ISDB-T Seminar

Session 5

Current Topics of DTTB in Japan

Part 1-1

HDTV mobile reception performance for ISDB-T

28th-29th August, 2006

In Caracas

DiBEG JAPAN

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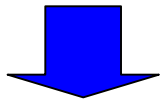
（Toshiba)

What is ISDB-T?

- Integrated Service Digital Broadcasting – Terrestrial
- Standard system of Japanese DTTV (Digital Terrestrial TV broadcasting)
- Based on Band segmented OFDM transmission technology
- Adopt the time interleave technology for mobile reception
- Adopt MPEG2-Systems for Multiplexing



- Flexibility of reception style

  Fixed reception, Mobile reception, Portable reception within same channel

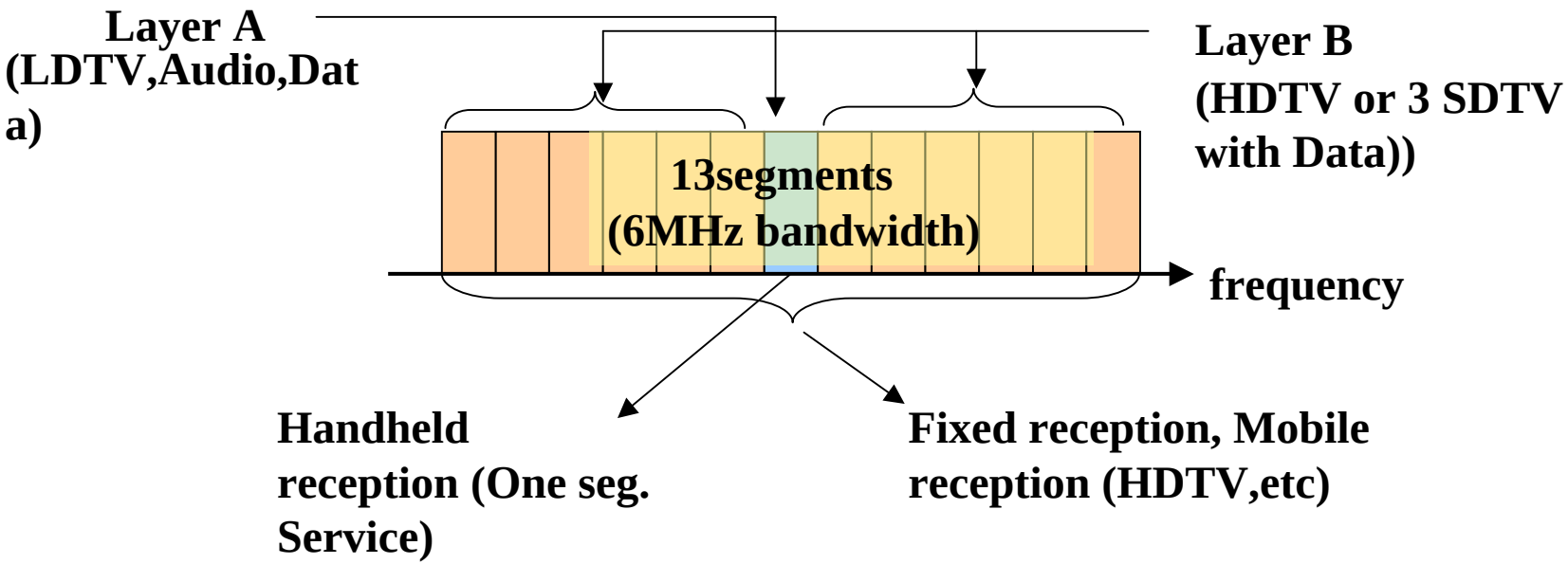
- Flexibility of service

  HDTV, SDTV, Small picture for portable receiver, data-casting, etc

- Inter-operability,etc.

What is Band Segmented OFDM with time interleave?

(Example; 1seg + 12 seg)



- **Segmented OFDM; Possible to support fixed/mobile/handheld reception service**
- **Time interleave; reduce impulse noise and reduce the degradation caused by fading (tested in Brazil by Mackenzie and TV GLOBO)**

Feature of Japanese DTTB system

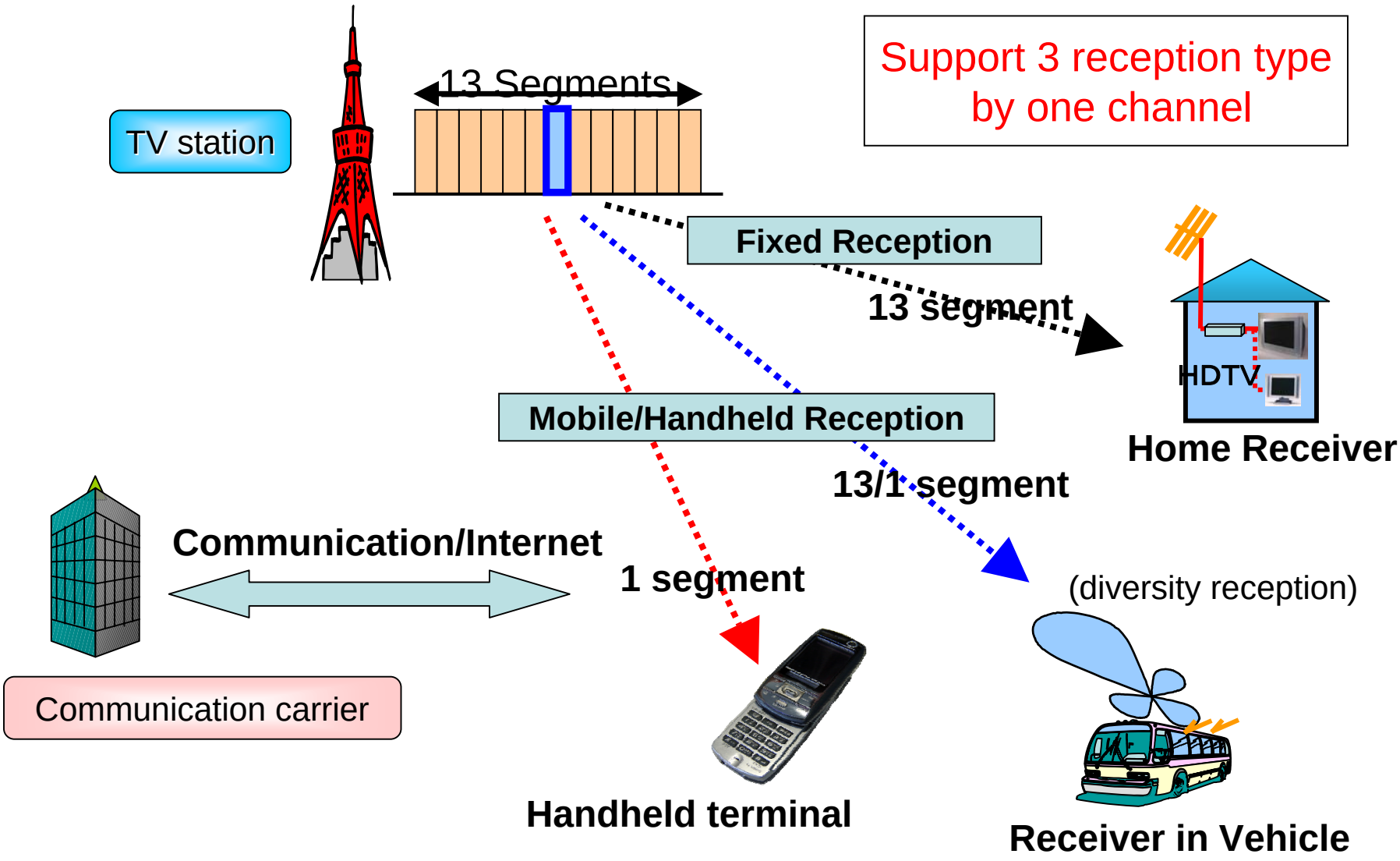


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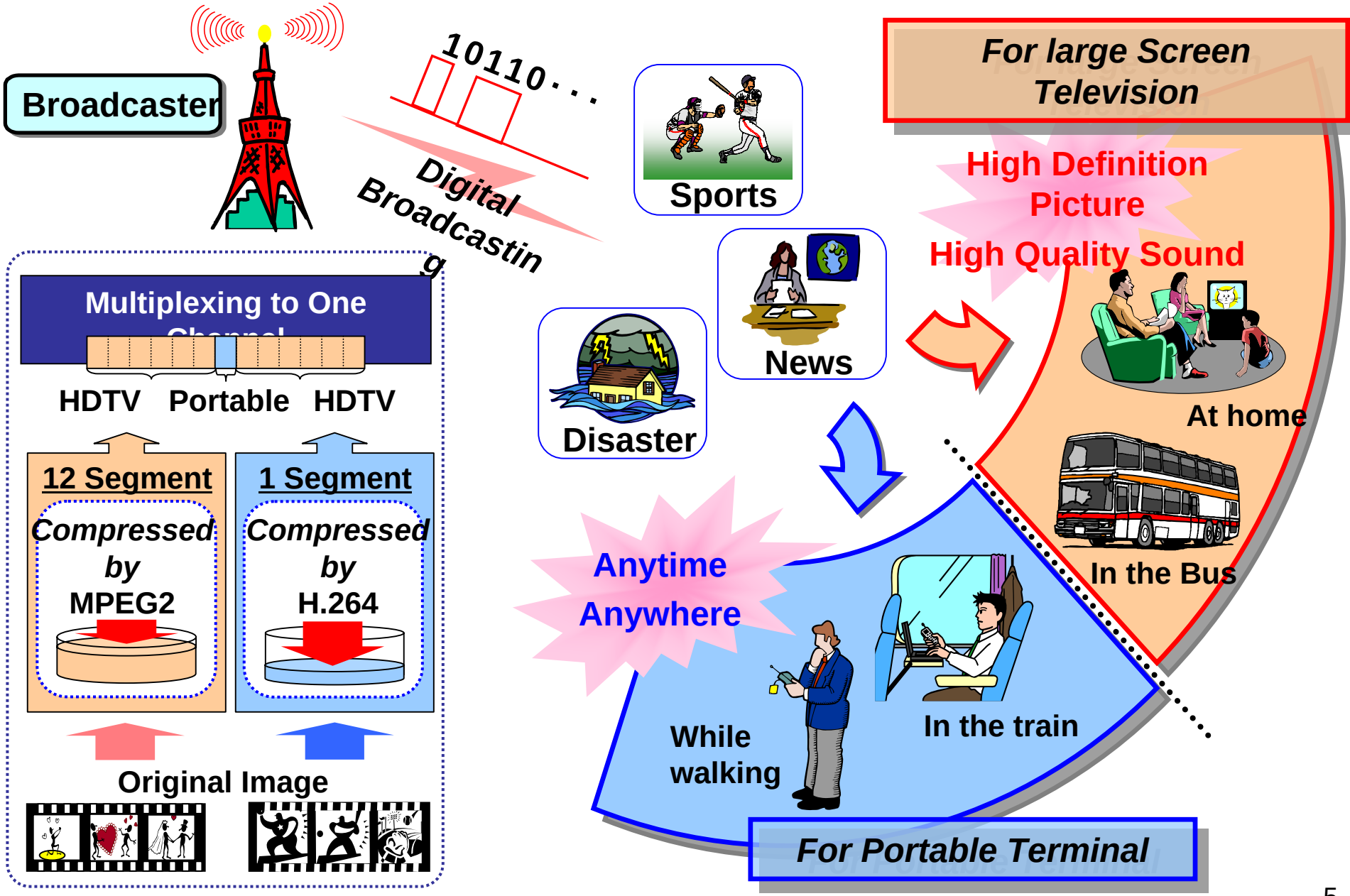
Image of DTTV service in Japan



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Why is mobile reception available?

What kinds of technologies are used ?

1. Feature of transmission system

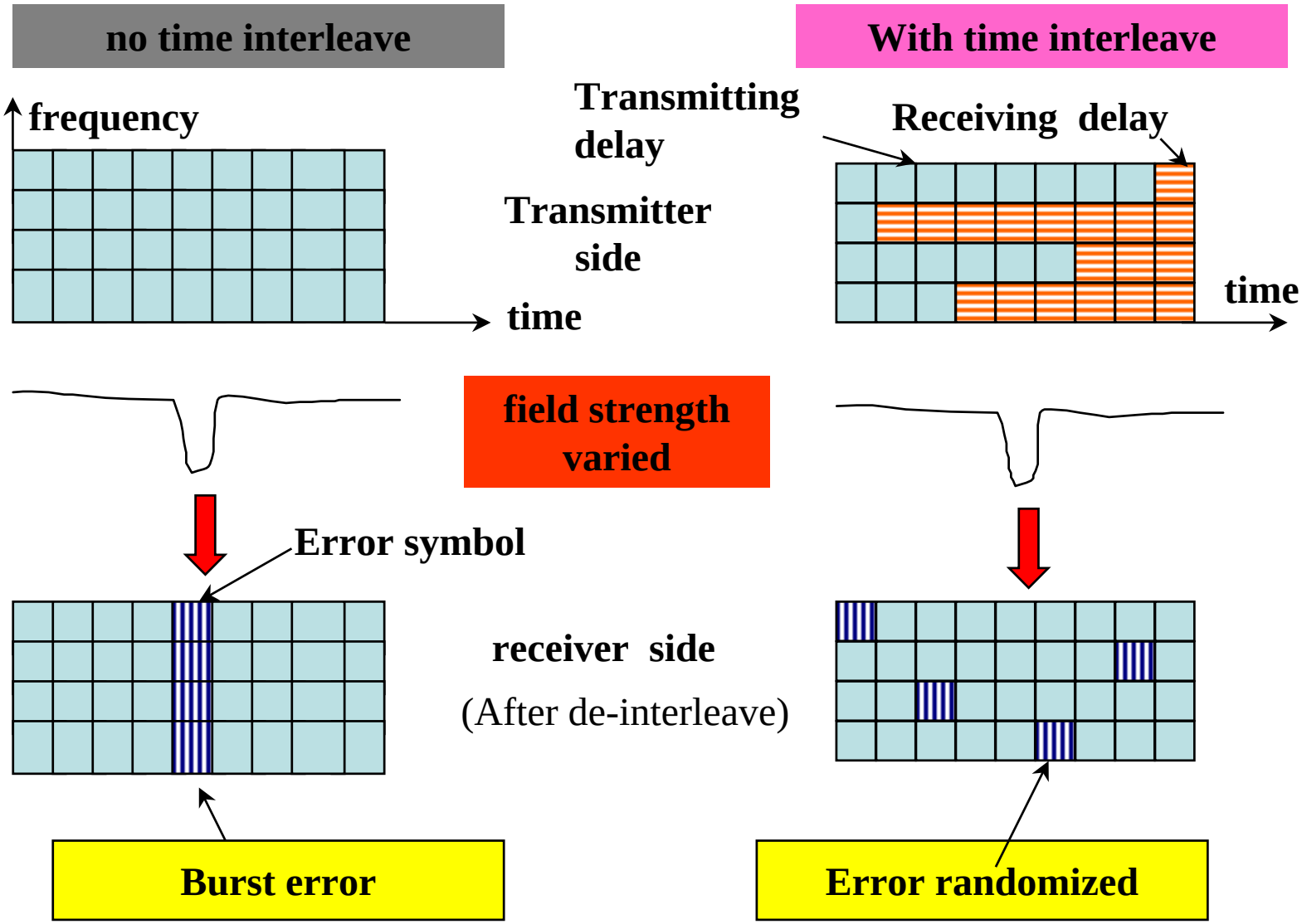
   → Time interleave (see next page)

2. Adopt new technology for reception

   → Space diversity reception

Space diversity reception technology for OFDM signal;
Very unique technology is used ,that is, “maximum ratio combining for each OFDM subcarriers”.
This technology is very effective against frequency-selective fading

Effect of time interleave



For diversity reception, quote NHK laboratory's presentation

- Video on HDTV mobile reception
- Mobile reception environment
- Diversity technology for mobile reception
- Performance evaluation
  - Laboratory experiments
  - Mobile reception experiment in Nagoya
    - Experimental results of diversity receiver
    - Coverage prediction for the mobile reception

Receivers on the market

Digital Tuners of ISDB-T for car TV system

Panasonic TU-DTV100

Pioneer GEX-P7DTV

Alpine TUE-T300

These receivers use 2-branch carrier diversity.

Note : These pictures come from each company's web site.

Thank You for Your Attention!

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