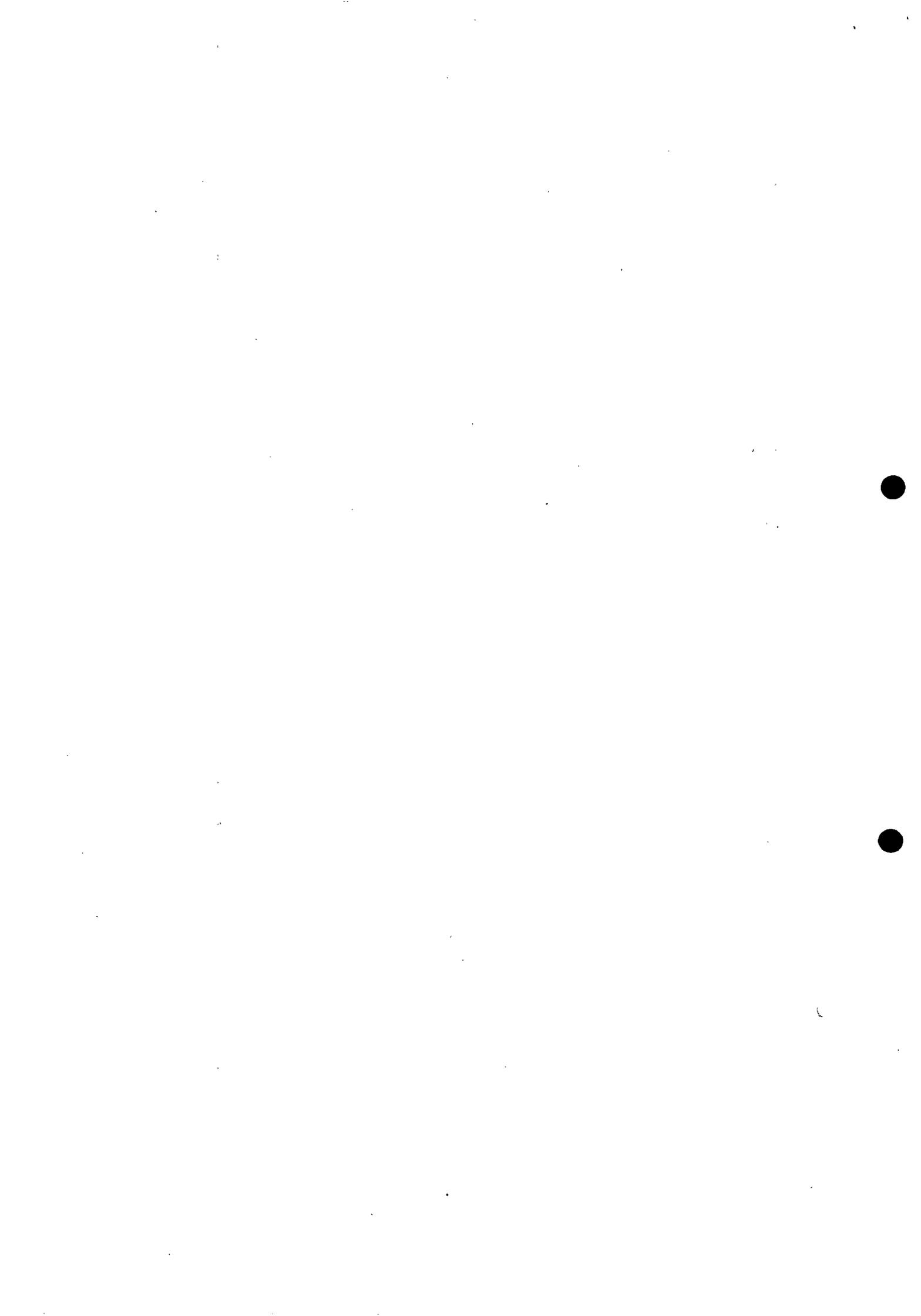


Fig. 03.43/4.

The definitions of the functional groups shown in the figure are reported in GSM Rec 04.02.



#### 4 CONNECTION TYPES AND SIGNALLING ASPECTS

The relationship between the Videotex profile 1, 2, 3 Teleservices and the connection elements are reported in table 6/GSM 03.10.

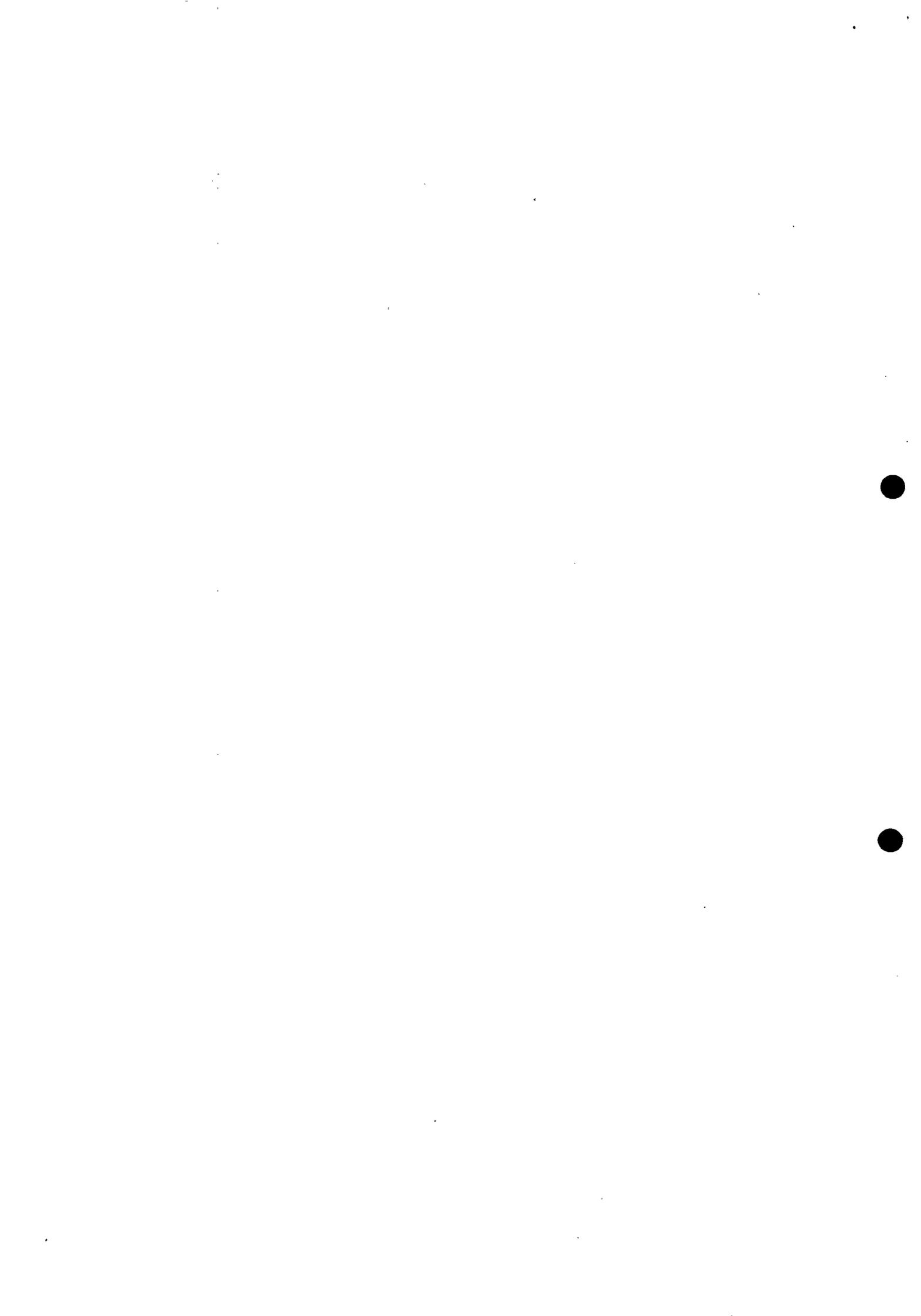
The modem type indication (V.23 ) is given in the B.C. and L.L.C. information elements of the SET-UP message sent in the call attempt phase (see Annex).

The protocol models considered are the Model 1a, 1b, 3a, 3b reported in Fig 6/GSM 03.10.

##### 4.1 Transparent Asynchronous Data

This model can be used for all 3 Videotex profiles; problems of error rate compared to the provision of Videotex service shall be investigated.

The reference are the protocol models 1a and 1b of figure 6/GSM 03.10.



4.2 Non-transparent Character Oriented

This model can be used for the Videotex profile 1, 2 and 3 in order to improve the quality transmission. The protocol reference model relating to the L2R function is reported in fig. 03.43/5

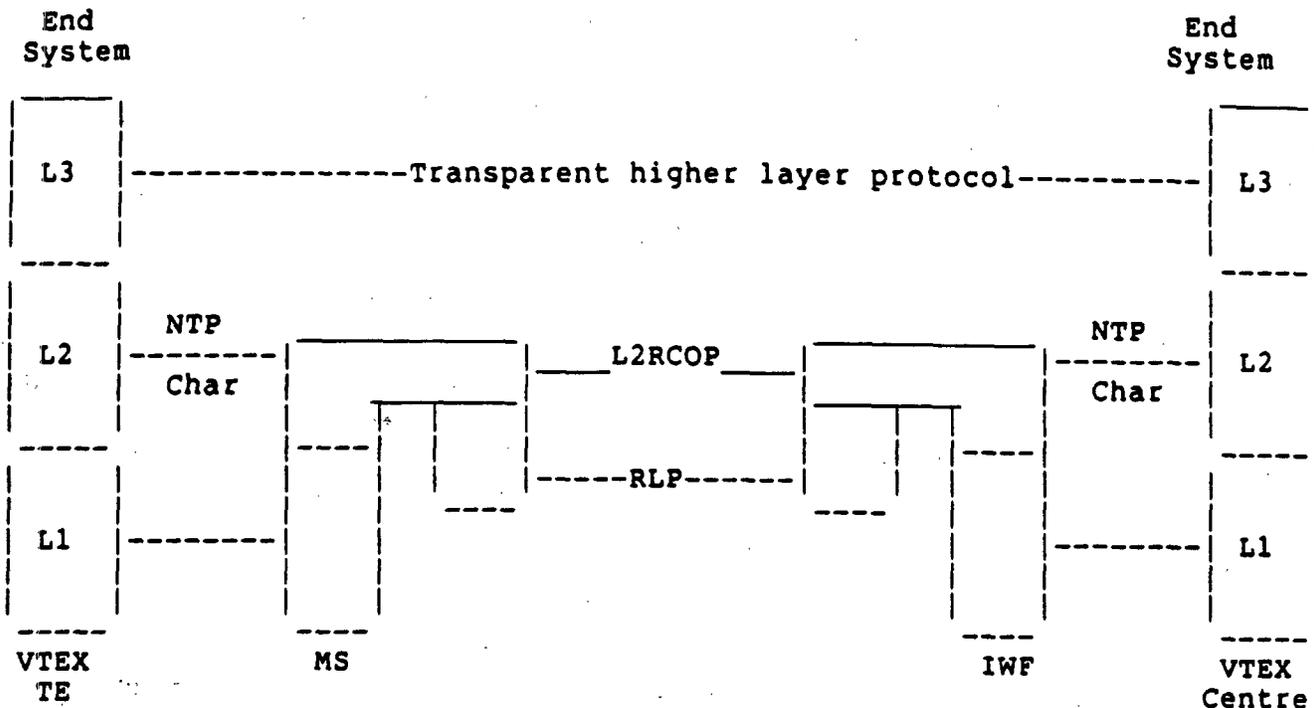
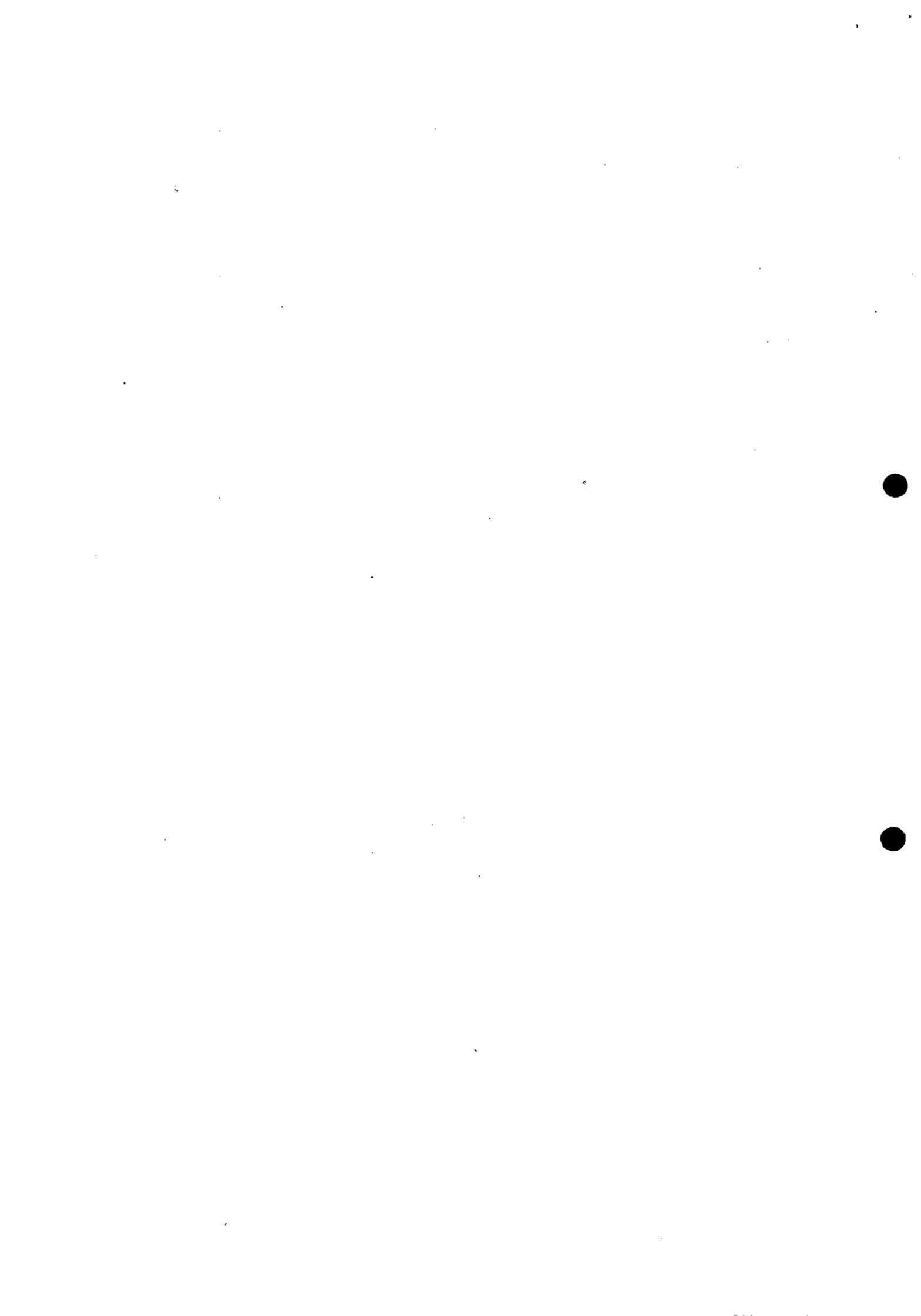


fig. 03.43/5

The L2R functionality for character oriented non-transparent protocol is described in GSM rec. 07.02 (Annex 1).

Further study is needed on the support of flow control in the connection between IWF and VTEX Centre.

Further study is also needed on the effect of the L2RCOP delays on the high layer protocol.



4.3 Non-transparent Protocol With Specialized-layer 2

This model can be used for Videotex profile 1 in order to utilize the improvement of quality service due to the specific layer 2 provided in this profile. A special L2RP shall be defined for this application.

The protocol reference model relating to the L2R function is reported in fig. 03.43/6.

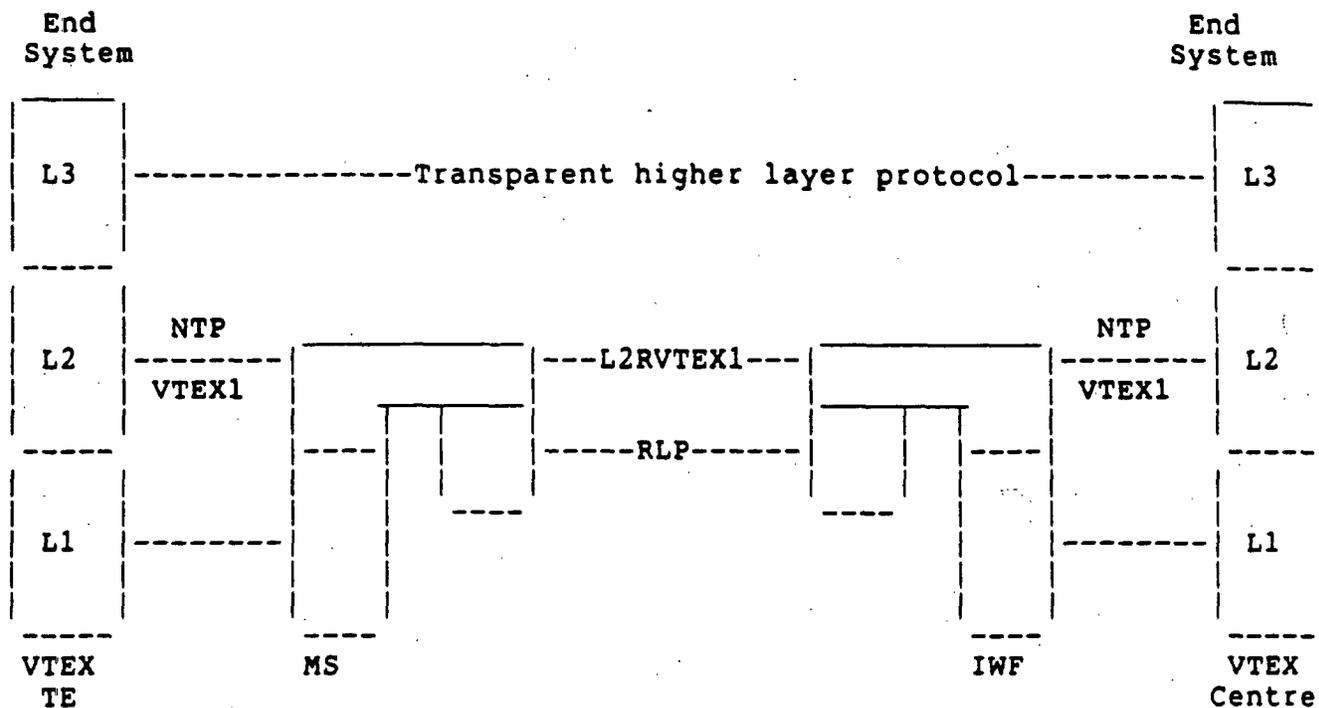
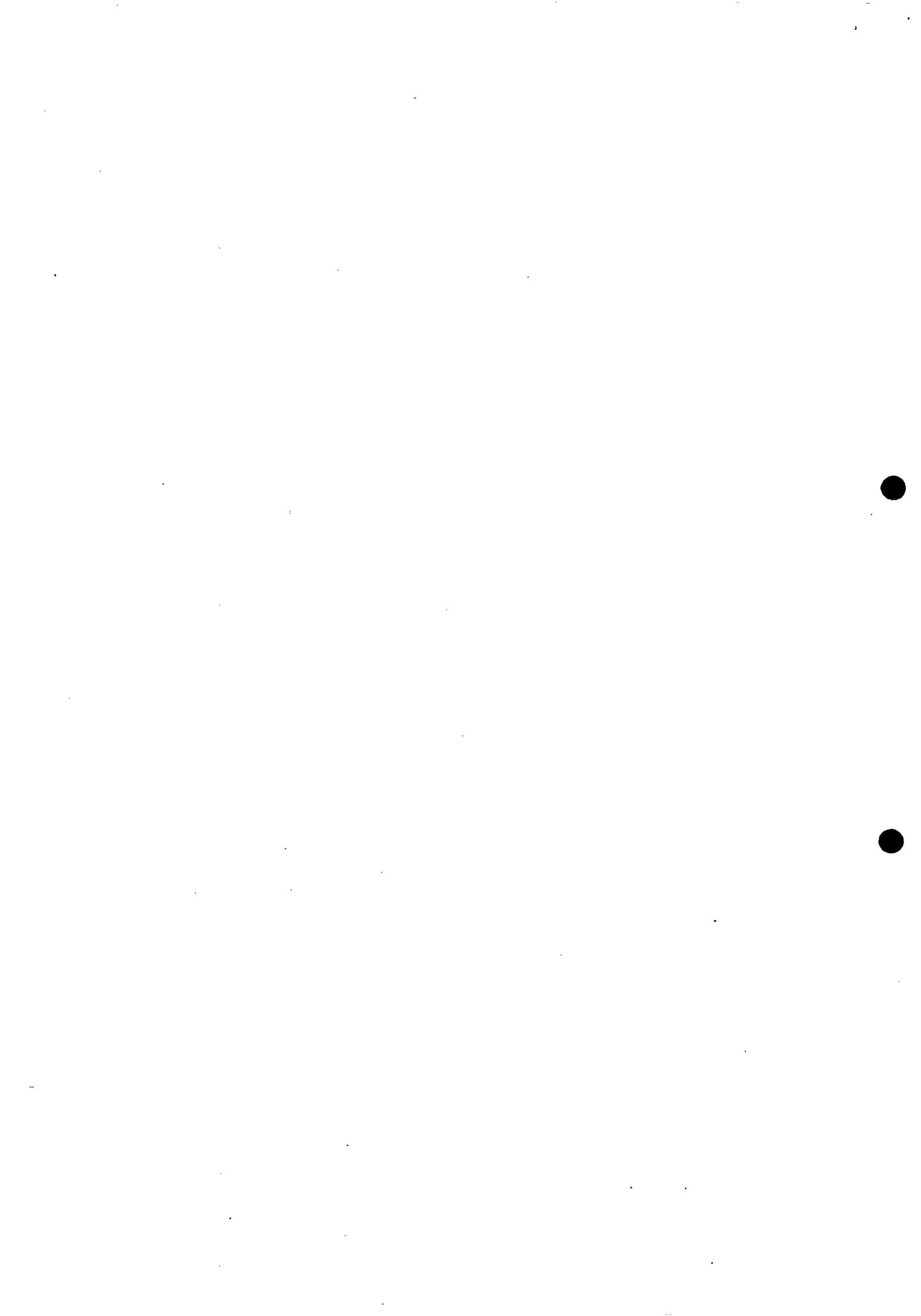


fig 03.43/6

Provision of L2RVTEX1 is for further study: it is needed depending on the quality achieved with the transparent service or on problems detected in mapping Videotex profile 1 protocols in the standard L2RCOP.



## 5 USE OF TAFS DEFINED FOR ASYNCHRONOUS SERVICES

The TAFs to be considered are those defined in section 1.2 of the GSM Rec 07.02; they are divided in:

### 5.1 TAFs For Transparent Services

Regarding to the rate adaption V-series the reference is the section 2.1 of the GSM Rec 07.02. The rate adaption function shall comply with the GSM Rec 04.21 and 08.20, in particular the 1200/75 asynchronous rate adaption shall be considered.

Regarding to the Interchange circuit signalling mapping the reference is the section 2.2 of the GSM rec 07.02, and the V.23 interchange circuits mapping shall be considered.

Regarding to the call establishment signalling mapping only manual call operation utilizing unrestricted digital capability is considered (see GSM 07.02).

The applicability to the Videotex Service of the other operation modes defined in GSM 07.02 is for further study.

### 5.2 TAFs For Non-transparent Services

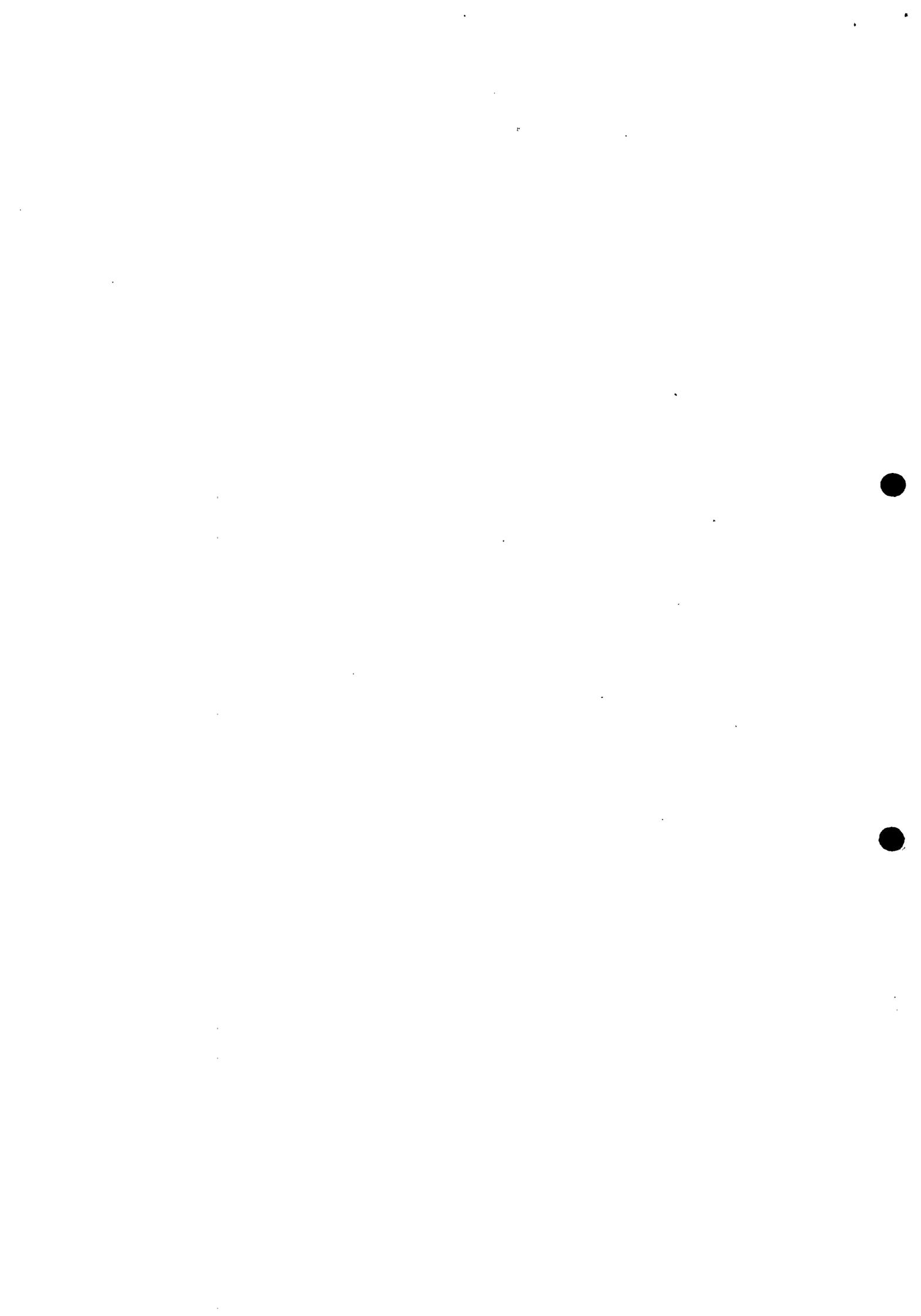
The reference for non-transparent character oriented protocol is the GSM 07.02.

The application of a specialized layer 2 non-transparent protocol is for further study.

## 6 INTERWORKING WITH PSTN

The key characteristics of the networks concerned are defined in section 6 of GSM 09.07.

In the case of Videotex service only mobile originated network interworking shall be considered (section 9.2.1 of GSM 09.07).



The selection of the interworking function based on V.23 type modem is provided on the basis of the information contained in the SET-UP message sent by the mobile terminal (see Annex).

#### 6.1 Transparent Service Support

The reference for this item is the section 9.2.3 of GSM 09.07.

#### 6.2 Non-transparent Service Support

The reference for non-transparent character oriented protocol is the GSM 07.02.

The application of a specialized layer 2 non-transparent protocol is for further study.

### 7 INTERWORKING WITH ISDN

This problem will depend on the provision of ISDN Videotex access in the fixed network and it is for further study.

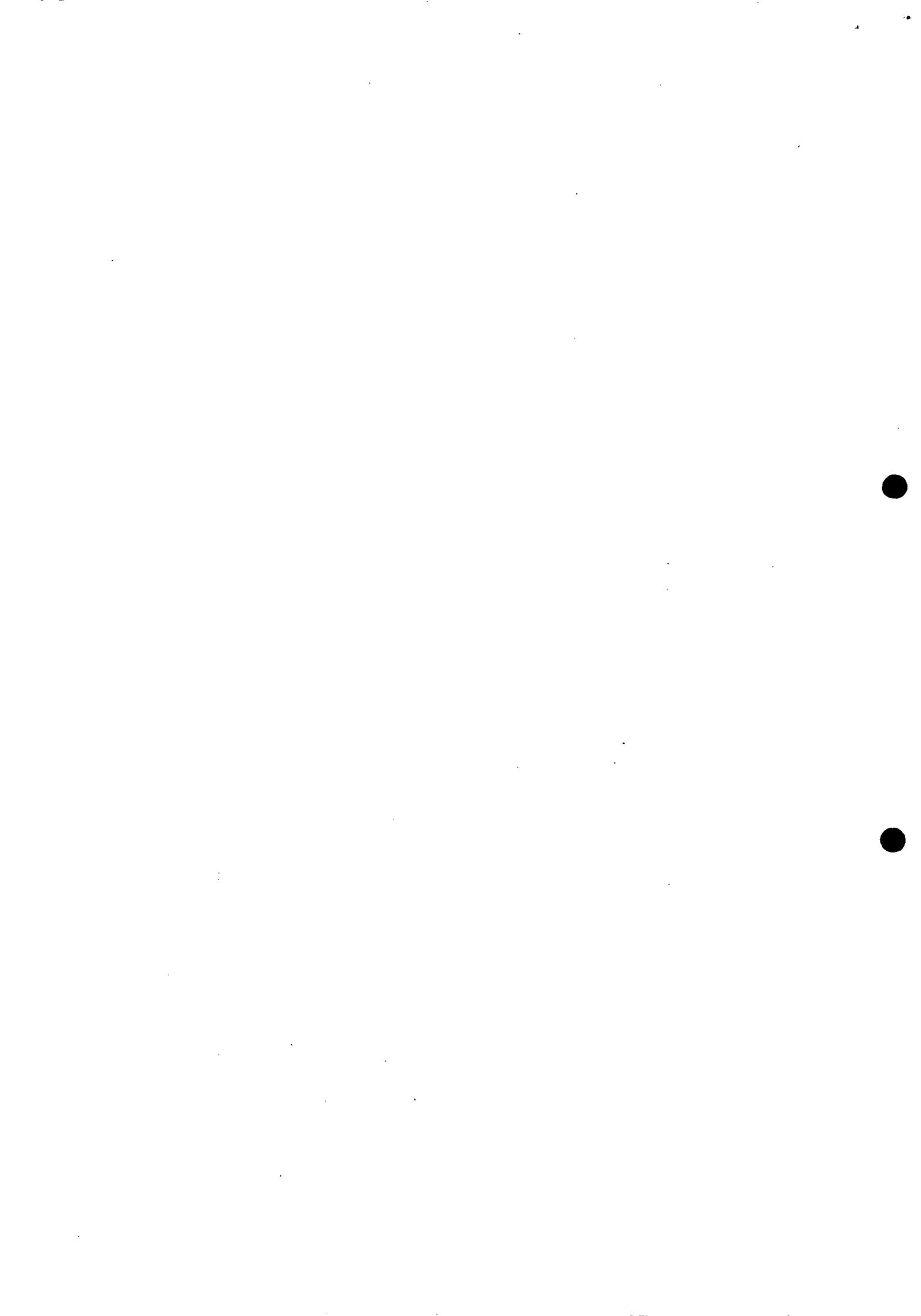
### 8 SUPPORT OF ROAMING SUBSCRIBER

Some practical solutions are considered according to different scenarios:

#### 8.1 Videotex Access To "home" Centre Via An International Call

No additional functions are required by terminals and Videotex centre, if the access is provided on the basis of dialling information; this implies the use of an international PSTN call when the user is in a "foreign" PLMN.

The roaming subscriber must be aware of the compatibility between the protocol characteristics of his terminal and those of the Videotex access centre that he has addressed.



## 8.2 Videotex Access To "local Centre"

The roaming user needs to be registered in the public Videotex service of any country in which he intends to have Videotex access; in order to overcome the protocol problems of different Videotex services, the roaming user may have a multi-profile terminal or the "local" center may provide a multi standard access.

More complex scenarios can be investigated when an integration among the various national Videotex centres will be possible.

## 9 ADDITIONAL FUNCTIONS

Some additional functions can be considered such as:

### 9.1 Direct Call

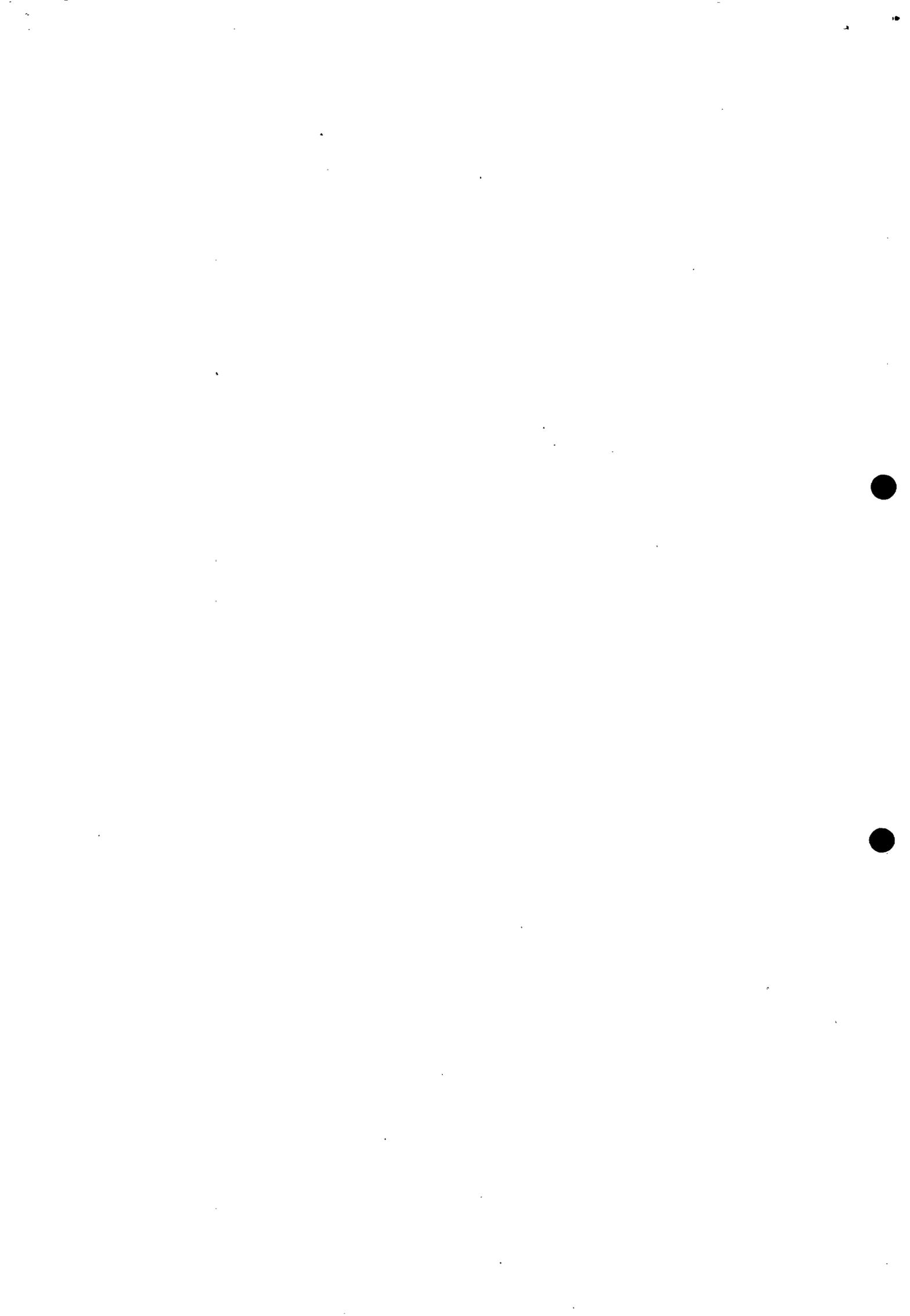
The GSM PLMN network, on the basis of the HLC information element included in the set-up message or of the terminal characteristics, can provide a direct call to the local videotex centre.

### 9.2 Charging Aspects

This service is mobile originated and therefore only charging aspects related to the outgoing service will be covered. The usage charges are time dependent both for PLMN and for PSTN/ISDN connection to the Videotex center. The particular charging aspects related to the Videotex information are outside the scope of this recommendation.

For PSPDN access to a VTEX Centre additional charges may be levied (see GSM 09.05).

Special charging method could be defined for access to local VTEX centre via a direct call.



## Annex to GSM 03.43

Transfer Mode
Intermediate Rate
Information Transfer Mode
Information Transfer Capability
Structure
Establishment of Communication
Communication Configuration
Symmetry
Access Channel & Rate
Information Access Protocol
Information Access Structure
Channel requirements
Quality
Number of Stop Bits
Number of Data Bits
Parity
Duplex Mode

Table 1: Bearer Capability Elements

Note to table 1: the coding of the Bearer Capability Elements requested by VTEX service is for further study.

