



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

J.150

Amendment 2
(03/2001)

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

Digital television distribution through local subscriber
networks

Operational functionalities for the delivery of digital
multiprogramme television, sound and data services
through multichannel, multipoint distribution
systems (MMDS)

Amendment 2

ITU-T Recommendation J.150 – Amendment 2

(Formerly CCITT Recommendation)

ITU-T J-SERIES RECOMMENDATIONS
**CABLE NETWORKS AND TRANSMISSION OF TELEVISION, SOUND PROGRAMME AND OTHER
MULTIMEDIA SIGNALS**

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ITU-T Recommendation J.150

Operational functionalities for the delivery of digital multiprogramme television, sound and data services through multichannel, multipoint distribution systems (MMDS)

AMENDMENT 2

Summary

This Amendment adds the option to use orthogonal frequency division multiplexing (OFDM) in multichannel, multipoint distribution systems.

Source

Amendment 2 to ITU-T Recommendation J.150 was prepared by ITU-T Study Group 9 (2001-2004) and approved under the WTSA Resolution 1 procedure on 9 March 2001.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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 Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 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.

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As of the date of approval of this Recommendation, 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.

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ITU-T Recommendation J.150

Operational functionalities for the delivery of digital multiprogramme television, sound and data services through multichannel, multipoint distribution systems (MMDS)

AMENDMENT 2

1) Clause 3

In References add the following reference:

- [4] ETSI EN 300 744, *Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television.*

2) Clause 5

In abbreviations and acronyms add the following acronym in alphabetical order:

OFDM Orthogonal Frequency Division Multiplexing

3) Clause A.1

At the end of this clause add the following paragraph:

Another variant of System A is an optional MMDS/MVDS/LMDS system using OFDM modulation; its specifications are derived from the DVB-T standard [ETSI EN 300 744] with additional details that apply to multi-programme microwave services. Consequently there is now the option of adopting the benefits of OFDM modulation for microwave transmission in any frequency band.

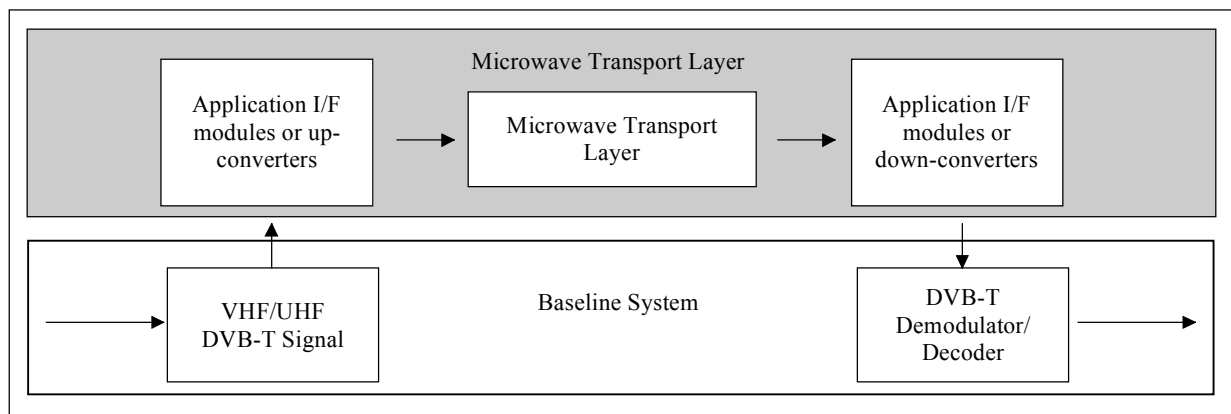
4) Clause A.2

Add a new clause A.2.3 as follows:

A.2.3 MMDS/OFDM system concept

The MMDS/OFDM system shall be defined as the functional block of equipment performing the adaptation of the baseband TV signals to the MMDS/OFDM channel characteristics (see Figure A.3). At the transmitter site, the following TV baseband signal source can be considered:

- satellite signal(s);
- cable signal(s);
- contribution link(s);
- local program source(s).



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Figure A.3/J.150 – Functional block diagrams of the baseline and transport systems

The baseline system is defined as the functional block of equipment performing the adaptation of the baseband TV signals from the output of the MPEG-2 transport multiplexer, to the UHF/VHF channel characteristics. The following processes are applied to the data stream (see Figure A.3):

- transport multiplex adaptation and randomization for energy dispersal;
- outer encoding (i.e. Reed-Solomon encoding);
- outer interleaving (i.e. convolutional interleaving);
- inner encoding (i.e. punctured convolutional code);
- inner interleaving;
- mapping and modulation;
- Orthogonal Frequency Division Multiplexing (OFDM) transmission.

The system is directly compatible with MPEG-2 coded TV signals ISO/IEC 13818.

This baseline system is covered in detail in the DVB-T specification [ETSI EN 300 744]: *Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television.*

The Microwave DVB-T Transport System MMDS/OFDM (DVB-MT) uses the same modulation characteristics as the Terrestrial Baseline System but frequency translates it to a microwave transport layer as can be seen in Figure A.3. It can then be frequency translated back to the VHF/UHF band where it is compatible with the Terrestrial Baseline DVB-T demodulators and decoders.

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