Technical Specification Group Services and System Aspects
Meeting #14, Kyoto, 17-20 December 2001

TSGS#14(01) 0662

Source: **Chairman, Secretary SA1**

Title: **Status Report of SA_WG1 (Services)**

Document for: **Information and Decision**

Agenda Item: **7.1.1**

TSG SA1 STATUS REPORT

1 General Overview of Progress

The TSG_SA_WG1#14 Plenary Meeting was held in Kobe, Japan from the 5th to 9th November 2001. It was chaired by Mr Kevin Holley (mmO2) and the secretary was Mr Michael Clayton from the MCC. The host was NTT DoCoMo.

2 External Liaisons

The following liaison statements have been sent from SA1 to external bodies.

Document Number	Title	To	Copy	Sent
S1-011252	LS to other groups regarding stage 1 PUSH	SA2, SA3, SA5, T2, GSM-A SerG, WAP Forum		20/11/2001
S1-011252	LS to other groups regarding stage 1 PUSH	SA2, SA3, SA5, T2, GSM-A SerG, WAP Forum		20/11/2001
S1-011272	LS to ETSI SPAN 14	ETSI SPAN		20/11/2001
S1-011284	LS to SA on Introduction From Location Interoperability Forum Standards Influencing Group	SA2, LIF		20/11/2001
S1-011321	UE Split	SA2, SA3, T2, T3	SERG, TWG	20/11/2001
S1-011325	LS to NWIF on 22.946 Framework Specification	NWIF, email		03/12/2001

3 Change Requests for Rel-4 or earlier

3.1 CAMEL

Some time ago, when 02.78 was brought up to 22.078, the CAMEL TS was modified in relation the handling of Calling Party Number by the CSE. Prior to this, it was specified that the CSE may modify the Calling Party's Number as part of the call handling. This is not correct. The CSE is not allowed to modify the Calling Party's Number. This principle applies to all CAMEL Phases. The CAMEL stage 2 specifications (GSM TS 03.78 / 3GPP TS 23.078) and the CAMEL stage 3 specifications (GSM TS 09.78 / 3GPP TS 29.078) do not allow the CSE to modify the Calling Party's Number.

Since the 02.78 versions were misaligned with the stage 2, SA1 is presenting two CRs to R97 and R98. It should be noted that the text has already been removed from R99 onwards.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010663	02.78	A044		R97	F	Calling Party Number can not be modified by CSE	6.5.0	6.6.0	S1-010966
SP-14	SP-010663	02.78	A045		R98	A	Calling Party Number can not be modified by CSE	7.1.0	7.2.0	S1-010967

3.2 Editorial update of 22.011

In the process of some work done on 22.011, it was identified that some editorial errors had crept into the specification. SA1 has therefore elaborated two CRs to 22.011 R99 and Rel-4 to correct these. They are presented in document SP-010684 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010684	22.011	034		R99	F	CR to 22.011 R99 'Editorial improvements	3.5.0	3.6.0	S1-011333

SP-14	SP-010684	22.011	035		Rel-4	A	CR to 22.011 R4 'Editorial improvements'	4.4.0	4.5.0	S1-011334

3.3 Equivalent PLMN list and periodic network selection

In the text in 22.011 on interaction between equivalent PLMN list and periodic network selection attempts currently allows the reselection of a lower priority PLMN. This is because the priority of the selected PLMN is only checked if there exists a equivalent PLMN list.

The new text added to 3.2.2.5 indicates that in the priority of a selected PLMN during a periodic scan shall be checked according to the rules of 3.2.2.2. The behaviour in the case of a UE with a stored equivalent PLMN is not affected.

CRs to 22.011 R99 and Rel-4 are presented for approval in document SP-010685.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010685	22.011	030		R99	F	CR to 22.011 R99 'Interaction between equivalent PLMN list and periodic network selection attempts'	3.5.0	3.6.0	S1-011282
SP-14	SP-010685	22.011	031		Rel-4	A	CR to 22.011 R4 'Interaction between equivalent PLMN list and periodic network selection attempts'	4.4.0	4.5.0	S1-011341

3.4 Equivalent PLMN list and "Forbidden PLMN" list

It is possible that a UE can receive an equivalent PLMN list containing a PLMN which is included in the "Forbidden PLMN" list. This is not desirable since if the equivalent PLMN list contains a forbidden PLMN, the UE may try to reselect the forbidden PLMN and lose the PDP context when it is rejected. Morover, if the Forbidden PLMN list is not checked, multiple attempts to access a forbidden PLMN may be performed over time.

Therefore, a requirement is being added to TS 22.011 to check the equivalent PLMN list against the forbidden PLMN list. If one is found, this PLMN shall be removed from the equivalent PLMN list before this is stored by the UE.

The CRs to R99 and Rel-4 are provided for approval in document SP-010686.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010686	22.011	040		R99	F	CR to 22.011 R99 'Interaction between "equivalent PLMN" list and "Forbidden PLMN" list'	3.5.0	3.6.0	S1-011340
SP-14	SP-010686	22.011	041		Rel4	A	CR to 22.011 R4 'Interaction between "equivalent PLMN" list and "Forbidden PLMN" list'	4.4.0	4.5.0	S1-011339

3.5 Simplification of the procedure for user PLMN reselection

It was identified in SA1 that some of the current text in 3.2.2.3 is redundant. Currently the text indicates that the UE shall select the HPLMN and, if the HPLMN is not available, the UE shall follow the procedure defined in clause 3.2.2.2.A). However, section 3.2.2.2.A) indicates that the first PLMN selected shall be the HPLMN.

Therefore, CRs 22.011-038 and 22.011-039 seek to streamline the text and add clarity.

The CRs are presented in document SP-010687 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010687	22.011	038		R99	F	CR to 22.011 R99 'Simplification of the procedure for user PLMN reselection'	3.5.0	3.6.0	S1-011337
SP-14	SP-010687	22.011	039		Rel-4	A	CR to 22.011 R4 'Simplification of the procedure for user PLMN reselection'	4.4.0	4.5.0	S1-011338

3.6 UE behaviour when receiving a registration rejection

In TS 22.011 it is stated that if a PLMN is selected but the UE cannot register on it because registration is rejected with the cause "PLMN not allowed", the UE shall not re-attempt to register on that network unless the same PLMN is selected again by the user. However, it is not indicated that the rejected PLMN should be added to the “Forbidden PLMN” or “Forbidden PLMNs for GPRS services” list (subclause 3.2.2.4.1). The CR in 22.011-036 seeks to clarify what should happen when such a rejection is received for both CS and PS modes.

The CR for R99 and corresponding CR for Rel-4 are provided in document SP-010688 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010688	22.011	036		R99	F	CR to 22.011 R99 'Clarification on the UE behaviour when receiving a registration rejection'	3.5.0	3.6.0	S1-011335
SP-14	SP-010688	22.011	037		Rel-4	A	CR to 22.011 R4 'Clarification on the UE behaviour when receiving a registration rejection'	4.4.0	4.5.0	S1-011336

3.7 Clarification on the interpretation of the term “country”

It is possible that in the future each country could be allocated more than one country code. Currently, this is not catered for in the standards and so it was identified in SA1 that the standard must be prepared for this scenario.

The CRs to make this clarification are provided in document SP-010689 for R99 and Rel-4.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010689	22.011	032		R99	F	CR to 22.011 R99 'Clarification on the interpretation of the term “country” in 22.011'	3.5.0	3.6.0	S1-011331
SP-14	SP-010689	22.011	033		Rel-4	A	CR to 22.011 R4 'Clarification on the interpretation of the term “country” in 22.011'	4.4.0	4.5.0	S1-011332

3.8 Multicall handover requirements

The current version of TS 22.129 specifies selection criteria for the network which shall be used in case of handover of a multicall when it is not be possible to handover all bearers belonging to the multicall.

However, CN1 has not been able to agree on a solution implementing these requirements in the stage 2 specification of the handover procedures (TS 23.009), neither by discussion, nor by a formal vote.

Therefore, in a new attempt to get a consistent set of specifications, it is proposed:

- to relax the requirements in TS 22.129 so that they apply only to InterSystem handover; in case of IntraUTRAN relocations the criteria are operator dependent; and
- to specify in TS 23.009 that during RAB assignment and relocation request a 3G_MSC-A supporting multicall may assign priorities. The management of priority levels is Implementation dependent, under operator control.

The CR for R99, and subsequent CRs for Rel-4 and Rel-5 are provided in document SP-010670 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010670	22.129	023		R99	F	Multicall handover requirements	3.5.0	3.6.0	S1-011287
SP-14	SP-010670	22.129	024		Rel4	A	Multicall handover requirements	4.3.0	4.4.0	S1-011288
SP-14	SP-010670	22.129	025		Rel5	A	Multicall handover requirements	5.0.0	5.1.0	S1-011289

4 Change Requests for Rel-5

4.1 Defintion of Local Services

At the last meeting of SA1, a CR to several specifications was provided on the definition of Local Services. These documents cau caused a long discussion on this topic and were postponed to SA1 #14. Once again a discussion was caused by the CRs.

In short, the problem is the different meaning between VHE Local Services and IMS in both SA1/SA2. However, a draft compromise was reached at the last meeting of SA1 and so revisions of the CRs provided at SA1 #13 have been agreed in SA1 #14 to 21.905, 22.121 and 22.228.

These are provided in document SP-010671 for approval.

It should be noted that SA1 has sent a liaison statement to SA2 to inform if of the SA1 definition of Local Services (S1-011193).

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010671	21.905	021	1	Rel-5	F	Defintion of Local Services	5.1.0	5.2.0	S1-011276
SP-14	SP-010671	22.121	021	1	Rel-5	F	Defintion of Local Services	5.1.0	5.2.0	S1-011277
SP-14	SP-010671	22.228	005	1	Rel-5	F	Defintion of Local Services	5.3.0	5.4.0	S1-011278

4.2 Clarification of requirements for support of codecs

With the introduction of Iu mode of operation to GERAN SA1 believes that it is required to clarify speech codec support in that perspective. It is proposed to have FR as mandatory codec in A/GB mode of operation and AMR in Iu mode of operation. Other codecs would remain optional.

The CR to implement this is provided in document SP-010672 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010672	22.003	008		Rel-5	C	Clarification of requirements for support of codecs	4.2.0	5.0.0	S1-011290

4.3 Privacy Override Indicator for LCS

In 22.071 there is the ability to have a privacy override indicator which is applicable to lawful intercept and emergency services as allowed by local regulatory requirements and is not applicable to value added and PLMN operator services. The Privacy Override Indicator is used to determine whether Subscriber Privacy of the Target UE subscriber should be overridden or not.

The privacy override indicator is normally only valid when the LCS Server for the LCS client is located in the same country of the Target UE. However, if it is agreed by bi-lateral agreements between operators, the privacy override indicator could also be valid when the LCS client is not located in the same country as the Target UE.

The CR to change this requirement is provided in document SP-010673 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010673	22.071	029		Rel5	C	Privacy Override Indicator	4.3.0	5.0.0	S1-011285

4.4 CAMEL (22.078)

A number of corrections to CAMEL for release 5 were received at the last SA1meeting. The following is a summary of the changes agreed in SA1:

CR 22.078-124 contains a change on Volume charging for a GPRS Session to align Release 4 with R99. SA1 had a CR to 22.078 (S1-000540) that originally removed the requirement for CAMEL controlled volume charging for a GPRS session in Release 99. Subsequently, SA1 provided a CR to correct an omission in S1-000540 (S1-000750), again for Release 99. CAMEL Phase 3 for Release 99 is identical in service requirments for Release 4.

The original change captured in S1-000540 was applied to Release 4 however it transpires that the change agreed in S1-00750 was not applied to Release 4. The purpose of this change is to align Release 4 with Release 99.

CR 22.078-125 is a corresponding CR to Rel-5 to align Release 5 with Release 99 and Release 4 to ensure consistent requirements.

SA1 has also received a request from CN2 to make a change in CR 22.078-126 on the use of start digit string as only criteria in Mid Call DP. Some CAMEL services require the Mid Call DP to be triggered using only the start digit string. (Currently this is not possible as the minimum number of digits >0 and does not include the start digit string.)

CR to 22.078 contains a change on ability to arm Mid Call DP for the duration of a call. Some services using the Mid-Call event may require the event to be armed for the duration of the call regardless of how many times the event is encountered.

SA1 has had some discussion on the introduction of subscriber status information in PS domain. There is a mechanism to interrogate a visiting network on the status of the subscriber. Together with CR 22.078-102 (S1-0100466) the ATI enhancement regarding subscriber status and location information for GPRS was introduced. However the requirements regarding the subscriber status information provided to the CSE was not detailed.

The main changes from the previous version are:
- Explanation on the cover page of the reason for distinguishing the "not reachable for paging" substates;
- Expansion of the "CAMEL-Connected" state into two variations: "not reachable for paging" and "may be reachable for paging";
- Removal of the event "MS moves into standby state".

CR to 22.078-129 contains a change on the ability to re-arm the event in the change of position procedures during a call. The change of position event may occur several times during a call. As some services using the change of position event may require the event to be armed for the duration of the call regardless of how many times the event is encountered, it is useful for the CSE to instruct the VPLMN to re-arm the event automatically.

CR to 22.078-130 contains a change to remove call suspension in the change of position procedures. "Call suspension in the change of position procedure upon the event occurred", was originally intended to perform charging activity during the suspension. However it was clarified that the charging activity which includes revision of the call duration and release could be done without call suspension.

All of the above CRs are provided in document SP-010674 for approval.

Meeting-1st-Level	Doc-1st-Level	Spec	CR	Rev	Phase	Cat	Subject	Version-Current	Version-New	Doc-2nd-Level
SP-14	SP-010674	22.078	124		Rel-4	F	Removal of Volume charging for GPRS Session	4.3.0	4.4.0	S1-010991
SP-14	SP-010674	22.078	125		Rel-5	A	Removal of Volume charging for GPRS Session	5.4.0	5.5.0	S1-011314
SP-14	SP-010674	22.078	126		Rel-5	C	Use of start digit string as only criteria in Mid Call DP	5.4.0	5.5.0	S1-010965
SP-14	SP-010674	22.078	127		Rel-5	C	Ability to arm Mid Call DP for the duration of a call	5.4.0	5.5.0	S1-010968
SP-14	SP-010674	22.078	128	1	Rel-5	C	Introduction of subscriber status information in PS domain	5.4.0	5.5.0	S1-011312
SP-14	SP-010674	22.078	129		Rel5	C	CR to 22.078 (Ability to re-arm the event in the change of position procedures during a call)	5.4.0	5.5.0	S1-010977
SP-14	SP-010674	22.078	130		Rel5	F	CR to 22.078 (Removal of call suspension in the change of position procedures)	5.4.0	5.5.0	S1-011293

4.5 OSA (22.127)

SA1, and the SA1 OSA ad hoc, has continued work on OSA, primarily for Release 5. There is one Change Request for OSA 22.127 Release 4 and Several CRs to Release 5 on corrections and some functional modifications. There has been one proposed LS to ETSI SPAN14 and OSA experts have given a presentation to CN5. Some work on the relation with SA3 to comply with security requirements is still needed.

The following is a summary of the changes agreed in SA1:

The CR in 22.127-025 for Rel-4 relates to the removal of Terminal Capability Change Notification. This CR proposes to remove the OSA function to notify about changes in the terminal’s capabilities via OSA since this was not implemented by 3GPP TSG CN5 in Release 4.

CR 22.127-026 contains a change to clarify support for information services functions in

OSA. It shall be possible for OSA application to supply to and retrieve from the HE service information. The HE is not requested to broadcast this service information to anyone. Service information shall clearly indicate a category they belong to and shall be limited in their size.

CR 22.127-027 contains a change on User Data Management. The entity User Profile Access Manager is removed because it seems to overlap in great deal with the OSA SCS for User Profile Management, thus the latter term is now used in line with the other features. Some more description is given for the interface requirements which should be the core contents of this section. It is not sufficient to have requirements only in the clause 10 (security requirements). Location information is left out of the User Profile figure and Access Information is added to it.

CR TS 22.127-028 contains a change to User Data Management Security Modifications to complete the requirements for REL-5. The entity User Profile Access Manager is removed because it seems to overlap in great deal with the OSA SCS for User Profile Management, thus the latter term is now used in line with the other features and the requirements are rewritten in a more unambiguous way.

CR to 22.127-029 contains a number of editorial corrections on the support of presence related capability functions.

CR to 22.127-030 contains a change to the high level requirements concerning OSA impacts on standardised and non-standardised Service Capability Functions. TS 22.127 is unclear about whether OSA requires that the Service Capability Features, to which OSA provides access, need to be 3GPP standardised entities or not. In the past this has given rise to unclear requirements on CN5 and SA2.

This CR clarifies that OSA does not require that all SCFs, to which OSA provides an API interface, need to be 3GPP standardised entities, nor that the existence of a standardised interface / protocol to communicate with that SCF is required. Thus it is permissible to e.g. build a OSA API function into a WAP gateway to retrieve terminal capabilities from terminal supporting the WAP protocol. If, on the other hand, the SCF is a 3GPP standardised entity and if a standardised interface / protocol to communicate with that SCF exists it is recommended to define a mapping of the OSA API functions to that interface / protocol.

CR to 22.127-031 contains a change on the support for presence related capability functions. The current description of the capabilities offered through the OSA interface are not sufficiently clear. Presence related functions include presence information as defined by the presence service and may include user’s availability. An OSA application may be a requester of presence information (i.e. in TS 22.141 terminology a watcher) as well as a provider of presence information (i.e. in TS 22.141 terminology a presentity). In addition, the OSA interface shall allow an application to read and/or modify any properties of presentities or watchers that fall within the presence service but is not part of presence information (e.g. access rules).

As a result, the OSA interface must be able to:
- allow an application to request presence related information (including periodic notifications or changes)
- allow an application to update presence related information register as a presentity as well as a watcher (the latter is FFS as this is not yet covered in TS 22.141)
- allow an application to modify or query presence related data

- allow an application to retrieve watcher information

CR to 22.127-032 contains a change to introduce backwards compatibility requirements in OSA API. The requirements introduced as part of Release 5 should build on the capabilities of previous releases. Some changes to features such as the framework may be introduced as a result. In the future, enhancements to existing capabilities may lead changes to the methods across the API interface. It is important that any evolution of the API maintains as far as possible some backward compatibility. At a minimum, applications should continue to operate after the network has been upgraded with new OSA capabilities for an operator controlled timeframe. Such backward compatibility may be achieved by the practice used in Java, called 'deprecation' to manage name changes. However, the detail of how this is achieved is left to experts in TSG CN WG5.

CR 22.127-033 results from the post SA1 #14 email approval process. The IMS stage 1 (22.228) and the IP multimedia framework technical report (TR 22.941) document use cases for IP multimedia services. In order to support the services listed, enhancements to the current OSA capabilities within IMS are required. The CR also places all the requirements for IP Multimedia together in one section.

All of the above CRs are provided in document SP-010675 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010675	22.127	025		Rel-4	F	CR to TS 22.127 v 5.1.1, (Cat F R4) on Removal of Terminal Capability Change Notification	4.2.0	4.3.0	S1-011106
SP-14	SP-010675	22.127	026		Rel-5	F	CR to TS 22.127 v 5.1.1, (Cat F R5)on OSA Information Service Modification	5.1.1	5.2.0	S1-011105
SP-14	SP-010675	22.127	027		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) User Data Management Modifications	5.1.1	5.2.0	S1-011107
SP-14	SP-010675	22.127	028		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) User Data Management Security Modifications	5.1.1	5.2.0	S1-011108
SP-14	SP-010675	22.127	029		Rel-5	D	CR to TS 22.127 v 5.1.1, (Cat D R5) Editorial corrections for the Support of Presence Service	5.1.1	5.2.0	S1-011109
SP-14	SP-010675	22.127	030		Rel-5	F	CR to TS 22.127 v 5.1.1, (Cat F R5) High Level requirements concerning OSA impact on SCF´s	5.1.1	5.2.0	S1-011111
SP-14	SP-010675	22.127	031		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) Support for presence related capability functions	5.1.1	5.2.0	S1-011112
SP-14	SP-010675	22.127	032		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) Backward Compatibility	5.1.1	5.2.0	S1-011113
SP-14	SP-010675	22.127	033		Rel5	B	CR to TS 22.127 V 5.1.1 (Cat B R5) Adding IM Session Control Funct	5.1.1	5.2.0	S1-011344

SA1 has also approved a liaison statement to ETSI SPAN 14 pointing out that there are recent activities on requirements for Open Service Access within ETSI SPAN 14 and that close work is encouraged.

4.6 Requirements for VASP connectivity (22.140)

SA1 at its last meeting received in input to 22.140. To enhance the MMS service it is necessary to provide a standardised interface between Value Added Service Provider (VASP) and the MMS. In clause 10 of the TS 22.140 is stated that the MMS shall permit interworking with other (...)inteligent network services and supplementary services, either located within or outside a mobile network.

Since Release 4 of TS 23.140 a reference point (MM7) is already identified but not yet further specified. This reference point is intended for a VASP to distribute content. In order to standardise this interface more detailed requirements need to be elaborated on in the MMS stage 1 description for release 5. This is in accordance T2-SWG3's agreed upon scope for VASP MMS connectivity in REL-5

This CR, presented in document SP-010676, was agreed-to in SA1 as part of its email approval process.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010676	22.140	008		Rel5	B	Stage 1 Requirements for VASP connectivity	4.1.0	5.0.0	S1-011345

4.7 Presence (22.141)

Since the approval of 22.141 at SA #13, SA1 has continued its work on the Presence service and has elaborated a number of CRs. The following is a summary of the changes agreed in SA1:

CR to 22.141-001 contains a change to provide protection against replay attacks. In the current specification, clause 7 contains explicit requirements to protect the presence service, updates of presence information and notifications of presence information against eavesdropping and tampering. Replay attacks are a real threat for the presence service (presence information updates and notifications); and to ensure that the service provides the required security it should also be protected against such attacks.

CR to 22.141-002 relates to the support of a wireless subscriber as an entity in the presence information. In the CR, requirements identifying the information specifically supported in presence information related to a 3GPP subscriber are detailed. These requirements define the type of information to be supported when the presentity is a 3GPP subscriber, and if this information is manageable by the 3GPP subscriber and/or the network. Some example values are also suggested.

This is a significant change and it is late in the day for release 5, but nonetheless, SA1 is submitting the CR for approval.

CR to 22.141-003 contains some clarifications to Presence access rules. The CR extends the presence information access rules to cover group(s) of watchers.

CR to 22.141-004 contains some clarifications on charging mechanisms for Presence. Since a presence service will be used by prepaid and post paid users it is necessary to distinguish the charging methods for these two categories of users and so it is added that charging mechanisms shall be supported both for On-line and Off-line charging. It was noted in SA1 that some of the new definitions need to be put into 21.905; this will be done subsequently.

CR 22.141-005 contains a change that describes the provision, registration, activation and invocation steps as they are described in a generic ITU document. The registration process is not detailed within the specification and watcher registration is not mentioned. Therefore, within the administration clause, the different steps (provision, registration, activation, invocation) and the interactions between them are clarified. The use of presentities/watchers is replaced by principals whenever appropriate. The registration (previously mentioned in the Management requirements section) is detailed in this clause.

CR to 22.141-006 contains an alignment between the definition of “principal” and its use in the specification. In the current specification a note states that the definition of principal should be made consistent with the usage of the term principal in the TS. The proposed changes aim to avoid any inconsistency within the specification.

CR to 22.141-008 contains a change to the Presence Service requirements in order to improve clarity. Further, it is made clear that a user in the presence service is a 3GPP subscriber. Requirements on supplying information to the presence service, as well as privacy requirements are further clarified.

All of the above CRs are provided in document SP-010677 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010677	22.141	001		Rel-5	C	Protection against replay attacks	5.0.0	5.1.0	S1-011059
SP-14	SP-010677	22.141	002		Rel-5	C	Reserved for Presence	5.0.0	5.1.0	S1-011210
SP-14	SP-010677	22.141	003		Rel-5	C	Clarification to Presence access rules	5.0.0	5.1.0	S1-011211
SP-14	SP-010677	22.141	004		Rel-5	B	Clarification on charging mechanisms	5.0.0	5.1.0	S1-011212
SP-14	SP-010677	22.141	005		Rel-5	F	Clarification of registration and administration procedures	5.0.0	5.1.0	S1-011213
SP-14	SP-010677	22.141	006		Rel5	F	Use of ’Principal’ within TS 22.141	5.0.0	5.1.0	S1-010960
SP-14	SP-010677	22.141	008		Rel5	F	Clarification of presence information requirements	5.0.0	5.1.0	S1-011218

4.8 MBMS (22.146)

Since is approval at SA #13, a number of changes have been proposed to 22.146 for Multimedia Broadcast/Multicast Service.

The follow is a summary of the changes agreed at SA1:

CR to 22.146-002 rev2 contained some changes to the definitions. There are still some inconsistencies and ambiguities in the definition section. Therefore, clearer definitions are introduced and corresponding changes are made throughout the whole document. Some minor corrections and clarifications are introduced.

CR to 22.142-003 rev3 contains some clarifications of reliable transmission. In Section 4.1.1 it is noted that reception of traffic in broadcast and multicast mode can not be guaranteed but if required, this could be built into the application layer. From an operator and customer point of view it is essential that it can be assured that reception of traffic is guaranteed, e.g. for charging/billing of multicast mode MBMS. Also, the requirement on reliable transmission is essential and should therefore not be put into a note and Broadcast, by nature, is a service which is distributed in a certain area without knowledge of the receivers location and if there are any at all. Finally, reliable transmission should therefore not apply to broadcast mode MBMS but may apply to MBMS in multicast mode.

CR to 22.146-005 rev1 contains some clarifications of the availability of MBMS.

1 In section 5.3 it is stated that "In general, multicast or broadcast services should be available for all users that are registered in a PLMN. This should include UEs in idle/standby and connected/ready modes."
2 “In general, multicast or broadcast services should be available for all users that are registered in a PLMN.” ’Available’ in this relation means, that a user is informed of MBMS occasion, NOT that the mobile can linger in the current state in order to

receive the data. A notification mechanism isn't mentioned at all in the current TS. In order to enable inform users of MBMS occasions and to initiate UE processes for the reception of MBMS data, it is proposed to introduce a information mechanism.

3 Also in section 5.3 the issue of 'downgraded service' is mentioned. MBMS should transparently transmit data and no sorting of the contents should be applied, i.e. either all data of a MBMS messages is transmitted in a specific area or not at all. When a certain QoS is required but not available in a specific area, the data shouldn't be send at all (not only parts of it). The concept of a 'downgrading' MBMS taking into account the available QoS in the cell leads to a mixture of all layers and a huge signalling between all involved network elements (in CN and UTRAN) and therefore increase the complexity and costs of the service.

CR to 22.146-006 rev2 conatins some clarifications on MBMS Applicability in Gb Mode. Current specification states that MBMS is applicable to UMTS (UTRAN and GERAN). Although implied, it is not clear to all that MBMS is to be supported in Gb mode. Hence a clarification is needed and support for Gb mode is explicitly mentioned.

CR to 22.146-009 rev2 contains changes on Data Loss During Handover. Editor's note regarding data loss during handover is redundantas data loss as is possible during handover as it is possible at any other time. In that respect, there is no difference between an unacknowledged point-to-point downlink transmission and a point-to-multipoint transmission.

CR to 22.146-011 rev1 contains some change on Optional Privacy Assurance for Multicast Services. Currently it is not clear whether multicast service privacy is optional for a given service or if all multicast services must be delivered with assured group privacy. It seems probable that not all multicast services will require private delivery. Further to this, multicast security is a complex issue with application dependent requirements. Taking into account the computational cost of decryption on the UE/MS it is proposed to allow for non-secured multicast transmissions as an option.

CR to 22.142-018 rev2 contains changes to the "High Level Diagrams for MBMS". High-level diagrams of Multicast and Broadcast architecture including typical services and expanded text on the general description of Multicast mode are added.

CR to 22.146-019 contains change to clarify service requirements on multicast and broadcast areas. The current service requirements that "the broadcast / multicast area may be smaller than a cell" is unclear and vague in terms of location based MBMS and from radio aspect point of view. The multicast or broadcast areas (definitions) should not vary depending on the traffic congestion or radio resources in the cells.

CR to 22.146-020 rev2 contains some clarifications to MBMS. TSG SA has asked for clarification on types of services offered by MBMS, in addition there is confusion on whether MBMS is a bearer service or a teleservice. This contribution tries to address this and clarify that MBMS offers a bearer service

CR to 22.146-021 contains some changes to Multiple Areas for Multicast and Broadcast Services. The current specification defines a multicast area as possibly spanning multiple PLMNs and, while the ability to deliver multicast services over different PLMNs is important, this should not be reflected in the multicast area definition. Rather, a given service could be delivered across different PLMNs to separate multicast areas. It is expected that a certain service might offer location-oriented data. Currently the

specification does not support such a concept.

CR to 22.146-022 rev2 introduces service requirements on MBMS service discovery clarifying the description on MBMS multicast service subscription and reception.

CR to 22.146-023 contains changes to the definition of "Mobile Station" and "User equipment", usage of "UE". The abbreviation "UE" should be used to cover both 2G "MS" and "User Equipment.

All of the above CRs are provided in document SP-010678 for approval.

SA	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc.No.
SP-14	SP-010678	22.146	002	2	Rel5	F	Proposed CR on changes to definitions in 22.146	5.0.0	5.1.0	S1-011077
SP-14	SP-010678	22.146	003	3	Rel5	B	Proposed CR on clarification of reliable transmission	5.0.0	5.1.0	S1-011305
SP-14	SP-010678	22.146	005	1	Rel5	F	Proposed CR on clarifications of the availability of MBMS	5.0.0	5.1.0	S1-011075
SP-14	SP-010678	22.146	006	2	Rel5	F	Proposed CR on Clarification on MBMS applicability in Gb mode	5.0.0	5.1.0	S1-011303
SP-14	SP-010678	22.146	009	2	Rel5	F	Proposed CR on data loss during handover	5.0.0	5.1.0	S1-011306
SP-14	SP-010678	22.146	011	1	Rel5	C	Proposed CR on optional privacy assurance for Multicast services	5.0.0	5.1.0	S1-011076
SP-14	SP-010678	22.146	018	2	Rel5	F	Proposed CR to 22.146: High level Diagrams of MBMS	5.0.0	5.1.0	S1-011304
SP-14	SP-010678	22.146	019		Rel5	F	CR Clarifying Service Requirements on Multicast and Broadcast Areas	5.0.0	5.1.0	S1-011065
SP-14	SP-010678	22.146	020	2	Rel5	F	Proposed CR to 22.146 MBMS	5.0.0	5.1.0	S1-011326
SP-14	SP-010678	22.146	021		Rel5	B	Multiple Areas for Multicast and Broadcast Services	5.0.0	5.1.0	S1-011225
SP-14	SP-010678	22.146	022	1	Rel5	F	MBMS service discovery	5.0.0	5.1.0	S1-011309
SP-14	SP-010678	22.146	023		Rel5	F	CR to 22.146 (MBMS) UE and MS definition	5.0.0	5.1.0	S1-011020

5 New TSs

5.1 UE Functionality Split

Following the decision of SA #12 to delete the CN1 building block Multimedia Capabilities, SA1 proposed a WI under its control that was approved at SA #13.

SA1 has been working on this task and has now created a TR 22.944, which is believes is sufficiently stable to be presented for information.

It is provided in document SP-010679 for information.

5.2 Distributed Speech Recognition

At SA #13 two WIs were approved related to speech recognition; Speech Enabled Services Based on Distributed Speech Recognition (DSR) (SP-010488) and Distributed Speech Recognition (DSR) (SP-010581). At the time, it was indicated that much of what is required could be adopted from the work being done Aurora although this was not indicated in the WID.

Based on this, and a number of inputs at the last meeting of SA1, a new TS 22.243 has been elaborated in SA1. Some areas for clarification and further work were identified:

- Should Aurora be a IMS service only or should it also be a requirement to support DSR on CS?
- Clarify some requirements (Uplink negotiation, user or subscriber control)
- QoS requirements and classes for DSR
- Service example needed to clarify requirements of third parties.
- Justification of privacy requirement
- Definitions are required

However, SA1 would like still to present this TS for information. It is provided in document SP-010680.

6 WIs from SA1

SA1, at its last meeting, received a proposal for a WI on the support of Multi-modal and Multi-device browsers application by 3GPP. This was discussed briefly in SA1, and then subsequently dealt with as part of the email approval process.

Multi-modal browsers and Multi-device application enable the access and interaction to information anytime, anywhere, anyhow, independently of the activity or environment particularly when using small portable mobile devices. This application provides a compelling user interface which exploit the limitations experienced by users to support convenience user interactions, for example, talking is easier than typing, but reading is faster in some conditions are more appropriate than listening, etc....

In order to enable appropriate environments in a secure fashion , it is necessary to define and develop use cases for further understanding

It is presented in document SP-010681 for approval.

7 Meetings of SA1

7.1 Meetings since last SA

The following meetings have been held since SA #12.

OSA #9	15 - 16 Oct 2001,	Loipersdorf , Austria	Hosted by Siemens
MBMS #3	15 - 16 Oct 2001,	Loipersdorf , Austria	Hosted by Siemens
IP Framework #3	15 - 17 Oct 2001,	Loipersdorf , Austria	Hosted by Siemens
Presence #7	16 - 17 Oct 2001,	Loipersdorf , Austria	Hosted by Siemens
Streaming #2	16 - 17 Oct 2001,	Loipersdorf , Austria	Hosted by Siemens
S1#14	5-9 November 2001	Kobe, Japan	Hosted by NTT DoCoMo

7.2 Planned meetings

The meeting schedule, was reviewed in the meeting. Proposals for hosts would be gratefully received.

SA1#15	11-15 Feb 2002,	Austria, hosted by Siemens
SA1#16	13-17 May 2002,	Victoria, Canada, hosted by AWS
SA1#17	12-16 Aug 2002,	host offered: SBC (North America)
SA1#18	11-15 Nov 2002,	no host

SA1 Ad hocs	14 -18 Jan 2002,	Phoenix, USA hosted by AWS
SA1 Ad hocs	08 -12 Apr 2002,	Sophia Antipolis, France
SA1 Ad hocs	08 -12 Jul 2002,	no host
SA1 Ad hocs	14 -18 Oct 2002,	no host

Annex 1: Documents provided to this Plenary

Tdoc	Title	Agenda
SP-010661	Presentation of SA1 to SA #14	7.1.1
SP-010662	Status report of SA1 to SA #14	7.1.1
SP-010663	CRs to 02.78 on Calling Party Number can not be modified by CSE for R97 and R98	7.1.3
SP-010684	CRs to 22.011 'Editorial improvements for R99 and Rel-4	7.1.3
SP-010685	CRs to 22.011 R99 and Rel-4 on 'Interaction between equivalent PLMN list and periodic network selection attempts'	7.1.3
SP-010686	CRs to 22.011 R99 and Rel-4 on 'Interaction between "equivalent PLMN" list and "Forbidden PLMN" list'	7.1.3
SP-010687	CRs to 22.011 R99 and Rel-4 on 'Simplification of the procedure for user PLMN reselection'	7.1.3
SP-010688	CRs to 22.011 R99 and Rel-4 on 'Clarification on the UE behaviour when receiving a registration rejection'	7.1.3
SP-010689	CRs to 22.011 R99 and Rel-4 on 'Clarification on the interpretation of the term "country" in 22.011'	7.1.3
SP-010670	CRs to 22.129 R99, Rel-4 and Rel-5 on Multicall handover requirements	7.1.3
SP-010671	CRs to 21.905, 22.121 and 22.228 on Defintion of Local Services for Rel-5	7.1.3
SP-010672	CR to 22.003 Rel-5 on Clarification of requirements for support of codecs	7.1.3
SP-010673	CR to 22.071 Rel-5 on Privacy Override Indicator	7.1.3
SP-010674	CRs to 22.078 for Rel-5 for CAMEL	7.1.3
SP-010675	CRs to 22.127 for Rel-5 for Open Service Access (OSA)	7.1.3
SP-010676	CRs to 22.140 for Rel-5 for Multimedia Messaging Service	7.1.3
SP-010677	CRs to 22.141 for Rel-5 for Presence Service	7.1.3
SP-010678	CRs to 22.146 for Rel-5 for Multimedia Broadcast/Multicast Service	7.1.3
SP-010679	TR 22.944 on UE Functionality Split for information	7.1.3
SP-010680	TS 22.243 on Stage 1 of Distributed Speech Recognition for information	7.1.3
SP-010681	New WI on Support of Multi-modal and Multi-device browsers application by 3GPP	7.1.3

Annex 2: CRs provided to this Plenary

SA Meet	SA Doc.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc
SP-14	SP-010663	02.78	A044		R97	F	Calling Party Number can not be modified by CSE	6.5.0	6.6.0	966
SP-14	SP-010663	02.78	A045		R98	A	Calling Party Number can not be modified by CSE	7.1.0	7.2.0	967
SP-14	SP-010671	21.905	021	1	Rel-5	F	Defintion of Local Services	5.1.0	5.2.0	1276
SP-14	SP-010672	22.003	008		Rel-5	C	Clarification of requirements for support of codecs	4.2.0	5.0.0	1290
SP-14	SP-010685	22.011	030		R99	F	CR to 22.011 R99 'Interaction between equivalent PLMN list and periodic network selection attempts'	3.5.0	3.6.0	1282
SP-14	SP-010685	22.011	031		Rel-4	A	CR to 22.011 R4 'Interaction between equivalent PLMN list and periodic network selection attempts'	4.4.0	4.5.0	1341
SP-14	SP-010689	22.011	032		R99	F	CR to 22.011 R99 'Clarification on the interpretation of the term "country" in 22.011'	3.5.0	3.6.0	1331
SP-14	SP-010689	22.011	033		Rel-4	A	CR to 22.011 R4 'Clarification on the interpretation of the term "country" in 22.011'	4.4.0	4.5.0	1332
SP-14	SP-010684	22.011	034		R99	F	CR to 22.011 R99 'Editorial improvements	3.5.0	3.6.0	1333
SP-14	SP-010684	22.011	035		Rel-4	A	CR to 22.011 R4 'Editorial improvements'	4.4.0	4.5.0	1334
SP-14	SP-010688	22.011	036		R99	F	CR to 22.011 R99 'Clarification on the UE behaviour when receiving a registration rejection'	3.5.0	3.6.0	1335
SP-14	SP-010688	22.011	037		Rel-4	A	CR to 22.011 R4 'Clarification on the UE behaviour when receiving a registration rejection'	4.4.0	4.5.0	1336
SP-14	SP-010687	22.011	038		R99	F	CR to 22.011 R99 'Simplification of the procedure for user PLMN reselection'	3.5.0	3.6.0	1337
SP-14	SP-010687	22.011	039		Rel-4	A	CR to 22.011 R4 'Simplification of the procedure for user PLMN reselection'	4.4.0	4.5.0	1338
SP-14	SP-010686	22.011	040		R99	F	CR to 22.011 R99 'Interaction between "equivalent PLMN" list and "Forbidden PLMN" list'	3.5.0	3.6.0	1340
SP-14	SP-010686	22.011	041		Rel4	A	CR to 22.011 R4 'Interaction between "equivalent PLMN" list and "Forbidden PLMN" list'	4.4.0	4.5.0	1339
SP-14	SP-010673	22.071	029		Rel5	C	Privacy Override Indicator	4.3.0	5.0.0	1285
SP-14	SP-010674	22.078	124		Rel4	F	Removal of Volume charging for GPRS Session	4.3.0	4.4.0	991

SP-14	SP-010674	22.078	125		Rel5	A	Removal of Volume charging for GPRS Session	5.4.0	5.5.0	1314
SP-14	SP-010674	22.078	126		Rel-5	C	Use of start digit string as only criteria in Mid Call DP	5.4.0	5.5.0	965
SP-14	SP-010674	22.078	127		Rel-5	C	Ability to arm Mid Call DP for the duration of a call	5.4.0	5.5.0	968
SP-14	SP-010674	22.078	128	1	Rel-5	C	Introduction of subscriber status information in PS domain	5.4.0	5.5.0	1312
SP-14	SP-010674	22.078	129		Rel5	C	CR to 22.078 (Ability to re-arm the event in the change of position procedures during a call)	5.4.0	5.5.0	977
SP-14	SP-010674	22.078	130		Rel5	F	CR to 22.078 (Removal of call suspension in the change of position procedures)	5.4.0	5.5.0	1293
SP-14	SP-010671	22.121	021	1	Rel-5	F	Defintion of Local Services	5.1.0	5.2.0	1277
SP-14	SP-010675	22.127	025		Rel-4	F	CR to TS 22.127 v 5.1.1, (Cat F R4) on Removal of Terminal Capability Change Notification	4.2.0	4.3.0	1106
SP-14	SP-010675	22.127	026		Rel-5	F	CR to TS 22.127 v 5.1.1, (Cat F R5)on OSA Information Service Modification	5.1.1	5.2.0	1105
SP-14	SP-010675	22.127	027		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) User Data Management Modifications	5.1.1	5.2.0	1107
SP-14	SP-010675	22.127	028		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) User Data Management Security Modifications	5.1.1	5.2.0	1108
SP-14	SP-010675	22.127	029		Rel-5	D	CR to TS 22.127 v 5.1.1, (Cat D R5) Editorial corrections for the Support of Presence Service	5.1.1	5.2.0	1109
SP-14	SP-010675	22.127	030		Rel-5	F	CR to TS 22.127 v 5.1.1, (Cat F R5) High Level requirements concerning OSA impact on SCF´s	5.1.1	5.2.0	1111
SP-14	SP-010675	22.127	031		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) Support for presence related capability functions	5.1.1	5.2.0	1112
SP-14	SP-010675	22.127	032		Rel-5	C	CR to TS 22.127 v 5.1.1, (Cat C R5) Backward Compatibility	5.1.1	5.2.0	1113
SP-14	SP-010675	22.127	033		Rel5	B	CR to TS 22.127 V 5.1.1 (Cat B R5) Adding IM Session Control Funct	5.1.1	5.2.0	1344
SP-14	SP-010670	22.129	023		R99	F	Multicall handover requirements	3.5.0	3.6.0	1287
SP-14	SP-010670	22.129	024		Rel4	A	Multicall handover requirements	4.3.0	4.4.0	1288
SP-14	SP-010670	22.129	025		Rel5	A	Multicall handover requirements	5.0.0	5.1.0	1289
SP-14	SP-010676	22.140	008		Rel5	B	Stage 1 Requirements for VASP connectivity	4.1.0	5.0.0	1345
SP-14	SP-010677	22.141	001		Rel-5	C	Protection against replay attacks	5.0.0	5.1.0	1059
SP-14	SP-010677	22.141	002		Rel-5	C	Reserved for Presence	5.0.0	5.1.0	1210

SP-14	SP-010677	22.141	003		Rel-5	C	Clarification to Presence access rules	5.0.0	5.1.0	1211
SP-14	SP-010677	22.141	004		Rel-5	B	Clarification on charging mechanisms	5.0.0	5.1.0	1212
SP-14	SP-010677	22.141	005		Rel-5	F	Clarification of registration and administration procedures	5.0.0	5.1.0	1213
SP-14	SP-010677	22.141	006		Rel5	F	Use of 'Principal' within TS 22.141	5.0.0	5.1.0	960
SP-14	SP-010677	22.141	008		Rel5	F	Clarification of presence information requirements	5.0.0	5.1.0	1218
SP-14	SP-010678	22.146	002	2	Rel5	F	Proposed CR on changes to definitions in 22.146	5.0.0	5.1.0	1077
SP-14	SP-010678	22.146	003	3	Rel5	B	Proposed CR on clarification of reliable transmission	5.0.0	5.1.0	1305
SP-14	SP-010678	22.146	005	1	Rel5	F	Proposed CR on clarifications of the availability of MBMS	5.0.0	5.1.0	1075
SP-14	SP-010678	22.146	006	2	Rel5	F	Proposed CR on Clarification on MBMS applicability in Gb mode	5.0.0	5.1.0	1303
SP-14	SP-010678	22.146	009	2	Rel5	F	Proposed CR on data loss during handover	5.0.0	5.1.0	1306
SP-14	SP-010678	22.146	011	1	Rel5	C	Proposed CR on optional privacy assurance for Multicast services	5.0.0	5.1.0	1076
SP-14	SP-010678	22.146	018	2	Rel5	F	Proposed CR to 22.146: High level Diagrams of MBMS	5.0.0	5.1.0	1304
SP-14	SP-010678	22.146	019		Rel5	F	CR Clarifying Service Requirements on Multicast and Broadcast Areas	5.0.0	5.1.0	1065
SP-14	SP-010678	22.146	020	2	Rel5	F	Proposed CR to 22.146 MBMS	5.0.0	5.1.0	1326
SP-14	SP-010678	22.146	021		Rel5	B	Multiple Areas for Multicast and Broadcast Services	5.0.0	5.1.0	1225
SP-14	SP-010678	22.146	022	1	Rel5	F	MBMS service discovery	5.0.0	5.1.0	1309
SP-14	SP-010678	22.146	023		Rel5	F	CR to 22.146 (MBMS) UE and MS definition	5.0.0	5.1.0	1020
SP-14	SP-010671	22.228	005	1	Rel-5	F	Defintion of Local Services	5.3.0	5.4.0	1278

Annex 3: 3G TSs and TRs under SA1 responsibility

Type	Number	Title	Release	current version
TR	21.905	Vocabulary for 3GPP Specifications	R99	3.3.0
TR	21.905	Vocabulary for 3GPP Specifications	Rel-4	4.4.0
TR	21.905	Vocabulary for 3GPP Specifications	Rel-5	5.1.0
TS	22.001	Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)	R99	3.2.0
TS	22.001	Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)	Rel-4	4.2.0
TS	22.002	Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)	R99	3.6.0
TS	22.002	Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)	Rel-4	4.2.0
TS	22.003	Circuit Teleservices supported by a Public Land Mobile Network (PLMN)	R99	3.3.0
TS	22.003	Circuit Teleservices supported by a Public Land Mobile Network (PLMN)	Rel-4	4.2.0
TS	22.004	General on Supplementary Services	R99	3.2.1
TS	22.004	General on Supplementary Services	Rel-4	4.0.0
TS	22.011	Service accessibility	R99	3.5.0
TS	22.011	Service accessibility	Rel-4	4.4.0
TS	22.016	International Mobile Equipment Identities (IMEI)	R99	3.2.0
TS	22.016	International Mobile Equipment Identities (IMEI)	Rel-4	4.0.0
TS	22.024	Description of Charge Advice Information (CAI)	R99	3.0.1
TS	22.024	Description of Charge Advice Information (CAI)	Rel-4	4.0.0
TS	22.030	Man-Machine Interface (MMI) of the User Equipment (UE)	R99	3.4.0
TS	22.030	Man-Machine Interface (MMI) of the User Equipment (UE)	Rel-4	4.0.0
TS	22.034	High Speed Circuit Switched Data (HSCSD); Stage 1	R99	3.2.1
TS	22.034	High Speed Circuit Switched Data (HSCSD); Stage 1	Rel-4	4.0.0
TS	22.038	USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1	R99	3.2.0
TS	22.038	USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1	Rel-4	4.1.0
TS	22.038	USIM/SIM Application Toolkit (USAT/SAT); Service description; Stage 1	Rel-5	5.2.0
TS	22.041	Operator Determined Call Barring	R99	3.3.1
TS	22.041	Operator Determined Call Barring	Rel-4	4.1.0
TS	22.042	Network Identity and Time Zone (NITZ), stage 1	R99	3.0.1
TS	22.042	Network Identity and Time Zone (NITZ), stage 1	Rel-4	4.0.0

TS	22.057	Mobile Execution Environment (MExE); Stage 1	R99	3.0.1
TS	22.057	Mobile Execution Environment (MExE); Stage 1	Rel-4	4.0.0
TS	22.057	Mobile Execution Environment (MExE); Stage 1	Rel-5	5.2.0
TS	22.060	General Packet Radio Service (GPRS); Service description; Stage 1	R99	3.5.0
TS	22.060	General Packet Radio Service (GPRS); Service description; Stage 1	Rel-4	4.2.0
TS	22.060	General Packet Radio Service (GPRS); Service description; Stage 1	Rel-5	5.0.0
TS	22.066	Support of Mobile Number Portability (MNP); Stage 1	R99	3.2.0
TS	22.066	Support of Mobile Number Portability (MNP); Stage 1	Rel-4	4.0.0
TS	22.067	enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 1	R99	3.0.1
TS	22.067	enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 1	Rel-4	4.0.0
TS	22.071	Location Services (LCS); Stage 1	R99	3.3.0
TS	22.071	Location Services (LCS); Stage 1	Rel-4	4.3.0
TS	22.072	Call Deflection (CD); Stage 1	R99	3.0.1
TS	22.072	Call Deflection (CD); Stage 1	Rel-4	4.0.0
TS	22.078	Customized Applications for Mobile network Enhanced Logic (CAMEL); Service description; Stage 1	R99	3.8.0
TS	22.078	Customized Applications for Mobile network Enhanced Logic (CAMEL); Service description; Stage 1	Rel-4	4.3.0
TS	22.078	Customized Applications for Mobile network Enhanced Logic (CAMEL); Service description; Stage 1	Rel-5	5.4.0
TS	22.079	Support of optimal routeing; Stage 1	R99	3.0.1
TS	22.079	Support of optimal routeing; Stage 1	Rel-4	4.0.0
TS	22.081	Line Identification supplementary services; Stage 1	R99	3.2.0
TS	22.081	Line Identification supplementary services; Stage 1	Rel-4	4.0.0
TS	22.082	Call Forwarding (CF) Supplementary Services; Stage 1	R99	3.0.1
TS	22.082	Call Forwarding (CF) Supplementary Services; Stage 1	Rel-4	4.1.0
TS	22.083	Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1	R99	3.0.1
TS	22.083	Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1	Rel-4	4.0.0
TS	22.084	MultiParty (MPTY) supplementary service; Stage 1	R99	3.0.1
TS	22.084	MultiParty (MPTY) supplementary service; Stage 1	Rel-4	4.0.0
TS	22.085	Closed User Group (CUG) supplementary services; Stage 1	R99	3.1.0
TS	22.085	Closed User Group (CUG) supplementary services; Stage 1	Rel-4	4.0.0
TS	22.086	Advice of Charge (AoC) supplementary services; Stage 1	R99	3.1.0

TS	22.086	Advice of Charge (AoC) supplementary services; Stage 1	Rel-4	4.0.0
TS	22.087	User-to-user signalling (UUS); Stage 1	R99	3.1.0
TS	22.087	User-to-user signalling (UUS); Stage 1	Rel-4	4.0.0
TS	22.088	Call Barring (CB) supplementary services; Stage 1	R99	3.0.2
TS	22.088	Call Barring (CB) supplementary services; Stage 1	Rel-4	4.0.0
TS	22.090	Unstructured Supplementary Service Data (USSD); Stage 1	R99	3.1.0
TS	22.090	Unstructured Supplementary Service Data (USSD); Stage 1	Rel-4	4.0.0
TS	22.091	Explicit Call Transfer (ECT) supplementary service; Stage 1	R99	3.1.0
TS	22.091	Explicit Call Transfer (ECT) supplementary service; Stage 1	Rel-4	4.0.0
TS	22.093	Completion of Calls to Busy Subscriber (CCBS); Service description, Stage 1	R99	3.0.1
TS	22.093	Completion of Calls to Busy Subscriber (CCBS); Service description, Stage 1	Rel-4	4.0.0
TS	22.094	Follow Me service description - Stage 1	R99	3.1.0
TS	22.094	Follow Me service description - Stage 1	Rel-4	4.0.0
TS	22.096	Name identification supplementary services; Stage 1	R99	3.0.1
TS	22.096	Name identification supplementary services; Stage 1	Rel-4	4.0.0
TS	22.097	Multiple Subscriber Profile (MSP) Phase 1; Service description - Stage 1	R99	3.2.0
TS	22.097	Multiple Subscriber Profile (MSP) Phase 1; Service description - Stage 1	Rel-4	4.0.0
TS	22.100	UMTS Phase 1	R99	3.7.0
TS	22.101	Service aspects; Service principles	R99	3.13.0
TS	22.101	Service aspects; Service principles	Rel-4	4.5.0
TS	22.101	Service aspects; Service principles	Rel-5	5.4.0
TS	22.105	Services & service capabilities	R99	3.10.0
TS	22.105	Services & service capabilities	Rel-4	4.2.0
TS	22.105	Services & service capabilities	Rel-5	5.0.0
TS	22.115	Service Aspects Charging and billing	R99	3.3.0
TS	22.115	Service Aspects Charging and billing	Rel-4	4.0.0
TS	22.115	Service Aspects Charging and billing	Rel-5	5.1.0
TS	22.121	Service aspects; The Virtual Home Environment; Stage 1	R99	3.3.0
TS	22.121	Service aspects; The Virtual Home Environment; Stage 1	Rel-4	4.1.0
TS	22.121	Service aspects; The Virtual Home Environment; Stage 1	Rel-5	5.1.0
TS	22.127	Service Requirement for the Open Services Access (OSA); Stage 1	Rel-4	4.2.0

TS	22.127	Service Requirement for the Open Services Access (OSA); Stage 1	Rel-5	5.1.1
TS	22.129	Handover Requirements between UMTS and GERAN or other Radio Systems	R99	3.5.0
TS	22.129	Handover Requirements between UMTS and GERAN or other Radio Systems	Rel-4	4.3.0
TS	22.129	Handover Requirements between UMTS and GERAN or other Radio Systems	Rel-5	5.0.0
TS	22.135	Multicall; Service description; Stage 1	R99	3.4.0
TS	22.135	Multicall; Service description; Stage 1	Rel-4	4.0.0
TS	22.140	Service aspects; Stage 1; Multimedia Messaging Service	R99	3.1.0
TS	22.140	Service aspects; Stage 1; Multimedia Messaging Service	Rel-4	4.1.0
TS	22.141	Presence service; Stage 1	Rel-5	5.0.0
TS	22.146	Multimedia Broadcast/Multicast service; Stage 1	Rel-5	5.0.0
TS	22.174	Push service; stage 1	Rel-5	none
TS	22.226	Global text telephony; Stage 1: Service description	Rel-5	5.1.0
TS	22.228	IP multimedia subsystem; Stage 1	Rel-5	5.3.0
TS	22.233	Transparent end-to-end packet-switched streamng service; Service aspects; Stage 1	Rel-5	none
TS	22.240	3GPP generic user profile requirements; Stage 1	Rel-5	none
TS	22.242	Digital Rights Management (DRM); Stage 1	Rel-6	none
TS	22.243	Distributed speech recognition based automated voice services	Rel-5	none
TR	22.928	IP-based multimedia services examples	Rel-5	none
TR	22.941	IP based multimedia framework specifications	Rel-5	0.4.1
TR	22.944	Service requirements for UE functionality split	Rel-5	none
TR	22.971	Automatic establishment of roaming relationships	R99	3.1.1
TR	22.975	Advanced addressing	R99	3.1.0
TR	22.976	Study on PS domain services and capabilities	Rel-4	2.0.0
TR	23.907	Quality of Service concept	Rel-4	1.2.0
TS	42.043	Support of Localised Service Area (SoLSA); Service description; Stage 1	Rel-4	4.0.0
TS	42.056	GSM Cordless Telephony System (CTS), Phase 1; Service description; Stage 1	Rel-4	4.0.0
TS	42.068	Voice Group Call Service (VGCS); Stage 1	Rel-4	4.1.0
TS	42.069	Voice Broadcast Service (VBS); Stage 1	Rel-4	4.1.0