VCCI DAYORI

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Contents

Contribution

EMC Measures Against ESD (Electrostatic Discharge)

Ken Kawamata, Professor at Tohoku Gakuin University

ESD (electrostatic discharge) generates extremely sharp, broadband electromagnetic noise, causing system malfunctions and damage to electronic devices. For this reason, those in the EMC (electromagnetic compatibility) field have long considered measures to address this highly troublesome source of electromagnetic noise. To ensure the immunity of electrical and electronic systems against electromagnetic noise from ESD, the 1984 *IEC pub. 801-2 (1st Edition)* published test methods stipulated as international standards. At the time these standards were published, the "air discharge" test method was in use. This method simulates electrostatic discharge from a statically charged human body by bringing a charged electrode near the EUT (equipment under test), and injecting the test current through an actual spark discharge. However, many concerns were raised regarding the reproducibility of test results using this method, which could yield different results depending on the test date, or pass EUTs at a high test voltage that fail at a lower test voltage.

In response to these concerns, the ESD standards were revised. In the 1989 *IEC pub. 801-2 (2nd Edition)*, instead of the conventional "air discharge method", the new "contact discharge method" was adopted as a testing method. For stable ESD-current injection during tests, the revised standards stipulated a method of first placing the ESD test device electrodes in contact with the EUT, then injecting the charge (charged by the capacitor in the test device) directly into the EUT. The test current is injected via the closed contacts of a high-voltage relay within the test device, thereby achieving stable test-current-waveform generation and injection of the test current. While it is considered important to standardize test-current waveform output by ESD test devices in tests using this contact discharge method, waveforms as a whole have not been standardized, and only the following four current-waveform configuration requirements have been stipulated: rise time and peak current value of the first peak of the calibrated waveform when injecting current into targets that have a designated load impedance, and current values at 30 ns and 60 ns from the start of the waveform.

The basic concepts behind testing via this contact discharge method and partial requirements for this method's calibrated waveform have been carried over to the current *IEC61000-4-2 (2nd Edition)* published in 2008, and remain in use today. Under the current standards, ESD immunity testing appears relatively stable, supported by the expertise of various manufacturers' EMC

engineers, but problems relating to test-result reproducibility have been pointed out even recently. Examples include differences between individual test devices and discrepancies in test results caused by the placement of cables and grounding plates not stipulated as part of the test environment. Factors reported to reduce the reproducibility of these test results include the influence of the way the ESD gun is held or the orientation of placement, which changes the electromagnetic coupling between the test device and EUT. Also reported are transient factors such as the ESD gun's return cable or charging cable, whose influence causes ringing to be observed in test waveforms. The final draft for voting of *IEC61000-4-2 (3rd Edition)* was published at the end of last year, and I hear that several revisions have been planned, including the aforementioned solutions.

Meanwhile, the transient characteristics of electromagnetic noise generated by the following instances of ESD differ greatly from the transient characteristics of the aforementioned IEC test standards: ESD due to contact or collisions with charged metal objects not caused by the statically charged human body, or indirect ESD arising from slight gaps in the system due to an induction field. For example, in our studies, we have confirmed that the rise time of the transient current is actually on the order of picoseconds. This is about two orders of magnitude faster than the waveform rise time stipulated by the aforementioned test standards (0.8 ns ± 25%), a phenomenon found in high-frequency bands in the range of tens of GHz. Because radiation characteristics have a complex relationship with discharge parameters and the physical structure of ESD-emitting circuits, it is not easy to elucidate or model electromagnetic noise characteristics caused by ESD. For this reason, fundamental technologies to address EMC have yet to be established. Going forward, my research group will continue to elucidate electromagnetic-wave generation mechanisms and investigate the characteristics of generated electromagnetic waves to establish fundamental technologies to address ESD electromagnetic noise from an EMC-research standpoint. I look forward to your continued support and guidance on this matter.

Ken Kawamata

March 1987	Graduated from the Department of Electrical Engineering, Faculty of Engineering, Tohoku Gakuin University
March 1989	Completed the Master's Program in Electrical Engineering, Graduate School of Engineering, Tohoku Gakuin University
April 1989 to March 1992	Joined Tohoku Electric Power Co., Inc.
April 1992 to March 2013	Assistant, Lecturer, Associate Professor, and Professor at the Faculty of Engineering, Hachinohe Institute of Technology
April 2013 to present	Professor at the Faculty of Engineering, Tohoku Gakuin University

IEEJ fellow, Ph. D.

Committee Activities

● Board

Date	March 28, 2025
Agenda items	● Agenda item 1 FY 2025 business plan (draft) ● Agenda item 2 FY 2025 budget (draft) ● Agenda item 3 Selection of Secretary General (draft)
Decisions and reported items	● Agenda item 1 Approved ● Agenda item 2 Approved ● Agenda item 3 Approved

● Steering Committee

Date	January 21, February 19, and March 19, 2025
Agenda items	● Agenda item 1 FY 2025 budget (draft) ● Agenda item 2 Topic of the 57th board meeting (March 28): "FY 2025 business plan (draft)" ● Agenda item 3 Approval of new members
Decisions and reported items	● Agenda item 1 Approved ● Agenda item 2 There were no objections in particular. ● Agenda item 3 Approved ● Reported item 1 Information on the 2025 Rules Briefing and Technical Symposium (draft) ● Reported item 2 Report on the 2025 Rules Briefing and Technical Symposium ● Reported item 3 International Forum 2025 (draft) ● Reported item 4 VCCI32-1-J_2024_E_EN (draft) ● Reported item 5 Report on the business trip to South Korea relating to EMC regulations ● Reported item 6 Guidance for Performing Radiated Emission Measurement in the Condition of EUT Mains Cable Terminated with Balanced VHF-LISN (final English translation) ● Reported item 7 Activities of subcommittees (Technical, International Relations, Market Sampling Test, Public Relations, and Education) in the period from January to March ● Reported item 8 Secretariat work (member entry and withdrawal trends, the number of registrations of product conformity, income and expenditure records, etc.)

● Technical Subcommittee

Date	January 27 and March 12, 2025
Agenda items	● Agenda item 1 Technical Subcommittee's planned activities for FY 2024 ● Agenda item 2 Technical Subcommittee's planned activities for FY 2025 (draft) ● Agenda item 3 Verification and RRT of the voltage/current conversion ratio relating to improved transformer-coupled AANs ● Agenda item 4 Verification relating to phase-center measurement using hybrid antennas ● Agenda item 5 Confirmation of the effectiveness of NSA evaluation using hybrid antennas and consideration of relevant issues ● Agenda item 6 Activities for the standardization of mains-cable termination conditions ● Agenda item 7 2025 Rules Briefing and Technical Symposium
Continuing agenda items	● Agenda item 2, 3, 5, and 6
Decisions and reported items	● Agenda item 1 and 4 Deliberations have been deemed complete. ● Agenda item 7 2025 Rules Briefing and Technical Symposium on February 14 (see page 11)

● International Relations Subcommittee

Date	January 8, February 7, and March 12, 2025
Agenda items	● Agenda item 1 Survey on trends in EMC regulations ● Agenda item 2 A meeting has been scheduled with our destination in South Korea for the overseas survey, RRA (National Radio Research Agency), and preparations (such as compiling questions about South Korean EMC regulations) are complete. ● Agenda item 3 Preparations to make International Forum 2025 publicly available on demand, including translation of speech materials, online recording of speeches by overseas speakers, recording of simultaneous interpretation, and a video-distribution service
Continuing agenda items	● Agenda item 1 ● Agenda item 3 Summary of the on-demand International Forum 2025 (such as data on participants who listened to speeches, summary of questionnaire results, Q&As with speakers, and creation of a report for VCCI Dayori)
Decisions and reported items	● Reported item 1 The survey on trends in EMC regulations was updated on February 7. ● Reported item 2 A meeting with our destination in South Korea for the overseas survey, RRA (National Radio Research Agency), was held on February 13 (see page 13). ● Reported item 3 The on-demand International Forum 2025 was held from March 24 to 28 (and published online). 133 parties from Japan and 33 from overseas applied to participate in the event.

● Market Sampling Test Subcommittee

Date	January 9, February 14, and March 13, 2025
Agenda items	● Agenda item 1 Market sampling test report ● Agenda item 2 Document inspection report ● Agenda item 3 Draft budget for activities in FY 2025 ● Agenda item 4 Report on the survey of the display of the VCCI mark ● Agenda item 5 Response to items that tentatively failed to meet standards in FY 2025 ● Agenda item 6 Response to market sampling tests relating to VHF-LISNs
Continuing agenda items	● Agenda item 6
Decisions and reported items	● Agenda item 1 In the FY 2024 sampling tests, a selection of 65 test-target products was finalized for purchase, of which 64 have been confirmed up to the first round of judgment. ● Agenda item 2 In the FY 2024 document inspections, inspections were completed for 50 documents. ● Agenda item 3 Approved ● Agenda item 4 Reporting of the results of the second survey on unregistered products identified in the first survey on the display of the VCCI mark ● Agenda item 5 Approved

● Public Relations Subcommittee

Date	January 10 and March 7, 2025
Agenda items	● Agenda item 1 Draft budget for activities in FY 2025 ● Agenda item 2 COMPUTEX TAIPEI 2025 ● Agenda item 3 Exhibitions in Japan where VCCI will exhibit in FY 2025
Continuing agenda items	● Agenda item 2
Decisions and reported items	● Agenda item 1 After the December 2024 committee meeting, reduce the FY 2025 draft budget and have the budget approved by the committee. ● Agenda item 2 Report on progress to date regarding COMPUTEX TAIPEI 2025. We plan to discuss topics for further deliberation via email. ● Agenda item 3 The exhibitions in Japan where VCCI will exhibit in FY 2025 are TECHNO-FRONTIER in July, and CEATEC in October. Going forward, we plan to consult with the booth-construction company regarding preparations such as booth design.

● Education Subcommittee

Date	January 16 and March 13, 2025
Agenda items	● Agenda item 1 Confirmation of status of preparations for FY 2024 education and training ● Agenda item 2 Results of FY 2024 education and training ● Agenda item 3 FY 2025 activity plan
Continuing agenda items	● Agenda item 3
Decisions and reported items	● Agenda item 1 - All lectures were completed according to the plan for FY 2024 education and training. ● Agenda item 2 - "The level up of the EMI measurement technique" (held on January 31) was held in online (livestream) format. Certificates of attendance were given to 10 attendees. - "The EMI measurement instrumentation uncertainty (MIU)" (held from February 6 to 7) was held in person due to the practical exercises involved. Certificates of attendance were given to 10 attendees. ● Agenda item 3 - The event schedule for FY 2025 was published on the VCCI website. - "The basic technique of EMI measurement" (held on June 13) and "The basic of electromagnetic waves, EMI measurement technique (held from July 3 to 4 and July 10 to 11 (JQA Shikatsu EMC testing laboratory))" are now accepting attendance applications.

● Registration Committee for Measurement Facilities

Date	January 20, 2025
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: 12 AC-mains-ports-conducted emission measurement facilities: 9 Wired-telecommunication-port-conducted emission measurement facilities: 9 Radiated emission measurement facilities above 1 GHz: 11 Applications returned with comments: None Applications carried over to the next meeting: None
Date	February 17, 2025
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): 24 companies Radiated emission measurement facilities below 1 GHz: 13 AC-mains-ports-conducted emission measurement facilities: 10 Wired-telecommunication-port-conducted emission measurement facilities: 11 Radiated emission measurement facilities above 1 GHz: 9 Applications returned with comments: None Applications carried over to the next meeting: None
Date	March 17, 2025
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: 12 AC-mains-ports-conducted emission measurement facilities: 9 Wired-telecommunication-port-conducted emission measurement facilities: 6 Radiated emission measurement facilities above 1 GHz: 9 Applications returned with comments: None Applications carried over to the next meeting: None

3rd instalment

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

Amemiya EMC Consulting Representative
Fujio Amemiya

1. Introduction

In the second instalment of this series, *My First Encounter with EMC* (part 2) (about investigating the cause of an issue), I discussed an EMC issue found in the Type-701P mini telephone. At the time, this was a new telephone undergoing research for commercialization as a successor to the Type-600P push-button dial phone, and the issue was that calls could not be made due to strong audible noise generated by the telephone. In that article, I summarized our investigation into the cause of the noise and how we discovered the mechanism behind the generation of the audible noise. From the third instalment onwards, I will discuss the process by which we suppressed the noise generated by the telephone, achieving good telephone functionality. This story will be presented as the "studying countermeasures" chapter of *My First Encounter with EMC* (part 2). The countermeasures we studied can be broadly divided into "shielding countermeasures" and "circuit countermeasures", which I will discuss in the third and fourth instalments respectively.

Type-701P telephone
Source: NTT History Center of Technologies

I would also like to belatedly introduce a photo of the new mini telephone from the second instalment (which will appear again in the fourth instalment), the Type-701P telephone. As you can see from the photo, unlike push-button dial phones, this telephone's dialing circuit, call circuit, and ringing circuit are built into the handset, while the base set houses the speaker for outputting the ringtone for incoming calls.

2. Studying proposed countermeasures to prevent the intrusion of strong audible noise into telephones

(1) Discussion prior to starting the study

Members of the team studying the source of noise from the new mini telephone and associated countermeasures at the Tokyo Bureau of Communications (hereinafter, "PT members" as previously) were wary of potential confusion caused by the haphazard study of countermeasures. Therefore, the PT members agreed to divide their study of measures to prevent intrusion of TV broadcast video signals into the following two phases:

Phase 1: Study shielding countermeasures to alleviate intrusion of TV broadcast signals, including the cable for connecting the telephone to the telephone line (i.e., "telephone cord", hereinafter abbreviated to "phone cord"), the receiver's curled cord, and if necessary, the telephone housing (case).

Phase 2: If the first-phase countermeasures are not effective enough, study measures to alleviate intrusion of TV broadcast signals focusing on the input/output terminals of each circuit (dialing, ringing, and call circuits) in the handset. Also study the wiring pattern of the PCB containing these circuits. (However, PT members agreed to thoroughly consider the reasons and mechanisms behind the telephone's strong audible noise, individually propose countermeasures along with reasons for each proposal, and conduct brainstorming before considering specific countermeasures.)

(2) Results of studying proposed countermeasures from phase 1

First, we tried checking the effectiveness of countermeasures after changing the telephone's phone cord and curled cord to a shielded type. Unfortunately, this was largely ineffective. Note that the cables used for these countermeasures had already been deployed nationwide as an individual solution to noise in environments where high-voltage power lines were installed near the telephone's location of installation and use. This was because calls were disrupted by the intrusion of 50 Hz/60 Hz magnetic fields generated by these power lines. These cables had been developed as a measure against induction of low-frequency magnetic fields, and were not designed for noise at high-frequency bands such as TV broadcast signals. Therefore, we did not study these cables any further upon confirming their ineffectiveness against the noise we were dealing with.

Next, we studied proposed countermeasures by confirming their effectiveness when using metal plating inside the telephone housing (case). We agreed that while metal plating could be used in this way, we would need to consult with teams who had worked on countless telephones to confirm whether adequate shielding performance could be achieved. Thus, before this study, we held discussions not only amongst the PT members, but also with researchers from teams working on implementations at Musashino ECL's Telephone Laboratory, and received the following opinions and proposals:

(a) The proposal to verify effectiveness while using metal plating inside the telephone housing cannot be implemented right away. Therefore, we suggest coating the inner walls of the housing with an alternative such as silver paste and checking whether noise can be reduced that way. Then, if the results look promising, try using metal plating in earnest.

(b) In response to the preceding (1): Coating the inner walls of the housing with silver paste must be done manually, and therefore the coating is likely to be uneven (such as in thickness). It will probably be necessary to test the housing of multiple telephones to confirm shielding effectiveness.

(c) Regarding telephone housing, pushing the push-button dial creates a gap between the button and the housing, and there are small holes for acoustic input and output in the human-machine interface between the transmitter and receiver. There are also slits in the housing for acoustic output from the telephone's built-in speaker. For these reasons, it is dubious whether shielding the housing with metal plating will be adequately effective.

(d) Even when using metal shielding inside the telephone housing, you must check the level of improvement in TV-broadcast-signal intrusion when a person grips the handset or pushes the push-button dial. If improvement is significant, and you adopt the proposal to shield the housing, do not forget that you will need to redo various environmental tests (such as temperature-cycle tests, atmospheric tests for coastal regions and hot-spring areas, and drop tests).

(e) If shielding is applied to all parts including the housing, phone cord, and curled cord, do not forget to check for problems at the appropriate stages, due to the possibility of discrepancies in telephones' resistance to electrostatic discharge.

(3) Decision whether to adopt the countermeasures from phase 1

We could not seem to arrive at clear guidelines for action regarding the countermeasures in the aforementioned phase 1. This was due to ongoing debates over the difficulty of shielding parts such as the push-button dial and the speaker's acoustic-output surface, and the need to study and analyze conditions occurring in TV frequency bands when the handset was gripped. (This was an issue even in cases when the handset was shielded.) As a result, our phase-1 study was put on hold, even though we had not confirmed the quantitative effectiveness of the countermeasures.

3. Afterword

We did not arrive at any clear guidelines for action regarding countermeasures for electromagnetic shielding of telephone housing. For this reason, we began studying the phase-2 countermeasures at an early stage, and based on the results, went back to discussing the necessity of the phase-1 countermeasures.

In the next and fourth instalment of this series, I will summarize the results of our study of the aforementioned phase-2 countermeasures. I will also tell the story of how we solved another problem: the intrusion of audible components of external TV video signals into the new mini telephone being detected by the call circuit and masking call signals. Stay tuned.

Fujio Amemiya

1967 Majored in Electrical Engineering Group, School of Engineering, Tohoku University

1971 Graduated from the Electronic Communication Department, School of Engineering, Tohoku University

1973 Completion of Master's Programs in Electrical and Telecommunications engineering at the Graduate School of Engineering, Tohoku University

1973 Joined the Customer Premises Developmental Research Department, Telephone Laboratory, Musashino ECL (Electrical Communication 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 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 2025 Rules Briefing and Technical Symposium

Technical Subcommittee

The 2025 Rules Briefing and Technical Symposium was held on February 14, 2025 (Fri) at the Kikai Shinko Kaikan in face-to-face format. 86 members participated in the event.

Among the special lectures was a speech titled "Introduction of Examples of EMC-Related Failures at Communication Service Sites", which discussed case examples of actual failures in communication facilities, and subsequent investigations into the noise source, waveform analysis, and countermeasures.

The first part of the event, the rules briefing, discussed the contents of two new guidance documents published in FY 2024, and one revised guidance document, respectively.

The second part of the event, the technical symposium, focused on the results of the Technical Subcommittee's activities in FY 2024. The Technical Subcommittee chairperson gave a speech outlining the FY-2024 activities of the Technical Subcommittee and WGs (Working Groups), and an overview of the papers presented at the International Symposium. This was followed by detailed reports from each WG on the results of their activities.

Group photo of presenters

2025 Rules Briefing and Technical Symposium program

Theme	Presenter
Overview of VCCI Council	Akira Oda Executive Director, VCCI Council
Part 1: Rules Briefing	
(Revised) Guidance for Rules for Voluntary Control Measures VCCI 32-1-J:2024	Minoru Hirata Technical Counselor, VCCI Council
[New] Guidance for Calculation of Measurement Instrumentation Uncertainty on Radiated Emission Measurement with a Hybrid Antenna VCCI 32-1-K:2024	Shinichi Okuyama NEC Platforms, Ltd. Chair, Technical Subcommittee
[New] Guidance for Performing Radiated Emission Measurement in the Condition of EUT Mains Cable Terminated with Balanced VHF-LISN VCCI 32-1-L:2024	Kunihiro Osabe VCCI Council CISPR/SC-A/I JAHG6 Co-Convener Convener, VHF-LISN WG, Technical Subcommittee
Part 2: Technical Symposium	
Technical Subcommittee Opening Considerations for the Technical Symposium	Shinichi Okuyama NEC Platforms, Ltd. Chair, Technical Subcommittee
Technical Subcommittee - CISPR Project Working Group Deliberation Efforts for CISPR Standards and Progress of Domestic Endorsement	Takashi Harada TOYO EMC Engineering Convener, CISPR Project WG, Technical Subcommittee
Technical Subcommittee - VHF-LISN Working Group CISPR Standardization Trends of VHF-LISN and Future Initiatives According to Guidances	Kunihiro Osabe VCCI Council CISPR/SC-A/I JAHG6 Co-Convener Convener, VHF-LISN WG, Technical Subcommittee
Technical Subcommittee – Radiated Emission Working Group Considerations on Phase Center Correction of Hybrid Antenna	Akira Murakami e-OHTAMA, LTD. Convener, Radiated Emission WG, Technical Subcommittee
Technical Subcommittee – Conducted Emission Working Group Report on RRT Verification of Prototype Improved Transformer-Coupled 8W-AAN	Naoya Haraguchi FUJIFILM Business Innovation Corp. Convener, Conducted Emission WG, Technical Subcommittee
Technical Subcommittee – Antenna Calibration and Site Validation Working Group Verification of Effectiveness of NSA Evaluation Using Hybrid Antennas and Examination of Issues	Hironari Tanaka Ohtama Calibration Service Co., Ltd. Convener, Antenna Calibration and Site Validation WG, Technical Subcommittee
Special Lecture	
Introduction of Examples of EMC-Related Failures at Communication Service Sites	Norihito Hirasawa Manager, EMC Engineering, Technical Cooperation Center, Network Business promotion Department, NTT East

Report on EMC-Regulations Survey at the South Korean National Radio Research Agency (RRA)

International Relations Subcommittee

1. Purpose:

The South Korean EMC regulations (RRA (National Radio Research Agency) notice no. 2024-12) were revised in 2024. In view of the details of this revision, it was decided that the Self-Conformity Verification system would be applied to some products. However, because the operation-related information released from South Korea was unclear in many parts, for this event, we visited the South Korean RRA and conducted a meticulous face-to-face survey on the details of the revision.

2. On-site survey schedule and destination

- Trip duration : February 12 (Wed) to 14 (Fri), 2025
- Destination : RRA (National Radio Research Agency)
  767, Bitgaram-ro, Naju-si, Jeollanam-do 58217, South Korea (outskirts of Gwangju Metropolitan City)
  http://www.rra.go.kr
- Date and time of visit : February 13, 2025 (Thu) 14:00 to 17:00

3. Meeting participants

a) RRA participants (8 individuals):
Yang, Mi Suk, Deputy Director / ICT Conformity Assessment Division
Seo myoungwon, Assistant Director / ICT Conformity Assessment Division
Lee chun Hee, Assistant Director / ICT Conformity Assessment Division
Jeong Hoon Kim / ICT Conformity Assessment Division
KIM Woo-nyun, Deputy Director / Radio Environment Safety Division
Park Se-eun / Radio Environment Safety Division
Gyedon Kim / Radio Environment Safety Division
Choe yeji / Radio Environment Safety Division

b) VCCI participants (4 individuals):
International Relations Subcommittee members : Kazuo Ura (Casio Computer Co., Ltd.)
Yoshifuru Fujiwara (TÜV Rheinland Japan)
International Relations Subcommittee Secretariat : Hirohito Shigemitsu (VCCI Council)
Yoko Inagaki (VCCI Council)

4. Survey overview

The survey began with an introductory video from RRA, introducing RRA to the audience. Next, the VCCI Secretariat gave a presentation on the origin of the VCCI Council and its latest activities.

Then, based on a list of 33 questions sent to RRA in advance, two members of the VCCI International Relations Subcommittee received answers from RRA regarding the latest trends in South Korean EMC regulations. This was followed by a discussion including further questions.

After the meeting was a briefing and tour of the EMC and EMF testing facilities (located on the same site), during which VCCI could confirm the status of the latest testing facilities in South Korea.

[Agenda]

1. Introduction to RRA : Video
2. Introduction to the VCCI Council : Explained via PowerPoint presentation (English) by the VCCI Secretariat
3. Meeting : Answers to advance questions and latest trends in South Korean EMC regulations
   [Ura and Fujiwara, members of the International Relations Subcommittee]
4. Tour of EMC and EMF testing facilities

Scene of the meeting

5. Survey results (details of the meeting)

The details given in this report will be provided to VCCI members for reference purposes. We ask that individual companies perform final checks with regulatory authorities and designated testing laboratories.

- Simplification of the conformity assessment system for broadcasting and communications equipment (notice no. 2024-12)

[Purpose of Self-Conformity-Verification revision]

Question (1) : Question about the purpose of the revision
Answer (1) : A Self-Conformity Verification system was introduced for the purpose of relaxing regulations. Under this system, equipment that poses a low risk to radio environments or broadcasting and communication networks is tested and verified to conform with conformity-assessment criteria by the manufacturer in question. These products' conformity status is also self-disclosed by the manufacturer.

[Self-Conformity-Verification representative]

Question (2) : Is an on-site representative necessary to perform Self-Conformity Verification?
Answer (2) : An on-site representative is necessary if you do not have an address or office in South Korea.
Note: For matters regarding new and changed conformity-assessment applications and disclosure of Self-Conformity Verification, you are obligated to submit relevant documents and the equipment in question.

Question (3) : Question about requirements of representatives for Self-Conformity Verification
Answer (3) : Representatives require no special qualifications, but must be a corporation that has an address in South Korea.
Even a Japanese party can be a representative if they meet the aforementioned requirement.

[Self-Conformity-Verification procedures]

Question (4) : If we perform Self-Conformity Verification, do we no longer require certification or registration?
Answer (4) : You must disclose your Self-Conformity Verification on the RRA website, but no separate certification or registration is required.
However, products subject to Self-Conformity Verification can also undergo conformity registration.

Question (5) : Can you explain how to perform Self-Conformity Verification, including the process involved?
Answer (5) : For how to perform Self-Conformity Verification, including the process involved, see the RRA website.
VCCI also provides a separate FAQ in text format.
Reference URL: 공지사항(상세보기)- 알림소식 - 국립전파연구원
https://www.rra.go.kr/ko/notice/noticeList_view.do?nb_seq=5987&nb_type=0

Question (6) : Question about requirements of technical reports (such as required standards or conditions on report publishers)
Answer (6) : See Article 14 of *Notice on the Designation and Management of Testing Institutions for Broadcasting and Communication Equipment Materials* regarding the following: (1) Equipment name, (2) name and address of test applicant, (3) name and address of testing laboratory, (4) test report publication number and page serial number.

Question (7) : If there is a design change in a product that has undergone Self-Conformity Verification, do all EMC tests have to be redone?
Answer (7) : If the case falls under Article 17 Paragraph 1 of notice no. 2024-12 (regarding circuit changes and the like), you must redo the tests, and after making a written declaration, publish a notice regarding the change on the RRA website.

Question (8) : Are there any guidelines on the aforementioned topics?
Answer (8) : See Article 17 of notice no. 2024-12.
Reference URL: 공지사항(상세보기)- 알림소식 - 국립전파연구원
https://www.rra.go.kr/ko/notice/noticeList_view.do?nb_seq=5823&cpage=1&nb_type=0&searchCon=&searchTxt=&sortOrder=

Question (9) : If there is a change in a product that has undergone conformity registration, can the application to edit product information be made through a Self-Conformity Verification?
Answer (9) : The application to edit product information must be made through the Self-Conformity Verification. If there is no need to maintain or manage the conformity registration after the fact, and you want to perform a new Self-Conformity Verification, you are better off canceling the old conformity registration.

Question (10) : Can we keep the model name of a product that has undergone conformity registration, and perform a new Self-Conformity Verification under the same model name? (In other words, can we use the same model name for both the conformity registration and Self-Conformity Verification?)
Answer (10) : Yes, if the product that has already undergone conformity registration counts as equipment subject to Self-Conformity Verification. However, registered products and self-registered products must be registered separately, and their display of the KC mark must be managed accordingly.

[Products subject to Self-Conformity Verification]

Question (11) : Question about conditions on products subject to Self-Conformity Verification in Appendix 1 of the notice
Answer (11) : The main products subject to Self-Conformity Verification are certain types of wired equipment, lighting equipment, and equipment using a battery or USB power supply, excluding radio equipment.

Question (12) : Question about specific multimedia-equipment products subject to Self-Conformity Verification
Answer (12) : Within the scope of multimedia equipment, the following products can undergo Self-Conformity Verification if they use a USB power supply: IT terminal devices, broadcasting receiver equipment, audio equipment, video equipment, multimedia combinations and applicable equipment, and entertainment equipment. Example devices that can undergo Self-Conformity Verification include POS terminals and barcode scanners.

Question (13) : Question about the product list
Answer (13) : See Appendix 1 of notice no. 2024-12.
Reference URL: 공지사항(상세보기)- 알림소식 - 국립전파연구원
https://www.rra.go.kr/ko/notice/noticeList_view.do?nb_seq=5823&cpage=1&nb_type=0&searchCon=&searchTxt=&sortOrder=

Question (14) : Can the HS code be used to confirm whether a product is subject to Self-Conformity Verification?
Answer (14) : No, because the HS code cannot be used to determine the type of power supply used in the product (DC, AC, USB, or battery).

Question (15) : Can multimedia equipment for industrial purposes (such as computers and monitors) undergo Self-Conformity Verification?
Answer (15) : Computers and monitors used for industrial purposes (product manufacturing or production processes) can undergo Self-Conformity Verification.

Question (16) : Question about specific examples of electric and electronic clocks in Appendix 1 of the notice
Answer (16) : Electronic and electric clocks can be distinguished based on whether the display is digital or analog. That is, electronic clocks are digital clocks using a monitor (digital display), while electric clocks use analog.

[Future trends in the Self-Conformity Verification system]

Question (17) : Question about policy to expand products subject to Self-Conformity Verification in the future
Answer (17) : We plan to gradually expand the products subject to Self-Conformity Verification. (Note: Also see “Answer (19)”.)

Question (18) : For EMC-target products other than communications equipment, Self-Conformity Declaration is pretty much the norm in regions like the US or EU. Can we expect Self-Conformity Declaration to be adopted here in the future?
Answer (18) : Whether Self-Conformity Declaration will be expanded to all equipment other than communications equipment will depend on government policy.

Question (19) : Question about plans to expand the products subject to Self-Conformity Verification
Answer (19) : For now, the plan for and scope of expansion are unknown, but there are plans to expand some products subject to Self-Conformity Verification through a round of tests by 2030. However, there is no guarantee this will happen according to plan.

[Simplified display of the KC mark]

Question (20) : Does the simplified display of the KC mark only apply to Self-Conformity Verification?
Answer (20) : The simplified display of the KC mark also applies to products undergoing certification and conformity registration.

Question (21) : Are there relaxed conditions for display of the KC mark?
Answer (21) : If the surface area is 400 mm2 or less, it is allowed for the main unit or packaging to display the KC mark or unique number only. (Note: For details, see Appendix 5 in notice no. 2024-12.)
Reference URL: 공지사항(상세보기)- 알림소식 - 국립전파연구원
https://www.rra.go.kr/ko/notice/noticeList_view.do?nb_seq=5823&cpage=1&nb_type=0&searchCon=&searchTxt=&sortOrder=

Question (22) : Is the simplified display also allowed on products that have already been certified?
Answer (22) : Yes, it is.

Question (23) : Are there plans for the electronic display to be shared with other certifications (such as the South Korean product-safety certification)?
Answer (23) : No. This is because RRA is a ministry with jurisdiction over radio law only, and cannot enforce other laws.

Question (24) : In addition to the symbol, we are also required to display the certification number, which we only know after the certificate is issued. Would you consider allowing display of the symbol only, for the purposes of early market introduction?
Answer (24) : We cannot allow display of the symbol only. The certification number is predictable enough even when the certificate has not been issued.

Note: Conformity certification and registration-number system

R	-	X	S	-	A	B	C	D	-	X	X	~	X	X
(1)		(2)	(3)		(4)					(5)				
방송통신 기기식별		기본인증 정보식별			신 청 자 정보식별					기자재 식별				

(1) This refers to (radio) conformity assessments of broadcasting and communications equipment according to the Radio Law.

(2) Conformity certification: C; conformity registration: R; interim certification: I

(3) "S" is displayed only in the case of conformity certification or conformity registration.

(4) Applicant identification sign (identification number obtained when first performing certification or conformity registration)

(5) Model-identification number (specified by the applicant within 14 digits)

Note: Management-number system for Self-Conformity Verification

A	B	C	D	-	X	X	~	X	X
(1)					(2)				
신 청 자 정보식별					기자재 식별				

(1) Applicant identification sign (identification number obtained when first performing certification or conformity registration)

(2) Model-identification number (specified by the applicant within 14 digits)

[Publication of the FAQ on the website]

Question (25) : Could you please publish an English version of the FAQ?

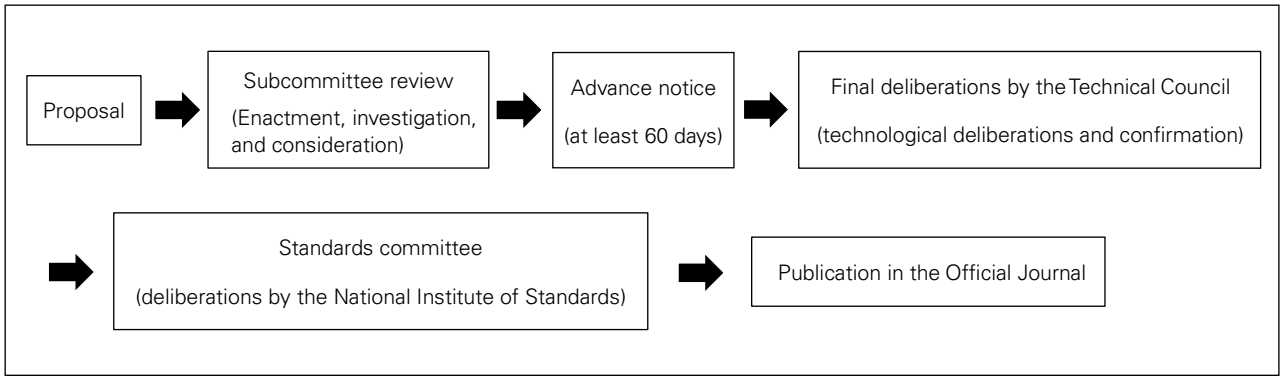
Answer (25) : An English version is not feasible at this point. Due to budget and labor considerations, there is a limit to what we can publish in English.

[KS standards]

- KS standards system

Question (26) : Could you please explain the process leading up to the publication of the KS standards?

Answer (26) : The following diagram shows the revision procedure:



- After the revision to the international standards, and after production and revision of national standards were deemed necessary by a technical advisory committee consisting of experts, the subcommittee drafted national standards by translating international standards and reflecting South-Korea-specific technical conditions.

  Note: When there is a 100% match (IDT) with the International standards, the name of the standard is clearly stated, for example "KS C IEC 61000-1-1".
  When details are modified (MOD) with consideration for South-Korea-specific technical conditions, reflect this modification in the name accordingly, for example "KS C 9610-4-3".

- Solicit feedback after administrative notice is given.
- Conduct final deliberations through the Technical Council, and a standards meeting at the National Institute of Standards (Korean Agency for Technology and Standards).
- Reflect the feedback considered in the standards meeting. After establishing the final draft, publish it in the Official Journal.

[KC EMC conformity certification]

- Confirming how to obtain EMC certification

Question (27) : As a rule, EMC evaluations for KC EMC certification can only be conducted in South Korea, but I am wondering if you have any ideas to reduce the burden on manufacturers. For example, could international standards be adopted or ILAC reports accepted during KC EMC certification?

Answer (27) : Conformity certification and registration cannot be performed under the Radio Law. In the case of Self-Conformity Verification, test reports can be used if the South Korean standards are the same as the ILAC regulations.

- Confirming the EMC evaluation method

Question (28) : If a product has multiple configuration options for its EMC evaluation, are we allowed to evaluate the product using its worst-case configuration?

Answer (28) : Even South Korea allows this under certain conditions, provided that conformity can be demonstrated in the worst-case configuration. In this case, the testing laboratory must show that this is the worst-case configuration.

[Information on power supplies in South Korea]

- Confirming three-phase power-supply voltage

Question (29) : Question about the nominal voltage value for South Korean power-distribution systems in the case of a three-phase power supply

Answer (29) : The only nominal voltage value for three-phase power supplies in South Korea is 380 V.

[EMC test methods]

- Confirming surge-test methods in KS C 9835

Question (30) : Regarding surge phase; South Korea uses plug types C and F. Do we need to consider the orientation of a plug when plugging it in?

Answer (30) : There is no need to consider plug orientation when conducting evaluations.

- Latest EMC standards in South Korea

Question (31) : What will be the latest EMI standards for multimedia equipment adopted under the Radio Law?
Is the 2024 version of KS C 9832 adopted?

Answer (31) : Yes, the 2024 version applies. See RRA notice no. 2024-100 in the section for legal information on the RRA website.
Reference URL: 고시공고(상세보기)- 알림소식 - 국립전파연구원
https://www.rra.go.kr/ko/reference/lawList_view.do?lw_seq=79&lw_type=&searchCon=&lw_select=ALL&lw_model=&searchTxt=

Question (32) : Question about plans to adopt CISPR 32 Ed.2.1:2019

Answer (32) : Due to the application of CISPR 32 Ed.2.1:2019, we are currently drawing up a revised draft of KS C 9832, and plan to complete the revision in 2025. See the blue-text portion of notice no. 2024-100 in the section for legal information on the RRA website.

[Document format for announcements from regulatory authorities]

Question (33) : On the South Korean regulatory body's website, files are sometimes uploaded in "hwp" format. We would like files to be uploaded in "pdf" format in addition to "hwp" format.

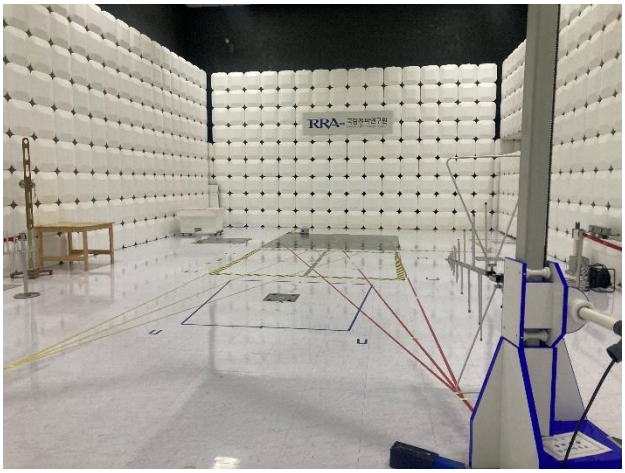
Answer (33) : Some files are uploaded to the website in "pdf" format. We will do our best to upload "pdf" files for parts relating to EMC and conformity assessment. However, the scope will be limited due to administrative, budget, and labor considerations.

6. Tour of EMC and EMF measurement facilities

RRA was founded in 1966 to ensure efficient research on radio resources and radio environments and research quality certifications and technical standards for broadcasting and communications equipment, thereby contributing to the advancement of the South Korean broadcasting and communications industry.

[Main business activities]

- R&D on radio resources and radio-wave utilization
- Research on radio environments and their protection
- Certification, testing, and management of broadcasting and communications equipment
- Conducting international registration of frequencies, and then working with international and foreign organizations
- Establishing technical standards for broadcasting and communications facilities



RF anechoic chamber

EMF measurement facility

7. Future challenges

In our visit to RRA, regarding details of the Self-Conformity Verification system that came into effect on July 24, 2024, we obtained information directly from RRA and confirmed specific operation methods for this system such as the process of Self-Conformity Verification, requirements of representatives, and technical requirements. We were also able to communicate our wishes directly to RRA regarding active publishing of English versions of publicly available information and PDF files. However, RRA responded that their ability to accommodate our wishes was limited at this stage, which will be a challenge going forward. Additionally, because specific doubts are expected to arise in the future, we believe it is important to build trust with regulatory authorities and achieve mutual information sharing as ways to resolve such doubts.

8. Conclusion

For this on-site survey, we visited RRA in South Korea to clarify doubts regarding details of the 2024 revisions to notice no. 2024-12. We held face-to-face interviews and deliberations on VCCI's wishes on this matter. Instead of using email or teleconferencing, we held face-to-face discussions, giving us a glimpse of RRA's policy and outlook for the future. We learned that RRA's policy aimed to achieve both EMC regulations considering product safety in South Korea, and convenience of conformity certification for overseas enterprises. This was a great opportunity to share information on a level that could only be done face to face.

We concluded on-site survey with a renewed understanding of the importance of continuing to share information (both regularly and irregularly), and developing the multimedia industry with consideration for safety and security while building strong ties of trust between both countries.

Finally, we express our deepest gratitude to our RRA associates for taking the time out of their busy schedules to accept our on-site survey, and for their warm welcome and effort to answer our many questions on site.

Commemorative photo of Radio Environment Safety Division (in charge of EMC) personnel

Commemorative photo of RRA and VCCI personnel

Status on FY 2024 Market Sampling Tests

Market Sampling Test Subcommittee

As of March 31, 2025

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	65	63	0	1	1

Loan-based testing total		65	0	65	65	63	0	1	1
Term (breakdown)	1st Quarter	20	–	20	20	19	–	1	–
	2nd Quarter	12	–	12	12	12	–	–	–
	3rd Quarter	18	–	18	18	17	–	–	1
	4th Quarter	15	–	15	15	15	–	–	–

"Failed – tentative" in FY 2023*1	Target samples	Passed	Failed	Pending
	2	0	2	0

Note 1. Samples that "Failed- tentative" in FY 2023 were additionally surveyed in FY 2024.

FY 2024 total (Including "Failed – tentative" from FY2023)	Passed	Failed	Pending*2
	63	3	1

Note 2. Pass/fail decisions will be carried forward to FY 2025.

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	50	48	2

Company	Silhouette Japan Corporation
Device: model	Cutting machine: Silhouette Portrait4
Test result	Measurement of radiated emissions Horizontal: 13.4 dB excess at 216 MHz, Vertical: 11.3 dB excess at 216 MHz
Cause / improvement	Cause: Due to incorrect fixed wiring positions in some units occurring in manufacturing, wiring passed through the main printed circuit board, which might have caused radio waves exceeding the stipulated value to be radiated. Countermeasures: To perform wiring at the correct positions, issue instructions for corrective action in the manufacturing process (November 2024). Also, to ensure that the countermeasure is effective, change and secure the wiring routes, thereby preventing irregularities from arising during wiring. Measures to take on stocked and shipped products: For stocked products, check the wiring positions, and if a problem is found, correct it before shipping. For shipped products, announce on the company website that some units emit electromagnetic waves exceeding the stipulated value. If a customer reports such a case, take back, check, and repair the product, and then return it to the customer. Prevention: (1) Perform adequate testing during prototyping to set specifications that are resistant to quality fluctuations due to worker error in the manufacturing process. (For example, ensure wires are of the appropriate length to avoid any excess length when wired along the correct route.) (2) Provide thorough guidance to workers in the manufacturing process When visiting factories to start mass production, have work leaders ensure that their teams clearly understand any precautions. Also, clarify instruction documents to improve worker comprehension, and display the instructions on QC cards on site.

Report from the Secretariat

● List of Members (January 2025- March 2025)

New members

Membership	Member No.	Company name	Country or region
Regular	4399	Sony Semiconductor Solutions Corporation	JAPAN
Regular	4427	TECHNO HORIZON CO., LTD.	JAPAN
Regular	4428	Cosmogear Inc.	JAPAN
Regular	4401	Bear Robotics Korea Inc.	KOREA
Regular	4421	GIGAIPC Co., Ltd.	TAIWAN
Regular	4422	LuminUltra Technologies Ltd.	CANADA
Regular	4423	CORSAIR MEMORY, Inc.	CHINA
Supporting	4424	Shenzhen Haiyun Standard Technical Co., Ltd.	CHINA
Supporting	4425	Vista Laboratories, Inc.	USA
Supporting	4426	NTS Labs, LLC dba Element Materials Technology Boxborough	USA

Company name change

Membership	Member No.	Company name	Country or region	Old company name
Regular	52	KOKUSAI DENKI Electric Inc.	JAPAN	Hitachi Kokusai Electric Inc.
Regular	3797	LINE WORKS Corp.	JAPAN	WORKS MOBILE Japan Corporation
Regular	4231	Richemont Japan LLC	JAPAN	Richemont Japan Ltd.
Regular	4395	Wuhan Tenafe Electronic Technology Co., Ltd.	CHINA	Wuhan TenaFe Electronics Co., LTD
Supporting	2005	Bureau Veritas CPS Korea Tech Limited	KOREA	KOSTEC 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 (plan)	December •Release VCCI Dayori No. 159
January	February •Technical Symposium (plan)	March •Release VCCI Dayori No. 160

● Status of Registration of Product Conformity

January 2025 – March 2025 (Product names are examples and are not limiting)

Classification of MME (Product types are not limited to only the following examples.)				Classification code		January 2025			February 2025			March 2025		
				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	40	1	41	15	1	16	35	3	38
		Stationary	Workstation, Desktop PC, etc.	B 2	b 2	0	19	19	2	15	17	5	12	17
		Portable	Laptop PC, Tablet PC, etc.	C 2	c 2	3	60	63	0	57	57	2	74	76
		Other computers	Wearable computers, Wearable device, Smart watch, Smart glass, etc.	E 2	e 2	2	1	3	2	0	2	0	2	2
	Peripheral / Terminal	Memory device	HDD, SSD, USB Memory, Media drive, Disk device, NAS, DAS, SAN, etc.	G 2	g 2	10	21	31	8	28	36	13	23	36
		Printer device	Printer including multifunction machine, etc. (portable)	H 2	h 2	3	0	3	3	2	5	1	3	4
		Display device	CRT display, Monitor, Projector, etc.	J 2	j 2	13	75	88	4	68	72	2	86	88
		Other I/0 devices	Image scanner, OCR, Pen tablet, Stylus pen, etc.	M 2	m 2	0	1	1	2	1	3	1	4	5
		General purpose terminal	Display controller terminal, etc.	N 2	n 2	0	0	0	0	0	0	1	0	1
		Special purpose terminal	POS, Terminal for finance, insurance, etc.	Q 2	q 2	5	3	8	2	0	2	7	0	7
		Other peripheral	PCI Card, Graphics Card, Mouse, Keyboard, Cradle, etc.	R 2	r 2	8	42	50	2	40	42	7	47	54
		Copying machine/ Multifunction copying machine	Copying machine, Multifunction copying machine, etc. (Stationary)	S 2	s 2	1	0	1	0	0	0	0	2	2
	Communications equipment	Terminal equipment	Mobile phone, Smart phone, PHS phone, etc.	T 2	t 2	0	0	0	0	1	1	0	5	5
			Telephone device such as PBX, FAX, Key telephone systems, Cordless phone, etc.	U 2	u 2	0	2	2	0	0	0	4	0	4
		Network-related equipment	Communication line connecting device including Modem, Digital transmission unit, DSU, TA, Media converter, etc.	V 2	v 2	0	0	0	8	4	12	3	2	5
			LAN-related device, including Router, HUB, etc. Local switch, etc.	W 2	w 2	28	16	44	45	18	63	137	17	154
		Other communication equipment	Other communication equipment	X 2	x 2	6	5	11	9	5	14	23	7	30
Broadcast receiver equipment			TV, Radio, Tuner, Video recorder, Set-top box, etc.		k 2		0	0		0	0		0	0
Audio equipment			Speaker, Amplifier, IC recorder, Digital audio player, Headset, DTM, AI speaker, etc.	L 2	l 2	0	4	4	0	12	12	2	1	3
Video equipment		Video equipment	Digital video camera, Web camera, Network camera, Video player, Photo frame, Digital camera, Drive recorder, etc.	I 2	i 2	8	8	16	12	18	30	6	8	14
		Other video equipment	VR goggles, Scan converter, etc.	P 2	p 2	0	0	0	0	0	0	0	0	0
Entertainment lighting control equipment			Entertainment 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	0	0
		Electronic toy	Game console, Game pad, toy drone, etc.	Y 2	y 2	0	1	1	0	0	0	0	1	1
		Other Entertainment / Education equipment	Navigator, AI robot, etc.	F 2	f 2	0	0	0	0	0	0	0	1	1
	Other MME		MME other than the above	O 2	o 2	8	4	12	5	7	12	17	1	18
Total						135	264	399	119	277	396	266	299	565

● 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.

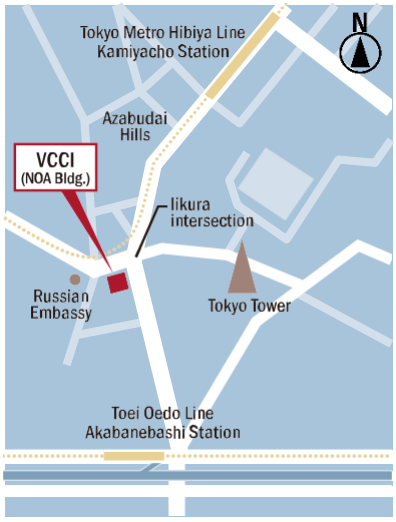
List of newly registered or renewed facilities (January 2025 – March 2025)

Company name	Equipment name	3m	10m	30m	Dark 3m	Dark 10m	Registration number	Effective date	Location
Guangdong Dongdian Testing Service Co., Ltd.	10 m Chamber	-	-	-	-	✓	R-20240	Jan. 19, 2028	No. 17, Zongbu Road 2, Songshan Lake Sci & Tech Industry Park Dongguan City, Guangdong Province, People's Republic of China
FORCE Technology	Room 1 - Aarhus	-	-	-	-	-	G-20232	Jan. 19, 2028	Agro Food Park 13, DK-8200 Aarhus, Denmark
FORCE Technology	Room 1 - Aarhus	-	-	-	✓	✓	R-20239	Jan. 19, 2028	Agro Food Park 13, DK-8200 Aarhus, Denmark
UCS Co., Ltd.	UCS Co., Ltd. - ER Center	-	-	-	-	✓	R-20238	Jan. 19, 2028	1379-4 Seohae-ro, Paltan-myeon, Hwaseong-si, Gyeonggi-do, 18524, KOREA
UCS Co., Ltd.	UCS Co., Ltd. - ER Center	-	-	-	-	-	G-20233	Feb. 16, 2028	1379-4 Seohae-ro, Paltan-myeon, Hwaseong-si, Gyeonggi-do, 18524, KOREA
BTL Inc. (Dongguan)	DG-C01	-	-	-	-	-	C-20196	Feb. 16, 2028	No. 3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong, China
BTL Inc. (Dongguan)	DG-C01	-	-	-	-	-	T-20196	Feb. 16, 2028	No. 3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong, China
AUDIX Technology (Shanghai) Co., Ltd.	No. 3 Shielded Room	-	-	-	-	-	T-20197	Feb. 16, 2028	3F, Building 34, No. 680, Guiping Rd., Caohejing Hi-Tech Park, Shanghai, China
Audix Technology (WuJiang) Co., Ltd.	Audix Wujiang No. 3 3 m Semi-anechoic chamber	-	-	-	-	✓	R-20230	Mar. 16, 2028	No. 1289, Jiangxing East Road, The Eastern Part of Wujiang Economic Development Zone, JiangSu, China
Bay Area Compliance Laboratories Corp. (Shenzhen)	EMI test room	-	-	-	-	-	C-20199	Mar. 16, 2028	5F (B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China
Bay Area Compliance Laboratories Corp. (Shenzhen)	Kiwa EMC & Wireless lab. Apeldoorn	-	-	-	-	-	T-20199	Mar. 16, 2028	5F (B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China
国立大学法人 京都工芸繊維大学	3　m法電波暗室	-	-	-	-	-	G-20234	Mar. 16, 2028	京都府京都市左京区松ヶ崎橋上町1番地
ソニーグローバルマニュファクチャリング＆オペレーションズ株式会社	幸田 10 m 電波半無響室 Φ3 m TT	-	-	-	✓	✓	R-20241	Mar. 16, 2028	愛知県額田郡幸田町坂崎雀ケ入 1

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

Closing words

Readers, do you have an analog landline phone at home? At our house, we have an analog landline phone inherited from my grandfather, but around the end of last year, a relative complained that our phone was always disconnected. While we had no particular problems making outgoing calls from home, we did notice that we hadn't received any calls for the past few months. On further experimentation, we found that our phone in fact could not receive incoming calls. This type of malfunction, where calls can be made but not received, easily goes unnoticed, and is also known as a "silent malfunction". I immediately called the phone company's customer support, who sent someone to investigate right away. The result of the investigation was an "abnormal signal". We were told that there were hundreds of bundled metallic phone lines leading from the phone company's office to the vicinity of our house, and that the line to our house would be changed to a different one. After that, we were able to receive phone calls, but when we asked for a refund, citing our phone-service history showing we hadn't received any calls in two months, the investigator said, "Even if you could, it might not be much money... But don't worry, our work today is provided free of charge! I recommend you switch over to a fiber-optic phone line, though, because our facilities are aging..." and hurried off. I thought, "How could they not detect that their phone service wasn't being provided properly, and not realize it until a customer reported it!?", but I decided it would be wise to hold my tongue. However, a few weeks later, we had phone-connection troubles once again. This time, the symptoms were different; we occasionally couldn't make calls, either, so we called customer support again. A different investigator showed up. According to the investigator, bundled metallic phone lines can corrode when rainwater seeps in due to damage caused by squirrel bites and cicadas laying eggs. This problem was also solved by changing the line to our house, but the investigator said, "You can reduce your landline bills by switching to a fiber-optic phone line—you can even use another company's". I thought, "You should have told me sooner!" and immediately added a fiber-optic phone line to the existing fiber-optic line to our house (from another company). From that point on, our calls had excellent audio quality; a great quality-of-life improvement. Analog landline phones can be advantageous at times—for example, they can be used during power outages—but to those of you still using them, I recommend you inspect them once in a while. (T.Y.)



VCCI Dayori

No.157 (2025.7)
Not for sale

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