Overview of ISDB-T
- Why ISDB-T? -

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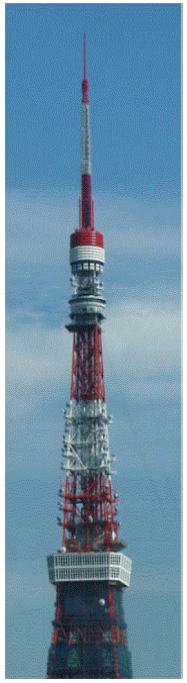
Topics

- Introduction
- Background of ISDB-T
- Situation of Digital Terrestrial Television Broadcasting (DTTB) receivers in Japan
- Summaries

Introduction

Implementation Schedule of Digital Terrestrial Television in Japan



July. 24th 2011 — **Completion of Digitalization**
Termination of analog broadcasting

Dec 1.st 2006 — **Start of DTTV (main cities of the whole country)**

Apr 1.st 2006 — **Start of One-Seg Broadcasting**

Dec 1.st 2003 — **Start of DTTV ! (Tokyo, Nagoya, Osaka)**

Apr. 2003 — **Provisional licenses were awarded**

Feb.2003 — **Start of Analog channel relocation**

Sep. 2002 — **Ministry established license conditions and requirements**

2000 — **ISDB-T was recommended by ITU**

1999 — **Ministry established technical standard**

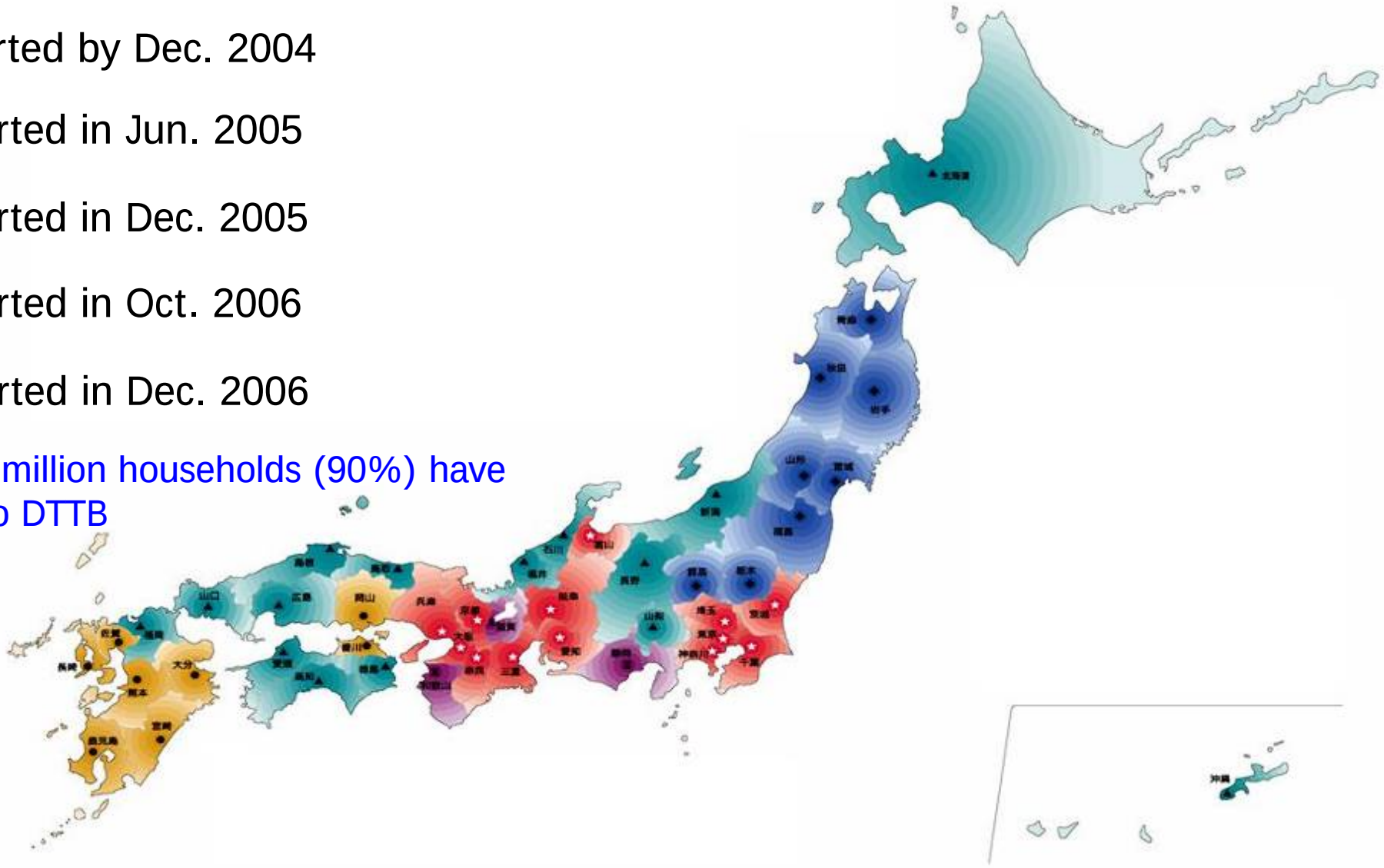
1998 — **Issue of Digital Broadcasting Study Group Report**

1994 — **Ministry asked to Council for technical requirement**

Situation of Start of DTTB in Japan

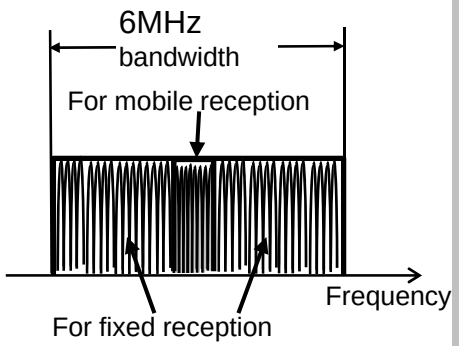
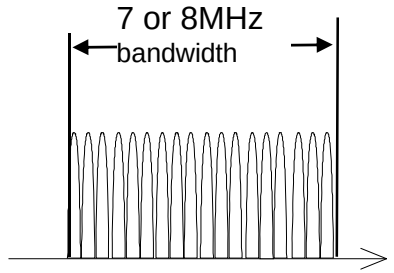
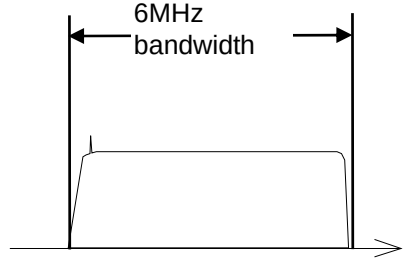
- started by Dec. 2004
- started in Jun. 2005
- started in Dec. 2005
- started in Oct. 2006
- started in Dec. 2006

Over 40 million households (90%) have access to DTTB



Background of ISDB-T

Background of ISDB-T

Features \ System	Japan (ISDB-T)	EU (DVB-T)	U.S. (ATSC)
Transmission system	 **It is possible to designate the modulation system of the segment group unit according to the service purpose.**		 **Improved system based on analog TV broadcasting system.**
HDTV reception while moving	**possible**	**impossible (only SDTV)**	**impossible**
Portable reception using the same system as fixed reception	**possible**	**impossible**	**impossible**
Emergency Warning Broadcasting System	**possible**	**impossible**	**impossible**

Background of ISDB-T

Why was ISDB-T developed?

- Efficient use of spectrum resource
- Geographic restriction
- Satisfaction of users' demands

Background of ISDB-T

Efficient use of spectrum resource

- Explosive increase of demands to use spectrum resource
- Especially, mobile service such as cellular phones and nomadic broadband wireless access.
- Many services use spectrum resource with frequency sharing.

→ *Japan is one of the eminent countries on spectrum use in the world.*
→ *Increase of demands to use spectrum resource recently.*

Background of ISDB-T

Geographic restriction

- Around 70% of land in Japan is mountain area.
- Many tall buildings are constructed due to shortage of plain area.
- There are over 23,000 radio stations for broadcasting service in Japan.

→ *Tall buildings and mountains often cause “multi path” to TV broadcasting.*
→ *Efficiency of frequency use deteriorates because of convergence of radio stations in small area.*

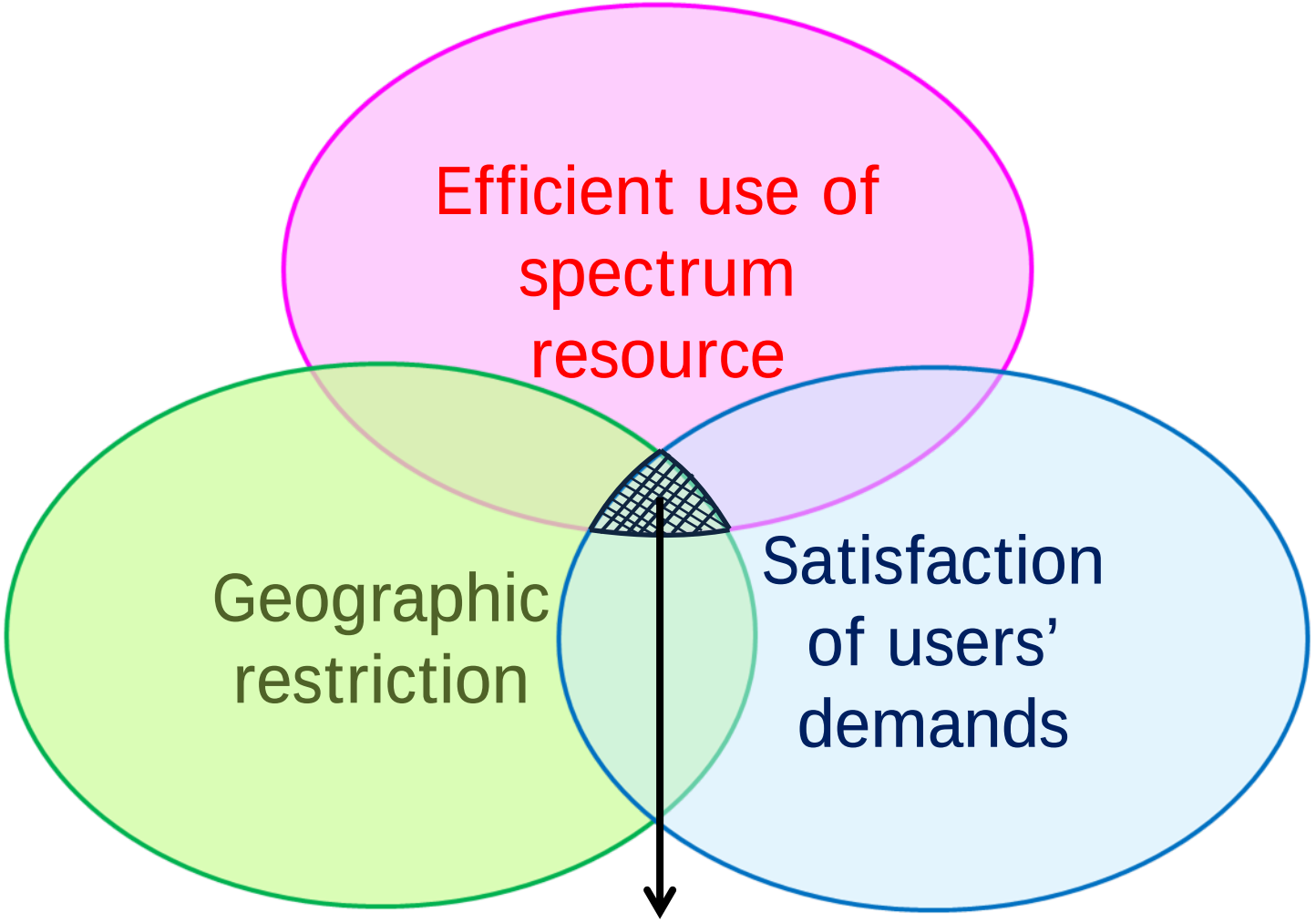
Background of ISDB-T

Satisfaction of users' demands

- High definition TV (HDTV) programs
- Mobile reception of HDTV
- TV programs reception by portable receivers such as cellular phone (="One-Seg")
- Emergency (Earthquake) Warning System
- Interactive broadcasting service ….etc.

→ *Provision of very high-level broadcasting services is demanded in Japan*.

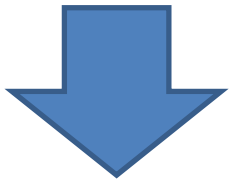
Background of ISDB-T



To meet all of three requirements is extremely severe, but ISDB-T can meet all requirements

ISDB-T –No.1 DTTB system-

- ISDB-T was developed aiming at fulfilling the severe requirements as mentioned in previous pages.
- As a result of development, ISDB-T had excellent features in comparison with other DTTB systems.

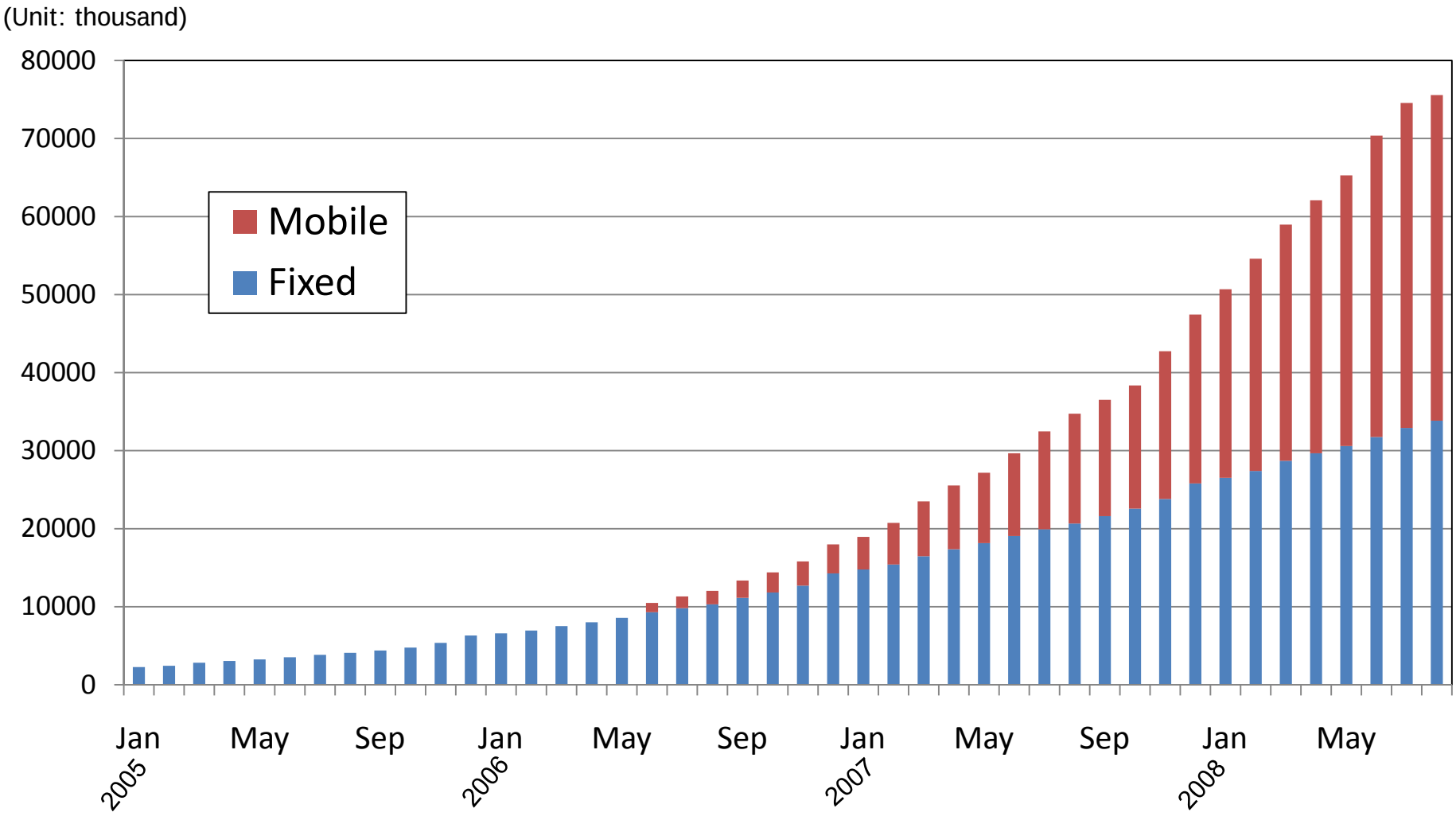


The only one reason why you select ISDB-T is that ISDB-T is No.1 DTTB system

Situation of DTTB receivers in Japan

ISDB-T Receivers Shipments

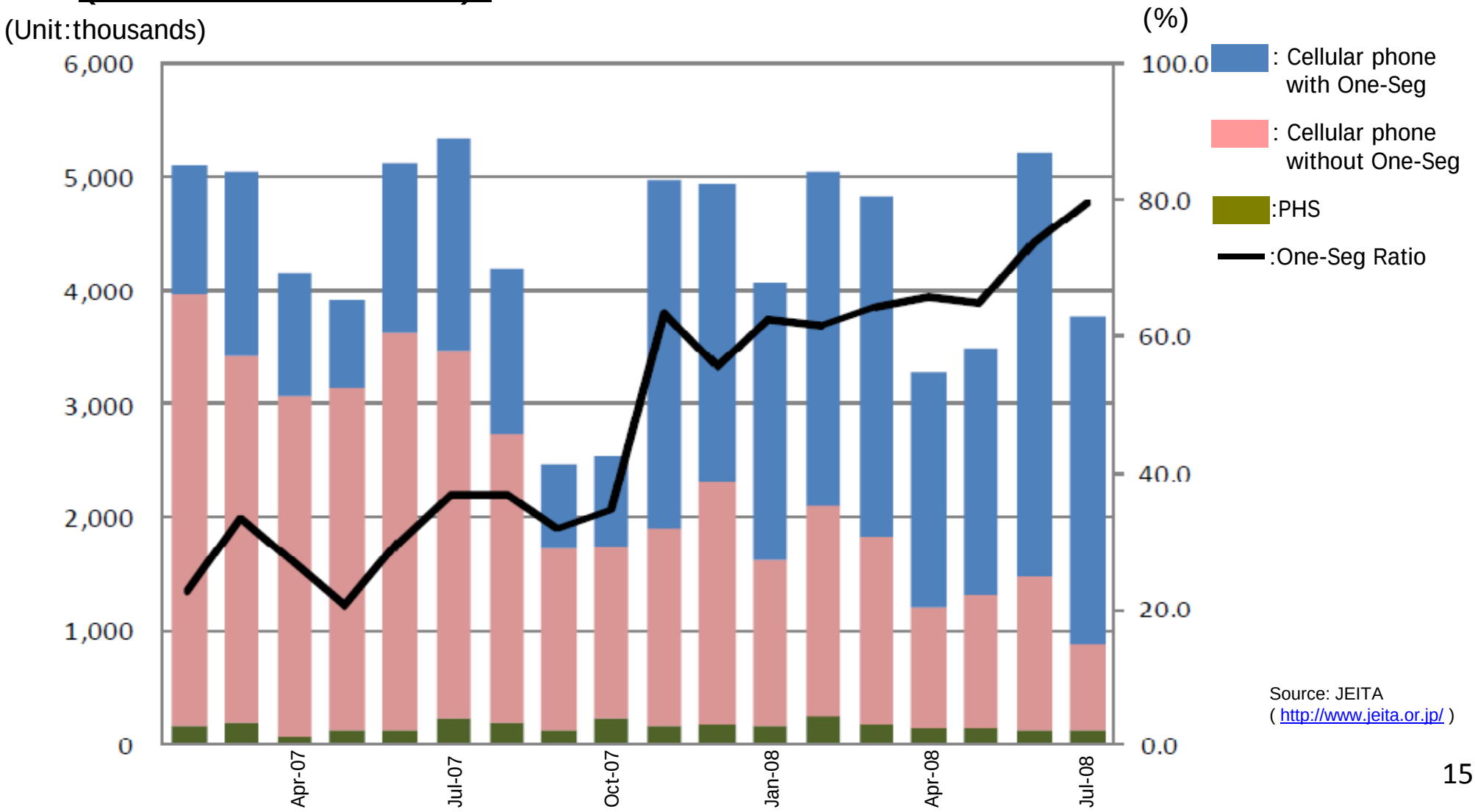
More than 70 million receivers have been shipped (by the end of August 2008).



Source: Japan Electronics and Information Technology association (JEITA), Japan Cable Laboratory

Cellular Phone Shipments

Around 80% of cellular handsets are functioned with One-seg (Mobile TV service).



Source: JEITA
(http://www.jeita.or.jp/)

Price of ISDB-T Set Top Box

Input	Output	Price
SD Signal	SD Signal	US$30*

*: Based on an estimate drawn up by a manufacturer.

- ISDB-T Set Top Box(STB) for SD Signal input is almost same price as DVB-T's.

  → *The price of STB does not depend on DTTB format.*

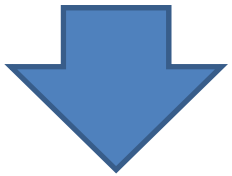
- ISDB-T STB for HD Signal input is also available at US$30 when you start the ISDB-T!

  → *The supply of more affordable HDTV STB chipset started in Japan.*

Summaries

Summaries

- ISDB-T was developed by taking account of various conditions peculiar to Japan. Therefore, ISDB-T has a flexibility for building the DTTB system up.
- ISDB-T is the most excellent DTTB system, because ISDB-T meets many severe requirements in Japan.
- The price of STB does not depend on DTTB format.



The most suitable system to be selected in your country is ISDB-T

Maraming salamat po!