



TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(07/97)

Multipoint control units for audiovisual systems using digital channels up to 1920 kbit/s

(Previously CCITT Recommendation)

ITU-T H-SERIES RECOMMENDATIONS
AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Characteristics of transmission channels used for other than telephone purposes	H.10–H.19
Use of telephone-type circuits for voice-frequency telegraphy	H.20–H.29
Telephone circuits or cables used for various types of telegraph transmission or simultaneous transmission	H.30–H.39
Telephone-type circuits used for facsimile telegraphy	H.40–H.49
Characteristics of data signals	H.50–H.99
CHARACTERISTICS OF VISUAL TELEPHONE SYSTEMS	H.100–H.199
INFRASTRUCTURE OF AUDIOVISUAL SERVICES	H.200–H.399
General	H.200–H.219
Transmission multiplexing and synchronization	H.220–H.229
Systems aspects	H.230–H.239
Communication procedures	H.240–H.259
Coding of moving video	H.260–H.279
Related systems aspects	H.280–H.299
Systems and terminal equipment for audiovisual services	H.300–H.399

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

ITU-T RECOMMENDATION H.231

MULTIPOINT CONTROL UNITS FOR AUDIOVISUAL SYSTEMS USING DIGITAL CHANNELS UP TO 1920 kbit/s

Summary

This Recommendation specifies the means by which three or more audiovisual terminals conforming to Recommendation H.320 may communicate simultaneously over constant bit rate digital paths, such communication being designated a "multipoint call".

Source

ITU-T Recommendation H.231 was revised by ITU-T Study Group 16 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 10th of July 1997.

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.....	2
4 Abbreviations.....	3
5 Functional representation	4
5.1 General representation	4
5.2 Description of functional units.....	4
6 Multipoint configurations.....	8
7 Multipoint control unit characteristics and classification	8
7.1 Conformance	8
7.2 Classification of MCUs	9
7.3 Summary of MCU BAS capabilities.....	9
7.4 Other attributes	10
8 "Listed" multipoint control units.....	10
9 Terminal requirements and options.....	11

Copyright International Telecommunication Union/ITU Telecommunication Sector

MULTIPOINT CONTROL UNITS FOR AUDIOVISUAL SYSTEMS USING DIGITAL CHANNELS UP TO 1920 kbit/s

(revised in 1997)

1 Scope

This Recommendation specifies the means by which three or more audiovisual terminals conforming to Recommendations H.320, H.221, H.242, H.261, H.262 and H.263 may communicate simultaneously over constant bit rate digital paths, such communication being designated a "multipoint call". The terminals should not need any modification for multipoint working, though some optional enhancements may require additional software; in particular, considerably enhanced functionality is attained via the use of T.120 protocols in the MLP channel. The interconnection is effected by one or more Multipoint Control Units (MCU) which may reside in the network or at one of the terminals.

This Recommendation covers both mandatory requirements and optional enhancements for multipoint working. The optional enhancements include:

- numbering of terminals;
- chair control;
- data broadcast;
- video mixing;
- cascading.

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.

- CCITT Recommendation G.711 (1988), *Pulse Code Modulation (PCM) of voice frequencies*.
- CCITT Recommendation G.722 (1988), *7 kHz Audio-coding within 64 kbit/s*.
- CCITT Recommendation G.728 (1992), *Coding of speech at 16 kbit/s using low-delay code excited linear prediction*.
- ITU-T Recommendation H.221 (1997), *Frame structure for a 64 to 1920 kbit/s channel in audiovisual teleservices*.
- ITU-T Recommendation H.230 (1997), *Frame synchronous control and indication signals for audiovisual systems*.
- ITU-T Recommendation H.233 (1995), *Confidentiality system for audiovisual services*.
- ITU-T Recommendation H.234 (1994), *Encryption key management and authentication system for audiovisual services*.
- ITU-T Recommendation H.242 (1997), *System for establishing communication between audiovisual terminals using digital channels up to 2 Mbit/s*.
- ITU-T Recommendation H.243 (1997), *Procedures for establishing communication between three or more audiovisual terminals using digital channels up to 1920 kbit/s*.