



INTERNATIONAL TELECOMMUNICATION UNION

# ITU-T

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**Series Q**  
**Supplement 43**  
(09/2003)

SERIES Q: SWITCHING AND SIGNALLING

---

## **Technical Report TRQ.2415: Transport control signalling requirements – Signalling requirements for IP connection control in radio access networks Capability Set 1**

ITU-T Q-series Recommendations – Supplement 43

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, 5, 6, R1 AND R2                    | Q.120–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.*

Copyright © 2003 ITU-T. All rights reserved.



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

Compliance with this publication is voluntary. However, the publication may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the publication is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the publication is required of any party.

## INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this publication 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 publication development process.

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

© ITU 2004

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

# CONTENTS

## Page

|      |                                                                          |    |
|------|--------------------------------------------------------------------------|----|
| 1    | Scope .....                                                              | 1  |
| 2    | References.....                                                          | 1  |
| 3    | Definitions .....                                                        | 2  |
| 4    | Abbreviations.....                                                       | 2  |
| 5    | Requirements .....                                                       | 3  |
| 5.1  | IP served user generated reference .....                                 | 3  |
| 5.2  | Called endpoint address transport .....                                  | 3  |
| 5.3  | Performance.....                                                         | 3  |
| 5.4  | Symmetry of connection control .....                                     | 3  |
| 5.5  | Connection configuration .....                                           | 3  |
| 5.6  | Symmetry of information transfer capability .....                        | 3  |
| 5.7  | Essential features of the underlying signalling bearer.....              | 4  |
| 5.8  | Flow control.....                                                        | 4  |
| 5.9  | Independence from underlying signalling bearer .....                     | 4  |
| 5.10 | Independence from the IP served user.....                                | 4  |
| 5.11 | Extent of control .....                                                  | 4  |
| 5.12 | Information transfer capability and QoS requirements .....               | 4  |
| 5.13 | Contention resolution .....                                              | 4  |
| 5.14 | Error reporting .....                                                    | 4  |
| 5.15 | Unrecoverable failures.....                                              | 4  |
| 5.16 | Forward and backward compatibility .....                                 | 4  |
| 5.17 | Parameters and values for IP connections .....                           | 5  |
| 5.18 | IP transfer capabilities .....                                           | 5  |
| 5.19 | Served user transport information .....                                  | 5  |
| 5.20 | Support of IP transport types .....                                      | 5  |
| 5.21 | Connection resource modification.....                                    | 6  |
| 5.22 | Priority service.....                                                    | 6  |
| 5.23 | Automatic congestion control.....                                        | 6  |
| 6    | Architecture of IP signalling.....                                       | 6  |
| 7    | IP signalling flows .....                                                | 8  |
| 7.1  | Successful IP connection establishment information flows .....           | 8  |
| 7.2  | Unsuccessful IP connection establishment information flows.....          | 9  |
| 7.3  | IP connection release information flows .....                            | 10 |
| 7.4  | Successful IP connection resource modification information flows .....   | 11 |
| 7.5  | Unsuccessful IP connection resource modification information flows ..... | 12 |



Documents

Document Sharing Hub

Q series – Supplement 43 (09/2003)

iii

.....