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**3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"**

Advice of Charge (Stage 1)

Revision: 0

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Revision History

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Note

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1. Introduction

1.1 Objective

This specification presents Stage-1 for supporting the Advice of Charge feature for use in the Wireless Radiotelephone Service.

1.2 Scope

This document specifies the wireless intersystem network operation enhancements required for supporting roaming subscribers with the Advice of Charge (AoC) feature.

1.3 Organization

This document is organized as per *TIA/EIA-41-D* and *TIA/EIA-664-A*.

2 References

2.1 Normative References

(TIA/EIA-664, Page 2)

[I.251.7] Recommendation I.251.7, Integrated Services Digital Network (ISDN) General Structure and Service Capabilities, Malicious Call Identification; International Telecommunication Union.

[T1.667] ANSI T1.667-1997, American National Standard for Telecommunications – Intelligent Network; American National Standards Institute, Inc.; 1997.

2.2 Informative References

(TIA/EIA-664, Page 3)

[TTC1] TTC II-1 JT-I251, ISDN User-Network Interface; Telecommunications Technology Committee; 1994.

3 Definitions and Concepts

3.1 Definitions

(TIA/EIA-664, Page 4)

AOC Advice Of Charging

See 5.D

CAC Carrier Access Code

See Carrier Access Code.

Carrier (Commercial Telecommunications)

The organization whose function is to provide the particular service, e.g., an agent of a private network/facility, intra-serving area, or a specific inter-exchange carrier or international carrier (Refer to T1.667).

Carrier Access Code (CAC)

A code used to select a carrier (Refer to T1.667).

Carrier Identification Code (CIC)

A code that identifies a carrier (Refer to T1.667).

CIC Carrier Identification Code

See Carrier Identification Code.

FPH Freephone

See 5.B

PRC Premium Rate Charging

See 5.A

Rejection Treatment

A call to a subscriber who rejects the call shall be indicated to the calling party with an announcement stating that the call has been rejected¹.

¹ To encourage the caller to stop making annoying calls to the subscriber, the caller may be charged for the rejected call.

RUAC Rejection of Undesired Annoying Calls

See 5.C

5.D Advice Of Charging (AOC)

(New for TIA/EIA-664 Section 5)

Advice Of Charging (AOC) permits a wireless subscriber to receive charging information for telecommunication services.

AOC information is presented at the start of a call, or during a call, or at the end of a call. AOC information is conveyed to the subscriber within five (5) seconds of the appropriate event (start of call, mid-call charging event, end of call).

AOC information may be presented using visual display, or distinctive alerting, or audible tone or announcement, or a combination of visual display and distinctive alerting and audible tone or announcement.

AOC may convey the following types of information to the subscriber:

- calling rate (display the charge per unit of time, e.g., \$0.10 per minute);
- change in calling rate (notify subscriber of a change in charge per unit of time, e.g., audible chirp);
- accumulated usage or charge for the call just completed (e.g., display the last call usage = 4 minutes and 15 seconds, or last call charge = \$0.40);
- accumulated usage or charge for the billing period or calendar period (e.g., display the total billing period usage = 91 minutes, or total calendar period charge = \$65.90);
- remaining balance in an account (e.g., display the remaining balance = 33 minutes);-
- special charging is being applied (e.g., distinctive alerting for an incoming call).

Applicability to Telecommunications Services

AOC is applicable to circuit-switched telecommunication services.

5.D.1 Normal Procedures With Successful Outcome

Authorization

AOC may be generally available or may be provided after pre-arrangement with the service provider.

The authorization may have the following subscription options:

| Subscription Options | Values |
|----------------------|--|
| Activation | Demand. The subscriber is authorized to control the activation and de-activation of AOC. |
| | Permanent. AOC is active while authorized. |
| Per-Call Activation | Subscribed. The subscriber is authorized to activate AOC for a single call. |
| | Not Subscribed. AOC may not be activated for a single call. |

Table 5.D.1: AOC Subscription Options

De-Authorization

AOC may be withdrawn at the subscriber’s request or for administrative reasons.

Registration

AOC has no registration.

De-Registration

AOC has no de-registration.

Activation

Activation by Permanent Activation AOC Authorized Subscriber

AOC is activated upon authorization.

Activation by Demand Activation AOC Authorized Subscriber

AOC is activated by specifying a feature code, as in:

FC + .

Successful demand activation shall be indicated with feature confirmation treatment.

Activation by Per-Call Activation AOC Authorized Subscriber

AOC may be activated for a single call concurrently with a call request by a Per Call authorized subscriber specifying a AOC feature code and a termination address, as in:

FC + # + termination address + .

Successful per-call demand activation shall be indicated with feature confirmation treatment.

De-Activation

AOC is de-activated upon de-authorization.

AOC may also be de-activated by a Demand Activation authorized subscriber specifying a feature code, as in:

FC0 + SEND .

Successful demand de-activation shall be indicated with feature confirmation treatment.

AOC de-activation for a Per-Call Activation authorized subscriber occurs at the end of the associated call.

Invocation

Invocation for Permanent or Demand Activation Subscription Option

When AOC is active, AOC is invoked either at the beginning of a call, at the end of a call or mid-call.

Invocation for Per-Call Activation Subscription Option

When AOC is active, AOC is invoked at the beginning of the call.

Normal Operation With Successful Outcome

AOC Call Setup Presentation (Permanent or Demand Subscription Option)

The subscriber originates or terminates a call. The network determines that charging information is available for presentation to the subscriber. AOC information is collected for presentation to the subscriber. The information is presented to the subscriber. This information can be in the form of distinctive alerting, or a text message, or a tone or announcement which is played to the subscriber during call setup.

AOC Mid-Call Presentation (Permanent or Demand Subscription Option)

The subscriber is active in a call. The network determines that charging information is available for presentation to the subscriber. AOC information is collected for presentation to the subscriber. The information is presented to the subscriber. This information is in the form of a tone or announcement which is played to the subscriber.

AOC End-of-Call Presentation (Permanent or Demand Subscription Option)

The subscriber ends a call. The network determines that charging information is available for presentation to the subscriber. AOC information is collected for presentation to the subscriber. The information is presented to the subscriber. This information is in the form of a text message.

AOC (Per-Call Activation Subscription Option)

A “Per-Call Activation” authorized subscriber originates a call and activates AOC. AOC information is collected for presentation to the subscriber. The information is presented to the subscriber at the end of the call. This information is in the form of a text message.

Call Detail Record

The system should record call detail information for the following:

- a. AOC invocations.
- b. AOC activation activities and events.
- c. AOC de-activation activities and events.

See *IS-124* for the specific information to be included for each element.

5.D.2 Exception Procedures or Unsuccessful Outcome

Registration

None identified.

De-Registration

None identified.

Activation

If the subscriber is not authorized for the request, the system shall apply feature denial treatment when activation is attempted.

De-Activation

None identified.

Invocation

None identified.

Exceptions While Roaming

None identified.

Exceptions During Intersystem Handoff

None identified.

5.D.3 Alternate Procedures

None identified.

5.D.4 Interactions With Other Wireless Services

Advice Of Charging (AOC)

Not applicable.

Asynchronous Data Service (ADS)

None identified.

Call Delivery (CD)

None identified.

Call Forwarding—Busy (CFB)

None identified.

Call Forwarding—Default (CFD)

None identified.

Call Forwarding—No Answer (CFNA)

None identified.

Call Forwarding—Unconditional (CFU)

None identified.

Call Transfer (CT)

None identified.

Call Waiting (CW)

None identified.

Calling Name Presentation (CNAP)

None identified.

Calling Name Restriction (CNAR)

None identified.

Calling Number Identification Presentation (CNIP)

None identified.

Calling Number Identification Restriction (CNIR)

None identified.

Conference Calling (CC)

None identified.

Do Not Disturb (DND)

None identified.

Emergency Services (9-1-1)

None identified.

Flexible Alerting (FA)

Interaction between FA and AOC is beyond the scope of this Specification. The following describes a possible implementation:

If the FA group member has AOC active, AOC information is provided to the FA group member who is active in the call.

Freephone (FPH)

None identified.

Group 3 Facsimile (G3 Fax)

None identified.

Incoming Call Screening (ICS)

None identified.

Message Waiting Notification (MWN)

None identified.

Mobile Access Hunting (MAH)

Interaction between MAH and AOC is beyond the scope of this Specification. The following describes a possible implementation:

If the MAH group member has AOC active, AOC information is provided to the MAH group member who is active in the call.

Network Directed System Selection (NDSS)

None identified.

Non-Public Mode Service (NP)

None identified.

Over-the-Air Service Provisioning (OTASP)

None identified.

Password Call Acceptance (PCA)

None identified.

Preferred Language (PL)

None identified.

Premium Rate Charging (PRC)

Interaction between PRC and AOC is beyond the scope of this specification.

Pre-Paid Charging (PPC)

Interaction between PPC and AOC is beyond the scope of this specification.

Priority Access and Channel Assignment (PACA)

None identified.

Rejection of Undesired Annoying Calls (AOC)

None identified.

Remote Feature Control (RFC)

None identified.

Selective Call Acceptance (SCA)

None identified.

Service Negotiation (SN)

None identified.

Short Message Services (SMS)

None identified.

Subscriber Confidentiality (SC)

None identified.

Subscriber PIN Access (SPINA)

None identified.

Subscriber PIN Intercept (SPINI)

None identified.

Three-Way Calling (3WC)

None identified.

User Group ID (UGID)

Interaction between UGID and AOC is beyond the scope of this specification.

Voice-based User Identification (VUI)

None identified.

Voice Controlled Dialing (VCD)

None identified.

Voice Controlled Feature Control (VCFC)

None identified.

Voice Message Retrieval (VMR)

None identified.

Voice Privacy (VP)

None identified.