

RECOMMENDATION 807

REFERENCE MODEL FOR DATA BROADCASTING

(Question 29/11)

(1992)

The CCIR,

considering

- a) that data broadcasting services are growing rapidly in number and diversity of application;
- b) that the media used to convey data broadcasting services now covers the whole gamut of broadcast emission bearers from LF radio through to SHF satellite systems;
- c) that the reducing cost of computing equipment makes the development of complex receiving terminals economically viable;
- d) that there will be an increasing need to interconnect broadcast transmission and reception equipment to computer networks and other data broadcasting equipments;
- e) that a method needs to be found to ease standardization and facilitate smooth evolution of data broadcasting systems in the future;
- f) that it is desirable to encourage the development of compatible interface specifications to rationalize the design of equipment,

recommends

- 1. that the layered approach of the ISO Open Systems Interconnection (OSI) basic reference model as described in ISO 7498 (1984) should be used in the development of any new data broadcasting system;
- 2. that the OSI basic reference model should be interpreted in the broadcasting context, according to Annex 1.

ANNEX 1

**Interpretation of the ISO OSI basic reference model
in the broadcasting context**

1. Introduction

The study and development of systems and services of data broadcasting are active in various areas such as the television and sound channels in terrestrial and satellite broadcasting.

In order to ease standardization of data broadcasting systems and to facilitate smooth evolution of data broadcasting services in the future, the development of a common reference model for data broadcasting is necessary.

In particular, the use of such a reference model would facilitate the description and introduction of integrated services digital broadcasting (ISDB) which could include Teletext, still pictures, audio signals, high fidelity audio, facsimile, data and other types of information.

2. Definition

Data broadcasting: the broadcasting of coded information intended to be received by the general public by means of appropriate data processing equipment.

3. A layered model for data broadcasting

A hierarchical organization of communication functions for data broadcasting is presented in Table 1 where the functional items, listed at each hierarchical level, do not refer to specific implementation solutions, but to the overall logical features that are considered sufficient to characterize the service and performance of any typical system.

According to this functional model, services may be delivered by arranging the information into logical groupings, delivering them to lower layers for transmission and, after reception, recovering the information in the proper form for use by the recipient.

In what follows, the names of the layers are those adopted by the ISO in ISO 7498 (1984) “Basic reference model for open systems interconnection”.*

TABLE 1
Layer structure of data broadcasting

OSI basic reference model	Data broadcasting	
Layer	Principal function	Classification
7 Application	Use of information at application level	Service information protocol
6 Presentation	Conversion and presentation of information	
5 Session	Selection of and access to information	
4 Transport	Identification of group of data	Data broadcasting system
3 Network	Identification of logical channel	
2 Data link	Linkage with logical transmission unit	
1 Physical	Physical transmission	

Broadcasting networks are basically uni-directional. Even where new interactive services are introduced, the reverse path normally uses a different type of network. This situation is included within the OSI 7-layer model by the concept of “connectionless” operation. In typical telecommunications, the connectionless class of transmission normally refers to a virtual uni-directional protocol, where physical bi-directional data paths exist, but are only used in one direction (an example is the X.25 “datagram”). However, the concept equally covers a physically uni-directional situation. In both cases a prior agreement is required as to the purpose and significance of the data transmission. In the data broadcasting case this agreement must be set up via other means of communication, although it will frequently be implicit, such as in the purpose of equipment sold to a user.

* The term “network” is used in this Annex in the telecommunications sense of a set of interconnected links sharing the same protocol. This is distinguished from the use of “network” in the conventional broadcasting sense of set of transmitters broadcasting the same programme material.