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Evropski digitalni celiļ ni telekomunikacijski sistem (faza 2) ï Celiļ na radiodifuzija storitve kratkih sporoļ il (SMSCB) kot podpora vmesniku mobilnega radia (GSM 04.12)

European digital cellular telecommunications system (Phase 2); Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface (GSM 04.12)

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Foreword

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

This ETS defines the Short Message Service Cell Broadcast (SMSCB) support on mobile radio interface within the European digital cellular telecommunications system (Phase 2).

This ETS correspond to GSM technical specification, GSM 04.12 version 4.4.1.

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 Technical Specifications (GSM-TS) (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-TS). These TSs may have subsequently become I-ETSs (Phase 1), or ETSs (Phase 2), whilst others may become ETSI Technical Reports (ETRs). GSM-TSs are, for editorial reasons, still referred to in current GSM ETSs.

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1 Introduction

1.1 Scope

This technical specification describes how the Short Message Service - Cell Broadcast (SMSCB) (Teleservice 23 as specified in Technical Specification GSM 02.03) is supported over the mobile radio interface.

1.2 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 telecommunications system (Phase 2); Abbreviations and acronyms".

[2] GSM 02.03 (ETS 300 502): "European digital cellular telecommunications system (Phase 2); Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[3] GSM 03.41 (ETS 300 537): "European digital cellular telecommunications system (Phase 2); Technical realization of Short Message Service Cell Broadcast (SMSCB)".

[4] GSM 04.04 (ETS 300 553): "European digital cellular telecommunications system (Phase 2); Layer 1 General requirements".

[5] GSM 04.06 (ETS 300 555): "European digital cellular telecommunications system (Phase 2); Mobile Station - Base Station System (MS - BSS) interface Data Link (DL) layer specification".

[6] GSM 05.02 (ETS 300 574): "European digital cellular telecommunications system (Phase 2); Multiplexing and multiple access on the radio path".

1.3 Definitions and abbreviations

Abbreviations used in this specification are listed in GSM 01.04

2 General description

SMSCB is a service in which short messages may be broadcast from a PLMN to MSs. SMSCB messages come from different sources (e.g. traffic reports, weather reports). The source and subject of the SMSCB message is identified by a message identifier in the SMSCB message header. A sequence number in the SMSCB message header enables the MS to determine when a new message from a given source is available.

SMSCB messages are not acknowledged by the MS. Reception of SMSCB messages by the MS is only possible in idle mode. The geographical area over which each SMSCB message is transmitted is selected by the PLMN operator, by agreement with the provider of the information.

A SMSCB message is an end-to-end message that is formatted by/for the SMSCB application, and which is intended for customer viewing. Its format is described in detail in Technical Specification GSM 03.41. A CB message is any message sent on the CBCH. It can be an occurrence of a SMSCB message, or a schedule message.

The SMS Cell Broadcast service is designed to minimise the battery usage requirements for a Mobile Station. A Mobile Station can read the first part of a CB message and then decide whether or not to read the rest of the message. In addition, the network may broadcast Schedule Messages, providing information in advance about the CB messages that will be sent immediately afterwards. The Mobile Station may use this scheduling information to restrict reception to those messages the customer is interested in receiving. This SMSCB DRX feature is optional in the network and the Mobile Station.

2.1 Scheduling Information

The network supporting the SMSCB DRX feature transmits Schedule Messages. A Schedule Message includes information about a number of immediately following consecutive CB messages, planned for that cell. The length of time covered by the CB messages referred to in a Schedule Message is called the Schedule Period of that message. For optimum DRX, a new Schedule Message should follow the last message of a Schedule Period. When no information is known about a CB message, e.g., because no Schedule Message has been received referring to that CB message, a Mobile Station shall read (at least) the first part of the CB message.

The network may override the published schedule to transmit new high-priority SMSCB messages. However, after any schedule deviation, the network shall resume the schedule, by transmitting the scheduled CB messages at the scheduled times listed in the Schedule Message.

The Schedule Message contains a Message Description for each CB message to be broadcast during the scheduling period, in order of transmission. The position of a CB message is called the "message slot number" of the CB message, and it indicates the position of the CB message within the schedule period. Each Message Description includes various information, including for SMSCB messages directly or indirectly all or part of their message identifier, and whether an occurrence is a repetition or not.

Each Schedule Message includes a Begin Slot Number field and an End Slot Number field. The End Slot Number field indicates the length of the schedule period (i.e., specifically the number of CB message slots about which information is provided). In the case where the network uses Schedule Messages to describe all message slots in advance, the first Schedule Message of the next schedule period will be transmitted in the message slot pointed by End Slot Number plus 1. The Begin Slot Number is defined to allow the network to broadcast several Schedule Messages referring to the same schedule period. The Begin Slot Number field indicates the message slot number of the CB message following the received Schedule Message.

The networks may send unscheduled Schedule Messages during empty message slots. The network need only update the Begin Slot Number in an unscheduled Schedule Message to reflect the current offset within the Schedule Message of the next message to be transmitted.

3 Message Format on BTS-MS Interface

3.1 General

A CB message consists of a 88 octets of information. The 88 octet block is segmented into four 22 octet blocks. A 1 octet Block type is added as a header to each 22 octet block. The overall blocks are thus 23 octets in length.

The message blocks are sent on the channel allocated as CBCH by Technical Specification GSM 05.02. The timing of the messages is defined in Technical Specification GSM 05.02. If the network has no cell broadcast information to transmit, then it may choose to transmit a null message.

3.2 Format convention

3.2.1 Numbering convention

The basic convention used in this technical specification is illustrated in figure 1. The bits are grouped into octets. The bits of an octet are shown horizontally and are numbered from 1 to 8. Multiple octets are shown vertically and are numbered from 1 to 23.

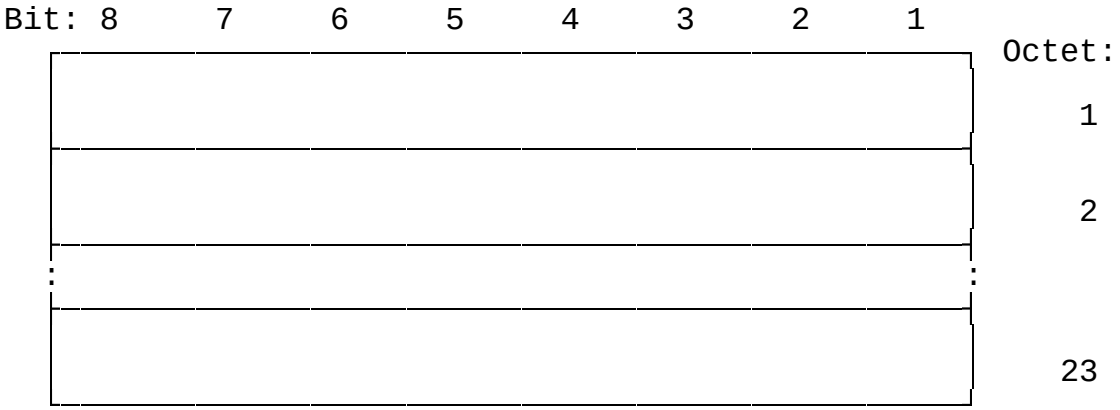

Figure 1/GSM 04.12: Format convention

3.2.2 Order of bit transmission

The message blocks are sent on the CBCH as defined in Technical Specification GSM 05.02 using the coding defined for that channel.

The order of bit transmission is defined in Technical Specification GSM 04.04.

3.3 Block content

The 23 octet blocks are coded as follows:

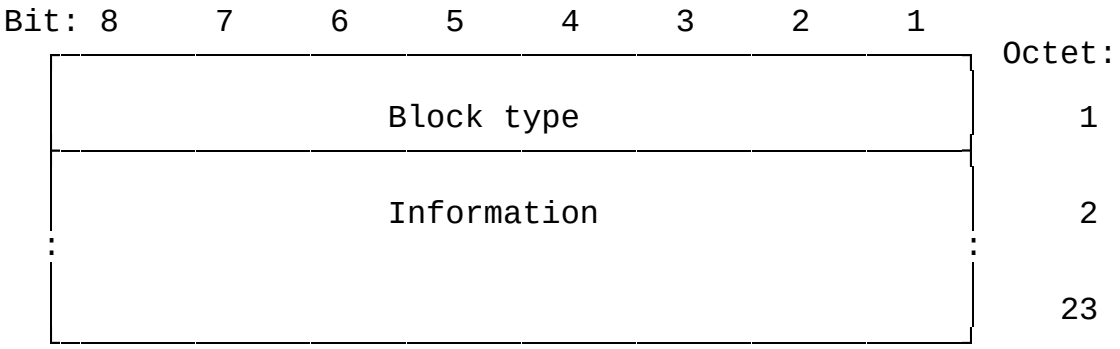

Figure 2/GSM 04.12: Block content