

Newsletter ARIB SEASON



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Topics



Industrial 5G Day in Tokyo

"Industrial 5G Day in Tokyo" was held at AKASAKA INTERCITY on 11 May, co-hosted by 5G-ACIA (5G Alliance for Connected Industries and Automation) and 5GMF (The Fifth Generation Mobile Communications Promotion Forum).

5G-ACIA whose secretariat is located in Frankfurt, Germany, is a global forum established in April 2018 by the German Federation of Electrical and Electronic Industries (ZVEI) to discuss the introduction of 5G in the manufacturing industry with the telecommunications industry. The Alliance with about 100 companies participating, including Japanese ones, is preparing white papers on the introduction of wireless technology in factories and discussing regulations and use cases for the industrial use of 5G. It signed a Memorandum of Understanding (MOU) with 5GMF on 13 November 2020.

This event was held as a workshop in which related organizations also participated on the last day of the 5G-ACIA regular meeting. About 200 participants from Japan and overseas joined, and demonstrations, showcase exhibits, lectures, and panel discussions focusing on 5G industrial use cases were provided. In the Asian region, this event has already been held in China and Korea, and had been scheduled to be held in Japan in 2020, but was postponed due to the COVID-19 pandemic.

The program of the workshop was as follows.

1. OPENING SESSION		
(1)	Welcome Address	Mr. SHIROTA Masakazu Senior Director, Qualcomm Dr. Andreas Müller General Chair of 5G-ACIA, Bosch Dr. Afif Osseiran General Vice-Chair of 5G-ACIA, Ericsson
(2)	Invited Keynote by MIC	Mr. MASHIKO Takanori Director of the New-Generation Mobile Communications Office, MIC

(3)	Welcome address by 5GMF	Prof. YOSHIDA Susumu Chairman of 5GMF, Kyoto University Mr. OHMURA Yoshinori Secretary General of 5GMF, ARIB
(4)	Welcome address by Flexible Factory Partner Alliance	Mr. YANADA Ryota Vice-Chairman of Flexible Factory Partner Alliance (FFPA), Omron
(5)	5G-ACIA Overview: insights into the industrial 5G market	Dr. Andreas Müller General Chair of 5G-ACIA, Bosch Dr. Afif Osseiran General Vice-Chair of 5G-ACIA, Ericsson
(6)	5G evolution for industries	Mr. NAKAMURA Takehiro Chief Standardization Officer, NTT DOCOMO
2. TECHNICAL SESSION "INDUSTRIAL 5G TODAY"		
(1)	How to create a 5G ecosystem for Industries / Enterprises	Mr. KASHIMA Tsuyoshi Chief Technology Officer, Ericsson Mr. Micael Hermansson Device Ecosystem Director, Ericsson
(2)	Building of industrial network utilizing existing 5G network	Mr. KOBAYASHI Takenori VP, Product Technology Division, SoftBank
(3)	Industrial IoT Network requires wireless technologies to provide an easy, stable, reliable, and safe communication	Dr. David Chen Head of Wireless Business and R&D, Moxa
(4)	Future of manufacturing DX and "local 5G"	Mr. FUJIMOTO Koichiro Executive Professional, Technology Evangelist, NEC
3. TECHNICAL SESSION "INDUSTRIAL 5G TODAY" & "NEXT STEPS"		
(1)	Remote control of process plant using 5G, cloud, and autonomous control AI	Mr. GOTOU Hirotsugu AI/DX Biz Department Manager, Yokogawa Electric
(2)	Private 5G wireless in Japan	Mr. YANAGIBASHI Tatsuya Customer Chief Technology Officer, Nokia Japan Mr. KOBAYASHI Shinji Assistant Manager, Omron
(3)	From wired TSN to wireless TSN	Mr. Harsha Master Architect, CTO System Innovation, NXP Mr. Prasad Kodaypak Director of Technical Solutions, Radisys
(4)	Toward Beyond 5G as shared infrastructure for Industry	Mr. ASAI Kotaro Technical Advisor, Mitsubishi Electric
(5)	Learnings from an 5G Industrial Private Network Installation	Mr. Jagadeesh Dantuluri Working Group 2 Chair of 5G-ACIA, General Manager of Private Networks, Keysight

4. PANEL DISCUSSION		
(1)	When will the industrial 5G market take off?	Mr. SHIROTA Masakazu (Moderator) Senior Director, Qualcomm Mr. NAKAMURA Takehiro Board member of 5G-ACIA, Chief Standardization Officer, NTT DOCOMO Mr. NISHIMURA Hideo Standardization and Technology Marketing Manager, Yokogawa Electric Dr. David Chen Board member of 5G-ACIA, Head of Wireless Business and R&D, Moxa Mr. Omar Elloumi Board member of 5G-ACIA, Head of Standards Strategy, Nokia
(2)	Next steps & closing remarks	Mr. SHIROTA Masakazu Senior Director, Qualcomm Dr. Andreas Müller General Chair of 5G-ACIA, Bosch Dr. Afif Osseiran General Vice-Chair of 5G-ACIA, Ericsson

https://5g-acia-website.azurewebsites.net/wp-content/uploads/5G-ACIA_Event-Agenda_Tokyo-2023_v8_Web.pdf

Demonstrations and showcases of 5G applications for industrial use cases were exhibited at the venue, which was also effectively used as a place for participants to socialize.

CJK the 67th 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, Korea, and Japan. It is held three times a year.

◆ Outline of the meeting

Schedule	11 and 12 May 2023
Meeting	Online
Participants	CCSA (China) 42, TTA (Korea) 17, ARIB (Japan) 24

◆ Main results

- (1) The results of APG23-5, CPM23-2, the 43rd meeting of ITU-R SG5 WP5D and the recent 3GPP meetings were shared.
- (2) For the 44th meeting of WP5D held from 12 June 2023, the preparation status of each country was shared, and the joint contributions were discussed. In addition, items to be continuously examined and work items were identified.

- (3) With regard to the revision of the ITU-R Recommendation M.2070 (Generic unwanted emission characteristics of base stations using the terrestrial radio interfaces of IMT-Advanced) and M.2071 (Generic unwanted emission characteristics of mobile stations using the terrestrial radio interfaces of IMT-Advanced), it was decided to continue the work for the preparation of a joint contribution via e-mail, with the aim of completing the work at WP5D the 44th meeting.
- (4) The information on the status of discussions and views of each country on the elements to be defined in the IMT-2030 Framework Recommendations, the target values of the capabilities, and the diagram of the specification plan, etc. were shared. As a result of discussions on how to proceed to complete the work at the 44th meeting of WP5D, it was decided to continue the exchange of opinions via e-mail.
- (5) In preparation for the APG23-6 meeting, it was decided to continue to exchange views on new agenda items of WRC-27 such as specific candidate of additional frequency bands identified for IMT, and the proposal to use frequency bands identified for IMT in the mobile satellite service.

◆ Next meeting schedule

The next CJK IMT Working Group Meeting is scheduled to be held in September or October 2023.

**Lectures and Exhibitions on 5G at
Wireless Technology Park in Tokyo**

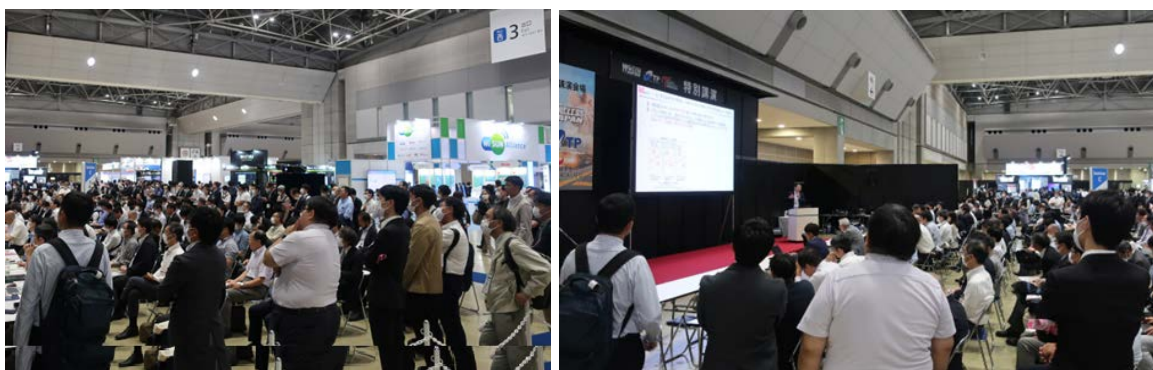
The Ad Hoc Group on Millimeter Wave Promotion (Millimeter Wave AH) of 5GMF, for which ARIB serves as the secretariat, arranged special lectures and exhibitions given by Millimeter wave Promotion Ad Hoc member companies at the Wireless Technology Park (WTP) held at Tokyo Big Site from 24 to 26 May 2023.

WTP is one of the largest specialized exhibitions in Japan that has focused on introducing the latest wireless technology development since it was first held in 2006.

The program of the lectures was as follows.

(1)	The Diffusion of Millimeter Waves	Mr. MASHIKO Takanori Director of the New-Generation Mobile Communications Office, MIC
(2)	Overview of the White Paper published by Millimeter Wave Promotion Ad Hoc, 5GMF	Mr. NAKAMURA, Takehiro Leader of the Millimeter Wave Promotion Ad Hoc, 5GMF
(3)	Millimeter Wave R&D Activities at KDDI Research Institute	Mr. HAYASHI Takahiro KDDI Research
(4)	Efforts in the development of millimeter wave technology at Qualcomm	Mr. MORISHITA Kazuhiko Qualcomm Japan
(5)	Efforts in the development of millimeter wave technology at Fujitsu	Mr. SEKI Hiroyuki FUJITSU

(6)	Millimeter Wave Networks and Ericsson Solutions	Mr. HONDA Yoshio Ericsson Japan
(7)	Total solutions for key sites, including evaluation examples using commercially available FR2-equipped terminals and base station emulators, and UE emulators	Mr. MIYASHITA Kazuma Keysight Technologies
(8)	Overview of VIAVI's millimeter-wave measurement instruments	Mr. Celio TERAMAE VIAVI Solutions
(9)	Millimeter-wave band antenna array integrated module technology	Mr. UEDA Hideki Murata Manufacturing



Lecture hall and the audience

In the exhibition booth, eight vendors of terminals, base stations, chipsets, measuring instruments, and RF devices joined in addition to telecommunications carriers, presenting their millimeter wave wireless equipment and their respective approaches.

The latest technologies for products and solutions that take advantage of millimeter wave characteristics were introduced there, such as (1) High-frequency band area improvement technologies using various means from base stations to devices, (2) Various devices including mobile terminals supporting millimeter wave, (3) Prototypes of outdoor long-range millimeter wave terminals and indoor millimeter wave terminal, (4) Solutions to meet the needs of open RAN testing, (5) 5G repeaters supporting millimeter wave and sub-6, (6) Metamaterial reflectors with adjustable reflection angle, (7) Portable 5G field spectrum analyzers that support up to millimeter wave bands optimal for field verification, and (8) High-performance semiconductor device technologies for the future 6G era.

Engineers from companies considering the introduction of millimeter wave and visitors who attended the special lectures visited the exhibition booths, where they received detailed explanations from the staff, and asked questions intently. Approximately 700 visitors came to the exhibition over the three-day period, showing great expectations for the future promotion of millimeter wave.



The exhibition booth

The 31st Meeting of APT Wireless Group (AWG-31)

The 31st Meeting of APT Wireless Group (AWG-30) was held in May.

1. About the APT Wireless Group (AWG)

APT (Asia-Pacific Telecommunity) Wireless Group, AWG, studies the harmonization of spectrum usage and standardization aiming at the enhancement and dissemination of radiocommunication systems in the Asia-Pacific region. The meeting has been held usually about twice a year, and the experts of the wireless technologies of each country in this region join the meeting, where Mr. Le Van Tuan (Vietnam) serves as a chairperson.

2. Outline of the Meeting

- Schedule: 22 - 26 May 2023
- Venue/Method: Hanoi, Vietnam (Online participation available)
- Participants:

446 participants from administrations, private organizations, and international organizations in the Asia-Pacific region, 83 participants as the Japanese delegation headed by MIC including 4 participants from ARIB

3. Main results

AWG has four working groups (WG on Harmonization, WG on IMT, WG on Terrestrial, and WG on Space, Aeronautical, and Maritime), in each of which sub-working groups or task groups have been established for the issues significant for APT Members.

The main results of the meeting related to IMT and ITS are described below.

- (1) The "APT Report on the current status and future plan of usage in the frequency ranges of 7.125-24 GHz and 92-300 GHz in Asia Pacific region" has been completed. This report describes the current status and future plans of usage in the frequency ranges of 11 countries including Japan.

- (2) Regarding the new draft report on the future mid-band frequency plan for IMT coverage and capacity improvement from 2025 to 2030, responses to the questionnaire from seven countries had been received and they were incorporated into the working document. However, not all agenda items could not be discussed, and they were carried over to the next meeting, scheduled to complete the report.
- (3) The "APT Report on 5G implementation in frequency bands above 24.25 GHz" has been completed. This report summarizes case studies on 5G implementation, licensing, and sharing with other systems in APT countries, as well as the results of field trials. From Japan, the results of studies on 5G and satellite sharing for millimeter wave deployment are included as case studies.
- (4) A report on OTA (Over The Air) measurement, "APT Report on 5G mm Wave OTA test methodology for user equipment", has been completed. This report introduces the millimeter wave OTA test methodology established by 3GPP and provides guidance on how to refer to the 3GPP specifications.
- (5) Based on the results of discussions at the ITS Info-communications Forum, three contributions were submitted from Japan. One of them was reflected in the draft "APT Report on millimeter wave ITS applications in APT countries" which has been completed and approved as the APT report at this meeting. The other two contributions proposed new working items on "Cooperative vehicle-infrastructure ITS" such as smart poles, and "Millimeter wave radar / sensors for ITS" . These two proposals were agreed to work on for the new APT report, planned to be completed in 2025.

4. Next meeting schedule

The next AWG meeting is scheduled to be held between March and May 2024, and the venue is under arrangement.

The 13th Annual General Assembly and the 40th Board of Directors Meeting of ARIB

The 13th Annual General Assembly and the 40th Board of Directors meeting of ARIB were held on 26 June 2023 at Hotel New Otani in Tokyo.

Business and financial reports for the fiscal year 2022 (from April 2022 to March 2023) along with the appointment of board members and Management Advisory Committee members were approved. At the Board of Directors meeting held right after the General Assembly, Mr. TSUGA Kazuhiro was elected as the new chairman succeeding Mr. URUMA Kei.



The 13th Annual General Meeting

The 34th Radio Achievement Award

The 34th Radio Achievement Award ceremony was held on 26 June 2023, after the 13th Annual General Assembly of ARIB. This award is presented every year by MIC and the Chairman of the Board of ARIB to individuals and groups who have made a significant achievement relating to the effective and proper use of radio waves.

This year's winners are as follows.

- ◆ The Award of the Minister of Internal Affairs and Communications
 - (1) Practical application of O-RAN and VRAN, and commercial deployment of MU-MIMO using open fronthaul
KDDI CORPORATION
 - (2) Commercialization of Mobile Communication Relay System mounted on Drone for Disasters, and Location Detection System for Persons in Distress using it
Tokyo Institute of Technology, SoftBank Corp., FUTABA CORPORATION

- ◆ The Award of the Chairman of the Board of ARIB
 - (1) Development of Amplifier Techniques for Beyond 5G / 6G
Mitsubishi Electric Corporation
 - (2) Development of 2.4 / 5 GHz band marine data transmission system
FURUNO ELECTRIC CO., LTD.
 - (3) Legislation and practical application of wide-area wireless LAN IEEE 802.11ah for IoT
802.11ah Promotion Council, NTT Broadband Platform, Inc.,
NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION,

- NIPPON TELEGRAPH AND TELEPHONE CORPORATION,
Wireless LAN Business Promotion Liaison Association, FUJITSU LIMITED,
FURUNO SYSTEMS Co., Ltd.
- (4) Research and Development of high-speed mobile application technology for 60-GHz-Band millimeter-wave high-capacity wireless transmission
NIPPON TELEGRAPH AND TELEPHONE CORPORATION,
NTT DOCOMO, INC., DOCOMO Technology, Inc.
- (5) Research and Development of 5G Multisector Antenna Indoor Base Station achieves highly efficient connectivity using mmWave Band
NTT DOCOMO, INC., YOKOHAMA National University,
NIHON DENGYO KOSAKU Co., Ltd., FUJITSU LIMITED
- (6) Practical implementation of 5G-SA network slicing
KDDI CORPORATION



Commemorative photo with the Award winners



Association of Radio Industries and Businesses

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