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**Digital cellular telecommunications system (Phase 2);  
Advice of Charge (AoC) supplementary services - Stage 1  
(GSM 02.86)**

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## Foreword

This second edition European Telecommunication Standard (ETS) was produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This ETS describes the Advice of Charge (AoC) supplementary services within the European digital cellular telecommunications system (Phase 2) and corresponds to GSM 02.86, version 4.1.5.

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

Reference is made within this ETS to GSM-TSs (NOTE).

NOTE: TC-SMG has produced documents which give the technical specifications for the implementation of the European digital cellular telecommunications system. Historically, these documents have been identified as GSM Technical Specifications (GSM-TSs). These TSs may have subsequently become I-ETTs (Phase 1), or ETSS (Phase 2), whilst others may become ETSI Technical Reports (ETRs). GSM-TSs are, for editorial reasons, still referred to in GSM ETSS.

<b>Transposition dates</b>	
Date of adoption of this ETS:	30 April 1996
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## 0 Charging supplementary services

### 0.1 Scope

This European Telecommunication Standard (ETS) 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 specification 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) - section 1;
- Advice of Charge (Charging) - section 2.

Advice of Charge supplementary services will use the Charge Advice Information described in specification GSM 02.24.

In principle, the same type of mobile station can be used for both services of Advice of Charge, 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.

### 0.2 Normative references

This ETS 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 ETS 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 100): "European digital cellular telecommunication system (Phase 2); Abbreviations and acronyms".
- [2] GSM 02.04 (ETS 300 503): "European digital cellular telecommunication system (Phase 2); General on supplementary services".
- [3] GSM 02.24 (ETS 300 510): "European digital cellular telecommunication system (Phase 2); Description of Charge Advice Information (CAI)".
- [4] GSM 11.11 (ETS 300 608): "European digital cellular telecommunication system (Phase 2); Specification of the Subscriber Identity Module-Mobile Equipment (SIM-ME) interface".

### 0.3 Definitions and abbreviations

Abbreviations used in this specification are listed in GSM 01.04.

## **1 Advice Of Charge (AoC) (Information)**

### **1.1 Definition**

This service permits mobile station 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 mobile station 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 mobile station 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 mobile station 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 300 503).

### **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 mobile station 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 Advice of Charge (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 Advice of Charge when MS is switched off or out of coverage**

No Advice of Charge information is given by the network.

#### **1.4.3 Operation with a Mobile Station unable to support AoC**

Since Advice of Charge (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 Advice of Charge 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 Mobile Station 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 mobile station 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 mobile station 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 mobile station 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 300 503).

### **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 mobile station 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 Advice of Charge information is given by the network.

### **2.4.3 Operation with a Mobile Station unable to support Advice of Charge**

If the mobile station 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

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October 1993	Public Enquiry	PE 51:	1993-11-01 to 1994-02-25
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