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Foreword

This Global System for Mobile communications Technical Specification (GTS) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This GTS describes the Advice of Charge (AoC) Supplementary Services (stage 1) within the digital cellular telecommunications system.

The contents of this GTS are subject to continuing work within TC-SMG and may change following formal TC-SMG approval. Should TC-SMG modify the contents of this GTS it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version 5.x.y

where:

- y the third digit is incremented when editorial only changes have been incorporated in the specification;

- x the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.

The specification from which this GTS has been derived was originally based on CEPT documentation, hence the presentation of this GTS may not be entirely in accordance with the ETSI/PNE rules.

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0 Scope

This Global System for Mobile communications Technical Specification (GTS) describes the supplementary services belonging to the group Charging Supplementary Services.

The general aspects, including definitions and recommended provision, of the description of the GSM supplementary services are given in GSM 02.04.

Charging services are the supplementary services associated with charging aspects. The group of supplementary services Charging Supplementary Services comprises two services:

- Advice of Charge (Information) - clause 1;
- Advice of Charge (Charging) - clause 2.

Advice of Charge (AoC) supplementary services will use the Charge Advice Information described in GSM 02.24.

In principle, the same type of Mobile Station (MS) can be used for both services of Advice of Charge (AoC), except where the application demands special features - e.g. the payment mechanism in a payphone.

Only one of these services may be subscribed to at any one time.

0.1 Normative references

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

- [1] GSM 01.04 (ETR 350): "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 02.04 (ETS 300 918): "Digital cellular telecommunications system (Phase 2+); General on supplementary services".
- [3] GSM 02.24 (ETS 300 923): "Digital cellular telecommunications system; Description of Charge Advice Information (CAI)".
- [4] GSM 11.11 (ETS 300 977): "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".

0.2 Abbreviations

Abbreviations used in this specification are listed in GSM 01.04.

1 Advice Of Charge (AoC) (Information)

1.1 Definition

This service permits MS to display an accurate estimate the size of the bill which will eventually be levied in the Home PLMN.

1.2 Description

1.2.1 Description

This supplementary service provides the MS with the information to produce an estimate of the cost of the service used. Charges are indicated for the call(s) in progress when mobile originated or for the roaming leg only when mobile terminated. Any charges for non-call related transactions, and for certain supplementary services, such as Call Forwarding are not indicated.

The MS will receive at the beginning of each call (and as necessary during the call) a message, the Charge Advice Information. This message contains the elements which together define the rate at which the call is to be charged, time dependence, data dependence and for unit increments (see GSM 02.24).

The MS shall still indicate appropriate charges even when roaming, based on Home PLMN units.

Where applicable, the volume charge for Packet data service, in addition to the normal time dependent and incremental charges, shall be indicated.

To indicate the charge per call the Mobile station shall display the units consumed so far during the present call(s) and maintain this value until the MS is switched off or a new call set-up is attempted.

Where required to indicate the total accumulated charge, the MS shall be able to display, and the SIM shall store in the ACM, the running cumulative unit charge. This value must be stored securely, and all reasonable steps shall be taken to ensure that the written value cannot be interrupted, reset or corrupted (except resetting under control of the unblocking key). This is described in GSM 11.11.

1.2.2 Applicability to telecommunication services

The applicability of this supplementary service is defined in GSM 02.04 (ETS 300 918).

1.3 Normal procedures with successful outcome

1.3.1 Provision

This supplementary service will be provided after prearrangement with the service provider.

1.3.2 Withdrawal

This service will be withdrawn at the subscriber's request or for administrative reasons.

1.3.5 Activation

This supplementary service will be activated by the service provider as a result of provision.

1.3.6 Deactivation

This supplementary service will be deactivated by the service provider as a result of withdrawal.

1.3.7 Invocation

This supplementary service will be automatically invoked by the network for the use of all applicable telecommunications services.

1.3.8 Normal operation with successful outcome

For every applicable usage of telecommunications services, the served MS will be provided with charging information.

The MS shall send to the network a confirmation of receipt of this information.

1.4 Exceptional procedures or unsuccessful outcome

1.4.1 Operation in a PLMN that is unable to support AoC

Since AoC (Information) is used only to provide an indication to the user, even if the network is unable to support AoC, calls may still be set up as normal, only the AoC indication will not be given. For this reason charges incurred on a network that is unable to support AoC will not be shown on the AoC indicator.

1.4.2 AoC when MS is switched off or out of coverage

No AoC information is given by the network.

1.4.3 Operation with a MS unable to support AoC

Since AoC (Information) is used only to provide an indication to the user, even if the ME is unable to support AoC, calls may still be set up as normal, only no AoC information will be provided to the user.

1.5 Alternate procedures

None identified.

1.6 Interactions with other supplementary services

No interaction.

Invocation of this supplementary service does not prevent use of any other Supplementary Service.

1.7 Interworking considerations

When interworking with PSPDN, a volume related charge may be incurred, as described in GSM 02.24.

2 Advice Of Charge (AoC) (Charging)

2.1 Definition

This service provides the means by which the MS may indicate the charge that will be made for the use of telecommunication services. It is intended for applications where the user is generally not the subscriber but is known to the subscriber, and where the user pays the subscriber, rather than the Service Provider.

The charge information is based as closely as possible on the charge that will be levied on the subscriber's bill in the Home PLMN. Where this charge cannot be stored in the MS, use of the telecommunications service shall be prevented as described below.

2.2 Description

2.2.1 Description

This supplementary service provides the MS with the information to produce an estimate of the cost of the service used. Charges are indicated for the call(s) in progress when mobile originated or for the roaming leg only when mobile terminated. Any charges for non-call related transactions, and for certain supplementary services, such as Call Forwarding are not indicated.

The MS will receive at the beginning of each call (and as necessary during the call) a message, the Charge Advice Information. This message contains the elements which together define the rate at which the call is to be charged, time dependence, data dependence and for unit increments (see GSM 02.24).

The MS shall still indicate appropriate charges even when roaming, based on Home PLMN units.

Where applicable, the volume charge for Packet data service, in addition to the normal time dependent and incremental charges, shall be indicated.

To indicate the charge per call the Mobile station shall display the units consumed so far during the present call(s) and maintain this value until the MS is switched off or a new call set-up is attempted.

Where required to indicate the total accumulated charge, the MS shall be able to display, and the SIM shall store in the ACM, the running cumulative unit charge. This value must be stored securely, and all reasonable steps shall be taken to ensure that the written value cannot be interrupted, reset or corrupted (except resetting under control of the unblocking key). This is described in GSM 11.11.

2.2.2 Applicability to telecommunication services

The applicability of this supplementary service is defined in GSM 02.04 (ETS 300 918).

2.3 Normal procedures with successful outcome

2.3.1 Provision

This supplementary service will be provided after pre-arrangement with the service provider.

2.3.2 Withdrawal

This service will be withdrawn at the subscriber's request or for administrative reasons.

2.3.5 Activation

This supplementary service will be activated by the service provider as a result of provision.

2.3.6 Deactivation

This supplementary service will be deactivated by the service provider as a result of withdrawal.

2.3.7 Invocation

This supplementary service will be automatically invoked by the network for the use of all applicable telecommunications services.

2.3.8 Normal operation with successful outcome

For every applicable usage of telecommunication services, the served MS will be provided with charging information.

The MS shall send to the network a confirmation of receipt of this information.

2.4 Exceptional procedures or unsuccessful outcome

2.4.1 Operation in a PLMN that is unable to support the Charging Service

If the local PLMN is unable to support this service, all chargeable calls shall be prevented. This is determined either by the use of an HLR list of VPLMNs which support the service, or by the HLR interrogating the VPLMN. Prevention is achieved by refusing a Location Update Request to the VPLMN that does not support the service.

2.4.2 Charging when the MS is switched off or out of coverage

No AoC information is given by the network.

2.4.3 Operation with a MS unable to support AoC

If the MS does not support AoC, no advice of charge information will be provided to the user. Any calls attempted to be set up will be quickly terminated, once the network has failed to receive a positive acknowledgement of receipt of the Charge Advice Information, within a suitable time.

2.5 Alternate procedures

None identified.

2.6 Interactions with other supplementary services

No interaction.

Invocation of this supplementary service does not prevent use of any other Supplementary Service, but in certain cases no charging information will be indicated. In this case, the subscriber should not subscribe to those Supplementary Services which need to be charged for, thereby inhibiting their use by another user.

2.7 Interworking considerations

When interworking with PSPDN, a volume related charge may be incurred, as described in GSM 02.24.

History

Document history	
November 1996	Publication of Version 5.0.0