SOURCE:	ARIB
TITLE:	Activities of ARIB after the last Meeting
AGENDA ITEM:	GSC opening 4.2
CONTACT:	Tsukasa-Sasaki@arib.or.jp

gsc11_open_07

Activities of ARIB after the last Meeting
- Standardization for Radio Systems -

Association of Radio Industries and Businesses (ARIB)

May 29, 2006

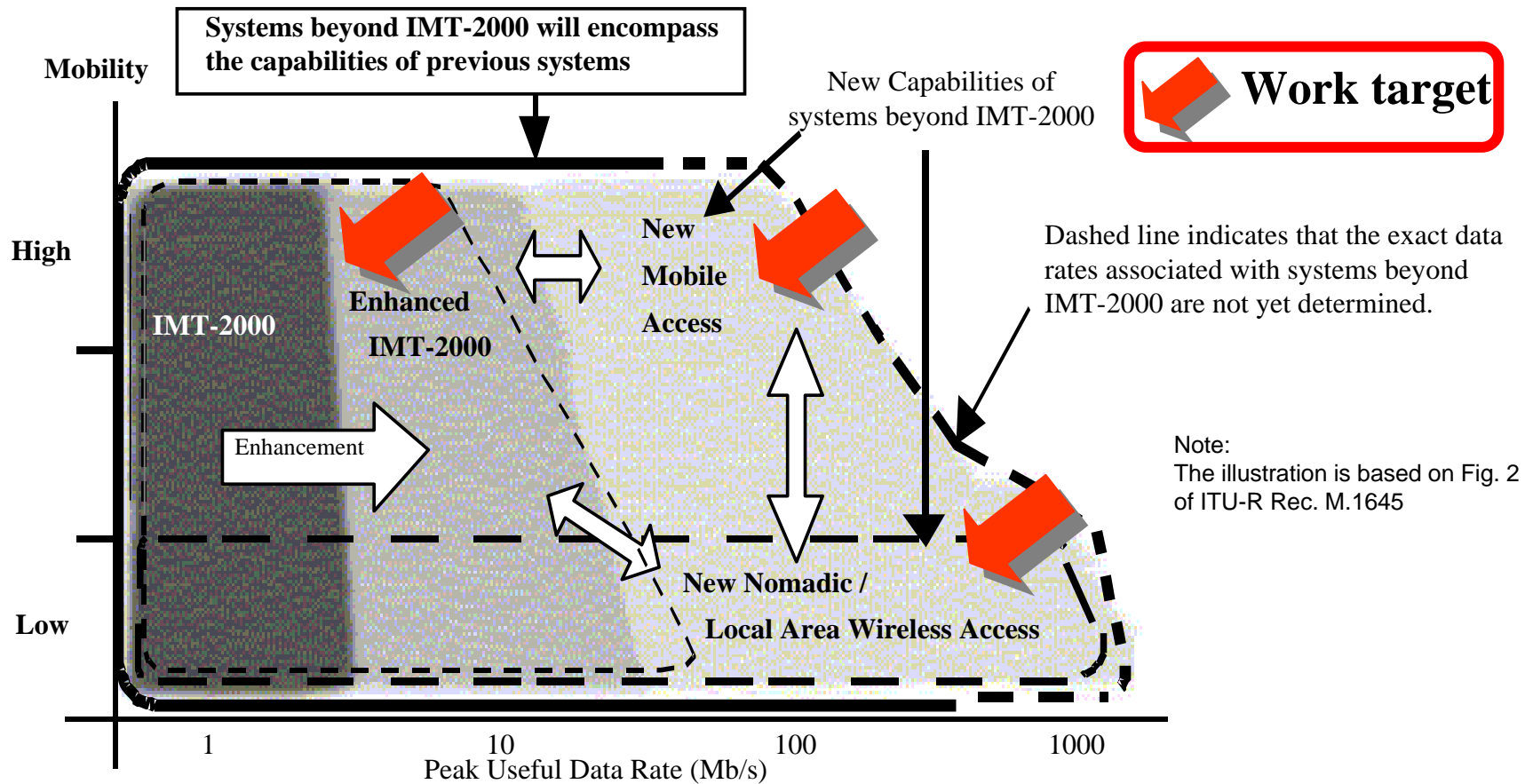*GSC: Standardization Advancing Global Communications*

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CONTENTS

- **Reorganization toward Advanced Wireless Communications**
- **Other Major R & D and Standardization Updates**
- **"One-seg" Service**
- **Government Activity Updates in Radiocommunications**

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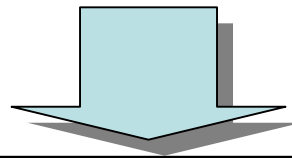# Reorganization toward Advanced Wireless Communications

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Advanced Wireless Communications

Systems beyond IMT-2000 will encompass the capabilities of previous systems

New Capabilities of systems beyond IMT-2000

Work target

Dashed line indicates that the exact data rates associated with systems beyond IMT-2000 are not yet determined.

Note:
The illustration is based on Fig. 2 of ITU-R Rec. M.1645

Mobility

High

Low

IMT-2000

Enhanced IMT-2000

Enhancement

New Mobile Access

New Nomadic / Local Area Wireless Access

1   10   100   1000
Peak Useful Data Rate (Mb/s)

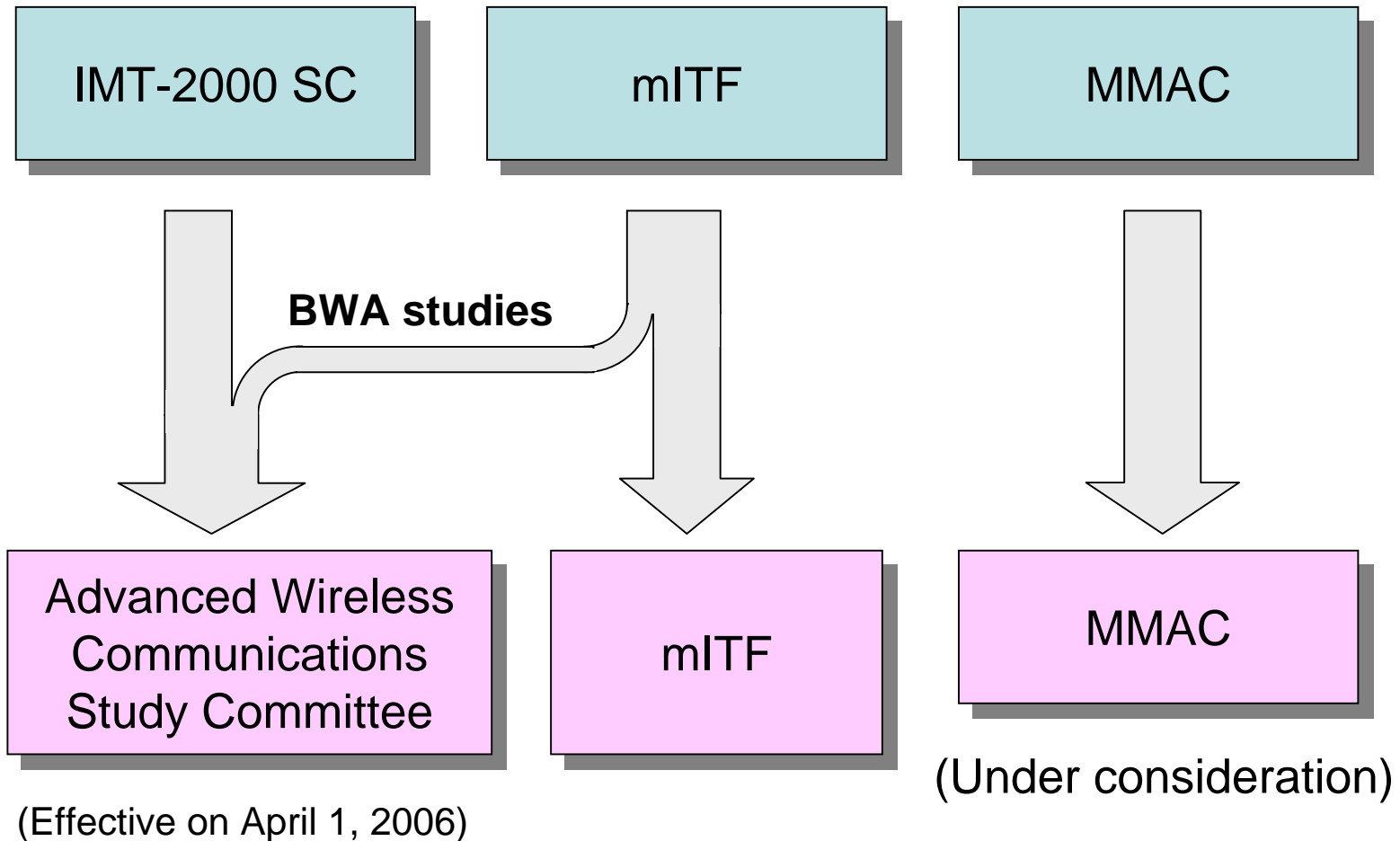*GSC: Standardization Advancing Global Communications*

Incumbent organizations

- ARIB: IMT-2000 Study Committee
  - IMT-2000 and Systems Beyond IMT-2000
- Mobile IT Forum (mITF) :
  - "4G" Systems, Services and Applications
- Multimedia Mobile Access Communication (MMAC) Forum
  - Advanced Wireless Access Systems

Needs for more effective and faster
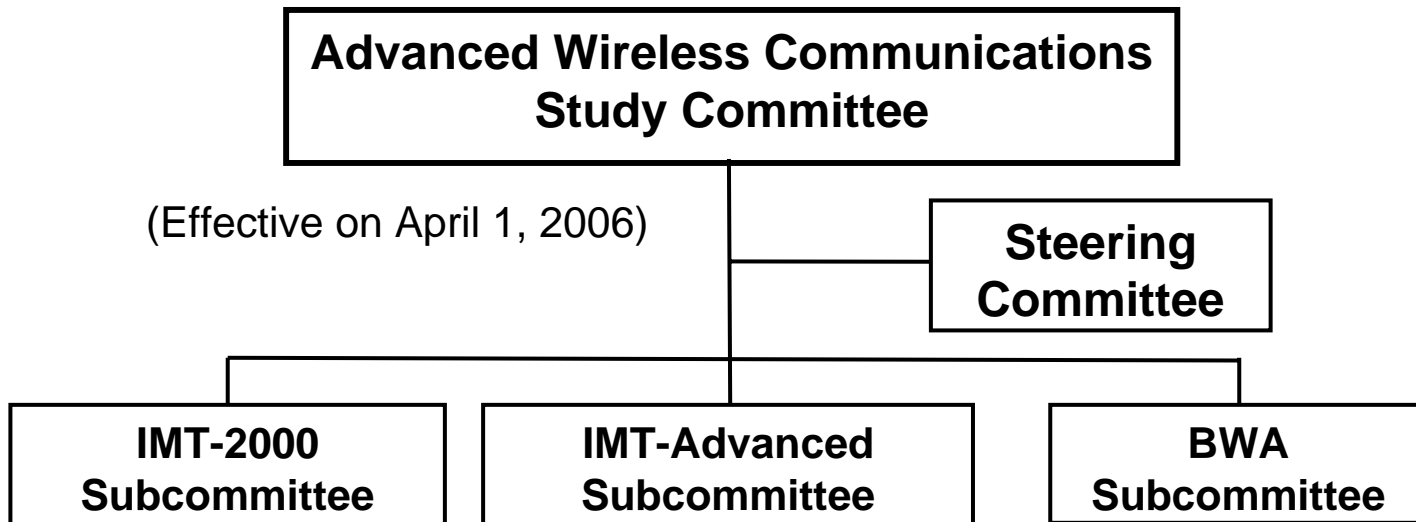R&D and Standardization processes

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Reorganization (1)

IMT-2000 SC	mITF	MMAC

BWA studies

Advanced Wireless Communications Study Committee	mITF	MMAC

(Under consideration)

(Effective on April 1, 2006)

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Reorganization (2)

- IMT-2000 SC ➔ Advanced Wireless Comm SC
  - To conduct technical studies on Advanced Wireless Communications Systems: IMT-2000, IMT-Advanced and Broadband Wireless Access (BWA)
  - To contribute to the global standardization

Advanced Wireless Communications Study Committee

(Effective on April 1, 2006)

Steering Committee

| **IMT-2000 Subcommittee** | **IMT-Advanced Subcommittee** | **BWA Subcommittee** |

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Other Major R & D and Standardization Updates

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- **IMT-2000**
  - Continuous updates in-sync with 3GPPs

- **IMT-Advanced**
  - Contributions to ITU-R SG8

- **Personal Handyphone Systems (PHS)**
  - Revision of RCR STD-28 to accommodate variant specifications in other countries

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Standardization Updates -2-

- **RFID**
  - Two new STDs
    - **ARIB STD-T89**
      950MHz-Band RFID Equipment for Premises Radio Station
    - **ARIB STD-T90**
      950MHz-Band RFID Equipment for Specified Low Power Radio Station

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Standardization Updates -3-

• Wireless LAN

Frequency	5.15~5.25 (GHz)	5.25~5.35 (GHz)	5.47~5.725 (GHz)	5.725~5.825 (GHz)
After WRC-03	In service (Indoor)	**Implemented *1 (Indoor)**	Will be Available (In/Outdoor)	NO service
	ARIB STD-T71			
Before WRC-03	In service (Indoor)	No service	No service	NO service

*1   ARIB STD-T71 Broadband Mobile Access
Communication System (CSMA) (3.0; September 2005)

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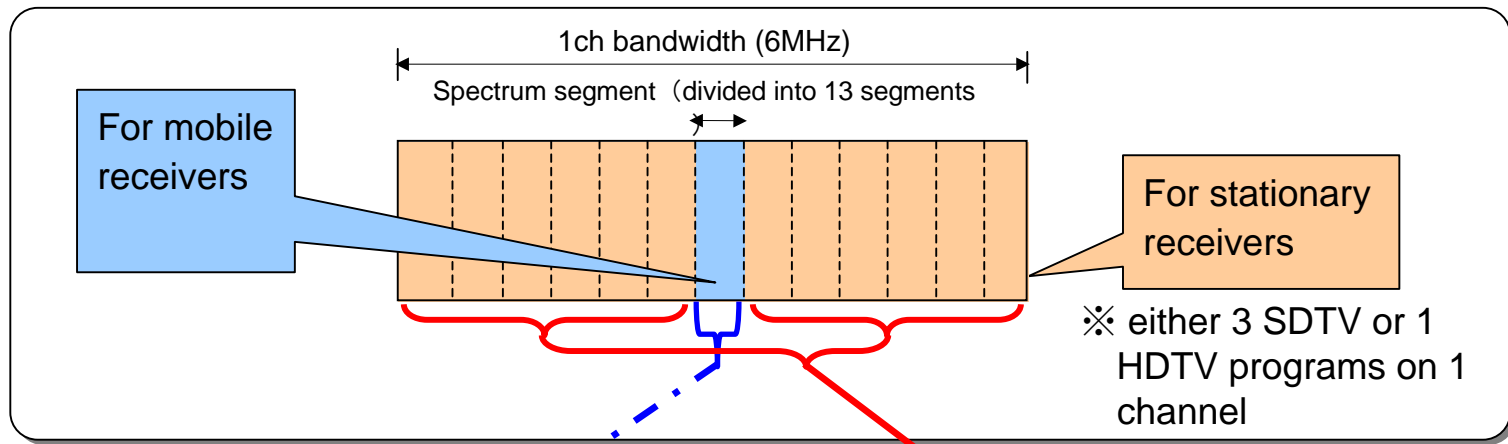
"One-seg" Service

"One-Seg" Summary

- Started on April 1, 2006 as scheduled

- Term "One-seg" :
  Using just one segment out of 13 segments in a single channel of ISDB-T system.

- ARIB STD-B31 "Transmission System for Digital Terrestrial Television Broadcasting"

- Intended for small mobile/portable terminals

- Simultaneous TV programs and data broadcast

Mobile Terminal Reception

■Programs for both mobile and stationary receiver in a single channel

■Independent operation of each segment

1ch bandwidth (6MHz)

Spectrum segment（divided into 13 segments）

For mobile receivers

For stationary receivers

※ either 3 SDTV or 1 HDTV programs on 1 channel

Launched on April 1, 2006

In service since Dec 1, 2003

Mobile terminal receivers w/ small screen

Large screen receivers

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"One-seg" Reception Parameters (Example)

Item		Substance
Video	Bit rate	Maximum 384 kbps
	Encoding method	MPEG4 AVC / ITU-T H.264
	Format	QVGA 4:3 or 16:9
	Frame rate	15 fps
Audio	Encoding method	MPEG2 AAC-SBR（AAC-PLUS)
	Bit length	16 bit both 24kHz and 48kHz
Still image	Encoding method	JPEG, GIF, aGIF
Caption	Number of characters/ Number of line	12 words × 4 lines (Vertical display) 16 words × 3 lines (Horizontal display)

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Sample "One-Seg" Capable Cell Phones

KDDI

NTT DoCoMo

Vodafone
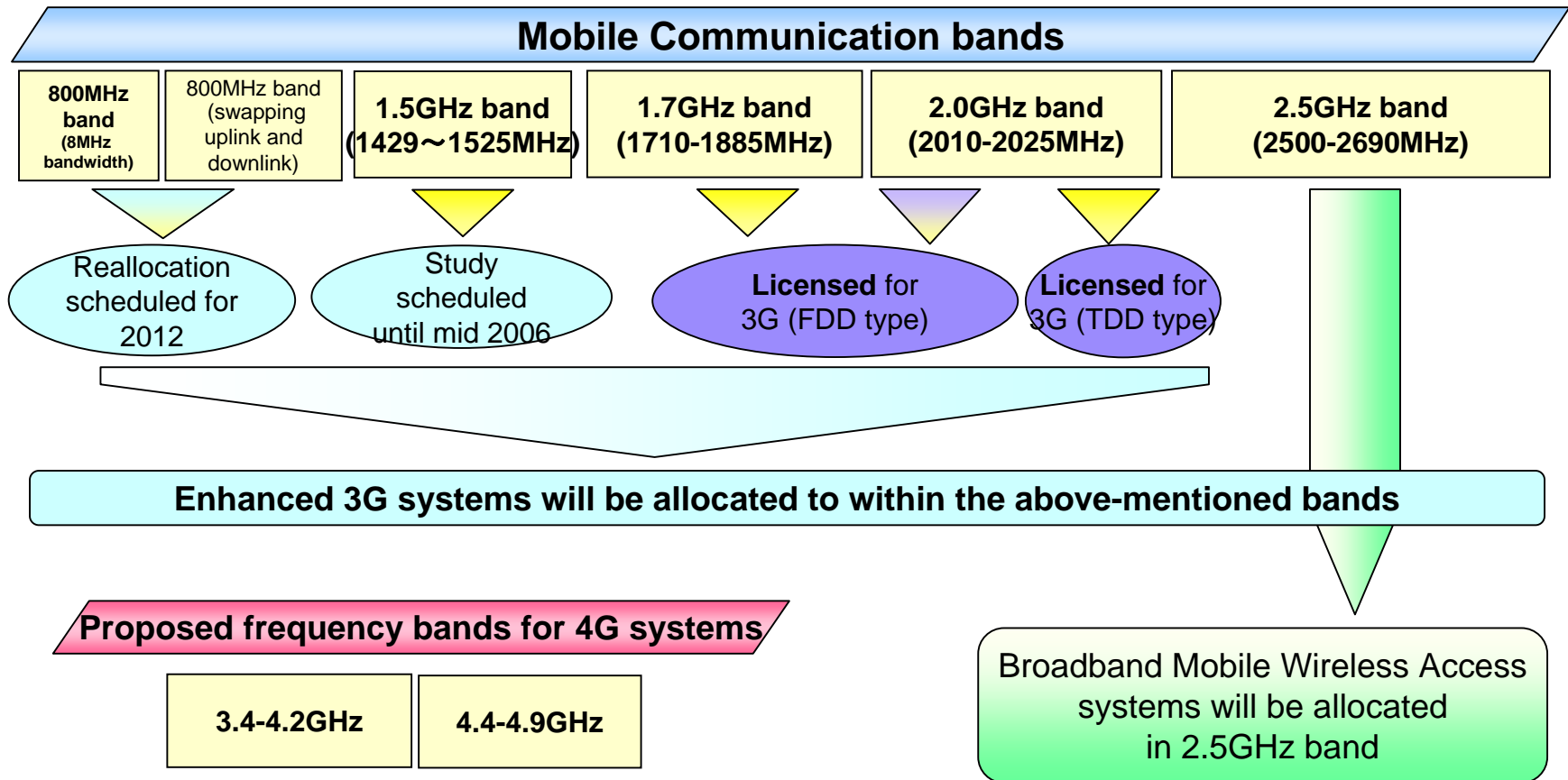
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Government Activity Updates in Radiocommunications

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Current Issues

- Effective use of VHF/UHF :
  - Telecommunication Technology Sub-council of MIC (TTS, hereinafter) is working on the technical requirements (by mid 2007)
- 1.5GHz-band:
  - TTS is studying transition path from 2G mobiles to 3G or higher (by mid 2006)
- 2.5GHz-band:
  - TTS started studying technical requirements for Wireless Broadband Access systems (by November, 2006)
- 5GHz-band:
  - TTS started studying technical requirements for introducing 802.11n based systems (by September 2006)
- UWB:
  - MIC has consulted Radio Regulatory Council on draft UWB Radio Regulations and is asking public comments until mid June.

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Spectrum reallocation latest action plan (MIC)

Mobile Communication bands

800MHz band (8MHz bandwidth)	800MHz band (swapping uplink and downlink)	1.5GHz band (1429~1525MHz)	1.7GHz band (1710-1885MHz)	2.0GHz band (2010-2025MHz)	2.5GHz band (2500-2690MHz)

Reallocation scheduled for 2012

Study scheduled until mid 2006

Licensed for 3G (FDD type)

Licensed for 3G (TDD type)

Enhanced 3G systems will be allocated to within the above-mentioned bands

Proposed frequency bands for 4G systems

3.4-4.2GHz	4.4-4.9GHz

Broadband Mobile Wireless Access systems will be allocated in 2.5GHz band

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Thanks for your attention!

ARIB
Association of Radio Industries and Businesses

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A Brief Overview of ARIB
- Standardization for Radio Systems -

Association of Radio Industries and Businesses (ARIB)

May 29, 2006
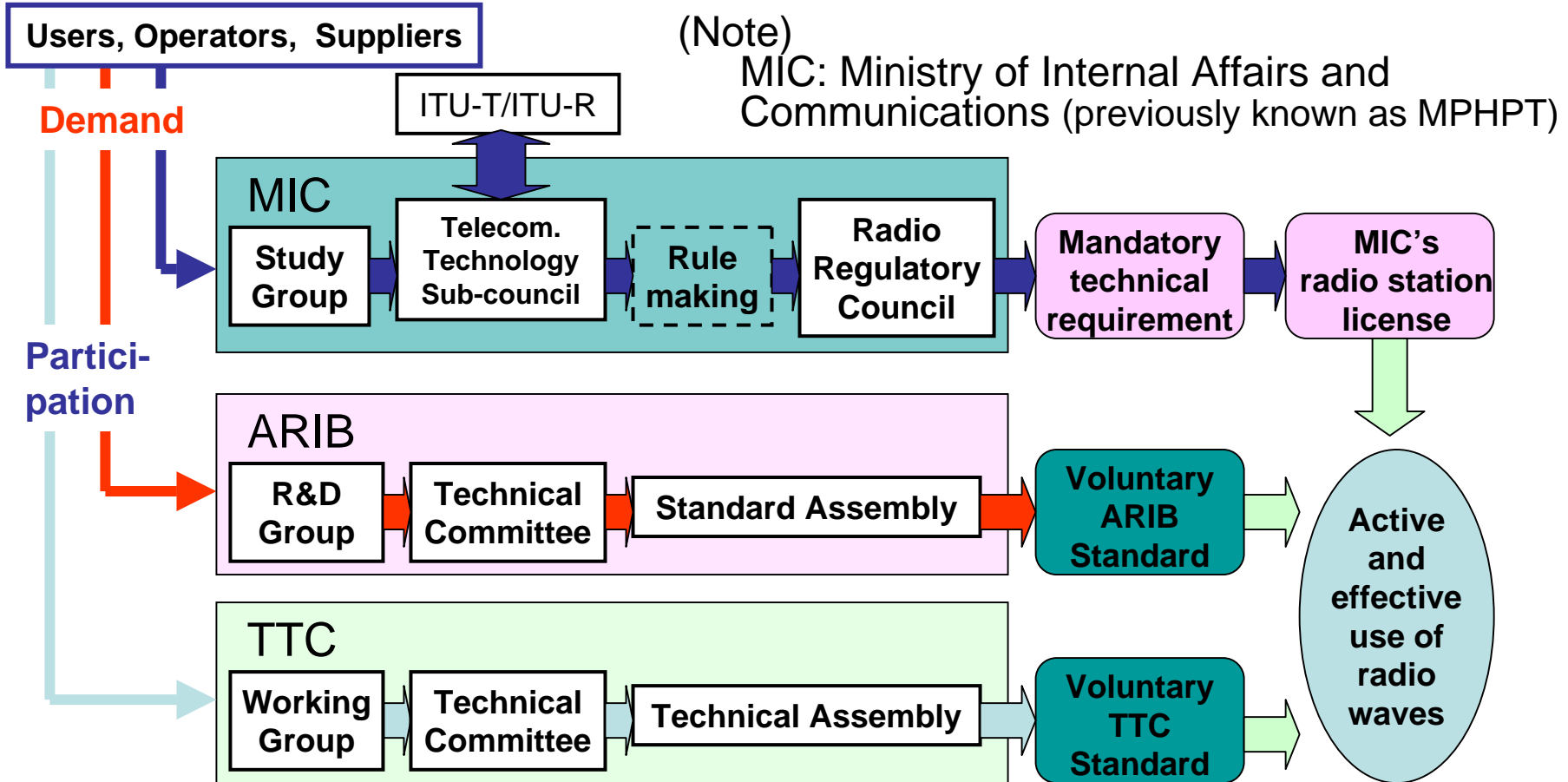
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☐ **Standardization Flow in Japan**

☐ **About ARIB**

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Standardization Flow in Japan

Standardization Flow in Japan

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Users, Operators, Suppliers

(Note)
MIC: Ministry of Internal Affairs and Communications (previously known as MPHPT)

Demand

ITU-T/ITU-R

Partici-pation

MIC
| Study Group | Telecom. Technology Sub-council | Rule making | Radio Regulatory Council | Mandatory technical requirement | MIC's radio station license |

ARIB
| R&D Group | Technical Committee | Standard Assembly | Voluntary ARIB Standard |

TTC
| Working Group | Technical Committee | Technical Assembly | Voluntary TTC Standard |

Active and effective use of radio waves

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Government Regulations and ARIB Standards for radio systems

	Government Regulations	ARIB Standards
Nature	Mandatory	Voluntary
Purpose	• To promote efficient use of frequency • To prevent interference occurring • etc.	• To ensure common air interface • To ensure suitable quality • etc.
Technical items	• Frequency band • Spurious emission • Frequency tolerance • Occupied bandwidth • etc.	• Communication protocol • Sensitivity • Carrier to Noise ratio • Bit error rate • Measurement method • etc.

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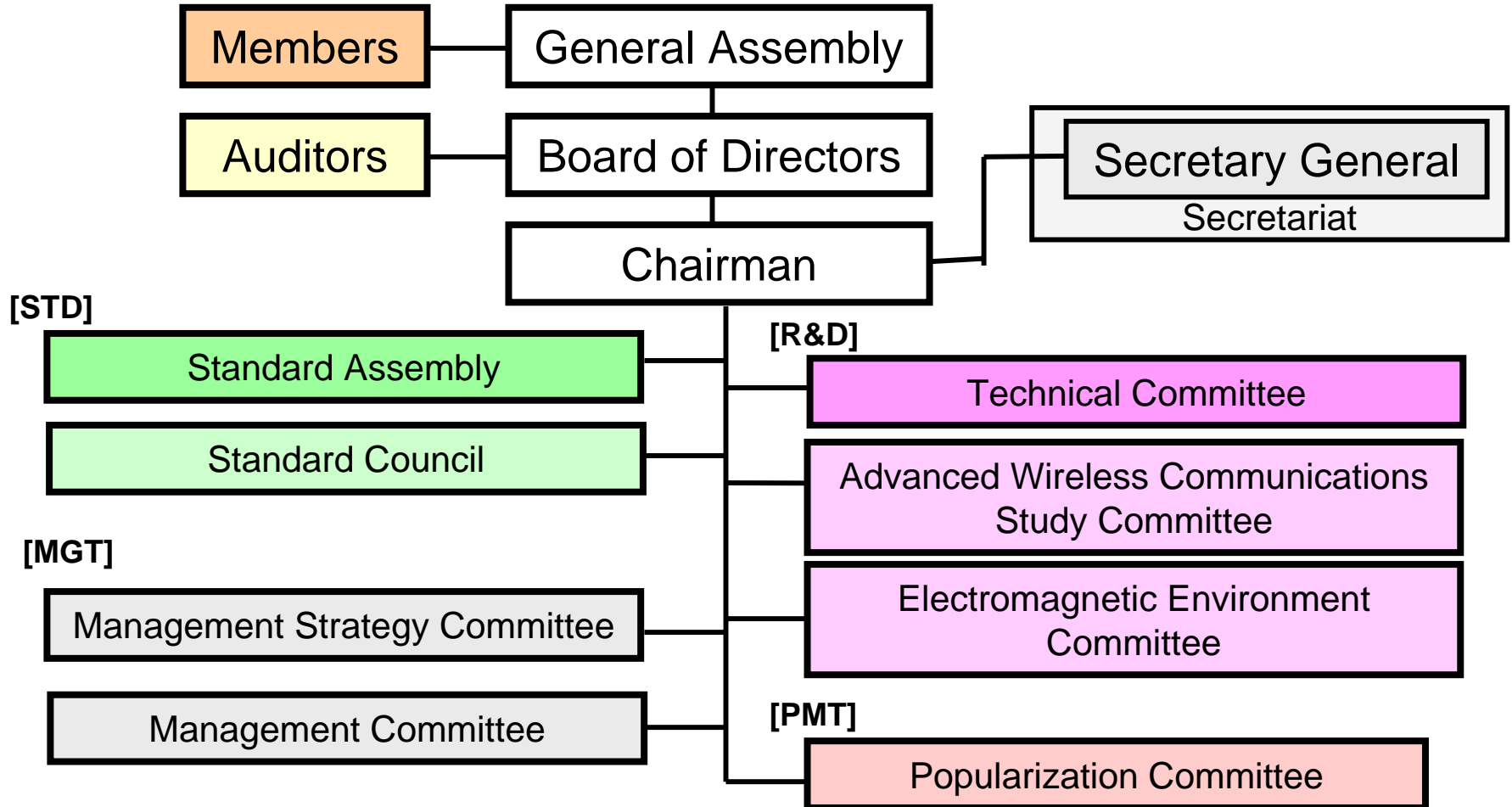
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About ARIB

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Outline of ARIB

- **Establishment**: merge of two organizations in 1995:
  - **R**esearch & Development **C**enter for **R**adio Systems (**RCR**)
  - **B**roadcasting **T**echnology **A**ssociation (**BTA**)
- **Objective**: promotion of pubic welfare by means of:
  - conducting investigation, R&D and consultation of utilization of radio waves
  - promoting realization and dissemination of new radio systems
- **Main Activities**:
  - investigation and R&D on utilization of radio waves
  - establishment of voluntary technical standards for radio systems
  - consultation, dissemination, collection and publication of information on utilization of radio waves
  - frequency change support for terrestrial digital TV broadcasting
  - frequency expiration support for re-allotment of radio spectrum
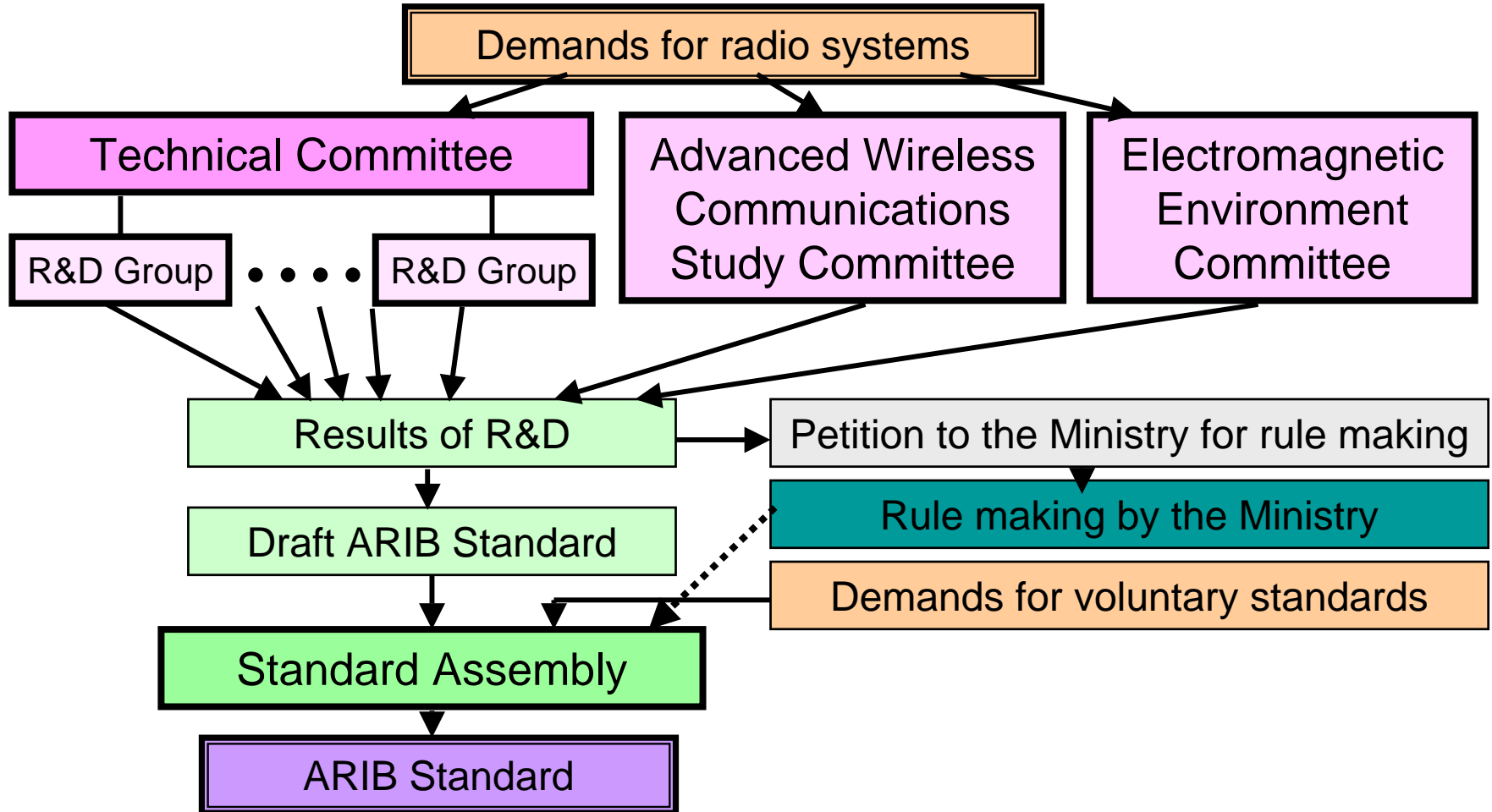
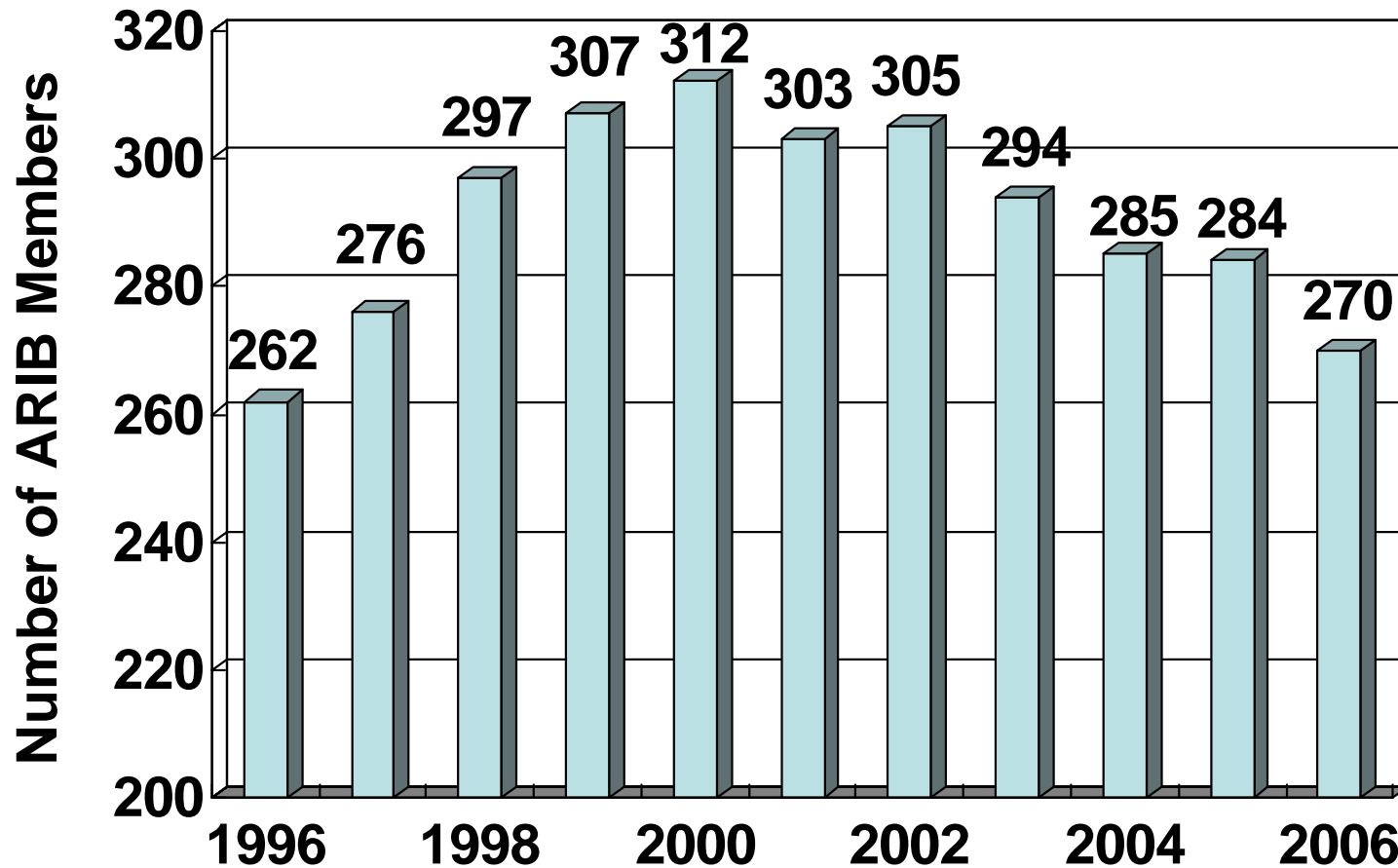*GSC: Standardization Advancing Global Communications*

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Organization of ARIB

Members — General Assembly

Auditors — Board of Directors — Secretary General / Secretariat

Chairman

[STD]
Standard Assembly

Standard Council

[MGT]
Management Strategy Committee

Management Committee

[R&D]
Technical Committee

Advanced Wireless Communications Study Committee

Electromagnetic Environment Committee

[PMT]
Popularization Committee

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ARIB's R&D and Standardization

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Chicago 2006

Demands for radio systems

Technical Committee

Advanced Wireless Communications Study Committee

Electromagnetic Environment Committee

R&D Group • • • • R&D Group

Results of R&D

Petition to the Ministry for rule making

Rule making by the Ministry

Draft ARIB Standard

Demands for voluntary standards

Standard Assembly

ARIB Standard

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Evolution of ARIB membership

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ARIB Standard Assembly

- **Establishment**: 1995
  (reorganized from the RCR Standard Assembly and the BTA)

- **Members**: 206 (including 20 foreign affiliated members,
  as of March 1, 2006)
  - open to any entity, organization and person
  - no limitation on nationality
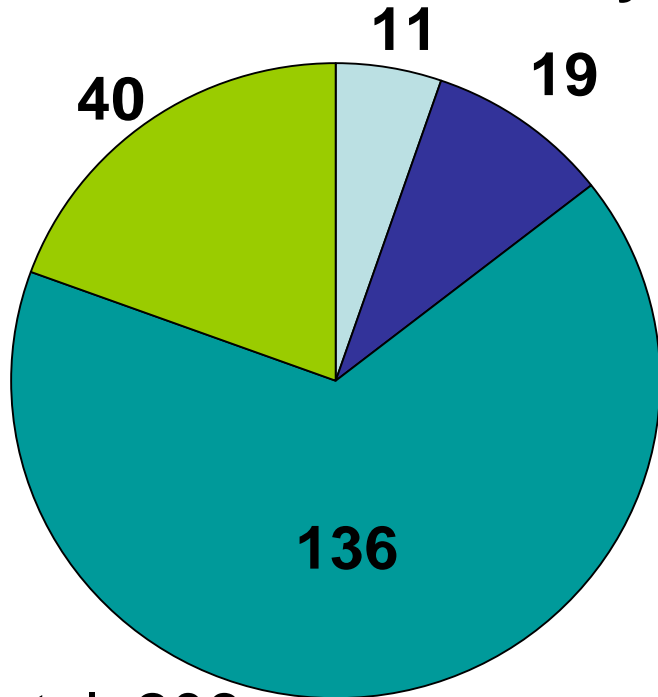 - independent from ARIB membership

- **Organization:**

Standard Assembly	
Chairman	Members

21 Working Groups
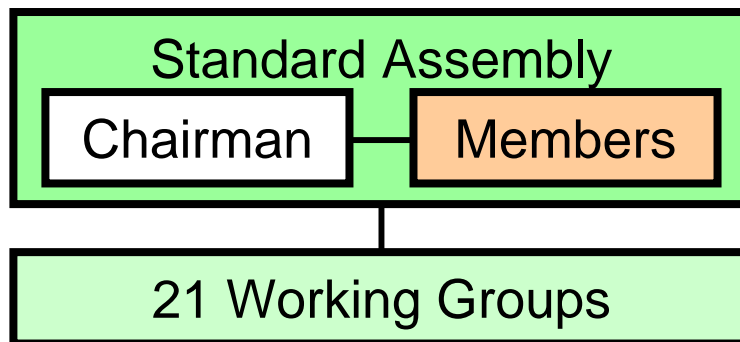
For maintenance and enhancement
of ARIB standards

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Members of ARIB Standard Assembly

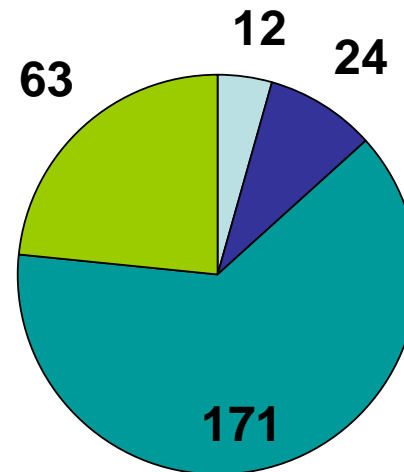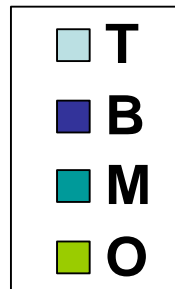**GSC-11**
Chicago 2006

Ref.: ARIB Members

Members of ARIB Standard Assembly

11
19
40
136

Total: 206

12
24
63
171

Total: 270

☐	**T**
☐	**B**
☐	**M**
☐	**O**

T: Telecommunications companies
B: Broadcasting companies and organizations
M: Research, Development and manufacture companies of radio equipment
O: Wholesaler, bank, electricity, gas and service companies and corporations (as of March 1, 2005)

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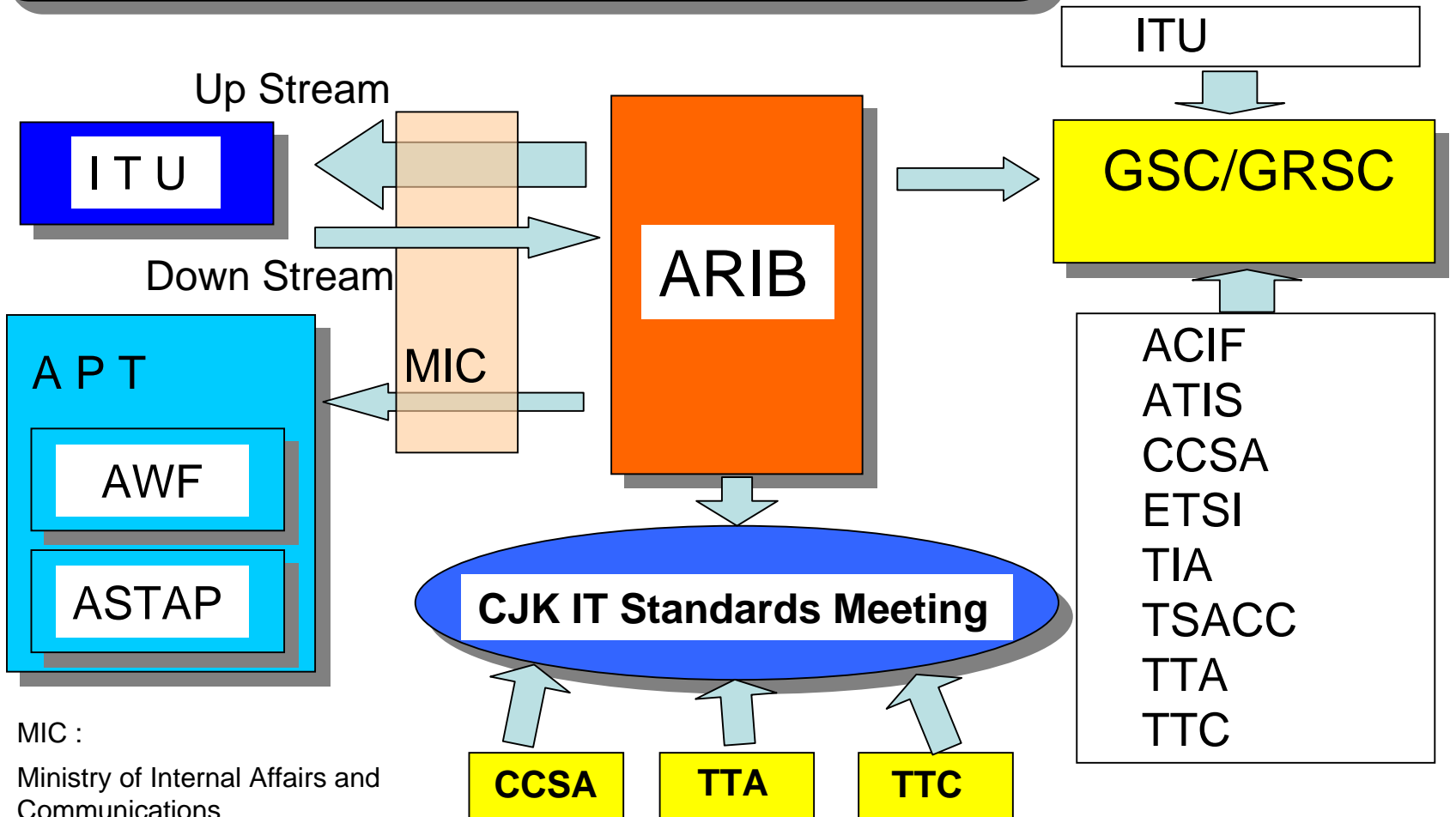
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Outcome from Standard Assembly

- **ARIB Standards** (STDs):

  – voluntary standards of private sector

- **ARIB Technical Reports** (TRs):

  – technical information not including standards

- **Number of STDs and TRs**

	STD	TR
Telecommunications	73(71)	19(19)
Broadcasting	50(50)	37(37)

As of March 31 2006

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Standards Colllaboration (General)

ITU

Up Stream

ITU

Down Stream

MIC

ARIB

GSC/GRSC

ITU

ACIF
ATIS
CCSA
ETSI
TIA
TSACC
TTA
TTC

A P T

AWF

ASTAP
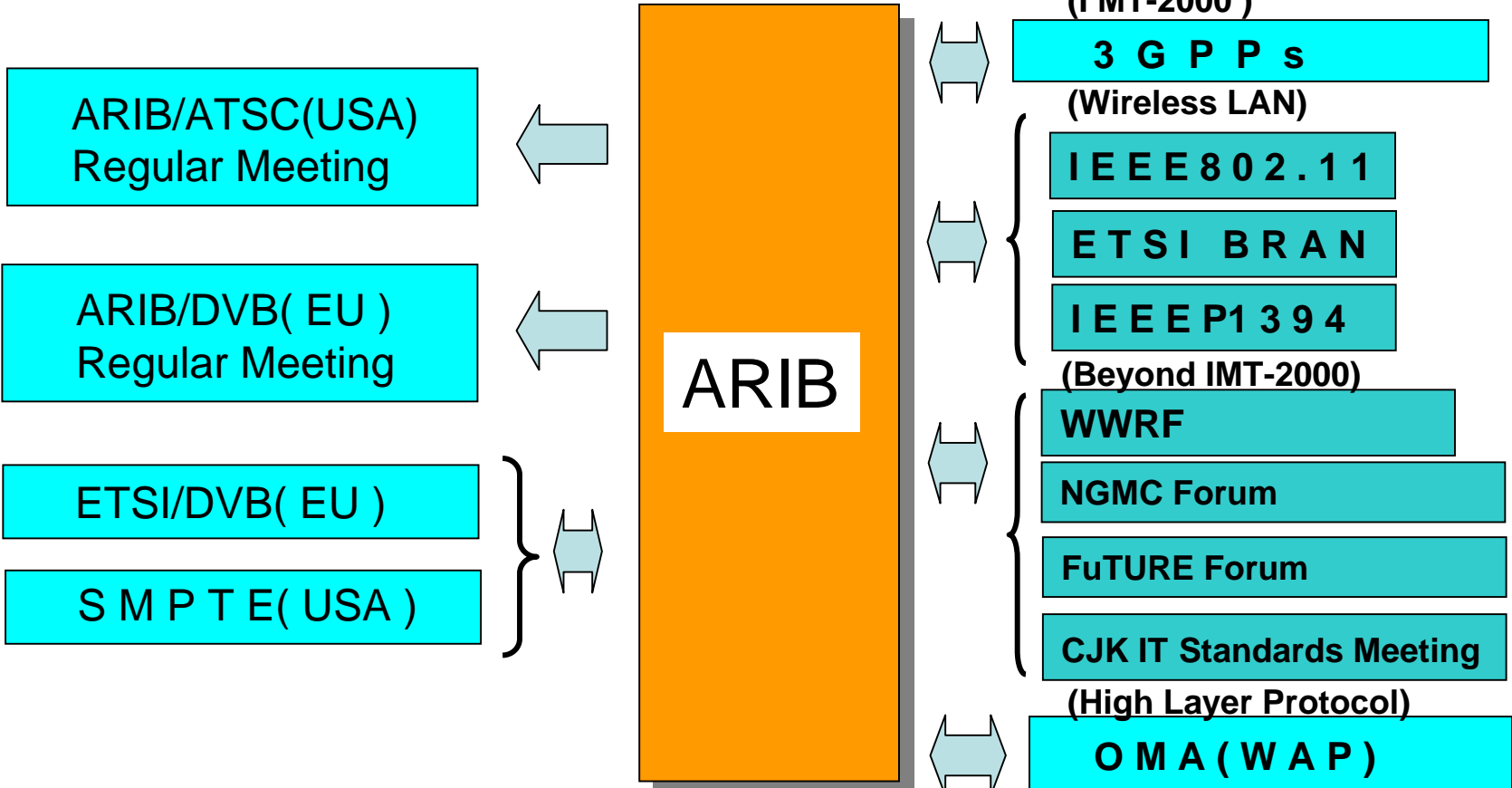
CJK IT Standards Meeting

CCSA **TTA** **TTC**

MIC :

Ministry of Internal Affairs and Communications

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R&D / Standards Collaboration (Specific Projects)

GSC-11 Chicago 2006

Broadcasting

Telecommunications

(I MT-2000)

3 G P P s

(Wireless LAN)

I E E E 8 0 2 . 1 1

E T S I B R A N

I E E E P 1 3 9 4

ARIB/ATSC(USA) Regular Meeting

ARIB/DVB(EU) Regular Meeting

ARIB

(Beyond IMT-2000)

WWRF

NGMC Forum

FuTURE Forum

CJK IT Standards Meeting

ETSI/DVB(EU)

S M P T E(USA)

(High Layer Protocol)

O M A (W A P)

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