SLOVENSKI STANDARD
SIST EN 302 406 V8.0.1:2003

01-december-2003

Digitalni celiļ ni telekomunikacijski sistem (faza 2+) ï GSM sistem brezvrviļ ne telefonije (CTS) ï Faza 1 ï Specifikacija tretje plasti radijskega vmesnika CTS (GSM 04.56, razliļ ica 8.0.1, izdaja 1999)

Digital cellular telecommunications system (Phase 2+) (GSM); GSM Cordless Telephony System (CTS), Phase 1; CTS radio interface layer 3 specification (GSM 04.56 version 8.0.1 Release 1999)

Ta slovenski standard je istoveten z: **EN 302 406 Version 8.0.1**

ICS:

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)

SIST EN 302 406 V8.0.1:2003 **en**

ETSI EN 302 406 V8.0.1 (2000-08)

European Standard (Telecommunications series)

Digital cellular telecommunications system (Phase 2+); GSM Cordless Telephony System (CTS), Phase 1; CTS radio interface layer 3 specification (GSM 04.56 version 8.0.1 Release 1999)

GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS

Reference
REN/SMG-030456Q8

Keywords
Digital cellular telecommunications system,
Global System for Mobile communications
(GSM), GSM Cordless Telephony System (CTS)

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Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Special Mobile Group (SMG).

The present document was submitted to One-step Approval with the ETSI number 301 406. For publication the number was changed to 302 406 because the number 301 406 is reserved and was allocated accidentally.

The present document specifies the procedures used at the CTS radio interface (Reference Point Um*, see GSM 03.56) for Call Control (CC), Mobility Management (MM) and Radio Resource (RR) management within the European digital cellular telecommunications system.

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

Version 8.x.y

where:

8 GSM Phase 2+ Release 1999

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 the present document has been derived was originally based on CEPT documentation, hence the presentation of the present document is not in accordance with the ETSI drafting rules.

National transposition dates	
Date of adoption of this EN:	14 July 2000
Date of latest announcement of this EN (doa):	31 October 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2001
Date of withdrawal of any conflicting National Standard (dow):	30 April 2001

1 Scope

The present document specifies the procedures used at the CTS radio interface (Reference Point Um*, see GSM 03.56) for Call Control (CC), Mobility Management (MM), Radio Resource (RR).

When the notations for "further study" or "FS" or "FFS" are present in the present document they mean that the indicated text is not a normative portion of the present document.

These procedures are defined in terms of messages exchanged over the control channels of the radio interface. The CTS control channels are described in GSM 03.52.

The structured functions and procedures of this protocol and the relationship with other layers and entities are described in general terms in GSM 04.07.

1.1 Scope of the Technical Specification

The procedures currently described in the present document are for the call control of circuit-switched connections, mobility management and radio resource management for circuit-switched services over the CTS radio interface.

GSM 04.10 contains functional procedures for support of supplementary services.

GSM 04.11 contains functional procedures for support of point-to-point short message services.

NOTE: "layer 3" includes the functions and protocols described in the present document. The terms "data link layer" and "layer 2" are used interchangeably to refer to the layer immediately below layer 3.

1.2 Application to the interface structures

The layer 3 procedures apply to the interface structures defined in GSM 04.03. They use the functions and services provided by layer 2 defined in GSM 04.05 and GSM 04.06. GSM 04.07 gives the general description of layer 3 including procedures, messages format and error handling.

1.3 Structure of layer 3 procedures

A building block method is used to describe the layer 3 procedures.

The basic building blocks are "elementary procedures" provided by the protocol control entities of the three sublayers, i.e. radio resource management, mobility management and connection management sublayer.

Complete layer 3 transactions consist of specific sequences of elementary procedures. The term "structured procedure" is used for these sequences.

1.4 Test procedures

Test procedures of the GSM-CTS radio interface signalling are described in GSM 11.10 and GSM 11.56 series.

1.5 Use of logical channels

The logical control channels are defined in GSM 03.52. In the following those control channels are considered which carry signalling information or specific types of user packet information: [to be completed]

i) CTS Beacon CHannel (CTSBCH): downlink only, used to broadcast Cell specific information and fixed part identification information;

ii) CTS Paging CHannel (CTSPCH): downlink only, used to send page requests to Mobile Stations (MSs);

iii) CTS Access Random CHannel (CTSARCH): uplink only, used to request a Dedicated Control CHannel;

iv) CTS-Access Grant CHannel (CTSAGCH): downlink only, used to allocate a Dedicated Control CHannel;

v) Fast Associated Control CHannel (FACCH): bi-directional, associated with a Traffic CHannel;

vi) Slow Associated Control CHannel (SACCH): bi-directional, associated with a Traffic CHannel;

Two service access points are defined on signalling layer 2 which are discriminated by their Service Access Point Identifiers (SAPI) (see GSM 04.06):

i) SAPI 0: supports the transfer of signalling information including user-user information;

ii) SAPI 3: supports the transfer of user short messages.

Layer 3 selects the service access point, the logical control channel and the mode of operation of layer 2 (acknowledged, unacknowledged or random access, see GSM 04.05 and GSM 04.06) as required for each individual message.

1.6 Overview of control procedures

1.6.1 List of procedures

The following procedures are specified in the present document:

a) Clause 4 specifies elementary procedures for Radio Resource management:

- Idle mode procedures (subclause 4.2)
  - alive check procedure (subclauses 4.2.1.2 and 4.2.2.3)
  - BCH information broadcasting (subclause 4.2.2.1)
  - CCH information broadcasting (subclause 4.2.2.2)
  - hunting (subclause 4.2.2.4)
  - connectionless group alerting (subclause 4.2.2.5)
- RR connection establishment (subclause 4.3)
  - entering the dedicated mode : immediate assignment procedure (subclause 4.3.1.1)
  - paging procedure for RR connection establishment (subclause 4.3.2)
- Procedures in dedicated mode (subclause 4.4)
  - intracell change of channels (subclause 4.4.4)
  - channel mode change procedure (subclause 4.4.6)
  - ciphering mode setting procedure (subclause 4.4.7)
- RR connection release (subclause 4.4.13)

b) Clause 5 specifies elementary procedures for CTS-Mobility Management

- mobility management common procedures (subclause 5.2)
  - CTS attach procedure (subclause 5.2.1)
  - CTS periodic attach updating procedure (subclause 5.2.2)
  - CTS detach procedure (subclause 5.2.3)
  - CTS de-enrolment procedure (subclause 5.2.4)
  - CTS mutual authentication procedure (subclause 5.2.5)

- CTS-MSI update procedure (subclause 5.2.6)

- mobility management specific procedures (subclause 5.3)
  - CTS enrolment procedure (subclause 5.3.1)
  - CTS de-enrolment procedure (subclause 5.3.2)

c) Clause 6 specifies CTS specific elementary procedure for circuit switched Call Control:

- signalling procedures during the active state
  - hook flash procedure (subclause 6.1.2)

The elementary procedures can be combined to form structured procedures. Examples of such structured procedures are given in clause 7. This part of the Technical Specification is only provided for guidance to assist implementations.

Clause 8 specifies actions to be taken on various error conditions and also provides rules to ensure compatibility with future enhancements of the protocol.

1.7 Applicability of implementations

The applicability of procedures of the present document for the mobile station is dependent on the services and functions which are to be supported by a mobile station.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1999 document, references to GSM documents are for Release 1999 versions (version 8.x.y).

[1] GSM 01.02: "Digital cellular telecommunications system (Phase 2+); General description of a GSM Public Land Mobile Network (PLMN)".

[2] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[3] GSM 02.02: "Digital cellular telecommunications system (Phase 2+); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN)".

[4] GSM 02.03: "Digital cellular telecommunications system (Phase 2+); Teleservices supported by a GSM Public Land Mobile Network (PLMN)".

[5] GSM 02.09: "Digital cellular telecommunications system (Phase 2+); Security aspects".

[6] GSM 02.11: "Digital cellular telecommunications system (Phase 2+); Service accessibility".

[7] GSM 02.17: "Digital cellular telecommunications system (Phase 2+); Subscriber identity modules Functional characteristics".

[8] GSM 02.40: "Digital cellular telecommunications system (Phase 2+); Procedures for call progress indications".

[9] GSM 03.01: "Digital cellular telecommunications system (Phase 2+); Network functions".

[10] GSM 03.03: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification".

[11] GSM 03.13: "Digital cellular telecommunications system (Phase 2+); Discontinuous Reception (DRX) in the GSM system".

[12] GSM 03.14: "Digital cellular telecommunications system (Phase 2+); Support of Dual Tone Multi-Frequency signalling (DTMF) via the GSM system".

[13] GSM 03.20: "Digital cellular telecommunications system (Phase 2+); Security related network functions".

[14] GSM 03.22: "Digital cellular telecommunications system (Phase 2+); Functions related to Mobile Station (MS) in idle mode".

[15] GSM 04.02: "Digital cellular telecommunications system (Phase 2+); GSM Public Land Mobile Network (PLMN) access reference configuration".

[16] GSM 04.03: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Channel structures and access capabilities".

[17] GSM 04.04: "Digital cellular telecommunications system (Phase 2+); layer 1 General requirements".

[18] GSM 04.05: "Digital cellular telecommunications system (Phase 2+); Data Link (DL) layer General aspects".

[19] GSM 04.06: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface Data Link (DL) layer specification".

[20] GSM 04.07: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface signalling layer 3 General aspects".

[21] GSM 04.10: "Digital cellular telecommunications system ; Mobile radio interface layer 3 Supplementary services specification General aspects".

[22] GSM 04.11: "Digital cellular telecommunications system (Phase 2); Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[23] GSM 04.12: "Digital cellular telecommunications system (Phase 2+); Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface".

[24] GSM 04.80: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 supplementary services specification Formats and coding".

[25] GSM 04.81: "Digital cellular telecommunications system (Phase 2+); Line identification supplementary services - Stage 3".

[26] GSM 04.82: "Digital cellular telecommunications system (Phase 2+); Call Forwarding (CF) supplementary services - Stage 3".

[27] GSM 04.83: "Digital cellular telecommunications system (Phase 2+); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 3".

[28] GSM 04.84: "Digital cellular telecommunications system (Phase 2+); MultiParty (MPTY) supplementary services - Stage 3".

[29] GSM 04.85: "Digital cellular telecommunications system (Phase 2+); Closed User Group (CUG) supplementary services - Stage 3".

[30] GSM 04.86: "Digital cellular telecommunications system (Phase 2+); Advice of Charge (AoC) supplementary services - Stage 3".