

RECOMMENDATION ITU-R BT.1369

**BASIC PRINCIPLES FOR A WORLDWIDE COMMON FAMILY OF SYSTEMS FOR
THE PROVISION OF INTERACTIVE TELEVISION SERVICES**

(Question ITU-R 232/11)

(1998)

This Recommendation is based on a draft prepared by Study Group 11 in 1996. This draft was refined in conjunction with the ITU-T Study Group 9. It gives general guidance for the harmonious development of interactive television services. It covers the subject areas of interaction channels, interactive services and transport mechanisms. To maintain consistency with ITU-T, it is reproduced below in a form identical to ITU Standardization Sector Recommendation J.110.

**BASIC PRINCIPLES FOR A WORLDWIDE COMMON FAMILY OF SYSTEMS FOR
THE PROVISION OF INTERACTIVE TELEVISION SERVICES****Summary**

This Recommendation, which has been produced in conjunction with the broadcasting study groups of the Radiocommunication Sector of the ITU, gives general guidance for the harmonious development of interactive television services. It covers the subject areas of interaction channels, interactive services and transport mechanisms.

1 Introduction

The development of new digital technology has led to the convergence of broadcasting, telecommunications and computers. There has been rapid progress towards enhanced digital television broadcasting using HFC, SMATV, MMDS, LMDS, ISDN, ADSL, terrestrial over-air transmission, satellite delivery systems, etc. Reliance upon digital technology provides opportunities for the introduction of interactive services. Interactivity may be required at a number of levels, each having a variety of quality of service requirements for the interaction channel.

The interaction channel, often referred to as the return channel, generally includes both upstream and downstream paths, but in some instances may use only an upstream path to the source of the service. Interactivity can be local only without a return path, or simple interactivity using a unidirectional interaction channel or in its fullest form using a bidirectional interaction channel to and from the source of the service.

There is, thus, a need for the harmonization of systems for the provision of interactive services.

2 Scope

This Recommendation gives general guidance for a worldwide common family of systems for the provision of interactive television services to the public. It is a preliminary step towards facilitating the interoperability of interactive services. It is intended to assist in the preparation of future Recommendations for specific services which should take into account the output from other ITU groups, dealing with multimedia services. This Recommendation is based on the following principles:

- a) there should be maximum commonality in the techniques used for interactive television services delivered by HFC, SMATV, MMDS, LMDS, ISDN, ADSL, terrestrial over-air transmission, satellites, etc.;
- b) the interaction channel should be designed as a “container” able to transport data services (including video, audio and the associated data signals) in a transparent and flexible way.

Guidance for harmonizing the development of interactive television services can be found in the service architecture shown below. It is beyond the scope of this Recommendation to specify the technical details of the transport and access networks used for media delivery and application interaction. A preliminary list of technical parameters under study which may affect such specifications is provided in informative Appendix I.

3 Bibliography

- [1] Recommendation J.1 - *Terminology for new services in television and sound-programme transmission*, April 1997.
- [2] Recommendation J.83 - *Digital multi-programme systems for television, sound and data services for cable distribution*, April 1997.
- [3] Recommendation J.84 - *Distribution of digital multi-programme signals for television, sound and data services through SMATV networks*, April 1997.
- [4] M.3000-series of Recommendations - *Telecommunication management network*.
- [5] Recommendation I.414 - *Overview of Recommendations on layer 1 for ISDN and B-ISDN customer accesses*.
- [6] Recommendation ITU-R BO.1294 - *Common functional requirements for the reception of digital multi-programme television emissions by satellites operating in the 11/12 GHz frequency range*.
- [7] Recommendation ITU-R BT.1300 - *Service multiplex transport and identification methods for digital terrestrial television broadcasting*.
- [8] Recommendation ITU-R BT.1306 - *Error correction, data framing, modulation and emission methods for digital terrestrial television broadcasting*.

4 Terms and definitions

The terms and definitions in Recommendation J.1 apply and are augmented by the definitions below for the purposes of this Recommendation.

Broadcast channel: A unidirectional, broadband, point-to-multipoint channel, which may include video, audio and data. The broadcast channel is established from the service provider to the users. It may include the forward interaction path.

Interaction channel: A bidirectional channel between the user and the service provider for interaction purposes. In certain implementations the interaction channel could also carry a user selected broadcast service. In general the interaction channel is formed by:

Return interaction path (return channel): A communication channel from the user to the service provider. It is multiple point-to-point.

Forward interaction path: An individual communications channel from the service provider to the user. It may be embedded into the broadcast channel. This channel may not be present in all implementations.

5 Abbreviations

ADSL	Asymmetric Digital Subscriber Line
GSM	Global Systems for Mobile Communication
HFC	Hybrid Fibre Coax
ISDN	Integrated Services Digital Network
LMDS	Local Multipoint Distribution System
MMDS	Multichannel Multipoint Distribution System
SMATV	Satellite Master Antenna Television
TMN	Telecommunications Management Network.

6 Interactivity and the role of interaction paths

The basic requirement of an interaction channel is that the user be able to respond in some way to the interactive service. This response may take the form of “voting” for a particular participant in a competitor show, “purchasing” goods that are demonstrated or advertised in a shopping channel programme, etc. This would be achievable within a one-way (reverse direction) narrow-band path.

A higher level of interactivity might require that a user, who has made a response to an interactive service, be sent an acknowledgement. This might be the case where the consumer has made a credit card purchase from a shopping channel via the basic interaction channel. That consumer would expect to receive an acknowledgement that his or her credit card transaction had been accepted. This level of interactivity would require a two-way interaction channel, one in the reverse direction, the other the forward direction.

A further level of interactivity would occur where in response to information in the interactive service, the consumer requests further information on particular topics from the source of the service, or from a central database via the source of the interactive service. This could require that the forward channel be broadband. In this particular example, the reverse path would only need to be a narrow-band one, but it is possible that applications will arise whereby the consumer will need to make a broadband response/contribution to the interactive service and also receive a broadband “answer” from the service source.

7 Reference model for the interaction channel

A reference model for the system architecture of a narrow-band interaction channel in a broadcasting scenario is shown. In this reference model, two channels are established between the user and the service provider, as in Figure 1/J.110. The detailed reference model is presented in Figure 2/J.110.