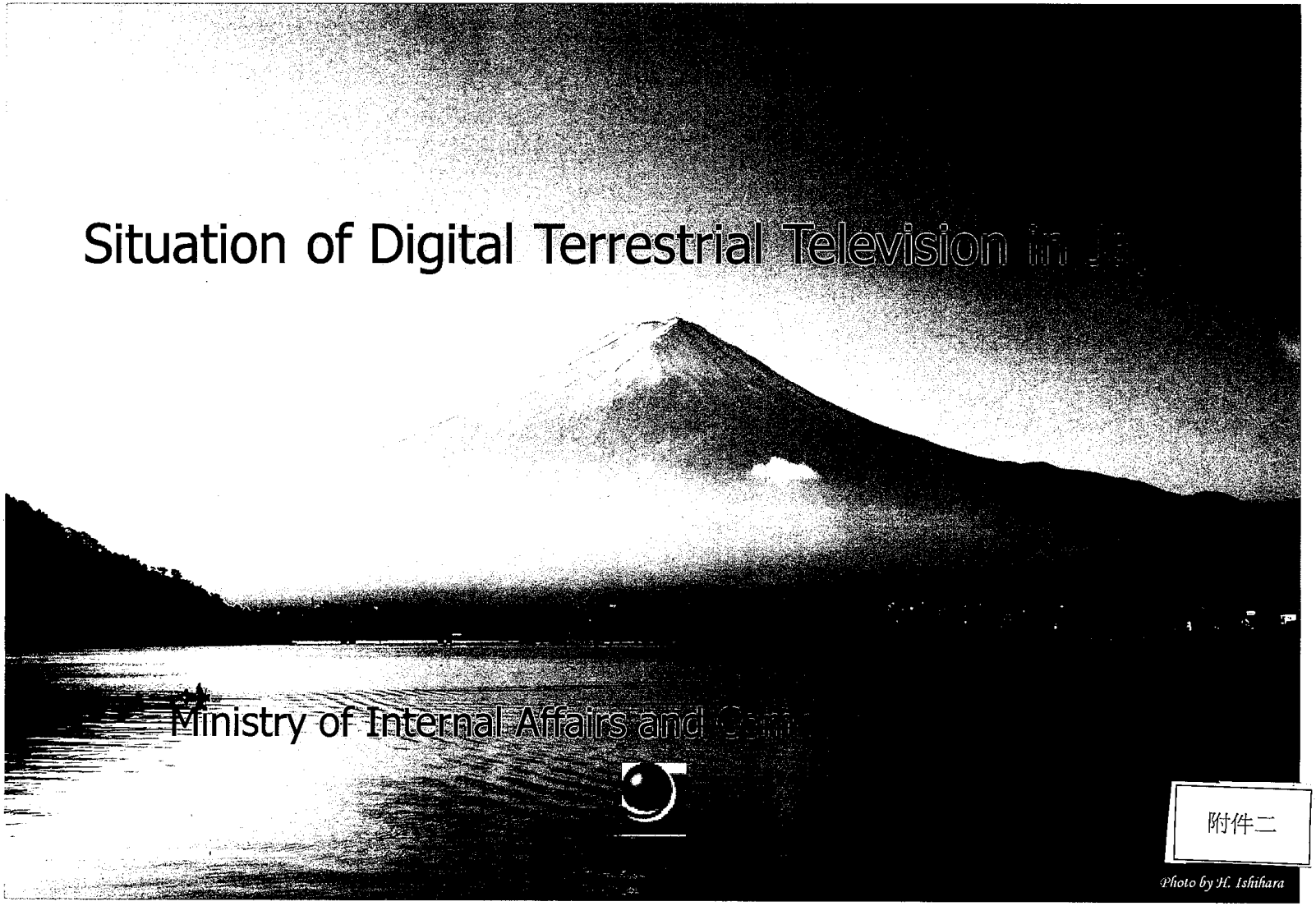
Situation of Digital Terrestrial Television in J

Ministry of Internal Affairs and Com



附件二

Photo by H. Ishihara

Implementation Schedule of DTTB in Japan

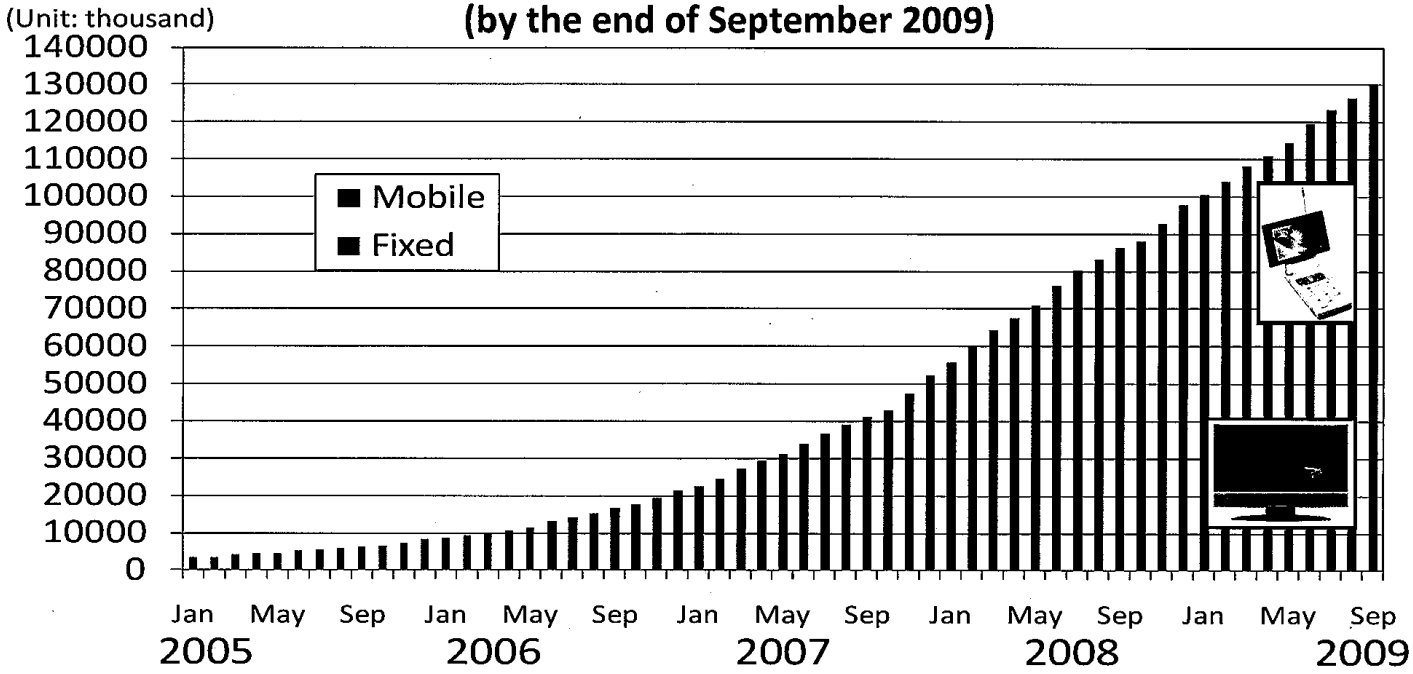
ISDB-T

Japan will terminate analog TV and complete the digitalization of broadcasting in July 2011.

Mar. 2009	Coverage of population reached 97%
Dec. 2006	Start of DTTB (all main cities in Japan)
Apr. 2006	Start of One-Seg Broadcasting (Digital Broadcasting Service for mobile reception)
Dec.2003	Start of DTTB (Tokyo, Nagoya, Osaka)
Sep. 2002	Japan established license conditions and requirements
1999	Japan established the technical standard

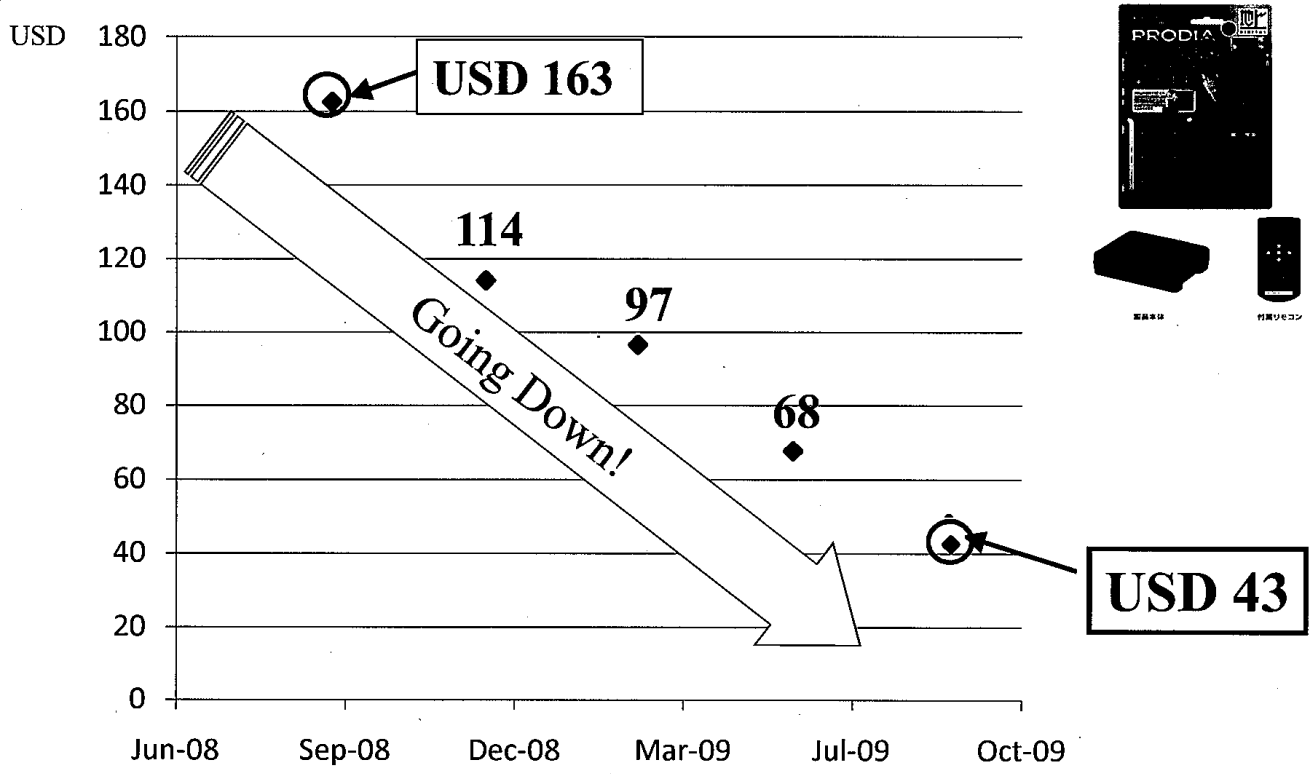
Shipment of Digital TV receivers in Japan

ISDB-T Receiver Shipments
More than 130millions receivers have been shipped
(by the end of September 2009)



71.4 millons mobile receivers were shipped by the end of September 2009.
58.9 millions fixed receivers were shipped by the end of September 2009.

Transition of price of Set Top Box in Japan



*USD-JPY Average Exchange rate in 2008 : 1 USD = 103.37JPY

The members of ISDB-T are Expanding !!

ISDB-T has the coverage of the population of 80% in South America.

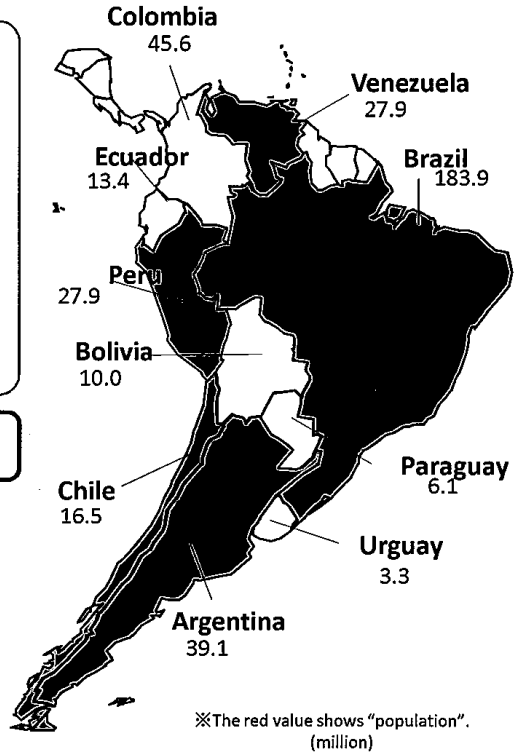
ISDB-T Family Countries

○Brazil:	June 2006	Adopted ISDB-T
	December 2007	Start DTTB service
○Peru:	April 2009	Adopted ISDB-T
	March 2010	Start DTTB service
○Argentina:	August 2009	Adopted ISDB-T
○Chile:	September 2009	Adopted ISDB-T
○ Venezuela :	October 2009	Adopted ISDB-T

ISDB-T International Forum Has Launched !

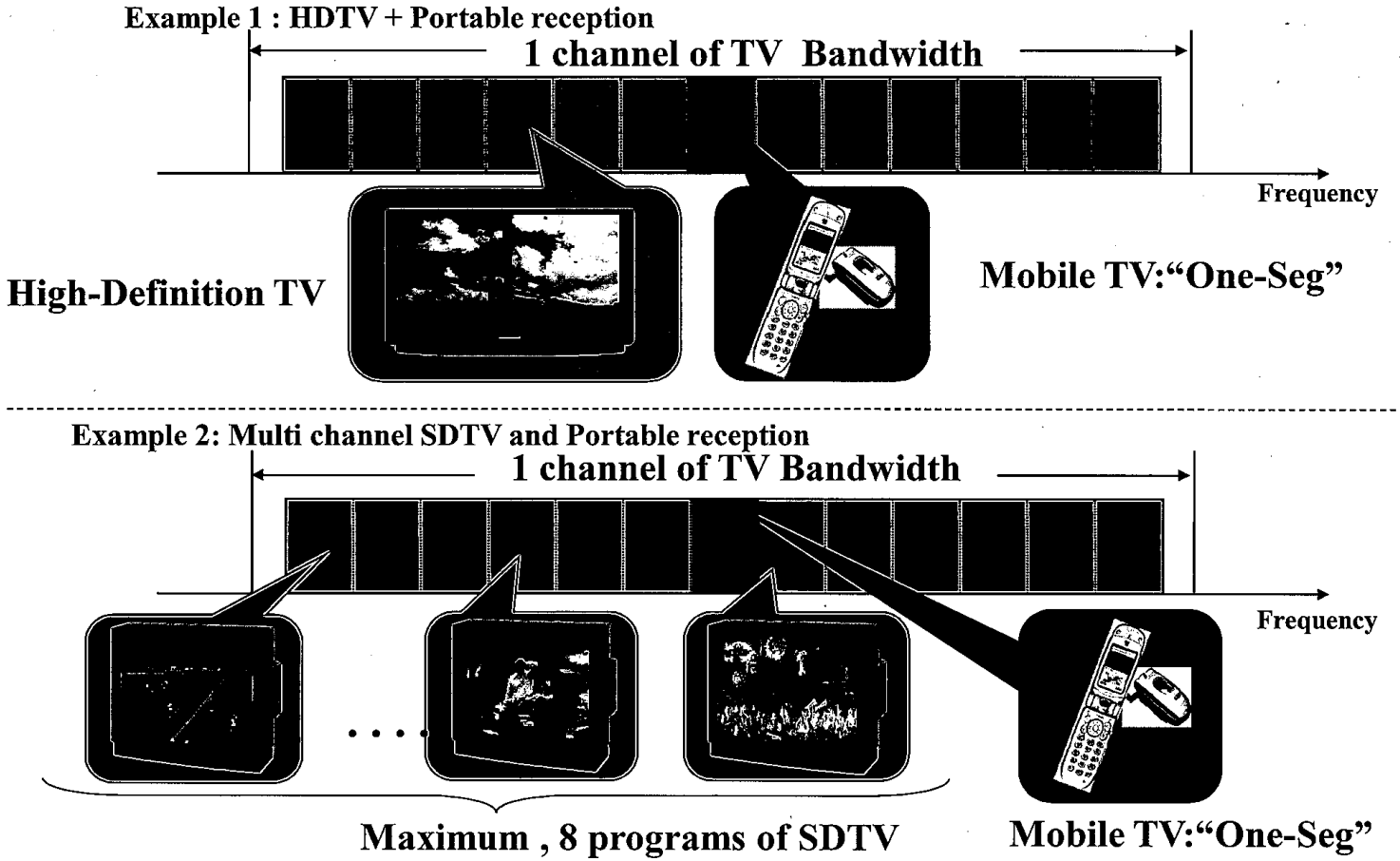
ISDB-T
INTERNATIONAL

(Center: Minister Haraguti from Japan Others from left side, Secretary Salas from Argentina, Minister Costa from Brazil, Minister Cornejo from Peru and Minister Cortazar from Chile) in Peru on 21st. September 2009



※The red value shows "population". (million)

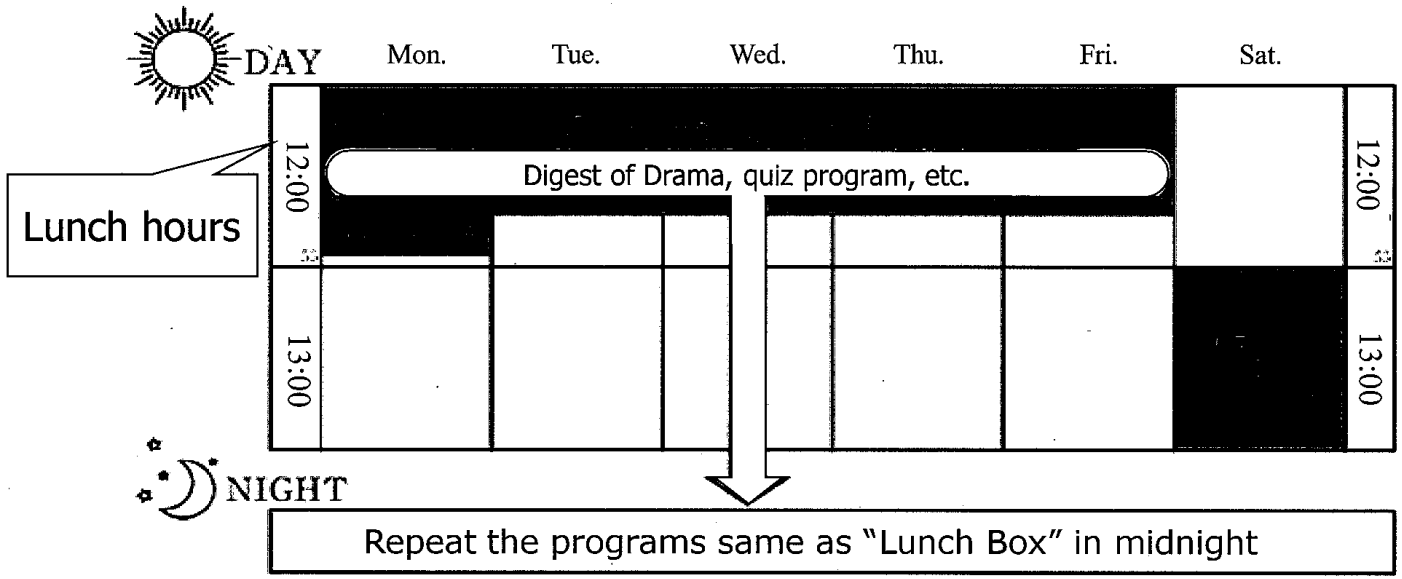
Flexibility of ISDB-T



Band segmentation: Unique feature of ISDB-T

Examples of One-Seg Service

One-Seg Lunch Box (NHK)



From NHK homepage

Examples of One-Seg Service

World Baseball Classic 2009 (TBS)

MPEG4-AVC (approx.220Kbps) provided sufficient image quality to enjoy baseball game!

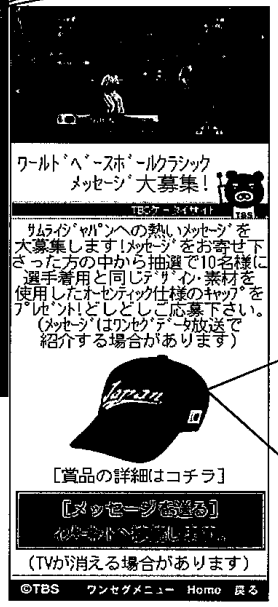
Real-time message support for the Team Japan from viewers!

Data broadcasting service(score, active roster, etc)

Official cap of Team Japan!

Lucky prizes for viewers!

viewers can purchase it directly from on-line shop!



Examples of One-Seg Service

One-Seg Multi Channel Service (TOKYO MX)

同一時間可播二个節目

1st program
- Horse race for adults

2nd program
- Animation for Kids

- Two programs within one segment
- Complying with the ISDB-T standard

Technical Features of ISDB-T

Japanese Standard Has Various Attractive capability !!

HDTV

High quality image and sound service

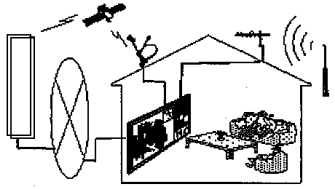
SDTV Multi-programs Service

Realization of multi-SDTV programs service in 1ch bandwidth

Data Broadcasting

Useful data informatior anytime

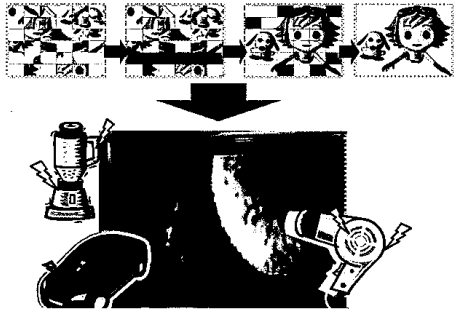
Interactive TV



Communication linked services with TV

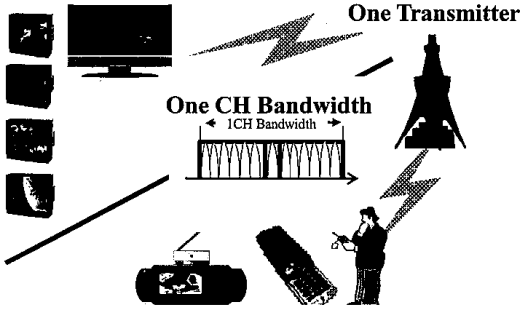
Japanese Standard only

High Robustness with Time Interleaving



Time Interleave Technolog realizes High Robustness against Noises.

Mobile TV Service



Both HDTV/SD multi TV and Mobile TV can be broadcasted in 1 CH Bandwidth(6MHz) with 1 Transmitter

Emergency Warning System

People receive Emergency Warning in case of disasters anytime anywhere.

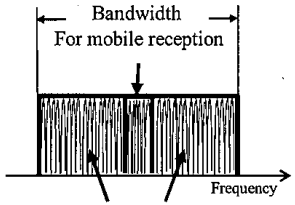
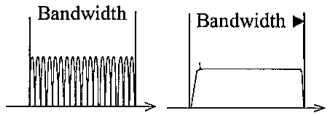
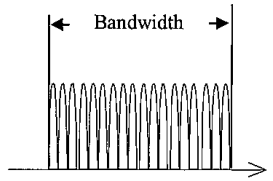
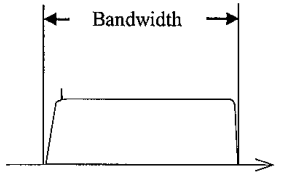
Recommendation by Multisectoral Committee of Peru

PERÚ
PRESIDENCIA DE LA REPÚBLICA

Standard / Criterion	ATSC (American)	DVB (European)	ISDB-T (Japanese)	DTMB (Chinese)
Technology	4th	3rd	1st	1st
Economic	3rd	2nd	1st	4th
Cooperation	3rd	1st	2nd*	4th

*Difference of 1st and 2nd positions are negligible.

Comparison among Digital TV systems

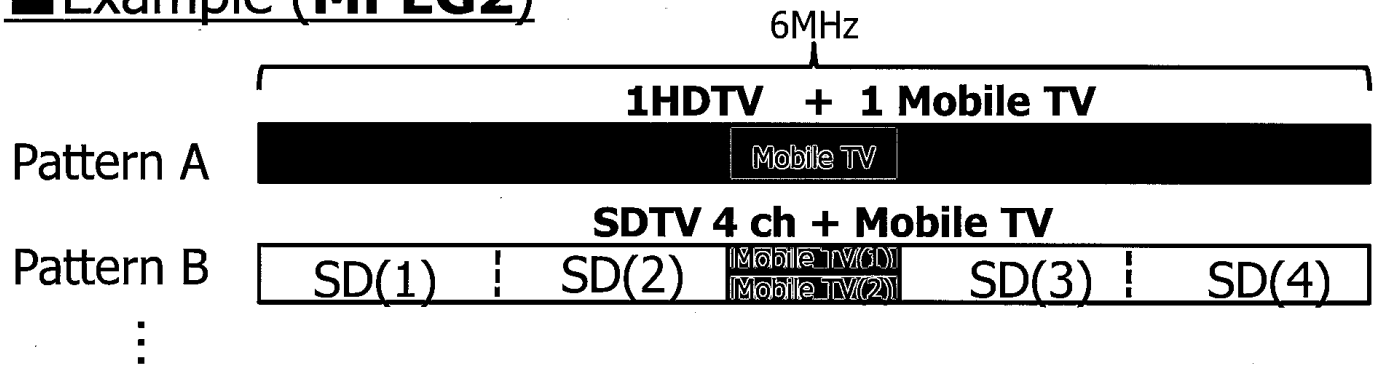
System / Characteristics	Japan (ISDB-T)	China (DTMB)	EU (DVB-T)	USA (ATSC)
Transmission System	 Multi-Carrier	 Multi-Carrier Single-Carrier Chinese has 2 standard (the one based on EU standard and the other one based USA standard Standard is Not unified.	 Multi-Carrier	 Single-Carrier
	Time Interleaving	Time Interleaving		
	Segmented Structure			
Performance at reception (between buildings or mountains) *Including Mobile Reception	**Excellent** Well experienced	Good	Medium	Poor
Portability (HDTV + Mobile with one transmitter by one Bandwidth)	**In service**	Not available	Not available	Not available
Emergency Warning System	**In service**	Not available	Not available	Not available

12

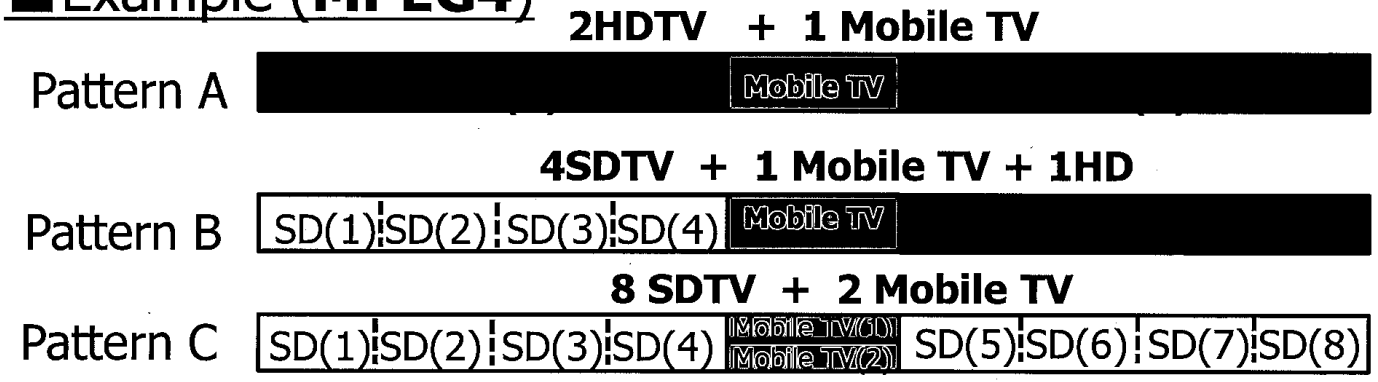
Flexibility of Digital TV Channel Combination ISDB-T

Planning the structure of each digital channel (6MHz)

■Example (**MPEG2**)

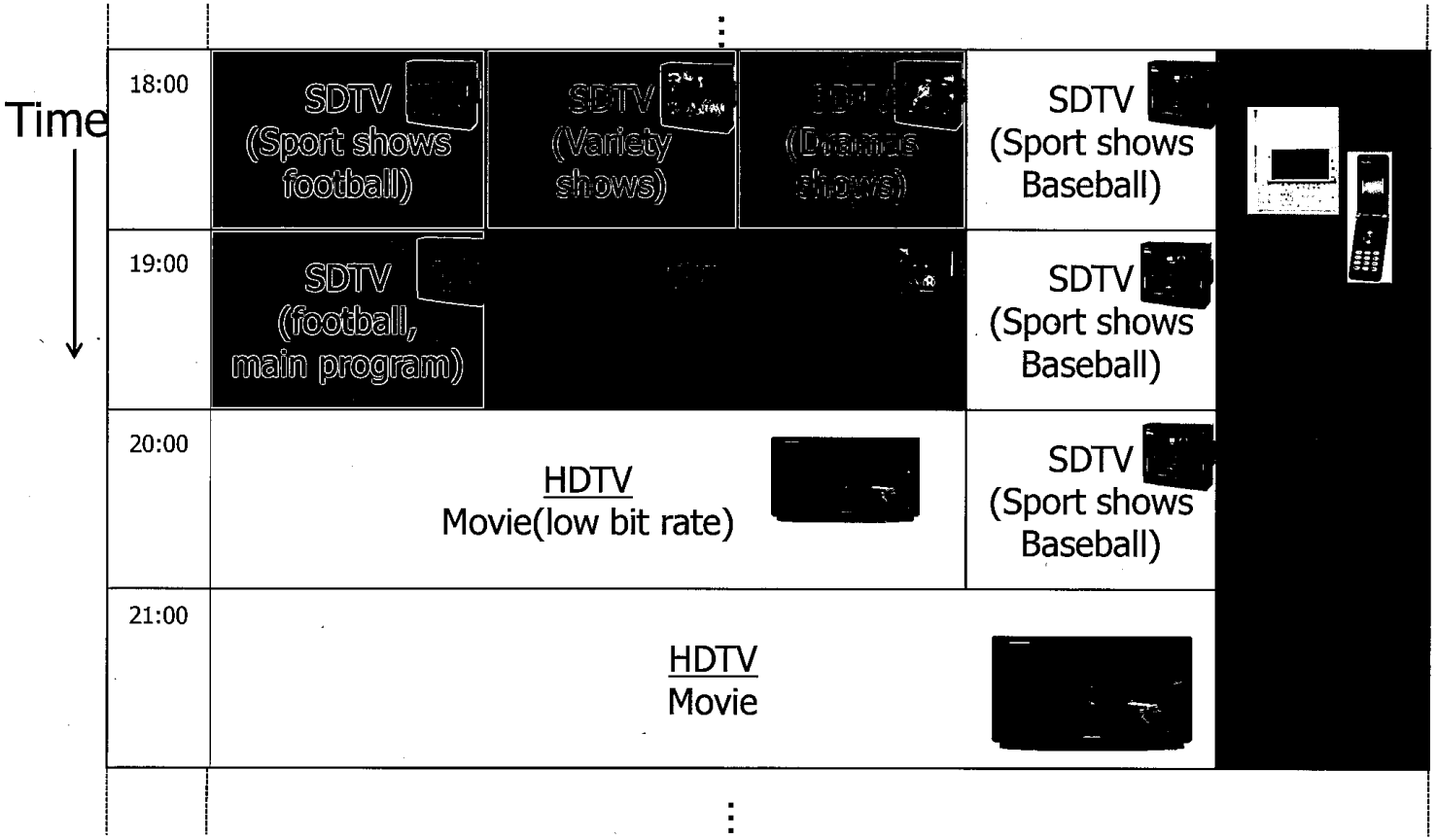


■Example (**MPEG4**)



Flexibility of TV Program, Multi-Broadcasting with ISDB-T

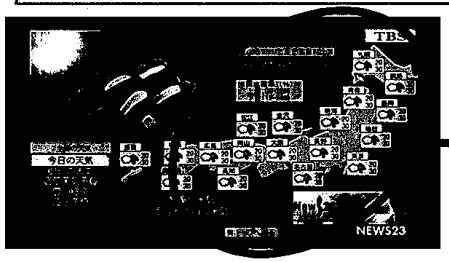
■Example of TV program



ISDB-T Can Provide New Businesses Opportunities

High functionality

Data Broadcasting

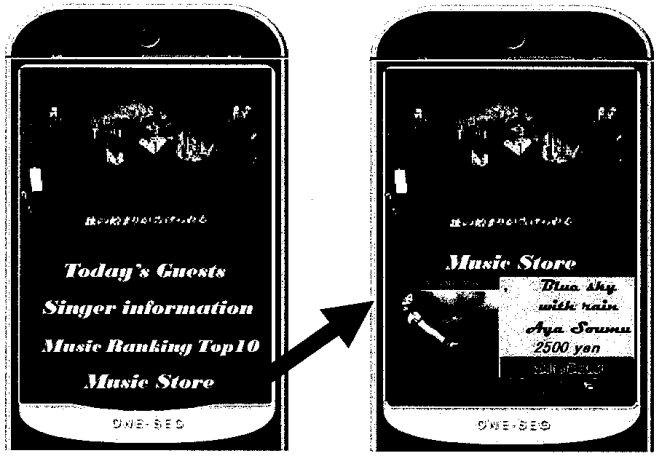


Weather forecast

News

Information linked to on-air program

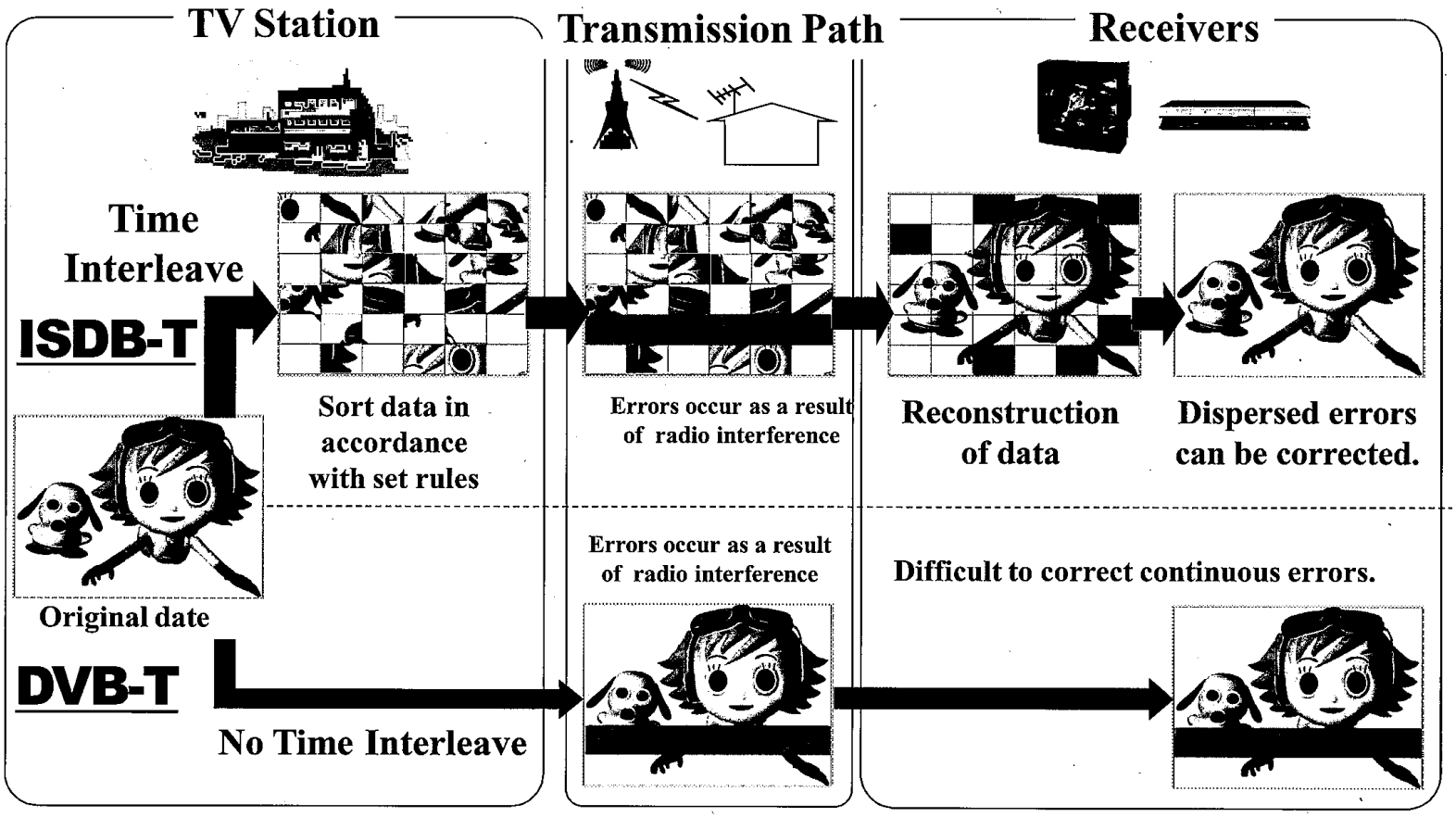
Interactive TV
e.g. interactive shopping



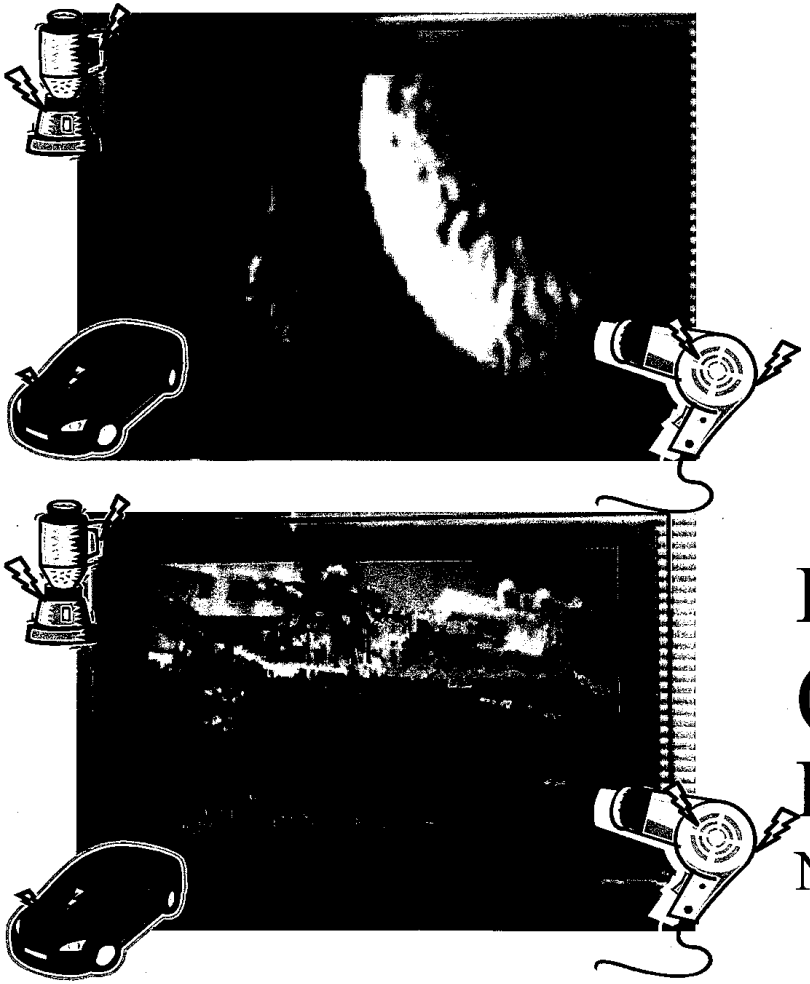
You can see the items and you can buy them directly.

ISDB-T succeeds in creating those New businesses

Time Interleave Technology



Technical Superiority of Japanese Standard!!



Japanese Standard (ISDB-T) Image is Clear

withstands Noise!

European Standard (DVB-T) Image is Unclear

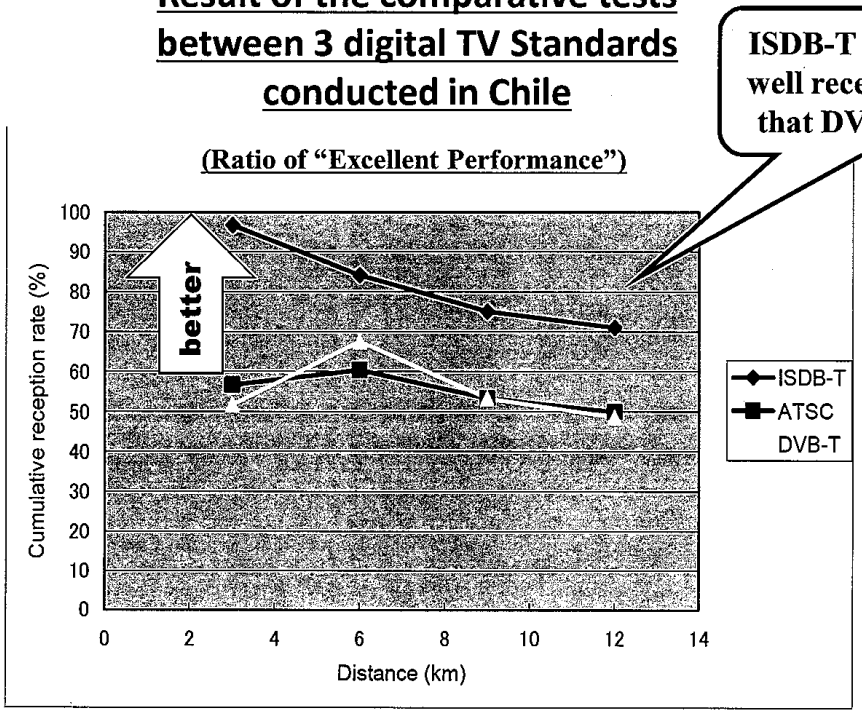
Not withstands Noise!

※Reference to the comparative tests conducted in Peru

ISDB-T's reception is superior to DVB-T's reception

ISDB-T signals were received with keeping viewers' satisfaction rate of "Excellent Performance" , 20% more than that of DVB-T

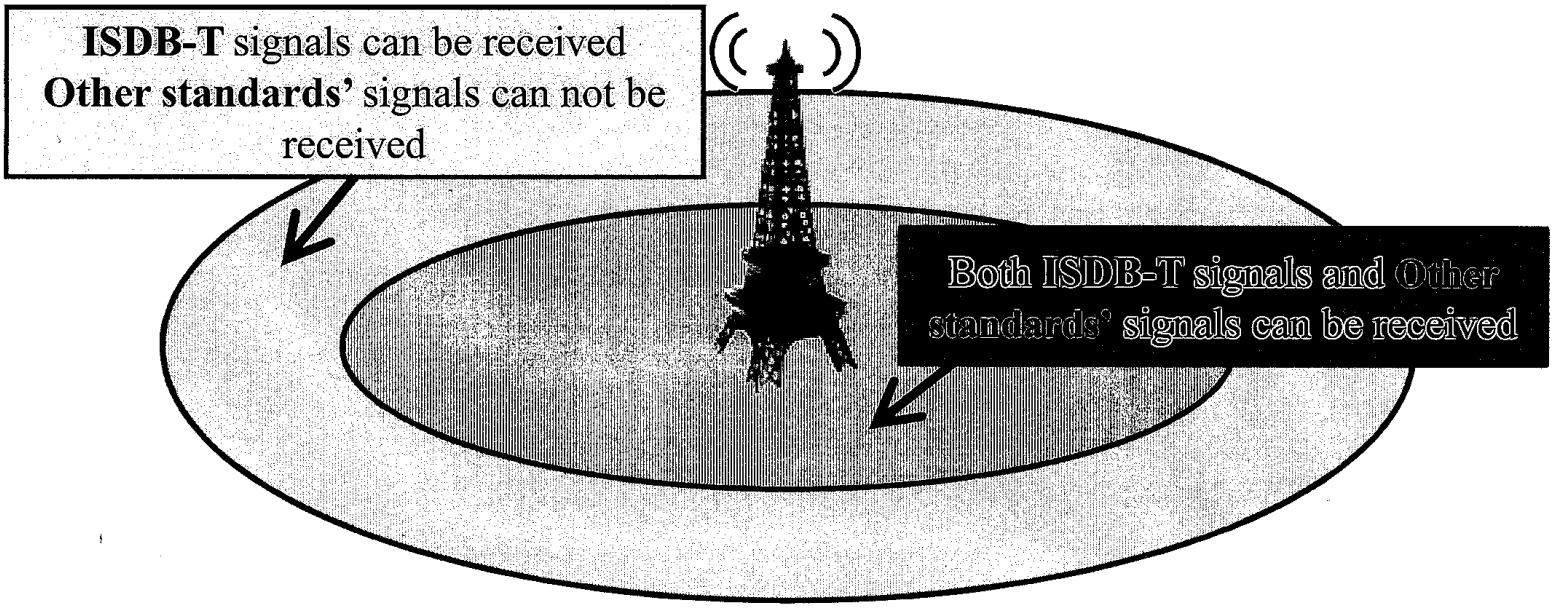
Result of the comparative tests between 3 digital TV Standards conducted in Chile



→**ISDB-T is more cost effective than DVB-T because wider service area is covered by a ISDB-T transmitter than DVB-T transmitter at the same transmitting power.**

Coverage of ISDB-T is larger than that of DVB-T

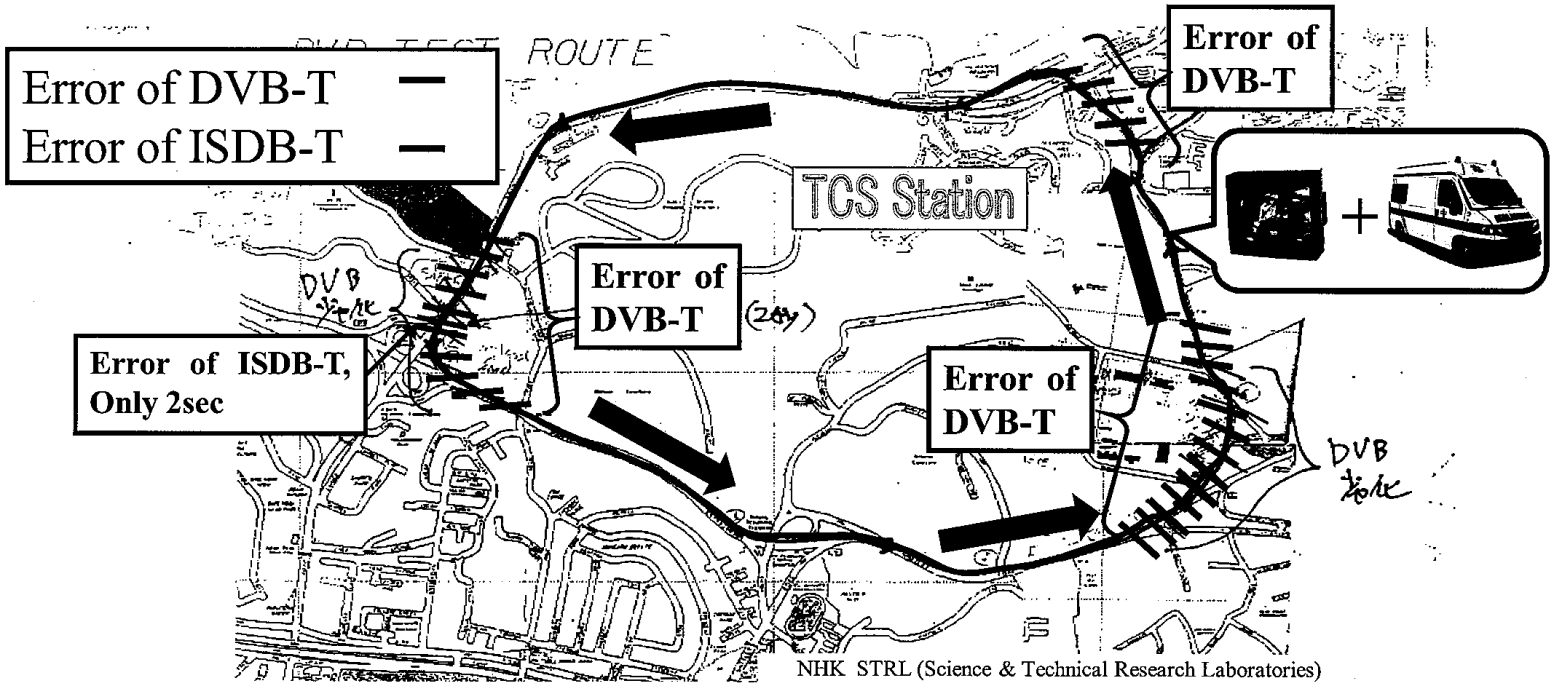
Coverage of **ISDB-T** is larger than that of **Other standards** under same transmitter condition.



Comparison tests(Moving Receiving) in Singapore

The ISDB-T recorded the highest rating in more than 70% of the sites measured, while the other standards averaged only 55%.

The difference will Affect the quality of reception of all citizens.



DVB-T had a lot of Errors!!

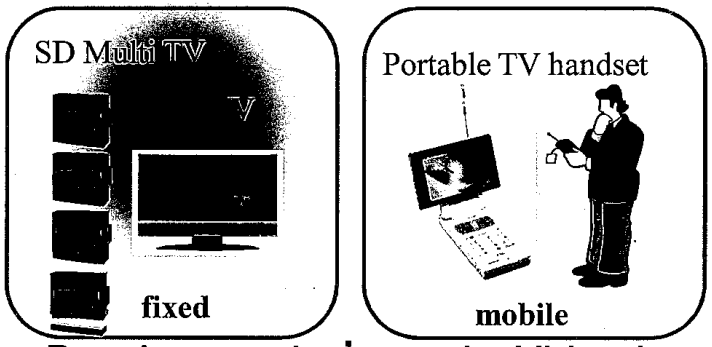
ISDB-T had only 2sec Error!!

ISDB-T Can save investment for equipment and Frequency

JAPANESE STANDARD

ISDB-T(Terrestrial)

One Transmitter is enough



Broadcaster don't need additional investments for mobile TV broadcasting!

Economical

EUROPEAN STANDARD

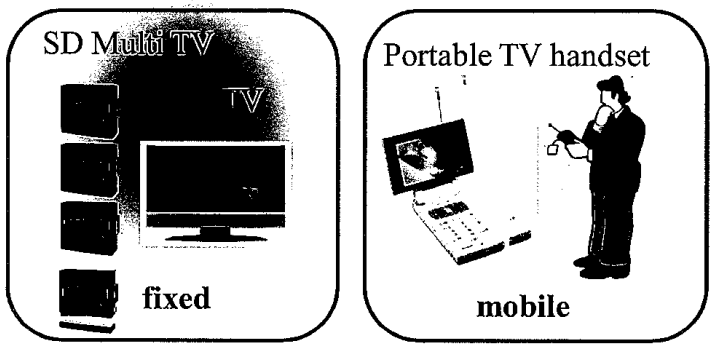
DVB-T(Terrestrial)

One Transmitter

DVB-H(Handheld)

The other standard needs Additional transmitter for Mobile TV (DVB-H)

Additional Transmitter Additional Frequency



Broadcaster need additional investments for mobile TV broadcasting(DVB-H)!

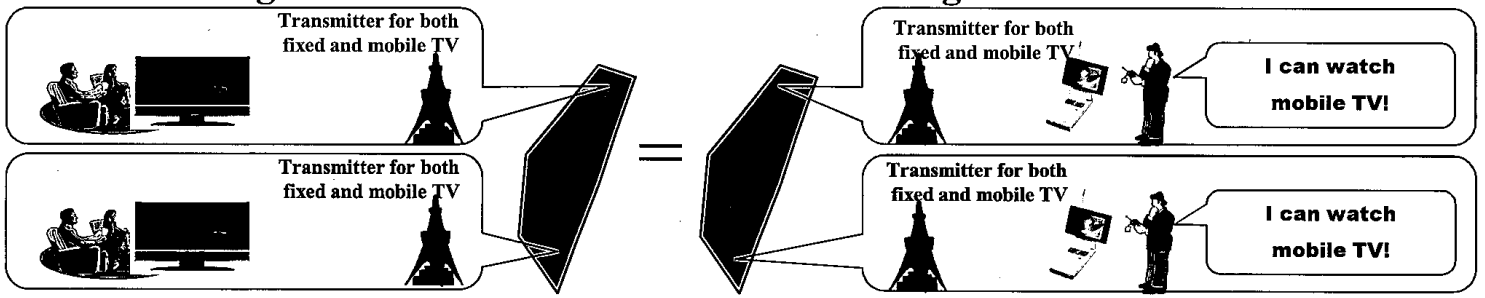
Double-price!!

People can watch mobile TV immediately when broadcasters start mobile TV broadcasting.

Example 1) With ISDB-T

People can watch Mobile TV as soon as Broadcasters start Digital broadcasting service because the area being available for fixed receivers is also available for mobile receivers.

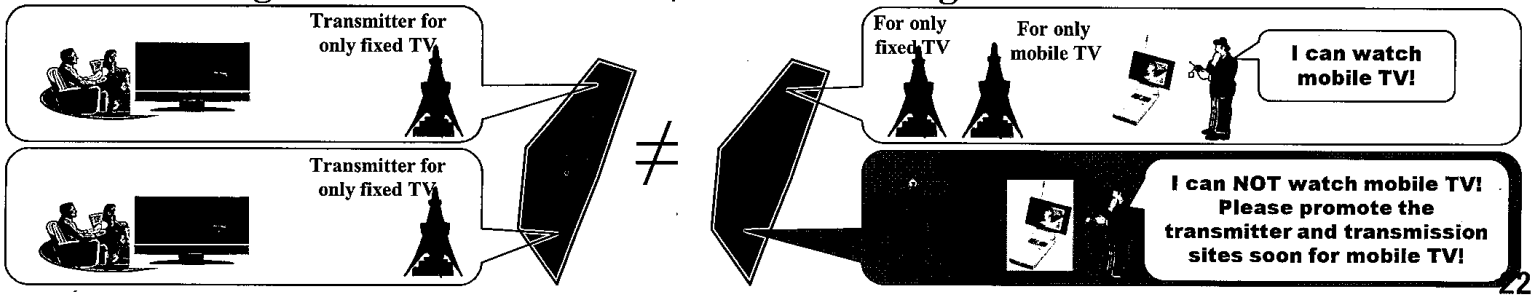
The area being available for fixed TV = The area being available for mobile TV



Example 2) With another standard

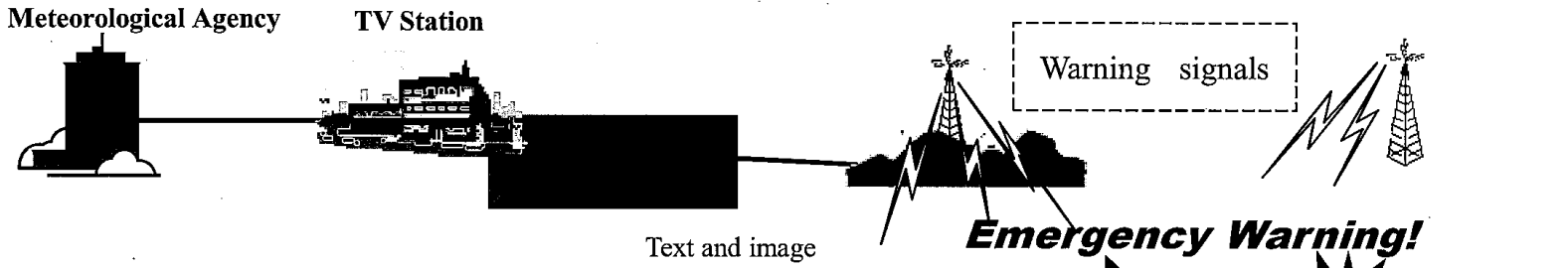
People in some regions can't watch Mobile TV even if Broadcasters start Digital broadcasting service because Mobile TV service is independent from fixed TV services. To provide Mobile TV needs additional transmitter and transmission sites

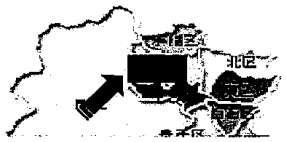
The area being available for fixed TV ≠ The area being available for mobile TV

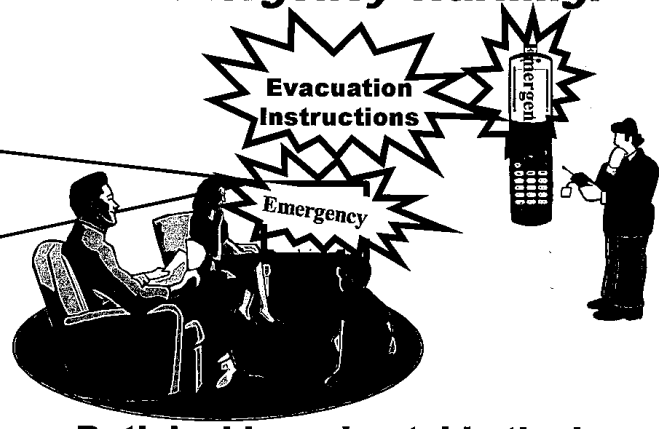


ISDB-T have developed the Technology placing maximum priority on human life.

People can get Emergency Warning under such inclement conditions as typhoons and tsunamis. Many lives would be saved with ISDB-T.



Text	Image
Possibility of ●● river flooding has increased. Residents in the surrounding areas should evacuate. Areas affected are as follows.	 Evacuate from this area !

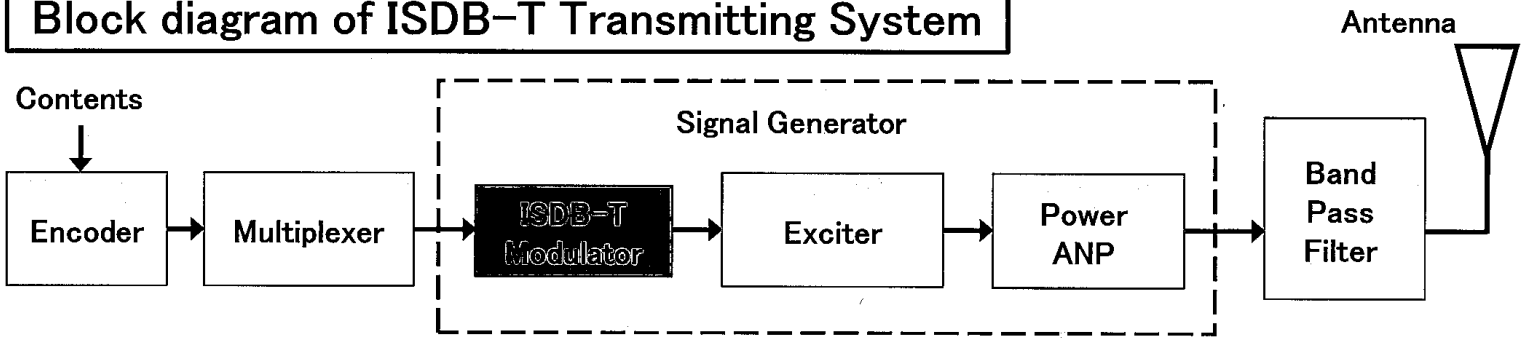


Both inside and outside the home.

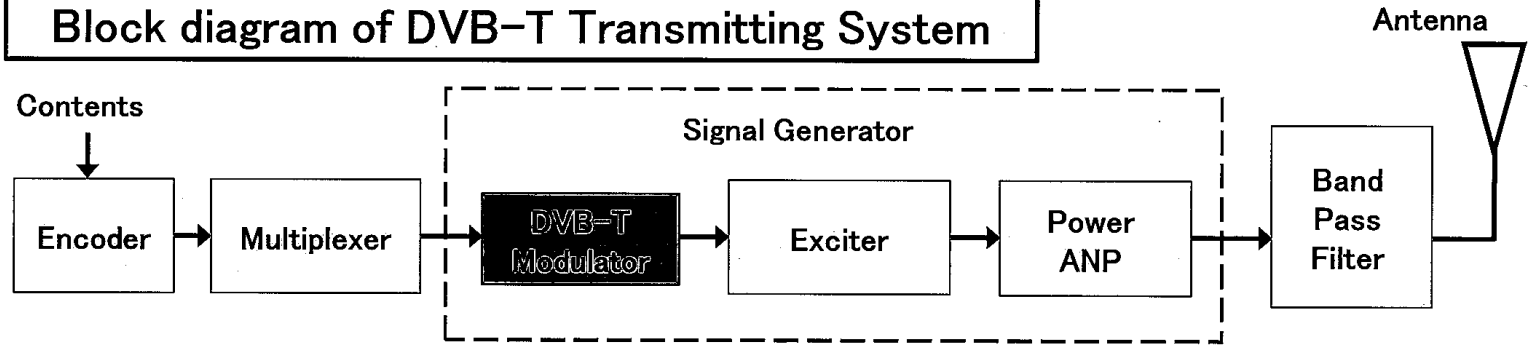
There are No difference between ISDB-T and DVB-T

- Transmitting System -

Block diagram of ISDB-T Transmitting System



Block diagram of DVB-T Transmitting System



➡Difference between Digital TV systems is only a part of function implemented in modulator.

➡ The difference is <u>a small part of whole cost</u> of the equipments.