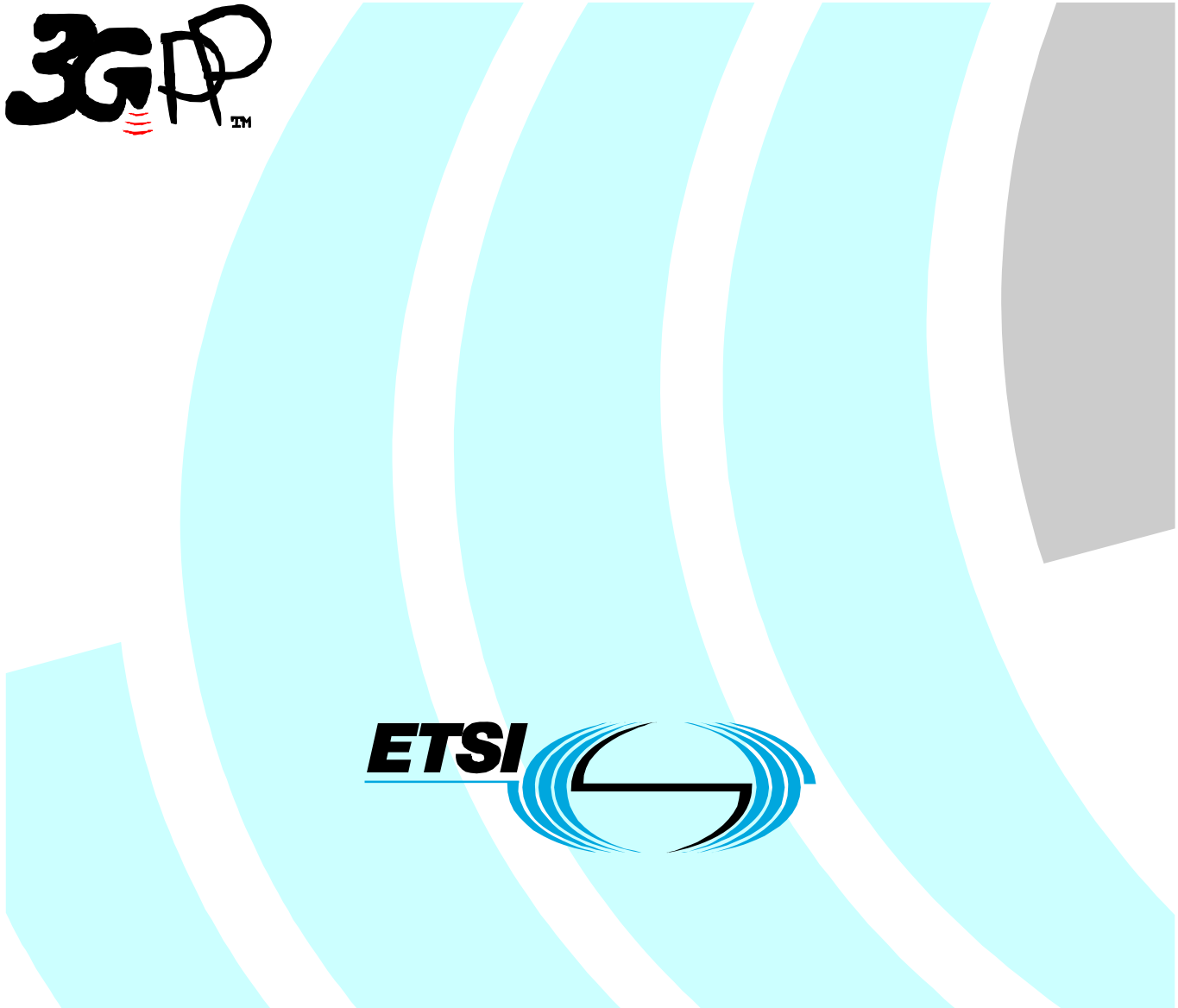
ETSI TS 129 205 V7.1.0 (2011-04)

Technical Specification

**Universal Mobile Telecommunications System (UMTS);
Application of Q.1900 series to bearer-independent
Circuit Switched (CS) core network architecture;
Stage 3
(3GPP TS 29.205 version 7.1.0 Release 7)**



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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document describes the protocols to be used when ITU-T Q.1902 "Bearer Independent Call Control" is used as call control protocol in a 3GPP Bearer Independent CS core network 3GPP TS 23.205 [1] The Q.1902 operates between (G)MSC servers .The BICC architecture as described in ITU-T Q.1902 [6]-[10] consists of a number of protocols. The following types of protocols are described: call control protocol, bearer control protocols and a resource control protocol for this architecture. The architecture complies with the requirements imposed by 3GPP TS 23.205 [1] and TS 23.153 [2].

The present document is valid for a 3rd generation PLMN (UMTS) complying with Release 4 and later.

Note: Q.1902 can be used in other network architectures than the one defined in 3GPP TS 23.205 [1]

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TS 23.205: "Bearer Independent CS Core Network – Stage 2".

[2] 3GPP TS 23153: "Out of Band Transcoder Control - Stage 2".

[3] 3GPP TS 29.232: "Media Gateway Controller (MGC) – Media Gateway (MGW) Interface; Stage 3".

[4] 3GGP TS 29.414: "Core Network Nb Data Transport and Signalling Transport".

[5] ITU-T Recommendation Q.765.5 (06/2000): "Application Transport Mechanism".

[6] ITU-T Recommendation Q.1902.1 (07/2001): "Bearer Independent Call Control CS2 Functional Description".

[7] ITU-T Recommendation Q.1902.2 (07/2001): "Bearer Independent Call Control CS2 General functions of messages and parameters".

[8] ITU-T Recommendation Q.1902.3 (07/2001): "Bearer Independent Call Control CS2 Formats and Codes".

[9] ITU-T Recommendation Q.1902.4 (07/2001): "Bearer Independent Call Control CS2 Basic Call Procedures".

[10] ITU-T Recommendation Q.1902.5 (07/2001): "Exceptions to the Application Transport Mechanism in the Context of Bearer Independent Call Control".

[11] ITU-T Recommendation Q.1902. 6 (07/2001): "Generic Signalling Procedures for the support of the ISDN User Part Supplementary Services and for bearer redirection".

[12] ITU-T Recommendation Q.1950 (07/2001): "Call Bearer Control Protocol".

[13] ITU-T Recommendations Q.2630.1 (12/1999), Q.2630.2 (12/2000): "AAL type 2 signalling protocol".

[14] ITU-T Recommendation Q.1990 (07/2001): "BICC Bearer Control tunnelling protocol".

[15] ITU-T Recommendation Q.1970 (07/2001): "BICC IP Bearer Control protocol".

[16] ITU-T Recommendation Q.1912.1 (07/2001): "Interworking between Signalling System No. 7 ISDN user part and the Bearer Independent Call Control protocol".

[17] ITU-T Recommendation Q.1912.2 (07/2001): "Interworking between selected Signalling System (PSTN Access DSS1, C5, R1, R2, TUP) and the Bearer Independent Call Control Protocol".

[18] ITU-T Recommendation Q.2150.0 (05/2001): "Generic Signalling Transport Service".

[19] ITU-T Recommendation Q.2150.1 (05/2001): "Signalling Transport Converter on SSCOP and SSCOPMCE".

[20] ITU-T Recommendation Q.2150.3 (12/2002): "Signalling Transport Converter on SCTP".

[21] ITU-T Recommendation H.248.4 (11/2000): "Gateway Control Protocol: Transport over SCTP".

[22] 3GPP TS 29.202: "SS7 signalling transport in core network".

[23] ITU-T Recommendation H.248.5 (11/2000): "Gateway control protocol: Transport over ATM".

[24] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

3 Definitions, symbols and abbreviations

3.1 Definitions

3.2 Symbols

For the purposes of the present document, the following symbols apply:

Nc Interface between the(G)MSC servers.
Mc Interface between the server and the media gateway.
Nb Interface between media gateways (MGW).

3.3 Abbreviations

For the purposes of the present document, the abbreviations as defined in 3GPP TR 21.905 [24] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [24].

APM Application Transport Mechanism
BICC Bearer Independent Call Control
C5 CCITT signalling system number 5
M3UA MTP3 – User Adaptation Layer
MGC Media Gateway Controller
R1 Regional Signalling System 1
R2 Regional Signalling System 2
SCTP Stream Control Transmission Protocol
TUP Telephony User Part

4 Protocols

Implementations providing any of the interfaces or protocols identified in the subclauses below shall implement the requirements of the specifications identified in those subclauses.

4.1 Call control protocol (Nc interface)

Q.1902.1	BICC PROTOCOL (CS2) FUNCTIONAL DESCRIPTION [6]
Q.1902.2	BICC PROTOCOL (CS2) AND SIGNALLING SUSTEM NO 7 ISUP GENERAL FUNCTIONS OF MESSAGES AND PARAMETERS [7]
Q.1902.3	BICC PROTOCOL (CS2) AND SIGNALLING SYSTEM NO 7 ISUP FORMATS AND CODES [8]
Q.1902.4	BICC (CS2) BASIC CALL PROCEDURES [9]
Q.1902.5	EXCEPTIONS TO THE APM IN THE CONTEXT OF BICC [10] AMENDMENT TO ITU-T Recommendation Q.765.5 FOR BICC CS2 [5]
Q.1902.6	GENERIC SIGNALLING PROCEDURES AND SUPPORT OF THE ISDN USER PART SUPPLEMENTARY SERVICES WITH THE BEARER INDEPENDENT CALL CONTROL PROTOCOL [11]

4.2 Interworking with other protocols

Q.1912.1	ISUP-BICC INTERWORKING [16]
Q.19.12.2	INTERWORKING BETWEEN SELECTED SIGNALLING SYSTEMS (PSTN ACCESS DSS1 C5 R1 R2 TUP) AND THE BEARER INDEPENDENT CALL CONTROL PROTOCOL [17]

4.3 Resource control protocol (G)MSC and MGW (Mc Interface)

3GGP TS.29232.	"Media Gateway Controller (MGC) – Media Gateway (MGW) Interface;Stage 3" [3]

4.4 Bearer control protocol between MGWs (Nb interface)

3GPP TS 29.414	"Core Network Nb Data Transport and Signalling Transport" [4] including ITU-T Recommendation Q.1970 "IP bearer control protocol" [15] , ITU-T Recommendation Q.1990 "BICC tunneling control protocol" [14] , ITU-T Recommendation Q.2630.1-2 "AAL type 2 signalling protocol" [13].

4.5 Signalling Transport

4.5.1 Call Control protocols

Q.2150.0	Generic Signalling Transport Service [18]
Q.2150.1	Signalling Transport Converter on MTP3 and MTP3b[19]
Q.2150.3	Signalling Transport Converter on SCTP. [20]
3GPP TS 29.202	SS7 signalling transport in core network . [22] Annex A: SS7 MTP3-User Adaption Layer (M3UA).

4.5.2 Resource control protocol (G)MSC and MGW (Mc Interface)

3GPP TS 29.232	"Media Gateway Controller (MGC) – Media Gateway (MGW) Interface;Stage 3" [3] including ITU-T Recommendation H.248.4 [21] "Transport over SCTP", ITU-T Recommendation H.248.5 [23] "Transport over ATM" , and 3GPP TS 29.202 "SS7 signalling transport in core network" [22], Annex A: The use of M3UA in 3GGP networks.

4.5.3 Bearer control protocol between MGWs (Nb interface)

3GPP TS 29.414	"Core Network Nb Data Transport and signalling transport" [4] including ITU-T Recommendations Q.2630.1-2: "AAL type 2 signalling protocol" [13] and the tunnel-up and tunnel-down procedure in 3GPP TS 29.232 [31]

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
17/1/01	CN3/CN4 #66 Beijing			0.1.	New Document approved	-	0.1.0
15/2/01	Ad hoc CN 4#6 in Madrid			0.2	Revised Document approved	0.1.0	0.2.0
01/3/01	CN 4 #7 Sophia—Antopolis			0.3	Forwarded to TSG CN Plenary meeting #11 for approval	0.2.0	2.0.0
03/2001	CN#11	NP-010083			Modifications made during CN#11	2.0.0	2.1.0
03/2001	CN#11	NP-010214			Approved in CN#11	2.1.0	4.0.0
06/2001	CN#12	NP-010285	001	1	Changes to provide interworking between signalling tansport	4.0.0	4.1.0
09/2001	CN#13				Editorial clean up	4.1.0	4.2.0
09/2001	CN#13	NP-010452	002		Mc signalling transport in IP environment	4.1.0	4.2.0
09/2001	CN#13	NP-010452	003	1	BICC signalling transport in IP enviroment	4.1.0	4.2.0
09/2001	CN#13	NP-010452	004		Status of ITU recommendation Q.2150.3	4.1.0	4.2.0
06/2002	CN#16				Rel-5 created after CN#16	4.2.0	5.0.0
06/2003	CN#20	NP-030220	006	2	Alignment of references after renumbering of H248 by ITU-T	5.0.0	5.1.0
12/2004	CN#26				Rel-6 created after CN#26	5.1.0	6.0.0
06/2006	CT#32	CP-060298	0009	1		6.0.0	6.1.0
06/2007	CT#36				Upgraded unchanged from Rel-6	6.1.0	7.0.0
03/2011	CT#51	CP-110041	0025	1	Correcting non-specific external references	7.0.0	7.1.0

History

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