

VCCI DAYORI

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New Year Greeting



President, VCCI Council
Keiichi Kawakami

All my sincerest wishes for the coming New Year!

Last October, CEATEC 2019—one of the world’s largest CPS/IoT exhibitions—set forth the theme of “Connecting Society, Co-creating the Future”. One of the exhibition’s items, Society 5.0 TOWN (planned and co-created by several companies from industries such as construction, infrastructure, energy, transportation, household fixtures, and finance) showcased a future society (2030) that utilizes technologies such as artificial intelligence (AI), big data, and next-generation high-speed (5G) communication. The targeted theme “Society 5.0 = Super-smart Society” represents a community whose various needs (both material and non-material) are addressed promptly and thoroughly no matter how small or big the needs are. Anyone can receive high-quality services, and live comfortably and passionately regardless of age, sex, region or language—a human-centered society where people can exercise creativity and nurture their individual notions of happiness.

In the midst of increasingly severe global competition, IT and electronics industries, which have close relationships with the VCCI Council, are increasingly relied upon to contribute to the resolution of issues faced by our nation—an “advanced” country in terms of social issues—while also solving global issues by building platforms that encompass the concept of Society 5.0. Telecommunication is a key element in making Society 5.0 become a reality, along with the imperative of maintaining an electromagnetically clean environment. With these points in mind, it is essential that we stay on top of our game as the roles and responsibilities of the VCCI Council continue to grow.

Since its establishment 34 years ago, the VCCI Council (formerly, Voluntary Control Council for Interference by Information Technology Equipment (VCCI)) has strived to tackle the issue of electromagnetic interference from information technology equipment and address the concerns of Japanese users of consumer electronic and electric devices. I profoundly thank related government offices and organizations as well as the members of the VCCI Council for their collaborative support in helping to achieve wide recognition of the VCCI mark and technical standards conforming to international CISPR standards.

CISPR 32 Edition 2 (March 2015) is an international standard that addresses multimedia device electromagnetic emission. In December 2015, a recommendation was submitted to the Information and Communications Council of the Ministry of Internal Affairs and Communications, where it was decided that the standard would be applied in Japan. The multimedia EMC standard integrates the separate standards for information technology equipment and audio visual equipment. In November 2016, the VCCI Council issued

and enforced a new VCCI Council Operation Standard conforming to this new international standard (parallel operation of the new and old standards was terminated in March 2019). I wish to thank our council members for their graceful adoption of the new standard.

Voluntary regulation of the VCCI Council has depended on three major activities since its establishment: appropriate conformity assessment by its members, unbiased testing of market samples, and a measurement facility registration system. In addition to holding seminars and educational activities at industrial technology centers in individual districts of Japan, we organize periodical opinion exchange sessions with overseas governments, industrial associations and accreditation bodies to nurture international collaborative relations. In 2019, we presented an exhibition at CEATEC 2019, publicizing our activities to both domestic and foreign companies with a view to expanding our membership. In the accompanying VCCI international forum, governments and accreditation bodies of the EU, UK, South Africa and Saudi Arabia provided their own current reports. Additionally, at EMC Sapporo & APEMC—an EMC-related symposium held every five years in Japan—we presented four papers, held tutorial sessions, and reported our activities and technical researches for experts in Japan and worldwide.

With the ongoing development of radio-wave technology (such as CPS/IoT), our concerns naturally turn to the maintaining of clean radio wave environments. With the cooperation of our stakeholders, we shall pursue our goal in realizing such environments by appropriately embracing innovation while closely monitoring the progress of its social implementation, with the ultimate goal of making Society 5.0 a reality. It is our sincere hope that VCCI Council activities are beneficial to members and nationwide consumers alike.

The coming year will mark the advent of the Tokyo Olympic Games and the launch of 5G commercial services in Japan. We thank you for your continued understanding and support of the VCCI Council, and wish everyone a happy and prosperous 2020.

On the safety of radiofrequency emission

Professor Emeritus, Tokyo Metropolitan University
Masao Taki

In March 2019, I officially retired from my Professorship at Tokyo Metropolitan University after 38 years of service. I would like to take this opportunity to reflect on some of the things that led me along this long and winding path. After earning my doctorate at the Institute of Medical Electronics Research (medical engineering laboratory), I started working at Tokyo Metropolitan University. Despite having no conscious aspirations to work in the field of electromagnetic compatibility (EMC) initially, the seeds of my future became firmly planted upon meeting Mr. Yoshifumi Amemiya and young Mr. Osamu Fujiwara in graduate school.

In December 1985, four years after my finishing graduate school, VCCI was established. In that same year, the US Federal Communications Commission determined that radiofrequency emission from fixed broadcast stations was adversely impacting the environment under the National Environmental Policy Act (NEPA), thus, establishing regulations on human exposure to RF radiation. In response to this, Japan commenced its own research on how to protect human bodies from electromagnetic environments. In January 1986, which is roughly the same time as the establishment of VCCI, Mr. Amemiya and others formed a type-2 study group—the Bioelectromagnetic Environment Study Group—within the Institute of Electronics and Communication Engineers of Japan, heralding the beginning of Japan’s research into bioelectromagnetic compatibility. For me personally, this meant the birth of my field of work—a new branch of EMC: investigating the impact of electromagnetic radiation on living organisms.

Since that time, I have spent over 30 years studying correlative issues between electromagnetic fields and living organisms. As wireless communication technology continues to rapidly develop, an increasing number of factors in regard to human health and safety enter into consideration. In Europe, the launch of several 5G services has been postponed partly because there is a delay in the establishment of methods to assess the biological effects of RF emission from their base stations. Assessment of human exposure to electromagnetic fields is a great burden which may hinder the advancement and dissemination of technologies. Naturally, safety is paramount, however, I personally feel that the current definition of “Safety” in this particular context needs to be reconsidered.

“Safety”, according to the definition in ISO/IEC Guide 51, is “freedom from risk which is not tolerable” whereas “risk” is “combination of the probability of occurrence of harm and the severity of that harm” and “harm” is “injury or damage to the health of people, or damage to property or the environment”. Guide 51 also says that “tolerable risk” is “level of risk that is accepted in a given context based on the current values of society” and that “‘safe’ is rather the state of being protected from recognized hazards that are likely to cause harm. Some level of risk is inherent in products or systems”.

Safety of products should be guaranteed based on this definition. But how about the safety of RF emission? Scientific consensus agrees that harm incurred by high-frequency RF energy is invariably attributable to heat, and this attribution forms the basis of reasoning behind current guidelines. However, testing has shown dangerous levels of heat generation through typical RF radiation exposure are practically impossible. The guidelines specify strict limits based on cases of very slight temperature increases. Even if the level of an assessed item is far from causing harm, I think the guidelines ask for excessive levels of safety while the exposure conditions specified in the guidelines are uncertain.

The reason for this cautiousness in regard to the safety of RF emission is the possibility of long-term effects, which are as yet unknown. Nobody can deny the importance of precautions against uncertain risks and keeping exposure to the minimum, in keeping with the As Low As Reasonably Achievable (ALARA) principle. However, the difference between the established threshold for health effects and the level of tolerable exposure should be made clear. We must not mislead the public or its social values about what is a tolerable risk.

With so many wireless devices around us, more and more electromagnetic environments will be created. What do we need to do to evaluate human exposure rationally and soundly in a complex electromagnetic environment? I think one answer is to measure exposure to RF emission quantitatively. To this end, I am participating in a project for studying bioelectromagnetic environments sponsored by the Ministry of Internal Affairs and Communications, and working on collecting, storing, and using the data that is gathered by monitoring the levels of exposure to RF emission. In this project, we not only take measurements but also use the measured data to develop methods of risk communications to harness sound social values regarding the safety of RF emission. Despite the challenges posed, it is my hope that my work can help in realizing safe and secure use of RF radiation. I believe the issues surrounding complex RF environments are shared by the VCCI members and associates. I humbly ask for your support in realizing our mutual goal of safe and healthy use of RF energy.



Masao Taki

1976 Graduated from the Department of Electronic Engineering, Faculty of Engineering, University of Tokyo
1981 Completed a doctoral course at a graduate school of the University of Tokyo (doctor of engineering)
Teaching assistant at Tokyo Metropolitan University
1998 Professor at Tokyo Metropolitan University
2019 Retired from Tokyo Metropolitan University, Professor Emeritus
Present Distinguished professor at the Faculty of Systems Design, Tokyo Metropolitan University
Senior research fellow at the National Institute of Information and Communications Technology
Expert committee member of the Information and Communications Council, MIC; chairman of the Radio Wave Utilization Environment Committee, MIC (from 2013)
Acting moderator of the Conference on Bioelectromagnetic Environments, MIC (from 2008)
Chairman of the IEC/TC106 Japanese National Committee (from 2000)

Committee Activities

● Steering Committee

Date	September 18 and October 23, 2019
Agenda items	<ul style="list-style-type: none"> ● Agenda item 1 Table of corrections on list of rules ● Agenda item 2 Materials of the 39th meeting of board of directors ● Agenda item 3 New members in July through September ● Agenda item 4 Replacement of committee members (Mitsubishi Electric and Panasonic)
Decisions and reported items	<ul style="list-style-type: none"> ● Agenda item 1 Approved ● Agenda item 2 Approved ● Agenda item 3 Approved ● Agenda item 4 Approved ● Reported item 1 Activities in the period from July to September (Technical, International Relations, Market Sampling Test, Education, Communication) ● Reported item 2 Secretariat work (member entry and withdrawal trends, the number of compliance verification reports, income and expenditure, etc.) ● Reported item 3 2019 IEEE EMC+SIPI symposium, and the content of discussions with three U.S. accreditation bodies (ANAB, A2LA, and NVLAP) and the U.S. industry association (ITI) with which VCCI Council has MOU agreements (see page 17) ● Reported item 4 VCCI 32-2-B:2019 English version of guidelines on calibration management, such as calibration for measurement facilities ● Reported item 5 EMC Europe 2019 symposium (see page 21)

● Technical Subcommittee

Date	September 10, 2019
Agenda items	<ul style="list-style-type: none"> ● Agenda item 1 On the Technical Subcommittee's planned activities for FY 2019 ● Agenda item 2 On CISPR Shanghai meeting ● Agenda item 3 On EUT volume and measurement distance when measuring radiated emissions above 1 GHz ● Agenda item 4 On spectral mask measurement for wired network ports ● Agenda item 5 On conducted emissions measurement by FFT ● Agenda item 6 On consideration on the calibration of the free space antenna factor ● Agenda item 7 On performing RRT with mains cable terminal conditions RRT measurement started in Japan from July, and from September at overseas locations.
Continuing agenda items	<ul style="list-style-type: none"> ● Agenda item 1 ● Agenda item 3 ● Agenda item 4 ● Agenda item 5 ● Agenda item 6 ● Agenda item 7
Decisions and reported items	<ul style="list-style-type: none"> ● Reported item 1 Report on the CISPR Shanghai meeting ● Reported item 2 2019 IEEE EMC+SIPI symposium (see page 17)

● International Relations Subcommittee

Date	July 10, August 23, and October 1 to 2, 2019
Agenda items	<ul style="list-style-type: none"> ● Agenda item 1 VCCI International Forum ● Agenda item 2 Survey on trends in world EMC standards ● Agenda item 3 This fiscal year's overseas survey
Continuing agenda items	<ul style="list-style-type: none"> ● Agenda item 2 ● Agenda item 3
Decisions and reported items	<ul style="list-style-type: none"> ● Reported item 1 VCCI International Forum was held on Friday, October 18 at CEATEC 2019, with lecturers invited from EU Commission, UK (BEIS), Saudi Arabia (GSO), and South Africa (ICASA). ● Reported item 2 In August, this fiscal year's first version of the worldwide survey on EMC and other regulations was made available at the members-only VCCI website.

● Market Sampling Test Subcommittee

Date	September 12 and October 3, 2019
Agenda items	<ul style="list-style-type: none"> ● Agenda item 1 Summary of the market sampling test ● Agenda item 2 Document inspection ● Agenda item 3 Survey on the display of the VCCI mark ● Agenda item 4 Collaboration with overseas institutions related to regulations ● Agenda item 5 Materials for overseas seminars ● Agenda item 6 Review of the classification code table
Continuing agenda items	<ul style="list-style-type: none"> ● Agenda item 6
Decisions and reported items	<ul style="list-style-type: none"> ● Agenda item 1 (a) As a trial, we asked some selected members to fill out a <i>self-check table</i> of test reports, but we abandoned the plan in the first half year because it took too much time to collect answers. ● Agenda item 1 (b) Among three items that failed the test, one item was judged as passed because it had no problem in a retest conducted by a VCCI member. Another item was regarded as failed and is now in the process of correction, and the other item is awaiting investigation. ● Agenda item 2 Document inspections were conducted for 12 items, all of which were found to have no problems. Many of the findings were related to test conditions, power supply conditions, or alarm messages in instruction manuals. ● Agenda item 3 Actions were taken for <i>unregistered products bearing the VCCI mark</i> and <i>non-member products bearing the VCCI mark</i>. ● Agenda item 4 For the present term, we consider visiting private institutions that conduct market surveys in Taiwan and several testing laboratories of member companies. ● Agenda item 5 Report was made on the revision content of the material used in domestic and overseas seminars for the introduction of the activities of the committee.

● Education Subcommittee

Date	August 9 and October 4, 2019
Agenda items	<ul style="list-style-type: none"> ● Agenda item 1 On the result of the questionnaire for the students of the 15th "The EMI measurement technique above 1 GHz", The 5th "The level up of EMI measurement technique", and the 2nd "The EMI Measurement Instrumentation Uncertainty". ● Agenda item 2 On considerations regarding textbooks for education and training conducted in FY 2019 ● Agenda item 3 On the status of education and training conducted in FY 2019
Continuing agenda items	<ul style="list-style-type: none"> ● Agenda item 2 ● Agenda item 3
Decisions and reported items	<ul style="list-style-type: none"> ● Agenda item 1 All of questionnaire responses showed moderate satisfaction or better results. ● Agenda item 2 We will continue to consider reflecting the questionnaire result to the textbook and hands-on training of the second half of the year. ● Agenda item 3 The 40th "The basic technique of EMI measurement" was held on October 4, with 26 attendees, who received attendance certificates.

● Public Relations Subcommittee

Date	September 6 and October 4, 2019
Agenda items	<ul style="list-style-type: none"> ● Agenda item 1 On Year 2020 desk calendar ● Agenda item 2 On CEATEC 2019 ● Agenda item 3 On the introduction of LED panels for exhibitions ● Agenda item 4 On changes to the door-window sticker design for the Hibiya Line ● Agenda item 5 On the preparation of Chinese versions of the VCCI introductory video.
Continuing agenda items	<ul style="list-style-type: none"> ● Agenda items 5
Decisions and reported items	<ul style="list-style-type: none"> ● Agenda item 1 The secretariat reported that the 2020 desktop calendar has been completed. They will be handed out in CEATEC 2019, technical symposiums, and other events. ● Agenda item 2 and 3 For CEATEC 2019 held from October 15 to October 18, final review was made on the LED panel design, materials to be distributed, and explainers. ● Agenda item 4 The secretariat reported the renewal of the design of the door-window sticker for the Hibiya Line. ● Agenda item 5 The committee approved the creation of the Chinese versions of the VCCI introductory video in the simplified and traditional characters.

● Registration Committee for Measurement Facilities

Date	September 2, 2019												
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG.												
Decisions	<p>Conformity certified (including cases certified with qualification comments after checking of supplementary papers): 19 companies</p> <table> <tr> <td>Radiated EMI measurement facilities below 1 GHz</td> <td>14</td> </tr> <tr> <td>AC-mains-ports-conducted EMI measurement facilities</td> <td>9</td> </tr> <tr> <td>Telecommunication-port-conducted EMI measurement facilities</td> <td>8</td> </tr> <tr> <td>Radiated EMI measurement facilities above 1 GHz</td> <td>6</td> </tr> <tr> <td>Applications returned with comments</td> <td>None</td> </tr> <tr> <td>Applications carried over to the next meeting</td> <td>None</td> </tr> </table>	Radiated EMI measurement facilities below 1 GHz	14	AC-mains-ports-conducted EMI measurement facilities	9	Telecommunication-port-conducted EMI measurement facilities	8	Radiated EMI measurement facilities above 1 GHz	6	Applications returned with comments	None	Applications carried over to the next meeting	None
Radiated EMI measurement facilities below 1 GHz	14												
AC-mains-ports-conducted EMI measurement facilities	9												
Telecommunication-port-conducted EMI measurement facilities	8												
Radiated EMI measurement facilities above 1 GHz	6												
Applications returned with comments	None												
Applications carried over to the next meeting	None												
Date	October 7, 2019												
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG.												
Decisions	<p>Conformity certified (including cases certified with qualification comments after checking of supplementary papers): 16 companies</p> <table> <tr> <td>Radiated EMI measurement facilities below 1 GHz</td> <td>4</td> </tr> <tr> <td>AC-mains-ports-conducted EMI measurement facilities</td> <td>7</td> </tr> <tr> <td>Telecommunication-port-conducted EMI measurement facilities</td> <td>10</td> </tr> <tr> <td>Radiated EMI measurement facilities above 1 GHz</td> <td>4</td> </tr> <tr> <td>Applications returned with comments</td> <td>None</td> </tr> <tr> <td>Applications carried over to the next meeting</td> <td>None</td> </tr> </table>	Radiated EMI measurement facilities below 1 GHz	4	AC-mains-ports-conducted EMI measurement facilities	7	Telecommunication-port-conducted EMI measurement facilities	10	Radiated EMI measurement facilities above 1 GHz	4	Applications returned with comments	None	Applications carried over to the next meeting	None
Radiated EMI measurement facilities below 1 GHz	4												
AC-mains-ports-conducted EMI measurement facilities	7												
Telecommunication-port-conducted EMI measurement facilities	10												
Radiated EMI measurement facilities above 1 GHz	4												
Applications returned with comments	None												
Applications carried over to the next meeting	None												

● Report on Committee Activities: List of Acronyms

Abbreviation	Full Name
AAN	Asymmetric Artificial Network
AMN	Artificial Mains Network
ANSI	American National Standards Institute
APD	Amplitude Probability Distribution
APAC	Asia Pacific Accreditation Corporation
AQSIQ	General Administration of Quality Supervision , Inspection and Quarantine of the People's Republic of China
BSMI	Bureau of Standards, Metrology and Inspection
CALTS	Calibration Test Site
CB	Certification Body
CB	Competent Body
CCC	China Compulsory Product Certification
CD	Committee Draft
CDN	Coupling Decoupling Network
CDNE	Coupling Decoupling Network for Emission
CDV	Committee Draft for Vote
CEMC	China Certification Center for Electromagnetic Compatibility
CEN	European Committee for Standardization
CENELEC	European Committee for Electro Technical Standardization
CISPR	International Special Committee on Radio Interference
CMAD	Common Mode Absorbing Device
CQC	China Quality Certification Center
CSA	Classical (Conventional) Site Attenuation
CSA	Canadian Standards Association
DAF	Dual Antenna Factor
DC	Document for Comment
DoC	Declaration of Conformity
DOW	Date of Withdrawal
DTI	Department of Trade and Industry
DUT	Device Under Test
ECANB	EC Association of Notified Bodies
Ecma	Ecma International
EICTA	European Information, Communications and Consumer Electronics Technology Industry Association
EMCC	Electro Magnetic Compability Conference
EMCAB	Electromagnetic Compatibility Advisory Bulletin
EMF	Electromagnetic Field
EMF	Electromotive Force
ETSI	European Telecommunication Standards Institute
EUANB	European Union Association of Notified Bodies
EUT	Equipment Under Test
FAR	Fully Anechoic Room
FDIS	Final Draft International Standard

Abbreviation	Full Name
GB	guo jia biao zhun (National Standard of China)
GSO	Gulf Cooperation Council Standardization Organization
ICES	Interference-Causing Equipment Standards
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IS	International Standard
ISM	Industrial Scientific and Medical
ITE	Information Technology Equipment
LCL	Longitudinal Conversion Loss
MIC	Ministry of Information and Communication
MME	Multimedia Equipment
MOU	Memorandum of Understanding
MP	Magnetic Probe
MRA	Mutual Recognition Agreement/Arrangement
NCB	National Certification Body
NICT	National Institute of Information and Communications Technology
NIST	National Institute of Standards and Technology
NP	New Work Item Proposal
NSA	Normalized Site Attenuation
OFDM	Orthogonal Frequency Division Multiplex
PAS	Publicly Available Specification
PLT	Power Line Telecommunication
R&TTE	Radio & Telecommunications Terminal Equipment
RBW	Resolution Band Width
REF	Reference
RRA	Radio Research Agency
RRT	Round Robin Test
RSM	Reference Site Method
RVC	Reverberation Chamber
SAC	Semi Anechoic Chamber
SDPPI	Semangat Disiplin Profesional Proaktif Integritas
S/N	Signal to Noise ratio
TF	Task Force
TG	Tracking Generator
UPS	Uninterruptible Power Supply
VBW	Video Band Width
VHF-LISN	Very High Frequency-Line Impedance Stabilization Network
VSWR	Voltage Standing Wave Ratio
WG	Working Group
WP	Working Party

EMC Standards of the IEC 61000-6 (Generic Standards) Series Developed by TC77 and CISPR

Masamitsu Tokuda

1. Foreword

The EMC standards developed by TC77 (Technical Committee 77 for electromagnetic compatibility (EMC)) of the International Electrotechnical Commission (IEC) are assigned IEC 61000 series numbers and consist of parts 1 (General) to 9 (Miscellaneous) ¹⁻⁵⁾.

The generic standards for residential, commercial, and industrial environments were already introduced in reference ⁶⁾. The IEC 61000-6 series also contains generic standards for environments and equipment other than residential, commercial, and industrial environments. Of the generic standards for residential, commercial, and industrial environments, the generic immunity standards have Japanese counterparts, JIS standards, which have been modified. In the future, the generic emission standard for residential, commercial, and light-industrial environments might be divided into two standards: one for residential environments, and one for commercial and light-industrial environments. This article discusses that situation and its current status.

2. Creation of the generic EMC standards ⁴⁾

Generic EMC standards were first created by the European Committee for Electrotechnical Standardization (CENELEC), consisting of the following four generic standards:

- ① Emission standard relating to residential, commercial, and light-industrial environments (EN50081-1)
- ② Emission standard relating to industrial environments (EN50081-2)
- ③ Immunity standard relating to residential, commercial, and light-industrial environments (EN50082-1)
- ④ Immunity standard relating to industrial environments (EN50082-2)

Considering the state of standards in the European Union (EU), the Advisory Committee on Electromagnetic Compatibility (ACEC) decided that there was a need for generic EMC standards that could be applied internationally, and asked CISPR to create standards for emissions, and TC77 to create standards for immunity ⁵⁾. Thus, CISPR/S/WG1 was established under the Steering Committee of CISPR in 1992 ⁷⁻⁹⁾ and worked to create generic emission standards. However, CIS/H was later established in 1998 to consider the basis of generic emission standards and tolerance values for radio interference. Consequently, the task of considering generic emission standards also fell to CIS/H. Meanwhile, the parent committee TC77 created the subcommittee WG13 to create generic immunity standards ¹⁰⁻¹²⁾. The author of this article has participated in creating the generic standards for both emissions and immunity as an expert member of CISPR/S/WG1 and TC77/WG13.

3. Generic immunity standards and status of incorporating them in JIS standards by METI ²⁾

Regarding the generic immunity standards, the first edition of IEC 61000-6-1 (immunity standard for residential, commercial, and light-industrial environments) was published in July 1997, and the first edition of IEC 61000-6-2 (immunity standard for industrial environments) was published in January 1999. Shortly before this, the Ministry of Economy, Trade and Industry had already considered incorporating TC77's IEC 61000 series standards into JIS standards. In September 1996, the JIS/EMC Standard Setting Committee—headed by Eisuke Masada, (then) professor at the University of Tokyo—was established in the Institute of Electrical Engineers of Japan as an organization for creating JIS drafts. In 1998, the JIS/EMC Standard Setting Committee began considering JIS drafts for the generic immunity standards in their first subcommittee meeting (where the author was the chairperson), and JIS drafts were created in 1999. In March 2003, after deliberation by the Ministry of Economy, Trade and Industry, the drafts were established as JIS C 61000-6-1 and JIS C 61000-6-2.

After this, the second edition of IEC 61000-6-1 was published in March 2005, the second edition of IEC 61000-6-2 was published in January 2005, and the domestic standards JIS C 61000-6-1: 2008 and JIS C 61000-6-2: 2008 corresponding to the aforementioned standards were revised in March 2008. Additionally, the third editions of IEC 61000-6-1 and IEC 61000-6-2 were published in August 2016. The JIS C 61000-6-1/6-2 Draft Creation Committee was established in the Institute of Electrical Engineers of Japan in April 2017 to create the corresponding domestic standards JIS C 61000-6-1:2019 and JIS C 61000-6-2: 2019. The drafts were created in March 2017. In January 2019, the Ministry of Economy, Trade and Industry revised the JIS standards corresponding to the third editions of IEC 61000-6-1 and IEC 61000-6-2. Table 1 shows the correspondence.

Table 1 IEC 61000-6 (generic standards) series standards developed by TC/SC77 and CIS/H

(as of October 2019)

International standard (Latest edition: publication date) [developer organization]	Name of standard	JIS (setting date/revision date) / Recommendation for Japan (date of recommendation)	Source international standard (Edition: publication date)
IEC 61000-6-1 (Ed.3.0: 16-08) [TC77]	Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial, and light- industrial environments	JIS C 61000-6-1 (setting date: 2003-03) (last revision date: 2019-01)	IEC 61000-6-1 (Ed.3.0: 16-08)
IEC 61000-6-2 (Ed.3.0: 16-08) [TC77]	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments	JIS C 61000-6-2 (setting date: 2003-03) (last revision date: 2019-01)	IEC 61000-6-2 (Ed.3.0: 16-08)
IEC 61000-6-3 (Ed.2.1: 11-03) [CIS/H]	Generic standards for electromagnetic compatibility (EMC) – Section 1: Emission standard for residential, commercial, and light-industrial environments	Recommendation by Telecommunications Technology Council in FY 1997 (Electromagnetic Environment Division, MIC) (Recommendation: 1997-09)	CISPR/IEC 1000-6-3 (Ed.1.0: 96-12)
IEC 61000-6-4 (Ed.3.0: 18-02) [CIS/H]	Generic standards for electromagnetic compatibility (EMC) – Section 2: Emission standard for industrial environments	Recommendation by Telecommunications Technology Council in FY 1997 (Electromagnetic Environment Division, MIC) (Recommendation: 1997-09)	IEC 61000-6-4 (Ed.1.0: 97-01)
IEC 61000-6-5 [Ed.1.0: 15-08] [TC77]	Electromagnetic compatibility (EMC) – Part 6-5: Generic standards – Immunity for power station and substation environments	—	—
IEC 61000-6-6 [Ed.1.0: 03-04] [SC77C]	Electromagnetic compatibility (EMC) – Part 6-6: Generic standards – HEMP immunity for indoor equipment	—	—
IEC 61000-6-7 [Ed.1.0: 14-10] [TC77]	Electromagnetic compatibility (EMC) – Part 6-7: Generic standards – Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations	—	—

4. Generic emission standards and status of recommendations for Japan from the MIC ²⁾

Table 1 also lists the generic emission standards and the status of recommendations for Japan from the Ministry of Internal Affairs and Communications. Usually, the international standards created by CISPR are numbered in the format “CISPR **”. However, the generic emission standards are numbered in the TC77 format, that is: IEC 61000-6-3 (emission standard for residential, commercial, and light-industrial environments) and IEC 61000-6-4 (emission standard for industrial environments). As can be seen in the “Source international standard” column in Table 1, however, the first edition of IEC 61000-6-3 (published in December 1996) was numbered “CISPR/IEC 1000-6-3”, using both CISPR and IEC logos in its title. One month later, when IEC 61000-6-4 was published, “CISPR” was removed from the title, and only “IEC” remained. At that time, the entire numbering system of IEC standards was revised. TC77’s EMC standards were renumbered from the IEC 1000 series to the IEC 61000 series, and this change was also reflected in IEC 61000-6-4.

The latest edition of the international IEC 61000-6-4 standard is the third edition published in February 2018; however, for the international IEC 61000-6-3 standard, a third edition has yet to be published. The latest edition of IEC 61000-6-3 is edition 2.1 published in March 2011. In latest news regarding international standardization, CIS/H is currently developing a new generic standard (called IEC 61000-6-8) for commercial and light-industrial environments specifically for professional equipment.

Japan's organizations for deliberating CISPR standards are the Information and Communications Council, the Information Communication Technology Subcommittee, and the Radio Wave Utilization Environment Committee. The secretariat for these organizations is the Electromagnetic Environment Division of the Radio Department of the Telecommunications Bureau, MIC. The Radio Wave Utilization Environment Committee discusses: (1) Assessment of items such as proposed CISPR recommendations, and (2) domestic standardization of CISPR recommendations, based on advice-seeking request No. 3 to the Telecommunications Technology Council, "On various standards of the International Special Committee on Radio Interference (CISPR)". The Committee also makes recommendations for Japan relating to the standards created by CISPR, including IEC 61000-6-3 and IEC 61000-6-4. The status of the recommendations is shown in Table 1. In September 1997, first editions of both standards were recommended in the FY 1997 Telecommunications Technology Council. Note that, the names of standards listed in Table 1 are the names written in the recommendations.

5. Generic immunity standards for environments other than residential, commercial, and industrial environments ²⁾

As shown in Table 1, TC77 and SC77C create generic EMC standards for environments and equipment other than residential, commercial, and industrial environments. IEC 61000-6-5 sets the generic immunity standard for power station and substation environments, and IEC 61000-6-7 sets the immunity requirements for equipment related to functional safety in industrial environments. Both standards are created by the TC77 parent committee. IEC 61000-6-6 (created by SC77C) sets the generic standard for High Altitude Nuclear Electromagnetic Pulse (HEMP) immunity for indoor equipment.

[References]

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- 2) Edited by the IEEJ Dedicated Committee for Investigating Noise Immunity in Electronic and Electrical Equipment (Chair: Masamitsu Tokuda): Handbook for Testing and Engineering Noise Immunity in Electronic and Electrical Equipment, Kagaku Gijutsu Shuppan (publisher), Maruzen (publisher), pp.31-32, pp.54-55, 2013.4.
- 3) Masamitsu Tokuda: I. International organizations for EMC standardizations and EMC standards, special feature "World EMC standards and stipulations" (FY 2019 edition), Japan Management Association, p.2-14, 2019.4.
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- 12) Tokuda: Current status and trends in global noise immunity regulations and standards, Electronics, Vol. 36, No. 7, pp. 9-14, 1994.7.



Masamitsu Tokuda

- 1967 Graduated from Electronics Engineering Department of Hokkaido University
 - 1969 Joined NTT, assigned to the Electrical Communications Laboratories
 - 1987 Leader of EMC Study Group, NTT Telecommunication Networks Laboratories
 - 1996 Professor of Electric Engineering Department, Kyushu Institute of Technology
 - 2001 Professor of Electronic Communication Department, Musashi Engineering University
 - 2010 Professor emeritus of Tokyo City University
Visiting co-researcher of the Graduate School of Frontier Sciences, The University of Tokyo
- Major prizes received
- 1986 Merit award – IEICE
(on the design theory and evaluation method for optical fiber cables)
 - 1997 Information communication merit award by MPT
(on EMC technology development)
 - 2003 Industrial standard merit award by the minister of METI
 - 2004 IEICE fellow
 - 2007 Promoted to IEEE fellow

Report on 2019 IEEE EMC + SIPI Symposium

Steering Committee/Technical Subcommittee

This is a report on 2019 IEEE International Symposium on Electromagnetic Compatibility, Signal and Power Integrity.

- Venue: New Orleans Ernest N. Morial Convention Center, Louisiana, USA
- Period of trip (participation in the symposium): Tuesday, July 23 to Thursday, July 25, 2019
- Period of symposium: Monday, July 22 to Friday, July 26, 2019
- Participants: Nozomi Miyake, member of Technical Subcommittee (NEC Platforms, Ltd.)
 - Akira Oda, Executive Director (VCCI Council)
 - Kunihiro Osabe, Technical Adviser (VCCI Council)
 - Masahiro Hoshino, Secretary General (VCCI Council)
 - Yoko Inagaki, Program Manager (VCCI Council)

I. Overview of 2019 IEEE EMC+SIPI

The purpose of attending the symposium was to present a paper that VCCI Council submitted and to collect information by attending technical sessions, workshops, and tutorials.

1. Presentation of a paper from VCCI Council

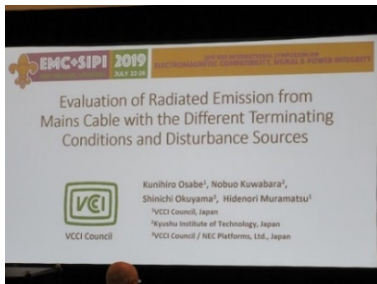
- Paper title: Evaluation of Radiated Emission from Mains Cable with the Different Terminating Conditions and Disturbance Sources
- Authors: (Osabe, member of VHF-LISN WG; Okuyama, Chief of VHF-LISN WG; Kuwabara, member of VHF-LISN WG; and Muramatsu, Secretariat)
- Presenter: Osabe, Technical Adviser
- Paper overview:

In regard to properties of interference generated in electronic devices and radiated from mains cables, simulation analysis of different power cable termination conditions with different interference modes were conducted. Respective emission was also measured for balanced and unbalanced terminations (using a comb generator to inject two types of interference source into a mains cable).

The obtained data was used to determine the validity of the simulation analysis through comparison of analysis and measurement results demonstrating emission differences between cases of balanced and unbalanced termination.

From the analysis result, the paper argues three points: (1) the radiated emission generated by a common mode (CM) interference source and emitted from a mains cable is larger than that of the differential mode

(DM) in all conditions, (2) the maximum emission from an ordinary device whose interference source is mainly that of common mode (CM) can be measured by balanced termination, and (3) unbalanced termination is recommended for devices that generate interference mainly from a DM interference source, although careful study is required for the measurement procedure.



Presentation by Osabe Technical Adviser in the technical session



Exhibition booth of FCC (exhibiting VHF-LISN)

2. Exhibition

There were exhibitions from a total of 92 organizations, including two companies from Japan (TDK and TOYO Corporation), and ANAB, A2LA, and NVLAP, which are institutions accrediting testing laboratories and have signed MOUs with VCCI Council. VHF-LISN was introduced in the exhibition of FCC (Fischer Custom Communications, Inc.). Safety & Magazine of China was handing out a magazine that features an article explaining VCCI Council in the exhibition booth and the workshop reception booth. The magazine is said to have an audience of 500 thousand people.

II. Meetings with ITI and three U.S. institutions that have signed MOUs with VCCI on mutual recognition

We used the occasion of IEEE EM to have a face-to-face meeting to exchange the latest conditions and opinions.

1. ANAB (ANSI National Accreditation Board)

Date and time: 13:00 to 13:45, Tuesday, July 23, 2019

Attendee: ANAB: Mr. Randy Long, Accreditation Manager

VCCI: Oda, Executive Director; Hoshino, Secretary General; Inagaki, Program Manager

ANAB (former ANSI-ASQ National Accreditation Board) became a wholly-owned subsidiary of ANSI in December 2018. ASQ (American Society for Quality) was removed from the former name, and the company (currently the largest accreditation body in North America) is now called ANSI National Accreditation Board. The international standard, *General requirements for the competence of testing and calibration laboratories*, was revised and renumbered from ISO/IEC 17025:2005 to ISO/IEC 17025:2017. The transition period ends in October 2020. About 45% of testing laboratories have transitioned from the old standard to the new standard. The international standard *General requirements for accreditation bodies accrediting conformity assessment bodies* was also revised and renumbered from ISO/IEC 17011:2004 to ISO/IEC 17011:2017. Transition for

this revision is parallel.

VCCI Council requested ANAB (and agreed by ANAB) to share the content of the MOU between ANAB and VCCI with testing laboratories (with a view to more laboratories being registered to VCCI Council).

2. NVLAP (National Voluntary Laboratory Accreditation Program)

Date and time: 13:25 to 14:10, Wednesday, July 24, 2019

Attendees: NVLAP: Ms. Dana S. Leaman, Chief

Mr. Brad Moore, Program Manager

Ms. Amanda McDonald, Program Manager

VCCI: Oda, Executive Director; Hoshino, Secretary General; Inagaki, Program Manager

NVLAP is an organization within NIST (National Institute of Standard and Technology) under the umbrella of U.S. Department of Commerce. A full-support program started in 1976. NVLAP is a member of ILAC, APLAC, and IAAC. Toward September and October 2020, NVLAP is preparing for a three-day assessor training that will have 170 to 200 students. NVLAP has accredited about 700 testing laboratories, of which 115 are related to EMC and telecommunication. Also, there are 46 testing laboratories that include VCCI technical standards as their testing scope.

3. A2LA (The American Association for Laboratory Accreditation)

Date and time: 15:05 to 15:45, Wednesday, July 24, 2019

Attendees: A2LA: Mr. Andrew Bohan, Accreditation Manager

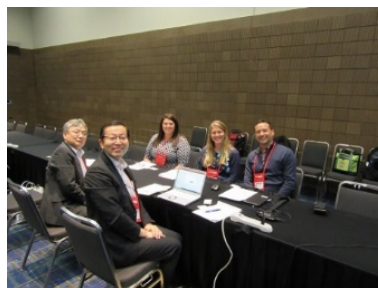
Ms. Megan Riebau, EMC Program Manager

VCCI: Oda, Executive Director; Hoshino, Secretary General; Inagaki, Program Manager

Ms. Megan Riebau introduced the latest trend of accrediting. As for EMC, 131 sites among a total of 3,501 (115 among a total of 3,375 last year) conform to VCCI standards, and 72 sites conform to the technical standard of VCCI-CISPR 32. A2LA accredits not only electronic devices but also items pertaining to numerous other areas, and it recently started a biobanking program. Although VCCI Council has just commenced support for only the current operation rules from April, there are no testing laboratories that cannot support the new rules. VCCI Council informed A2LA of its intention to issue a guidance if Amendment 1 of CISPR 32 Ed.2.0 is issued, and A2LA agreed.



ANAB exhibition booth



Meeting with NVLAP



A2LA exhibition booth

4. ITI (Information Technology Industry Council)

Date and time: 18:30 to 20:30, Thursday, July 25, 2019

Attendees: ITI: Mr. Richard Worley (DELL Technologies) (ITI TC5 Deputy Chairperson),

Mr. Monrad Monsen (Oracle), Mr. Dave Crawford (Logitech),

Mr. Jacob Borg (Logitech), Mr. John Flavin (Teradata),

Mr. John Fessler (Lexmark), Mr. Jack Coady (Schneider Electric),

Mr. Jim Knighten (Teradata), and Mr. Chris Cleff (ITI) 9 attendees

VCCI Council: Miyake, member of Technical Subcommittee; Oda, Executive Director;

Hoshino, Secretary General; Osabe, Technical Adviser; Inagaki, Program Manager

About EMC, ITI committee members considered that one test should have only one standard, while there are the CISPR standard and the FCC standard for EMC.

VCCI Council provided the information about trends of regulations on the emission of multimedia devices in China and Taiwan. Especially, IEC 62386-1, a product safety standard, has frequent revisions causing significant delay for changes to be propagated to different countries and regions. Because of this delay, the referenced versions of international standards are not unified in the world. VCCI Council provided information on countries invited to an international forum scheduled for October 2019 and told them that presentation materials for the forum, as well as articles on different visits, would be posted on the VCCI Council website. In answer to a query we received in regard to timing of the commercial launch of 5G services, we said that it would start in 2020, the year of Tokyo Olympic Games. We agreed to hold another meeting during IEEE EMC next year.



Meeting with ITI members

III. Impressions

We fulfilled our objectives of presenting the paper and having meetings with different certification institutions and ITI. VCCI Council provided a tutorial two years ago in this symposium and have continued to present papers in IEEE EMC. We felt that these activities have earned considerably high recognition of VCCI Council. VCCI Council will actively participate in IEEE EMC every year and continue to exchange opinions and information with ITI TC5 and other different accrediting institutions.

Report on EMC EUROPE 2019 Symposium

Technical Subcommittee

This is a report on the international symposium and exhibition on electromagnetic compatibility (EMC EUROPE 2019).

Venue: Universitat Politècnica de Catalunya, Barcelona, Spain

Period: Monday, September 2 to Friday, September 6, 2019

Participants: Shinichi Okuyama, Technical subcommittee member (Chief of VHF-LISN WG)

(NEC Platforms, Ltd.)

Hidenori Muramatsu, Technical manager (VCCI Council)

1. Overview of EMC EUROPE 2019

The purposes of attending the symposium were to present a paper that VCCI Council submitted and to collect information by attending workshops, tutorials, special sessions, oral session, and poster sessions.

Participants: 714 people from 44 countries and regions
Papers presented in oral sessions: 171 (20 from Japan),
presentations in special sessions: 6 (0 from Japan),
presentations in workshops/tutorials: 18 (0 from Japan),
presentations in poster sessions: 43 (7 from Japan).
Number of presented papers from different countries were:
Germany (43), France (31), Japan (21), and Spain (16).

2. VHF-LISN WG paper presented by VCCI Council

- Title: Influence of Power Line Termination Device Placed on Ground Plane to NSA Measurement

(Okuyama, subcommittee member; Kuwabara, subcommittee member; and Muramatsu, Secretariat)

- Presenter: Okuyama, Technical Subcommittee member

- Session name: Metrology on EMC (II)

- Abstract: Currently, as a device that defines impedance properties of power supply facilities in test sites, the standardization of VHF-LISN is discussed in CISPR A/I Joint ad-hoc group 6 under the umbrella of CISPR 16-1-4 and CISPR 16-2-3. In a test setup that uses VHF-LISN, VHF-LISN is installed under the ground plane or on the ground plane. We analyzed the impact of installing VHF-LISN on the ground plane in two test sites by NSA measurement and moment method simulation. The results confirmed that the impact of VHF-LISN of the currently proposed size is smaller than that of CMAD (standardized cable termination device) and that the simulation model created in this case is valid. We reported that the simulation model can be used to evaluate the impact on NSA in various setup conditions.

- Q&A

What was the purpose of using NSA measurement for the impact of installing the termination device on the ground plane?

We used NSA measurement because multiple NCs (National Committees) expressed concern about NSA measurement with regard to a paper that proposed VHF-LISN (CISPR/A/1266/DC).

3. Overview of the keynote, workshops and tutorials, special sessions, oral sessions, poster sessions, and exhibitions

(1) Keynote

- Title: EMC based design of physics detectors: Top-Down vs. Bottom-Up Approach

Due to the complex nature of controlling EMI phenomena in physics experiments, further research on matters outside the scope of EMC standards is necessary. Physics detectors are widely used in places such as hospitals, underground sites, and outer space. The lecture introduced two methods of determining design rules for accelerators in two projects of high-energy physical experiments: a next-generation high-energy accelerator CMS (CERN: Switzerland) and Belle II (KEK: JAPAN). One method goes in the top-down direction from the detector, subsystems, and then to components, and the other goes in the bottom-up direction from components, subsystems, and then to the detector.

- Title: Life, death and electromagnetism: From Frankenstein to a Manned-Mission to Mars

Electromagnetics was considered a weird and mysterious phenomenon in the past. The lecture explained the impact of the intensity of electric currents flowing within the human body with reference to two examples: *Frog experiment* conducted by Galvani (Galvani hung a frog from an iron fence and attached a brass wire to its leg, then found the leg quivering) and *Frankenstein*, which is considered to have given research inspiration to Galvani. The lecture also introduced manned missions to Mars, and explained the danger of the environment, which, unlike the earth, has neither an ozone layer nor magnetic field.

(2) Workshop & Tutorial

- Title: Uncertainty about uncertainties along the EMC-compliance chain

The lecture provided an organized explanation on seven levels of uncertainties in EMC conformance.

The first level is MIU (Measurement Instrumentation Uncertainty), the second level is SCU (Standards Compliance Uncertainty), and the third level is PSU (Product Sampling Uncertainty). PSU is about the conformance of mass-production products and is described as the 80%-80% rule in CISPR TR 16-4-3. For the fourth level, ATMU (Alternative Test Method Uncertainty), the lecture mentioned the fact that CISPR 15 defines five options and tolerance ranges for the radiated interference measurement method for frequency band 30 MHz to 1 GHz. The fifth, sixth, and seventh levels are interference modeling uncertainty, regulatory compliance uncertainty, and actual risk of interference. The lecture was very informative, explaining these topics with actual examples in relation to CISPR standards (including newly discussed CISPR 16-4-6).

(3) Special Sessions

- Session name: Electromagnetic Eavesdropping TEMPEST
- Title: DVI (HDMI) and DisplayPort Digital Video Interfaces in Electromagnetic Eavesdropping Process

Regarding confidentiality threats in information processing, the lecture explained data reproduction based on emission signals from screen display interfaces DVI and DisplayPort, which are considered to have relatively high confidentiality. The lecture concluded that the DisplayPort interface is the most secure interface in terms of electromagnetic security, based on a comparison of screens reproduced by emission signals of active DVI and DisplayPort interfaces. The display matrix signal generated by the LVDS driver was reproduced from emission signals by a DSI-1550A receiver.

(4) Oral Sessions

- Session name: Communications (II)
- Title: Improved Electromagnetic Compatibility Standards for the Interconnected Wireless World

The lecture explained that, for estimating degradation caused by electromagnetic interference of digital communication systems in interconnected wireless communication, the new statistical approach—based on amplitude probability distribution (APD) measurement—is more suitable than the current standard, which focuses on ensuring the coexistence of wireless systems.

However, there is an issue. The APD approach requires collaboration among ITU, ETSI, IEC, and many other institutions related to the telecommunications industry for the definition of the limitation of communication systems and the consideration of final application. The lecture also explained that the final application of wireless systems must be considered for the definition of tolerable BERs (bit error rate) of different applications.

(5) Poster Sessions

- Title: CISPR 32—Conducted Emissions Test Benchmarking Using Automated FFT & Stepped-Based Systems

The lecture explained the result of using five EUTs in the verification and comparison of the properties of measurement systems that use FFT-based (Fast Fourier Transform based) measurement devices for conducted emission tests. As the result, when stable noise from an EUT is measured, the maximum deviations between the results of the step sequence and the FFT sequence is 2.13 dB for QP and 0.89 dB for CAVG (CISPR-AVG). When measuring unstable noise signals, the FFT sequence showed the most stable and accurate values. Pre-scan trace by FFT was found to be effective because of small differences (1.5 dB or less) from the final measurement results for all EUTs.

With FFT-sequence-based measurement becoming more widely used, its effectiveness and any potential issues must be closely monitored.

(6) Exhibition

There were booths from 34 companies (0 from Japan), most of which were related to measurement facilities.

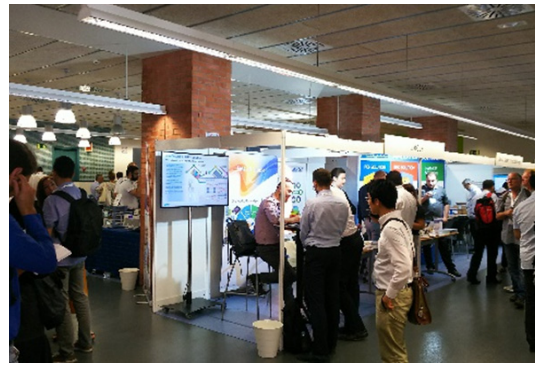
4. Impressions

Numerous audiences were shown presentations on VHF-LISN in EMC SAPPORO & APEMC in June, IEEE EMC in July, and EMC EUROPE this time showcased issues in regard to current measurement methods for radiated emissions and VHF-LISN standardization activities. The presentations are expected to help promote future international standardization.

The next EMC EUROPE 2020 will be held in Rome, Italy. VCCI Council will continue to study issues in measurement methods, actively submit papers—documenting experiments and evaluation results—to symposiums, and exchange opinions and information with notable figures in the industry.



Presentation (Okuyama, Technical Subcommittee member)



Exhibition floor

Hokkaido Research Organization: Report on VCCI Seminar in Hokkaido

Steering Committee

Host: Industrial Research Institute of Industrial Technology Research Department,
Hokkaido Research Organization, a local incorporated administrative agency

1. Date and time: 13:30 to 16:40, Tuesday, October 29, 2019
2. Venue: Training Room, 1F, Industrial Research Institute, Hokkaido Research Organization
3. Audience: 22 (plus several members from Technology Research Department of Hokkaido Research Organization)
4. Lecture (conducted by Masahiro Hoshino, VCCI Council Secretary General)
 - (1) Introduction to VCCI Council's history and system, trends in EMC regulations in Japan and other countries
Akira Oda, Executive Director (VCCI Council)
 - (2) Content of the new technical standard (VCCI-CISPR 32: 2016)
Takuya Nakamori, Chairman of Technical Subcommittee (Panasonic Corporation)
 - (3) Market survey by VCCI
Hiroaki Suzuki, Chairperson of Market Sampling Test Subcommittee (Casio Computer Co, Ltd.)
 - (4) Overview and notes on registering VCCI facilities
Seijun Fukaya, Secretariat of Measurement Facility Registration Committee (VCCI Council)
- * Questions and answers
Hidenori Muramatsu, Technical Manager (VCCI Council)

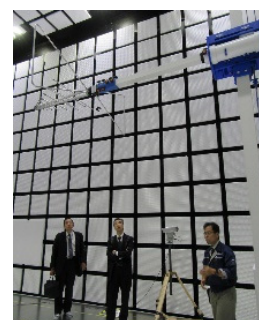
5. Overview

In April this year, Hokkaido Research Organization installed the new electromagnetic noise measurement facility *Manufacturing Laboratory for Cold Regions (MONOLABO)*. The organization hosted this seminar on account of the organization's anechoic chamber being in the process of VCCI registration. (The anechoic chamber is shortly expected to be Hokkaido's first VCCI-registered anechoic chamber.) In addition to the above four lectures, there were questions and answers on topics such as the manner of cabling and cable bundling during installation, intentional radiation, and an example of a description on the exclusion of intentional radiation in test reports. After the lectures, Hokkaido Research Organization gave us a tour of *Manufacturing Laboratory for Cold Regions (MONOLABO)* to showcase the anechoic chamber (and related facilities in another building).

Since 2006, VCCI Council has been holding briefing sessions on VCCI Council's activities and technical seminars on EMC at industrial institutions in various regions. VCCI Council will continue to hold such events while incorporating requests from its attendees. We are deeply grateful to Mr. Iida, Center Director of Manufacturing Support Center, Technology Research Department, Hokkaido Research Organization; Mr. Takahashi, Technical Support General Manager; Mr. Takahashi, Information System General Manager; and Mr. Miyazaki for giving us the opportunity to hold this session.



Lectures



Anechoic chamber
(tour)

Status on FY2019 Market Sampling Tests

Market Sampling Test Subcommittee

As of October 31, 2019

Planned number of market sampling tests	Loan-based		45		100					
	Purchase-based		55							
Sampling test	Selected	Cancelled (Not shipped, etc.)	Owner's consent pending Inspectable samples	Testable samples	Test completed	Judgment awaited	Judgment			
							Passed	Failed - tentative		
								Finally passed	Finally failed	Pending
Grand total	88	4	13	71	50	7	40	1	1	1
(Previous month grand total)	45	4	2	39	14	10	4	0	0	0

Loan-based testing total	49	4	12	33	22	4	16	0	1	1
1 st Quarter	13	2	0	11	11	1	9	0	1	0
2 nd Quarter	12	2	0	10	10	2	7	0	0	1
3 rd Quarter	12	0	1	11	1	1	0	0	0	0
4 th Quarter	12	0	11	1	0	0	0	0	0	0

Purchase-based testing total	39	0	1	38	28	3	24	1	0	0
1 st Quarter	20	0	0	20	19	0	18	1	0	0
2 nd Quarter	12	0	0	12	9	3	6	0	0	0
3 rd Quarter	7	0	1	6	0	0	0	0	0	0
4 th Quarter	0	0	0	0	0	0	0	0	0	0

Final Result

Passed	Failed	Pending
41	1	1

Document inspection	Selected	Cancelled (withdrawal, etc.)	Owner's consent pending Inspectable samples	Inspectable samples	Pre-check completed	Judgment awaited	Judgment completed	Judgment	
								Cleared	Problems identified
	31	0	0	31	29	4	25	20	5

* A case among the document inspections is a change from a loan-based test.

Report from the Secretariat

● List of Members (August 2019 - October 2019)

New members

Membership	Member No.	Company Name	Country
Regular	4015	Square K.K.	JAPAN
Regular	4017	MOBILE COMMERCE SOLUTION Inc.	JAPAN
Regular	4019	Illumina K.K.	JAPAN
Regular	4022	Panasonic i-PRO Sensing Solutions Co., Ltd.	JAPAN
Regular	4023	Xacti Corporation	JAPAN
Regular	4024	HOYA CORPORATION MD DIVISION	JAPAN
Regular	4029	QD Laser, Inc.	JAPAN
Regular	4032	TRANZAS, INC.	JAPAN
Regular	3999	Shenzhen Horion Intelligent Technology CO., LTD	CHINA
Regular	4008	Huawei Device Co., Ltd.	CHINA
Regular	4011	Qbic Technology Co., Ltd.	CHINESE TAIPEI
Regular	4016	CREATIVES5 INC.	CHINESE TAIPEI
Regular	4018	Trimble INC.	USA
Regular	4025	Pittasoft Co., Ltd.	KOREA
Regular	4026	Shenzhen NearbyExpress Technology Development Company Limited	CHINA
Regular	4027	IMTSOFT	KOREA
Regular	4028	Emesent Pty Ltd	AUSTRALIA
Regular	4031	LILLYCOVER Co., Ltd.	KOREA
Regular	4033	Inspire Mobile	KOREA
Regular	4034	SketchOn Inc.	KOREA
Supporting	4009	Nemko S.p.A.	ITALY
Supporting	4010	Applied Test Lab Inc.	CANADA
Supporting	4012	Unified Compliance Laboratory	USA
Supporting	4013	BV CPS ADT Korea Ltd.	KOREA
Supporting	4020	TÜV Rheinland Sweden AB	SWEDEN

Company name change

Membership	Member No.	Company Name	Country	Old company name
Regular	637	SystemGear Co., Ltd.	JAPAN	NIPPON SYSTEMS DEVELOPMENT Co., Ltd.
Regular	3804	Kioxia Corporation	JAPAN	Toshiba Memory Corporation
Supporting	259	EMC Japan Corporation	JAPAN	株式会社 イーエムシージャパン
Regular	2276	SMART Embedded Computing, Inc.	USA	Artesyn Product Testing Services
Regular	3035	CCIC Southern Testing Co., LTd.	CHINA	CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd.
Regular	3454	LCFC (Hefei) Electronics Technology Co., Ltd.	CHINA	LC Future Center Limited Taiwan Branch

Membership	Member No.	Company Name	Country	Old company name
Regular	3500	Legrand AV (C2G A Brand of Legrand)	USA	Ortronics, Inc.
Regular	3626	Tobii AB	SWEDEN	Tobii Technology AB
Regular	3716	Rubrik Japan KK	JAPAN	Rubrik International Inc.
Regular	3730	Vmware, Inc.	USA	Velocloud Networks, Inc.
Regular	3868	DupliCALL Co., Ltd.	CHINA	DUPLICALL CO., LIMITED
Regular	3984	VC Inc.	KOREA	UCOMM TECHNOLOGY CO., LTD.
Regular	4006	StorCentric, Inc.	USA	Drobo, Inc.

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

Withdrawal members

Membership	Member No.	Company Name	Country
Regular	3197	ASCON CO., LTD.	JAPAN
Regular	3843	Relay2 Japan K.K.	JAPAN
Regular	2168	SanDisk IL	ISRAEL
Regular	3005	TIBCO Software Inc.	USA
Regular	3492	piQx Imaging Pte. Ltd.	SINGAPORE
Regular	3622	Coriant Oy	FINLAND
Regular	3970	WorMit	CHINESE TAIPEI

● VCCI Schedule for FY 2019

April <ul style="list-style-type: none"> · Exhibition at TECHNO FRONTIER · The basic technique of EMI measurement 	May <ul style="list-style-type: none"> · The basic of electromagnetic waves, EMI measurement technique below 1 GHz 	June <ul style="list-style-type: none"> · EMC SAPPORO & APEMC 2019 · The EMI measurement technique above 1 GHz · Release VCCI Dayori No.133
July <ul style="list-style-type: none"> · VCCI Business Reporting Meeting · The level up of EMI measurement technique · The EMI Measurement Instrumentation uncertainty · Release Annual Report 	August	September <ul style="list-style-type: none"> · Release VCCI Dayori No.134
October <ul style="list-style-type: none"> · Exhibition at CEATEC JAPAN · VCCI International Forum · The basic technique of EMI measurement 	November <ul style="list-style-type: none"> · The basic of electromagnetic waves, EMI measurement technique below 1 GHz 	December <ul style="list-style-type: none"> · The EMI measurement technique above 1 GHz · Release VCCI Dayori No.135
January <ul style="list-style-type: none"> · VCCI Technical Symposium · The level up of EMI measurement technique · The EMI Measurement Instrumentation uncertainty 	February	March <ul style="list-style-type: none"> · Release VCCI Dayori No.136

● Status of Compliance Test Notifications (VCCI 32-1)
(July 2019 ~ September 2019)

					July 2019			August 2019			September 2019		
			Class A	Class B	Class A	Class B	Total	Class A	Class B	Total	Class A	Class B	Total
Computer	Server	Super Computer, Server, etc.	A 2	a 2	33	1	34	25	2	27	21	4	25
	Tabletop type	WS, Desk-top PCs, etc.	B 2	b 2	3	28	31	2	21	23	2	16	18
	Portable type	Note PCs, Tablet PCs, etc.	C 2	c 2	0	50	50	4	33	37	0	30	30
	Others	Office Computer, Wearable computers, etc.	E 2	e 2	1	1	2	1	3	4	2	8	10
Peripherals/Terminals Equipment	Storage Device	HDD, SSD, USB Memory, Media drives, etc. Disk drives, NAS, DAS, SAN, etc.	G 2	g 2	11	32	43	6	26	32	7	19	26
	Printer	Printer (Compound equipment included), etc.	H 2	h 2	8	4	12	1	4	5	11	4	15
	Display	CRT displays, Monitor, projector, etc.	J 2	j 2	10	61	71	14	49	63	9	48	57
	Input/Output Device (excluding Auxiliary Memory, Printer, Display)	Image scanners, OCR, etc.	M 2	m 2	10	5	15	1	5	6	1	6	7
	General Purpose Terminal	Display control terminals, etc.	N 2	n 2	0	5	5	0	0	0	0	0	0
	Exclusive Terminal	POS, Terminal for Financial and Insurance use, etc.	Q 2	q 2	7	0	7	5	0	5	3	1	4
	Other Peripherals Equipment	Others (PCI cards, Graphics cards, Mouse, Keyboard, etc.)	R 2	r 2	3	56	59	4	39	43	6	32	38
Audio visual equipment	Broadcast receivers	Television, Radio, Tuner, Video recorder, Set-top Boxes, etc.	K 2	k 2	1	0	1	0	3	3	0	0	0
	Audio equipment	Speaker, Amplifier, IC recorder, MP3 player, Headsets, etc.	L 2	l 2	0	13	13	2	5	7	0	3	3
	Video/Camera equipment	Digital video cameras, Web cameras, Network cameras, Video players, Photo frames, Digital-camera, etc.	I 2	i 2	17	16	33	3	8	11	1	7	8
	Others	Other Audio visual equipment	P 2	p 2	0	1	1	4	3	7	1	3	4
Copying Machine/Compound	-	Copying Machine/Compound equipment, etc.	S 2	s 2	0	1	1	1	1	2	1	1	2
Communications Equipment	Terminal equipment	Mobilephone, Smartphone, PHS telephones	T 2	t 2	0	1	1	0	9	9	0	4	4
		Telephone Equipment (PBX, FAX, Key Telephone System, etc.), Cordless telephones	U 2	u 2	4	4	8	0	0	0	0	1	1
	Network related equipment	Network Channel Terminating Equipment (Modem, Digital Transmission Equipment, DSU, TA, etc.)	V 2	v 2	3	0	3	1	0	1	1	1	2
		LAN Equipment (Router, HUB, etc.), Switching-node, etc.	W 2	w 2	42	15	57	37	20	57	39	14	53
Others	Other Communications Equipment	X 2	x 2	9	7	16	30	15	45	25	4	29	
Entertainment and educational equipment	Electronic stationeries	Electronic dictionaries, Electronic book readers, etc.	D 2	d 2	0	1	1	0	0	0	0	1	1
	Electronic toys	Game machines, Game pads, Toy drones, etc.	Y 2	y 2	0	2	2	0	3	3	0	0	0
	Lighting control equipment for entertainment	Lighting control equipment for entertainment	Z 2	z 2	0	0	0	0	0	0	0	0	0
	Others	Others (Navigator, etc.)	F 2	f 2	0	0	0	0	1	1	0	1	1
Others		O 2	o 2	9	11	20	11	2	13	14	3	17	
Total				171	315	486	152	252	404	144	211	355	

● 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 registering members 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 (August 2019 – October 2019)

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	Contact to:
DX アンテナ株式会社	西神テクノロジー センター 電波暗室 棟 3m法電波暗室	-	-	-	-	-	T-20057	2022/9/1	兵庫県神戸市西区室谷 1丁目2番2号	078-996-2206
Shenzhen Academy of Metrology and Quality Inspection	Shenzhen Academy of Metrology and Quality Inspection	-	-	-	-	-	G-20076	2022/9/1	NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China	+86-86009898
Huawei Technologies CO., LTD.	No.2 RE test site in Dongguan (10m chamber)	-	-	-	-	-	G-20081	2022/9/1	Section D, No.2, New City Avenue, Songshan Lake Sci. & Tech. Industry Park, Dongguan, 523808, P.R.C	+86-769-23830808
Huawei Technologies CO., LTD.	No.2 RE test site in Dongguan (10m chamber)	-	-	-	-	○	R-20081	2022/9/1	Section D, No.2, New City Avenue, Songshan Lake Sci. & Tech. Industry Park, Dongguan, 523808, P.R.C	+86-769-23830808
Fujitsu Technology Solutions GmbH	SAC	-	-	-	-	○	R-20082	2022/9/1	Buergermeister-Ulrich- Strasse 100, 86199, Ausburg, Germany	+49-821-8042502
TUV SUD Canada Inc.	TUV SUD Canada Inc.	-	-	-	-	-	T-20060	2022/10/6	11 Gordon Collins, Drive Gormley, Ontario, Canada, L0H 1G0	+1-905-883-7255
Interocean EMC Technology Corp	Chamber 3	-	-	-	-	-	G-20080	2022/10/6	No. 5-2, Lin 1, Tin-Fu, Lin-Kou Dist., New Taipei City, Taiwan 244, R.O.C.	+886-2-2600-6861

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My memoriam about technical ability growth of VCCI	Nobuo Kuwabara	1
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Closing words

NOA Building, home to our VCCI Council office, is located in Azabudai in Minato ward, Tokyo. The building is at the Iikura intersection, about three minutes walk from Tokyo Tower. The nearest station/line is Kamiyacho/Tokyo Metro Hibiya Line. Azabudai is in the Iikura area, away from the more populated Toranomon area. Other than containing Tokyo Tower, Iikura is neither a tourist spot nor business district. Rather, it is a quiet area of scattered old buildings.

The inside of NOA Building is that of a typical office structure, however, the building boasts a uniquely oval exterior of entirely black walls—often photographed by passersby and possibly a talking point among architectural aficionados.

Tokyo Tower—once an immensely popular foreign tourist attraction—has since been usurped by Tokyo Skytree or town of Asakusa.

Consequently, Kamiyacho Station and Azabudai are relatively quiet. But redevelopment is about to change all this.

Plans are now on the table for two 64-story skyscrapers and one 54-story skyscraper to be built in the area extending from the neighborhood of Kamiyacho Station to the old site of the former Azabu Post Office by March 2023. If you are interested, go

online and search keywords like “Kamiyacho (or Azabudai) redevelopment”.

I was surprised to know that there will be THREE new buildings almost as tall as Tokyo Tower in this quiet area. But then again, the pace at which older buildings have been disappearing from the area hasn't entirely escaped my notice.

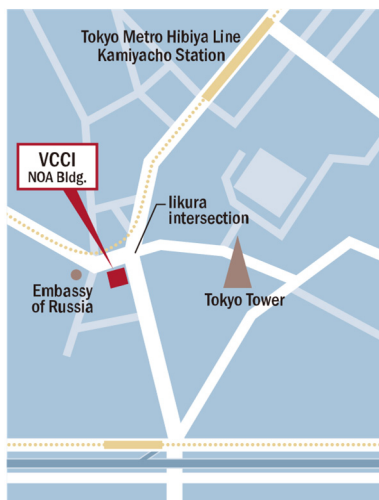
Maybe these plans have been on the table for some time. Yet, I still cannot envisage three skyscrapers or bustling crowds studding this familiar landscape.

That said, while one can't help but feel sentimental about the familiar scenery rapidly changing due to redevelopment, memories of the old buildings start to fade, as construction sites become a ubiquitous part of daily life.

I don't relish the prospect of changes brought by such redevelopment. Commuting concerns me, as the town is likely to become a spot for sightseers, crowded all day. And trains are likely to be crowded, too. On the other hand, they say we adjust to change sooner than we ever anticipate. Once the buildings are completed, I might even like them! I'll adjust to the crowds and probably go sightseeing, who knows?

If you have a chance to visit Kamiyacho or the VCCI Council, it might be a good idea to get this quiet landscape etched in your mind while you can. (NH)

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