

Source: TSG SA1
Title: CR to 22.115 on clarifications on Charging and Billing
Document for: Approval
Agenda Item: 5.1.3

Doc-1st-Level	Status-1st-Level	Spec	CR	Rev	Phase	Subject	Cat	Version - Current	Version-New
SP-000066		22.115	004		R99	Clarifications to 22.115	D	3.1.0	3.2.0

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

22.115 CR 004

Current Version: 3.2.0

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to TSG SA#7
list TSG meeting no. here ↑

For approval for information (only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf>

Proposed change affects:
(at least one should be marked with an X)

USIM

ME

UTRAN

Core Network

Source: TSG SA1

Date: 2000-02-24

Subject: Clarifications to 22.115

3G Work item:

Category:

- F Correction
- A Corresponds to a correction in a 2G specification
- B Addition of feature
- C Functional modification of feature
- D Editorial modification

(only one category shall be marked with an X)

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Reason for change:

As a result of the liason from S5, some new text has been introduced in section 5.1 and 7 in order to clarify:
⇒ backward compatibility with GSM
⇒ CDRs transfer between serving network and home environment

Clauses affected: 5.1, 7

Other specs affected:

- Other 3G core specifications → List of CRs:
- Other 2G core specifications → List of CRs:
- MS test specifications → List of CRs:
- BSS test specifications → List of CRs:
- O&M specifications → List of CRs:

Other comments:



help.doc

<----- double-click here for help and instructions on how to create a CR.

3G TS 22.115 3.2.0 (1999-10)

Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects Service aspects; Charging and Billing (3G TS 22.105 version 3.2.0)



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Reference

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First Modified Section

4 Requirements

The main new requirements for UMTS charging and accounting are:

- to provide a call detail record for all charges incurred and requiring settlement between the different commercial roles;
- to allow fraud control by the Home Environment and the Serving network;
- to allow cost control by the charged party;
- to provide at the beginning of a chargeable event an indication to the charged party (if involved in the chargeable event) of the charges to be levied for this event;
- to allow itemised billing for all services charged to each subscription, including voice and data calls, and services offered by home environments.

These new requirements will allow users more freedom to obtain service when roaming, whilst providing effective cost and credit control for the Home Environment and User.

4.1 Cross Phase Compatibility for Release 99

There are no earlier releases of the UMTS standards for which backward compatibility of equipment implementing these standards is required. However, where possible (e.g. services already defined within GSM standard such as voice services, SMS, GPRS, etc.), the information contained in the CDRs shall be consistent with the information already provided by the existing GSM and GPRS CDRs.

It is envisaged that UMTS will evolve beyond Release 99, for example with the addition of a number of new requirements for charging and billing; these are noted in the appropriate sections below. The technical standards for Release 99 should be developed in such a way that it is possible and practical to introduce these requirements, ideally in a backward compatible manner.

Note: When a change is introduced which affects the UMTS technical standards, it is said to be 'backward compatible' if existing equipment can continue to operate and perform correctly with equipment that conforms to the new implementation.

.....

Next modified section

7 Accounting and Settlement

The serving network shall collect and process the charging data generated in its network elements. The record of each individual transaction shall be reported to the home environment at short time intervals in order to allow further processing by the billing system in the Home Environment, provide itemised bills, and to deal with any disputes regarding charges both for users and for other UMTS networks and home environment.

The standard shall support the transfer of charging data at different intervals as required by the Home Environment (e.g. short time intervals, real time, other regular intervals).

7.1 Delegation of charging authority

The registration process allows the home environment to authenticate users before they incur any charges. Once authenticated, the home environment then delegates authority to the serving network operator with which he has a direct commercial relationship to incur charges for services supplied to that user. The direct commercial relationship may be with either the serving network operator if known directly by the home environment or a network operator known to the home environment. This procedure uses each network as trusted third parties in a chain of delegation between entities, thus allowing commercial transactions between entities who have no direct commercial dealings. There shall be an authentication procedure between all entities in the UMTS system which have a commercial relationship.

7.2 Fraud Control

A mechanism to control fraud shall be provided by the serving networks and the home environment.

7.2.1 Fraud Control by the Home Environment

Charging information shall be collected by the home environment in real time from all serving networks which its users are allowed to use. The billing system in the home environment shall process the information in real time and provide the means to set charge thresholds per time interval upon which some actions may be started, such as informing the customer care centre or even barring the user in the HLR.

It shall be possible for the Home Environment to define different time intervals for the collection and the processing of charging information (e.g. real time, short time, other regular intervals)

7.2.2 Fraud Control by the Serving Network

Charging information shall be collected from the network elements and processed in real time. This will allow the serving network to always be aware of the exposure to visitors. A limit for the accumulated charges for all visitors from one home environment or a limit per visitor may be agreed between the home environment and the serving network.

It shall be possible for the Serving Network to define different time intervals for the collection and the processing of charging information (e.g. real time, short time, other regular intervals)

7.3 Cost Control

A mechanism shall be standardised providing an indication to the user (if involved in the chargeable event) of the charges to be levied for a chargeable event. This mechanism shall be able to handle all possible charging scenarios, and all service and tariff variants that the home environment and the serving network may offer to the user.

The user shall be able to set in his home environment a limit for the accumulated charges per time interval. Upon exceeding this limit or prior to incurring a charge which would exceed the limit, certain actions may be desired by the user:

- notification to the user, requesting to extend the limit, or
- Home Environment barring allowing no further originating calls, or
- Home Environment barring cancelling the roaming permission.

7.3.1 Cross Phase Compatibility

For Release 99 the cost control mechanism may be based on Advice of Charge. However the Release 99 standards should not prevent the future implementation of the full Cost Control requirements.

The Release 99 standards should allow these new features to be introduced in a backward compatible manner; specifically terminals conforming to Release 99 standards should continue to support the Release 99 service requirements when operating with future implementations of Advice of Charge in the Home Environment.

7.4 Inter-network Settlement

Mechanisms shall also be provided to allow inter-network settlement of charges on a bulk basis. The same mechanisms shall be used between home environments and serving networks. This will allow each of these parties to meter the total input and output of charges and thus determine the payments required on a periodic basis between each of the parties with which they directly interact. The mechanisms used shall allow each of the parties to meter charge flows independently, with the aim of matching the values recorded at both sides of the same interface. The imbalance in charge flow shall be accumulated in short time, such that each entity can be informed when a threshold has been exceeded and determine whether to continue.