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**DIGITAL MULTIPROGRAM DISTRIBUTION
BY SATELLITE**

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Digital Multiprogram Distribution by Satellite

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Digital Multiprogram Distribution by Satellite

1 Introduction

Satellite Digital TV systems have shown their advantages with respect to the analog TV allowing a more efficient use of the satellite frequency spectrum available and establishing a more robust scenario with respect to interference protection.

With the aim to promote the convergence on a worldwide standard for satellite digital multiprogram reception systems for television, sound and data services, the systems for the reception of Digital Multiprogram Distribution by Satellite are described. These descriptions configure the universal elements of the satellite Integrated Receiver Decoder (IRD).

The universal elements of the satellite IRD are capable of receiving emissions from System I, and System II.

The common and specific elements of each system have been analyzed and it has been concluded on the feasibility of the implementation of the universal elements of a Satellite IRD. This document analyses the common elements among existing systems, defines and describes the functions of a generic system model and identifies the processes and the minimum set of parameters of the various sub-systems of the universal elements of a Satellite IRD.

The feasibility of the implementation of the common elements in a satellite IRD has been demonstrated in consultation with the industry.

1.1 Compliance Notation

As used in this document, "*shall*" denotes a mandatory provision of the standard. "*Should*" denotes a provision that is recommended but not mandatory. "*May*" denotes a feature whose presence does not preclude compliance that may or may not be present at the option of the implementer.

2 Generic Reference Model for the common functional requirements of a satellite IRD

A Generic Reference Model for the Common Functional Requirements of a Satellite IRD has been produced in order to analyze the feasibility of the universal elements of a satellite IRD, identifying the applicability of the generic reference model to the two systems currently in use.

The Generic Reference Model has been defined based on the functions required for covering all layers of a typical IRD Protocol Stack. For reference, Fig. 1 presents the typical IRD Protocol Stack which is based on the following layers:

- **Physical and Link layers** covering the typical front-end functions: tuner, QPSK demodulator, convolutional decoding, deinterleaving, Reed Solomon decoding and energy dispersal removal.
- **Transport layer** responsible of the demultiplexing of the different programs and components as well as the depacketization of the information (video, audio and data)