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Digital Terrestrial Broadcasting: Challenges In Its Implementation

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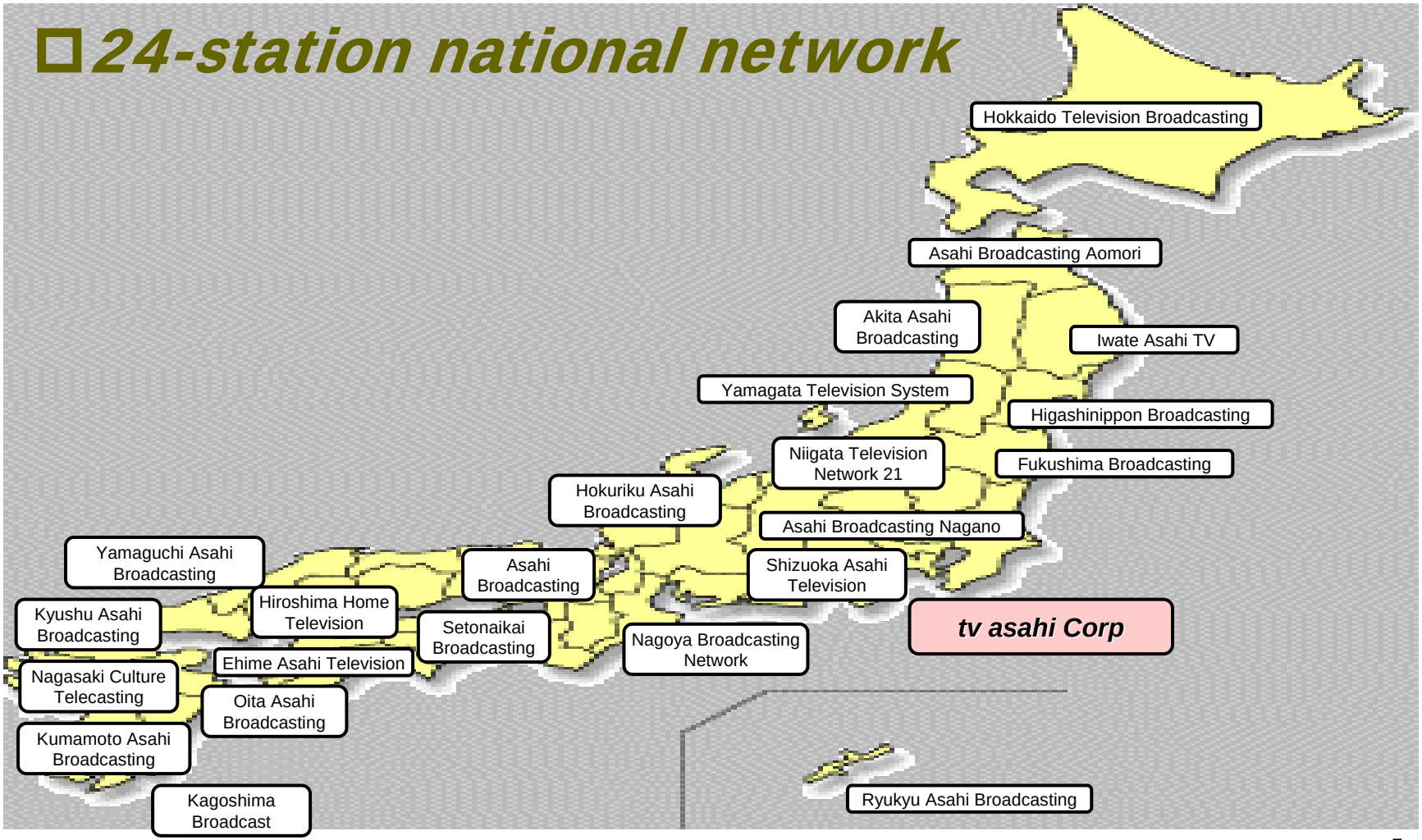
Profile of tv asahi

Who is *tv asahi*?

- ***Japan has five private broadcasting networks.***
- ***tv asahi is a key station with a network of 23 local affiliates.***

tv asahi's National TV Network

24-station national network



tv asahi's strength

- ***tv asahi's strength consists of***

  (A) News and Information,

  (B) Live Sports Coverage,

  (C) Variety/Entertainment , Programming.

National Digitalization

Advertising

X day is July27th,2011.

In 6 years time, all TV sets will become digital !

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National Digitalization schedule

- ***First Phase:***

  Dec,2003 Digital transmission in Tokyo, Osaka and Nagoya areas commenced.

- ***Second phase:***

  By Dec,2006 Transmission in the remaining areas must be executed.

- ***Final phase:***

  July,2011 Analogue broadcast shall be terminated.

Expansion Schedule

- ***Digital terrestrial television broadcasting has already commenced.***

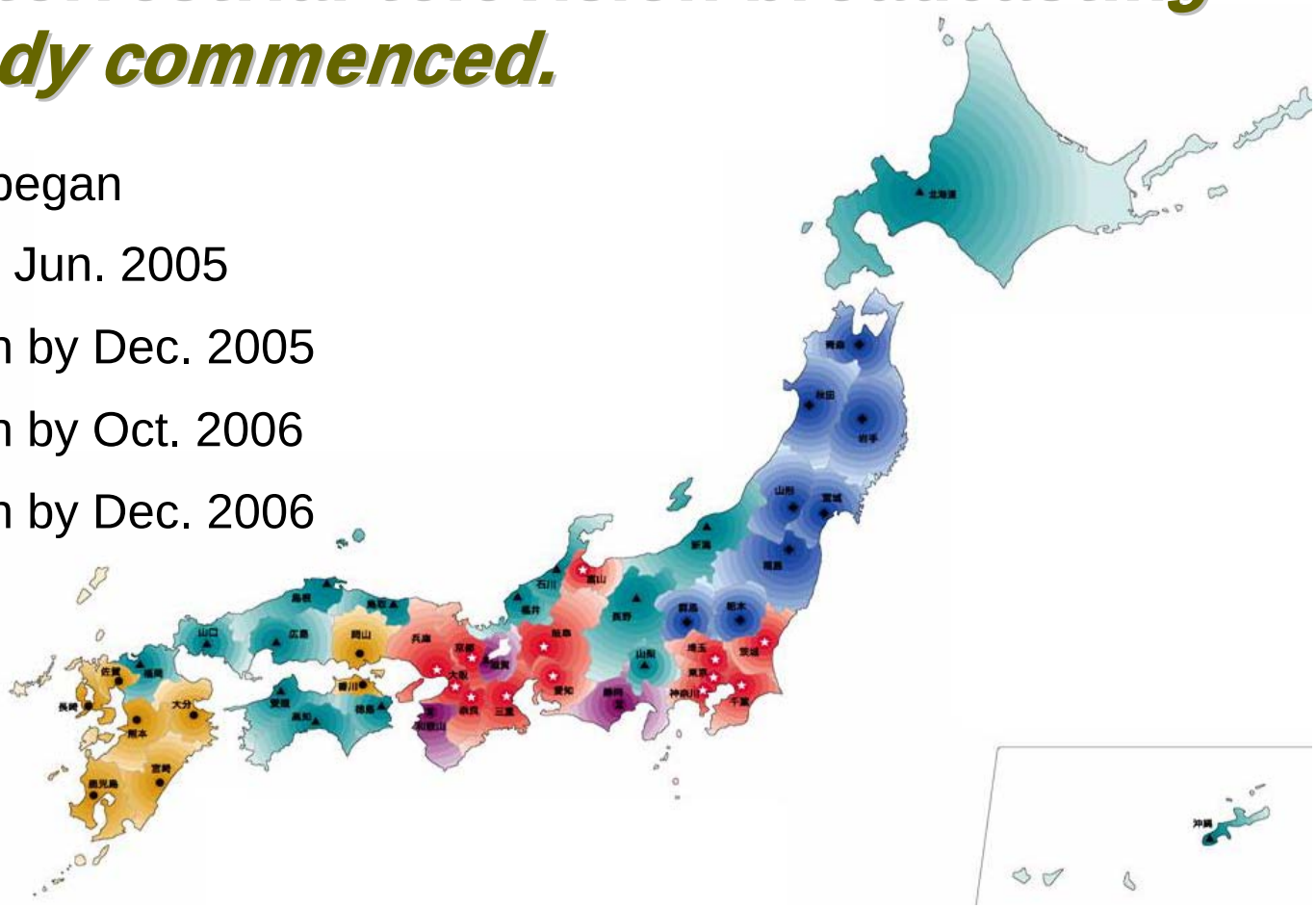
already began

began in Jun. 2005

will begin by Dec. 2005

will begin by Oct. 2006

will begin by Dec. 2006



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Households Coverage

- ***Households Coverage (percentage of households which can receive DTTB) increases every year as shown below.***
  - ✓ **In December 2004: 18 million households (38％)**
  - ✓ **In December 2005: 27 million households (56％)**
  - ✓ **In December 2006: 37 million households (77％)**

48 million households in Japan.

Challenge

- ***tv asahi, along with other public and commercial networks, will undergo digitalization process due for completion by 2011.***

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Implementation

Move to the new site

tv asahi's Head Quarter moved to new site "Roppongi hills" from Ark Hills premise on Mar.2003 to secure space to install new digital facilities in addition to the analogue facilities and to commence Digital broadcasting on Dec. 1st, 2003 .

Roppongi Hills

⇐

Mar31st.2003

Ark Hills

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Construction of the new building

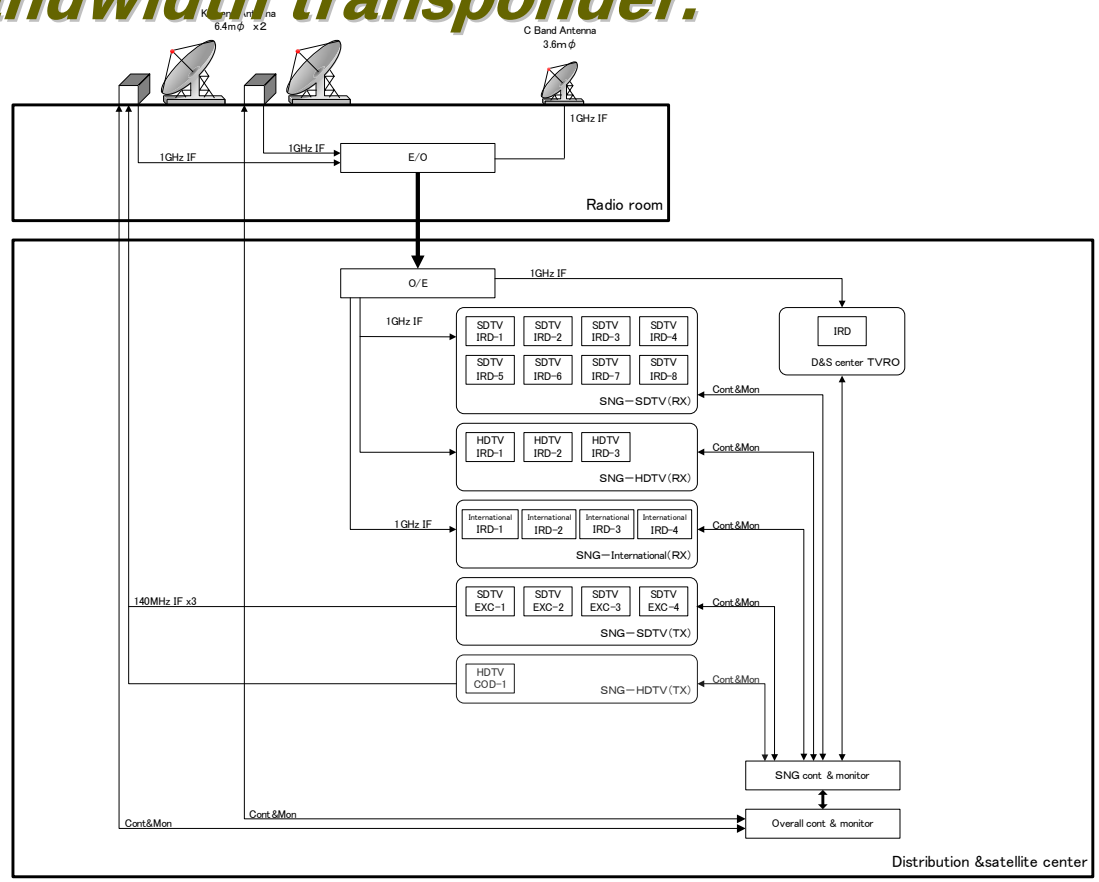
tv asahi has installed full digital broadcasting systems for Analogue & Digital terrestrial television broadcasting at new building.

Master control systems

- ***During the simulcast period (until July24,2011), Master control system operates both Analog and Digital television programs simultaneously.***

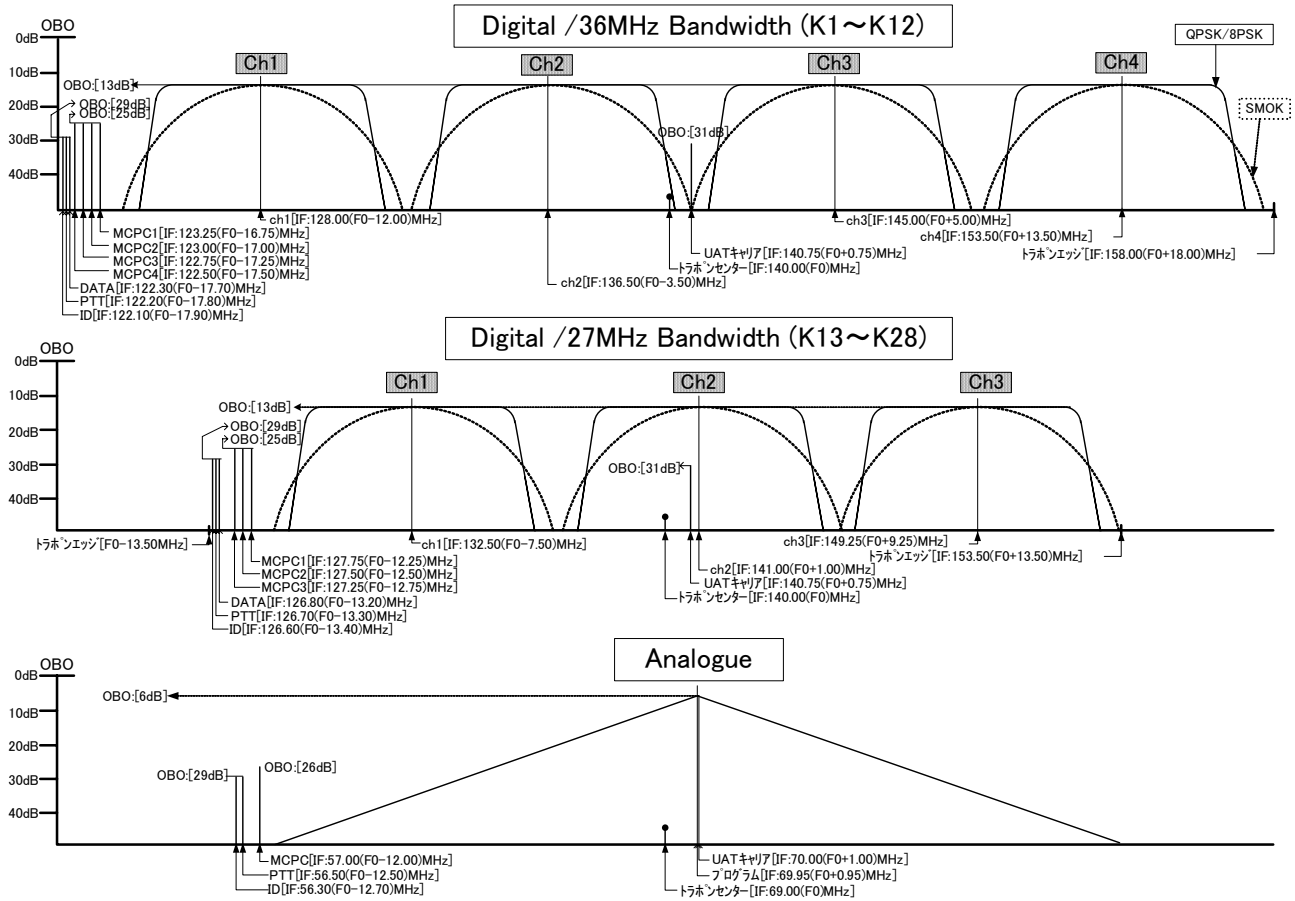
Digital SNG

- ***Digital SNG enables to send 2 HD or 4 SD programme within a 36MHz bandwidth transponder.***



Digital SNG

Transponder allocation for Digital Satellite News Gathering



Outdoor Broadcasting

- ***OB Track and Van type vehicles must be HD compatible for Digital Terrestrial Broadcasting.***

101 / Mobile SNG

102 /HD SNG

tv asahi's flag ship vehicle 201 / HD

202 / HD

204 / News

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Digital ENG

System parameters for HDTV/SDTV Digital Electronic News Gathering

Frequency Band	7 – 13 800 MHz		GHz
Channel spacing	9	18	MHz
Modulation	QPSK/16QAM/32QAM/ 64QAM-OFDM	QPSK/16QAM/32QAM/ 64QAM, QPSK/16QAM/ 32QAM/64QAM-OFDM	Digital
Capacity	Up to 30 (SDTV)	Up to 60 (HDTV)	Mbit/s
Transmit feeder loss (min)	1		dB
Transmit power (max)	4 (7 for 800MHz)	1.76 (QAM) / 7 (OFDM)	dBW
EIRP (max)	30 – 41 (11 – 16 for 800 MHz)		dBW
Receive feeder loss (max)	1		dB
Receiver IF bandwidth	9	18	MHz
Receive noise figure	4		dB
Receiver thermal noise	-130.5	-127.4	dBW

Digital Transmitters and Antennas

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- ***Transmitters and antennas for digital terrestrial television broadcasting installed at Tokyo Tower in 2003.***

Optical fiber lines x2

STL

micro wave

Transmitters

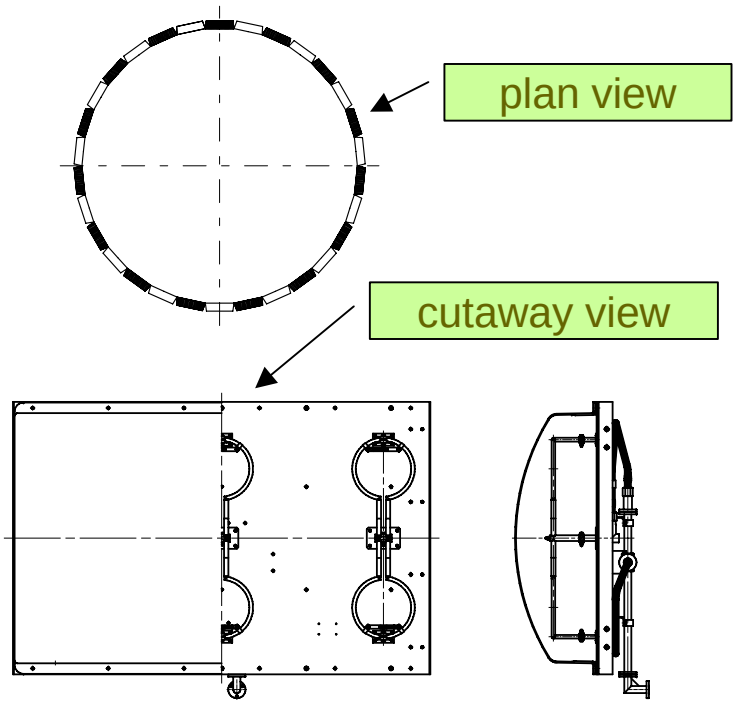
- ***Digital Transmitter system consists of three 5kw transmitters for redundant operation. Output power is 10kW.***

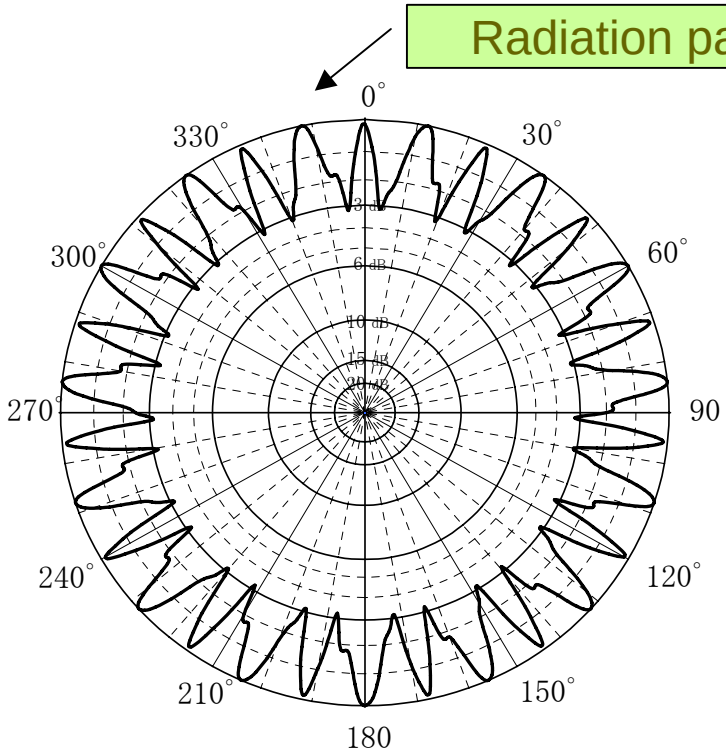
Antennas

- ***TV stations were confronted with enormous difficulties as Tokyo tower did not have extra space to mount new digital TV antennas ,6 meters in width and 12 meters in height.***

Antennas

- ***A beam pattern synthesis technology realized an omni directional radiation pattern in compact size.***





Service Area

- *Service area is expanding in Tokyo area.*

Sept. 22nd,2004

2nd Stage

700W

(eirp=920W)

Dec.1st,2005

Final Stage

10kW

(eirp=48kW)

Applications

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Applications / HDTV

- **High Definition Broadcast:**
  - ✓ *European broadcasters have opted for "multi-channel" strategy.*
  - ✓ *Japanese broadcasters have chosen to take advantages of "high definition" pictures.*

✓ **Pure HDTV : 16X9 1080i**

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Applications / SDTV

- ISDB-T utilize three different programmes within a 6MHz bandwidth channel .
- Multi-channel approach is presently positioned as an “experimental” and “back-up” option.

SD-1

SD-2

SD-3

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Applications / Data broadcasting

Data broadcasting is now on service.

- ✓Weather information
- ✓News Anytime
- ✓Results of sports games
- ✓Information-related TV programmes

Players list

Ongoing games

Example of soccer game

Other games result

Other information

Applications / Data broadcasting

Current Programme screen

Top menu of soccer game Data

Applications / EPG

EPG (Electronic Program Guide)

- ✓ An electronic programme guide (EPG) is a on-screen guide to scheduled broadcast television programmes, allowing a viewer to navigate, select and discover content by time, title, channel, genre, etc, using their remote control.

Applications / *1 segment service*

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12 Segments

Bandwidth：5.6MHz
（ 1 channel ）

Fixed service

HDTV

Mobile service
(1 segment broadcasting)

Mobile internet

Communication company

Mobile phone with 1 segment TV

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Applications / 1 segment service

- 1 segment service scheduled to start in Spring 2006.
- Merits:
  - ✓ Stable reception in a mobile environment
  - ✓ High quality video & audio in a mobile environment.
  - ✓ Robustness to noise and multi-pass.

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Conclusion

Advantages of Digital Broadcast for Advertisers

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- ***TV will remain the prominent medium of entertainment and information.***

✓ *Strong appeal of flat-panel TV sets and digital features will guarantee terrestrial broadcast's universal access to viewers.*

tv asahi's
Digital Terrestrial Business Model

- ***Sponsors' appetite for television advertising time will remain strong under digitalized environment. Recent trends show that their needs are continuously increasing.***

- ***Digitalization will expand terrestrial television's revenue sources.***

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