



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.1902.1

(07/2001)

SERIES Q: SWITCHING AND SIGNALLING

Specifications of signalling related to Bearer Independent
Call Control (BICC)

Bearer Independent Call Control protocol (Capability Set 2): Functional description

ITU-T Recommendation Q.1902.1

(Formerly CCITT Recommendation)

ITU-T Q-SERIES RECOMMENDATIONS
SWITCHING AND SIGNALLING

SIGNALLING IN THE INTERNATIONAL MANUAL SERVICE	Q.1–Q.3
INTERNATIONAL AUTOMATIC AND SEMI-AUTOMATIC WORKING	Q.4–Q.59
FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN	Q.60–Q.99
CLAUSES APPLICABLE TO ITU-T STANDARD SYSTEMS	Q.100–Q.119
SPECIFICATIONS OF SIGNALLING SYSTEMS No. 4 AND No. 5	Q.120–Q.249
SPECIFICATIONS OF SIGNALLING SYSTEM No. 6	Q.250–Q.309
SPECIFICATIONS OF SIGNALLING SYSTEM R1	Q.310–Q.399
SPECIFICATIONS OF SIGNALLING SYSTEM R2	Q.400–Q.499
DIGITAL EXCHANGES	Q.500–Q.599
INTERWORKING OF SIGNALLING SYSTEMS	Q.600–Q.699
SPECIFICATIONS OF SIGNALLING SYSTEM No. 7	Q.700–Q.799
Q3 INTERFACE	Q.800–Q.849
DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1	Q.850–Q.999
PUBLIC LAND MOBILE NETWORK	Q.1000–Q.1099
INTERWORKING WITH SATELLITE MOBILE SYSTEMS	Q.1100–Q.1199
INTELLIGENT NETWORK	Q.1200–Q.1699
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR IMT-2000	Q.1700–Q.1799
SPECIFICATIONS OF SIGNALLING RELATED TO BEARER INDEPENDENT CALL CONTROL (BICC)	Q.1900–Q.1999
BROADBAND ISDN	Q.2000–Q.2999

For further details, please refer to the list of ITU-T Recommendations.

ITU-T Recommendation Q.1902.1

Bearer Independent Call Control protocol (Capability Set 2): Functional description

...

Summary

This Recommendation provides a functional description of the Bearer Independent Call Control (BICC) protocol for the support of narrowband ISDN services independent of the bearer technology and signalling message transport technology used.

Source

ITU-T Recommendation Q.1902.1 was prepared by ITU-T Study Group 11 (2001-2004) and approved under the WTSA Resolution 1 procedure on 2 July 2001.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 2002

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from ITU.

CONTENTS

	Page
1 Scope.....	1
2 References.....	2
3 Definitions	5
4 Abbreviations.....	7
5 Conventions	9
6 Architecture	9
6.1 Network model	9
6.2 Protocol model.....	11
6.3 Recommendation structure	11
7 Introduction to BICC protocol signalling procedures.....	12
7.1 Address signalling.....	12
7.2 Basic procedures	12
7.3 Signalling methods	12
7.4 Interworking.....	12
7.4.1 BICC interworking	12
7.4.2 Interworking with ISUP.....	12
7.4.3 Interworking with other signalling systems or user parts.....	13
8 Capabilities supported.....	13
8.1 Internationally applicable class.....	16
8.2 National use class.....	16
9 Future enhancements and compatibility procedure	16
9.1 Version compatibility	17
9.2 Additional coding guidelines for compatibility of BICC protocol versions.....	17
9.2.1 Messages.....	17
9.2.2 Parameters	18
9.3 Forward and backward compatibility for the BICC APM user application	19
Appendix I –Guidelines for use of instruction indicators	19
I.1 Introduction.....	19
I.2 Priority of execution	19
I.3 Notification	19
I.4 Considerations	20
I.4.1 Discarding unrecognized messages	20
I.4.2 Essential services.....	20

	Page
I.4.3 Non-essential services	20
I.4.4 Broadband/narrow-band interworking	20
I.4.5 Pass on	20

ITU-T Recommendation Q.1902.1

Bearer Independent Call Control protocol (Capability Set 2): Functional description

1 Scope

This Recommendation provides a functional description of the Bearer Independent Call Control (BICC) protocol. The BICC protocol provides the signalling functions required to support narrowband ISDN services independent of the bearer technology and signalling transport technology used.

The BICC protocol uses the Signalling Transport Converter (STC) layer for signalling message transport. The Generic Signalling Transport Service is described in ITU-T Q.2150.0 [31]. The STCs are defined in other Recommendations in the Q.2150.x family of Recommendations.

Several arrangements are possible for nodes that support BICC signalling. These nodes may have an associated Bearer Control Function (BCF) in which case they are referred to as Serving Nodes (SN). A node without an associated BCF is referred to as Call Mediation Node (CMN). Between Serving Nodes the control of bearers is provided by other protocols – not specified by this Recommendation.

In a Serving Node (SN), the Call Service Function and the Bearer Control Function (BCF) entities may be physically separated. The Call Bearer Control (CBC) signalling is used between these two entities in case of physical separation. The CBC protocol is specified in ITU-T Q.1950 [61].

Bearer control signalling can be deployed over a separate signalling transport or the Bearer Control Protocol (BCP) can be tunnelled over the "horizontal" BICC protocol between peer CSFs and the "vertical" CBC interface between a CSF and a BCF. The Bearer Control Tunneling Protocol is specified in ITU-T Q.1990 [62].

Both SNs and CMNs are modelled using the "Half Call" modelling technique. Every call processing scenario is thus divided between an incoming and an outgoing signalling procedure. In the scope of this Recommendation at least one of these procedures is the BICC procedure (see Figures 1 and 2).

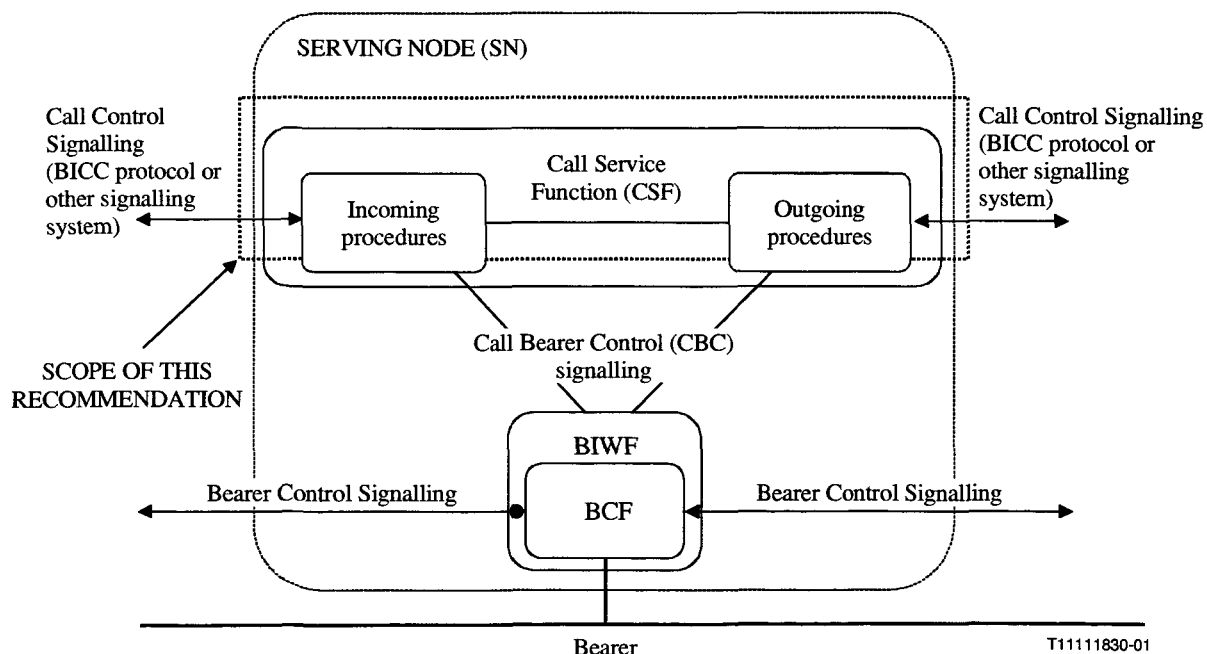


Figure 1/Q.1902.1 – Scope of this Recommendation in case of an SN

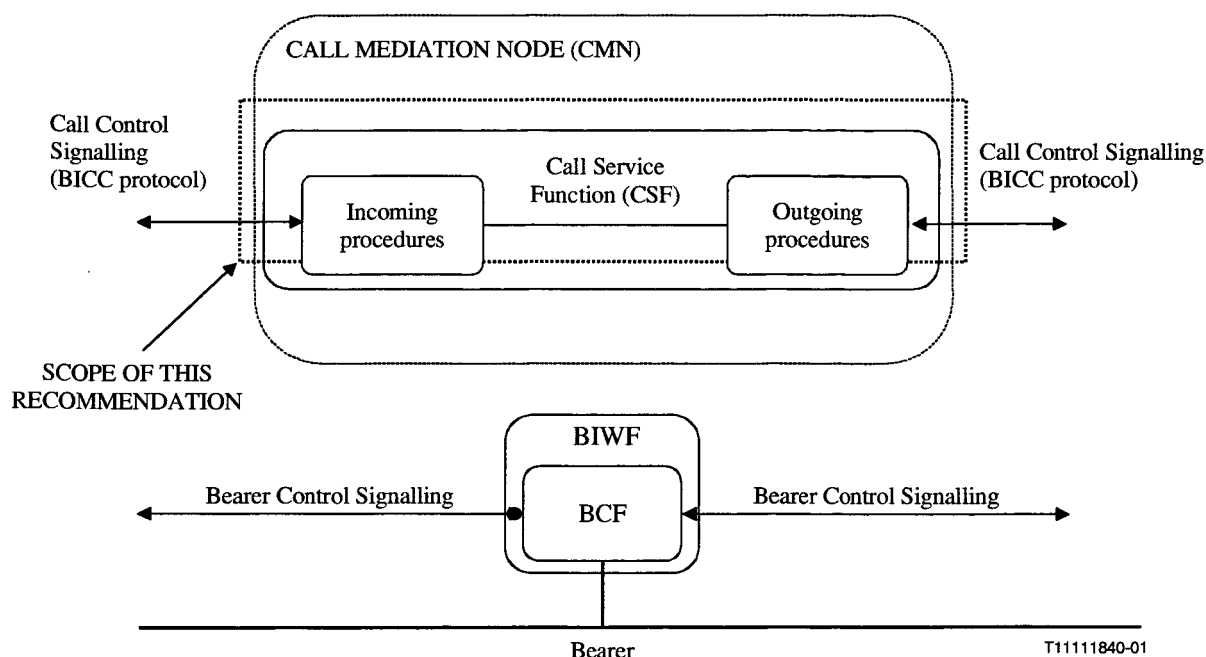


Figure 2/Q.1902.1 – Scope of this Recommendation in case of a CMN

This Recommendation is one of the set of Recommendations that describe the Bearer Independent Call Control protocol. Other Recommendations in this group include:

- ITU-T Q.1902.2 (2001) that describes BICC CS-2 general functions of messages and parameters;
- ITU-T Q.1902.3 (2001) that describes BICC CS-2 formats and codes;
- ITU-T Q.1902.4 (2001) that describes BICC CS-2 basic call procedures;
- ITU-T Q.1902.5 (2001) that describes extensions to the Application Transport Mechanism in the context of the Bearer Independent Call Control;
- ITU-T Q.765.5 (2000) and its Amendment 1 that specifies the APM-user to support the transport of the bearer related information for the BICC protocol.

Interworking between BICC and other signalling systems is described in the Q.1912 series of Recommendations.

Generic signalling procedures and support of ISDN User Part supplementary services by the BICC protocol are described in ITU-T Q.1902.6 [18].

The Bearer Independent Call Control protocol is suitable for both international and national applications. Therefore coding space has been reserved in order to allow national Administrations and recognized operating agencies to introduce network specific signalling messages and elements of information within the internationally standardized protocol structure.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revisions; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- [1] ITU-T E.164 (1997), *The international public telecommunication numbering plan.*
- [2] ITU-T I.112 (1993), *Vocabulary of terms for ISDNs.*
- [3] ITU-T I.210 (1993), *Principles of telecommunication services supported by an ISDN and the means to describe them.*
- [4] ITU-T Q.850 (1998), *Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part.*
- [5] ITU-T Q.730 (1999), *ISDN User Part supplementary services.*
- [6] ITU-T Q.761 (1999), *Signalling System No. 7 – ISDN User Part functional description.*
- [7] ITU-T Q.762 (1999), *Signalling System No. 7 – ISDN User Part general functions of messages and signals.*
- [8] ITU-T Q.763 (1999), *Signalling System No. 7 – ISDN User Part formats and codes.*
- [9] ITU-T Q.764 (1999), *Signalling System No. 7 – ISDN User Part signalling procedures.*
- [10] ITU-T Q.766 (1993), *Performance objectives in the integrated services digital network application.*
- [11] ITU-T Q.765 (2000), *Signalling System No. 7 – Application transport mechanism.*
- [12] ITU-T Q.769.1 (1999), *Signalling System No. 7 – ISDN User Part enhancements for the support of number portability.*
- [13] ITU-T Q.1901 (2000), *Bearer Independent call control protocol.*
- [14] ITU-T Q.1902.2 (2001), *Bearer independent Call Control protocol (CS-2) and Signalling System No. 7 – ISDN User Part general functions of messages and parameters.*
- [15] ITU-T Q.1902.3 (2001), *Bearer independent call control protocol (CS-2) and signalling system No. 7 – ISDN user part formats and codes.*
- [16] ITU-T Q.1902.4 (2001), *Bearer independent call control protocol (CS-2) basic call procedures.*
- [17] ITU-T Q.1902.5 (2001), *Exceptions to the application transport mechanism in the context of bearer independent call control.*
- [18] ITU-T Q.1902.6 (2001), *Generic signalling procedures and support of ISDN user part supplementary services with the bearer independent call control protocol.*
- [19] ITU-T Q.1912.1 (2001), *Interworking between signalling system No. 7 ISDN user part and the bearer independent call control protocol.*
- [20] ITU-T Q.701 (1993), *Functional description of the message transfer part (MTP) of signalling system No. 7.*
- [21] ITU-T Q.704 (1996), *Signalling network functions and messages.*
- [22] ITU-T Q.2210 (1996), *Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140.*
- [23] ITU-T Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP).*
- [24] ITU-T Q.2111 (1999), *Service specific connection oriented protocol in a multi-link and connectionless environment (SSCOPMCE).*
- [25] ITU-T Q.765.1 (1998), *Signalling system No. 7 – Application transport mechanism: Support of VPN applications with PSSI information flows.*