

ISDB-T Applications

23 April, 2007

Lima Peru

DiBEG JAPAN

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TV Asahi

DiBEG

Digital Broadcasting Expert Group

Contents

1. Applications for Stationary Reception

- ☐ *HDTV*
- ☐ *Multi channel programs*
- ☐ *Data Broadcasting*
- ☐ *EPG (Electric Program Guide)*
- ☐ *Interactive Services*

2. Applications for Mobile Reception

- ☐ *One-Seg Services*
- ☐ *EWS (Emergency Warning System)*
- ☐ *One-Seg Receivers*

3. Applications for HDTV Mobile Reception

- ☐ *Technology for Mobile Reception*
- ☐ *Mobile TV Receivers*

4. Conclusion

Powerful applications

HDTV



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

Multi-channel programs



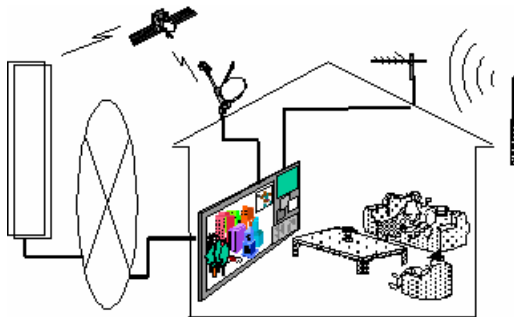
- Standard quality
- multi-channel services

Data broadcasting



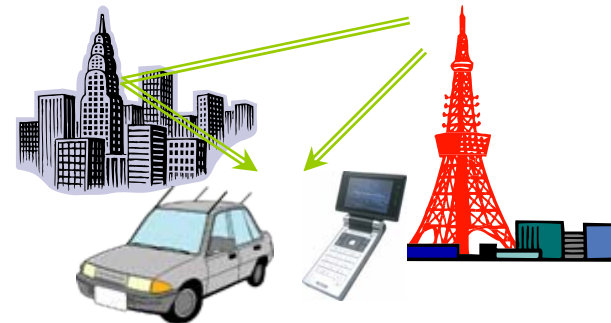
- Local news and weather forecast for viewers at any time.

Interactive TV



- Offers Interactive service

Mobile Reception



- Transmission service to Mobile accesses

Stationary Reception

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

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.*
- ✓ *HDTV is most powerful killer application.*
- ✓ *European broadcasters have opted for “multi-channel” strategy, but Japan have chosen to take advantages of “high definition” pictures.*



Multi channel programs (SDTV)

- *ISDB-T can transmit multiple SD programs up to eight simultaneously within a single digital channel.*



SD-1



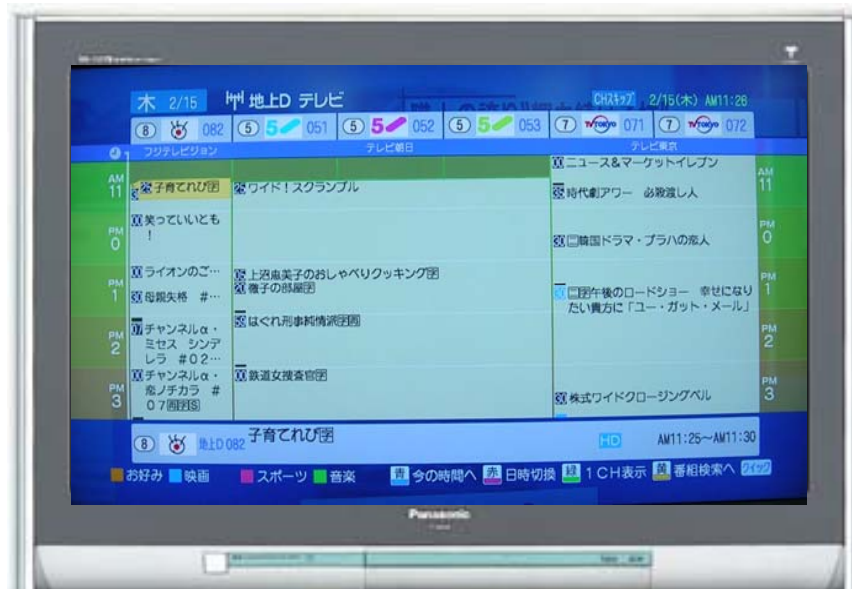
SD-2



SD-3

EPG

- ❑ *EPG (Electronic Program Guide) is an interactive schedules of current and upcoming programs.*
- ✓ *EPG makes easy booking for the video recording.*



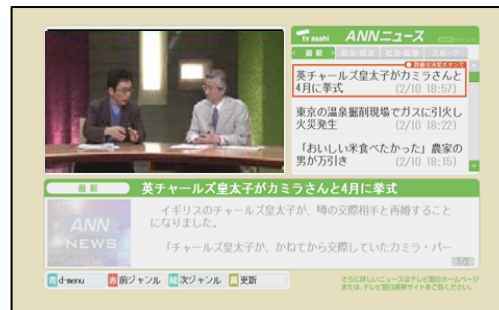
Data broadcasting (1)

□ *Data broadcasting is friendly tool to gather information.*

✓ *By clicking on-screen **d**-button with a remote control unit, you can access and draw out your favorite information such as local weather forecast, 24H news and information linked to on-air program.*



Local weather forecast



Local news



Information linked to on-air program

Data broadcasting (2)

□ 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***

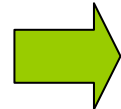
Data broadcasting (3)

□ Program-linked data contents

On-air program



Click on
d-button



Basic page format



Linked data page format



Click on
a program title



Contents
Menu



Data broadcasting (4)

□ Non-linked contents

tv asahi d-menu

09月05日(月) 18:00

イチオシ!

お天気情報

ANNニュース

◆テレビ朝日を含む全国26局が発信するニュースです

やじブラ占い

愛・地球博

ご利用の方へ

今日の天気

東京都港区 最高 12°C 最低 -1°C 降水確率 0%

ANNニュース 英チャールズ皇太子がカミラさんと4月に挙式

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Today's recommendation

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Weather forecast

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Fortune-telling service

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News

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今日の天気

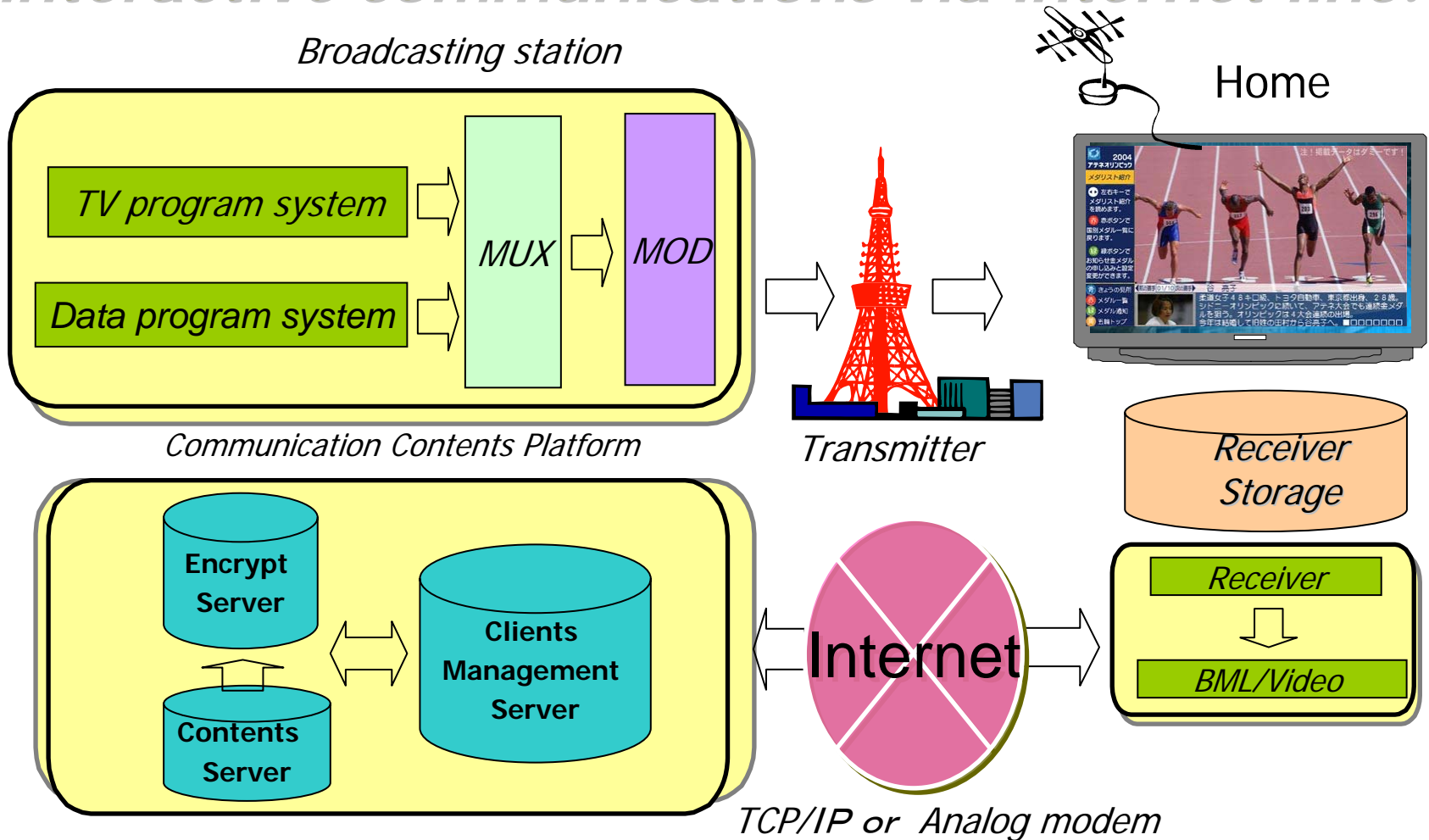
東京都港区 最高 12°C 最低 -1°C 降水確率 0%

ANNニュース 英チャールズ皇太子がカミラさんと4月に挙式

ANNニュース ご利用の方へ テレビ朝日NEWS! お知らせ

Interactive Services

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

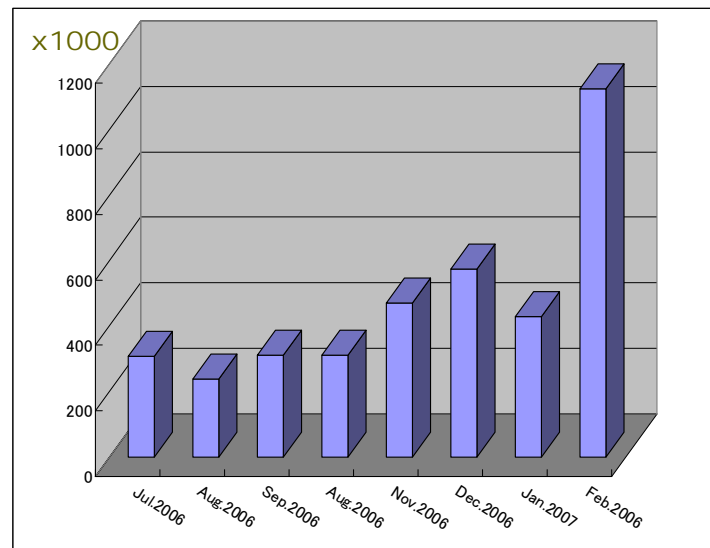


Mobile Reception

- ***One-Seg Services***
- ***EWS (Emergency Warning System)***

One-Seg Service (1)

- ❑ *One-Seg is abbreviation for “one segment service” .*
- ❑ *One-Seg was launched on April 1,2006.*
- ❑ *More than 5 million mobile phones with One-Seg were shipped in the Japan market according to JEITA statistics of Feb.2007.*



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

One-Seg Service (4)

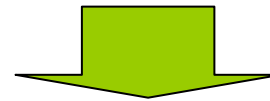


- ❑ Video (H.264)
approx. 180-256kbps
- ❑ Audio (AAC-SBR)
approx. 32-64kbps
- ❑ Data-cast (BML)
approx. 20-80kbps

One-Seg Service (5)



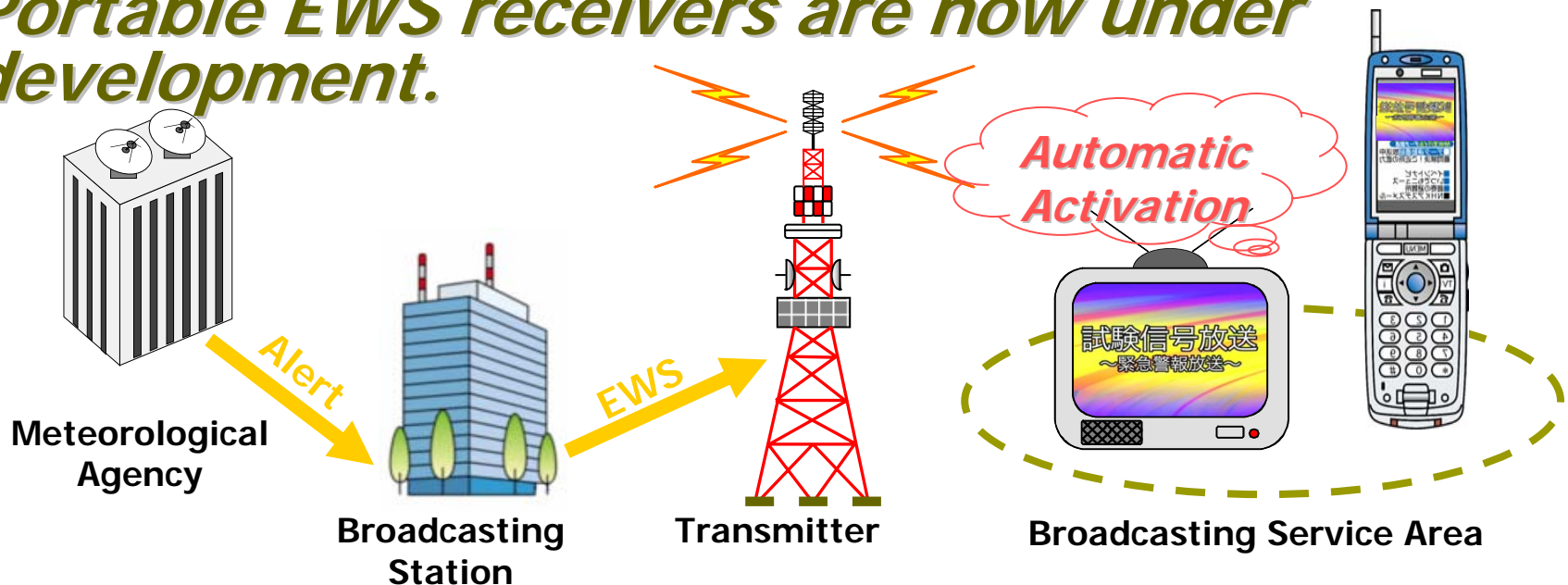
***No subscription fee
and
Powerful terrestrial
television contents***



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

Emergency Warning System

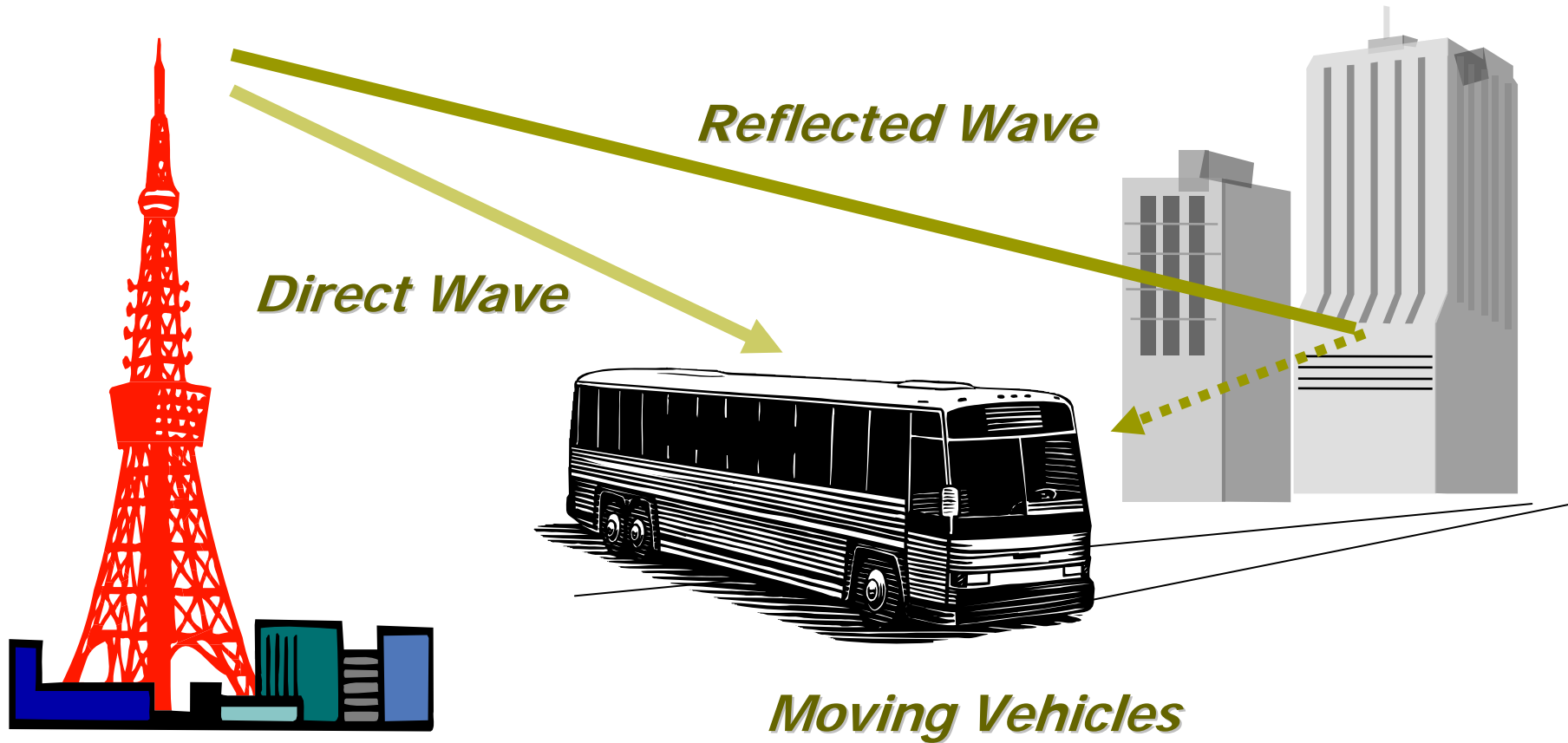
- ❑ *EWS can activate digital TV receivers.*
- ❑ *EWS can trigger the alert sound.*
- ❑ *Disaster information is transmitted without congestion .*
- ❑ *EWS is expected to be the effective solution for the disaster relief.*
- ❑ *Portable EWS receivers are now under development.*



HDTV Mobile Reception

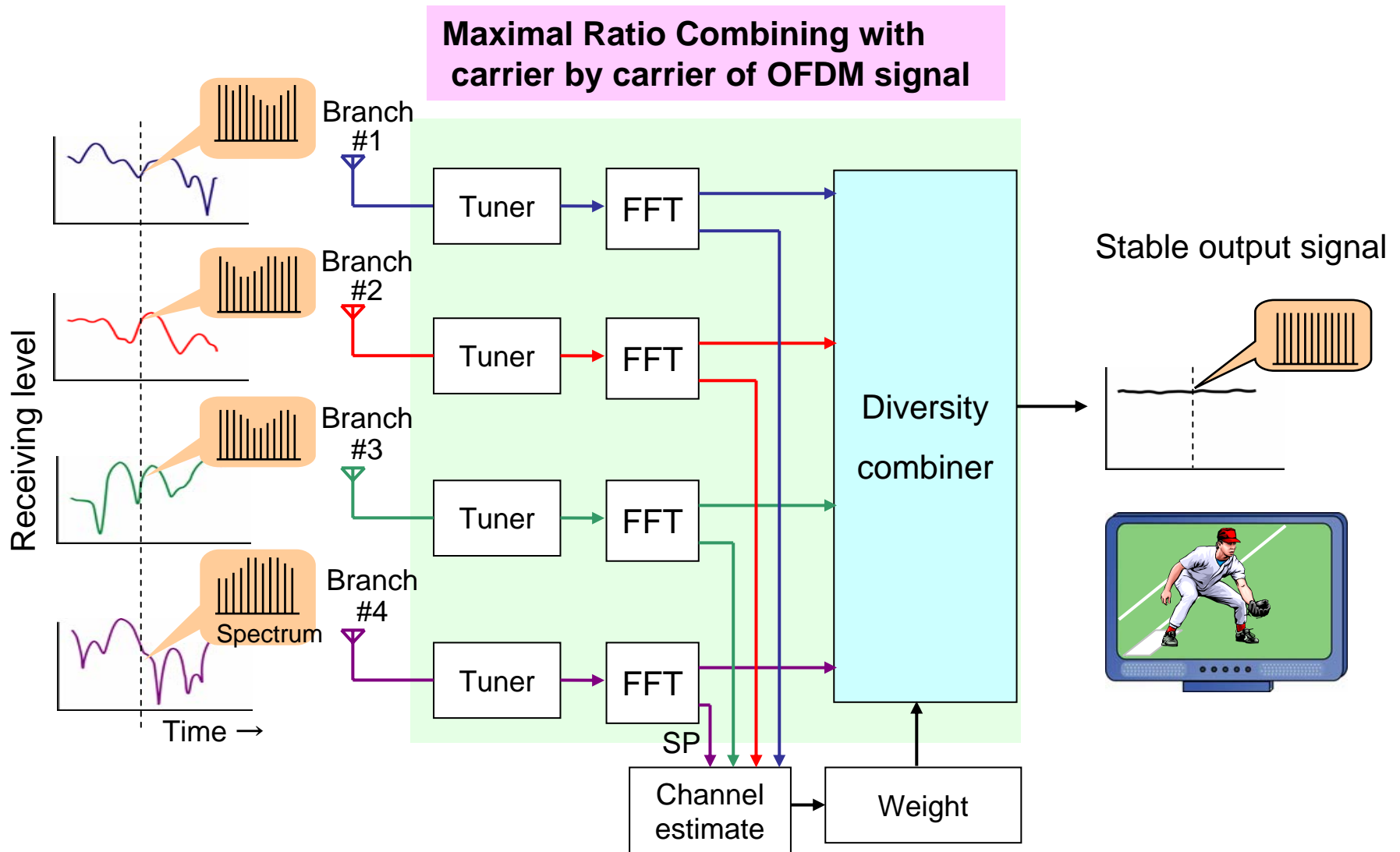
- ▣ ***HDTV Mobile Reception***
- ▣ ***HDTV Mobile Receivers***

HDTV Mobile Reception



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

Diversity reception system



Comparison between Digital and Analog

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

Digital Broadcasting

Analog Broadcasting



Mobile HD receivers (1)

HDTV tuner for automobiles is now on sale.



**ISDB-T TV tuner
for automobiles**



LCD for automobiles

**High quality image wide-LCD panel.
Faithful reproduction of DVD and digital
terrestrial television broadcasting image**

Mobile HD Receivers (2)

SANYO NVP-DTA10



Panasonic TU-DTV100, TU-DTV20



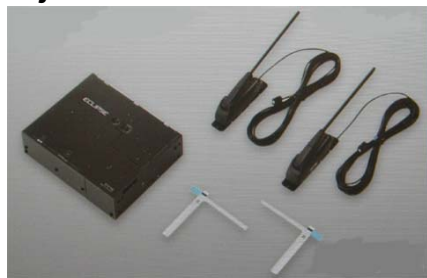
車載用地上・BS・110度CS
デジタルチューナー
TU-DTV100



Mitsubishi TU-100D



Fujitsu Ten DTV105



Pioneer GEX-P7DTV



Alpine TUE-T300



Conclusion

**ISDB-T
is filled with
leading-edge technologies
to make your dreams
come true !**



*Thank you
for your attention !*

END

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Digital Broadcasting Expert Group

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