

Newsletter ARIB SEASON



Event

The 5th Study Group Meeting on Private wireless communication

The Study Group on Private wireless communication was established on April 2015 in order to provide a place to investigate technologies and usage trends of the private wireless communication both domestically and internationally, and study the enhancement of Private wireless communication.

On 30 March 2016, the 5th study group meeting was held with more than 80 participants.

In the study group meeting, following presentations had been carried out.

- (1) "Survey study on the technical conditions for use expansion of broadband systems used in the public sector" by Mr. Hideki Baba (Deputy Director of Public safety radio communications office, Ministry of Internal Affairs and Communications)
- (2) "Current situation and future advanced technology of private wireless communication" by Prof. Takeo Fujii (University of Electro-Communications, Chairman of the study group)
- (3) "An economics-like consideration on private wireless communication" by Prof. Kiyotaka Yuguchi (Sagami Women's University, Vice chairman of the study group)

After the presentations, lively free discussion was carried out.



The 5th Study Group Meeting on Private wireless communication

After the discussion, it was decided that the investigations of following three themes should be advanced in the 2016 fiscal year.

- (1) Advancement of private wireless communication system
- (2) Utilization of public network by the private wireless communication users
- (3) Shared use of private wireless communication system

In addition, in order to advance the 3rd theme, it was decided that a new working group would be established to consider a solution for the challenges in the shared use.



Mr. Hideki Baba
Deputy Director of
Public safety radio
communications office, MIC



Prof. Takeo Fujii
University of
Electro-Communications
(Chairman of the study group)



Prof. Kiyotaka Yuguchi
Sagami Women's University
(Vice chairman of the study group)

<p style="text-align: center;">Publication of "Guidance for the safe and secure radio wave use in medical institutions"</p>

Recently in medical institutions, utilization of devices using radio waves, such as wireless LAN routers, mobile phones, and so on, is advancing. In addition, people who use hospitals, such as patients or visitors, also have growing demand for using cellular phones and the like in hospitals.

On the other hand, in the case of absence from proper radio wave management, there is a possibility that troubles affecting medical devices will occur.

Therefore, in September 2015, "Telecommunications Promotion Committee in medical institutions" was set up in the Electromagnetic Compatibility Conference Japan (EMCC), which secretariat is served by ARIB.

In the Committee, in order to promote proper use of radio waves in the medical institutions, academic experts, related organizations, medical equipment manufacturers,

medical equipment dealers, construction companies, telecom operators, related ministries ("Ministry of Internal Affairs and communications (MIC)", "Ministry of health, Labour and welfare") etc. had participated.

On the basis of the study results in the Committee, "Guidance for the safe and secure radio wave use in medical institutions" and "2015 annual report of Telecommunications Promotion Committee in medical institutions" had been compiled and published on 4 April 2016.

In addition, MIC Minister Sanae Takaichi was invited to the 7th Committee held on the same day, and received an explanation of the documents. Minister Sanae Takaichi gave a word of thanks to this initiative and requested the Committee to make public relations and continue the activities.



**Report given to MIC Minister Sanae Takaichi
from Prof. Takashi Kano (chairman of the Committee)**

Overview of 5G-related events in Malaysia

On 5 and 6 April 2016, "Workshop on 5G" and related events were held co-hosted by the Malaysia Technical Standards Forum Bhd (MTSFB) and ARIB; and supported by the Ministry of Internal Affairs and communications (MIC), the Fifth Generation Mobile Communications Promotion Forum (5GMF) and Malaysia communication multimedia Commission (MCMC).

At the Workshop held on 6 April, about 150 people from Malaysia and 7 people from Japan had participated.

[Participating organizations and main participants from Malaysia]

- Malaysian Technical Standards Forum Bhd (MTSFB)
 - Mr. Ismail Osman (Chairman of Board)
 - Mr. Hamzah Burok (General Manager)
 - Mr. Khairul Akmal Zahri (Chairman of IMT working group)
 - Prof. Tharek Rahman (Chairman of 5G sub working group)
- Government, carriers, manufacturers, universities, research institutes and so on

[Main participants from Japan]

Mr. Fumitake Takahashi (Deputy Director of the Land Mobile Communications Division, MIC)

Mr. Takaharu Nakamura (Acting Chairman of Technical Committee of 5GMF [Fujitsu])

Dr. Kentaro Ishizu (Research Manager of Smart Wireless Laboratory, NICT)

Mr. Yasushi Iwane (Vice Chairman of Strategy and Service Subcommittee of 5GMF [Mitsubishi Electric])

Dr. Yoshikazu Kakura [NEC]

Dr. Kohei Sato (Secretary General of 5GMF [Executive Manager on Standardization of ARIB])



Participants of the workshop

The workshop was positioned as the kick-off event to start the research and development of Malaysia's 5G system. Following the keynote speech by representative of each host and support organization, MoU (Memorandum of Understanding) between ARIB and MTSFB, and MoC (Memorandum of Cooperation) between 5GMF and IMT-2020 5G Malaysia (sub working group under IMT working group of MTSFB) were signed.

In addition, on 5 April, on the assumption that MoU would be signed in the next day, the meeting between 5GMF and IMT-2020 5G Malaysia had been held to exchange views on how to proceed with cooperation in the future.



MoU between ARIB and MTSFB

Meeting with Brazilian SBTVD Forum Held in Las Vegas

DiBEG (Digital Broadcasting Experts Group) has been promoting ISDB-T internationally, by providing information or extending technical assistance and cooperation on ISDB-T to those countries in need of such services. In the meantime in Brazil, where they adopted ISDB-T first outside Japan, the Forum of SBTVD (Sistema Brasileiro de Televisão Digital) has been active as the entity of Brazilian domestic standardization of ISDB-T. And ARIB/DiBEG and SBTVD Forum have been collaborating in the promotional activities of ISDB-T in the Latin American countries.

This time, taking the opportunity of the NAB Show 2016 in Las Vegas, the first regular meeting was held on 19 April 2016 at the Las Vegas Convention Center between ARIB/DiBEG and SBTVD Forum to exchange views and opinions for further solidifying mutual cooperation. While ARIB/DiBEG was represented by Dr. M. Sugawara, Chairman of DiBEG, Mr. K. Murayama, Chairman of DiBEG Task Force for Japan-Brazil Collaboration for Next Generation Broadcasting, and Mr. Y. Homma, Vice Director General, R&D Headquarters of ARIB, SBTVD Forum was represented by Mr. Roberto Franco, President of the Forum, Mr. David Britto, Coordinator, Mr. Olimpio Franco, President of SET (Sociedade Brasileira de Engenharia de Televisão), Mr. Fernando Bittencourt, Vice President of SET, etc.

At the meeting they discussed topics and challenges to be newly tackled by both parties from now on, and agreed to renew the joint documents which compile the differences between the Japanese and Brazilian ISDB-T standards.

Also at this occasion Japan proposed to include the EWBS (Emergency Warning Broadcast System)-related specifications into the Brazilian domestic standards in order to promote EWBS toward the Latin American ISDB-T adopting countries. Brazil explained that they are studying the advancement of ISDB-T to have HDR (High Dynamic Range) as one of the next generation TV broadcasting technologies.

Both parties further agreed to hold this meeting regularly from now onward, roughly once every 6 months; and confirmed to coordinate the agenda and the timing of the next meeting in their mutual communications.



Meeting between ARIB/DiBEG and SBTVD Forum

The 20th Global Standards Collaboration (GSC-20) meeting

Global Standards Collaboration (GSC) meeting has been held once a year in order to exchange information about the standardization activities related to ICT among the representatives and experts of the telecommunication standardization institutions around the world, avoid duplication of consideration by the SDOs (Standards Development Organizations) and examine the strategy of cooperation and collaboration between the SDOs to promote the global standardization.

The 20th GSC meeting was held on April 2016, hosted by TSDSI. The outline of this meeting was as follows.

Period	From 26 to 27, April 2016
Place	India Habitat Centre (New Delhi, India)
Participating Organizations	12 GSC member organizations (※1) 11 Guest organizations (※2)
Participants	92 participants from GSC member organizations (6 participants from ARIB) 12 participants from Guest organizations



The 20th GSC meeting

In the meeting, the latest status report (priorities, strategic initiatives, etc.) of each SDO and the report of each task force were made. From ARIB, Dr. Kohei Satoh (Executive Manager on Standardization) carried out the reports of the latest status and the GSC Emergency Communications Task Force Group activities. In the report, it was emphasized that the priority issues in ARIB were 5G, UHD TV&HDR and ITS.

After that, about the four strategic topics (IoT, 5G, SMB (Small and Medium-sized Business) and Security & Privacy) that had been selected prior to the meeting, the presentation was carried out by each GSC member; and the discussion was continued in the form of group discussion.

In the 5G session, taking into account the fact that the integration of heterogeneous wireless / wired networks in the control / management plane was becoming increasingly important with the development of 5G, lively discussion about the possibility of evolution on the standard and technology of IoT in the 5G framework and the influence of the 5G on the developing countries was carried out.

From ARIB, Mr. Takaharu Nakamura, acting chairman of the Technical Committee, the Fifth Generation Mobile Communications Promotion Forum (5GMF) [Fujitsu] was on stage as a presenter and panelist.

The communique as an outcome of the meeting was created and published.



Mr. Takaharu Nakamura

Acting chairman of the Technical Committee, 5GMF
(Fujitsu)

The next 21st meeting is scheduled to be held in Vienna, Austria in September 2017 hosted by IEEE-SA.

※1 : GSC member organizations

ARIB	(Association of Radio Industries and Businesses)	Japan
ATIS	(Alliance for Telecommunications Industry Solutions)	USA
CCSA	(China Communication Standards Association)	China
ETSI	(European Telecommunications Standards Institute)	Europe
IEEE-SA	(IEEE- Standards Association)	-
IEC	(The International Electrotechnical Commission)	-
ISO	(International Organization for Standardization)	-
ITU	(International Telecommunication Union)	-
TIA	(Telecommunications Industry Association)	USA
TSDSI	(Telecom Standards Development Society, India)	India
TTA	(Telecommunications Technology Association)	South Korea
TTC	(The Telecommunication Technology Committee)	Japan

※2 : Guest organizations

Bharti Airtel	
DeitY	(Department of Electronics and Information Technology)
DoT	(Department of Technology)
EU-EEAS	(European Union - European External Action Service)
GCF	(Global Certification Forum)
IIT	(Indraprastha Institute of Information Technology)
Saankhya	
Labs	
Tata	
Teleservices	
TCCA	(TETRA and Critical Communications Association)
TCS	(Tata Consultancy Services)
TRAI	(Telecom Regulatory Authority of India)

The 44th CJK IMT Working Group Meeting

CJK IMT Working Group Meeting is aiming to exchange information and views about the activities of international IMT standardizations in ITU-R, APT, 3GPPs, and so on, among members of SDOs in China, Japan and South Korea.

On 16 and 17 May 2016, the 45th CJK IMT Working Group Meeting was held in Hirosaki, Aomori prefecture, Japan. 10 people from ARIB, 10 people from CCSA (China) and 11 people from TTA (South Korea) had participated in the Meeting..

CCSA : China Communications Standards Association

TTA : Telecommunications Technology Association

In the Meeting, following actions were carried out.

- (1) Confirmed the results on the 23rd ITU-R SG5 Working Party 5D (WP 5D) held in February to March 2016 and the 19th APT Wireless Group (AWG) held in February 2016.
- (2) Shared the information about the status of preparation towards the 24th WP5D meeting
- (3) Determined the joint work towards the submission of Contributions in the 24th WP5D meeting
- (4) Discussed the way to facilitate the operation of three Special Interest Group (SIG-Spectrum, SIG-Requirements and SIG-Evaluation)



The 44th CJK IMT Working Group Meeting

The next CJK IMT Working Group Meeting was scheduled on 2 and 3 August 2016 in Xining, China.

ARIB officials awarded from ITU Association of Japan

On 17 May 2016, the 48th Celebration of World Telecommunication and Information Society Day (WTISD) was held at the Keio Plaza Hotel in Tokyo organized by the ITU Association of Japan (ITU-AJ), under the auspices of Ministry of Internal Affairs and Communications (MIC), ARIB and TTC.

At the celebration, following awards were presented to those who had achieved the feat in the international standardization and cooperation areas.

(1) MIC Minister's Award

(2) ITU-AJ Award

- Special Achievement Award
- Distinguished Service Award
- ICT Field Accomplishment Award
- International Cooperation Field Accomplishment Award
- Encouragement Award: ICT Field
- Encouragement Award: International Cooperation Field

The MIC Minister's Award was presented to Mr. Akira Hashimoto (NTT DOCOMO, INC) by Mr. Shimpei Matsushita (State Minister for Internal Affairs and Communications of MIC). The ITU-AJ Awards were presented to 41 persons and 3 groups by Mr. Michiaki Ogasawara (President of the ITU-AJ).



Commemorative photo at the Celebration

With regard to the ARIB officials, following people were awarded.

ICT Field Accomplishment Award

Yoshinori Ohmura

KDDI Corporation

Association of Radio Industries and Businesses

Research & Development Headquarters

From 2011 participated as member of Japanese delegation in ITU-R SG5 and SG5 WP5A, contributed to facilitation of recommendation and its revision relating to mainly Japan proposed system related issues in broadband WLAN, etc., and to technology surveys in sharing studies, etc. In addition, participated in management of 3GPP2 in official role and contributed to implementation of suitable reform measures taking account of environmental change.



International Cooperation Field Accomplishment Award

Yoshiki Maruyama

Association of Radio Industries and Businesses

(DiBEG)

As JICA expert in Chile which adopted Japanese system, contributed greatly to the spread of digital broadcasting in the country by providing assistance for launching terrestrial digital broadcasting and formulating master plan. In addition, his technical assistance in other countries adopting the Japanese system or considering adopting it made significant contributions to Japan's international cooperation activities as an ARIB/DiBEG Advisor.



Encouragement Award: International Cooperation Field

Task Force for New ISDB-T Countries

Association of Radio Industries and Businesses

(DiBEG)

From viewpoint of furthering international diffusion of terrestrial digital broadcasting standard developed by Japan, in response to countries in Asian and African regions which have newly decided to adopt ISDB-T, by means of holding technology seminars and supporting development of technical standards for transmitters and receivers, etc., contributed to development of each country's broadcasting field.



Nobuyuki Sato

Japan Broadcasting Corporation
Planning Division, Engineering Administration Department
(DiBEG)

Greatly contributed to the deployment of ISDB-T in Uruguay by providing professional support for channel planning and technical guidance for field measurements, as along with giving lecture at university to educate future local experts.



Junji Matsuoka

Japan Broadcasting Corporation
Technical & Engineering Division, Sapporo Station
(DiBEG)

Greatly contributed to the adaption of ISDB-T in Botswana, as the first case in Africa, by carrying out promotional activities at Southern African Development Community (SADC) forum and Southern African Broadcasting Association (SABA) assembly to encourage ISDB-T to be chosen.



Radio Day Memorial Lecture

On 25 May 2016, "Radio Day Memorial Lecture" was held in Tokyo. This event was co-organized by ARIB and the Council for Info-Communications Promotion Month, and supported by the Ministry of Internal Affairs and Communications (MIC).



Radio Day Memorial Lecture

Main theme of the Lecture was "Current state and future prospects of radio wave usage".
The program of the Lecture was as follows.

 <p>Keynote Speech: "New radio wave usage toward the 2020s and future prospects"</p> <p>Mr. Toru Fukuoka Director-General of the Telecommunications Bureau, MIC</p>	 <p>"Advent of IoT and 5G network"</p> <p>Mr. Kaoru Kato President & CEO, NTT DOCOMO INC.</p>
 <p>"Efforts to the advancement of broadcast - 4K, HDR, smart TV - "</p> <p>Mr. Shinji Takada Representative Director, President & CEO, SKY Perfect JSAT Corporation</p>	 <p>"Applications in 5G mobile network era"</p> <p>Mr. Gota Iwanami President, INFOCITY, Inc.</p>

In the Lecture, concrete and understandable presentations were carried out based on the wealth of data and the views from top of the each field. Many people attended diligently.

The 1st meeting of the ITU-R TG5/1

From 23 to 24 May 2016, the 1st meeting of the ITU-R TG5/1 was held at the ITU headquarters (Geneva, Switzerland).

At the World Radiocommunication Conference to be held in 2019 (WRC-19), frequency allocation issue of 24.25-86GHz band for the 5G system has been determined as an agenda. So, the TG5/1 had been established in May 2016 under the ITU-R SG5 (terrestrial services) as a group to study the way for coexistence and frequency sharing of wireless systems in this band.

In the meeting, over 170 people had participated from governments, private organizations and international organizations. As the Japanese delegation, 8 people, including Mr. Yasuhiro Kato from the Land Mobile Communications Group of ARIB, headed by Mr. Tomoyuki Ohmura (Chief of Land Mobile Communications Division, MIC) had participated.

The main themes of discussion were organizational structure and schedule for future activities, and following items were discussed or determined at the meeting.

(1) Organizational structure for study

Established the documentation working group and sharing study working group for each 3 frequency bands (30GHz band, 40/50GHz band, 70/80GHz band) towards the 2nd Conference Preparatory Meeting for WRC-19 (CPM19-2), and elected the chairman of each working group.

(2) Creation of liaison documents to other Research Committee

Created the liaison documents to other Research Committee (WP5D, etc.) to request the input of information to this meeting.

(3) Future work plan

Decided the 2nd meeting to be held After April 2017 in consideration of the information input date from other research committees, and to have the several meetings by the first half of 2018.

5GMF seminar in WIRELESS TECHNOLOGY PARK 2016

From 25 to 27 May 2016, WIRELESS TECHNOLOGY PARK (WTP) 2016 was held at the Tokyo Big Sight. This event is one of the Japan's largest events in the field of wireless technologies. The latest wireless technologies of 5G, automated driving, positioning and position information, next generation wireless LAN, wireless power transmission, millimeter-wave / terahertz waves etc. were exhibited all at once.

As the main theme of this year, "World leading wireless technologies toward 2020" was set. The latest trend of fifth-generation mobile communication system (5G) was introduced in the "5G Tokyo Bay Summit^(TM) 2016" which was held as a professional event in WTP2016, and many indispensable wireless technologies to realize IoT were also introduced.

The Fifth Generation Mobile Communications Promotion Forum (5GMF) held a seminar in the "5G Tokyo Bay Summit^(TM) 2016" in order to introduce and disseminate the "White Paper" in which the results of recent study had been summarized.



5GMF seminar at WTP2016

At the seminar titled "5GMF activity report seminar ~ explanation of 5GMF White Paper and prospect of 5G system utilization ~", overview, appeal point and utilization of the white paper, prospects for wireless network technologies and application services in 5G, etc. were explained by Mr. Takehiro Nakamura (Acting Chairman of Strategy & Planning Committee, 5GMF), Mr. Takaharu Nakamura (Acting Chairman of Technical Committee, 5GMF), Dr. Yoshiaki Sato (Chief examiner of Application platform WG, Service &

Application Committee, 5GMF) and Dr. Takashi Shimizu (Vice Chairman of Strategy Subcommittee, Network Architecture Committee, 5GMF).

In the panel discussion, Mr. Eiji Kito (Vice Chairman of Strategy and Service Subcommittee, Technical Committee, 5GMF) attended as a moderator and four lecturers attended as panelists, and the discussion under the theme of "prospects and challenges related to the utilization of the future mobile communication" was carried out. 300 seats of the venue were almost fully occupied with the audiences.



Mr. Takehiro Nakamura

Acting Chairman of
Strategy & Planning
Committee, 5GMF

(NTT DOCOMO)



Dr. Yoshiaki Sato

Chief examiner of
Application platform WG,
Service & Application
Committee, 5GMF

(NTT)



Mr. Takaharu Nakamura

Acting chairman of the
Technical Committee,
5GMF

(Fujitsu)



Dr. Takashi Shimizu

Vice Chairman of Strategy
Subcommittee, Network
Architecture Committee,
5GMF

(NTT)



Panel discussion



Mr. Eiji Kito as the moderator

Vice Chairman of Strategy and Service
Subcommittee, Technical Committee,
5GMF
(NEC)

5G-related event in Beijing, China

From 31 May to 1 June 2016, "The 1st Global 5G Event" was held in Beijing, China. "Global 5G Event" is planned to be held twice a year co-organized by the following world's 5G related organizations.

- 5G PPP (Europe)
- IMT-2020(5G) Promotion Group (China)
- The Fifth Generation Mobile Communications Promotion Forum (5GMF) (Japan)
- 5G Forum (South Korea)
- 5G Americas (USA)

The 1st event was hosted by the IMT-2020 (5G) Promotion Group, and presentations and panel discussions on the theme of "Building 5G Technology Ecosystem" were carried out.

In the two-day event, about 500 experts from governments, network operators, manufacturers, universities and research institutes had participated. Recent research and development achievements on 5G technologies, standardizations, frequency allocations, demonstration experiments, applications etc. had been reported, and the lively discussion had been carried out.



The 1st Global 5G Event

At the beginning of the event, Minister Miao Wei of Ministry of Industry and Information Technology (MIIT) gave the opening speech. In this event, many local media also participated and the outlines of the event were broadcasted on TV news.

From Japan, Mr. Yuji Nakamura (Director of New-Generation Mobile Communications Office, Land Mobile Communications Division, Ministry of Internal Affairs and Communications) gave the greeting as a government representative, Prof. Emeritus Susumu Yoshida (5GMF chair, Kyoto Univ.) gave the keynote speech and Mr. Takehiro Nakamura (Acting Chairman of Strategy & Planning Committee of 5GMF, NTT DOCOMO) carried out the presentation titled "5G Deployment in 2020 and beyond". In addition, Dr. Kohei Satoh (Secretary General of 5GMF and Executive Manager on Standardization of ARIB) joined as a moderator of the panel discussion and a session of the 5G network and operation.

On 2 June, the Memorandum of Understanding for the purpose of carrying out the research and development, exchange of information and opinions concerning standardization etc. was signed between 5GMF and IMT-2020 (5G) Promotion Group.



**Memorandum of Understanding
signed by Susumu Yoshida (5GMF chair) and CAO Shumin (IMT-2020(5G) PG chair)**

**ARIB related organization awarded
in the Central Memorial Ceremony of
“Radio Day and Info-Communications Promotion Month”**

In commemoration of the 66th Radio Day (1 June 2016) and the fiscal 2016 Info-Communications Promotion Month (15 May to 15 June), individuals and organizations that had contributed to the development of information and communications were given awards in the Central Memorial Ceremony held on 1 June at Imperial Hotel, Tokyo.

In the Ceremony, ARIB related organization was given the Minister of Internal Affairs and Communications “Radio Day” award.

Achievements of the organization are as follows.

Name of Organization	Telecommunications Promotion Committee in medical institutions, Electromagnetic Compatibility Conference Japan (Chairman : Prof. Takashi Kano)
Overview of Achievement	To promote proper radio use in medical institutions, conducted the studies on the way of radio wave environment improvement and radio wave management system enhancement by experts, related companies, related organizations and relevant ministries, and summarized the reports and guidance in April 2016. By means of these activities, made a great contribution to the radio use in the medical field.

※ There were three other individuals given the Minister of Internal Affairs and Communications “Radio Wave Day” award.



Testimonial given by the Minister of MIC

The 6th Annual General Meeting of ARIB

On 27 June 2016, the 6th Annual General Meeting of ARIB was held at the Hotel New Otani, Tokyo.

Business report of the 2015 fiscal year, balance sheet and election of officers and Management Advisory Committee had been discussed and approved or passed without a hitch.



The 6th Annual General Meeting of ARIB

The 27th Radio Achievement Award

On 27 June 2016, after the 6th Annual General Meeting of ARIB, the 26th Radio Achievement Award ceremony was held at the same place. 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 use of radio wave.

This year's winners are as follows.

1 The Award of the Minister of Internal Affairs and Communications

- (1) Practical application of the sophisticated base station (sophisticated C-RAN equipment) to realize the effective LTE-Advanced deployment
Mr. Akihiro Maebara, SoftBank, NTT DOCOMO, INC.
- (2) The world's first 4x4MIMO WiMAX R2.1AE nationwide service deployment
Mr. Toshikazu Yokai, UQ Communications Inc.
Mr. Hiroyuki Tsutsumi, SAMSUNG Japan
Mr. Toru Nozaki, Ericsson Japan
Mr. Takemi Hosaka, NEC Platforms, Ltd.
Mr. Kyeongho Lee, GCT Semiconductor, Inc.

- (3) Practical application of shared receiving system for right-hand and left-hand circularly polarized wave on 12GHz band satellite broadcasting
Mr. Masafumi Nagasaka, Japan Broadcasting Corporation

2 The Award of the Chairman of the Board of ARIB

- (1) Development of mobile ICT unit to enable the immediate provision of ICT environment at the time of large-scale disasters
Mr. Yoshitaka Shimizu, Nippon Telegraph and Telephone Corporation
Prof. Nei KATO, Tohoku University
Mr. Kouji Eguchi, Fujitsu Limited
Mr. Shinichi Yamaguchi, NTT Communications Corporation
- (2) Development and practical application of LTE / LTE-Advanced / W-CDMA corresponding temporary radio relay system using a captive balloon in the time of a disaster
Dr. Teruya Fujii, SoftBank Corp.
- (3) The development of the 1.2GHz / 2.3GHz band receiving antenna
Mr. Ryota Aoki, Fuji Television Network, Inc.
- (4) Development of the 150MHz band GPS marker for hound
Mr. Masataka Yasukawa, FURUNO ELECTRIC CO., LTD
- (5) Development of voice quality improvement technology in digital communication radio
Mr. Tetsuo Makino, Nippon Television Network Corporation
Mr. Masaru Fujieda, Oki Electric Industry Co., Ltd
Mr. Hiroto Watarikawa, JVC KENWOOD Corporation
- (6) Development and practical application of the 70 / 80 GHz band high-speed wireless transmission system with excellent frequency utilization efficiency ~ commercialization of the iPASOLINK EX
Mr. Naoki Yakuwa, NEC Corporation



Commemorative photo with winners

Monthly seminars on radio wave use

No.139	26 April 2016
Title	Contribution to the Japan's ITU-R activities and future prospects
Speaker	Dr. Akira Hashimoto Counselor of standardization, Network Department, NTT DOCOMO Inc. Former chairman of ITU-R SG5
Summary	The seminar covered the introduction of the whole picture of Dr. Hashimoto's activities and Japanese contributions in ITU-R. In addition, in order to achieve continuous development of Japanese radio industry in the world, how to contribute as Japan was described.
No.140	20 May 2016
Title	Activity report of the Fifth Generation Mobile Communications Promotion Forum (5GMF) - Explanation of the White Paper -
Speaker	Mr. Takehiro Nakamura Acting Chairman of Strategy & Planning Committee, 5GMF (NTT DOCOMO) Mr. Akira Matsunaga Acting Chairman of Technical Committee, 5GMF (KDDI) Dr. Yoshiaki Sato Chief examiner of Application platform WG, Service & Application Committee, 5GMF (NTT) Dr. Takashi Shimizu Vice Chairman of Strategy Subcommittee, Network Architecture Committee, 5GMF (NTT)
Summary	The seminar covered the following subjects. <ul style="list-style-type: none"> • Overview and appeal point of the White Paper • Utilization development of the White Paper • Prospects of wireless network technology and application services in 5G
No.141	28 June 2016
Title	Trends in international cooperation and standardization of wireless power transmission technology
Speaker	Dr. Hiroki Shoki Leader of Wireless Power Transmission Working Group, Broadband Wireless Forum (TOSHIBA)
Summary	The seminar covered the latest trends in international cooperation and standardization of wireless power transmission technology

Study for Telecommunication System

1. Radio utilization system for robots

Study Group on Radio utilization system for robots was established in November 2014 in order to grasp a wireless communication needs for robots, consider technical conditions of telecommunication system and possibility of frequency sharing with other systems and summarize the measures assisting smooth introduction of robots in various fields based on the current status and utilization trend of disaster and industrial robots.

The results of the Study Group had been reflected in the deliberations of the Information and Communications Council of MIC and contributed to the creation of the Report Statement. In addition, investigation about the mechanism for operational arrangement had been carried out additionally and summarized in the report.

In this way, the Study Group had been able to carry out the initial purpose, so it had been decided to end the activities as scheduled at the start time.

2. Private Wireless Communication

Study Group on Private Wireless Communication was established in April 2015 in order to provide major players in private wireless communication field (governments, manufacturers and users) with a place of gathering, investigate technologies and user trends in Japan and overseas and consider the advancement of private wireless communication system.

On 24 December 2015, the 4th study group meeting was held under the theme of "trend of future technology to the challenge of private wireless communication".

The explanation about the functional advancement of private wireless communication system, overseas trend and standardization trend had been carried out by MIC, Foundation of MultiMedia Communications, Regional WiMAX Promotion Association, NEC and Motorola Solutions; and lively exchange of opinions about the background, challenge at the time of the operation and problems had been carried out.

The 5th and 6th study group meetings were held on 30 March and 23 June 2016. Outline of the 5th meeting is described in the "Event" section of this Newsletter.

This Study Group will be held in the next two years until March 2018.

R&D for Telecommunication System

1. Wireless LAN System

Wireless LAN System Development Group is aiming to conduct research and development for reliability improvement, sophistication of wireless LAN system and standardization.

The 24th meeting was held on 18 February 2016. The progresses of the study on "Investigation of the interference by adjacent channels in 5GHz band" and "Up Link traffic surge in Station overcrowded deployment environment" were reported from each ad hoc Gr. Study and analysis of the way for survey and measurement will be continued.

In addition, in this meeting, the activities of the fiscal 2015 were summarized and the plan of the fiscal 2016 was discussed.

2. Advanced Wireless Communications Study Committee

The Advanced Wireless Communications Study Committee (ADWICS) was established in ARIB on 1 April 2006. Cooperating with other related international/domestic bodies, the Committee conducts technical studies on Advanced Wireless Communications Systems and contributes to their international standardization in the following four subcommittees and one AdHoc.

- Mobile Partnership Subcommittee
- Standardization Subcommittee
- Broadband Wireless Access Subcommittee
- Mobile Commerce Subcommittee
- 2020 and Beyond AdHoc

(1) Mobile partnership subcommittee

The scope of Mobile Partnership Subcommittee is as follows:

- Operation of 3GPPs and oneM2M as one of Organizational Partners
- Subcommittee members' activities support and information exchange in 3GPPs and oneM2M
- Consideration and handling of ARIB contribution to 3GPPs and oneM2M on national regulatory requirements aspects
- Downstream activities of the specification developed by 3GPPs and oneM2M for ARIB Standard

The 39th meeting had been held on 12 February 2016 and the fiscal 2016 budget plan had been discussed.

In order to propose to the 99th ARIB Standard Assembly (25 March 2016), drafts of following standards and technical reports had been deliberated by e-mail.

- ARIB STD-T63
- ARIB STD-T104

• ARIB TR-T12

In addition, the issue related to the change of 3GPP Working Procedures had been deliberated by e-mail.

(2) Standardization Subcommittee

This Subcommittee conducts technical study on IMT-Advanced and Future IMT service, and promotes its standardization through the contributions to ITU and other activities.

The 15th meeting of the subcommittee was held 29 January 2016. In the meeting, action policy and draft contributions for the 23rd meeting of the ITU-R Working Party 5D (WP5D) (from 23 February to 2 March 2016: Beijing, China) were discussed.

As a result, it was agreed to send 12 draft contribution documents to the Japanese approval process. These draft contribution documents were approved with slight modifications and were submitted to the 23rd WP5D meeting.

In these contribution documents, 3 were joint with South Korea and 2 were joint with China and South Korea.

(3) Broadband Wireless Access Subcommittee

This Subcommittee conducts technical studies on Broadband Wireless Access and promotes its standardization.

In order to perform a detailed study for each theme, following four Working Group are installed under the Broadband Wireless Access Subcommittee.

- International Relations Working Group
- WiMAX Working Group
- 802.20 Working Group
- XGP Working Group

The 15th meeting was held on 17 March 2016 and revise plan of the following ARIB standards were reported.

- ARIB STD-T94 (by WiMAX Working Group, scheduled in December 2016)
- ARIB STD-T95 (by XGP Working Group)

(4) Mobile-Commerce Subcommittee

This Subcommittee conducts technical studies on Mobile Commerce and promotes its standardization. In this Subcommittee, technical expert committee and propulsion expert committee have been set up.

The 55th and 56th technical expert committee meetings were held on 20 January and 15 February 2016. During the technical expert committee, the following subjects on

promotion and improvement of mobile public key infrastructure (PKI) were discussed.

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

The propulsion expert committee carries out the following activities:

- Development of voucher profile using NFC
- Overseas inspection and NFC related market research
- Held study group meeting on mobile commerce

The 10th propulsion expert committee was held on 12 January 2016. Overseas and domestic circumstances of settlement services were reported.

Study for Broadcasting System

1 Quality Evaluation Method for Broadcasting

The Study Group on Quality Evaluation Method for Broadcasting was closed at the end of March, 2016, and the Evaluation Sequence WG and the Sound Quality Evaluation WG have been transferred to the R&D Group on Program Production Systems.

(1) Evaluation Sequence

With a view to providing reference video image (4K/8K) for UHDTV, the issues were discussed in cooperation with the Institute of Image Information and Television Engineers (ITE). As a first step, a suitable material as UHDTV standard video image was selected from the existing full resolution 8K material, and distributed them from 25 January, 2016. And as a second stage, shooting of the new video image accordance with the intended use of the standard video image was finished and sequence is being selected and edited.

(2) Sound Quality Evaluation

Regarding the evaluation method of multi-channel audio system, the measurement results of the directivity of loudspeakers consisting of multiple units was discussed. Hereafter, directional characteristics will consider what effect on the subjective evaluation results.

For the creation of standard evaluation sound source of the multi-channel sound system that was approached of collaboration from ITE, the possibility of production was studied. Requested the cooperation to the Sound Program Production Systems WG in the R&D Group on Program Production Systems, requirements of the sound source to evaluate the quality of digital audio systems are being studied.

A report that summarizes the direction and the measurement error of the reference microphone in indoor acoustic measurement was submitted as Japanese contribution to the ITU-R WP6C meeting held on January, 2016, and the working document was created. For the next October meeting, Multiple Stimulus Ideal Profile Method (MS-IPM), evaluation term and loudness-related issues are being discussed.

R&D for Broadcasting System

1 Digital Broadcasting Systems

Following 7 revised ARIB standards were deliberated and approved by the 99th Standard Assembly.

- ①ARIB STD-B10 (Service Information for Digital Broadcasting System) V5.8
- ②ARIB STD-B21 (Receiver for Digital Broadcasting) V5.8
- ③ARIB STD-B32 (Video Coding, Audio Coding and Multiplexing Specifications for Digital Broadcasting) V3.6
- ④ARIB STD-B44 (Transmission System for Advanced Wide Band Digital Satellite Broadcasting)V2.1
- ⑤ARIB STD-B60 (MMT Based Media Transport Scheme in Digital Broadcasting Systems) V1.6
- ⑥ARIB STD-B62 (Multimedia Coding Specification for Digital Broadcasting [Second Edition]) V1.4
- ⑦ARIB STD-B63 (Receiver for Advanced Wide Band Digital Satellite Broadcasting) V1.5

(1) Multiplexing Technology

Draft revision of ARIB STD-B10 (Service Information for Digital Broadcasting System) V5.8 and ARIB STD-B60 (MMT Based Media Transport Scheme in Digital Broadcasting Systems) V1.6 were created.

The addition of supplementary explanation was applied for the ARIB STD-B10, and the addition of descriptors of application control and supplementary explanation was applied for the ARIB STD-B60.

(2) Video Coding Technology

For introducing a high-dynamic-range television (HDR-TV) to the ultra-high-definition television (UHDTV) broadcasting, conducted a study of appearance such as in the case where the display at the required bit rate and the conventional standard-dynamic-range television (SDR-TV). In addition, the operational guidelines consider the case of broadcasting while switching the HDR-TV

program and the SDR-TV program, draft revision of ARIB STD-B32 (Video Coding, Audio Coding and Multiplexing Specifications for Digital Broadcasting) V3.6 was summarized.

(3) Data Coding Technology

The revision of the character repertoire definition and the re-assignment of the private use area in the ARIB STD-B62 (Multimedia Coding Specification for Digital Broadcasting [Second Edition]), were deliberated. Also correction of clerical errors in assignment of Chinese characters to the Private Use Area (PUA) and the duplication part of the additional symbol set in the ARIB STD-B24 were discussed.

(4) Data Broadcasting

The separation and re-definition of the property that is required different treatment in each transmission system, additional events update notification, and new element added to the application control information in XML format were deliberated, after that draft revision of STD-B62 (Multimedia Coding Specification for Digital Broadcasting [Second Edition]) V1.4 was created.

(5) Receiver for Digital Broadcasting

Conducted an evaluation experiment for intermodulation of the optical transceiver etc., draft revision of ARIB STD-B63 (Receiver for Advanced Wide Band Digital Satellite Broadcasting) V1.5 was created.

The left hand circular polarization CS intermediate frequency specified in ARIB STD-21 and STD-63 were conduct to investigate, after that we decided to revise the ARIB STD-B21 (Receiver for Digital Broadcasting) and created a revised draft.

(6) Digital Satellite Broadcasting

The name of the transmission system of advanced wide band digital satellite broadcasting was decided to ISDB-S3. Draft revision of the ARIB STD-B44 (Transmission System for Advanced Wide Band Digital Satellite Broadcasting) V2.1 was created to reflect the detailed performance evaluation test results of the transmission system using a practical broadcast satellite to supplementary explanation.

2 Program Production Systems

Following 1 new ARIB standard, 1 new technical report and 1 revised technical report were deliberated and approved by the 99th Standard Assembly.

- ① ARIB STD-B69 (Exchange Format of the Digital Closed Caption File for Digital Television Broadcasting System [Second Generation]) V1.0
- ② ARIB TR-B37 (Interconnection for UHD TV Camera and Lens) V1.0

③ARIB TR-B4 (Safety Zone for 16:9 Aspect Ratio Television Systems) V3.0

The Evaluation Sequence WG and The Sound Quality Evaluation WG under the Study Group on Quality Evaluation Method for Broadcasting which was closed at the end of March, 2016, were transferred to the R&D Group on Program Production Systems.

(1) Video Program Production Systems

In response to the proposed amendments of adding the safety zone for UHDTV (4K/8K) to the recommendation BT.1848-1 in October 2015 has been approved, draft revision of ARIB TR-B4 (Safety Zone for 16:9 Aspect Ratio Television Systems) V3.0 was created.

In addition, we created draft Japanese contributions on "the video dynamic range" and "the color gamut conversion" and submitted them to the broadcasting international standardization WG.

Also, with the approval of the recommendation BT.2087-0, draft revision of ARIB STD-B66 (UHDTV Multi format Color Bar) was discussed.

In addition, the guidelines on color rendering of LED lighting were being discussed.

(2) Sound Program Production Systems

We mainly made a correspondence to the ITU-R SG6 meeting as follows.

For sound metadata and sound file format, the new draft recommendation which defines the channel of the label and the arrangement to be used in the ADM (Acoustic Definition Model) was published, so we proposed to achieve the match of the contents of the current recommendation and the content of report.

In the channel allocation to be used in the transmission system for sound program contribution, recommendation BR.1384 was abolished, provisions of less than 8ch was integrated in the recommendations BS.1738, provisions of more than 12ch was proposed as a new recommendation.

In case of the broadcast station transmits a broadcast program, in the sound delivery and playback adapted to the viewing environment, regardless of the radio wave broadcasting or network distribution, we proposed the level of -24LKFS (Loudness K-weighted relative to nominal Full Scale) for target loudness.

In the subjective quality assessment method of channel-based advanced sound system, we proposed a revision of Recommendation BS.2051 in order to unify the positive angle of the channel label to the right.

Regarding the level of conversion from the stereo program to monaural program, we

are discussing draft revision of TR-B30 (The Technology Guideline of Production for Surround Broadcast Program).

Among the speaker arrangements described in ITU-R Recommendation BS.2051, we are conducting to draft the ARIB STD-B59 (Three-dimensional multichannel stereophonic sound system for programme production) that the speaker arrangement specified in the NexTV-F (Next Generation Television & Broadcasting Promotion Forum) Operational Guidelines will be described in specification, and the speaker arrangement adopted in many countries will be described in supplementary explanation.

(3) Interface between Program Production Equipment

We discussed about the interconnection for UHDTV camera and lens as a new technical report (ARIB TR-B37). For the interface of optical system and electrical system, we made a detailed discussion with respect to change of close voltage value of the iris. In addition, we conducted detailed check of the interface signal for the 2/3-inch 4K sensor mounted camera lens. These were approved as a final draft.

The lens type of an optical BNC connector that has been described in ARIB STD-B58 (Interface for UHDTV Production Systems) is being proposed and discussed.

We are proceeding with deliberation to submit it to the Standard Assembly held on October, 2016.

(4) Digital Closed caption Production

Regarding the closed caption file exchange format (ARIB-TTML closed caption) of UHDTV, conversion guidelines from digital closed caption to ARIB-TTML closed caption, such as transmit timing and how to hold the page management information were investigated minutely, also review of management items and the XML structure were conducted.

In the study of the transmission timing, we conducted a review of the type that should be left as the ARIB-TTML closed caption from the transmission timing types used in teletext broadcasting and digital closed caption.

The ARIB standard STD-B69 (Exchange Format of the Digital Closed Caption File for Digital Television Broadcasting System [Second Generation]) has been newly created.

Multipurpose closed caption, closed caption for network, and the structure of the ARIB-TTML closed caption, transmitted as the auxiliary data packet format of Interface for UHDTV Production Systems, have been discussed and conducted to further study.

(5) Program contribution Format

With respect to the standard of the program contribution file format of 4K / 8K, in the previous hearing ;

- No immediate needs for standardization of 4K/8K file formats
- Add an associated codec for 4K/8K
- Need to organize the meta-data and the multipurpose media format

Since these opinions were come out, we will create a new standard at a proper time.

3 Transmission of Television Program Contribution

(1) SNG Transmission System

Towards the revision to add DVB-S2X standard to ARIB STD-B26 (HDTV digital SNG transmission systems), the verification test will be planned. First, for the local verification test (indoor experiment) that does not use a satellite, experiment items (interoperability between manufacturers, the adjacent carrier interference test etc.), laboratory equipment and the schedule will be drafted a plan, and discussion about verification of the next step will be scheduled.

(2) Terrestrial Radio Transmission of Television Program Contribution

Development of 4K/8K broadcasting has been promoted towards the test broadcasting on August 2016, practical broadcasting in 2018 and the Tokyo Olympics in 2020. In response to the development of the 4K and 8K FPU (Field Pickup Unit) has become an urgent need, we are conducting to discuss about provisions of technical specification, compatibility between manufactures and operating conditions of wide band FPU (millimeter-wave band UHDTV-FPU) using 42GHz band and 55GHz band.

We are planning to conduct revision of the ARIB STD-B43 with the goal of March, 2017.

Also, at the transmission of television program contribution in UHDTV and HDTV, the purpose of further effective frequency utilization, the evaluation JTG of the HEVC codec for the transmission of television program contribution was established. We are planning to make a report with the goal of May, 2017.

Furthermore, in order to examine the microwave band FPU corresponding to UHDTV, the Microwave UHDTV-FPU Study TG was established. We are planning to creat a new technical standard with the goal of August, 2017.



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