

Seminar #1

## Introduction

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Digital Broadcasting Expert Group (DiBEG)

Japan

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## Preface

We think that current Brazil situation is just like Japan in 2000-2002, preparing to start digital terrestrial broadcasting service. In our experience, at this stage, engineers of broadcaster and equipment manufacture need many technical knowledge for Digital Terrestrial Broadcasting with technical basis.

Considering above situation, this 1st technical seminar will be prepared for learning the basic technology, such as;  
(a)What is digital broadcasting? What is the difference from analog broadcasting?, (b)What are the technical key points?, (c)What should be investigated and considered to move to Digital broadcasting.?, (d)Get minimum set of technical knowledge for the understanding above questions

The purpose of 1st technical seminar is that Brazilian engineer related to digital broadcasting get minimum technical knowledge for digital broadcasting.

DiBEG prepared minimum set of technical information for this 1st seminar based on Japanese experience.

## Why digital Broadcasting?

### Merit of digital Broadcasting

Multimedia

High Quality / Multi channel

High performance

Effective utilization of Frequency resource

Mobile /Portable reception Service

Commonality (Integrated Receiver)

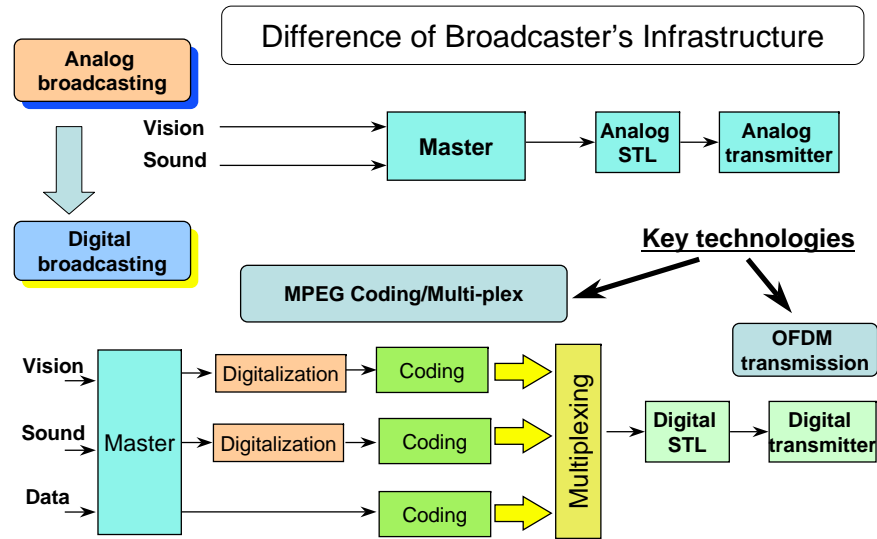
## Why digital Broadcasting? What are different ?

### Comparison of Analog and Digital

Item	YES/NO		Note
	Analog	Digital	
HDTV	NO	YES	
Multi-channel SDTV	NO	YES	
Multi-channel stereo	NO	YES	
Data casting	Limited (note1)	YES	
Multi media	NO	YES	
Mobile/Portable	Difficult	YES	
Indoor reception	Difficult	Good	
SFN	NO	YES	

(note 1) only closed caption is possible

## What are different ?



## What are different ?

### Service Image of Digital Broadcasting

**HDTV**

- High quality image and sound service.

**Data broadcasting**

- Simple program searching and retrieval of information at any time.

**Mobile reception**

- Stable reception service

**Multi-channel service**

- Realization of multiple channels

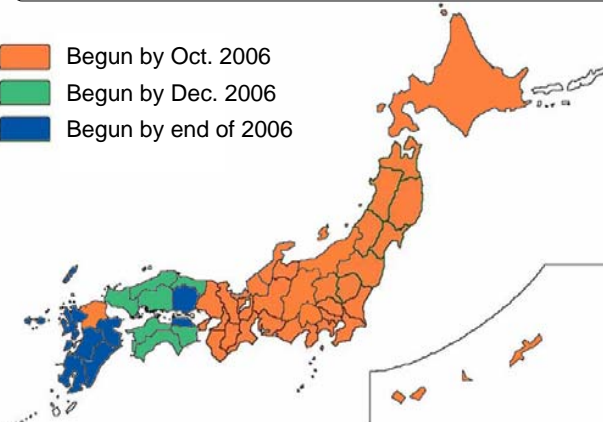
**Interactive TV**

- Communication services and linked TV service

## Current situation in Japan

### Digital Broadcasting Service

- Begun by Oct. 2006
- Begun by Dec. 2006
- Begun by end of 2006



As shown below, Digital Terrestrial Broadcasting has started In all Prefecture

## Receiver in Japanese Market

### ■ Fixed Receivers

#### PDP TV



VIERA TH-42PZ700SK  
Panasonic



Wooo P42-HR01  
HITACHI



PDP-A427HX  
Pioneer

#### LCD TV



REGZA 42H3000  
TOSHIBA



AQUOS LC-42RX1W  
SHARP



VIERA TH-20LX70  
Panasonic



BRAVIA KDL-40V2500  
SONY



LCD-32HR100  
SANYO



AQUOS LC-16E1  
SHARP

#### SDTV



VIERA TH-15LD70  
Panasonic



AQUOS LC-13SX7  
SHARP

## Receiver in Japanese Market

### ■ Fixed Receivers(Cont.)

#### HDD/DVD Recorder



RDZ-D800  
SONY



DIGA DMR-XW51  
Panasonic



WARDIA RD-S600  
TOSHIBA



DVR-DV635  
MITSUBISHI

#### Blu-ray



BDZ-V9  
SONY



DIGA DMR-BW200  
Panasonic

#### STB



TU-MHD600  
Panasonic



DT400  
MASPRO

#### STB-Cable



TZ-DCH1800  
Panasonic

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## Receiver in Japanese Market

### ■ In-car Receivers

#### Navigation System

ISDB-T(Full-Seg)/One-Seg



Strada CN-HDS965TD  
Panasonic



AVIC-VH099G  
Pioneer



HS706D-A  
NISSAN/SANYO

#### One-Seg Only

※Full-Seg is Optional



GORILLA NV-HD830DT  
SANYO

#### Portable Navigation Device

One-Seg Only



Mini GORILLA  
NV-SD10DT  
SANYO

#### In-Car TV

One-Seg Only



CAV-TD85D1  
SANYO

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## Receiver in Japanese Market

### ■ Portable Receivers

#### Cell Phone One-Seg Only



W51SA



P903iTV



911SH



W52T



D903iTV



911T

au

14 models are available  
at the end of May, 2007

NTT DoCoMo

4 models are available  
at the end of May, 2007

Softbank

3 models are available  
at the end of May, 2007

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## Receiver in Japanese Market

### ■ Portable Receivers(Cont.)

One-Seg Only

#### DVD Player



DVD-LX87  
Panasonic



DVD-HP700ND  
SANYO

#### Laptop



VAIO type T  
SONY

#### Adapters(USB, etc.)



Many products are on sale.  
BUFFALO, I-O DATA, etc.

#### Audio Player



gigabeat V30E  
TOSHIBA

#### Dictionary



Papyrus PW-TC900  
SHARP

#### Portable TV

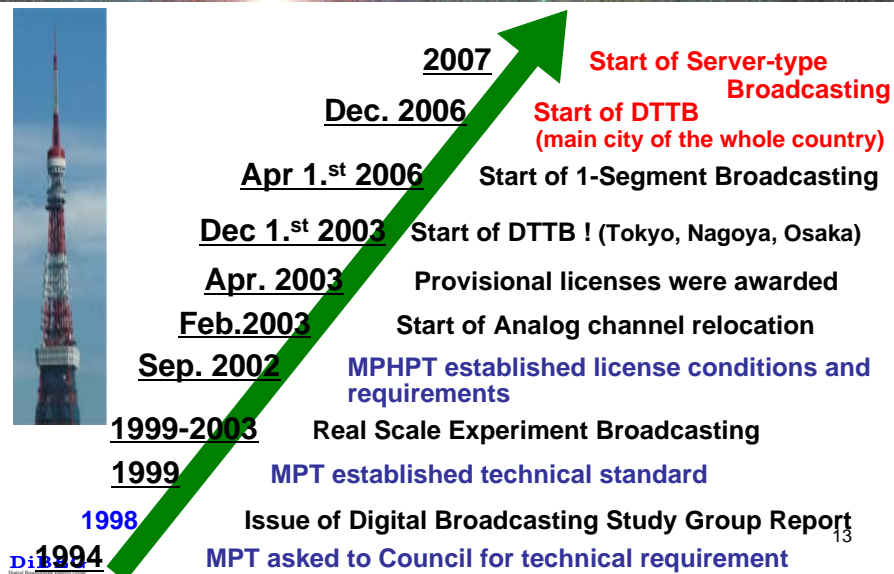


XDV-100  
SONY

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## Implementation Schedule of Digital Terrestrial Television Broadcasting in Japan



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## Contents of 1<sup>st</sup> Seminar

### seminar #1; Introduction;

in this section, give a brief comment for questions (a)-(c), and outline of 1st seminar

### seminar #2; Structure of ISDB-T system;

as a introduction, explain followings

- Structure of ISDB-T standard (both Japan and Brazil)

Relations between technical structure of ISDB-T system and standard

### Seminar #3; Transmission system;

this items is important technology, and feature of ISDB-T system, so explain details as follows

- overview of ISDB-T transmission system, - Mechanism of segmented transmission and possible transmission type
- Technical details each portion( explain the point of ARIB STD-B31 almost same as SBTVD-T 01)

### Seminar #4; key point of One seg service;

One-seg service is most important feature of ISDB-T,

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## Contents of 1<sup>st</sup> Seminar (Cont')

### Seminar #5; Multiplex system & PSI/SI ;

this is also one of important technology for digital broadcasting, so explain structure and technical basis.

- Structure of Multiplex system in ISDB-T, -Multiplex system
- PSI/SI system

### Seminar #6; Source coding/middle ware;

these standard are not exactly same as Japan, so,, briefly introduce the Japanese system mainly focused to mechanism

### Seminar #7; Implementation of Broadcaster;

mainly explain what should be investigated and considered to construct digital system.

- Over all block diagram for Infrastructure,
- Transmission system; \*system composition , \*points for transmission system design(which point should be investigated) , \* examples of equipment
- Studio system; \*outline of studio system, \*examples of system composition

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## Let's Start Seminar!

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