ETSI MOBILE NEWS
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SPECIAL EDITION - UMTS 2000

Welcome to ETSI Mobile News

Editorial ...

Nothing stands still - especially in the world of mobile communications! The task of developing mobile systems for global use is a relentless task, and one that seems to accelerate every day. With the radio specifications in place for the ITU's IMT-2000 family, and the first release of specifications (Release 1999) from the 3rd Generation Partnership Project (3GPP) complete, work presses on towards consolidation of this first phase and the next Releases which will bring additional features and functionality.

ETSI, together with our global partners, have been convinced that the time was right for some consolidation of our activities and, as a result, a number of organizational changes have been put in place in recent months. These include the closure of the ETSI Special Mobile Group, SMG, which has been responsible for work on the specification of GSM over many years. I have no doubt that huge efforts and the high quality that went into this work are one of the principal reasons for the tremendous success of this technology throughout the world.

Tribute is also due to the Chairmen who have led SMG through various parts of its existence: Thomas Haug, Philippe Dupuis and Friedhelm Hillebrand, as well as to the chairmen of the working groups. Knowing that over 362 million users world-wide are benefiting from their labours must bring immense satisfaction.

This issue of ETSI Mobile News takes a look back at SMG but, of course, must also look forward - not only to the future of GSM and 3rd Generation systems, but also to other mobile technologies with which ETSI is proud to be associated. These are exciting times!

K H Rosenbrock

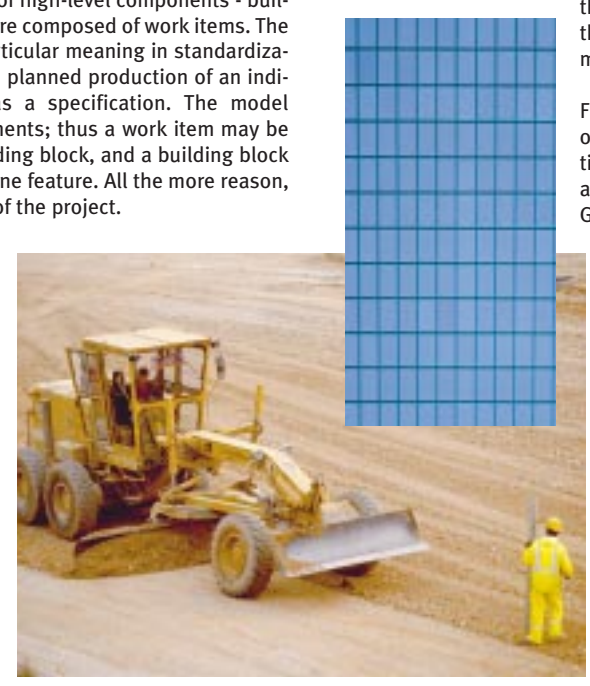
Karl Heinz Rosenbrock
ETSI Director-General

Summary

Building the future

Implementers of systems need to have clarity of the structures they are working towards, and nowhere is this more true than in the standardization process. Standards and specifications form the foundations of complex systems but, just like the foundations of buildings, they are often difficult to visualize and comprehend. In order to aid planning and understanding, the 3rd Generation Partnership Project (3GPP) has adopted a structured approach for its work items and the periodic Releases of specifications. This facilitates effective project planning, giving visibility of the various components and of dependencies between activities.

The new framework has three levels: features, building blocks, and work items. Features occupy the top level and will define the principal characteristics of future Releases. Thus it will be possible to determine which features of the mobile system will appear in which Release, a tremendous help to implementers, manufacturers and network operators. Features are made up of high-level components - building blocks - which in turn are composed of work items. The term "work item" has a particular meaning in standardization circles: it relates to the planned production of an individual deliverable, such as a specification. The model allows for re-use of components; thus a work item may be used in more than one building block, and a building block may be used in more than one feature. All the more reason, then, to have good control of the project.



The Mobile Competence Centre (MCC), based at ETSI's headquarters in Sophia Antipolis in southern France, is the body responsible for this project management. In fact, this team of highly-skilled international experts manages all aspects of the 3GPP production process, including the updating of draft specifications and giving assistance to the Technical Specification Groups and their working groups. In addition to the work of 3GPP, the MCC also supports ETSI's activities on ongoing GSM specification and other aspects of mobile communications.

End of an era

Recognition of the importance of coherence between 2nd and 3rd Generation standardization has also led recently to some organizational changes. Specification of the hugely successful GSM technology has been the task of ETSI almost since the Institute's creation, and before that within CEPT, dating back to the early 1980s. So an agreement made by ETSI and 3GPP to close the ETSI Special Mobile Group (SMG) - the body that has been responsible for developing the GSM specifications - has marked the end of an era.

SMG closed at the end of July 2000, the 3GPP Organizational Partners having agreed to the transfer of certain parts of ongoing GSM specification into the Partnership Project. Specifically, the Partners, meeting in Beijing in July, agreed to create a new Technical Specification Group (TSG) called GERAN - GSM/EDGE Radio Access Network. GERAN's principal responsibilities will be the maintenance and development of GSM Technical Specifications and Technical Reports, including GSM evolved radio access technologies (such as the General Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE).

The Partners appointed Mr Niels Peter Skov Andersen, Motorola, as Convenor of TSG GERAN for its first two meetings, until a Chairman is selected. Mr Andersen was Chairman of ETSI sub-committee SMG2, the principal source of the work that has been transferred to the new TSG. Other specification tasks transferred from SMG to the new TSG includes radio-specific operational and maintenance requirements and mobile station testing. SMG work on smart cards specific to mobile systems will move to the 3GPP Terminals TSG.

The right moment

"Participants in both ETSI and 3GPP judged that the time was now right to import the ongoing GSM standardization work into the Partnership Project," remarked ETSI's Director-General, Karl Heinz Rosenbrock. "This will ensure that cohesion between GSM and the 3rd Generation specifications may be managed efficiently."

Friedhelm Hillebrand, Chairman of SMG since 1996, stressed the timeliness of the move: "The new arrangements concentrate all GSM and 3GPP specification work into one body, which is open on equal terms to interested companies worldwide. It will ensure the integrity of the GSM/3GPP platform, eliminating the risk of incompatibility and inefficiency that might have arisen had the work remained distributed among independently-acting groups."

The changes have also been warmly welcomed by the USA's Standardization Committee T1, which has enjoyed an excellent relationship with the SMG committee. Asok Chatterjee, Chairman of Technical Subcommittee T1P1 and head of the T1 delegation to 3GPP, commented: "Our joint success in the standardization of GSM and PCS-1900 technologies led to the worldwide deployment of 2nd Generation services and systems. We all celebrate SMG's spectacular achievements and I will miss SMG as an organization. However, the co-operative relationship among the major standards development organizations of the world will continue to flourish through our friendly engagement in 3GPP."

New ETSI groups

The Organizational Partners agreed that some of SMG's work was not appropriate for transfer to 3GPP, and ETSI has established two new groups to continue those activities. Technical Committee MSG (Mobile Standards Group) has, as its principal task, the production of European Standards needed for regulatory purposes related to 2nd and 3rd Generation mobile systems.

The second group is the ETSI Project - Smart Card Platform (EP SCP), which creates a central focus point for the standardization of a generic integrated circuit (IC) card platform. Because of the universal nature of its scope, this open group is expected to attract extensive participation by companies and standards-making groups from throughout the world.

Release 99 from TSG-Terminals

The 3GPP Technical Specification Group "Terminals" (TSG-T) focuses on the development of 3GPP specifications for terminals, covering terminal testing (Working Group T1), Terminal Services and Capabilities (T2) and USIM (T3). Significant parts of the 3rd Generation (3G) terminal are defined by other groups (e.g. radio aspects, security aspects etc.), yet TSG-T has to deliver specifications with a full understanding of the overall impact on the terminal from the system design. The Terminals group has contributed an important part of the Release 99 (R99) specifications in order for 3G terminals to interface correctly with other entities in the 3GPP system and to achieve the system as a whole.

T1, one of the three Working Groups in TSG-T (Chairman: Bjarke Nielsen, Qualcomm), is responsible for User Equipment (UE) conformance tests. The group has made significant progress, although further work is still required as a result of updates of the core specification. These remaining tasks will be completed by March 2001. R99 Radio Interface tests cover R99 based radio interfaces for FDD (Frequency Division Duplex) & TDD (Time Division Duplex). Features of Protocol Tests to be covered by prose and Tree and Tabular Combined Notation (TTCN) are Idle mode functions, Voice call functions including emergency call, Circuit switched data (up to 64 kbit/s) plus Fax, Auto-calling (restrictions) and Short Message Service (person to person and Cell Broadcast), as well as GSM/3G Hand-Over and GPRS packet data service. The prose for R99 is basically finished (updates coming only from core specification updates) and the TTCN (Circuit-Switched and FDD) for R99 should be stabilized in the March/May 2001 time frame. The biggest issue to be solved is how to validate the TTCN test cases. A superset of identified regional electromagnetic compatibility (EMC) requirements for 3G terminals has been compiled in the EMC test specification.

NOKIA 3G *concept Terminals*

Highlights of R99 deliverables from T2, UE Services and Capabilities group (Chairman: Kevin Holley, BT), are Enhanced SMS capable of transmitting small pictures, sounds, and animations, AT commands for control of 3GPP Mobile Equipments (MEs) via an external Terminal Equipment (TE), Multiplexing protocol to allow a number of simultaneous sessions over the terminal interface, and a non real-time Multimedia Messaging Service (MMS) including transmission of pictures, sounds, videos etc. from/to the mobile. The Mobile Execution Environment, MExE, provides a flexible Application Programme Interface (API) for the terminal for third party applications. R99 MExE includes enhancements of Subscriber Identity Module (SIM) MExE certificate management, security clarifications, and Quality of Service (QoS) aspects. Several T2 reports are included in R99. One deals with the concept of Wide Area Synchronization to allow data stored in the Mobile Equipment/Subscriber Identity Module (ME/USIM) to be synchronized with the outside world. Another concerns the compilation form of requirements for UE Capability to "exist" in a 3GPP network, and also the provision of certain services such as speech, fax, and Short Message Service (SMS).

Electrical safety requirements and regulations, and Specific Absorption Rate requirements in different regions have been discussed and brought together in two reports.

For R99, the USIM group, T3 (Chairman: Dr. Klaus Vedder, G&D), produced two parts of the 3G version of the GSM specification 11.11, the 3G "platform" standard comprising the basic physical, electrical and logical specification and an application specification. R99 also incorporates the GSM low voltage (3 and 1.8 V) interface and Interface Enhancements to support ISO/IEC T=1 block transmission protocol for more efficient data transfer between the terminal and the integrated circuit (IC) card. The 3G Universal Integrated Circuit Card (UICC) is capable of being used as the basis for a multi-application card so that several Universal Subscriber Identity Modules (USIMs) and/or other applications can co-exist on the card. Additional enhanced features of the R99 USIM include new flexible and user-friendly PIN handling, use of application identifiers as a simple means of searching for and selecting an application, and a USIM Phone book with a new concept of handling ADN, e-mail address and other personal data with easier data synchronization with TEs.

Backwards compatibility issues were considered in all cases. Most importantly, enhanced security features of new 3G authentication and other security features specified by the Security WG (S3) are fully implemented.

The new ETSI Project "Smart Card Platform" (EP SCP - Chairman : Dr. Klaus Vedder) becomes the central focus for the standardization of a common IC Card platform for 2G and 3G mobile telecommunications systems across all technologies. Consequently the core contents of the 3GPP Technical Specification TS31.101 have been transferred to become EP SCP Technical Specification TS 102 221.

Three funded projects involving expert teams have been installed in the Mobile Competence Centre for the timely completion of R99 UE conformance test (prose and TTCN) and USIM test specifications.

Releases 4 and 5

TSG-T approved following Work Items for Release 2000 (now re-defined as Releases 4 and 5) and all are foreseen to be complete by the end of 2000 except for the test specifications. More features for the terminals-related issues will be identified and added as the "IP-Multimedia" (IM) architecture takes shape as part of these new Releases. These include:

- MExE Release 4/5: Support of a new small footprint Java classmark, interaction and co-operation with SDR capabilities and definition of user profile support;
- MMS Release 4/5: full description of the MMS architecture for Internet messaging, Enterprise messaging, Virtual Home Environment (VHE), (Wireless Application Protocol (WAP) based and IP based solutions and 2G messaging;
- vObjects and other constructs for Use in Data Synchronization: Creation of standards for, and management of the process of adding new vObjects and other constructs as data store types for use in data synchronization activities;
- Terminal Local Model: To introduce a generic model approach for the ME environment from a ME centric perspective to allow harmonious work with various applications and peripherals;
- Enhancements of alphabets & languages, technical realization of SMS and creation of a table of international EMC requirements;
- Inclusion of USIM related Common PCN Handset Specification (CPHS) features: data field for the operator name, enhancements to GID usage, and more to be included;
- Enhancement to (U)SIM secure messaging: support of Public Key encryption / decryption / signing / validation, support of additional bearers, addition of the ability to issue a 3GPP 31.111 style REFRESH command, and addition of the ability to initiate a SIM application;
- Standardization of USIM Toolkit interpreter: standardization of protocols for SIM resident SIM Toolkit interpreters;

- Technical Report on SIM / USIM application interworking within the UICC: The co-existence of these two applications is not described in existing specifications, specifically regarding how common information could be shared and linked when a multi-mode 3G/GSM terminal accesses GSM radio networks;
- Report of regional EMC requirements;
- Conformance test documentation and test cases for the SIM API;
- Feasibility study on UICC-ME fast protocol;

All of these enhancements are now being progressed within TSG-T alongside the completion of the testing work for Release 99. Once complete, these elements will ensure that the 3GPP system maintains its "World Class" status, making significant advances yet build-

ETSI Board approves new TETRA phase

The 28th ETSI Board meeting in early September approved an extension to the terms of reference for the ETSI Project TETRA, which will enable work to progress on Release 2 of the standard. By allowing substantial enhancements to the existing standard, ETSI in ensuring that TETRA will continue to be an appropriate technology, well in to the next decade.

TErrestrial Trunked RAdio (TETRA) is the modern digital Private Mobile Radio (PRM) and Public Access Mobile Radio (PAMR) technology for emergency and security services, utilities, military, public access, fleet management, transport services, closed user groups, factory site services, mining, and other such users who require a flexible, robust and secure mobile communication system. The first TETRA standards were published in 1995 and the technology is now being widely deployed throughout the world.

The TETRA Release 2 will see an evolution of TETRA on several fronts. Higher speed packet data will support multimedia and other high-speed data applications that are required by existing and future TETRA users. This will be achieved within existing frequency bands assigned for TETRA as part of the CEPT ERC (96) Decisions.

Codec

In order to enable intercommunication between TETRA and other 3G networks without transcoding, the work will include the selection and standardization (as appropriate) of an additional speech codec (or set of codecs) for TETRA. This move creates the opportunity to adopt the latest low bit rate voice codec technology, thereby ensuring enhanced voice quality for TETRA.

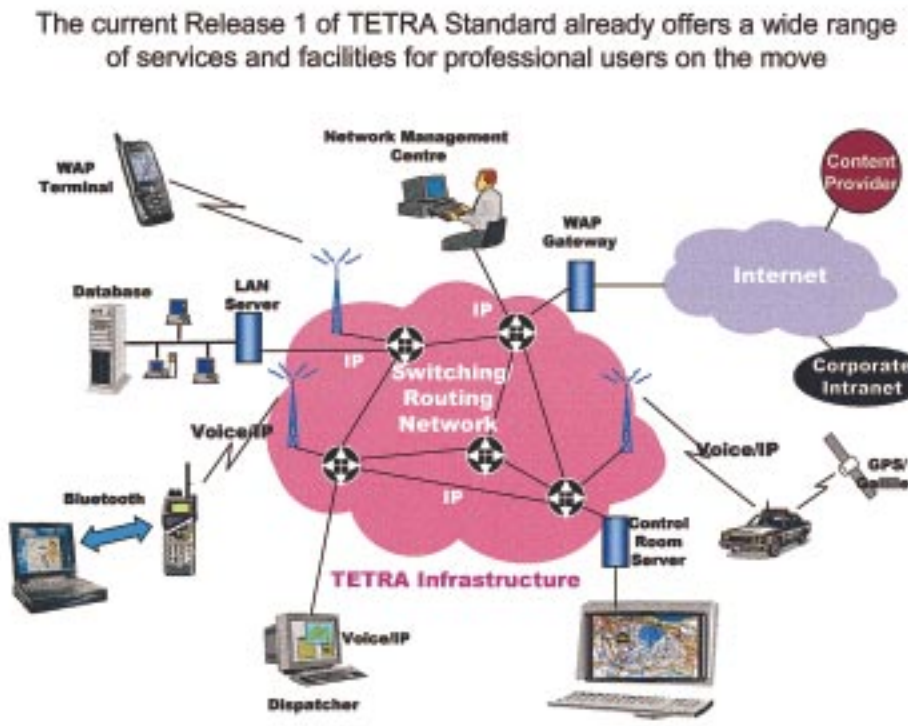
Other standardization activity will be aimed at improving interworking and roaming between TETRA and public mobile networks such as GSM, GPRS and UMTS, and other 3G/IP networks. This will include evolution of the TETRA SIM: in addition to addressing TETRA specific services, the work will aim for a convergence with the Universal SIM (USIM) as used in UMTS.

Increased Range

It is also planned to extend the operating range of TETRA, to provide increased coverage and low cost deployment for applications such as airborne public safety, maritime, rural telephony and "linear utilities" (e.g. railways and pipelines). Further enhancements are also scheduled for the TETRA air interface standard in order to provide increased benefits and optimization in terms of spectrum efficiency, network subscriber capacity, system performance, quality of service, size and cost of terminals, battery life, etc.

The work will of course ensure full backward compatibility and integration of the new services with the existing TETRA suite of standards, in order to future-proof existing and future investments by TETRA users. The ETSI Board's agreement to this new work is extremely good news for TETRA, demonstrating the Institute's ongoing commitment to the TETRA standard. The decision will ensure that the investments made by manufacturers, network operators and users will be protected for many years to come, and that the TETRA standard will have its rightful place alongside future 3G technologies.

A Sinoco voice terminal in use



New Public Safety Partnership Project

Trends toward multimedia capability in public mobile systems such as UMTS have led the public safety community to seek similar capabilities in their systems. Work has been going on for some time in ETSI Project TETRA (under the name of DAWS - Digital Advanced Wireless Service) and in the USA's Telecommunications Industry Association (TIA) and the Association of Public-Safety Communications Officials (APCO) under APCO's Project 34.

Deciding that it would be preferable to work together towards this goal, ETSI and the TIA announced at a conference for the public safety community held in Washington, DC, in May that they have launched a new partnership project to address the standardization needs of public safety users both in North America and Europe.

The Public Safety Partnership Project (PSPP) is similar to the successful partnership projects that helped to accelerate the standards work for third-generation mobile communications (3G).

Karl Heinz Rosenbrock, Director-General of ETSI, declared: *"We have had long-standing co-operation with our colleagues at TIA. This is just another example of such efforts. This new partnership project is being started early in the process before standards or technologies have been chosen. We will initially work on a well-documented set of user requirements and then use the partnership model to create specifications and standards to address those needs."*

Dan Bart, TIA's Vice President, Standards and Technology, remarked: *"We believe the needs of the 800 million citizens in North America and the European Union and European Economic Area (EU/EEA) will be well-served by this new initiative. TIA has worked successfully with our colleagues in the Public Safety Coalition Project 25/34 on such stand- ards efforts in the past and we look forward to the PSPP initially addressing such user needs on both sides of the Atlantic."*

The PSPP will develop the Public Safety Mobile Broadband Specifications and their capabilities which will support the public safety community's technology needs for the wireless transport and distribution of rate-intensive data, digital video and digital voice for both service-specific and general applications. The PSPP will primarily address air interface data rates beyond current standards. This project also allows a partnership role for Public Safety Partners to reflect user requirements.

The importance of radio systems in international emergency and disaster relief initiatives was stressed at the ITU's World Radio Conference (WRC) in May, and efforts are being taken to identify harmonized radio spectrum for such use. The founders of the PSPP support these efforts as a very high priority.

TC SMG : a retrospective

Friedhelm Hillebrand,
former Chairman, ETSI TC SMG

ETSI's Special Mobile Group (TC SMG) ceased its long and successful existence on 31 July 2000, following its last plenary meeting in June. All GSM and UMTS specification activity has been transferred to the 3rd Generation Partnership Project (3GPP), whilst work on European Standards for GSM and UMTS needed for regulatory purposes will be performed by a new ETSI Technical Committee, TC MSG, which had its first meeting in June 2000. This article is a personal reflection on SMG's achievements over the time I was the group's Chairman - from April 1996 to July 2000. The market provided tough challenges for SMG. The explosive growth in users, networks and countries covered called for new services, improved quality of service, higher security and capacity. The worldwide adoption of GSM also demonstrated the need for global co-operation when defining future generations of mobile technologies. It has been a privilege to have been at the centre of the many successes and changes that have taken place in these last few years.

The GSM market

Without any doubt, GSM is the clear world market leader in mobile technologies, serving 67 % of all digital users. The number of GSM subscribers grew from 32 million at the end of 1996 to 362 million by August 2000. Over the same period GSM became a truly global service, with the number of networks on air growing from 184 networks in 97 countries to 372 networks in 142 countries.

Inevitably, international roaming became truly big business: there were more than 20,000 roaming agreements in autumn 1999. And roaming traffic exceeded all expectations: this summer an estimated 700 million roaming calls were made each month.

GSM data services have also taken off. Short Message Service (SMS) was the first real big mass market success, but the explosive growth of Intranets and the Internet have opened a demand for mobile Intranet/Internet access with much higher data speeds.

SMG's response to market demands

This incredible demand led TC SMG to focus on several fundamental issues in order to meet future requirements, namely the accommodation of:
- new services offering higher speeds and higher flexibility to support differentiation in competition;
- higher quality of services (including voice quality);
- higher capacity;
- higher security to protect privacy and to prevent fraud.

The wide global acceptance of GSM required special attention in order to maintain compatibility and the integrity of GSM world-wide, whilst the challenge of data/Internet applications was answered by accelerated developments in GSM phase 2+ (GPRS and MEXE/WAP) and the development of UMTS.

Four releases

Between 1996 and 2000, TC SMG produced four releases of the GSM Technical Specifications: Release 96, 97, 98 and 99. Releases of the necessary Operation and Maintenance (O&M) specifications typically followed half a year after the completion of the core specifications, and the Mobile Station (MS) test specifications (including type approval requirements) another half a year after that.

These four Releases contained the majority of the GSM phase 2+ programme. Key achievements included:
- advanced customized services creation and portability; location based services (the main work was done in ANSI T1P1);
- data rates up to 100 kbit/s;
- higher speech quality;- roaming between satellite and terrestrial environments.

We' ve come a long way ! March 1990 - Orbitel demonstrates the world's first true-to-size working mobile

The adoption of a toolkit philosophy for the network and the SIM (CAMEL, SIM toolkit) provided greater flexibility in services, allowing competing operators to differentiate their offerings.

A surprise was the ever-growing flow of innovative new work items, demonstrating the vitality and evolution potential of the GSM platform. Nearly all will be usable in UMTS - indeed, many are critical for UMTS success. Some examples:

- AMR (Adaptive Multirate Codec)
- CTS (Cordless Telephony System)
- MExE (Mobile Application Execution Environment)
- SIM (Subscriber Identity Module) toolkit
- Java on SIM
- Low volt SIM
- GSM number portability
- VHE (Virtual Home Environment)

These Releases brought new services and network features as well as the evolution of existing services and features. They improved the services portfolio, the quality of service, the capacity and the security of GSM networks. They led to improvements in quality. The GSM phase 2+ programme achieved many of the major goals for 3rd Generation (3G) systems, thus evolving GSM from a 2nd Generation system to one of Generation 2.5.

UMTS Foundations

The original UMTS concept was developed in the framework of the European RACE programme in 1986. It described UMTS as "mobile access to broadband ISDN". This concept was transformed into a more market-oriented "New UMTS" concept in close co-operation with the GSM Association in 1996/7. The main elements of the "New UMTS" include: services innovation (e.g. the VHE concept); continuity for GSM services and evolution from GSM; and high performance interworking with the Internet.

A new orientation was given to the existing international co-operation between ETSI and the ITU, ANSI T1, TIA, ARIB and TTC by the IMT-2000 family of systems concept. Recognizing that one standard for IMT-2000 was not feasible, given the different market needs and business interests, the concept sets a modular framework and encourages as much commonalty as possible in functions, modules, and so on.

Based on my proposal SMG accepted this concept. Then other regional standardization organizations and the ITU endorsed it as a realistic and implementable approach, ending an unfortunate period of confrontation and opening the way to successful co-operation between previously hostile parties. Substantial harmonization of 3G systems was thus achieved. Initial studies of the UMTS services innovation requirement were completed in March 1998 and detailed elaboration followed.

UTRA

A further major step was the agreement in ETSI on one UMTS radio interface, UTRA (Universal Terrestrial Radio Access). This was enabled by means of an innovative process, the UTRA definition process. It did not foresee competitive bids, where a selection decision is very difficult. Instead a co-operative definition process was proposed and accepted in SMG.

In a first phase from December 1996 to June 1997 a pre-selection of a limited number of solution scenarios and a broad description of each was completed. A second phase (July to December 1997) saw the elaboration of detailed specifications. An optimized solution was selected unanimously by January 1998. In this process each company was able to contribute their best ideas to each scenario and secure IPR in each. It demonstrated the effectiveness of co-operative working rather than heating-up competitive confrontations.

The work on UMTS network aspects was very difficult. In order to limit the initial investment, it was agreed to use an evolution of the GSM core network (including GPRS). Building on these cornerstones SMG created a first set of UMTS raw Specifications by the end of 1998. The subsequent work was performed by 3GPP from the beginning of 1999 onwards. A first set of UMTS specifications, which allow a service opening in 2002, was completed by 3GPP as UMTS Release '99 in December 1999. Some open issues were resolved in March 2000.

Global co-operation restructured.

Effective international co-operation is essential to the integrity and consistency of the GSM and UMTS specifications, and this had to be completely overhauled. A new working-relationship between ANSI T1P1 and

ETSI SMG was introduced in 1996/97. Previously there were two independent sets of Technical Specifications with different scope and structure for GSM900/1800 and GSM1900 (used in America), risking incompatibility. Different development speeds meant there were differences in services and features, and this impacted roaming between the two parts of the GSM world. So, based on an SMG initiative, T1P1 and SMG agreed to merge the two independent sets of specifications into one common set and to evolve it using an innovative co-ordinated working method in both committees. Each work item was approved in both committees and a lead committee agreed. The other committee accompanied the work by review and comments. The results were approved in both committees and incorporated into the common technical specifications. Whilst this measure improved the integrity of GSM between America and the rest of the world, the working process was not very efficient because of the considerable great effort needed to ensure co-ordination.

A second step was the integration of all Chinese requirements to the GSM specifications. Chinese network operators had implemented a large GSM network based on existing ETSI specifications. To accommodate specific additional requirements fulfilled, they had started specification work on the MAP (Mobile Application Part), the key protocol in the GSM switching subsystem, independently of the GSM development in SMG. Thus, in 1997 SMG agreed with the Chinese authorities that that they should participate fully in the work of SMG, where their requirements could be fully integrated into the work process, thus securing the integrity of GSM between China and the rest of the world.

Hardly pocket size ! an early mobile handset

A Universal Solution

Discussions involving ETSI, ARIB/TTC (Japan) and ANSI T1P1 (USA) at the end of 1997 and early 1998 revealed the possibility of a common UMTS concept being adopted in "ETSI territory", Japan and North America. This common concept would be based on UMTS service innovation, UTRA and the GSM core network evolution.

However, the implementation of this agreement within the existing organizations would have been unmanageable. Three committees in different continents would have developed the UMTS radio specifications, whilst several other committees would have worked on network aspects. The situation in other key areas such as services, SIM and O&M would have been equally difficult. There would have been no overall decision-making body for conflict resolution. Therefore the global strategic agreement on the UMTS cornerstones called for a new and much more effective global organizational solution.

3GPP

This led to a fourth step - the creation of a global, open organization of the UMTS and GSM specification work in the form of the 3rd Generation Partnership Project (3GPP). This would ensure integrity, cohesion and continuing cross-fertilization between GSM and UMTS, as well as maintaining an efficient specification machine. My proposal to TC SMG (in the fourth quarter of 1997) to create 3GPP was based on the innovative ETSI Partnership Project model devised in the ETSI reform in 1996, but which had never been used. The proposal was backed by six GSM network operators and endorsed by the 24th SMG Plenary in December 1997.

I was mandated by SMG to lead exploratory missions to Japan and USA, where we found a strong interest in such an intensified co-operation. Recognizing the fundamental importance to ETSI, the ETSI Board created a UMTS Globalization Group with a strong SMG participation. This group undertook the negotiations for the implementation. However, opinions among ETSI members were divided and a decision of the General Assembly was needed. During this General Assembly (September 1998) I was charged to negotiate a compromise that would be acceptable to the whole ETSI membership. The compromise proposal foresaw creating 3GPP for an initial phase of UMTS, keeping GSM in ETSI and establishing an ETSI Project for the study of long-term UMTS aspects. This proposal was endorsed with a very large majority, clearing the way for the signing of the 3GPP agreement in December 1998.

As noted earlier, 3GPP produced, as Release '99, a common set of Technical Specifications for UMTS based on service innovation, UTRA and the GSM core network evolution. For this purpose all pure UMTS work was transferred from TC SMG to 3GPP during the first quarter of 1999. Responsibility for the common GSM and UMTS specifications was transferred in the third quarter of 1999. 3GPP was supported by a large number of SMG contributors and SMG leaders.

Also, the full-time programme managers of the SMG technical support, as well as the proven SMG working methods, were made available to 3GPP.

In autumn 1999 ANSI T1P1 and TIA with UWCC proposed the transfer of the remaining GSM work (mainly EDGE, SIM and mobile station testing) to 3GPP in order to ensure cohesion between the classic GSM radio and EDGE. The ETSI Board endorsed this proposal subject to a review and recommendation of SMG. Negotiations between the Partners led to an acceptance in principle in May 2000, and the remaining GSM activities were transferred to 3GPP in mid 2000. As an open process, 3GPP allows all interested and committed organizations world wide, including regulators, network operators and manufacturers, to participate in the work with equal rights.

Transposition of 3GPP Documents

With the creation of 3GPP the question arose of how to "transpose" the 3GPP documents into formal standards (for example as ETSI deliverables) and whether standardization imposed a need for additional documents. 3GPP develops and approves common Technical Specifications and Technical Reports, which are suitable for transposition into ETSI deliverables.

The following concept was agreed: 3GPP is acknowledged by the ETSI internal rules as an ETSI Technical Body. Therefore Technical Specifications and Reports approved by 3GPP are recognized as ETSI Technical Specifications and Reports without any further "ETSI internal approval". They can thus be published directly, without delay, by the ETSI Secretariat.

ETSI publishes a variety of different types of deliverable, not just ETSI Technical Specifications and Reports. ETSI is an officially recognized producer of European Standards (ENs). Nowadays these are mostly produced to support European regulatory provisions, usually as a means of demonstrating conformity to one or more European Commission Directives. For such use they are referred to as Harmonized Standards. A broad survey showed that in the GSM and UMTS area a demand for ENs exists only for the purposes of the Radio and Telecommunications Terminal Equipment (R&TTE) Directive (Directive 1999/5/EC).

Harmonized Standards

Given that these ENs only concerned European regulation, it was agreed that these European Standards should be developed and approved by a "pure" European Committee. However, maximum reference should be made to the 3GPP results.

In a letter to ETSI in December 1999, the European Commission requested ETSI to produce European Harmonized Standards pursuant to the R&TTE Directive, which "would typically describe emission masks ensuring proper coexistence of the different members of the IMT-2000 family and that it would be aligned with similar standards outside the Community". The Commission's concern was to avoid barriers to international trade.

TC SMG developed a strategic framework and several technical documents, and the principles were endorsed by the ETSI Board. A joint Task Force to carry out the technical work was formed in May 2000 by TC SMG and ETSI's Electromagnetic Compatibility and Radio Spectrum Matters committee, ERM. The strategic framework document identifies key regulatory requirements and contains the following key targets for the standardization work:

- ETSI would produce Harmonized Standards for all IMT-2000 systems;
- ITU, 3GPP2 and TIA specifications may be referenced directly, without the need to transpose them into ETSI documents;
- The Harmonized Standards would be produced by the joint ERM/SMG Task Force and ETSI's DECT Project (EP DECT);

The target for the first release would be October 2000. Mobile Standards Group For this activity a new ETSI technical body, TC MSG (Mobile Standards Group), was created in June 2000, and the joint ERM/SMG Task Force has become a working group of MSG. MSG is also the ETSI technical body responsible for dealing with the transposition of GSM and 3GPP deliverables into ETSI deliverables. There is more about TC MSG elsewhere in this issue.

Smart Cards

The activities of TC SMG included vital work on SIM cards and other smart card matters. With the closure of TC SMG, the GSM and UMTS-specific aspects of the work have transferred into 3GPP, whilst generic smartcard work and the work on common lower layer functions for smart-cards of all 3G systems have become the responsibility of a new ETSI Project SCP (Smart Card Platform), created in March 2000. A separate article describes EP SCP in greater detail.

Geostationary mobile satellite systems

Rupert Goodings and Tony Noerpel, Hughes Network Systems, and John Watson, Ericsson

ETSI and the USA's Telecommunications Industry Association (TIA) have been working together to develop two air interface specifications for regional Geostationary Mobile Satellite Systems (GMSS). Both are derived from the highly successful GSM standard and are intended to bring users the benefits of mobile satellite communications whilst preserving the 'look and feel' of GSM. The resulting standards will be published by both ETSI and TIA.

These specifications, known as Geo Mobile Radio-1 (GMR-1) and Geo Mobile Radio-2 (GMR-2), are designed to use a new generation of high performance "super-GEO" satellites which enables these systems to bring a new generation of small portable satellite terminals into the marketplace. The systems are designed to work with dual-mode terminals (GSM and satellite) allowing the user to roam between the GSM terrestrial networks and the satellite network according to user preferences and/or network coverage.

The GMR-1 air interface has been developed for the Thuraya mobile satellite system scheduled for launch this month (October 2000). The GMR-2 air interface is currently used in the Asia Cellular System (ACeS) and the Garuda 1 satellite, launched earlier this year.

The strong resemblance to terrestrial GSM at the upper protocol layers allows the integration of standard GSM services into the systems by using as much as possible off-the-shelf components such as the mobile switching centre (MSC), the visitor location register (VLR), short message service centre (SMSC), etc. This strategy also suggests an evolutionary path to Satellite-based UMTS.

Adapting GSM

There are good reasons for basing the design of the air interfaces on GSM, principally the rich set of GSM services and features available to end users and the possibility of a consistent design of man-machine interface (MMI) for a dual mode GSM/GMR terminal. SIM roaming between GMR coverage and GSM coverage and all other systems adapting GSM mobility is supported, and future GSM service enhancements and features can be adapted, including packet data. Equally important is the ability to reuse many components of GSM, including:

- protocol for call management (CM) and mobility management (MM), including short message service (SMS), and supplementary services (SS), reducing system integration, verification, and validation testing;
- off-the-shelf GSM network elements and infrastructure;
- existing GSM MAP protocols and the A-interface protocol between radio equipment and the MSC;
- GSM authentication and privacy algorithms and encryption key management.

Phase 2 GSM has a rich set of circuit switched (CS) services including: teleservices like voice and fax, data services that support up to 9.6 kbit/s user information, supplementary services such as call waiting, call barring, call forwarding, advice of charge, etc. All of these services are supported in GMR.

Single hop terminal to terminal calling

If a call is established between two mobile terminals using two satellite hops, the delay from one user to the other will be approximately 540 milliseconds. This propagation delay may be unacceptable. To reduce this delay, a direct link can be provided between the two terminals through the satellite by establishing a connection with only a single satellite hop. One of the innovations in the GMR systems is the ability to establish single-hop Terminal-to-Terminal (TtT) calls.

Handsets

ACeS (GMR-2) and Thuraya (GMR-1) dual mode handsets (MES) use a standard GSM subscriber identity module (SIM) and have a single directory number enabling subscribers to be reached whilst in either satellite or GSM mode. Outside the region, these handsets can also be used for global roaming in GSM mode. Most GSM defined supplementary services are also available whilst operating in satellite mode. GMR-2 handsets are manufactured by Ericsson and GMR-1 handsets are being manufactured by Hughes and Ascom.

GMR-1

The Geo Mobile Radio-1 (GMR-1) air interface has been developed by Hughes Electronics for the Thuraya mobile satellite system. Thuraya is a satellite telecommunications company that offers satellite mobile phones and satellite payphones. Thuraya's handsets integrate satellite, GSM and GPS. Service will start in the beginning of 2001 in a gradual roll out to 99 countries in Europe, North and Central Africa, Central Asia, Middle East and the Indian Subcontinent.

The Thuraya-1 satellite

The 5,108 kg (11,260 lb) Thuraya-1 satellite will be launched this month (October 2000) on a Zenit-3SL rocket from Sea Launch's platform in the Pacific Ocean. Spacecraft separation will occur 1388 miles above South America and the satellite will be deployed 3000 km south west off Long Beach, Califorinia. Designed for a lifespan of 12 to 15 years, Thuraya-1 will maintain geosynchronous orbit at 44° East.

The mobile satellite system has been developed by Hughes Electronics, and uses a geosynchronous Hughes 702 satellite to provide continental coverage at low cost. The network capacity is approximately 13,750 telephone channels. User terminals may be of various types, including handheld cellular-like phones (comparable to GSM handsets in terms of size, appearance and voice quality), vehicular-mounted mobile phones, and fixed telephones.

Thuraya-1 boasts the largest L-Band reflector so far installed on a commercial satellite. It also features 250-300 spot beams, digital beam forming (which provides for dynamic area coverage and optimises over change in traffic demand), single hop link for mobile-to-mobile communications, and high power capacity.

The interface definition is derived from GSM but incorporates many important features that optimize it to the peculiarities of the satellite channel. The specifications support the rich set of GSM phase 2 services in the first release including short message service (SMS) and cell broadcast, and it includes a migration path to GPRS or UMTS packet switched (PS) services.

In addition, some unique services and capabilities are provided that are very important in the satellite system, such as integrated position-based services, single-hop terminal to terminal calling with user privacy via GSM-like encryption, and optimal routing to the best gateway based on user's position, user's service provider, and the called-party number.

GMR-1 also employs a number of techniques to improve the voice traffic channel efficiency over GSM. These include improved modulation and an improved low bit-rate voice codec. GSM supports 8 full-rate voice circuits per 200 kHz or 40 per 1 MHz. By comparison, GMR-1 supports 256 voice circuits per 1 MHz of spectrum.

Both standalone GPS and GMR-1 assisted fast acquisition are supported in the GMR-1 system. Fast GPS acquisition reduces the acquisition time from about 90 seconds to less than 5 seconds. The handsets being manufactured by Hughes and Ascom include a GPS receiver. A GPS Broadcast Control Channel (GBCH) provides faster access to the GPS satellite parameters. Ephemeris and almanac information for the GPS satellites and GPS timing estimate are provided.

A geo-mobile satellite is a single point source for all spot beams. This allows all control channels to be time synchronized. This has important considerations for spot beam selection and handover. GSM cell control signals all have different sources and are asynchronous, which GSM control channel design and protocol must take into account. GMR-1 takes advantage of the control channel synchronization for faster and more accurate spot beam selection and some improved channel efficiencies. GMR-1 handovers are fast because they are always synchronous.

Future enhancements

Since the protocol architecture of GMR-1 is heavily based on GSM, enhancements to the GSM protocol can be incorporated into GMR-1. The most important evolutionary step of GSM is the inclusion of packet switched services via the GPRS, EGPRS and 3G protocol. GMR-1 has already begun this evolutionary process and will support data rates up to 144 kbit/s for early service and 432 kbit/s with future enhancements. The initial phase of Geo-mobile packet radio service (GMPRS) will accommodate features of EGPRS such as extended modulation and coding scheme code points.

GMR-2

The GMSS/GMR-2 air interface is currently used in the Asia Cellular System (ACeS) and the Garuda 1 satellite, launched earlier this year. The air interface, based on GSM (Phase 2), was developed by Ericsson and Lockheed Martin. Whilst optimised for geostationary satellite operation, the GMSS/GMR-2 specification maintains a close alignment with the GSM standard thus enabling a natural evolution to S-GPRS, S-EDGE and the delivery of some 3G services.

For the forward link the air interface employs 200 kHz carriers with 8 timeslots (TS) and, by using quarter rate and 3.6kbit/s voice coding, each carrier can accommodate 32 voice calls. For the return link the carrier is divided into 4 sub-carriers of 50 kHz each supporting 2 timeslots (TS). The system uses OQPSK (Offset Quadrature Phase Shift Keying) modulation on the forward link from the Gateway to the MES, and GMSK (Gaussian Minimum Shift Keying) on the return link from the MES to the Gateway.

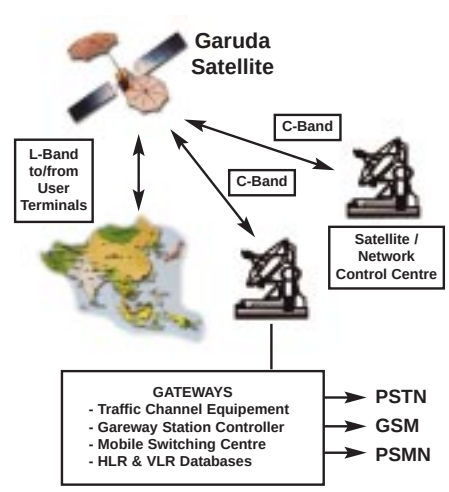
From its orbital slot at 123°E, the ACeS satellite covers 11 million square miles of Asia and 60% of the world's population. The GMSS air interface, derived from the highly successful GSM standard, has been optimised for satellite communications. Dual mode GSM/Satellite handsets are designed to cope with low signal levels and line of sight limitations whilst offering the look and feel of a normal GSM mobile phone. The GMR-2 air interface standard is due to be published early in 2001.

The Garuda 1 satellite

Built by Lockheed Martin and launched on the 12th February 2000 from Baikanur aboard a Proton rocket, the ACeS Garuda 1 satellite is currently undergoing final testing prior to commencing public service. The most powerful commercial telecommunications geostationary satellite launched to date, Garuda 1 generates 14kW of power and is designed to have an operational life of at least 12 years.

Unlike non-Geostationary based systems, the ACeS system only needs a fixed cellular beam pattern. An analogue low-level beam forming network, using simple passive components, and an on-board digital switch (channeliser) provide dynamic routing of individual channels to any beam and frequency slot. The onboard switch is also used for MES to MES single hop connections.

The Garuda 1 satellite



The L-Band coverage has 140 beams which are formed by separate transmit and receive 12 metre antenna subsystems. RF power, from the satellites matrix of power amplifiers, is fed to a steerable 88 L-Band cup-dipole radiator feed array which illuminates the transmit reflector, so as to create the 140 spot beams. This multi-beam configuration can support a frequency reuse factor of 20 with a 7-cell frequency reuse pattern. With quarter rate (3.6kbits) speech coding the satellite can handle in excess of 11000 simultaneous telephone channels. The antennas' deployed reflectors, made of gold-plated molybdenum, provide the necessary gain to communicate with handheld phones 40,000 km away.

Gateways

Currently there are six national gateways, each of which has a 12 metre antenna for C band links with the satellite, and these are located at Jakarta and Batam (Indonesia), Manila (Philippines), Bangkok (Thailand), Taipei (Taiwan) and New Delhi (India). At each Gateway there is a Customer Management Information System (CMIS) whose functions include: Subscriber and User Terminal Management, Number Management, SIM generation and Billing. The Network Control Centre (NCC) and the Satellite Control Facility (SCF) is located in Indonesia and share a 15.5 metre tracking antenna.

Field trials

ACeS was used to support a Chinese expedition climbing the world second highest mountain, K2. Numerous voice calls, e-mails and colour photographs were transmitted over the ACeS network using the Ericsson R190 satellite phone.

Evolution

The Garuda 1 satellite is designed to have a life in excess of 12 years and ACeS will be progressively upgraded to support GSM Phase 2+ services. These are expected to include an upgrade to a satellite version of GPRS and possibly even EDGE. Whilst neither SMS nor GPS were considered to be essential for the launch of commercial service later this year, if there is a market demand for these features whilst operating in satellite mode, then SMS and GPS functionality will be added. A Garuda 2 satellite is foreseen to extend ACeS coverage to the Middle East, North Africa and Western Europe.

Related standardization activities

The launch of these new systems is linked to other standardization activities in ITU and ETSI:

- The essential requirements have been standardized in a new ITU emissions specification M.1480, as part of the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding. This was ratified at the ITU's Radiocommunication Assembly meeting in May 2000.
- In parallel, the corresponding ETSI emissions specification (EN 301 681) was approved at the last ETSI Technical Committee SES plenary and this standard is currently undergoing a One-Step Approval following its conversion to a harmonized standard.

These important standards provide the framework for free circulation of the satellite terminals within the extended coverage regions of both systems.

DECT Digital Enhanced Cordless Telecommunications

An IMT-2000 family member

Marcello Pagnozzi, ETSI Secretariat

DECT is the most successful digital standard for cordless applications today, and it has been also able to coexist and evolve as the 3rd Generation radio technologies emerge. For this reason DECT has been submitted as a candidate for the IMT-2000 specification, and has been confirmed as fulfilling all the necessary requirements to be an IMT-2000 family member.

DECT will complement other IMT-2000 family members such as UMTS. DECT is already very successful in the residential, business and WLL sector, whereas the initial focus of UMTS will be on the public mobile communication sector. Offering data rates up to 2 Mbit/s, DECT can thus be a good platform for first implementations of future UMTS applications.

The DECT standard is one of the core building blocks for 3rd Generation communications. It will play a central role in the convergence of fixed and mobile communication services. As DECT serves customer needs that other technologies cannot provide, it will form an integral part of the evolution of 3rd Generation communications.

DECT is a low price technology (portable plus base station are less than $70 end user price) with high quality, fast channel establishment and handover, distributed communication and a self-organizing system using dynamic channel selection in the portable.

But how come DECT technology belongs to the family of terrestrial IMT-2000 Radio Interfaces? IMT-2000 work started in the mid-1980's as - "Future Public Land Mobile Telecommunications System" (FPLMTS) in the ITU. DECT work also started in the mid-1980's in CEPT, ECTEL TCS and ESPA. The work moved from CEPT and ECTEL to the newly-created ETSI in 1989. The allocation of IMT-2000 and DECT Frequency Bands comes from the CEPT Recommendation for DECT, the EU Frequency Directive for DECT in force from 1991, and the World Administrative Radio Conference 1992. The World Radio Conference 2000 approved additional bands for IMT-2000.

In June 1999, ETSI submitted DECT as one of the candidate technologies in the IMT-2000 specification for the Indoor and Pedestrian Environment. The DECT standard was widely supported as it was the only cordless technology among those proposed that fulfilled all the necessary requirements. A proven technology with a successful history, DECT remains the only IMT-2000 technology that is al-ready available.

From a regulatory viewpoint, the band used by DECT was already uniquely assigned to this technology in European countries. Globally speaking, a unanimous agreement on candidate bands for the additional spectrum for IMT-2000 was reached in Fortaleza, Brazil in March 1999, taking into account that some of the required bandwidth will almost certainly be re-farmed and re-used spectrum made available as second generation systems are gradually taken out of service.

The group of radio experts on IMT-2000 at their meeting in Helsinki in November 1999 approved a comprehensive set of terrestrial and satellite radio interface specifications. These specifications incorporated the flexibility required by existing mobile operators to seamlessly evolve their pre-IMT-2000 networks towards third generation service capabilities as well as meeting the various specific needs of operators of new satellite and terrestrial systems.

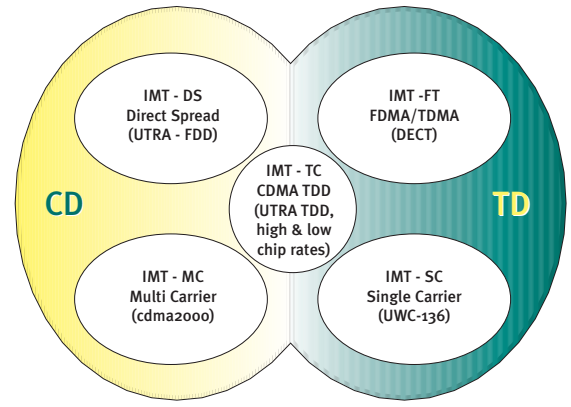
The IMT-2000 terrestrial standard consists of a set of radio interfaces that allow performance optimization in a wide range of radio operating environments, including DECT as one of the five family members for the terrestrial interface.

The 3rd Generation terrestrial standard chosen consists of a set of radio interfaces identified as:

DS - CDMA Direct Spread (UTRA-FDD)
MC - CDMA Multi-Carrier (cdma2000)
TC - CDMA TDD (UTRA-TDD, high and low chip rates)
SC - TDMA Single-Carrier (UWC-136)
FT - FDMA/TDMA (DECT)

A further milestone in the history of this DECT success was reached with the formal and final adoption of the IMT-2000 radio interface specifications. This was achieved by unanimous decision in the ITU Radiocommunication Assembly at its meeting in Istanbul in May 2000.

The next priority is to ensure DECT interworking with UMTS. The preparation of the Technical Specification for the interworking for the connection-oriented mode is underway and publication is foreseen for early 2001.



Changes to the Mobile Comptetence Centre

The Mobile Competence Centre (MCC) exists to provide support to the 3rd Generation Partnership Project (3GPP), as well as to various ETSI Technical Committees and Projects working on the specification of mobile technologies and related areas. Hosted by ETSI, MCC is a truly international team consisting of some 30 people, originating from more than a dozen countries across 4 continents. The diverse skills and technical expertise they bring to the team ensure that the MCC is a strong and effective resource.

Most of the technical experts in the MCC are loaned by companies that participate in the specification work. Several changes of personnel have taken place recently, expanding the international flavour of the Competence Centre.

Monica Hellman has returned to Northstream SA in Sweden. She was responsible for supporting 3GPP Working Groups CN2 and CN5, as well as the former ETSI SMG3 Working Party B. She is replaced by Per Johan Jorgensen from Ericsson, Norway, who takes over Monica's CN2 and CN5 responsibilities.

Franco Settimo (from Omnitel Pronto Italia) supported Working Group CN4 and the former SMG3 Working Party C. Franco has been replaced by Kimmo Kymäläinen of Sonera, Finland. Kimmo takes over the support of CN4.

Adrian Scrase, Head of the Mobile Competence Centre, remarked: "Both Monica and Franco have made valuable contributions to their respective groups and to the MCC. On behalf of the 3GPP Partners, member organizations and the respective Chairmen, I thank them for their commitment and for joining so willingly in the MCC team spirit. Though I am sorry to lose them both, I'm delighted to welcome Per and Kimmo, and look forward to working with them."

Smart Cards

Michael Sanders, ETSI Project Manager for Smart Cards

A new ETSI Project

ETSI's Project responsible for the standardization of Smart Cards has changed its name. Work on smart cards for mobile communications was previously carried by Working Group SMG9 of the former Special Mobile Group (SMG). With the closure of SMG this summer, much of the smart card activity passed to a new ETSI Project, which was given the working title "newSMG9". The Project has now been renamed ETSI Project SCP (EP Smart Card Platform). At the same time, EP SCP has announced that it has already made significant progress towards providing the mobile telecommunications world with a smart card platform on which standards organizations can base their system specific applications.

ETSI Project SCP is the ETSI body responsible for the standardization of a common IC card platform for 2G and 3G mobile telecommunications systems. The SIM (Subscriber Identity Module, based on a smart card) has been a significant distinguishing feature for GSM and is now widely seen as a valuable component for all mobile systems. EP SCP's aim is to develop a common standard that will allow mobile users access to global roaming using their Smart Card, in which ever system they are using.

The Chairman of EP SCP, Klaus Vedder from Giesecke & Devrient, remarked: "More than 60 people attended the second meeting of EP SCP which was held in San Diego, California, USA, underlining the major interest which exists in Smart Card standardization. EP SCP has now approved the back-bone specification of the platform for publication, ETSI Technical Specification TS 102 221. This is the first in a series of specifications. It deals with the physical and logical characteristics of a smart card interface." Dr Vedder continued: "I believe that this specification, together with the whole range of work items that will soon complement it, will prove beneficial to all the players in the industry, operators, manufacturers and users alike."

ETSI Project SCP allows the participation of other organizations involved in the standardization of mobile communications systems, such as the Third Generation Partnership Project (3GPP) and its North American counterpart, 3GPP2, as well as committees involved in the standardization of 2G systems.

3GPP smart card activity

In addition to the generic work being performed by EP SCP, the 3GPP TSG-T (Terminals) Working Group 3 (T3 for short...) is developing specifications specifically for GSM and UMTS smart card applications. In GSM, the SIM was considered as consisting of the physical card and the application. But for UMTS, a functional split has been made, where the UICC (Universal Integrated Circuit Card) is the physical card and the USIM (Universal Subscriber Identity Module) is the UMTS application which resides on the UICC.

Work continues on test specifications, covering UICC/terminal interface tests, USIM application tests, and Java API (Application Programming Interface) tests. These specifications are expected to be completed by the end of 2000. Other work about to start includes: a core API and secure messaging feasibility study, enhancements to administrative commands, standardization of a technology independent card application toolkit, and specification of common application identifiers.

All of this activity builds on the valuable role that the SIM brought to GSM, and shows once again how this world-leading digital technology has set the "standard" for the world's mobile communication systems.

Specifications already produced

2nd Generation

GSM 11.11 (SIM / ME interface specification)
- most widely used smart card application in the world
- success due in part to continual evolution over 10 years

GSM 11.14 (SIM toolkit)
- an execution environment on the SIM
- allows for operator differentiation

GSM 03.48 (Security Mechanisms for SIM toolkit)
- provides end to end security for SIM applications

GSM 03.19 (Java API)
- API for SIM functionality based on a Java Card 2.1

3rd Generation

ETSI (EP SCP) - for the platform specification, TS 102 221
- (multi-voltage (5 / 3 / 1,8 V) and multi-application ready)

3GPP (T3) - UMTS specific part, TS 31.102
- (increased security)

New Mobile Standards Group

The working procedures of the 3rd Generation Partnership Project, 3GPP, include the transposition (or conversion) of its specifications into formal standards by the Project's Organizational Partners. These are, by definition, recognized standards-making bodies from various parts of the world. ETSI is one of the Partners and is thus required to play its part in this process.

In fact, the process presents no major difficulties for ETSI - the Partnership Project concept on which 3GPP is based was devised by ETSI and all deliverables (specifications and reports) from the Project are automatically treated as ETSI Technical Specifications and Technical Reports. The transposition process thus involves no further approval activity and the documents simply have to undergo non-technical editing to adopt the ETSI publication format. Now that responsibility for the production of GSM specifications has passed to 3GPP, these also have to be processed in a similar manner. ETSI has created the new Technical Committee MSG (Mobile Standards Group) to perform these tasks, and to maintain the documents as future releases come along.

Things become slightly more complicated when certain of the specifications (for 2nd or 3rd Generation) are required to be adopted for European regulatory purposes. As the standardization body officially recognized by the European Commission and EFTA for such matters within the telecommunications domain, ETSI has the task of identifying suitable specifications and making the necessary adaptations in order to publish the documents as European Standards (ENs). Here again, TC MSG now assumes this responsibility, and is charged with maintaining the documents in the future.

Currently, the principal requirement is to prepare Harmonized Standards in connection with the European Radio and Telecommunications Terminal Equipment (R&TTE) Directive for all the IMT-2000 family members except the DECT based IMT-2000 system (which will be produced by the ETSI DECT Project). Harmonized Standards are ENs that are related to a Directive. The approval of ENs (and Harmonized Standards) includes a Public Enquiry and Vote process carried out by the various European National Standards Organizations.

MSG, with the assistance of the ETSI Secretariat, has the task of administering this activity, including dealing with comments arising from the Public Enquiry. The group will also deal with any other work related to the European regulation of mobile systems.

The group's second meeting took place in September 2000, and appointed Mr François Courau of Alcatel France as Chairman. MSG has two working groups: TFES (Task Force for European Standards for IMT-2000) and Working Group GSM. As the names of these working groups indicate, they are respectively concerned mainly with the European Standards production and the processing of GSM specifications. TFES is a joint working group, reporting also to ETSI's Technical Committee ERM, the principal body within the Institute for R&TTE matters.

The MSG meeting also appointed Mr Simon Pike (Vodafone Group plc) as Chairman of TFES and Mr Ake Busin (Ericsson) as the Working Group GSM Chairman. Both become de facto Vice Chairmen of Technical Committee MSG.

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