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## Contents

Foreword .....	5
Introduction .....	5
1 Scope .....	7
2 References .....	7
4 General objectives .....	8
4.1 Integration of mobile services .....	8
4.2 Choice of mobile station and service .....	8
4.3 Terminal flexibility .....	8
4.4 Global terminal mobility .....	8
4.6 Speech quality .....	9
4.7 Satellite coverage .....	9
4.8 MMI and the mass market .....	9
4.9 UMTS spectrum .....	9
4.10 High bit rate services .....	9
4.11 Variable bit rate services .....	9
4.12 Control of theft, fraud and abuse .....	10
4.13 Security .....	10
4.14 Migration and evolution .....	10
4.15 Mobile station type approval .....	10
4.16 Full list of objectives .....	10
5 System overview .....	12
5.1 Introduction .....	12
5.2 The user's perspective .....	12
5.3 Operational scenarios and involved parties .....	13
5.3.1 The UMTS user role .....	13
5.3.2 The UMTS subscriber .....	13
5.3.3 The UMTS service provider .....	13
5.3.4 The UMTS network operator .....	13
5.4 System implementation .....	14
5.5 Management aspects in UMTS .....	14
6 Related standards .....	14
7 UMTS documentation .....	15
Annex A: Baseline documentation of UMTS .....	17
A.1 Work planning documents for UMTS .....	17
A.2 Baseline documents describing general objectives of UMTS .....	17
A.3 Baseline documents describing technical aspects of UMTS .....	17
History .....	19

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## Foreword

This ETSI Technical Report (ETR) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

## Introduction

The Universal Mobile Telecommunications System (UMTS) is the third generation mobile telecommunications system, scheduled to start service in Europe around 2 000-2 005 to provide a range of telecommunications services to mobile and stationary users in a variety of environments.

UMTS is expected to extend outside Europe to provide global terminal mobility (roaming) for UMTS users and will therefore be aligned with the world-wide standard for Future Public Land Mobile Telecommunications Systems (FPLMTS) being developed within the ITU. The ITU FPLMTS Recommendations [1] form the global framework for system specifications such as the ETSI UMTS standards (see the Work programme for the standardization of UMTS [2]). ITU-R Recommendation 687-1 [1] gives the overall perspective on FPLMTS.

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## 1 Scope

This ETSI Technical Report (ETR) gives the overall objectives and overview for the Universal Mobile Telecommunications System (UMTS).

The report presents the system objectives, highlighting those objectives which distinguish the UMTS from existing systems, as well as listing the complete set of objectives for UMTS, which are harmonised with those of Future Public Land Mobile Telecommunications Systems (FPLMTS), as developed by the ITU. An overview is then given of the wide range of services, user environments and functionality to be provided by the system, followed by a description of the relationship to other third generation standards and an outline of the UMTS documentation.

## 2 References

This ETR incorporates by dated and undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETR only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- [1] ITU-R Recommendation 687-1: "Future Public Land Mobile Telecommunications Systems (FPLMTS)";
- [2] TCR-TR 015: "Work programme for the standardization of the Universal Mobile Telecommunications System (UMTS)".

## 3 Abbreviations

For the purposes of this ETR, the following abbreviations apply.

B-ISDN	Broadband ISDN
FPLMTS	Future Public Land Mobile Telecommunications Systems
ISDN	Integrated Services Digital Network
ITU	International Telecommunications Union
MMI	Man Machine Interface
PABX	Private Automatic Branch Exchange
PSTN	Public Switched Telephone Network
UMTS	Universal Mobile Telecommunications System
UPT	Universal Personal Telecommunications

## **4 General objectives**

ETSI STC SMG 5 has produced a detailed list of objectives for the third generation mobile telecommunications system UMTS aligned with the work of the ITU on the Future Public Land Mobile Telecommunications System, FPLMTS. Many of these objectives are not new, in the sense that they are already met by existing second generation systems, but were included in UMTS and FPLMTS because they are nevertheless essential objectives for these third generation system (they are listed later in this section for reference). The key objectives which will distinguish the new system and justify its introduction as a major step forward in mobile and personal telecommunications are highlighted below.

### **4.1 Integration of mobile services**

The Universal Mobile Telecommunications System will provide a wide range of tele-communications services to mobile users throughout Europe and also globally. Many of these services and the environments in which they are used are already covered by various existing systems, for example cellular, cordless and paging systems.

It is an important objective of UMTS to provide these services through a flexible, modular service creation environment which also allows service providers to differentiate their service offerings. Service portability will be implemented in such a way that the user is able to access the services he wants in any UMTS network or UMTS environment in which he finds himself without, from his point of view, the need for changing the access procedures to which he is accustomed.

### **4.2 Choice of mobile station and service**

Users will be offered a wide choice of mobile stations and service provision from which to make their selection. Many users will be able to find a mobile station which has the particular functionality they require and to obtain the set of services they want from a single source, thereby satisfying all their mobile telecommunications needs with a single mobile station, subscription and billing arrangement. Alternatively, they will be free to own one or more mobile stations and to obtain a mix of services from several service providers if they wish.

### **4.3 Terminal flexibility**

UMTS mobile stations should be flexible/adaptive in order to support different air interfaces and to provide functionality for telecommunication services.

### **4.4 Global terminal mobility**

It is an objective of UMTS to support global terminal mobility (also known as global roaming), using the satellite component as well as the terrestrial component of UMTS. With global terminal mobility, a user will be able to take his own terminal out of his normal service area to other localities and other regions of the world to obtain access to whatever UMTS mobile telecommunications services are provided in that locality or region, subject to the limitations of his own terminal and service profile and the necessary agreements with the service providers.

Global terminal mobility can be facilitated via several alternative ways, such as via global networks and radio interfaces (e.g. mobile satellite systems, FPLMTS, GSM), via terminals being capable of multiple standard operation or via adaptive terminals.



#### **4.5 Personal mobility and UPT**

Service in other localities and other regions in the world can also be achieved by personal mobility. UMTS will provide two forms of personal mobility:

- 1) UMTS will offer user mobility in which a user gains access to UMTS services by registration using an identity module on any UMTS mobile station.
- 2) UMTS will support Universal Personal Telecommunications (UPT). UPT enables each user to participate in a user defined set of subscribed services and to initiate and receive calls on the basis of a personal, network transparent UPT number, across multiple networks on any fixed or mobile terminal, irrespective of geographical location, limited only by terminal and network capabilities and restrictions imposed by the network operator.

NOTE: UMTS user mobility is limited to UMTS, whereas personal mobility as provided by UPT extends across different types of network (e.g. PSTN, ISDN, GSM, UMTS etc.).

#### **4.6 Speech quality**

UMTS has an objective of speech quality comparable to the fixed network, where practical.

#### **4.7 Satellite coverage**

It is an objective to permit mobile stations, i.e. mobile earth stations to have direct access to the UMTS via the satellite component. Satellites will provide access to UMTS where the terrestrial component is not available, or when satellite access is selected (e.g. by the user or the network operator).

#### **4.8 MMI and the mass market**

The man machine interface for mobile stations will be defined to achieve a good balance between two essential requirements:

- 1) basic functions will be standardised in order to meet the needs of a mass market for easy handling and for applications like emergency calls;
- 2) higher order functions will only be standardised to the extent that mobile station manufacturers will be free to develop advanced, user friendly MMI capable of allowing exploitation by users of the powerful functionality expected in UMTS mobile stations.

#### **4.9 UMTS spectrum**

It is an objective of UMTS to exploit the frequency bands identified for FPLMTS: 1,885 MHz - 2,025 MHz and 2,110 MHz - 2,200 MHz, including the bands: 1,980 MHz - 2,010 MHz and 2,170 MHz - 2,200 MHz identified for the satellite component.

UMTS standards may be applied in frequency ranges currently not identified for UMTS.

#### **4.10 High bit rate services**

It is an objective of UMTS to provide high bit rate services up to initially 2 Mbit/s. It is not expected that high bit rate services will be available in all environments.

#### **4.11 Variable bit rate services**

UMTS will provide variable bit rate services.

#### **4.12 Control of theft, fraud and abuse**

It is an objective that the structure of UMTS and its telecommunications services should minimise the opportunity for fraud and facilitate its prosecution.

The UMTS system should be structured to minimise the theft of mobile stations and to facilitate prosecution of such theft.

The system should support the delivery of emergency services in the most effective way and also deter abuse of the emergency service and facilitate its prosecution.

#### **4.13 Security**

It is necessary to ensure that information generated by or relating to a UMTS user or subscriber is adequately protected against misuse or misappropriation. It is also necessary to ensure that the resources and services provided by a UMTS service provider or network operator are adequately protected against misuse or misappropriation.

#### **4.14 Migration and evolution**

To allow a cost effective introduction of UMTS, a migration path will exist whereby portions of existing systems and networks may be exploited for the implementation of UMTS. Furthermore, UMTS shall allow the easy introduction of technology advancements and service applications without undue impact on existing users and terminal equipment.

#### **4.15 Mobile station type approval**

In order to facilitate European as well as global terminal mobility, it is an important objective that mobile station type approval made in one country (or region) should be accepted in other countries (or regions).

#### **4.16 Full list of objectives**

The following is the full list of objectives agreed by SMG5. Whilst all of these objectives are considered necessary for UMTS, it is recognised that many of them are met in existing systems. They are reproduced here for reference and to support the UMTS system requirements.

- 1) To make available telecommunication services to users who are on the move or whose location may change;
- 2) To provide these services over a wide range of geographic coverage areas varying in size and user density from sparsely populated regions to city or business zones where high capacity systems are needed;
- 3) To make efficient and economical use of the radio spectrum consistent with providing service at an acceptable cost and quality;
- 4) To provide, as far as practical, services of high quality and integrity, comparable to the fixed network;
- 5) To accommodate a variety of mobile terminals ranging from those which are small enough to be easily carried on the person to those which are mounted in a vehicle;
- 6) To provide a framework for continuing extension of mobile network services, and access to services and facilities of the fixed network (PSTN/ISDN/B-ISDN) subject to the constraints of radio transmission, spectrum matters and system economics;
- 7) To admit the connection of mobile users to other mobile users or fixed users, using the fixed network (PSTN/ISDN/B-ISDN) or other telecommunication networks as appropriate;
- 8) To permit the use of the UMTS for the purpose of providing its services to fixed users, under conditions approved by the appropriate national or regional authority; either permanently or temporarily, either in rural or urban areas;

- 9) To admit the provision of service by more than one network in any area of coverage;
- 10) To allow users to access other networks in order to exploit services without the need for changing the access procedures or the MMI to which he is accustomed;
- 11) To allow mobile and fixed network users to use the services irrespective of location;
- 12) To provide an open architecture which will permit the easy introduction of technology advancements, as well as different applications;
- 13) To allow the coexistence with, and interconnection with, mobile systems which use direct satellite links taking into consideration ITU-T Recommendation E.171;
- 14) To provide a modular structure which will allow the system to start from as small and simple a configuration as possible and grow as needed, both in size and complexity within practical limits;
- 15) To adopt a phased approach for the definition of UMTS. The first phase (P1) includes those services supported by user bit rates up to approximately 2 Mbit/s. Phase 2 is envisaged as augmenting phase 1 with new services, some of which may require higher bit rates;
- 16) To provide for a variety of services using a range of bearer bit rates;
- 17) To provide the user with sufficient and dynamic control in requesting and using services;
- 18) To enable mass usage at low cost, of mobile telecommunications, particularly mobile telephony;
- 19) To allow implementations of UMTS that exploit portions of the second generation mobile systems where possible;
- 20) To allow the cost effective introduction and implementation of UMTS in a wide range of existing networks;
- 21) To allow the introduction of UMTS in a wide range of regulatory environments;
- 22) To allow services to be received by the user in an easy-to-use way. Individual users may customize the way they receive services. Service providers should be able to differentiate their offerings of access procedures.
- 23) To support the Universal Personal Telecommunications (UPT) service concept;
- 24) To provide services specific to the mobile environment, additional to those of the fixed networks.
- 25) To take all reasonable steps to ensure that people and the environment are not harmed by UMTS;
- 26) To ensure that information generated by or relating to a UMTS user or subscriber is adequately protected against misuse or misappropriation; also  
To ensure that the resources and services provided by a UMTS service provider or network operator are adequately protected against misuse or misappropriation;
- 27) To provide for unique user identification and PSTN/ISDN/B-ISDN numbers in accordance with appropriate ITU-T Recommendations;
- 28) To provide for a unique equipment identification scheme;
- 29) To take account of the communications requirements for road traffic management and control systems.
- 30) To provide service flexibility which permits the optional integration of services such as mobile telephone, dispatch, paging and data communication including image or any combination thereof;
- 31) To support terminal interfaces which allow the alternative use of terminal equipment in the fixed ISDN/B-ISDN network;

- 32) To allow the connection of PABXs or small rural exchanges to mobile stations;
- 33) To minimise the number of radio interfaces and to maximise the commonality between them;
- 34) To allow options for emergency calls, with or without UIM, in areas where UMTS services are usually provided;
- 35) To cater for the telecommunication needs of developing **areas and** countries.

## **5 System overview**

### **5.1 Introduction**

UMTS is expected to be among the most functional and extensive of the worlds mobile telecommunications systems and to be a major contribution to European communications infrastructure.

The system will be aligned with the international standard for future public land mobile telecommunications systems, FPLMTS and will therefore be comparable with other 3rd generation mobile telecommunications systems world-wide. Consequently the European infrastructure and mobile telecommunications products will be part of the global market place and open to global competition.

UMTS will facilitate the move from diverse mixtures of fixed and mobile services to an integrated radio based telecommunications environment for voice and data services up to 2 Mbit/s.

UMTS will provide low cost, high capacity personal mobility services customised to the user's preferences, for large populations of users using hand held terminals in widely differing environments. The systems will include both a terrestrial and a satellite component.

UMTS will be based on open standards and their adoption will encourage the widespread development of innovative and competitive UMTS services and equipment.

### **5.2 The user's perspective**

UMTS will be a significant step forward for the user, who will be able to meet his complete telecommunications needs, possibly with a single terminal (or other portable device) and service subscription that will give access to the range of services selected in a uniform way, with consistent procedures and performance. Users will want new services, for example multi media, consequently UMTS must offer a variety of services without users having to take out multiple subscriptions.

By using a mobile terminal with an advanced man machine interface, the system will lead the user through the powerful UMTS functionality in an intuitive way, enabling the user to benefit readily from the wide range of services offered. In this respect UMTS will draw as much on the computing world as the telecommunications world, with terminals using for example the latest icon and window style of interface.

The UMTS standard is intended to provide the maximum flexibility to support liberalisation and competition in the provision of telecommunications services, which is expected to lead to an explosion of choice to UMTS customers, leading to a larger mobile telecommunications market with lower prices to the customer.

In addition the quality of the services is intended to be comparable to the fixed network, enabling the mobile service to compete directly with the fixed network to achieve a substantial penetration of the telecommunications market. Whereas current systems are mainly attractive to high mobility customers and those wanting security when travelling, UMTS could become the first choice telecommunications subscription for a significant segment of the market.

### **5.3 Operational scenarios and involved parties**

Although UMTS will appear to be simple and straight forward to the user, it will in fact need to be highly functional and flexible, so that it can be configured to meet any of the wide range of applications envisaged. One requirement to ensure flexibility will be to identify all the roles that are needed to ensure that the UMTS standard does not inhibit the full range of commercial scenarios. For example it may be necessary to distinguish between a service provider and a network operator in some UMTS networks, or between a user and a subscriber for some customers. The concept of logical roles is therefore outlined below and treated more fully in ETR /SMG-50103.

The range of roles, and indeed the full functionality of the UMTS may appear to be more complex at first sight than is really needed. However the intention is to provide for all possible scenarios and legal and commercial opportunities, whilst ensuring that the user is shielded from the resulting complexity by a high performance user interface which will be customised to the user's needs and will present the UMTS in a readily usable form.

#### **5.3.1 The UMTS user role**

The UMTS user is the person (or possibly machine) that uses a UMTS network to access telecommunication services using a mobile terminal.

The user will register to the UMTS by using his or her subscription identity device, which is either built into a particular mobile terminal, or else inserted into any terminal. The user can be reached by dialling the user's UMTS telephone number, in which case the call will be directed to the terminal where the user is registered.

Most users will only want access to some of the services offered by the UMTS and this selection will be defined in the user's service profile, which the user will access and alter dynamically with the agreement of the service provider.

The user is also assigned a unique international mobile user identity which is used by the system for mobility management and for roaming, but which need not be known to the user.

#### **5.3.2 The UMTS subscriber**

The subscriber, who in many cases will also be the user, is responsible for taking out a subscription with the service provider and paying the account. The distinction between subscribers and users has been made so that for example a company can take out a subscription on behalf of a number of employees, who will be the actual users. Users and sub-scribers together are the customers for UMTS.

#### **5.3.3 The UMTS service provider**

It is the service provider who deals directly with the customers, providing them UMTS services. Service provision involves a whole range of responsibilities like issuing telephone numbers, user identity modules and billing, which relate to the customers. Service providers must also deal with network operators to ensure that the network resources are available to support the UMTS services.

#### **5.3.4 The UMTS network operator**

The network operators are responsible for building and operating the network, primarily the extensive infrastructure of cellular radio base stations and their connection to the telecommunications networks. Network operators will offer these resources to the service providers, and provide the necessary charging and accounting data.

In some cases the service provider and network operator will be the same company. The distinction between them has been made to ensure that the structure of the UMTS standard does not limit the commercial opportunities.

## 5.4 System implementation

Clearly as a mobile telecommunications system, wireless access will be used to connect the user to the services available, probably using several radio interfaces optimised for the different mobile environments. In the terrestrial component, there will be extensive use of cellular techniques to provide the necessary capacity, together with advanced modulation and coding techniques to realise the required quality.

The satellite component will cover wide areas to reach regions with low UMTS user densities, and will also facilitate global roaming of world-wide travellers. Services are easily extended to ships, aircraft etc. UMTS may be implemented in three ways which can coexist:

- as networks serving satellite cells only;
- as networks serving satellite and terrestrial cells and;
- as networks serving terrestrial cells only.

Intelligent Network principles may be adopted for the UMTS in order to provide a broad range of services that can be customised according to user preferences.

## 5.5 Management aspects in UMTS

UMTS Management will allow operators to plan, provision, install, maintain, operate, administer and evolve UMTS. As UMTS will build upon various physical networks, one important aspect of UMTS management standardisation will be to address convergence of management for the operation of fixed and radio, terrestrial and satellite components.

UMTS Service Profile Management is different from UMTS Management. UMTS service profile management will allow users and subscribers to modify and verify their subscriptions and service presentation details simply using their terminals.

## 6 Related standards

It has been agreed that the UMTS will, as far as possible, be aligned with the ITU international standard for the third generation mobile telecommunications system known as the Future Public Land Mobile Telecommunication Systems, FPLMTS, which is being developed by the ITU-R Task Group 8/1, in close co-operation with specialised ITU-T study groups.

The activities of all the groups in the ITU involved in FPLMTS are being co-ordinated by the ITU Intersector Co-ordination Group, ICG/FPLMTS. There is currently substantial participation in the work of the various ITU groups on FPLMTS by a broad range of nations and other ITU members. So far, the following recommendations have been approved by the appropriate ITU Study Group:

Recommendation ITU-R M.687, "Future Public Land Mobile Telecommunications Systems (FPLMTS)".

Recommendation ITU-R M.816, "Framework for Services Supported on Future Public Land Mobile Telecommunications Systems (FPLMTS)".

Recommendation ITU-R M.817, "Future Public Land Mobile Telecommunications Systems (FPLMTS) Network Architectures".

Recommendation ITU-R M.818, "Satellite Operation within Future Public Land Mobile Telecommunications Systems (FPLMTS)".

Recommendation ITU-R M.819, "Adaption of Future Public Land Mobile Telecommunications Systems (FPLMTS) to the Needs of Developing Countries".

Recommendation ITU-R M.1034, "Requirements for the Radio Interface(s) for FPLMTS (FPLMTS.RREQ)".

Recommendation ITU-R M.1035, "Framework for the Radio Interface(s) and Radio Subsystem Functionality for FPLMTS (FPLMTS.RFMK)".

Recommendation ITU-R M.1036, "Spectrum Considerations for Implementation of Future Public Land Mobile Telecommunications Systems (FPLMTS) in the bands 1,885 - 2,025 and 2,110 - 2,200MHz (FPLMTS.RFRQ)".

Recommendation ITU-R M1079, "Speech and Voice band Data Performance Requirements for FPLMTS".

Recommendation ITU-R, "Security Principles for FPLMTS".

European and international standards and recommendations on UPT and personal mobility, TMN, narrow and broadband ISDN and IN will have an impact on UMTS and will be considered in the specification of UMTS.

Work is proceeding in North America on Personal Communications Systems, PCS which is aimed at shorter term milestones than FPLMTS, but which is intended to use the agreed FPLMTS spectrum. It is not clear how the deployment of the PCS systems will be reconciled with the introduction of FPLMTS.

Standardisation work is proceeding in Japan in the Association of Radio Industry and Business (ARIB, formerly Research and Development Centre for Radio Systems, RC R) on the development of their existing wireless access mobile systems and on the preparation of contributions to the international standardisation work in the ITU, by the FPLMTS Study Committee of the ARIB.

## **7 UMTS documentation**

The objective of this clause is to give a brief introduction to the UMTS documentation.

The ETSI "Work programme for the standardisation of the Universal Mobile Telecommunications System (UMTS)" (TCR-TR 015) describes the UMTS documentation to be produced by ETSI. The TCR-TR gives details of titles, technical responsibilities within ETSI and approval dates, and also outlines the main milestones for the standardisation of UMTS.

The UMTS documentation falls into two main categories, namely baseline documentation in the form of a series of ETSI reports, and ETSI Technical Standards. The baseline documentation (see annex A) is aimed at establishing a set of objectives, requirements and the framework for UMTS, whereas the standards will specify UMTS to the extent necessary to meet the objectives, requirements and framework outlined in the baseline documentation. The baseline documentation is essentially due to be completed by mid-1996, whereas the standards are due to be completed by the end of 1998.

The baseline documentation and the standards have been grouped in document series. These series may contain one or more reports or standards, as appropriate.

The baseline documentation has been grouped according to the following series:

- The 00-series contains administrative documents, including the work programme mentioned above.
- The 01-series contains high-level UMTS technical documentation addressing system issues, including documentation on UMTS objectives and overview, vocabulary, system requirements and technical considerations of introducing UMTS into use.
- The 02-series addresses service aspects, in particular the services to be supported by UMTS.
- The 03-series addresses UMTS network requirements, interworking and integration, system design methodology issues, and principles for the support of data and multimedia services in UMTS network.
- The 04-series addresses UMTS radio aspects, which includes the overall requirements on the radio interface(s), a selection procedure for the choice of radio transmission technologies, the choice of radio transmission technologies and the choice of source and channel coding principles for UMTS.
- The 05-series is concerned with network management aspects of UMTS.

- The 06-series addresses voice-band aspects of UMTS, including quality requirements and the selection procedure for the speech/channel coding principles as well as voice-band data coding principles of UMTS.
- The 07-series addresses the aspects of integrating audiovisual services into UMTS.
- The 08-series addresses specific data aspects of UMTS.
- The 09-series addresses security aspects of UMTS.
- The 12-series addresses satellite aspects of UMTS, particularly the integration of satellite component into UMTS as well as the capabilities and limitations of satellite systems relevant to UMTS.

A similar grouping applies to the UMTS standards. Additionally, the standards will include the following series:

- The 10-series addresses terminal related specifications of UMTS.
- The 11-series is reserved for audio aspects of UMTS.
- The 13 series includes the interworking and inter-network signalling specifications.
- The 14-series is reserved for future use in UMTS specifications.
- The 15-series addresses all conformance testing aspects of UMTS.

The UMTS work programme gives more details concerning the documentation to be produced within ETSI.



## **Annex A: Baseline documentation of UMTS**

This annex lists all UMTS baseline documents as they appear in the UMTS work programme in early 1996. Most documents below are nearing their completion and are expected for publication. However, some revision in baseline document structure or names is also possible.

### **A.1 Work planning documents for UMTS**

- 1) ETSI DTR/SMG-050001 (TCR-TR 015) Work programme for the standardization of the Universal Mobile Telecommunications System (UMTS)
- 2) ETSI DTR/SMG-050002 (SMG TC-TR 001) Co-ordination guideline for SMG on UMTS with respect to ITU and European research programmes
- 3) ETSI DTR/SMG-050003 Overall plan for the UMTS
- 4) ETSI DTR/SMG-050004 Overall introduction to UMTS documentation

### **A.2 Baseline documents describing general objectives of UMTS**

- 5) ETSI DTR/SMG-050101 Objectives and overview of UMTS
- 6) ETSI DTR/SMG-050102 Vocabulary for UMTS
- 7) ETSI DTR/SMG-050103 System requirements for UMTS
- 8) ETSI DTR/SMG-050104 Scenarios and considerations for the introduction of UMTS
- 9) ETSI DTR/SMG-050201 Framework for Services to be Supported by UMTS

### **A.3 Baseline documents describing technical aspects of UMTS**

#### **Network aspects:**

- 10) ETSI DTR/SMG-050301 Framework of network requirements, interworking and integration for the Universal Mobile Telecommunications System (UMTS)
- 11) ETSI DTR/SMG-050302 System design methodologies for the UMTS
- 12) ETSI DTR/SMG-050303 Principles for handling of data services in the Universal Mobile Telecommunications System (UMTS)
- 13) ETSI DTR/SMG-050304 Framework of network functions to support Multimedia services in UMTS

#### **Radio aspects:**

- 14) ETSI DTR/SMG-050401 Overall requirements on the radio interface(s) of UMTS
- 15) ETSI DTR/SMG-050402 Selection procedures for the choice of radio transmission technologies for the Universal Mobile Telecommunications System (UMTS)
- 16) ETSI DTR/SMG-050403 Choice of radio access principles for the Universal Mobile Telecommunications System (UMTS)
- 17) ETSI DTR/SMG-050404 Choice of source and channel coding principles for the Universal Mobile Telecommunications System (UMTS)

**Other aspects:**

- 18) ETSI DTR/SMG-050501 Objectives and framework for the TMN of UMTS
- 19) ETSI DTR/SMG-050601 Selection procedures for the choice of speech/channel coding principles for UMTS
- 20) ETSI DTR/SMG-050602 Quality requirements and selection procedure for the support of voice band data coding for UMTS
- 21) ETSI DTR/SMG-050701 Integration of audiovisual services in to Universal Mobile Telecommunications System (UMTS)
- 22) ETSI DTR/SMG-050901 Security principles for UMTS
- 23) ETSI DTR/SMG-051201 Framework for satellite integration within the UMTS
- 24) ETSI DTR/SMG-051202 Technical characteristics, capabilities and limitations of mobile satellite systems applicable to UMTS

## History

Document history	
February 1996	First Edition