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Contents

Contribution

International Exchange and Training of Personnel in the EMC Field, Starting From Academic Conference Activities

Yoshitaka Toyota, Professor at Okayama University

In May last year, I served as General Chair of the 2024 IEEE Joint International Symposium on Electromagnetic Compatibility, Signal & Power Integrity: EMC Japan/Asia-Pacific International Symposium on Electromagnetic Compatibility (abbreviated: EMC Japan/APEMC Okinawa) held in Okinawa. The VCCI Council supported the event as a Bronze Sponsor, and also held exhibits and tutorials. I would like to take this opportunity to express my sincerest gratitude to the VCCI Council. I was also pleased to accept the VCCI Council's request for this contribution, sensing the opportunity to further our collaborative relationship.

Currently, I am Vice Chair of the Technical Committee on Electromagnetic Compatibility at The Institute of Electronics, Information and Communication Engineers, and will be officially appointed Chair starting June this year. In this contribution, I'd like to write about my experience preparing for international conferences and conducting domestic and overseas academic conference activities while engaged in education and research at the university. I will also discuss the practice of international exchange and training of personnel.

EMC Japan/APEMC Okinawa was the ninth International Symposium on Electromagnetic Compatibility held in Japan. The first symposium, chaired by Prof. Risaburo Sato, a pioneer of electromagnetic compatibility in Japan, was held in Tokyo in 1984 as a joint symposium with the IEEE International EMC Symposium held by IEEE. The latest EMC Japan/APEMC Okinawa was the second joint symposium with IEEE held as part of APEMC, the Asian version of the International EMC Symposium. For this reason, the aforementioned official name of the Symposium is quite long.

Due to the spread of the COVID-19 pandemic, this symposium required different preparations from those of past international symposia, which caused some difficulty. Fortunately, however, we were able to hold a fully in-person symposium, because it happened to be held just after the pandemic was reclassified to Category 5. 521 individuals from 24 countries and regions participated in the symposium, among whom 136 were students. 130 papers, roughly half of the total, were presented by students. While Okinawa is a popular resort area both in Japan and overseas, the location was especially appealing to the students. Although the event was held during Okinawa's rainy season, with many rainy days, I was relieved that the symposium was a success, attracting many participants.

My time as General Chair was a valuable experience that gave me the opportunity to meet with EMC-related people from overseas such as officers of the IEEE EMC Society and APEMC International Steering Committee. Until now, I'd mainly interacted with researchers in similar topics, but this time I was able to connect with leading figures in many fields. I feel that this opportunity allowed us to establish a foothold to further expand Japan's EMC-related activities overseas. I greatly value these connections, and hope to make the most of them in future international-exchange events.

At the Technical Committee on Electromagnetic Compatibility, of which I am currently Vice Chair, I am promoting international exchange through our technical-meeting activities in Japan and overseas. In November last year, we held a technical meeting in Bangkok, Thailand (EMC Joint Workship 2024 Bangkok), attracting 33 participants from Japan and 11 locals. 21 papers were presented, most of which were from Japan, sparking lively discussion. We also exchanged opinions with members of the local EMC Thai Committee on our future collaboration. The local host, Prof. Werachet Khan-ngern (CIO of Kumwell and former professor at King Mongkut's Institute of Technology Ladkrabang (KMITL)), was quite memorable, telling us repeatedly about the support he received from Prof. Shuichi Nitta. I feel that this will be an exchange that will deepen over time and be beneficial to the development of both sides. I sensed much enthusiasm for future growth in Asian countries, and plan to hold another event in Vietnam in November this year.

The activities that the Technical Committee on Electromagnetic Compatibility has been working on recently include the EMC Design Countermeasures Contest and EMCJ TouchPoint. The former aims to develop architect-like skills that can provide an overview of the entirety of EMC design and noise countermeasures, in the context of the increasing sophistication of electronic devices and the ongoing subdivision of technical fields. Participants will improve their skills through hands-on experience of application development using IoT-development modules, circuit design, and EMC design countermeasures. The aim is not merely competition, but to facilitate discussion between participants and judges, creating a space for the training of next-generation EMC researchers and engineers. The latter initiative is an event to promote exchange between students and companies, and was first held in Okinawa last year. According to feedback from both sides, this was an extremely fruitful opportunity for companies to connect with talented students, and for students to learn the current state of the industry. The second holding of the event is planned for September this year, which I hope to make even better than the first.

As electromobility and autonomous driving become more widespread, the importance of EMC technology will continue to grow. However, the industry is also facing serious challenges, such as the declining birthrate and the increasing detachment of young people from electrical and electronic engineering. To tackle these challenges, the training of personnel through international exchange and collaboration between industry and academia will be essential. Going forward, I hope to continue promoting these activities and contribute to the further development of the EMC field.

Yoshitaka Toyota

1991 Graduated from the Faculty of Engineering, Okayama University
1996 Completed the doctoral course at Kyoto University (Doctor of Engineering)
1996 Joined Yokogawa Electric Corporation
1998 Research Associate, Faculty of Engineering, Okayama University
2008 Associate Professor, Graduate School of Natural Science and Technology, Okayama University
2014 Professor, Graduate School of Natural Science and Technology, Okayama University
2023 Professor, Faculty of Environmental, Life, Natural Science and Technology, Institute of Academic and Research, Okayama University

Committee Activities

●Board

Date	November 27, 2024
Reported items	Reported item Report on the activities of the first half of FY 2024

●Steering Committee

Date	November 21 and December 18, 2024
Agenda items	● Agenda item 1 Report on the activities of the first half of FY 2024 (draft) ● Agenda item 2 Guidance for Performing Radiated Emission Measurement in the Condition of EUT Mains Cable Terminated with VHF-LISN VCCI 32-1-L: 2024 (draft) ● Agenda item 3 Guidance for "Rules for Voluntary Control Measures" (VCCI 32-1-J:2024) (draft) ● Agenda item 4 Business plans (drafts) of the individual subcommittees for the next fiscal year ● Agenda item 5 Approval of new members
Continuing agenda items	● Agenda item 4
Decisions and reported items	● Agenda item 1 Approved ● Agenda item 2 Approved ● Agenda item 3 Approved ● Agenda item 5 Approved ● Reported item 1 REDCA Business Trip Report ● Reported item 2 Report on participation in the EMC Europe 2024 Symposium ● Reported item 3 VCCI seminar at the Yamagata Prefecture Industrial Technology Center ● Reported item 4 2025 Rules Briefing and Technical Symposium program (draft) ● Reported item 5 Activities of subcommittees (Technical, International Relations, Market Sampling Test, Public Relations, and Education) in the period from October to December ● Reported item 6 Secretariat work (member entry and withdrawal trends, the number of compliance verification reports, income and expenditure records, etc.)

●Technical Subcommittee

Date	November 6 and December 11, 2024
Agenda items	● Agenda item 1 FY 2024 Technical Subcommittee business plan ● Agenda item 2 FY 2025 Technical Subcommittee business plan (draft) ● Agenda item 3 Verification and RRT of voltage-to-current conversion ratio relating to improved transformer-coupled AANs ● Agenda item 4 Verification relating to phase-center measurements using hybrid antennas ● Agenda item 5 Verification of effectiveness and examination of issues in NSA evaluation using hybrid antennas ● Agenda item 6 Activities for the standardization of mains cable termination conditions ● Agenda item 7 2025 Rules Briefing and Technical Symposium ● Agenda item 8 Guidance for Performing Radiated Emission Measurement in the Condition of EUT Mains Cable Terminated with VHF-LISN
Continuing agenda items	● Agenda items 1, 2, 3, 4, 5, 6, and 7
Decisions and reported items	● Agenda item 8 Approval of Guidance for Performing Radiated Emission Measurement in the Condition of EUT Mains Cable Terminated with VHF-LISN ● Reported item 1 Report on participation in the EMC Europe 2024 Symposium (see page 13)

●International Relations Subcommittee

Date	October 10, November 13, and December 3, 2024
Agenda items	● Agenda item 1 Survey of trends in EMC regulations ● Agenda item 2 A meeting with the Korean NRRA (National Radio Research Agency), whom we will visit for an overseas survey, was scheduled for February 13 (Thu), and preparations were made (such as compiling questions). ● Agenda item 3 Speakers for the FY 2024 on-demand International Forum were decided at the October committee meeting, and translators from invited countries were decided at the December committee meeting
Continuing agenda items	● Agenda items 1, 2 and 3
Decisions and reported items	● Agenda item 1 The survey of trends in EMC regulations was updated on October 10. ● Agenda item 3 Speakers, translators, and the event schedule for the on-demand International Forum were decided. The International Forum will be held from March 24 (Mon) to 28 (Fri), 2025.

●Market Sampling Test Subcommittee

Date	October 10, November 14, and December 12, 2024
Agenda items	● Agenda item 1 Market sampling test report ● Agenda item 2 Document inspection report ● Agenda item 3 FY 2025 business plan (draft) ● Agenda item 4 Market sampling tests relating to VHF-LISNs
Continuing agenda items	● Agenda item 4
Decisions and reported items	● Agenda item 1 For the FY 2024 sampling tests, a selection of 65 test target products to be purchased was finalized, and tests are underway. So far, the results show that one product was "Failed-tentative" in the third quarter, and is being investigated by the applicable member. Of the products that "Failed-tentative" the FY 2023 market sampling tests, one remaining further investigation confirmed the failure of the product. ● Agenda item 2 For the FY 2024 document inspection, a selection of up to 50 documents was finalized, and inspection is underway. ● Agenda item 3 Approved

●Public Relations Subcommittee

Date	October 13, November 10, and December 1, 2023
Agenda items	● Agenda item 1 CEATEC 2024 ● Agenda item 2 FY 2025 business plan (draft) and budget (draft) ● Agenda item 3 Setup of exhibition booth ● Agenda item 4 Partial FAQ translation into multiple languages ● Agenda item 5 COMPUTEX TAIPEI 2025
Continuing agenda items	● Agenda items 2, 3, and 5
Decisions and reported items	● Agenda item 2 Deliberation based on the business plan (draft) and budget (draft) created for FY 2025 ● Agenda item 3 Due to aging of instruments used in the booth for exhibitions in Japan, future changes to the specifications and design have been planned. ● Reported item 1 Report on participation in CEATEC 2024 (see page 19) ● Reported item 4 "Frequently read Q&As" in the website FAQ has been translated to Chinese, Taiwanese, and Korean.

●Education Subcommittee

Date	October 16 and December 5, 2024
Agenda items	● Agenda item 1 Status of preparations for FY 2024 education and training ● Agenda item 2 FY 2024 textbook revisions ● Agenda item 3 Results and schedule of FY 2024 education and training ● Agenda item 4 Examination of the FY 2025 business plan
Continuing agenda items	● Agenda items 1, 3, and 4
Decisions and reported items	● Agenda item 1 ・Solicitation of participation in "The EMI measurement instrumentation uncertainty (MIU) (held from February 6 to 7, 2025)" and "The level up of the EMI measurement technique (held on January 31, 2025)" has been completed, and preparations for the event have begun. ● Agenda item 2 ・As part of the textbook revision for "The basic of electromagnetic waves, EMI measurement technique", measures to improve the rate of correct answers to comprehension checks have been completed. ・Feedback from last year's questionnaire results has been reflected in the textbook revision for "The EMI measurement instrumentation uncertainty (MIU)". ● Agenda item 3 ・"The basic of electromagnetic waves, EMI measurement technique (classroom seminars: November 28 to 29; practical courses (TELEC): December 5 to 6)", "The basic of electromagnetic waves, EMI measurement technique (classroom seminars: November 28 to 29; practical courses (KEC): December 12 to 13)": Classroom seminars were livestreamed online, and practical courses were held in in-person groups. 15 people attended, and received completion certificates. ・"The level up of the EMI measurement technique (held on January 31, 2025)" is being prepared to be livestreamed online. ・"The EMI measurement instrumentation uncertainty (MIU) (February 6 to 7, 2025)" is being prepared to be held in in-person groups, because training exercises will be involved. ● Agenda item 4 ・Four training seminars have been planned for FY 2025. These seminars consist of the following: ① The basic technique of EMI measurement (planned to be held in the first and second halves of the fiscal year) ② The basic of electromagnetic waves, EMI measurement technique (planned to be held in the first and second halves of the fiscal year) ③ The level up of the EMI measurement technique (planned to be held in the second half of the fiscal year) ④ EMI measurement instrumentation uncertainty (MIU) (planned to be held in the second half of the fiscal year)

●Registration Committee for Measurement Facilities

Date	October 21, 2024
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG.
Decisions and reported items	Conformity certified (including cases certified with qualification comments after checking of supplementary papers): 25 companies Radiated emission measurement facilities below 1 GHz: 14 AC-mains-ports-conducted emission measurement facilities: 15 Wired-telecommunication-port-conducted emission measurement facilities: 11 Radiated emission measurement facilities above 1 GHz: 14 Applications returned with comments: None Applications carried over to the next meeting: None
Date	November 25, 2024
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG.
Decisions and reported items	Conformity certified (including cases certified with qualification comments after checking of supplementary papers): 23 companies Radiated emission measurement facilities below 1 GHz: 9 AC-mains-ports-conducted emission measurement facilities: 12 Wired-telecommunication-port-conducted emission measurement facilities: 12 Radiated emission measurement facilities above 1 GHz: 11 Applications returned with comments: None Applications carried over to the next meeting: None
Date	December 23, 2024
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG.
Decisions and reported items	Conformity certified (including cases certified with qualification comments after checking of supplementary papers): 19 companies Radiated emission measurement facilities below 1 GHz: 8 AC-mains-ports-conducted emission measurement facilities: 17 Wired-telecommunication-port-conducted emission measurement facilities: 9 Radiated emission measurement facilities above 1 GHz: 9 Applications returned with comments: None Applications carried over to the next meeting: None

2nd instalment

My First Encounter with EMC and My International Standardization Activities at CISPR

Amemiya EMC Consulting Representative
Fujio Amemiya

1. Introduction

In the first instalment of this series, I wrote about the EMC issues surrounding Type-600P push-button telephones (radio-broadcast programs being picked up unintentionally by push-button telephones) as my first encounter with EMC (part 1). In this second instalment, I will discuss my encounter with EMC while working at the NTT's Musashino ECL (Electrical Communication Research Laboratories) in the early 1970s to commercialize an electronic version of the new mini (push-button) telephone as the "next-generation push-button telephone".

Given the space available, I didn't think I could fit my story into one instalment. Therefore, in the second instalment, I'd like to lay out the background to my research into the causes of EMC issues, and in the third instalment, summarize the results of my work studying solutions to EMC issues (designing countermeasures).

2. Overview of the new mini telephone

Back in its day, the new mini telephone was called the "Type-700P telephone", but by the time it was commercialized, its model number had been changed to "Type-701P". For clarity, I will use the name "new mini telephone" in this article. This telephone featured electronic versions of circuits such as the touch-tone dialing circuit, call circuits (for sending and receiving calls, and for 2-wire/4-wire conversion) and ringing circuit. Additionally, these electronic circuits were integrated into the handset. When I joined NTT and its Musashino ECL (in 1973), a prototype had been completed for conducting various tests to release the telephone nationwide as the next-generation push-button telephone. At the time, this telephone was undergoing tests for commercialization. These included not only long-running tests, but also high- and low-temperature-environment tests, atmospheric tests to check salt damage in coastal regions and the impact of various gases in hot-spring areas, and even drop tests. Meanwhile, there were plans for on-site tests (field tests) to identify issues and areas of improvement in the use of the new mini telephone. Near the Musashino ECL, tests were planned to be conducted at the NTT Tokyo Bureau of Communications (located in a skyscraper near Tokyo Tower at the time). The developer's telephone laboratory had planned to apply the results of these on-site tests to commercialization research for the commercial version of the telephone.

3. My encounter with strong audible noise emitted by the new mini telephone, and launch of the on-site investigation

Soon after preparations were completed, on-site tests began at the Tokyo Bureau of Communications.

Immediately afterwards, we received a shocking report from the person in charge at the Tokyo Bureau of Communications, saying that despite there being no particular issues in conventional push-button telephones, the new mini telephone was experiencing the following serious issues:

① Incoming calls could be received, but outgoing calls could not always be made depending on where the telephone was installed.

② After a call path was established, strong audible noise interference sometimes occurred in the new mini telephone, masking the receiver signal and making calls impossible.

Upon hearing of these hitherto-unexpected issues in the new mini telephone, the developer's telephone laboratory was in an uproar.

The telephone laboratory responded by quickly investigating the causes of the new mini telephone's dysfunction, and measures to address the issues in outgoing and established calls. I joined in this effort, suspending my research at the time (to reduce the size and weight, lower power consumption, and improve the call quality of a mobile cordless telephone featured in a dynamic exhibit at an Osaka expo). I worked on solving the issues faced by the Tokyo Bureau of Communications as a member of an emergency project for investigating the causes of these issues and considering design countermeasures.

Members of the emergency project (hereinafter, "PT members") immediately visited the Tokyo Bureau of Communications to confirm the issues and hold a meeting with Bureau associates, but were told: "A demonstration beats a hundred explanations. Come and see it for yourself." The members were taken straight to a room roughly on the 20th floor, near the rooftop of the building where the Tokyo Bureau of Communications was located. This room offered a view of Tokyo Tower from the balcony, unobstructed by the surrounding buildings (I recall that about half the room was being used to store communications-related materials. Hereinafter, I will call the room the "lab"). Equipment such as lab desks had already been brought into the room for the on-site investigation, and a telephone circuit had been installed for experimental use.

The moment I connected the new mini telephone I'd brought from the laboratory and picked up the handset, I could hear strong audible noise extremely similar to power-frequency noise (a hum), even before I'd brought the receiver to my ear. I remember shouting, astonished, "Why is it emitting such a loud hum!?" The people at the Tokyo Bureau of Communications fervently responded, "We were just as surprised. We've never seen this problem in past telephones. We realized it was so urgent, we'd have to report it to the laboratory team and get it solved right away." That was when I happened to grip the center of the receiver cord (curled cord) connecting the telephone's base set and handset, which made the receiver hum grow louder, surprising me yet again. I remember the PT members rushing to the scene to investigate, and standing around pondering the reasons behind the phenomenon.

4. Solving the issues (where was the noise coming from?)

These issues did not become apparent until we brought a prototype of the new mini telephone to the Tokyo Bureau of Communications and began on-site tests, and had never occurred in on-site tests in the past. First, we considered what differences specific to the Bureau there might be in the environment

where the telephone was installed, but found nothing of note. All I could think of was that compared to regular telephone-installation locations, TV broadcast waves (hereinafter, "TV waves") had greater electric field strength (looking back now, I feel my initial understanding was extremely naive).

For this reason, we had to buckle down and conduct our investigation and corrective measures at the Tokyo Bureau of Communications, where the issues occurred. We started with an urgent inquiry into the source of the audible noise, considering what sort of coupling with the telephone might cause the issues.

Soon after launching this investigation at the Bureau, we began to suspect that the main component of the telephone's audible noise must be either a 50-Hz or 60-Hz hum. Thus, we spent some time blindly investigating why a strong hum might be emitted from a telephone receiver not connected to a commercial power supply. All PT members involved in the on-site investigation gathered frequently at the site to report the status of their investigations and studies and hold Q&A sessions (i.e., exchange information). Eventually, one member raised a theory: maybe because the Bureau was near Tokyo Tower, with no buildings standing between the lab and Tokyo Tower, strong TV waves (channels 1 to 12) were interfering with the telephone line and the telephone itself, causing the strong hum. I had a "eureka" moment, realizing that TV broadcast video signals were indeed (at the time) amplitude-modulated waves, carrying 30 video frames per second, which must include a 60-Hz component. I also clearly remember another PT member suggesting that the cause of the strong hum might be the detection and subsequent emission of that 60-Hz component (including harmonics) by the telephone's electronic circuits.

Then, another PT member said, "I was wondering why this problem wasn't apparent outside the Bureau, but now that I've heard this (Dr. Amemiya's) theory on the noise source, I'm convinced he's right." We immediately brought the new mini telephone to a lower floor of the Tokyo Bureau of Communications, and checked the noise level emitted after connecting the telephone. The result was that a similar audible noise was emitted even on the lower floor, though at a reduced level compared to the upper-floor lab (note: the noise level was reduced, but still at a level that interfered with calls). While the hum made calls impossible on the upper floor, we found we could make calls on the lower floor despite the hum's interference. We also found that gripping somewhere around the center of the curled cord did not cause significant fluctuations in the emitted noise level. After that, we returned to the upper-floor lab and took the new mini telephone out to the lab's balcony by extending the telephone cord, to check the status of noise interference while receiving TV waves from Tokyo Tower directly. I remember all of the PT members confirming that the audible noise was even louder than inside the lab.

Afterwards, we listed the investigation items conducted at the Tokyo Bureau of Communications and their results in chronological order, and confirmed the facts for each item. After that, all PT members shared their own inquiry results, and held a discussion that included a lengthy Q&A session. As a result, several days into our investigation, we finally concluded with certainty that the source of the hum interfering with the telephone was the TV broadcast video signals (amplitude-modulated waves).

5. Afterword for the second instalment of this series

In this second instalment, I described the process of identifying the noise source, which involved plenty

of twists and turns and groping in the dark (so to speak). Looking back, I see that we struggled because anechoic chambers weren't yet prevalent in those days. Not only that; we lacked environments where labs could measure the emissions and test the immunity of equipment. In the event of an EMC-related failure or quality issue, we had to go to the site, investigate the problem, and discuss solutions a-la-carte style (case by case). In this case, I believe we got lucky. The Bureau's upper-floor lab described in this story happened to be a site where we could test radiated immunity at frequency bands used in TV broadcasts and evaluate our results, using actual TV broadcast waves.

In the third instalment, I plan to discuss countermeasures to address EMC issues.

Fujio Amemiya

1967 Majored in electrical engineering, School of Engineering, Tohoku University
1971 Graduated from the Electronic Communication Department, School of Engineering, Tohoku University
1973 Completed Master's programs in electrical and communication engineering at the Graduate School of Engineering, Tohoku University
1973 Joined the Telephone Laboratory of the Customer Premises Equipment Research Department, Musashino ECL (Electrical Communication Research Laboratories), Nippon Telegraph and Telephone Public Corporation and researched electronic telephone circuits
1977 Transferred to NTT's Yokosuka ECL and researched digital telephones
1985 Transferred to NTT's Musashino ECL and operated and evaluated an experimental ISDN system
1988 Transferred to NTT's Telecommunication Networks Laboratories, began researching telecommunications EMC and worked on CISPR standardization
1992 Transferred to NTT's Technical Assistance & Support Center and worked on EMC failure countermeasures in telecommunications equipment and devices, and CISPR standardization
1996 Transferred to NTT's Telecommunication Networks Laboratory, researched ITS communication networks, and worked on CISPR standardization
2000 Transferred to NTT Advanced Technology Corporation, provided consulting for EMC testing, evaluation, and countermeasures, and worked on CISPR standardization
2019 Left NTT Advanced Technology Corporation, founded "Amemiya EMC Consulting", and joined VCCI as Technical Adviser

Report on the EMC Europe 2024 Symposium

Technical Subcommittee

This is a report on the EMC Europe 2024 Symposium.

- Venue: The Bruges Meeting & Convention Centre (BMCC) Bruges, Belgium
- Period of trip (participation in the symposium): September 2 (Mon) to 5 (Thu), 2024
- Period of symposium: September 2 (Mon) to 5 (Thu), 2024
- Participants: Technical Subcommittee: Shinichi Okuyama, member (NEC Platforms, Ltd.)
  Nozomi Miyake, member (NEC Corporation)
  Hidenori Muramatsu, Technical Manager (VCCI Council)

1. Overview

The Symposium was held face to face, as was the case last year.

We participated in this Symposium to present papers submitted by the VCCI Council, present and listen to the presentations of other papers, and exchange information though observation.

The Symposium was a great success, attracting 685 participants, which caused registration to be closed due to full capacity. The technical program consisted of two keynote speeches, 32 workshops and tutorial sessions, and 48 technical sessions. Additionally, 35 companies exhibited booths at the venue.

2. Papers presented by the VCCI Council

- Date and time: September 4 (Wed) 11:00 - 11:30
- Session: OS-IM-IV : Oral Session on Instrumentation & Measurement
- Paper title: Evaluation of Influence to Radiated Emission Measurement in Consideration of Connection Direction of Unbalanced Power Line Termination Device to Outlet in Test Sites
- Authors: Shinichi Okuyama (NEC Platforms, Ltd.), Nobuo Kuwabara (Kyushu Institute of Technology), Kunihiro Osabe (VCCI Council), Fujio Amemiya (VCCI Council), Toshiki Shimasaki (VCCI Council), Hidenori Muramatsu (VCCI Council)
- Presenter: Shinichi Okuyama (NEC Platforms, Ltd.)
- Paper overview: The impedance characteristics of outlets supplying power to EUTs at EMC test sites are not regulated by emission standards. For this reason, radiated emissions from mains cables are affected by the impedance characteristics of outlets to which EUTs' mains cables are connected, a factor significantly worsening the correlations of measurement results between test sites. A solution being considered for this issue is the introduction of VHF-LISNs as power-supply termination devices regulating the impedance of outlets at EMC test sites. Currently, two types (balanced and unbalanced) of VHF-LISNs have been

proposed. Preliminary measurements from a previously conducted international round-robin test show that if an unbalanced VHF-LISN is used, radiated emissions from the mains cable change depending on the direction in which the power plug was connected. In response, a simpler power-supply termination device was created and verified by using a highly reproducible method. As a result, it was confirmed that radiated emissions did not change depending on the direction in which the power plug was connected when a balanced VHF-LISN was used. However, it was also confirmed that radiated emissions did change depending on the direction in which the power plug was connected when an unbalanced VHF-LISN was used with a differential-mode signal source.

- Questions: We received a question about the length of the mains cable during verification, and replied that a cable about 1 m long was used. We also received a comment suggesting that we also conduct verification using a longer cable, because radiated emissions change depending on cable length. We replied that although this phenomenon is not considered to depend on cable length, we will consider measurement using a longer cable in the future. We were also asked if we were considering solutions to cases using unbalanced VHF-LISNs where radiated emissions change depending on the direction in which the power plug is connected. To this, we replied that we expect methods of addressing such cases to be considered in the future.
- Impressions: A CDV was approved for the next CISPR 16-1-4, which adds a new definition of "VHF-LISN", and going forward, measurement methods for VHF-LISNs will be proposed as DC documents for CISPR 16-2-3. This was optimal timing for us to call attention to the effectiveness of VHF-LISNs. Additionally, by clarifying issues with unbalanced VHF-LISNs, we believe we were able to indirectly emphasize the superiority of balanced VHF-LISNs proposed by the VCCI Council.

3. Keynote

(1) Keynote 1

- Title: INNOVATIVE OUTPUTS AND EU POLICY FEEDBACK: SHIELDING SUCCESS IN EU-FUNDED PROJECTS VIA METHODOLOGICAL INSIGHTS FROM THE H2020 MSCA-ITN PROGRAMME
- Presenters: Mr. Ioannis Bitsios, Ms. Audrey Arfi & Mr. Riccardo Ricci
- Affiliation: European Commission, European Research Executive Agency
- Overview: This speech introduced research and training programs funded by the EU, focusing on MSCA (Marie Skłodowska-Curie Actions), which was named after the famous Marie Curie. Innovative training networks and their evaluation methods have yielded great results, not only in terms of publication and patent volume, but also in terms of social innovation and effective transfer of knowledge.

(2) Keynote 2

-Title: NAVIGATING RISK-BASED EMC IN MEDICAL DEVICE DESIGN: INSIGHTS AND BEST PRACTICES

- Presenter: Mr. Rob Kleihorst

- Affiliation: Philips Medical Systems Netherlands B.V.

- Overview: As technology continues to advance, electromagnetic compatibility (EMC) is growing increasingly important in product design and development. Of key importance regarding medical devices is the environment where the devices are intended to be used, which requires that product lifespans be taken into account. To manufacturers, the ability to evaluate and manage EMC risks is becoming essential to staying competitive in an ever-changing industry. It is becoming necessary to design products using a risk-based approach, evaluating EMC-related failures and reducing the risk of such failures.

4. Workshops

(1) Workshop on recent advancements in measurement uncertainty

-Title: Uncertainty of Analysis from the Early Days to Usage of Reverberation Chambers

- Presenter: Mr. John Ladbury

- Country: USA

- Affiliation: National Institute of Standards and Technology (NIST)

- Overview: This presentation on measurement uncertainty using reverberation chambers (RVCs) was given not as the opinion of NIST, but as presenter John Ladbury's personal analysis, based on transitions in measurement methods from the beginning of the 1980s to the present day. In the 1980s, output power was measured by using directional couplers and power meters, and input power was measured by using power meters and spectrum analyzers. Additionally, although mismatches in transmitting antennas were measured and corrected, mismatches in receiving antennas and fluctuations in wave impedance were treated as errors. Meanwhile, vector network analyzers were used in measurements in the 1990s, and mismatches in receiving antennas and fluctuations in wave impedance were also corrected, improving uncertainty. In view of this, the opinion was raised that improving measuring equipment could reduce external noise interference in measurement data, leading to new discoveries such as additional elements of uncertainty.

(2) Workshop on the GB Ethernet interface with PoE from an EMC perspective

-Title: The GB-Ethernet Interface with Power over Ethernet from an EMC Perspective External

- Presenter: Dr. Heinz Zenkner

- Country: Germany

- Affiliation: Wurth Elektronik eiSos (WE)
- Overview: The presenter discussed EMC countermeasure design for Gigabit interface circuits with integrated PoE, explaining the key points of circuit design and circuit-board design based on experimental data using actual circuit boards. Specific design examples were presented, including separation of power-supply current and signal path and impedance matching for circuit design, and the layout of interface connectors and mitigation components, pattern design, circuit-board layer structure, and ground design for circuit-board design. In circuit boards applying the presented case examples, EMC measures were shown to reduce radiated emissions from Ethernet cables by about 10 dB. Actual circuit boards were passed around the audience at the venue so that attendees could see examples of the EMC-measure results firsthand.

5. Special & Oral Sessions

(1) OS-IM-II: Oral Session on Instrumentation & Measurement

- Title: Experimental Validation of Correction Factors for In Situ H-Field Measurements below 2 MHz
- Presenter: Mr. Jordi Sol´e-Lloveras
- Country: Spain
- Affiliation: EMC Electromagnetic BCN, S.L.
- Overview: CISPR 11 proposes measurement of radiated emissions at a distance of 30 m when performing in-situ measurement. However, such a measurement distance, radiated emissions are largely indistinguishable from the surrounding noise. Also, depending on restrictions at the test site, securing even this 30-m measurement distance might be impossible. Thus, experimental research was conducted on the conversion factor of the corresponding magnetic field with the measurement distance set to 10 m. The reported results showed that a frequency range of 150 kHz to 2 MHz matched the details proposed in the latest draft of CISPR 37 extremely well.
- Impressions: In-Situ MEASUREMENT (VCCI 32-1-5:2016) stipulates how to interpret the VCCI Council's Rules for Voluntary Control Measures when conducting in-situ measurement. In view of this, we will keep an eye on future trends in deliberation on CISPR 37.

(2) OS-IM-III: Oral Session on Instrumentation & Measurement

- Title: An International Round-Robin Test for Insertion Impedance of Current Probes
- Presenter: Mr. Alexander Kritz
- Country: Austria
- Affiliation: Seibersdorf Laboratories
- Overview: The presenter reported the results of an international round-robin test on the insertion impedance of current probes in the measurement of conducted emissions from

mains ports. For current probes used in conducted emission measurement based on CISPR 16-2-1, insertion impedance was measured based on CISPR 16-1-2 at four testing laboratories in Austria, Germany, Japan, and the UK, and the measurement results were compared. Measurement reproducibility was high for frequency bands up to 500 kHz, but for frequency bands at 500 kHz and above, there were extremely large differences between the test results of each testing laboratory. It was reported that fluctuations in measurement results are theorized to be caused by the coupling of current probes and calibration jigs, a major obstacle to ensuring measurement reproducibility.

- Impressions: The Technical Requirements (VCCI-CISPR 32:2016) stipulate measurement methods using current probes when measuring conducted emissions from wired network ports. The Technical Subcommittee hopes to verify how much the coupling of current probes and calibration jigs affects emission-measurement results.

(3) OS-IM-IV: Oral Session on Instrumentation & Measurement

- Title: Validation of the Physical Random Unintentional Radiation Model by Measurement of an Artificial Test Object in an Anechoic Chamber
- Presenter: Mr. Max Rosenthal
- Country: Germany
- Affiliation: Otto von Guericke University Magdeburg
- Overview: Due to the introduction of 5G services, several new wireless services far above 6 GHz were established. To cover this frequency range, CISPR 16-2-3's existing measurement procedure for frequencies up to 6 GHz has been extended to 18 GHz, and in ANSI C63.4, extended to 40 GHz. At high frequencies and their corresponding short wavelengths, the radiation pattern of test-target devices increases in complexity. Thus, to achieve higher accuracy, general considerations must be made to increase the number of measurement points (conditions) by performing additional flat scans at different EUT-rotation axes and using an angled antenna to perform additional height scans. However, it was reported that because higher angular resolution increases measurement time, an alternative method using RVCs according to IEC 61000-4-21 is preferable.
- Impressions: There is a possibility that CISPR 32 Ed. 3.0 will have stipulations for RVCs. We will keep an eye on the correlations of results of radiated-emission measurements in conventional semi-anechoic chambers.

6. Exhibition

While the focus was on trends in companies that traditionally participate in the event, 35 companies exhibited booths; 8 fewer than last year.

One exhibit on TEMPEST showed that electromagnetic waves leaking from HDMI cables during reception were received by an antenna, and the results displayed by the receiver were reproducible. An attendee commented that caution was required because HDMI signals were not encrypted, posing a risk of information leaks via electromagnetic-wave eavesdropping.

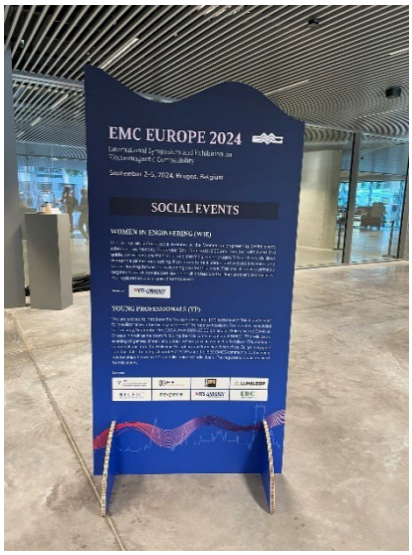
7. Impressions

The session on multimedia equipment largely featured information on in-situ and RVC testing. In radiated-emissions tests using semi-anechoic chambers, EUT size was 5 m during measurement using the 10-m method. For EUTs larger than that, measurement was conducted at the installation site, so there was ongoing deliberation on in-situ measurement methods. Radiated-emission measurement using relatively cheap RVCs was proposed due to the high cost of investing in facilities. Also, due to the use of higher-radio-frequency bands in equipment, measurement sites from the 18-GHz to 40-GHz bands are being evaluated, and measurement devices and allowable values are being considered.

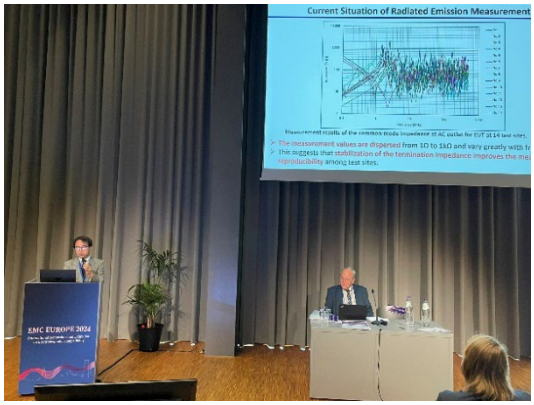
For these reasons, we felt a need to incorporate verification methods for in-situ, RVC, and 18-GHz-to-40-GHz-band measurements, and emission-measurement methods such as for large EUTs as activity topics at the Technical Subcommittee. These are new topics being deliberated on at CISPR and as future revisions to CISPR 32.

Regarding the contents and trends of presented papers, many papers compared simulation results and actual measurement results to check the validity of simulations, and proposed new measurement methods and novel research results.

Going forward, we will keep an eye on trends in deliberated CISPR 32 revisions and submit papers on the results of research such as verification of mains-cable termination devices and improved AANs that can improve the reproducibility of measurement results. Papers will be submitted to APEMC Taiwan, IEEE EMC+SIPI, and EMC Europe in 2025.



Venue entrance



Presentation by committee member Shinichi Okuyama

Report on Participation in CEATEC 2024

Public Relations Subcommittee

This is a report on our participation in CEATEC 2024.

Exhibition name: CEATEC2024
https://www.ceatec.com/ja/

Venue: Makuhari Messe
Exhibition period: October 15 (Tue) to 18 (Fri), 2024
Total number of registered visitors: 112,014
Number of exhibitor companies: 808 companies and organizations

1. Purpose of exhibition

CEATEC is Asia's largest international exhibition for information technology and electronics, attracting not only engineers from Japan and overseas, but also many general consumers. For this reason, we participated in the exhibition to introduce the VCCI Council's activities and improve awareness of the VCCI mark.

2. VCCI Council booth

The VCCI booth showcased materials such as membership information, two types of panels, and introductory videos about VCCI Council.

VCCI Council booth

●Display panels

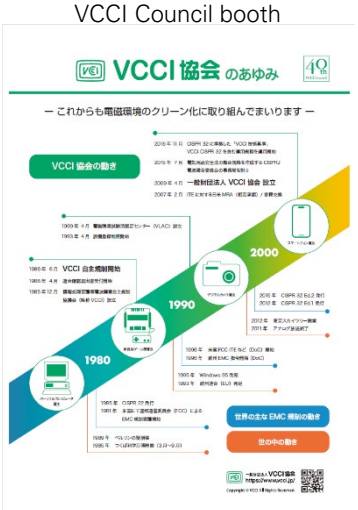
Two types of LED panels were displayed: the newly created "History of the VCCI Council" and "Japanese Electromagnetic Regulations".

●Materials (Those marked with an asterisk (*) were also available in English.)

- Introduction to the VCCI Council* (triple-folded pamphlet)
- Information on VCCI enrollment*
- Annual Report 2023*
- Scope of international standard CISPR 32*
- Guide to the VCCI Council's education and training

●Introductory videos (Japanese version)

Three themes: "Do you know this mark?", "Acquiring the VCCI mark", and "Scope of VCCI" (approx. 7 minutes)



●Number of booth visitors

129 people visited the booth over the exhibition period. Among these, 66 filled out the questionnaire.

Visitors were given 2025 desktop calendars, ballpoint pens used at the event, and novelty gifts.

Days later, we sent emails to booth visitors thanking them for their attendance.

3. Online: Exhibitor information page

Information on exhibitors and their exhibits was published online according to the sponsor's publication conditions.

Appearance of the exhibitor information page

4. Impressions

The venue was bustling with attendees, many of whom visited the VCCI Council booth.

Many attendees were unfamiliar with the VCCI Council, so we felt this was a good opportunity to get people interested in the VCCI Council's activities and the VCCI mark.

We received feedback such as, "The explanation was easy to understand." and "I'll check it out when I get home".

We intend to continue participating in exhibitions as useful PR opportunities to promote the VCCI Council's activities and the VCCI mark.

48th REDCA: Business Trip Report

Steering Committee

Date and time: November 6 (Wed) 2024 9:00 - 17:00, November 7 (Thu) 9:00 - 12:30

Venue: The Hyatt Regency Nice Palais, France

Participants: About 100 face-to-face participants from Europe, the US, Canada, and Japan (members and observers), and online participants (about 220 in total)

Chairman：Mr. Holger Bentje

Secretariat：Mr. Nick Hooper, Assistant Secretariat：Mr. Neil Bonter

Participants on business: Shinji Kakita, member of the Steering Committee (Mitsubishi Electric)

Akira Oda, Executive Director (VCCI Council)

Reference: REDCA membership (as of November 1, 2024): 289 organizations (full members and observers)

Full members: 281 organizations (among which 15 are Japanese members)

Observers: 8 organizations (among which 2 are Japanese organizations, including the Ministry of Internal Affairs and Communications)

1. Introduction

REDCA (The Radio Equipment Directive Compliance Association) was formed based on the requirements of Radio Equipment Directive 2014/53/EU, and holds biannual general meetings for members associated with radio-equipment compliance with EEA (European Economic Area) regulations and technical standards. These meetings also address compliance in countries that have signed mutual-recognition agreements such as EU countries, the US, Canada, Japan, New Zealand, and Australia.

The VCCI Council is a member of REDCA, and has been participating in these meetings since 2011 to learn the latest trends in European regulations and market monitoring status, and to share this information with VCCI Council members.

2. Overview of operations

A report on REDCA operations states that REDCA's financial status is sound and that membership fees are reasonably priced. The number of members is as shown at the beginning of this section.

3. Reports from each organization

3.1 Update from the EU Commission

(a) Cybersecurity policy

RED's cybersecurity regulations based on the CRA (Cyber Resilience Act), which targets internet-

connected radio equipment and aims to provide network protection, user privacy, and protection against financial fraud, will come into effect from August 1, 2025.

Three baseline harmonized standards were created by CEN/CELENEC based on CRA. The initial deadline was September 30, 2023, but after an extension was requested by the institution creating the standards, the standards were issued on October 2, 2024. The EU Commission has decided to cite these standards.

If it turns out that none of the harmonized standards are applied to conformity assessments, accreditation by accreditation bodies will be necessary.

*Reference: Article 3(3) of the European Radio Equipment Directive (scope of cybersecurity)

- Internet-connected radio equipment does not harm the network or its functioning nor misuse network resources, thereby causing an unacceptable degradation of service
- Internet-connected radio equipment incorporates safeguards to ensure that the personal data and privacy of the user and of the subscriber are protected
- Internet-connected radio equipment supports certain features ensuring protection from fraud

(b) RED harmonized standards

The following harmonized standards are relevant to the latest HS decided upon by the committee:

EN 301 908-1 V15.2.1, EN 302 077 V2.3.1, EN 302 245 V2.2.1, EN 303 132 V2.1.1,

EN 303 980 V1.3.1, EN 303 981 V1.3.1, EN 50360:2017, EN 50566:2017

(c) Common Charger Directive

A guidance document on interpreting the Common Charger Directive was published on May 7, 2024.

"Guidance for the interpretation of the Common Charger Directive"

The European Commission is currently drafting an SReq (Standardization Request) whose deadline is December 28, 2024.

Additionally, an investigation to analyze the possibility of expanding the applicable scope of common charge requirements to radio equipment outside the scope of the directive is reaching its final stage. The products subject to evaluation are wearables, RC (radio-controlled) toys, drones, electric toothbrushes, AR/VR headsets, and video-game controllers.

(d) Radio systems that can be reconfigured

The European Commission began an independent investigation into interference occurring when software controls radio parameters to collect information and help evaluate the effects of the interference. The purpose was to make Article 3(3)(i) and (or) Article 4 effective to ensure that compliance with all applicable RED requirements would not be undermined even after software installed on radio equipment and devices is put on the market.

This investigation has been ongoing for one year, since August 2024, and there are plans to seek cooperation from relevant stakeholders.

3.2 IEC/CISPR update

Report on the status of CISPR and SC77A/B activities

- Report on the status of CISPR and SC77A/B activities
- CISPR 16-1-4 Ed.5 will add a definition of VHF-LISN devices, which is reportedly expected to be internationally standardized around May 2025. 15 broad categories (such as mains cable termination, WPT, and in situ) are being considered for CISPR 32 Ed.3.
- IEC 61000-4-41 (EMC Part4-41:Testing and measurement techniques-Broadband radiated immunity tests) has been approved (note: published on November 21, 2024).

  These standards apply to broadband signals, and will likely start from multimedia equipment and eventually be expanded to all product types. After the upcoming publication of these standards by the IEC, it will take at least a few years until these standards are referenced as product standards. Before compliance becomes mandatory, manufacturers are encouraged to prepare to design products in compliance with these standards.

3.3 Report from ADCO RED (Administrative Co-operation Working Group)

Since the previous REDCA meeting, ADCO RED has been held twice to discuss issues such as revisions to subclasses under class 1 (RED Guide revisions), common chargers, and cybersecurity. The 26th ADCO RED session was held from June 25 to 27, 2024, and the 27th ADCO RED session was held from October 15 to 16, 2024.

- Common chargers

  If products without USB-C interfaces were put on the market by December 27, 2024, these products can also be put on the market from December 27, 2024 onward. (Products put on the market from December 28, 2024 onward must have USB-C interfaces.)

  Correction of common chargers is not covered by the current Blue Guide, and corrections might be considered repairs.

  Products put on the market can be obtained on the market as refurbished products only if they meet the following conditions:
  - The product must comply with applicable laws at the time the product is put on the market.
  - The product has not undergone major changes of the kind that change the product's original performance.

  However, refurbished products from other countries are considered new products, and must undergo conformity-assessment procedures. Discussions of how to perform market monitoring, and how to technically assess the lawfulness of USB-C charging interfaces are ongoing.
- Regarding the revisions to RED Guide, comments have already been collected twice. Comments are now being collected for a third time.
- ETSI TR 103 879 V1.1.1(2021-10) was published.

  "Electromagnetic compatibility and Radio spectrum Matters (ERM); Guidance on risk assessment for radio equipment"
- Market surveys relating to WLAN 5 GHz are planned to be summarized by the end of 2024.

  - A market survey on radio-controllable toys is planned for the first half of 2025.

- Specific numbers from market surveys were not published at this time.

3.4 CEN/CELENEC RED Cyber security

The EN 18031-1, -2, and -3:2024 series were published (in August 2024) as RED harmonized standards supporting the CRA framework.

Each standard is defined in the Directive 2014/53/EU (Articles 3.3.d, 3.3.e, and 3.3.f), and supports one mandatory requirement made effective by Commission Delegated Regulation (EU) 2022/30. The need to apply one or more standards to a particular piece of radio equipment must be considered through risk assessments by each business operator in question.

These harmonized standards use the concept of a mechanism to instruct users on when to apply a particular security measure. This mechanism checks applicability and eligibility through a series of requirements including assessment criteria, and thereby decides whether individual standards can be applied.

A decision tree is also provided to assist in decision-making and assessment to indicate a clear direction.

Note that exemptions from RED apply to the following radio equipment:

<Fully exempt from 3.3 d/e/f>

- Medical equipment based on Regulations (EU) 2017/745 and (EU) 2017/746

<Exempt from 3.3 e/f, but 3.3 d applicable>

- Radio equipment based on Regulation (EU) 2018/1139 (civil aviation)
- Radio equipment based on Regulation (EU) 2019/2144 (motor vehicles)
- Radio equipment based on Directive (EU) 2019/520 (road toll systems)

3.5 Update on MRA activities from the USA

NIST is a part of the United States Department of Commerce, and works with the FCC to implement US mutual recognition agreements regarding telecommunications. However, increasing numbers of accreditation-document examinations and other cases leading to shorter migration periods for conformity assessments has become an issue.

NIST also has the authority to notify the EU of US accreditation bodies. From October 1, US accreditation bodies will begin an application process to expand the scope of accreditation to include cybersecurity, and documents such as technical checklists are being created accordingly.

In Canada, *NIST RED NB Assessment Checklist Article 3.3 d, e, f (cybersecurity)* was newly established on September 25, 2024. In addition, *NIST EU & UK Schemes – Scopes of Accreditation – Mandatory and Optional Content* was updated to version 2.0 on September 25, 2024. Canadian documents demonstrating ownership rights to testing laboratories and employee lists will need to be submitted starting from January 1, 2025. Additionally, supporting laboratories will need to confirm that all standards are covered within the specified frequency range, and partial accreditation will not be permitted.

3.6 ETSI Update

- A guidance document on Common Charger Directives was published (May 2024).
- A guidance document on risk assessment was published (October 2024).
  TR 103 879 *Guidance on risk assessment for radio equipment*

3.7 Update on Japan Radio Regulations

- There was a presentation on "MIC MRA Workshop 2024", which was held in Japan in March 2024, and "MIC MRA Workshop 2025", which is planned to be held in Japan from March 6 to 7, 2025.

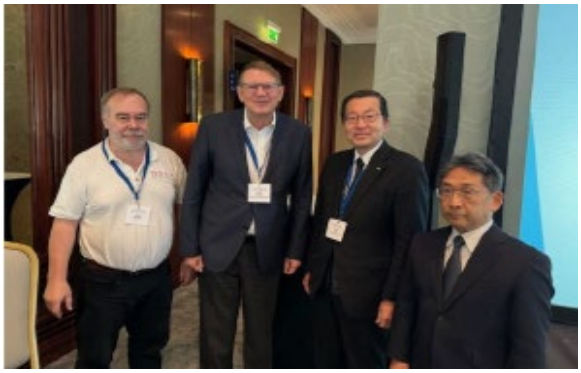
4. Next conference

The next conference is scheduled for the week of May 12, 2025.

5. Impressions

Multiple attendees reported on trends in the operation of the most recently published harmonized standards for cybersecurity and of the Common Charger Directives, which were hot topics attracting great interest.

Of course, these were key concerns to manufacturers due to the responsibility associated with regulations. Specifically regarding cybersecurity, one attendee pointed out that in the wireless and security fields, different conceptions of responsibility between module manufacturers and system-product manufacturers might pose a problem. There were repeated questions about the degree to which manufacturers were responsible for system products put on the market using vendor products, and back-and-forth discussion with regulators, which we found particularly memorable.



Mr. Bonter, Mr. Bentje,
Akira Oda (Executive Director of VCCI Council),
and Shinji Kakita (member of the Steering Committee)

Event venue

Status on FY2024 Market Sampling Tests

Market Sampling Test Subcommittee

As of December 26, 2024

Planned number of market sampling tests	Purchase-based	65

Terms of sampling tests		Selected samples	Cancelled (Not shipped, etc.)	Testable samples	Test completed breakdown below	Judgment			
						Passed	Failed- tentative		
							Finally passed	Finally failed	Pending
Grand total		65	0	65	49	47	0	0	2
Purchase-based testing total		65	0	65	49	47	0	0	2
Term (breakdown)	1st Quarter	20	–	20	20	19	—	—	1
	2nd Quarter	12	—	12	12	12	—	–	—
	3rd Quarter	18	—	18	17	16	—	—	1
	4th Quarter	15	—	15	—	—	—	—	—

"Failed- tentative" in FY 2023	Target samples	Passed	Failed	Pending
	2	–	2	–

FY 2024 total (Including "Failed – tentative" from FY2023)	Passed	Failed	Pending
	47	2	2

Document inspection	Planned number of market sampling tests	Selected samples	Cancelled (withdrawal, etc.))	Inspectable samples	Pre-check completed	Judgment completed	Judgment	
							Cleared	Problems identified
	50	52	2	50	50	47	45	2

Company	GODSPEED
Device:model	Electronic POP: GS-MDPAD03
Test result	Radiated emission measurement Horizontal at 593.61 MHz: 15.0 dB excess; vertical at 593.19 MHz: 13.9 dB excess Conducted emission measurement Power port: 16.6 dB excess at 0.577 MHz
Cause / improvement	Cause: A different AC adapter and HDMI cable from the AC adapter and HDMI cable used in conformity confirmation tests by the overseas ODM partner were included with the product. Countermeasures: Replace the AC adapter and HDMI cable with an alternative AC adapter and HDMI cable. Measures to take on stocked and shipped products: Publish a notice on the company website regarding the replacement with the alternative AC adapter and HDMI cable. Prevention: Conduct acceptance inspection on the main terminal and items included with the product in advance.

Report from the Secretariat

● List of Members (October 2024 - December 2024)

New members

Membership	Member No.	Company Name	Country
Regular	4406	CPSpeed CO., LTD.	JAPAN
Regular	4412	JAPAN DIREX CORPORATION	JAPAN
Regular	4413	Gexeed Co., Ltd.	JAPAN
Regular	4419	ASCO CO., LTD	JAPAN
Supporting	4400	Kyosan Electric Manufacturing Co., Ltd.	JAPAN
Regular	4415	Ennoconn Corporation	TAIWAN
Regular	4402	Fujian Newland Auto-ID Tech. Co., Ltd.	CHINA
Regular	4403	DSGLOBAL CO., LTD	KOREA
Regular	4404	Digitus Biometrics, Inc.	USA
Regular	4407	ABACUS PERIPHERALS PVT LTD	INDIA
Regular	4409	ProGrade Digital Inc.	USA
Regular	4410	Hunan Greatwall Computer System Co., Ltd	CHINA
Regular	4411	Fellow Industries Inc.	USA
Regular	4414	Minimizing Co., Ltd.	KOREA
Regular	4416	Micas Networks Inc.	USA
Regular	4417	THINKAR PTE. LTD.	SINGAPORE
Regular	4418	HUIZHOU CITY YOUWEI CHUANGKE ELECTRONICS CO., LTD	CHINA
Supporting	4405	Guangdong Shence Testing Technology Service Co., Ltd.	CHINA
Supporting	4408	Suzhou Dongdian Testing Service Co., Ltd.	CHINA
Supporting	4420	Shenzhen Central Standard International Center Co., Ltd	CHINA

Company name change

Membership	Member No.	Company Name	Country	Old company name
Regular	577	Overland Storage, Inc. dba Overland-Tandberg	USA	Overland Storage, Inc.
Regular	2084	Vantiva Technologies SAS	FRANCE	ARRIS International PLC
Regular	4301	Wuhu Dongweifeng Electronic Technology Co., Ltd.	CHINA	Wuhu Doking Electronic Technology Co., Ltd.

Note: Please fill out and submit "Form 9 Change Notification" on the website when a company name has been changed.

● FY 2025 schedule of VCCI events and training seminars

April	May ・COMPUTEX TAIPEI	June ・Release VCCI Dayori No. 157
July ・TECHNO-FRONTIER 2025	August ・Release Annual Report	September ・Release VCCI Dayori No. 158
October ・CEATEC 2025	November ・Event celebrating VCCI's 40th founding anniversary (planned)	December ・Release VCCI Dayori No. 159
January	February ・Technical Symposium (plan)	March ・Release VCCI Dayori No. 160

● Status of Compliance Test Notifications

October 2024—December2024 (Product names are examples and are not limiting)

Classification of MME (Product types are not limited to only the following examples.)				Classification code		October 2024			November 2024			December 2024		
				Class A	Class B	Class A	Class B	Total	Class A	Class B	Total	Class A	Class B	Total
ITE	Computer	Large	Super computer, Server, etc.	A 2	a 2	23	1	24	24	0	24	41	1	42
		Stationary	Workstation, Desktop PC, etc.	B 2	b 2	5	12	17	1	17	18	5	25	30
		Portable	Laptop PC, Tablet PC, etc.	C 2	c 2	0	47	47	0	54	54	0	48	48
		Other computers	Wearable computers, Wearable device, Smart watch, Smart glass, etc.	E 2	e 2	3	0	3	0	2	2	2	0	2
	Peripheral / Terminal	Memory device	HDD, SSD, USB Memory, Media drive, Disk device, NAS, DAS, SAN, etc.	G 2	g 2	8	18	26	14	50	64	11	28	39
		Printer device	Printer including multifunction machine, etc. (portable)	H 2	h 2	5	3	8	4	1	5	9	5	14
		Display device	CRT display, Monitor, Projector, etc.	J 2	j 2	7	85	92	7	59	66	9	42	51
		Other I/0 devices	Image scanner, OCR, Pen tablet, Stylus pen, etc.	M 2	m 2	0	3	3	1	5	6	2	5	7
		General purpose terminal	Display controller terminal, etc.	N 2	n 2	0	0	0	0	6	6	0	1	1
		Special purpose terminal	POS, Terminal for finance, insmance, etc.	Q 2	q 2	9	4	13	3	1	4	5	1	6
		Other peripheral	PCI Card, Graphics Card, Mouse, Keyboard, Cradle, etc.	R 2	r 2	7	55	62	7	43	50	3	39	42
		Copying machine / Multifunction copying machine	Copying machine, Multifunction copying machine, etc. (Stationary)	S 2	s 2	2	0	2	5	0	5	4	0	4
	Communications equipment	Terminal equipment	Mobile phone, Smart phone, PHS phone, etc.	T 2	t 2	0	3	3	0	5	5	0	2	2
			Telephone device such as PBX, FAX, Key telephone systems, Cordless phone, etc.	U 2	u 2	0	1	1	0	0	0	2	0	2
		Network-related equipment	Communication line connecting device including Modem, Digital transmission unit, DSU, TA, Media converter, etc.	V 2	v 2	0	0	0	1	3	4	3	0	3
			LAN-related device, including Router, HUB, etc. Local switch, etc.	W 2	w 2	27	21	48	32	17	49	31	18	49
		Other communication equipment	Other communication equipment	X 2	x 2	8	7	15	7	13	20	17	3	20
Broadcast receiver equipment			TV, Radio, Tuner, Video recorder, Set-top box, etc.		k 2		0	0		2	2		0	0
Audio equipment			Speaker, Amplifier, IC recorder, Digital audio player, Headset, DTM, AI speaker, etc.	L 2	l 2	0	4	4	1	2	3	0	9	9
Video equipment		Video equipment	Digital video camera, Web camera, Network camera, Video player, Photo frame, Digital camera, Drive recorder, etc.	I 2	i 2	15	11	26	10	13	23	5	14	19
		Other video equipment	VR goggles, Scan converter, etc.	P 2	p 2	0	0	0	0	1	1	0	1	1
Entertainment lighting control equipment			Entertairunent lighting control equipment, etc.	Z 2	z 2	0	0	0	0	0	0	0	0	0
Other MME	Entertainment / Education equipment	Electronic stationery	Electronic dictionary, e-book reader, Translator, Calculator, etc.	D 2	d 2	0	1	1	0	0	0	0	1	1
		Electronic toy	Game console, Game pad, toy drone, etc.	Y 2	y 2	0	4	4	0	2	2	0	1	1
		Other Entertainment / Education equipment	Navigator, AI robot, etc.	F 2	f 2	0	0	0	1	0	1	0	0	0
	Other MME		MME other than the above	O 2	o 2	5	0	5	4	7	11	2	3	5
Total						124	280	404	122	303	425	151	247	398

●Registration Status of Measurement and Other Facilities

The following table indicates the status on registration of measuring facilities in the most recent three months.
Facilities listed here are only those made open by members of application for registration in principle. Members with those facilities whose valid period expired are kindly advised to contact VCCI to inform of the status they are in. Status to choose from are, renewal application being filed, new application being filed, waiting for the next issue to carry, or terminating the registration (all facilities are posted in the Web site).
Facilities in Japan are listed in Japanese.

List of newly registered or renewed facilities (October 2024 – December 2024)

R: Radiated EMI measurement facilities below 1GHz　C: AC-mains-ports-conducted EMI measurement facilities
T: Telecommunication-port-conducted EMI measurement facilities　G: Radiated EMI measurement facilities above 1GHz

Company name	Equipment name	3 m	10 m	30 m	Dark 3m	Dark 10m	Registration number	Effective date	Location
The State Radio_monitoring_center Testing Center	SAC-10	-	-	-	-	-	G-20228	2027/10/26	No. 80, Zhaojiachang, Beizang, Daxing District, Beijing, People's Republic of China
The State Radio_monitoring_center Testing Center	SAC-10	-	-	-	-	○	R-20231	2027/10/26	No. 80, Zhaojiachang, Beizang, Daxing District, Beijing, People's Republic of China
HCT Co., Ltd.	HCT 10 m SAC #2 (Radiated Emissions_Above 1 GHz)	-	-	-	-	-	G-20230	2027/10/26	74, 578-gil, Seoicheon-ro, Majang-myeon, Icheon-si, Gyeonggi-do, KOREA
HCT Co., Ltd.	HCT 10 m SAC #2 (Radiated Emissions_Below 1 GHz)	-	-	-	-	○	R-20232	2027/10/26	74, 578-gil, Seoicheon-ro, Majang-myeon, Icheon-si, Gyeonggi-do, KOREA
HCT Co., Ltd.	HCT 10 m SAC #2 (Conducted Emissions_AC power)	-	-	-	-	-	C-20191	2027/10/26	74, 578-gil, Seoicheon-ro, Majang-myeon, Icheon-si, Gyeonggi-do, KOREA
HCT Co., Ltd.	HCT 10 m SAC #2 (Conducted Emissions_Wired network)	-	-	-	-	-	T-20191	2027/10/26	74, 578-gil, Seoicheon-ro, Majang-myeon, Icheon-si, Gyeonggi-do, KOREA
CSA Group Bayern GmbH	SAC3 SER3	-	-	-	-	-	G-20229	2027/10/26	Straubinger Strasse 100 D-94447 Plattling, Germany
CSA Group Bayern GmbH	SAC3 A5	-	-	-	-	○	R-20234	2027/10/26	Straubinger Strasse 100 D-94447 Plattling, Germany
CSA Group Bayern GmbH	SAC2 A5	-	-	-	○	-	R-20235	2027/11/24	Straubinger Strasse 100 D-94447 Plattling, Germany
Suzhou Dongdian Testing Service Co., Ltd.	3 m Chamber	-	-	-	-	-	G-20231	2027/11/24	Phase II, No. 16 Runsheng Road, Suzhou Industrial Park, Suzho, China
Suzhou Dongdian Testing Service Co., Ltd.	3 m Chamber	-	-	-	○	-	R-20237	2027/11/24	Phase II, No. 16 Runsheng Road, Suzhou Industrial Park, Suzho, China

Company name	Equipment name	3 m	10 m	30 m	Dark 3m	Dark 10m	Registration number	Effective date	Location
Suzhou Dongdian Testing Service Co., Ltd.	10 m Chamber	-	-	-	-	○	R-20236	2027/11/24	Phase II, No. 16 Runsheng Road, Suzhou Industrial Park, Suzho, China
Suzhou Dongdian Testing Service Co., Ltd.	Shield Room 1#	-	-	-	-	-	C-20192	2027/11/24	Phase II, No. 16 Runsheng Road, Suzhou Industrial Park, Suzho, China
Suzhou Dongdian Testing Service Co., Ltd.	Shield Room 1#	-	-	-	-	-	T-20192	2027/11/24	Phase II, No. 16 Runsheng Road, Suzhou Industrial Park, Suzho, China
ティアック株式会社	SAC-10	-	-	-	-	○	R-20233	2027/11/24	埼玉県 入間市 小谷田 858
UCS Co., Ltd.	UCS Co., Ltd.- ER Center	-	-	-	-	-	C-20195	2027/12/22	1379-4 Seohae-ro, Paltan-myeon, Hwaseong-si, Gyeonggi-do, 18524, KOREA
UCS Co., Ltd.	UCS Co., Ltd.- ER Center	-	-	-	-	-	T-20195	2027/12/22	1379-4 Seohae-ro, Paltan-myeon, Hwaseong-si, Gyeonggi-do, 18524, KOREA
Guangdong Shence Testing Technology Service Co., Ltd.	AMN	-	-	-	-	-	C-20194	2027/12/22	01, 1F, Building 2, Huanan Life & Health Technology Industrial Park , No. 3 Huitai South Road Sandong Town, Huicheng District Huizhou, Guangdong Province, China
Guangdong Shence Testing Technology Service Co., Ltd.	AAN	-	-	-	-	-	T-20194	2027/12/22	01, 1F, Building 2, Huanan Life & Health Technology Industrial Park , No. 3 Huitai South Road Sandong Town, Huicheng District Huizhou, Guangdong Province, China
Bureau Veritas Consumer Products Services, (H.K.) Ltd., Taoyuan Branch	EMC1	-	-	-	-	-	C-20193	2027/12/22	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Bureau Veritas Consumer Products Services, (H.K.) Ltd., Taoyuan Branch	EMC1	-	-	-	-	-	T-20193	2027/12/22	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

Closing words

"What are your hobbies?"

This is such a common question, it's practically guaranteed to come up in conversations with people you've just met. Of course, this question is only an icebreaker, and isn't meant to create division. In fact, it's a truly convenient tool that smooths over business negotiations and invokes warmth and familiarity.

That said, even I was once troubled by this question. While casting a sideways glance at those with conventional hobbies, I searched for something definite I could click with, but I struggled. I tried all kinds of popular pastimes like golf, tennis, and music.

Unfortunately, my extensive dabbling did not yield enough knowledge or experience to discuss any one topic in depth. I was once laughed at when I answered vaguely, "my hobby is to challenge myself to everything".

One day, however, I rediscovered my roots, so to speak. I realized how I felt whenever I obliged my family's requests to "fix this" or "make that" – the simple joy of "craftsmanship". The satisfaction of completing a project after struggling to repair or create something within a limited budget or time, making full use of the materials and tools at hand, the small expressions of gratitude from my family... In those moments, I realized my true nature; my source of immense joy. Come to think of it, ever since I was little, I took a natural interest in creating things that couldn't be found off the shelf, and fixing broken things so that they could be used again.

That's right... My roots lay in craftsmanship.

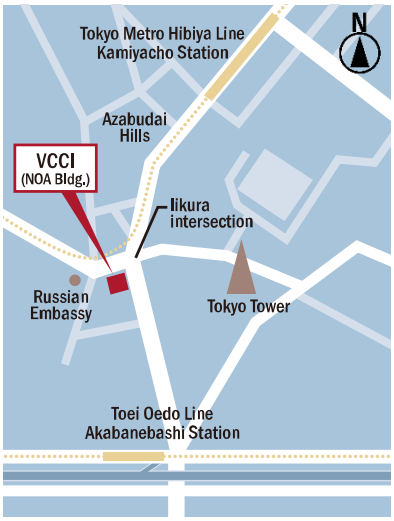
The category once known as "Sunday carpentry" in Japan is now being broadened and popularized by the media and celebrities under the label of "DIY" (do it yourself). By jumping on this trend, I gained the confidence to declare that my roots were in craftsmanship.

The appeal of "craftsmanship" lies in thinking for yourself, working with your hands, and tackling the process of turning ideas into tangible forms.

Even if you fail or get shoddy results, the joy of learning through trial and error and creating your own unique, original things that can't be found in stores is irreplaceable.

These days, professional knowledge is freely published on video sites and blogs. The challenge of "craftsmanship" feels more accessible than ever.

I'm sure many of you readers of VCCI Dayori have a love of craftsmanship in your backgrounds. Lately, I've been thinking that given the chance, I'd love to discuss the many kinds of craftsmanship and share that joy with others. (A.K.)



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