Newsletter
ARIB
SEASON
Summer
July 2015

Event

The 5GMF concluded the Memorandum of Understanding with the 5G Forum

The Fifth Generation Mobile Communications Promotion Forum (5GMF) (its secretariat is served by ARIB) has agreed with the 5G Forum based in Korea to conclude the Memorandum of Understanding (MoU) to collaborate in realizing the fifth generation mobile communication system (5G).

On 6 April 2015, the MoU was signed in Tokyo by the chairman of 5GMF, Dr. Susumu Yoshida (Professor Emeritus of Kyoto University) and the chairman of 5G Forum's steering committee, Dr. Youngnam Han (Professor of KAIST).

MoU signed by Dr. Youngnam Han and Dr. Susumu Yoshida

The purpose of the MoU is to exchange information and views on high interest fields about 5G and to explore collaboration opportunities on 5G including a meeting or workshop jointly.

The MoU endorses to create cooperative framework between two organizations. So hereafter, it is highly expected that information and views exchange of Korea and Japan will proceed rapidly and the study to realize 5G mobile communication system will be promoted.

It should be noted that 5GMF intends to cooperate with related organizations in other countries and regions to further accelerate research, development and standardization of 5G.

KAIST : Korea Advanced Institute of Science and Technology

The 4th meeting of the Study Group on Radio utilization system for robots held
- Approved the investigation result of working group and decided the future plan -

On 10 April 2015, the 4th meeting of the Study Group on Radio utilization system for robots was held at ARIB office. The result of investigation on requirements of telecommunication system for robots and technical conditions of the wireless communication system was reported by the working group.

The 4th meeting of the Study Group on Radio utilization system for robots

In the report, subject of investigation was set to the remote control of a robot (equipment) and data communication between a robot (equipment) and an operator, and most appropriate radio communication system was proposed on supposing each utilizing area of ground, indoor, sky and sea.

The Ministry of Internal Affairs and Communications submitted an inquiry to the Information and Communications Council on "Technical Requirements for Upgrading of Use of Radio Waves for Robots" (Inquiry No.2036) in March. It was decided that results of the Study Group would be proposed to the Land Radio Communications Subcommittee in turn.

GSC IPR-WG

Global Standards Collaboration (GSC) is an unincorporated voluntary organization dedicated to enhancing global cooperation and collaboration regarding communications standards and the related standards development environment.

On 20 April, IPR-WG was held at ETSI headquarters in France. IPR-WG deals with issues related to essential patents associated with standards. About 60 people took part in the meeting. From ARIB, Executive Director, Mr. Yokoo attended the meeting.

At the meeting, each GSC member and patent offices from Japan and Europe made presentations and exchanged opinions. ARIB introduced its activities including overview of the organization, establishment flow of standards, IPR policy and the submission status of essential patents.

Under the changing environment related to IPR, all GSC members shared the recognition that IPR-WG had great meanings as a forum for exchange of views and confirmed continual activities.

Mr. Yokoo at GSC IPR-WG

The 1st Study Group Meeting on Private wireless communication
- Started investigation and research aimed at advancing private wireless communication technology -

Private wireless communications systems are applied for various networks in many fields; public fields such as national and local government, public infrastructure fields such as electric power, gas and railway and general infrastructure fields such as land transportation. In spite of their vital importance as social infrastructure, progress in technology of private wireless communication is slow compared with public wireless communication technology. Therefore, it has been decided that major players in private wireless communication field, governments, manufacturers and users, meet together and investigate technology and user trends in Japan and oversees to improve the system.

The 1st meeting was held on 23 April. In the meeting, Dr. Takeo Fujii, Professor of the University of Electro-Communications, was elected as a chairman and Dr. Kiyotaka Yuiguchi, Professor of Sagami Women's University, was elected as a vice chairman. Presentations from the Ministry of Internal Affairs and Communications, Radio Engineering & Electronics Association, Hitachi Kokusai Electric Inc. and Gifu Prefectural Government had been carried out, followed by opinion exchange.

The study group is to be continued for 3 years with meetings 4 times a year. The next meeting is scheduled in July.

The 1st Study Group Meeting on Private wireless communication

14th CJK IT Standards Meeting

CJK Meeting on Information and Telecommunication Standards started on June 2002 with an initiative of ARIB of Japan, CCSA of China, TTA of Korea, and the TTC of Japan to promote growth of the information and telecommunication fields with the aim to promote actively mutual cooperation among the standards development organization of Japan, China and Korea.

The 14th CJK IT Standards Meeting jointly hosted by ARIB and TTC was held from Monday, 11 May to Wednesday, 13 May 2015 at the Hotel Emisia Sapporo in Sapporo, Japan. The Meeting was attended by 80 participating delegates representing ARIB, CCSA, TTA and TTC. 21 delegates from ARIB led by Dr. Kohei Satoh, Managing Director, participated in this meeting.

The 42nd IMT (International Mobile Telecommunication) WG, the 9th WPT (Wireless Power Transmission/Transfer) WG and other WGs were held in parallel with the 14th Plenary meeting.

In the Plenary meeting, each SDO had exchanged views on each of the business activity and strategy, and shared the recognition of the importance of tight cooperation and coordination.

During this meeting, the electronic conference was held continuously attended by 4 SDOs and the Director-General of the ITU-R / T. The meeting concluded to cooperate on the 5G and M2M / IoT as major discussion items.

The WPT WG had submitted Technical Report-3. It was approved by the plenary meeting and will be input to the SG1 WP1A ITU-R.

Next 15th CJK IT Standards Meeting will be held in the summer of 2016 in Xining, China, hosted by CCSA.

Taking the opportunity of holding the 14th CJK IT Standards Meeting in Japan, ARIB and TTC held the ARIB 20th Anniversary / TTC 30th Anniversary Celebration Party.

All participants renewed our purpose that standard bodies of China, Korea and Japan, core of the Northeast Asia region, should aim to international standardization in close cooperation.

**CCSA: China Communications Standards Association*
**TTA: Telecommunications Technology Association*
**TTC: The Telecommunications Technology Committee*

CJK14 Plenary meeting

Participants of CJK14

Commemorative gift from CCSA
in the Celebration Party

Commemorative gift from TTA
in the Celebration Party

DiBEG got ITU-AJ Award

The 47th Celebration for World Telecommunication and Information Society Day (WTISD) was held by the ITU Association of Japan (ITU-AJ President: Mr. Michiaki Ogasawara) at the Keio Plaza Hotel in Tokyo on 15 May.

The Encouragement Award: International Cooperation Field was conferred to DiBEG at this occasion; and Mr. Toshihide Watanabe, Chairman of DiBEG, reverently received the crystal commemorative plaque.

Achievement in the Award;

Valuable efforts in international diffusion of Japan-developed terrestrial digital broadcasting technology (ISDB-T) now adopted by 16 foreign countries, including support for developing domestic standard in each country which has newly adopted ISDB-T, thus contributing to advancement of broadcasting in each country.

Plaque handed to
DiBEG Chairman Mr.Watanabe
by ITU-AJ President: Mr. Ogasawara

Chairman Mr. Watanabe,
greeting on behalf of
winners

oneM2M Partnership Project TP17 Meeting held in Sapporo, Japan

The 17th Technical Plenary (TP) meeting of oneM2M Partnership Project had been held from 18 to 22 May 2015 in Sapporo, Japan co-hosted by ARIB and TTC (The Telecommunication Technology Committee).

The TP meeting discussed to develop standard. WGs had worked on requirements, architecture, protocol, security and so on for the system.

The main issues of this meeting was to proceed the discussion on requirements of applications and use cases in order to publish release 2 following the first technical specification group (release1) published by oneM2M in January this year. It is planned to freeze target requirements for stage1 at the next 18th TP meeting (20 to 24 July: Philadelphia, United State).

oneM2M Partnership Project TP17 Meeting in Sapporo

Radio Day Memorial Lecture

On 25 May 2015, "Radio Day Memorial Lecture" was held in Tokyo.
The program of the Lecture was as follows.

1 Keynote Speech: "New radio wave usage toward the 2020s and future prospects"
Mr. Yoshihiro Kira, Director-General of the Telecommunications Bureau, Ministry of Internal Affairs and Communications
2 "Evolution of mobile internet and new efforts of Softbank"
Mr. Ken Miyauchi, President & CEO, SoftBank Mobile Corp.

3 "Things that change and things that do not change by Next-generation broadcasting technology - Possibility of pay-TV - "
Mr. Nobuya Wazaki, President, WOWOW INC.

4 " 'safety and security' and 'comfortable and emotion' by the technology cultivated in the Motor Sports - Think wireless technology and car optronics - "
Mr. Takao Tsuji, President & COO, JVC KENWOOD Corporation

In the Lecture, concrete and understandable presentations based on the wealth of data and the views from top of each field had been made. Many people have attended diligently.

Radio day Memorial Lecture

The 5th Annual General Meeting of ARIB

On 16 June 2015, the 5th Annual General Meeting of ARIB was held at the Hotel New Otani, Tokyo.

Business report of the 2014 fiscal year, balance sheet and election of officers and Management Advisory Committee had been discussed and approved or passed without a hitch.

The 5th Annual General Meeting of ARIB

ARIB's 20th anniversary ceremony and the 26th Radio Achievement Award

On 16 June 2015, ARIB's 20th anniversary ceremony and the 26th Radio Achievement Award ceremony were held. This award is presented every year by the Minister of Internal Affairs and Communications and the Chairman of the Board of ARIB to individuals and groups who have made a significant achievement relating to effective and proper radio wave use.

1 The Award of the Minister of Internal Affairs and Communications
(Association of Radio Industries and Businesses 20th anniversary special award)

(1) Contribution to the full transition to the terrestrial digital television broadcasting and the elimination of reception difficulty region
Mr. Akira Ishii, The Association for Promotion of Digital Broadcasting

(2) Contributing to the international standardization of terrestrial radio communication system
Mr. Akira Hashimoto, NTT DOCOMO, INC.

2 The Award of the Minister of Internal Affairs and Communications

(1) Implementation of the 1.5GHz band BS-IF signal interference canceller
Mr. Teruya Fujii, SoftBank Mobile Corp.

(2) Practical use of ultra-high-speed LTE-Advanced system using carrier aggregation technology
Mr. Satoshi Iwao, KDDI CORPORATION

(3) Practical use of VoLTE
Mr. Kazuaki Terunuma, NTT DOCOMO, INC.

3 The Award of the Chairman of the Board of ARIB

(1) Development of synthetic aperture radar and data transmission system for mounting on Advanced Land Observing Satellite No. 2 (Daichi No. 2)
Mr. Shinich Suzuki, Japan Aerospace Exploration Agency
Mr. Kenichi Hariu, Mitsubishi Electric Corporation

(2) Contribution related to research, development and realization of Japan's broadcasting technology
Mr. Toru Kuroda, Japan Broadcasting Corporation

(3) Practical use of eco-remote control working without battery
Mr. Shin Kazuma, TOTO LTD.

(4) Development of logistics pallet management system utilizing active RFID technology
Mr. Masashi Shimizu, Nippon Telegraph and Telephone Corporation
Mr. Yoshiya Sakata, UPR Corporation
Mr. Takumi Watanabe, NTT Electronics Corporation
Mr. Akihiko Taniya, Nagano Japan Radio Co., Ltd.

(5) Development and realization of multi-band radio over fiber (ROF) system
Mr. Akihiro Maehara, NTT DOCOMO, INC.

(6) Research and development of high-resolution synthetic aperture radar for small aircraft
Mr. Takashi Fujimura, NEC Corporation

Commemorative photo with awardees

5GMF to Conduct Integrated Verification Trial for 5G Mobile Communications

The Fifth Generation Mobile Communications Promotion Forum (hereinafter referred to as "5GMF"), at its general assembly on 29 June 2015, decided to conduct an integrated verification trial for the fifth generation mobile communications systems (hereinafter referred to as "5G mobile").
In the integrated verification trial, scheduled to commence in FY2017, comprehensive experiments connecting the radio access, network and applications will be performed toward the goal of commercializing 5G mobile in 2020.

The 5GMF (Chair: Professor Emeritus Susumu Yoshida, Kyoto University) was established in September 2014 through the collaboration among industries, government and academia, to conduct research & development, liaison and coordination with related organizations as well as dissemination and enlightenment activities aimed at the early realization of 5G mobile. Subsequently, four committees were set up within the 5GMF to perform active deliberations. Based on the results of studies undertaken, the General Assembly, at its 2nd session convened on 29 June 29 2015, approved a plan to conduct an integrated verification trial on 5G mobile.

1. Aims of Integrated Verification Trial

To ensure smooth commercialization of 5G mobile in 2020, an integrated verification trial connecting the radio access, network and applications will be launched in 2017. After starting with the evaluation on basic functions in the initial phase, the trial will progress to evaluate 5G services in actual environments so that the views of application developers and users can be reflected in line with the advancement of research and development efforts. For the verification trial, an open environment that allows participation of relevant parties, including enterprises and universities engaged in the R&D activities for 5G around the world, will be created in Japan to accelerate the global R&D and standardization efforts, thereby contributing to the widespread adoption of 5G mobile.

2. Schedule Overview

A schedule overview is provided in Fig. 1. The testing environment will be prepared within FY2017, and the verification trial will commence thereafter. In the initial phase, the primary focus of the evaluations will be placed on the basic functions of radio and network technologies, as well as the basic features centered on the radio/network integration technologies. Utilizing these basic functions, the trial will advance further in FY2019 to start evaluations in actual environments of various applications developed in anticipation of the 2020 Tokyo Olympic/Paralympic Games and a wide range of other 5G applications in new domains.

3. Spectrum to be used for Integrated Verification Trial

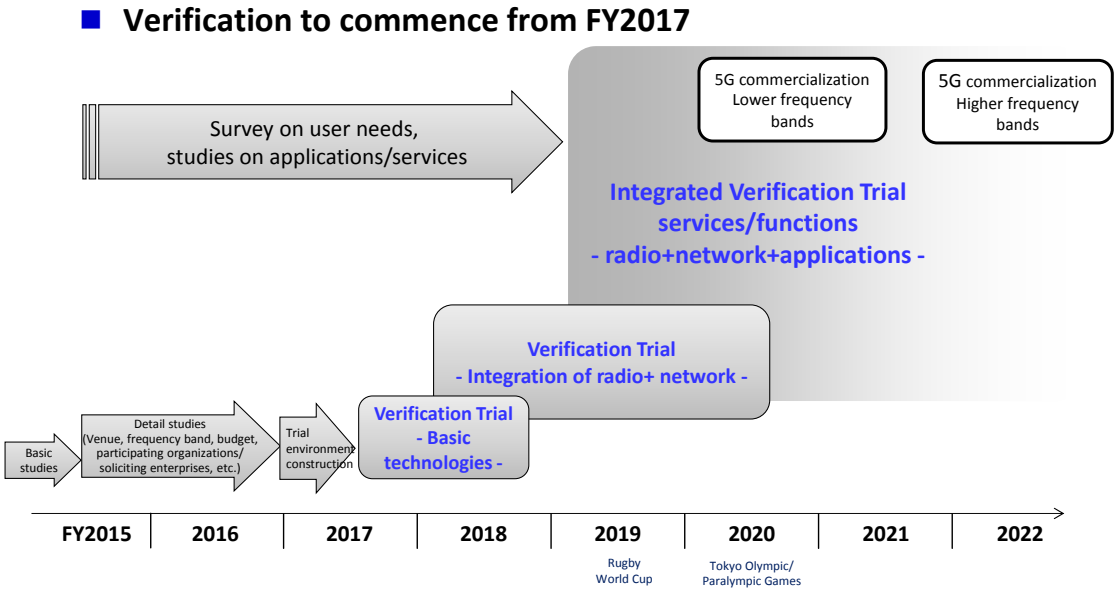
Both the lower frequency bands below 6GHz as well as higher bands such as centimeter and millimeter waves will be included in the scope of the verification trial. The specific frequency bands to be used in the verification will be selected in the course of finalizing the details of the system to be evaluated.

4. Members Participating in the Integrated Verification Trial

The trial will basically be open to participation by any enterprise or organization around the world that agrees to the "Aims of Integrated Verification Trial" stated in Section 1 above. The 5GMF looks forward to having the participation of a broad range of parties, including those engaged in the research and development activities promoted by the Ministry of Internal Affairs and Communications, 5GMF members, and other carriers, vendors or application developers, so that a comprehensive verification trial integrating the radio access, network and applications can be conducted.

5. Venue

The trials are planned to be conducted in Tokyo (in view of the Tokyo Olympic/Paralympic Games) and other local cities. Locations that can produce typical indoor and outdoor environments in an urban setup will be selected in the future as the venue for the trial. For instance, in the case of outdoor tests, vehicular areas, hot spots, open squares will be sought, whereas in the case of indoor testing, locations like shopping malls and offices will be considered.



Monthly seminars on radio wave use

No.130	28 April 2015
Title	Situation after the publishment of "Interim report of the meeting about 4K,8K roadmap"
Speaker	Mr. Suguru Nishimura Deputy Director Broadcasting Technology Division Information and Communications Bureau Ministry of Internal Affairs and Communications
Summary	The seminar covered the explanation of current conditions for the ultra-high definition TV (4K/8K) and the schedule of future institutional preparation.

No.131	26 June 2015
Title	Deployment of information and communication technologies to support the next generation ITS
Speaker	Mr. Shin Morishita Director of ITS Promotion Office, Radio Dept., Telecommunications Bureau, Ministry of Internal Affairs and Communications
Summary	The seminar covered the organization and status of ITS promotion in Japan, overall picture of the "Automated Driving Systems" in "Cross-ministerial Strategic Innovation Promotion Program (SIP)" in Japan and the responsible task of the Ministry of Internal Affairs and Communications.

Standards

UHDTV MULTIFORMAT COLOR BAR
(STD-B66 Ver. 1.0)

This standard specifies the color bar signal corresponding to the ultra-high definition television (UHDTV) video format in order to facilitate the management of the video signal level and achieve a smooth operation of the program production and international program exchange.

English version is not available.

ESSENTIAL PARAMETER VALUES FOR THE EXTENDED IMAGE DYNAMIC RANGE TELEVISION SYSTEM (EIDRTV) (STD-B67 Ver. 1.0)

This standard specifies the system parameters essential for the extended image dynamic range television (EIDRTV) including system colorimetry, signal format and digital representation. The signal format is characterized by opto-electronic transfer function (OETF). For the other system parameters, other television system standards may be referred to.
English version is available.

WIRELESS POWER TRANSMISSION SYSTEMS (STD-T113 Ver.1.0)

This standard specifies the wireless power transmission system that enables quick and easy charging of mobile devices etc by wireless technology.
English version is not available.

Technology

Study for Telecommunication System

Radio utilization system for robots
The second committee was held on 10 December 2014.

From the Ministry of Land, Infrastructure, Transport and Tourism, information about the Aviation Law which was assumed to relate with robots was provided and presentation about the trend of robots in the area of security, agriculture and in foreign nations was conducted.

The third committee was held on 22 January 2015.

From the Ministry of Internal Affairs and Communications, information about the radio wave used by robots was provided and proposal about issues on requested requirements and technical challenges when robots utilized radio wave were conducted.

In addition to the presentation about the concept of area formation in a mobile phone system, result of usage survey to the committee members and related organizations on current and future robots has been reported.

R&D for Telecommunication System

1 Public broadband wireless communication system

The 12th meeting of the R&D Group was held on 28 January 2015.

In the meeting, information about the current status and trends in public broadband mobile communication system was provided by the Ministry of Internal Affairs and Communications. Thereafter, the draft of ARIB STD-T103 revised by the 17th working group on interoperability and synchronization was approved.

This revised draft was approved in Standard Assembly on 17 March 2015.

2 Wireless LAN System

The work on following two subjects has been reported.
(1) To analyze the interference between APs (Access Points) and STAs (Stations) in the dense environment.
(2) To investigate the interference by adjacent channels in 5GHz band.

3 Advanced Wireless Communications Study Committee

Advanced Wireless Communications Study Committee (ADWICS) conducts technical studies on advanced wireless communications systems and international standardization.

(1) Mobile partnership

The 36th meeting had been held on 20 February 2015.

In order to propose to the 94th ARIB Standard Assembly (16 December 2014) and the 95th ARIB Standard Assembly (17 March 2015), drafts of following standards and technical reports had been deliberated by e-mail.

- ARIB STD-T63
- ARIB STD-T64
- ARIB STD-T104
- ARIB TR-T12
- ARIB TR-T13

(2) IMT Standardization

The 12th meeting had been held on 22 December 2014. In the meeting, In addition to

the report of the 20th meeting of ITU-R Working Party 5D (WP5D) (15 - 22 October 2014: Geneva, Switzerland), discussion on action policy and draft of contribution documents to the 21st meeting of WP5D (27 January - 4 February 2015: Auckland, New Zealand) had been carried out.

As a result, 6 drafts of contribution documents had been agreed and had been sent to the Japanese contribution document approval process.

In the Japanese contribution document approval process, these drafts had been approved finally with slight modifications and had been input to the 21th WP5D meeting.

4 Mobile-commerce

The 11th meeting had been held on 25 March 2015 and progress status of the technical expert subcommittee and propulsion expert subcommittee had been reported.

In the technical expert subcommittee, following subjects on promotion and improvement of mobile public key infrastructure (PKI) had been considered.

・Access to e-government, etc. from a mobile phone
・Method for mounting a public personal authentication certificate to a mobile phone

In the propulsion expert subcommittee, following activities had been carried out.

・Development of voucher profile using NFC
・Overseas inspection and NFC related market research
・Held Mobile commerce study group meeting

Study for Broadcasting System

Quality Evaluation Method for Broadcasting

(1) Evaluation Sequence

Revised version of the test image report ITU-R BT.2245 which had been added the information of still images charts (4K / 8K) with ultra-high-resolution and wide-color-gamut was approved.

Towards the provision of reference video image (4K / 8K) for UHDTV, we were discussed in cooperation with the Institute of Image Information and Television Engineers (ITE).

(2) Sound Quality Evaluation

The work on the requirements of the renderer to evaluate sound metadata has been conducted.

R&D for Broadcasting System

1 Digital Broadcasting Systems

Following new and revised standards had been submitted to the Standard Assembly.

①ARIB STD-B25 (Conditional Access System Specifications for Digital Broadcasting) V6.5
②ARIB STD-B32 (Video Coding, Audio Coding and Multiplexing Specifications for Digital Broadcasting) V3.2
③ ARIB STD-B60 (MMT Based Media Transport Scheme in Digital Broadcasting Systems) V1.2
※ MMT : MPEG Media Transport"
④ARIB STD-B61 (Conditional Access System <2nd Generation> and CAS Program Download System Specifications for Digital Broadcasting) V1.1
⑤ARIB STD-B62 (Multimedia Coding Specification for Digital Broadcasting (Second Edition)) V1.1
⑥ARIB STD-B63 (Receiver for Advanced Wide Band Digital Satellite Broadcasting) V11

The Standard Assembly has approved above six Standards.

(1) Multiplexing Technology
Revised draft of ARIB STD-B60 has been discussed.
CAS program download and provisions relating to division transmission of files that make up the application has been modified.

(2) Video Coding Technology
Constraints in the case of encoded the low resolution of the image than the full resolution HDTV with HEVC and operational guidelines have been discussed, and revised ARIB STD-B32 has been drafted.

(3) Audio Coding Technology
STD-B21 and STD-B32 have been drafted to correct of the playback level of mono audio and stereo audio.

(4) Data Coding Technology
ARIB STD-B62 has been drafted to add provision of low-resolution video using HEVC encoding scheme and function of animation.

(5) Data Broadcasting
ARIB STD-B62 has been drafted to add provisions of the local storage function, modification associated with the scrutiny of the API, modification associated with revision of external related standards.
Accumulation control provisions of the data resource have been studied.

(6) Access Control Technology

ARIB STD-B61 has been drafted to add provisions of downloadable CAS corresponding to the MMT / TLV.

(7) Receiver for Digital Broadcasting

ARIB STD-B63 has been drafted to add IF frequency band, first local frequency and RF receive frequency range of left hand circular polarization.

2 Program Production Systems

"R&D Group on Program Production Systems " and " R&D Group on UHDTV Program Production Systems " has been integrated at the end of March 2015.
Also each WG has been merged in the same way.

(1) Video Program Production Systems

Contribution of the Color system conversion and dynamic range of the extended video image that is proposed to ITU-R has been drafted.
Conversion formula from the Recommendation BT.709 to BT.2020 has been in work to develop a standard or a technical report.

(2) Sound Program Production Systems

Measurement of loudness is based on stereo playback. In case of automatic downmix in mono playback equipment, there exists sound level difference. So it has been discussed to find how to correct it.

3 Transmission of Television Program Contribution

As subject of 4K / 8K transmission and bidirectional FPU towards Tokyo Olympic Games 2020, increase of the transmission capacity should be considered. So study will be advanced while watching the trend of the future institutional development.

(1) Terrestrial Radio Transmission of Television Program Contribution

ARIB STD-B65 (Portable 120GHz Band Digital Transmission System for UHDTV Program Contribution) has been drafted.

(2) SNG Transmission System

In response to the European standards of the DVB-S2X in March 2014, the development of standard of the 4K / 8K transmission and further narrow-band transmission using SNG (Satellite News Gathering) system had been studied.
Henceforth revision of ARIB STD-B26 (HDTV Digital SNG Transmission Systems) is planned.