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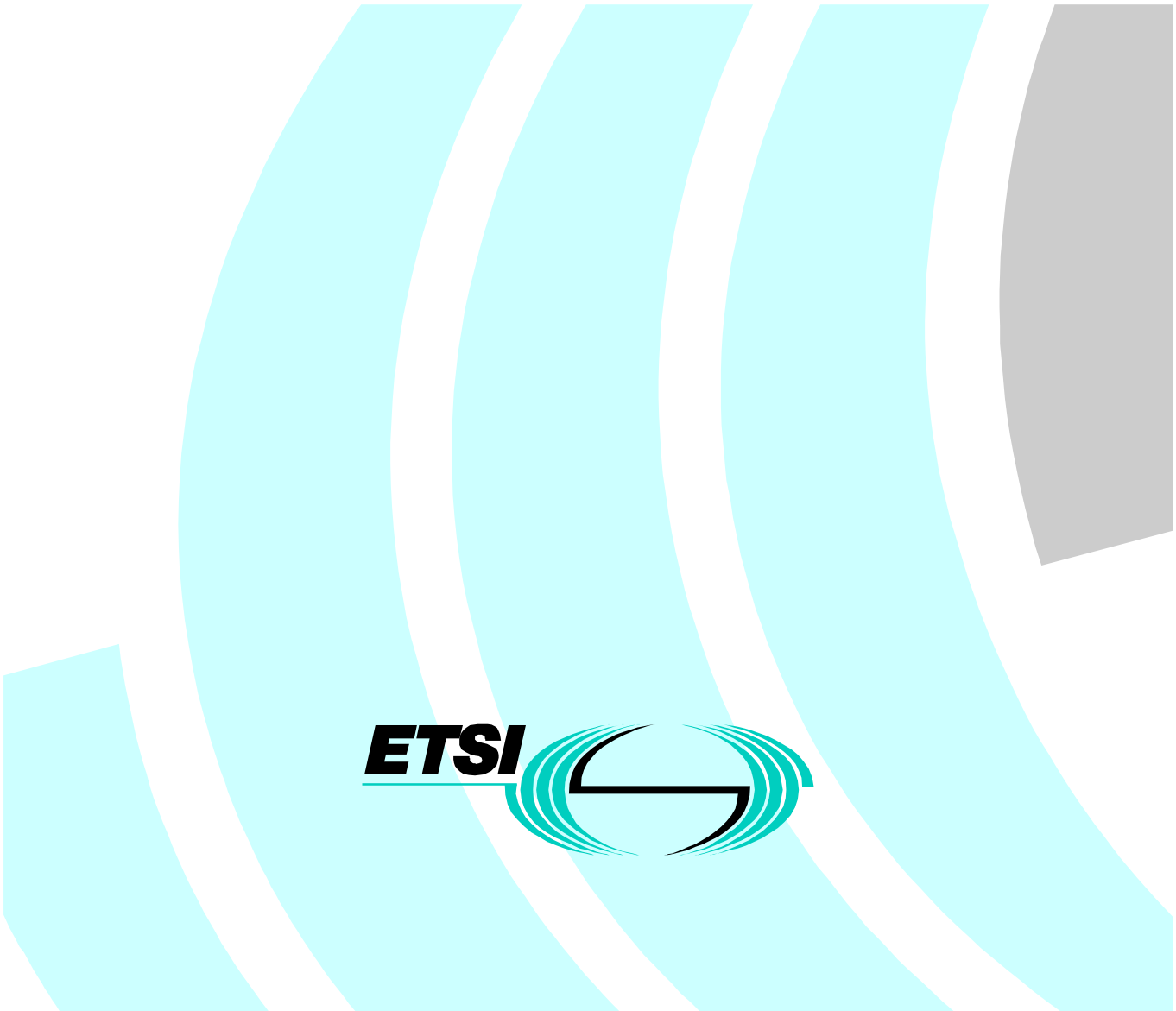
Technical Report

Satellite Earth Stations and Systems (SES);
Satellite Component of UMTS/IMT-2000;
High Level Analysis of 3GPP Release 1999 Documents;
Part 1: Introduction



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Contents

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The present document is part 1 of a multi-part deliverable covering the High Level Analysis of 3GPP Release 1999 Documents Applicable to the Satellite Component of UMTS/IMT2000, as identified below:

Part 1: "Introduction";

Part 2: "Services and Architecture aspects";

Part 3: "Radio Access Network aspects";

Part 4: "Core Network aspects";

Part 5: "Terminal aspects".

Introduction

The present document is composed of three main clauses. Clause 4 is an overall presentation of the structure of the present document. Clause 5 is a presentation of the Technical Specification Groups (TSG) of interest for S-UMTS/IMT-2000 and clause 6 provides an overview of the series of specifications developed by 3GPP.

1 Scope

The present document has been developed by the Technical Committee Satellite Earth stations and Systems (TC SES) to highlight the applicability for the satellite component of UMTS/IMT2000 of the deliverables (Technical Specifications, Technical Reports) produced by 3GPP for release 1999.

2 References

For the purposes of this Technical Report (TR) the following references apply:

[1] 3GPP TSG SA: "Terms of reference Service and System Aspects"
http://www.3gpp.org/TSG/ToR/TSG-SA/sa-tor.htm

[2] 3GPP TSG CN: "Terms of reference Core Network"
http://www.3gpp.org/TSG/ToR/CN/cn-tor.htm

[3] 3GPP TSG RAN: "Terms of reference Radio Access Network"
http://www.3gpp.org/TSG/ToR/TSG-RAN/ran-tor.htm

[4] 3GPP TSG T: "Terms of reference Terminals"
http://www.3gpp.org/TSG/ToR/TSG-T/t-tor.htm

[5] 3GPP Specification series http://www.3gpp.org/3G_Specs/spec_series.htm

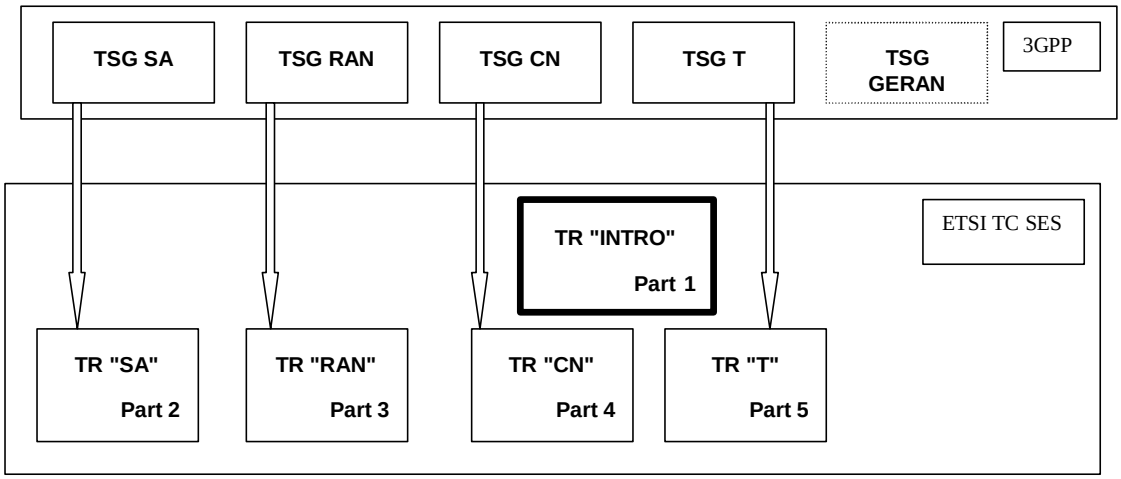
3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3rd Generation Partnership Project
CN	Core Network
ETSI	European Telecommunication Standards Institute
RAN	Radio Access Network
SA	Services and system Aspects
T	Terminal
TC SES	Technical Commute satellite Earth Stations and Systems
TSG	Technical Specification Group
UMTS	Universal Mobile Telecommunication System

4 Method of work

To take full advantage of the work undertaken in 3GPP, the volumes of the present document are based on the overall organization of the standardization activities in 3GPP. This is depicted in the following figure:



There is one volume for each TSG in 3GPP.

5 Specification framework in 3GPP

5.1 TSG SA: SERVICES AND SYSTEM ASPECTS

The TSG Service and System Aspects (TSG-SA) is responsible for the overall architecture and service capabilities of systems based on 3GPP specifications and, as such, has a responsibility for cross TSG co-ordination [1]. Any difficulty that may appear in this role shall be reported to the PCG. Specifically it has a responsibility for:

- Definition, evolution and maintenance of the overall system architecture including the assignment of functions to particular subsystems (UTRAN, CN, terminal, SIM), identification of key information flows and definition of required bearers and services offered by these different subsystems.
- Development of a framework for services, service capabilities, service architecture, charging and consideration of need for "default" services and/or applications.
- Definition of a security framework and review of security aspects of overall system.
- Management of work items including assignment of tasks to other TSGs and monitoring of progress.
- More specifically, TSG-SA will address the following areas of work:
  - Services Capabilities:
    - Definition of service and feature requirements;
    - Development of service capabilities and a service architecture for cellular, fixed and cordless applications.
  - Stage 1 and 2 description of:
    - Charging and Accounting;
    - Network Management;
    - Security Aspects.

- Architecture:
  - Definition, evolution and maintenance of the overall architecture including the assignment of functions to particular subsystems (e.g. UTRAN, CN, Terminal, USIM) and identification of key information flows;
  - In co-operation with the other TSGs, define required services, service capabilities and bearers capabilities offered by the different subsystems, including Quality of Service requirements for access to both packet and circuit switched networks.
- CODEC aspects:
  - Principles for definition of end-to-end transmission;
  - Definition, evolution and maintenance of relevant specifications.
- Project Co-ordination:
  - High level co-ordination of the work performed in other TSGs and monitoring of progress.

5.2 TSG CN: Core Network

The TSG Core Network (TSG-N) is responsible for the specifications of the Core network part of systems based on 3GPP-specifications [2]. Specifically it has a responsibility for:

- User Equipment - Core network layer 3 radio protocols (Call Control, Session Management, and Mobility Management).
- Core Network internal interfaces for Call Associated and Non Call Associated signalling.
- Interconnection of the Core Network with external networks.
- Management of work items placed under its responsibility.
- More specifically, TSG-N will address the following areas of work:
  - Mobility management, call connection control and session management signalling between the user equipment and the core network.
  - Core network signalling between the core network nodes. The signalling supports functionality such as user information, subscription information and control of network services.
  - Interworking with 2nd generation networks (e.g. handover to / from GSM).
  - Definition of interworking functions between the core network and external networks.
  - Packet related matters such as mapping of QoS (e.g. transparency for IP domain applications, general for bearer types, special for optimized applications such as Voice over IP).
  - Core network aspects of the Iu interface.
  - Core network O and M requirements.

5.3 TSG RAN: RADIO ACCESS NETWORK

The TSG Radio Access Network (TSG-RAN) is responsible for the radio access part, including its internal structure, of systems based on 3GPP specifications [3]. Specifically it has a responsibility for:

- Radio aspects of Terminal Equipment and UTRAN functions (FDD and TDD), requirements and interfaces. Management of work items placed under its responsibility.
- More specifically, TSG-R will address the following areas of work:
  - Radio Layer 1 specification;

- Radio Layer 2 specification;
- Radio Layer 3 RR specification;
- Iub specification (including logical O and M);
- Iur specification;
- Iu specification;
- UTRAN O and M requirements;
- Transport of implementation specific O and M between the Management System and node B;
- Conformance test specifications for testing of all aspects of base stations;
- Specifications for radio performance and RF system aspects;
- Liasing with other TSGs, in particular TSG SA, to ensure overall technical co-ordination.

5.4 TSG T: TERMINALS

The TSG Terminals (TSG-T) is responsible for specifying the Terminal Equipment interfaces ensuring that terminals based on the relevant 3GPP specifications meet the 3GPP objectives [4]. Specifically it has a responsibility for:

- Terminal Equipment performance specifications.
- USIM and its interface specifications.
- Management of the work items placed under its responsibility.
- More specifically, TSG-T will address the following areas of work:
  - Service capability protocols;
  - Messaging;
  - Services end-to-end interworking;
  - USIM to Mobile Terminal interface and functionality;
  - Model/framework for terminal interfaces and service (application) execution;
  - Conformance test specifications of terminals, including radio aspects;
  - Multi-mode terminals.

6 3GPP Series and Versions

These information are provided as a general guideline into 3GPP series and versions numbering [5].

6.1 GSM specifications

The original GSM specifications (second generation) were divided into series 01 to 13. Within each series, specifications were numbered from 00 to 99. Releases are identified in table 1:

Table 1

Phase 1
Phase 2
Phase 2+ (Release 1996)
Phase 2+ (Release 1997)
Phase 2+ (Release 1998)
Phase 2+ (Release 1999)

6.2 3rd Generation

For the third generation, starting at Release 1999, 20 was added to the series number, and an additional digit added within the series, with specifications now numbered from 000 to 999. There was a one-to-one correspondence between the original 2G and the new 3GPP specs: for example, GSM 02.93 maps directly to 3GPP TS 22.093. The resulting specification is common to both 2G Release 1999 and 3GPP Release 1999. However, where different functionality is required in 2G and 3GPP systems, the original 2G spec remains (updated to Release 1999) and a new specification in the 3GPP series was created, with an offset of 100 in the spec number. For an example, 05.04 (GSM Release 1998) became GSM 05.04 (Release 1999) and from it was adapted 3GPP TS 25.104 (UMTS Release 1999). Many other new specifications, peculiar to 3GPP systems, were added.

When responsibility for maintenance and further development of the GSM specifications was transferred from ETSI TC SMG to 3GPP at the end of July 2000, the numbering of the GSM (2G) specifications was changed, for Release 2000 onwards. The following was adopted: 40 were added to the series number, and an additional digit was added within the series. Thus, for example, GSM 08.04 (Release 1999) became 3GPP TS 48.004 (Release 2000).

This is summarized in the table 0.1:

Table 0-1: Series numbering

	GSM Pre-Release 2000	GSM Release 2000 onwards	UMTS Release 1999 onwards
Requirements	01	41	21
Service aspects	02	42	22
Technical realization	03	43	23
Signalling protocols (user equipment to network)	04	43	24
UTRA aspects	05	45	25
CODECs	06	46	26
Data	07	47	27
Signalling protocols (RSS-CN)	08	48	28
Signalling protocols (intra-fixed-network)	09	49	29
Programme management	10	50	30
User Identity Module	11	51	31
O&M	12	52	32
Security aspects	13	53	33
Test specifications			34
Security algorithms			35

The version numbering scheme was also modified for GSM specs from Release 2000 onwards, as described in the table 0.2:

Table 0-2: Version numbering

	GSM Pre-Release 2000	GSM Release2000 onward	UMTS Release 1999 onwards
Phase 1	version 3.y.z		
Phase 2	version 4.y.z		
Phase 2+ (1996)	version 5.y.z		
Phase 2+ (1997)	version 6.y.z		
Phase 2+ (1998)	version 7.y.z		
Phase 2+ (1999	version 8.y.z		Version 3.y.z
Phase 2+ (2000)	(version 9.y.z)	Version 4.y.z	version 4.y.z

(In a few cases, Release 2000 specifications had been already been produced using the old numbering format, and these appear in the form, eg, 11.10 v9.y.z; however, these specs are transitory, and are being systematically converted to the form 51.010 v4.y.z.)

History

Document history		
V1.1.1	July 2001	Publication