

Presentation 4

***ISDB-T
Applications***

12th. Feb. 2008

Lima, Peru

DiBEG JAPAN

Tomonori Inada

(Fuji Television Network, Inc.)

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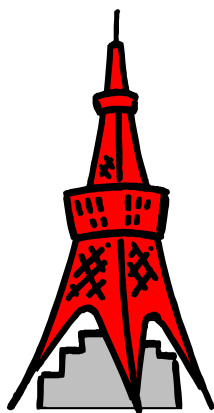
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Contents

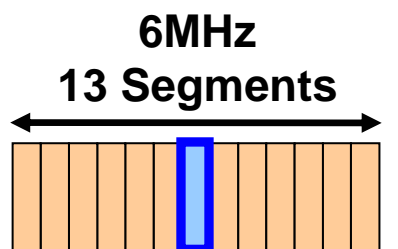
- *Features of ISDB-T*
- *Applications for Stationary Reception*
 - *HDTV or Multi Channel SDTV Program*
 - *Data Broadcasting*
 - *Advanced Caption*
 - *EPG(Electric Program Guide)*
- *Applications for Mobile Reception*
 - *One-Seg Service*
 - *HDTV Mobile Reception*
- *Merits for Broadcasters*

Features of ISDB-T system

TV station



*Support three reception types
within one channel*



Mobile
Reception

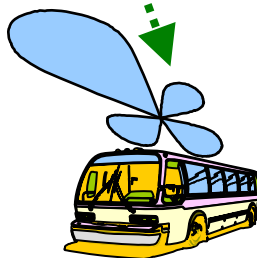
1 segment



Handheld terminal

HD Mobile
Reception

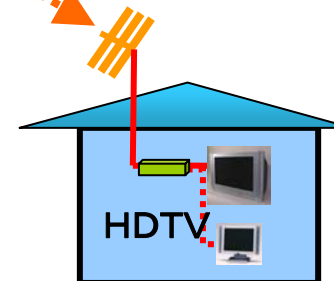
12 or 1 segment



Receiver in Vehicle
(diversity reception)

Stationary
Reception

12 segments



Home Receiver

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Powerful applications

HDTV



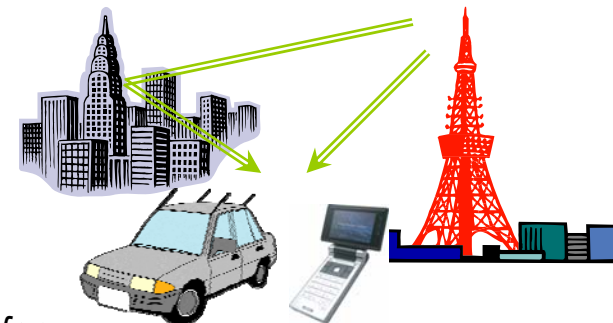
- High quality image on wide screen and CD quality sound.

Data broadcasting



- Local news and weather forecast for viewers at any time.

Mobile accesses



- Transmission service to Mobile accesses

Multi-channel program

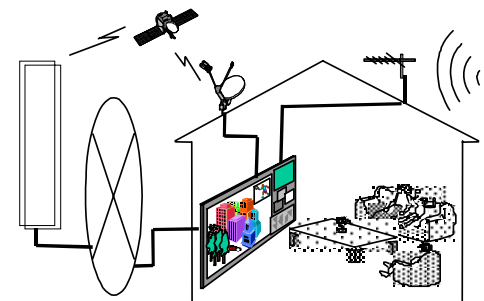


- Standard quality multi-channel service

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Interactive TV



- Offers Interactive service

Stationary Reception

- ***HDTV***
- ***Multi-Channel Programs***
- ***Data Broadcasting***
- ***Interactive Services***
- ***Advanced Caption***
- ***EPG (Electric Program Guide)***

HDTV

□ High Definition Television Program

- ✓ *The high quality images on a 16x9 wide screen and CD-quality sound make you feel as if you were at the theater. 5.1 multi channel audio can be transmitted.*
- ✓ *European broadcasters have opted for “multi-channel” strategy, but Japanese broadcasters have chosen to take advantages of “high definition” pictures.*
- ✓ *HDTV is a killer application.*



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Multi channel program

□ ISDB-T can transmit multiple SDTV programs simultaneously on a single digital spectrum.



SD-1



SD-2

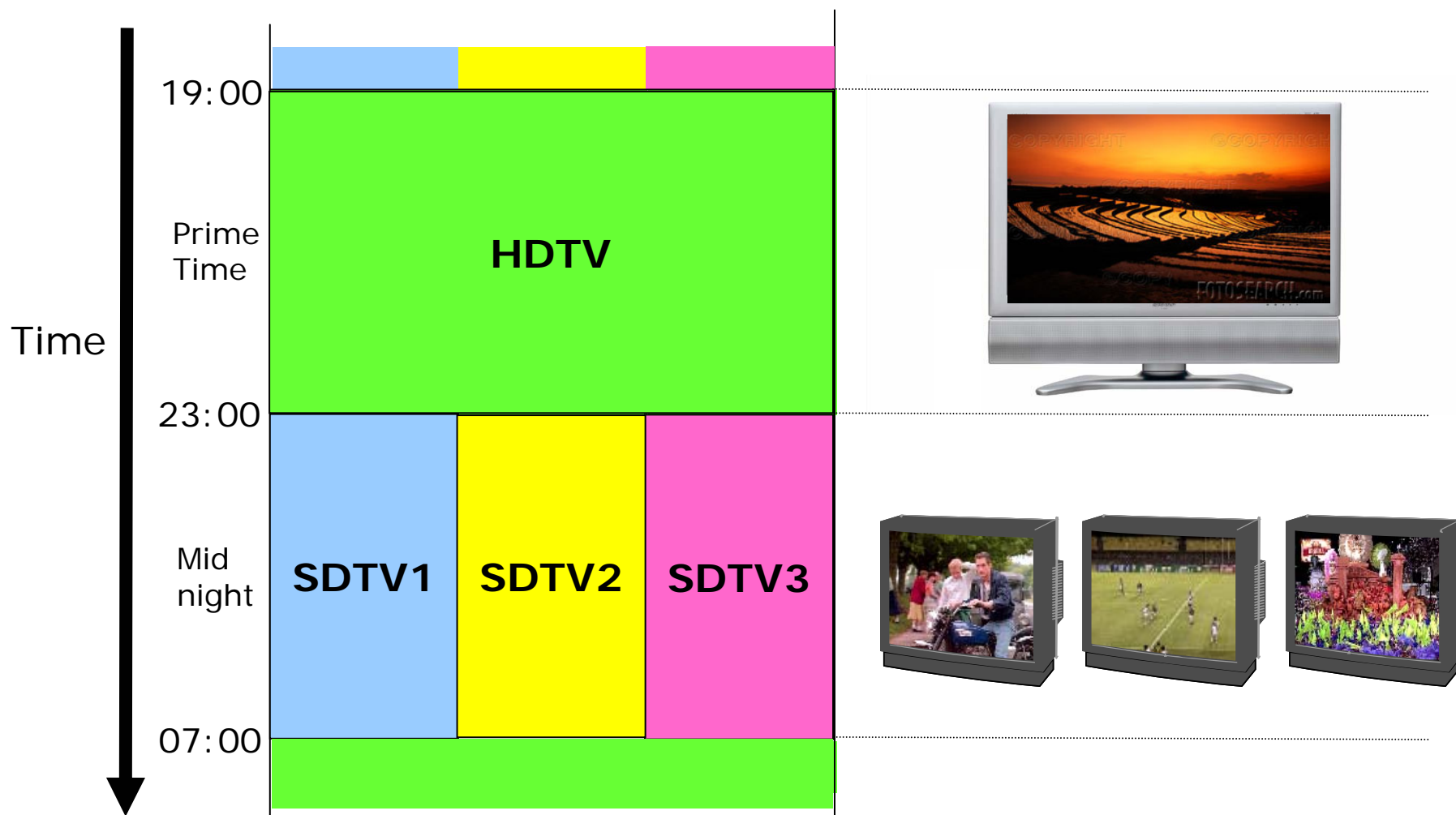


SD-3

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Flexible Programming



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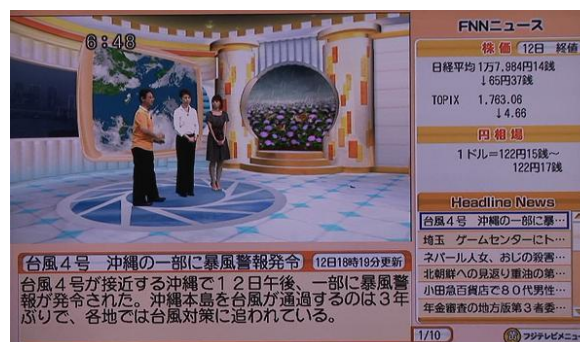
Data broadcasting (1)

□ *Data broadcasting - additional service.*

■ *By clicking on d-button of a remote control unit, you can access your requested information such as local weather forecast, 24H news and traffic information, etc.*



Local weather forecast



Local news



Traffic Information

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Data broadcasting (2)

□ Basic page format



Present time and date

Buttons to select contents

Local weather information

TV station ad banner

News banner

Traffic Information banner

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Data broadcasting (3)

□ 2 types of data services:

■ Program-linked contents

- *Information service linked to on-air programs*
- *Accessible during on-air*

■ Non-linked contents

- *Information service not linked to on-air programs*
- *Accessible any time*

Data broadcasting (4)

□ Program-linked data contents

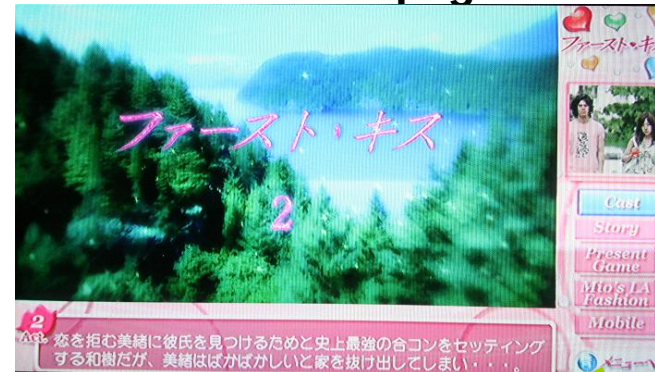
On-air program



Click on
d-button



Linked data page format



Contents
Menu



Click on
Menu button



Basic page format

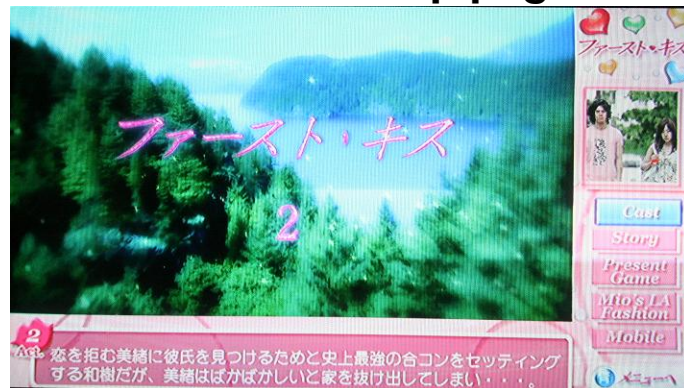
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Data broadcasting (5)

□ Program-linked data contents

Linked data top page



Cast



Story

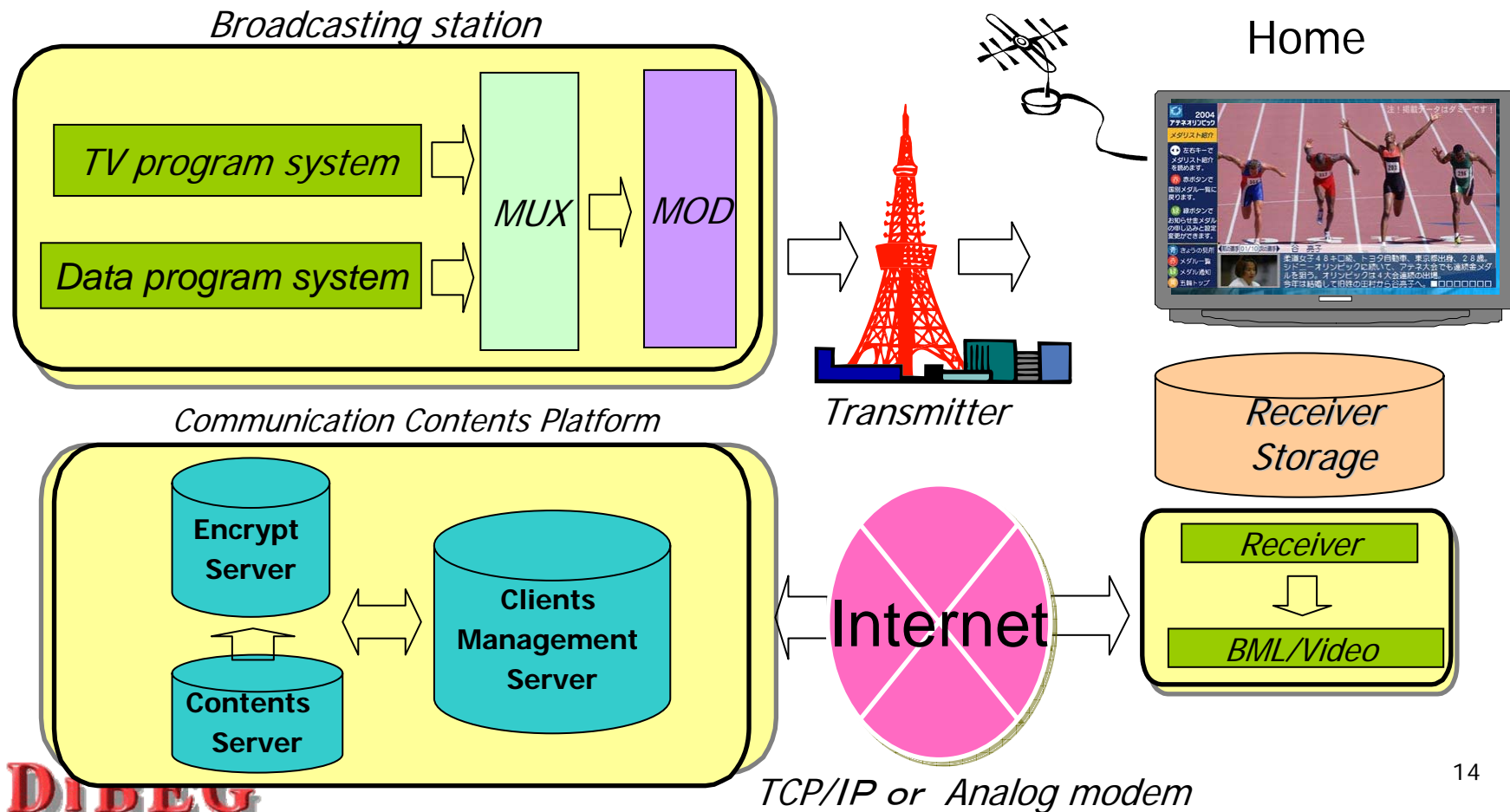


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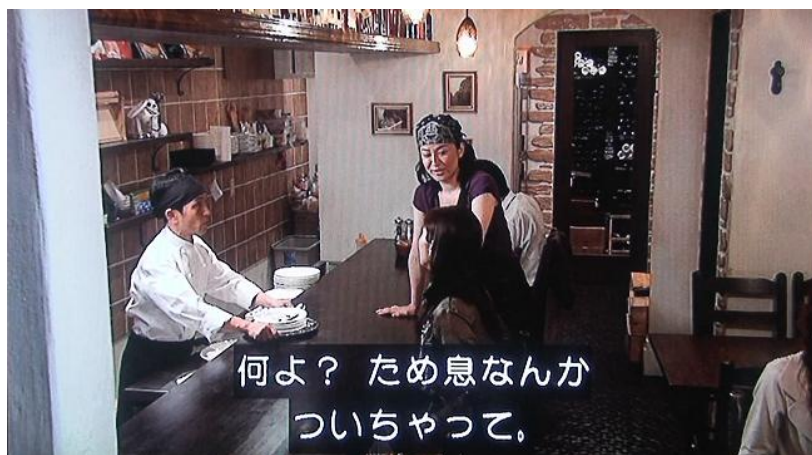
Interactive Services

□ *Interactive services is to realize the interactive communications via internet line.*



Advanced Caption

- *Closed Caption can be realized more flexible manner.*
- Caption of several languages can be sent to receiver.*



Caption

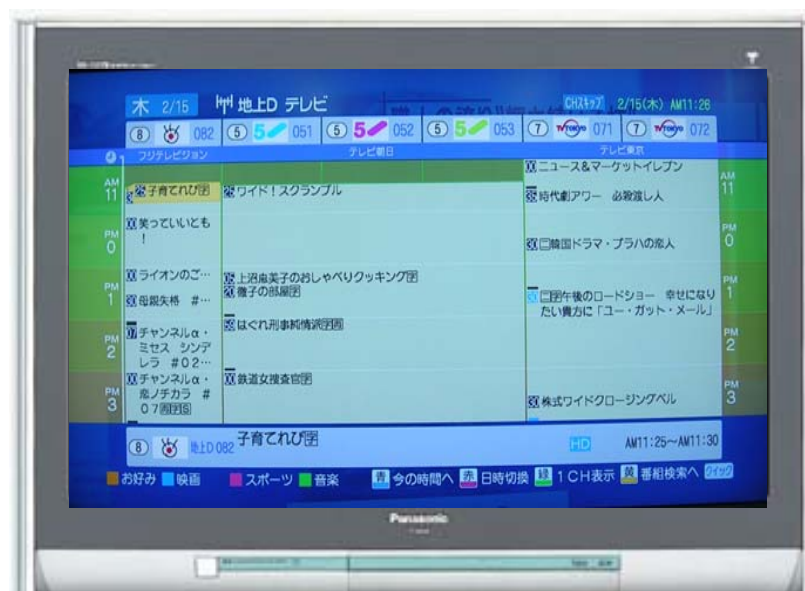
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EPG(1)

□ EPG (Electronic Program Guide)

■ An Electronic Program Guide (EPG) is an interactive schedule of current and upcoming programs that a viewer can display on-screen simply by pressing a button on his remote control unit.

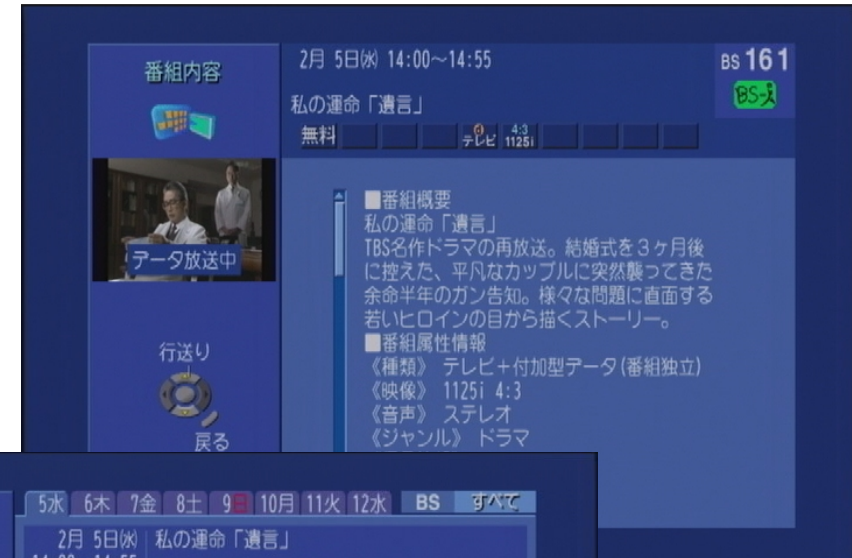


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EPG(2)

□ EPG provides a lot of program information, and you can book recording programs with remote easily.

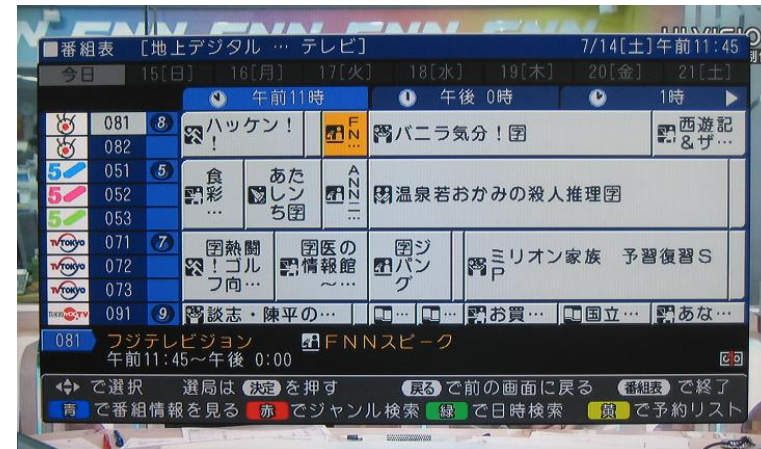
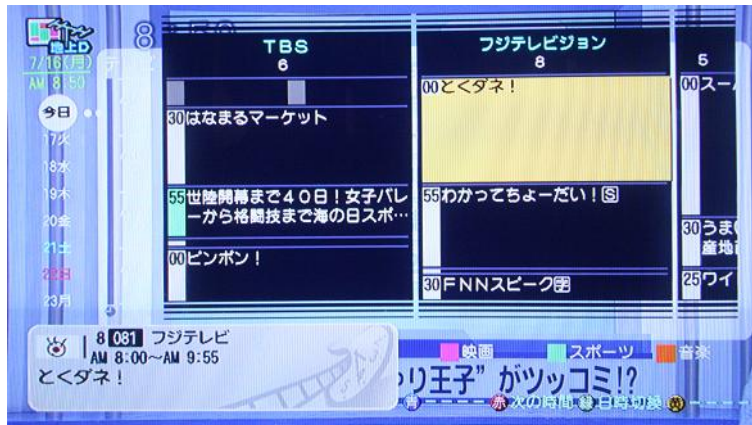
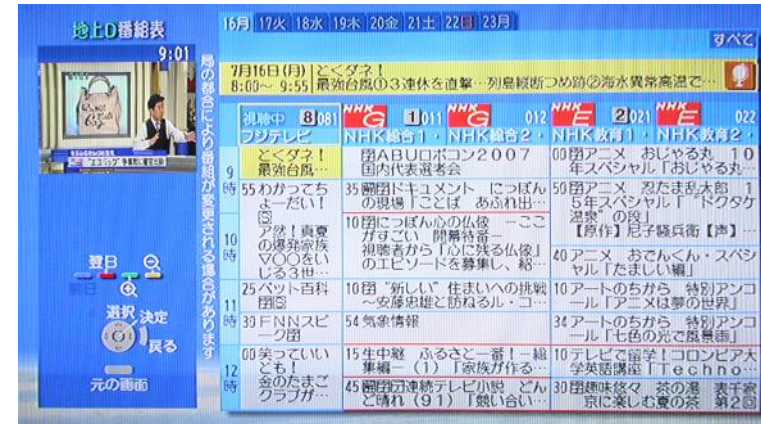


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EPG(3)

- ❑ Broadcaster sends program-info data as SI (Service Information) data.
- ❑ How to display program data is up to receivers.



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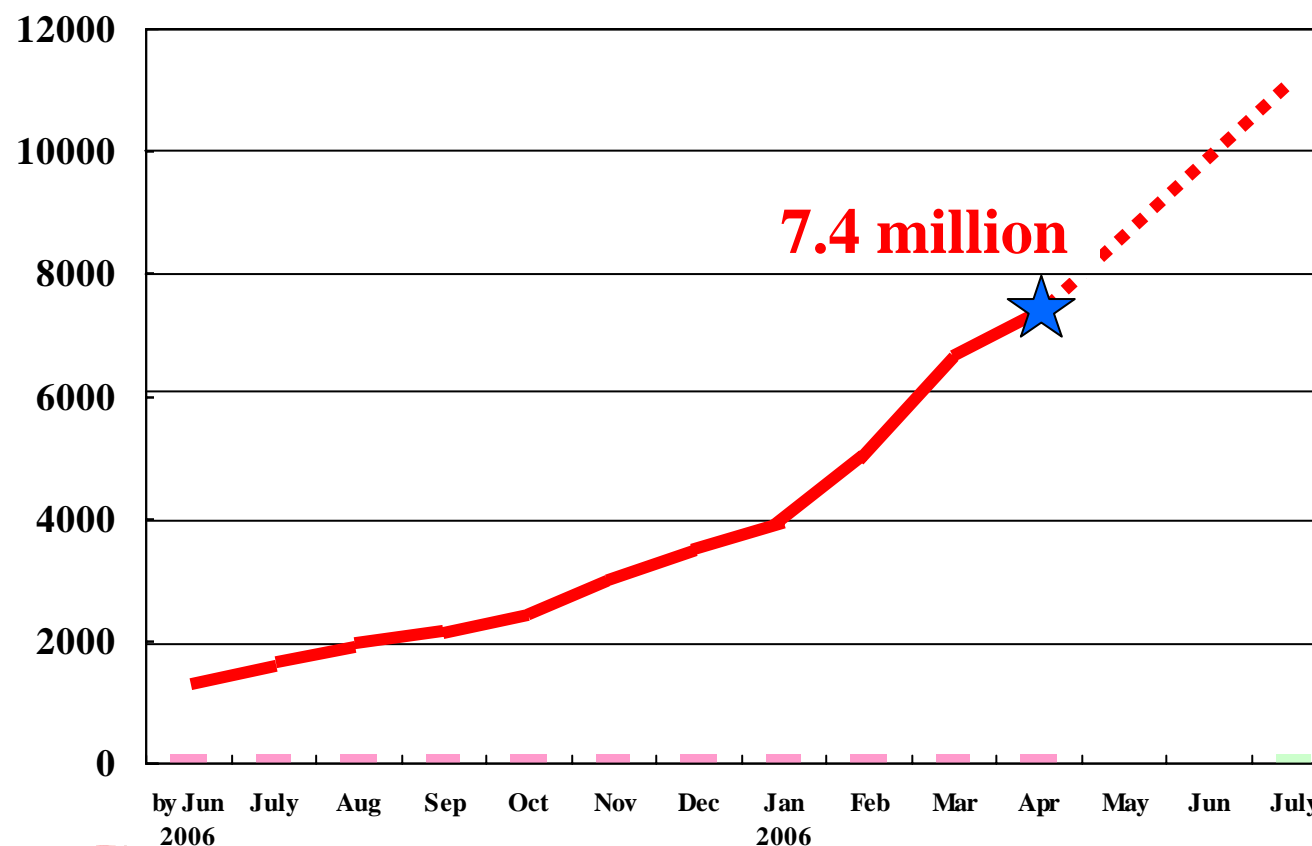
Mobile Reception

- ***One-Seg Services***
- ***HDTV Mobile Reception***

One-Seg service (1)

7.4 million One-Seg Mobile Phones were Shipped (by the end of Apr. 2007).

(Unit: thousand)



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One-Seg Service (2)

- *The One-Seg service is transmitting moving images to cell phones, car TVs, personal computers etc , so that you can enjoy One-Seg programs anytime anywhere.*
- *Merits*
 - ✓ *Stable reception in a mobile environment.*
 - ✓ *High quality video & audio in a mobile environment.*
 - ✓ *Robustness against noise and multi-pass.*

One-Seg Service (3)



On-air program

Example parameter

Modulation	QPSK
Code Ratio	2/3
Guard Interval	1/8
Bit Rate	416 Kb/s

Display Image



Data service

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One-Seg Service (4)



- Video (H.264)
approx. 180-256kbps
- Audio (AAC-SBR)
approx. 32-64kbps
- Data-cast (BML)
approx. 20-80kbps

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One-Seg service (5)

Example of Applications

☐ TV shopping

The service enables viewers to purchase commercial goods shown on shopping program.

☐ Local service

The service can provide local information such as emergency alerts, local events, notice from local government or hospital.

☐ Coupon ticket

Service enables to get coupon tickets such as grommet ,movie, book.

☐ Additional information service

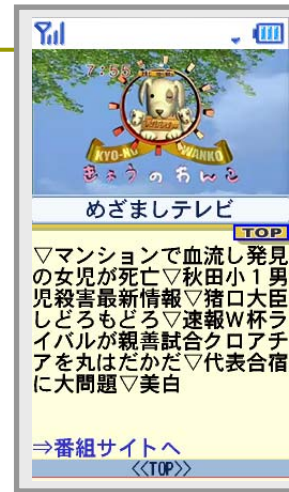
The additional information linked to on-air programs are supplement service such as information on athletes and celebrities, recipes, questionnaire and answer to a quiz.

One-Seg service (6)

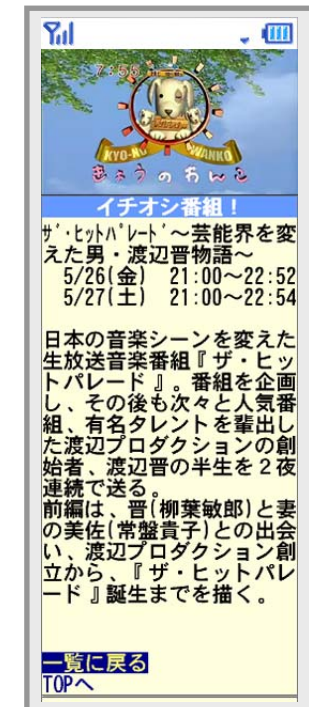
<TOP>



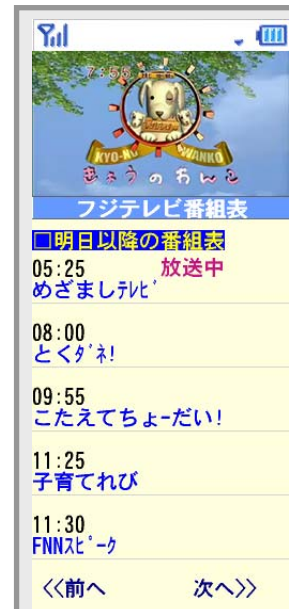
<Current Program Information>



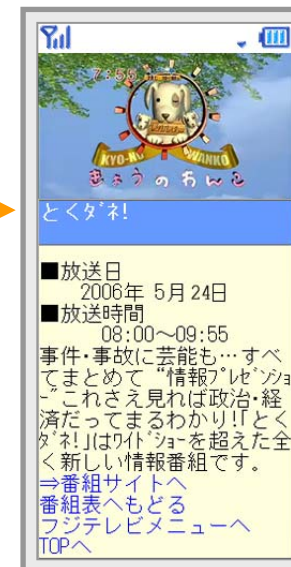
<Top Recommendation>



<Fuji TV EPG>



<Program Information>



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One-Seg Service (7)

< Fountain of trivia TOP >



Contribution a seed of Trivia in secondary link web site

< Voting of "Hee" >



Voting the number of "Hee"

< Voting done >



To see Voting result in secondary link web server

One-Seg Service (8)



***No subscription fee
and
Powerful terrestrial
television contents***

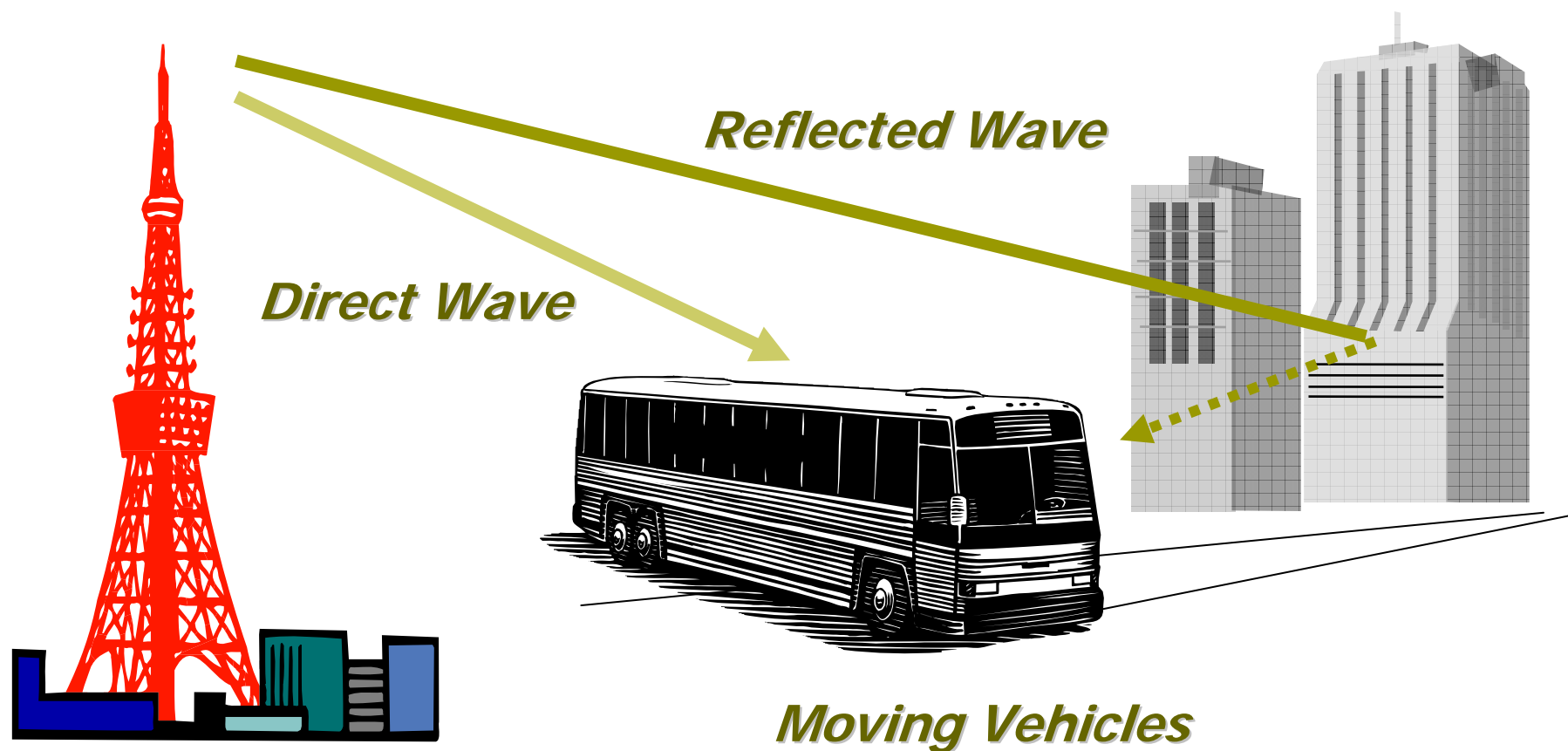


***Unique & Unparalleled
Feature in the world !***

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HDTV Mobile Reception



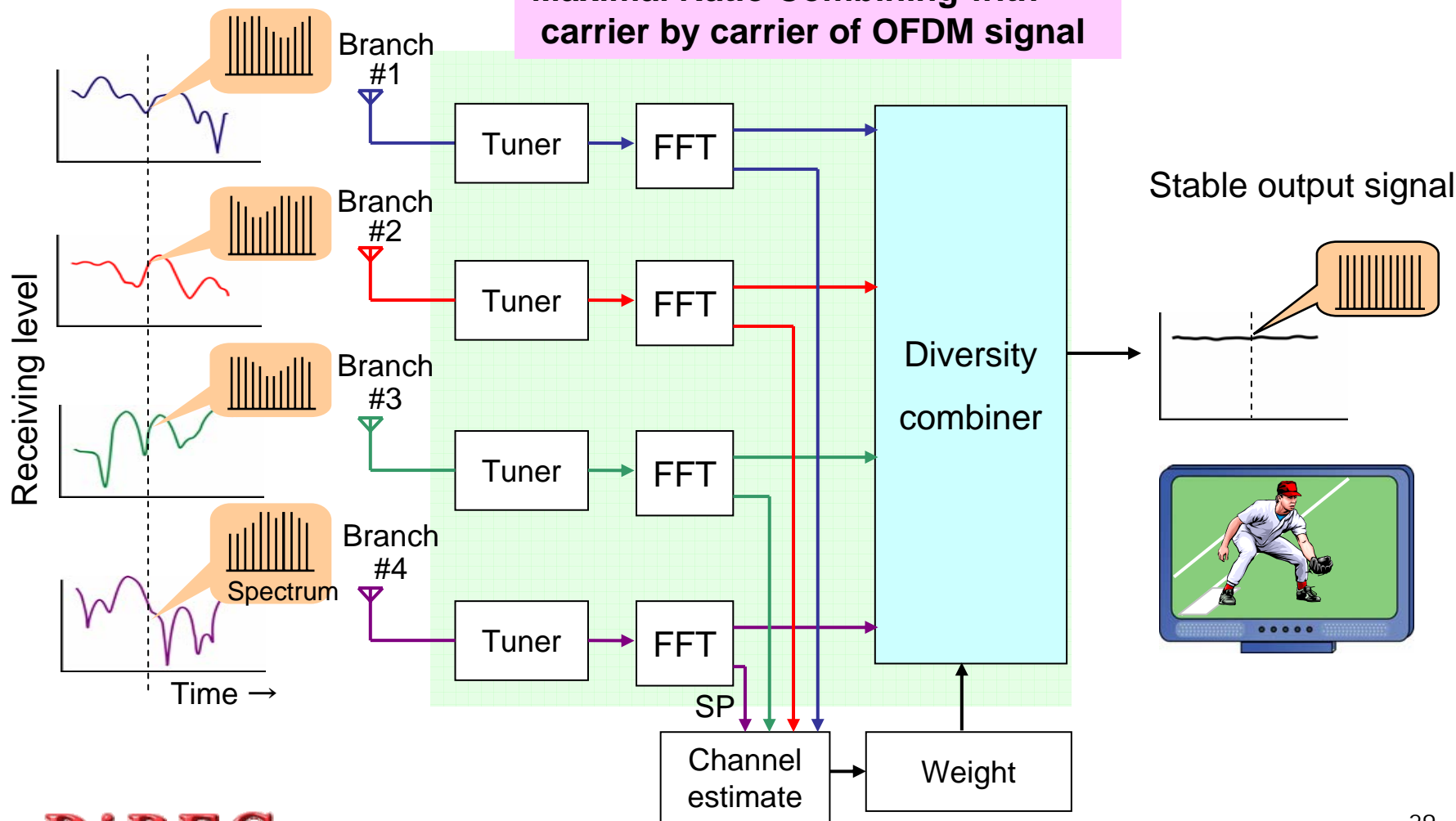
*HDTV can be watched even in a moving vehicle
by using space diversity technology.*

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Diversity reception system

Maximal Ratio Combining with carrier by carrier of OFDM signal



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Comparison between Digital and Analog

Comparison experiment between digital and analog TV on a mobile environment.

Digital Broadcasting

Analog Broadcasting



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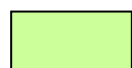
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Merits of ISDB-T for Broadcasters

- ❑ Broadcasters have no extra payment for in-band mobile broadcasting.
- ❑ Broadcasters get more reach to people moving outside.
- ❑ ISDB-Tmm is a next step of multi channel and multi media broadcasting with backward compatibility.

Comparison table

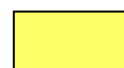
	ISDB-T	DVB-T	ASTC
HDTV	In service	Planning	In service
In-band Mobile service	In service	Under study	CFP & Developing
Out-band Mobile service	Planning (ISDB-Tmm)	In service (DVB-H)	Non
6MHz System	In service	In service (Taiwan only)	In service



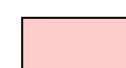
On commercial service



Technical development is almost done



It's under going



Difficult

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ISDB-T seminar in Venezuela



*Thank you
for your attention !*

END

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