



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

J.113

(03/98)

SERIES J: TRANSMISSION OF TELEVISION, SOUND
PROGRAMME AND OTHER MULTIMEDIA SIGNALS

Interactive systems for digital television distribution

**Digital video broadcasting interaction
channel through the PSTN/ISDN**

ITU-T Recommendation J.113

(Previously CCITT Recommendation)

ITU-T J-SERIES RECOMMENDATIONS

TRANSMISSION OF TELEVISION, SOUND PROGRAMME AND OTHER MULTIMEDIA SIGNALS

General Recommendations	J.1–J.9
General specifications for analogue sound-programme transmission	J.10–J.19
Performance characteristics of analogue sound-programme circuits	J.20–J.29
Equipment and lines used for analogue sound-programme circuits	J.30–J.39
Digital encoders for analogue sound-programme signals	J.40–J.49
Digital transmission of sound-programme signals	J.50–J.59
Circuits for analogue television transmission	J.60–J.69
Analogue television transmission over metallic lines and interconnection with radio-relay links	J.70–J.79
Digital transmission of television signals	J.80–J.89
Ancillary digital services for television transmission	J.90–J.99
Operational requirements and methods for television transmission	J.100–J.109
Interactive systems for digital television distribution	J.110–J.129
Transport of MPEG-2 signals on packetised networks	J.130–J.139
Measurement of the quality of service	J.140–J.149
Digital television distribution through local subscriber networks	J.150–J.159

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

ITU-T RECOMMENDATION J.113

DIGITAL VIDEO BROADCASTING INTERACTION CHANNEL THROUGH THE PSTN/ISDN

Summary

This Recommendation describes the provision of return channel interaction protocols over PSTN and ISDN to, and independently of, digital TV broadcast systems.

Source

ITU-T Recommendation J.113 was prepared by ITU-T Study Group 9 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 18th of March 1998.

Keywords

Digital TV services, interaction channel, ISDN, PSTN.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The 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 Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 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

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The 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, the 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 1998

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 the ITU.

CONTENTS

	<i>Page</i>
1 Scope.....	1
2 References.....	1
3 Definitions.....	1
4 Abbreviations.....	1
5 Protocol stack and system models.....	2
5.1 Protocol stack model	2
5.2 System model/overview.....	2
6 Interaction channel for PSTN.....	3
6.1 PSTN requirement	3
6.2 PSTN interfaces requirement.....	3
7 Interaction channel for ISDN	3
7.1 ISDN requirement	3
7.2 ISDN interfaces requirement	3

Introduction

This Recommendation is one of a series describing interactive digital TV services. This Recommendation describes the provision of return channel interaction protocols over PSTN and ISDN to, and independently of, digital TV broadcast systems. Other relevant Recommendations are J.110 which describes the basic principles and J.111 which describes protocols independent of the underlying physical and transport protocols of such services.

**DIGITAL VIDEO BROADCASTING INTERACTION
CHANNEL THROUGH THE PSTN/ISDN**

(Geneva, 1998)

1 Scope

This Recommendation describes the provision of return channel interaction protocols over PSTN and ISDN to, and independently of, digital TV broadcast systems. Other relevant Recommendations are J.110 [1] which describes the basic principles and J.111 [2] which describes the network independent return channel protocols.

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 revision; all 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 Recommendation J.110 (1997), *Basic principles for a worldwide common family of systems for the provision of interactive television services.*
- [2] ITU-T Recommendation J.111 (1998), *Network independent protocols for interactive systems.*
- [3] ITU-T Recommendation I.3xx, *ISDN – Network aspects.*
- [4] ITU-T Recommendations I.430, I.431, *ISDN – physical layer.*
- [5] ITU-T Recommendation Q.921/I.441 (1997), *ISDN user-network interface – Data link layer specification.*
- [6] ITU-T Recommendation Q.931/I.451 (1998), *ISDN user-network interface Layer 3 specification for basic call control.*
- [7] ITU-T Recommendation G.960 (1993), *Access digital section for ISDN basic rate access.*
- [8] ITU-T Recommendation G.961 (1993), *Digital transmission system on metallic local lines for ISDN basic rate access.*
- [9] ITU-T Recommendation I.414 (1997), *Overview of Recommendations of Layer 1 for ISDN and B-ISDN customer accesses.*
- [10] ITU-T Recommendation I.112 (1993), *Vocabulary of terms for ISDN.*

3 Definitions

The definitions in Recommendation J.110 [1] apply.

4 Abbreviations

The abbreviations in Recommendation J.110 [1] apply.

5 Protocol stack and system models

5.1 Protocol stack model

The protocol stack model used for the purposes of this Recommendation consists of the following layers:

Physical layer: where all the physical (electrical) transmission parameters are defined – network dependent.

Transport layer: defines all the relevant data structures and communication protocols like data containers, etc. – network dependent.

Application layer: is the interactive application software and runtime environments – network independent.

See Figure 1.

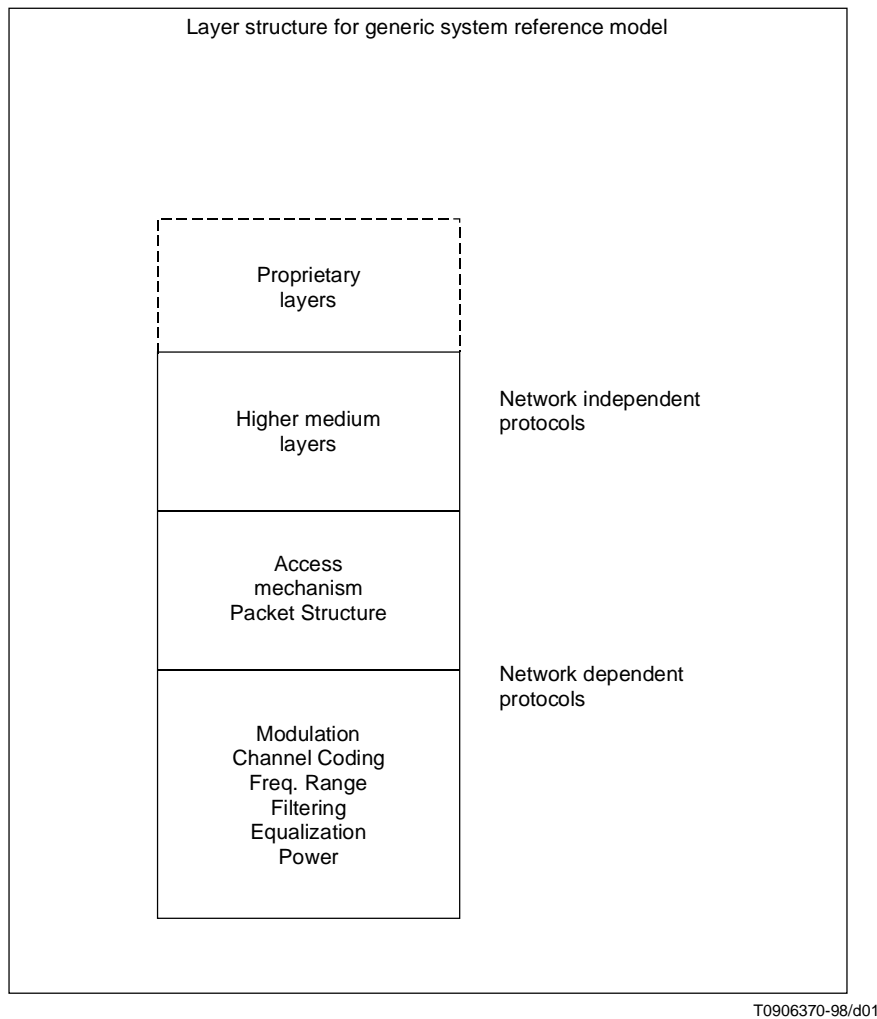


Figure 1/J.113 – Layer structure for generic system reference model

This Recommendation describes the network dependent protocols within the transport and physical layers for the PSTN/ISDN. The network independent protocols are described in Recommendation J.111 [2] (to layer 4 of the OSI reference model typically).

5.2 System model/overview

Refer to Recommendation J.110 [1].

6 Interaction channel for PSTN

6.1 PSTN requirement

The PSTN shall provide a bidirectional communication path between interfaces A_x (PSTN/Interactive network adaptor interface) and A_b (PSTN/Interactive interface module interface) of the system model of Figure 2/J.110 [1].

6.2 PSTN interfaces requirement

Both the interactive network adaptor at interface A_x and the interactive interface module at interface A_b shall comply with the physical and transport layer functionality requirements relevant to the national PSTN service provider concerned.

7 Interaction channel for ISDN

7.1 ISDN requirement

The ISDN shall provide a bidirectional communication path between interfaces A_x (ISDN/Interactive network adaptor interface) and A_b (ISDN/Interactive interface module interface) of the system model of Figure 2/J.110 [1]. For the purposes of this Recommendation, it is assumed that the ISDN complies with Recommendation I.3xx [3].

7.2 ISDN interfaces requirement

The physical and transport layer functions of the interactive network adaptor at interface A_x and the interactive interface module at interface A_b shall comply with Recommendations I.430, I.431 [4], Q.921/I.441 [5], Q.931/I.451 [6], G.960 [7], G.961 [8], I.414 [9] and I.112 [10].

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communication
Series Y	Global information infrastructure
Series Z	Programming languages