



February 2020



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Topics

5G Special Day in CEATEC 2019

"5G Special Day" was held in October 2019, as a conference program of CEATEC (Combined Exhibition of Advanced TEChnologies) 2019, an IoT Exhibition. It was composed of two parts, "5G Summit" in the morning and "5G International Seminar 2019" in the afternoon.

5G initiatives and prospects from mobile operators and specific services from the user's perspective were presented, and many visitors felt the new potential of 5G.

1. Outline of the Event

Schedule	16 October 2019
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Venue	Makuhari Messe International Conference Hall (Chiba, Japan)
Organizer	Ministry of Internal Affairs and Communications (MIC)
Co-Organizer	The Fifth Generation Mobile Communications Promotion Forum (5GMF), ARIB
Participants	About 1,600 (AM), 800 (PM)

2. Lectures, Sessions

(1) 5G Summit (AM)

Main Subject: Top Executives of Mobile Carriers talk about "5G Initiatives and Future prospects"		
Title	Speaker	Outline
(Opening Remarks)	Mr. Yasuo Tawara Director-General of the Radio Department, MIC	
Keynote speech	Dr. Susumu Yoshida Chairman of 5GMF	
"Realizing more prosperous future with 5G"	Mr. Kazuhiro Yoshizawa President and CEO of NTT DOCOMO	<ul style="list-style-type: none"> - 5G world view - 5G pre-service at Rugby World Cup - Overview of 5G pre-service collaborated with partner enterprises - 5G commercial services to be launched from spring 2020
"KDDI's initiatives and future prospect on 5G – Towards the more interesting future, Tomorrow, Together –"	Mr. Makoto Takahashi President of KDDI	<ul style="list-style-type: none"> - 5G network deployment - Billing plan - Outline of business development with partner corporations
"SoftBank 5G"	Mr. Junichi Miyakawa Representative Director and CTO of SoftBank	<ul style="list-style-type: none"> - Creation of 5G networks centered on the industry with the aim of evolving the industries - Initiatives for infrastructure sharing - An overview of 5G pre-service
"Rakuten Mobile"	Mr. Yoshihisa Yamada Representative Director and President of Rakuten Mobile	<ul style="list-style-type: none"> - Full virtualization including both the core network and wireless access network - Automation of control - Features of the Rakuten mobile network in the cloud - Speedy migration to the 5G network enabled by the feature above - The initiatives and possibilities of various Rakuten Group services powered by 5G

Group interview	Mr. Waichi Sekiguchi (Moderator) President of MM Research Institute Executives from the four mobile telecom operators who gave the presentation shown above	<ul style="list-style-type: none"> - How will life and work of users change? - Billing plan - How the business models of each company will change? etc.
(Closing Address)	Mr. Yasuo Tawara Director-General of the Radio Department, MIC	



5G Summit Lecture



Group Interview

(2) 5G International Seminar 2019 (PM)

Main Subject: The latest trend toward 5G Commercialization and Initiatives for developing 5G devices		
Title	Speaker	Outline
"5G Progress and Initiatives in Japan"	Mr. Naohiko Ogiwara Director of the Land Mobile Communications Division, MIC	<ul style="list-style-type: none"> - 5G System Trials - Technical requirement - Frequency assignment - Local 5G
(1) The latest trend toward 5G Commercialization		
"5G Deployment in the European Union's Digital Single Market Europe"	Mr. Tonnie de Koster Directorate-General for Communications Networks, Content and Technology, European Commission	<ul style="list-style-type: none"> - 5G Potential - 5G Action Plan - Enabling regulatory environment for 5G - Global 5G roll-out - 5G Cybersecurity
"5G Trends: USA"	Dr. Sanyogita Shamsunder Vice President of 5G Labs and Innovation, Verizon	<ul style="list-style-type: none"> - First to launch 5G - 5G Currencies - 5G Verticals and Use Cases - 5G challenges fuel the innovation pipeline - 5G Labs partnerships cross industry innovation
"5G, Now a Reality 2019"	Dr. Seongkwan Kim KT Corporation	<ul style="list-style-type: none"> - 5G Roadmap of KT - KT 5G Services in 2018 PyeongChang Olympics - KT 5G Commercial Services
"5G System Trials in Japan"	Dr. Yukihiro Okumura 5GMF (NTT DOCOMO)	<ul style="list-style-type: none"> - Outline of 5G System Trials which have been conducted in Japan
(2) Initiatives for developing 5G devices in the World		
"5G x VR"	Mr. Charles Huang VP of Global Sales Strategy, HTC	<ul style="list-style-type: none"> - 5G VR for consumer - 5G VR for enterprise - 5G cloud VR
"RF Front-End Device Technologies for 5G"	Mr. Kei Matsutani Senior Manager, Murata Manufacturing	<ul style="list-style-type: none"> - 5G Requirements - Built-In Filters in Low Temperature Cofired Ceramics - Quartz Waveguide Filter
"The Future of 5G"	Dr. Edward G. Tiedemann, Jr. Senior VP, Qualcomm	<ul style="list-style-type: none"> - Using 3GPP-technologies for unlicensed spectrum - A platform for new applications and innovations - 5G modem-RF solutions - Optimization through co-design of hardware and software - Accelerating the expansion of 5G network with small cells - Disaggregated Radio Access Networks - Industrial IoT

"Video Experience Evolving with 5G"	Mr. Mitsuya Kishida President, Sony Mobile Communications	- Initiatives toward entertainment in 5G era
(Closing Address)	Mr. Fusaki Matsui Secretary General, ARIB	



5G International Seminar

The 26th ITS World Congress 2019 in Singapore

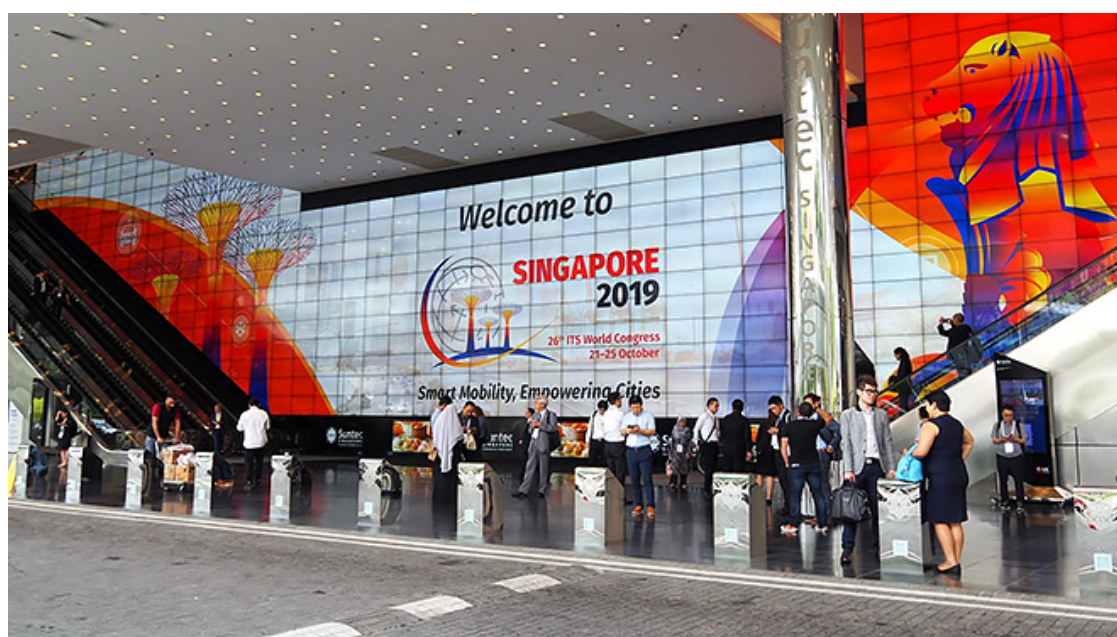
The 26th ITS World Congress 2019 Singapore was held.

◆ Overview of the Congress

Date	From 21 to 25 October 2019
Venue	Suntec Singapore Convention & Exhibition Centre (Singapore)
Theme	"Smart Mobility, Empowering Cities"
Organizer	Land Transport Authority, ITS Singapore
Participants	About 14,500 (5 from ARIB)
Number of exhibitors	321

◆ Sessions related to Japan

Session No.	SIS (Special Interest Session) 02
Title	Radio Communication to Realise Connected Vehicles
Speaker	Moderator: Satoshi Oyama, Association of Radio Industries and Businesses, Japan Speakers: Representatives from the ITU-R, officials from Japan, the US, and Europe, as well as experts from the private sector
Highlights	International harmonisation of ITS radio communication technologies for V2X such as DSRC and LTE / 5G were discussed. Mr. Hara, from MIC gave a presentation on ITS strategy of Japan.
Session No.	AP (Asia Pacific) 04
Title	The Role of Government for Deploying Connected and Automated Vehicle in Japan
Highlights	Mr. Igarashi of MIC from Japan gave a talk on ITS services in Japan (ETC, ITS Connect) and his ministry's recent activities of 5G Trials in Japan, as well as technological examination toward the Connected Car Society in Japan.
Session No.	SIS (Special Interest Session) 29
Title	5G for ITS: The Future Baseline for Inter-modal Mobility and Automated Driving
Highlights	Mr. Nagata of NTT DOCOMO from Japan gave a presentation titled "LTE/5G V2X and NTT DOCOMO Activity", which provided an overview on the current state of cellular V2X and related NTT DOCOMO activities.
Session No.	AE (Associated Event) 08
Title	5G and IoT Boosting the Digital Transformation of the Automotive Sector
Highlights	Secretary General Mr. Ohmura gave a presentation on the activities of the 5GMF, the state of commercialization of IOT and 5G in Japan, and the possibilities of business models toward 5G-IoT.



◆ Exhibitions and Ceremonies

The ITS Info-communications Forum (ITS-Forum) and 5GMF made exhibits in Japan Pavilion, which located at the exhibition hall. Each booth displayed panels and videos that introduced a variety of activities in Japan. In addition, these booths distributed brochures and reports summarizing the results of completed activities. The Toyota booth included a section entitled “V2X Toward Ultimate Goal of Zero Crashes”, this display introduced “ITS Connect”, and the display panel comparing DSRC (802.11bd/NGV: Next-Generation V2X) and V2X (LTE/NR: New Radio).



Exhibits of 5GMF and ITS-Forum

On the final day of the congress, some excellent presentations were awarded at the closing ceremony.

The congress concluded with the announcement of the next ITS World Congress, organized by ITS America with the theme of "The New Age of Mobility". It will be held in Los Angeles from 4 to 8 October 2020.



Annual "Passing Globe" (to the next host) ceremony

Exhibition in 2019 MWC Los Angeles by XGP Forum

The 2019 Mobile World Congress (MWC) Los Angeles, hosted by the GSM Association, was held at the Los Angeles Convention Center in the United States from 22 to 24 October 2019. Approximately 22,000 people from governments, research institutes, standards organizations, telecommunications carriers, vendors and service providers from around the world (over 100 countries) participated.

XGP Forum, where ARIB serves as the secretariat in Japan, projected videos introducing the sXGP system at the MulteFire Alliance (MFA) exhibition booth, which concluded the Liaison Agreement in 2017 with ARIB. Baicells Technologies' Access Point equipment, sXGP compatible smartphones provided by Fujitsu Connected Technologies and Sharp respectively, were also exhibited and introduced there.

(Exhibition video: https://www.xgpforum.com/new_XGP/video/sXGP_191002.mp4)

There were many questions such as the relationship with other systems and the superiority of sXGP, and the exhibition contributed to dissemination of sXGP.



Exhibit of XGP Forum



Access point produced by Baicells Technologies



sXGP compatible Smartphone produced by Fujitsu Connected Technologies (Left) and SHARP (Right)

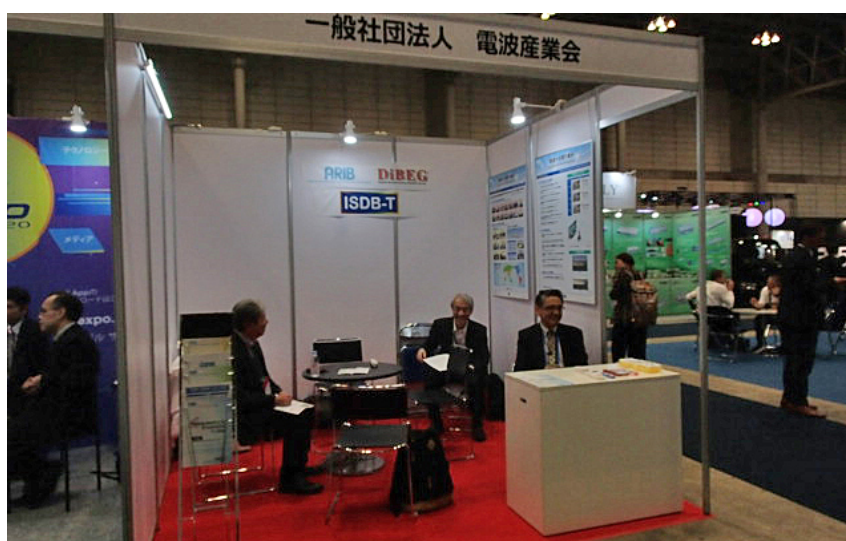
Exhibition in Inter BEE 2019 by ARIB/DiBEG

The 55th Inter BEE (International Broadcast Equipment Exhibition) 2019 was held at the Makuhari Messe in the suburb of Tokyo from 13 through 15 November 2019, where ARIB/DiBEG participated in the exhibition in its six consecutive years.

According to the announcement by the Inter BEE Secretariat, there were 1,158 companies and organizations participating in the exhibition this year, the largest record of exhibitors in its history, with 646 foreign participants from 34 countries/areas.

Following the launch of 4K/8K satellite broadcasting service in December last year in Japan, there were many 5G and IP-based exhibits and demonstrations, as well as other various displays and demonstrations of 4K/8K based equipment and systems.

At the ARIB/DiBEG booth the latest situation of standardization activities in broadcasting, together with international activities in the promotion of ISDB-T was displayed, announcing that the Republic of Angola became the 20th ISDB-T adopting member countries. Some visitors to ARIB/DiBEG booth commented that there were more 4K displays and demonstrations than last year. Some other visitors inquired about the latest situation of our promotional activities of ISDB-T in the international market.



ARIB/DiBEG Booth



Inter BEE Exhibits

ITU-R RA-19 (associated with Land mobile services)

◆ Outline of the Meeting

- Schedule 21 - 25 October 2019
- Venue Sharm el-Sheikh, Egypt
- Participants About 300 (Administration, Telecommunication Operators, Vendors), 38 from Japan

◆ Main results

- (1) Review of resolutions on working methods such as Study Group (SG), Radiocommunication Advisory Group (RAG), Conference Preparatory Meeting (CPM), was agreed.
- (2) A revision of the IMT frequency arrangement Recommendation M.1036 was agreed.
- (3) Chairpersons and Vice-Chairs of each SG, CPM and RAG were appointed.



ITU-R WRC-19 (associated with Land mobile services)

◆ Outline of the Meeting

- Schedule 28 October - 22 November 2019
- Venue Sharm el-Sheikh, Egypt
- Participants About 3,400 (Administration, Telecommunication Operators, Vendors), 87 from Japan

◆ Main results

- (1) A new resolution was developed on Agenda Item 1.11: "Global or regional harmonized frequency bands to support Railway radiocommunication Systems between Train and Trackside (RSTT)".

- (2) A new recommendation was developed on Agenda Item 1.12: "Global or regional harmonized frequency bands for the implementation of Intelligent Transport Systems (ITS)".
- (3) The following frequency bands were agreed to be identified on Agenda Item 1.13: "Identification of frequency bands for the future development of International Mobile Telecommunications (IMT)".
 - (a) 24.25-27.5GHz (Globally)
 - (b) 37-43.5GHz (Globally for part of the band)
 - (c) 45.5-47GHz: (Depending on the country)
 - (d) 47.2-48.2GHz (Region2 and Other Region depending on the country)
 - (e) 66-71Ghz (Globally)
- (4) The following frequency bands were agreed to be identified on Agenda Item 1.15: "Identifications of frequency bands for use by administrations for the land-mobile and fixed service applications in 275-450 GHz".

275-296GHz, 306-313GHz, 318-333GHz, 356-450GHz
- (5) Resolution229 was agreed to be revised on Agenda Item 1.16: "Wireless access systems, including radio local area networks (WAS/RLAN), in the frequency bands between 5150 MHz and 5925 MHz", allowing use of 5150-5250MHz outdoor under condition of emission.



Meeting hall



Landscape of Sharm el-Sheikh

ITU-R WP5D the 33rd Meeting

ITU-R WP5D the 33rd meeting was held in December 2019.

◆ Outline of the meeting

- Schedule 10 - 13 December 2019
- Venue ITU headquarters (Geneva, Switzerland)
- Participants About 90 people from 19 countries (21 organizations)
9 people as the Japanese delegation headed by Mr. Maruhashi of MIC, including 2 from ARIB



◆ Main results

- (1) A workshop on evaluation of IMT-2020 wireless interface proposal was held in the first half of the period, and presentations were made on proposed interface from six organizations and on progress in evaluation from ten organizations that had evaluated each proposal.
- (2) Additional supplementary information to three proposals (from ETSI/DECT Forum, TSDSI and Nufront) that had incomplete documents last time was input and agreed to be officially received as a result of discussion.
- (3) Based on Japan-Korea joint contributions and contribution from China, working plans for the draft new report M.[IMT-2020.OUTCOME] and the draft new recommendation M.[IMT-2020.SPECS] were developed.

◆ Future plan

The next 34th meeting will be held from 19 to 26 February 2020 at the ITU headquarters in Geneva, Switzerland.

Vehicle Safety Communications Seminar 2019

ITS Info-communications Forum (ITS-Forum) which ARIB serves as secretariat held "Vehicle Safety Communications (VSC) Seminar 2019 - The results of the international conference concerning VSC and the activity report of the Forum -" on 16 December 2019 at the Meiji-kinenkan Hall in Tokyo, Japan. About 121 people from ITS related ministries / organizations and member companies of ITS-Forum participated in the event.

The program of the Seminar was as follows.

Session	Title	Speaker
	(Greetings by Guests)	Mr. Naohiko Ogiwara Director of Land Mobile Communications Division, MIC
[Part 1] Progress of International Standardization and Commercialization regarding ITS Wireless system		
(1)	Report on the Results of World Radiocommunication Conference 2019 (WRC-19)	Mr. Satoshi Oyama VSC-TG Chairman, ITS-Forum
(2)	Trends of Next-generation V2X utilizing Microwave and Millimeter-wave Band in IEEE802.11	Mr. Kazuaki Takahashi Millimeter - Wave WG Chairman, ITS-Forum
(3)	Global Trends on ITS Wireless Communication, and SIP Efforts	Mr. Norifumi Ogawa Senior Manager, Mazda Motor Corporation
(4)	Status of Cooperative ITS in Europe	Ms. Bettina Erdem Market & Business Entry Strategies Global Key Account Management Automotive, Continental AG
[Part 2] Global Trends of Automated Driving Systems		
(1)	Report on ITS World Congress 2019 Singapore - Mainly about SIS 02 -	Mr. Koji Hara Assistant Director, Land Mobile Communications Division, MIC
(2)	Global Trends toward Practical Application of Level 4 Mobility Service	Mr. Takahiko Uchimura Senior Vice President, ITS Japan
(3)	Outline of JEITA Automated Driving System Study Group Presentation (February 2020)	Mr. Junichi Nakamura Automated Driving System Study Group Chairman, 5GHz Band Vehicle-to-Infrastructure Communication WG Chairman, JEITA

[Part 3] Status of Study on Next Generation Wireless Communication System at ITS Info-communications Forum		
(1)	Advanced ITS and Automated Driving using Cellular Communication Technologies	Mr. Takehiro Nakamura Cellular System TG Chairman, ITS-Forum
(2)	Study on Wireless Communication System for Use Case of Automated Driving (Highway)	Mr. Masaharu Hamaguchi Radio System Technology TG Chairman, ITS-Forum
	(Closing Remarks)	Mr. Hiroshi Shigeno Advanced ITS Info- communication Systems Committee Chairman, ITS-Forum

Moderator: Masanori Misumi:

International Relations Committee Chairman, ITS-Forum



Millimeter-Wave Radar Workshop

ITS Info-communications Forum (ITS-Forum) which ARIB serves as secretariat held "Millimeter-Wave Radar Workshop" on 17 December 2019 at the Meiji-kinenkan Hall in Tokyo, Japan attended by 82 participants inviting millimeter-wave radar developers in Japan and abroad who have been involved in promotion of its dissemination. The Workshop was related to "Vehicle Safety Communications Seminar 2019" held on the day before, and the latest trend of technologies was presented there.

Session	Title	Speaker
	(Greetings by Guests)	Mr. Kazuki Horiguchi Assistant Director, Land Mobile Communications Division, MIC
[Part 1] Expectations for the practical application of millimeter-wave radar and latest trends		
(1)	Current Issues of Sensing for Automated Driving and ADAS and Expectations for Radar	Mr. Yasushi Makino Group Manager, TOYOTA MOTOR CORPORATION
(2)	Worldwide Standardization in Radar Standardization activities in scope of new technologies and functionalities	Ms. Bettina Erdem Global Key Account Management Automotive, Continental AG, Market & Business Entry Strategies
(3)	Development of 79 GHz High Resolution Radar paving the way towards automated driving and parking	Mr. Hitoshi Hosokawa Senior Partner, Bosch Corporation
(4)	TI mmWave Sensing Solutions	Mr. Kishore Ramaiah Embedded processing -Processors- Radar Automotive Marketing, Texas Instruments Inc.
[Part 2] Latest trends of the practical application of millimeter-wave radar		
(1)	79GHz Radar saving More Lives	Mr. Ryosuke Ito Manager, Veoneer Japan Ltd.
(2)	79GHz band 3D Imaging Radar	Mr. Jyunji Sato Senior Engineer, Panasonic Corporation
	(Closing Remarks)	Mr. Sadao Obana Executive Committee Chairman, ITS-Forum

Moderator: Kazuaki Takahashi
Millimeter-Wave WG Chairman, ITS-Forum



Standards

1. Newly established Standards at Standard Assembly on 5 December 2019

No standards were newly established at the Assembly.

2. Revised or abolished Standards at Standard Assembly on 5 December 2019

STD Number	Standard Name	Version
STD-T56	Specific Absorption Rate (SAR) Estimation for Cellular Phone	Ver.4.0
STD-T91	UWB (Ultra-Wide Band) Radio Systems	Ver.3.0
STD-T120	IMT Systems based on 3GPP Specifications	Ver.1.50
STD-B10	Service Information for Digital Broadcasting System	Ver.5.13
STD-B21	Receiver for Digital Broadcasting (Desirable Specifications)	Ver.5.11
STD-B60	MMT-Based Media Transport Scheme in Digital Broadcasting Systems	Ver.1.14
STD-B63	Receiver for Advanced Wide Band Digital Satellite Broadcasting (Desirable Specifications)	Ver.1.9



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