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Contribution

ICT's Contribution to Society

Kazuo Izumi
Secretary General,
Institute for the Information Industry (III)

Last year we suffered from many natural disasters, and it is mournful to recall that so many valuable livies were lost. The abnormal weather included torrential rain in Western Japan, an earthquake in the Osaka Hokubu area, the Hokkaido Eastern Iburi Earthquake, numerous fierce typhoons, and extreme heat. In order to cope with such natural disasters, many policies and technical measures have been developed and applied, but they are still quite insufficient. Under such circumstances, the power and potential of ICT has been questioned and it is expected to make a more positive contribution to Japanese society.

At the time of the Great Hanshin-Awaji Earthquake of 1995, the Internet was not yet spread widely, and the contribution of ICT was very limited. However, at the time of the Great East Japan Earthquake, effective use of SNS was discussed. Additionally, national and local governments recognized ICT's potential and power for society and that ICT tools can be used for timely distribution of disaster information to citizens and residents.

ICT is not only for disasters of course. Indeed, ICT is becoming a major tool in tackling various issues of society.

The Institute for the Information Industry, of which I am the secretary general, is the private sector secretariat of the Liberal Democratic Party Information Industry Promotion Association (Chairman: Fukushiro Nukaga, former Finance Minister). The Information Industry Promotion Association and the Institute for the Information Industry were founded in January 1969 and celebrated their 50th anniversary in January this year.

The first president of the Information Industry Promotion Association, Mr. Tomizaburo Hashimoto who served as the Secretary General of the Liberal Democratic Party during the era of the Cabinet of Kakuei Tanaka, stated in the greetings of the foundation meeting as follows:
"Computers are likely to eventually reach the level of human intelligence, but it will still be

human wisdom that will make the utmost use of computers' potential as a comprehensive system in the real world. I would like to push forward the basic philosophy of the Information Industry Promotion Association in this way of thinking."

The philosophy is that we use computers (namely, information communication technology; ICT) as something useful for society by utilizing human beings' wisdom as fully as possible. This philosophy is still new today, and we must keep in mind and take into heart that we can use ICT as a means or force for solving social problems. How to make use of this power depends on human wisdom.

On the other hand, there are still many cases where it is not possible to fully utilize the power of ICT, due to various institutional and systemic obstacles. Full utilization of ICT has the potential to effectively resolve many social and policy issues.

For example, the pension problem was one of the major causes for the change of Japan's government from LDP to the Democratic Party (at that time) in 2009. If the current My Number system had been in place, it is thought that we could have taken advantage of ICT's strengths to prevent the pension problem from becoming so big and troublesome.

Regarding current social and policy issues, I think that ICT can contribute greatly, for example, toward efforts to resolve agricultural issues (aging population, declining number of farmers due to population decrease, and decreasing agricultural productivity and industrial competitiveness).

According to a survey by the Productivity Division, which is somewhat old data but still can explain the reality, the productivity improvement of agricultural labor in Japan during the period from 2010 to 2012 was only 4.7 if that for the U.S. is assumed to be 100. And the ICT capital equipment investment rates of agriculture, forestry, and fishery industries have remained almost unchanged in Japan during the 15 years from 1995 to 2010. Conversely, the growth rate for those industries in the U.S. was approximately eight times greater in the same 15-year span. It appears that the low labor productivity of Japan's agriculture is related to and may even be caused by its low ICT capital equipment ratio.

Use of ICT has been extended gradually, but basically the tendency is still the same throughout the period.

What is the cause of the low ICT capital equipment investment rate, and what is necessary

for solving the problem? With cooperation from the International University Global Communications Center (GLOCOM), last year we compiled recommendations for improving the labor productivity in agriculture by utilizing ICT.

This year, events may lead to social confusion if we do not use the power of ICT. Some example events are the change of era from Heisei after the succession to the throne by the new emperor, an increase of the consumption tax, and a simultaneous reduction of tax rates. This is the year when the power of ICT will really be tested. By all means, we would like to work on societal issues by teaming up politicians, bureaucrats, and citizens.



Kazuo Izumi

1950	Born in Matsue City, Shimane Prefecture
1974	Graduated from Waseda University Faculty of Law
1976	Joined Fujitsu Limited
1988 - 1993	Fujitsu Brussels Office Director
2007 - 2011	Secretary General of Institute for the Information Industry
2010	Retired from Fujitsu Limited
2011 - 2015	Senier Managing Director of JIPDEC
2016 onward	Secretary General of Institute for the Information Industry

Committee Activities

● Board of Directors

Date	November 6, 2018
Reported items	● Reported items　Business report for the first half of FY 2018

● Steering Committee

Date	November 20, December 21, 2018, and January 22, 2019
Agenda items	● Agenda item 1　Discuss the business plan for FY 2019 ● Agenda item 2　Discuss the budget proposal for FY 2019 ● Agenda item 3　Handling of the scope of application for technical standards (draft) ● Agenda item 4　Handling of Electronic Display (draft) ● Agenda item 5　Web site publication and e-mail notification (draft) on completion of transition measures ● Agenda item 6　New members from October through December
Continuing agenda items	● Agenda item 2
Decisions and reported items	● Agenda item 1　Approved ● Agenda item 3　Approved ● Agenda item 4　Approved ● Agenda item 5　Approved ● Agenda item 6　Approved ● Reported item 1　Activity reports for the period from October to December were made by the dedicated subcommittees (Technical, International Relations, Market Sampling Test, Education, Public Relations) ● Reported item 2　Status report regarding secretariat work (member entry and withdrawal trends, the number of compliance verification reports, income and expenditure, etc.) ● Reported item 3　Report on EMC China 2018 Shanghai Workshop (see page 19) ● Reported item 4　Report on business trip to REDCA meeting (at Berlin) (see page 25) ● Reported item 5　Report on the VCCI seminar held at the Tokatsu Techno Plaza (see page 31)

● Technical Subcommittee

Date	November 7, December 20, 2018, and January 18, 2019
Agenda items	● Agenda item 1 On the Technical Subcommittee's past activities for FY 2018 ● Agenda item 2 On the Technical Subcommittee's planned activities for FY 2019 (draft) ● Agenda item 3 On Briefing on Regulations and Technical Symposium for FY 2019 ● Agenda item 4 On EMC Sapporo & APEMC 2019 Tutorial ● Agenda item 5 Deliberations on CDV document (3 items) for revision of CISPR 32 ● Agenda item 6 On the verification of the effect of radianted emissions of EUT with two wireless functions ● Agenda item 7 On whether the influence on measurement is improved by inserting a CMAD between AEs when measuring a combination of CVP and CP ● Agenda item 8 On considerations of calibration using free-space antenna factor ● Agenda item 9 On the verification for creating the RRT procedure document about power cable termination conditions
Continuing agenda items	● Agenda item 2 ● Agenda item 4 ● Agenda item 5 ● Agenda item 6 ● Agenda item 7 ● Agenda item 8 ● Agenda item 9
Decisions and reported items	● Agenda item 1 On the Technical Subcommittee's activities for FY 2018 ● Reported item Briefing on Regulations and Technical Symposium for FY 2019 (see page 32)

● International Relations Subcommittee

Date	November 9, December 14, 2018, and January 11, 2019
Agenda items	● Agenda item 1 International Forum ● Agenda item 2 Survey on trends in world EMC standards ● Agenda item 3 Summary of overseas survey
Continuing agenda items	● Agenda item 1 Overseas survey ● Agenda item 2 ● Agenda item 3
Decisions and reported items	● Reported item 1 On December 20, we updated the world EMC regulatory trend survey. ● Reported item 2 We decided to conduct an overseas survey this year in Vietnam and Indonesia in late March of 2019.

● Market Sampling Test Subcommittee

Date	November 8, December 6, 2018, and January 18, 2019
Agenda items	● Agenda item 1 Action on "Failed" cases in FY 2017 ● Agenda item 2 Action on "Failed – tentative" cases in FY 2018 ● Agenda item 3 Document inspection ● Agenda item 4 Electronic display ● Agenda item 5 Visits to Shanghai workshop and three testing laboratories ● Agenda item 6 FY 2019 business plan
Continuing agenda items	● Agenda item 2 We discussed two "Failed – tentative" cases. One case is a concern related to HDMI cables. We are waiting for members to deal with it. The other case requires a retest. We will deliberate after that.
Decisions and reported items	● Agenda item 1 Out of the three cases that failed in FY 2017, the last one was purchase-based. It was reported that the item was returned for refund. For details, see page 36. ● Agenda item 3 12 document inspections were conducted. There were no problems. ● Agenda item 4 Dot display of the VCCI mark (electronic display) was deliberated. It will be unavoidablely rough to a certain extent. As an accompanying condition we recommended displaying the mark on the instruction manual and on the outer box. ● Agenda item 5 Visited three representative laboratories in Shanghai and Suzhou during the period of the VCCI Shanghai Workshop (see p. 21). ● Agenda item 6 Next fiscal year, we will examine methods for increasing the number of document inspections and methods for reporting the results of surveys on the display of the VCCI mark and other activities.

● Education Subcommittee

Date	November 2, December 18, 2018, January 23, 2019
Agenda items	● Agenda item 1 Reported on the questionnaires collected at the following seminors: - 47th seminar: the basic of electromagnetic waves and EMI measurement technique below 1 GHz - 14th seminar: the EMI measurement technique above 1 GHz - 4th seminar: the level up of EMI measurement technique ● Agenda item 2 Preparation of educational and training text for measurement instrument uncertainty (MIU) ● Agenda item 3 On plan of education and training project for FY2019
Continuing agenda items	● Agenda item 3
Decisions and reported items	● Agenda item 1 The results of the student questionnaires were all satisfactory. ● Agenda item 2 Did training practice on uncertainty (MIU) of the EMI measurement device, and confirmed the lecture procedure. Also checked and corrected text and consistency between chapters. This training course was scheduled to be held on February 1. ● Reports on education and training in FY2018 - On November 1st to 2nd and 8th to 9th, 47th electromagnetic wave fundamentals and EMI measurement technology of 1GHz or less courses were held. 14 participants took part. - November 29~On the 30th, a 46th EMI measurement technology exceeding 1 GHz course was held. 15 people attended. - On 14th December, a 4th EMI measurement technology course was held. 16 people attended.

● Public Relations Subcommittee

Date	November 2, December 10, 2018, January 11, 2019
Agenda items	● Agenda item 1 On CEATEC ● Agenda item 2 On translation of pamphlets etc. to Chinese ● Agenda item 3 On the draft action plan for FY 2019 ● Agenda item 4 On the FY 2019 budget proposal
Continuing agenda items	● Agenda items 2 and 4
Decisions and reported items	● Agenda item 1 Examined future improvement points along with the exhibition report. ● Agenda item 2 Decided to translate the folding VCCI Council introduction pamphlet into Chinese. We will continue to translate pamphlets and other materials after FY 2019 and distribute them at future events such as exhibitions and symposiums. ● Agenda item 3 The draft plan for FY 2019 was approved by the Steering Committee. ● Agenda item 4 Create a draft budget according to the plan.

● Measurement Facility Registration Committee

Date	November 05, 2018
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG and concluded as follows
Decisions made and items completed	Conformity certified (including cases certified with qualification comments after extra document checks) 24 companies Radiated EMI measurement facilities 5 Mains ports conducted EMI measuring facilities 9 Telecommunication port conducted EMI measuring facilities 14 Radiated EMI measurement facilities above 1GHz 12 Applications returned with comments None Applications carried over to the next meeting None
Date	November 19, 2018
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG and concluded as follows
Decisions made and items completed	Conformity certified (including cases certified with qualification comments after extra document checks) 20 companies Radiated EMI measurement facilities 4 Mains ports conducted EMI measuring facilities 11 Telecommunication port conducted EMI measuring facilities 7 Radiated EMI measurement facilities above 1GHz 8 Applications returned with comments None Applications carried over to the next meeting None
Date	December 10, 2018
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG and concluded as follows
Decisions made and items completed	Conformity certified (including cases certified with qualification comments after extra document checks) 17 companies Radiated EMI measurement facilities 3 Mains ports conducted EMI measuring facilities 6 Telecommunication port conducted EMI measuring facilities 3 Radiated EMI measurement facilities above 1GHz 8 Applications carried over to the next meeting None Applications carried over to the next meeting None
Date	January 21, 2019
Agenda items	● Reviewed the results of deliberations by the Measurement Facility Examination WG and concluded as follows
Decisions made and items completed	Conformity certified (including cases certified with qualification comments after extra document checks) 26 companies Radiated EMI measurement facilities 8 Mains ports conducted EMI measuring facilities 10 Telecommunication port conducted EMI measuring facilities 12 Radiated EMI measurement facilities above 1GHz 15 Applications carried over to the next meeting 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
APLAC	Asia Pacific Laboratory 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
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
MME	Multimedia Equipment
MOU	Memorandum of Understanding
MP（法）	Magnetic Probe
MRA	Mutual Recognition Agreement/Arrangement

Abbreviation	Full Name
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
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

16th instalment

EMC Standard of IEC 61000-3 (Limits) Series Developed by TC77

Masamitsu Tokuda

1. Foreword

TC77 (77th EMC standards subcommittee) of the IEC (International Electrotechnical Commission) have been tasked with defining standards in the IEC 61000 series, consisting of part 1 (general) through part 9 (miscellaneous)[1-5]。

This instalment introduces the standards specified by the IEC 61000-3 series, which defines limits.

2. Standards of IEC 61000-2 (environment) series

As shown in Table 1, the standards of the IEC 61000-3 (limits) series are being developed by SC77A, which also develops the EMC standards for low-frequency phenomena of 9 kHz or less. The names of standards listed in Table 1 include translations of any Japanese domestic standards shown as existent (such as in JIS or as a TR) rather than the original international standards. Note that, English translations of names of Japanese standards may differ from those of international standards. IEC 61000-3-2 is one of the most important standards of the IEC 61000-3 series, which defines higher harmonics of power supply frequencies. The fifth edition (Ed.5.0) of this standard was released in 2018. JIS C 61000-3-2, a Japanese domestic standard, was established in 2003 in accordance with IEC 61000-3-2 and was revised in 2011. Another revision harmonized with the fifth edition of IEC 61000-3-2 will be issued in 2019. Electrical current produced by the power system has a sinusoidal wave with a frequency of 50 or 60 Hz. The wave is distorted and harmonics of the power supply frequency are generated when an electric or electronic device is connected to the power system. IEC 61000-3-2 defines the limits for harmonics generated by electric or electronic devices. The harmonics cause voltage distortion in the power system which can adversely affect other devices. The input current for target equipment is specified to be 16A or less in IEC 61000-3-2 and 20A or less in JIS C 61000-3-2[6]. IEC TS 61000-3-4 is the TS (Technical Specification) for equipment whose input current exceeds 16A. Also, IEC 61000-3-12 is an IS (International Standard) for devices with input current greater than 16 A but less than or equal to 75 A.

Also, IEC 61000-3-3, one of the important standards of the IEC 61000-3 series (Edition 3.1 was issued in 2017), defines limits on voltage changes, voltage fluctuation, and flicker of the power system. IEC 61000-3-3 focuses on equipment with a rated current of 16A or less, while IEC TS 61000-3-5 (Edition 2.0 was issued in 2009) describes the cases where the current exceeds 16A. Japan domestic standard TR C 0014:1999, which corresponds to IEC TS 61000-3-5, was issued based on Edition 1.0 in 1994[6] and then abolished in 2006. IEC 61000-3-11, Edition 2.0 of which was released in 2017, specifies equipment with current less than or equal to 75A.

The method for evaluating the emission limits for strain loads in an electric power system of a medium, high, or extra high voltage is specified in IEC TR 61000-3-6, Edition 2.0 of which was issued in 2008. A Japan domestic standard corresponding to this standard, TR C 0015:1999 (Technical Report), was issued after Edition 1.0 was issued in 1996[6] and then abolished in 2004. The method for evaluating the emission limits for variable loads connected

into an electric power system of a medium, high, or extra high voltage is specified in IEC TR 61000-3-7, Edition 2.0 of which was issued in 2008.

Table 1 Standards of IEC 61000-3 (Limits) Series Developed by SC77A (Part 1) [As of 2019-01]

International standard [Latest version]	Prepared by	Name of standard	Domestic JIS Standard (year-month of establishment) (year-month of revision) (year-month of verification) Domestic TR (year-month of abolishment) [Corresponding international standard]
IEC TR 61000-3-1 [77A/243/NP: 97-12]	SC77A	Electromagnetic compatibility (EMC) - Part 3-1: Limits - Overview of emission standards and guides - Technical Report	-
IEC 61000-3-2 [Ed.5.0: 18-01]	SC77A	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 20 A per phase)	JIS C 61000-3-2: 2011 (established:03-12) (revised:11-02) (verified:15-10) [IEC 61000-3-2: 05, Amd 1: 08, Amd 2: 09 (MOD)]
IEC 61000-3-3 [Ed.3.1: 17-05]	SC77A	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	-
IEC TS 61000-3-4 [Ed.1.0: 98-10]	SC77A	Electromagnetic compatibility (EMC) - Part 3-4: Limits - Limitation of emission of harmonic currents in low-voltage power supply systems for equipment with rated current greater than 16 A	-
IEC TS 61000-3-5 [Ed.2.0: 09-07]	SC77A	Electromagnetic compatibility (EMC) - Part 3-5: Limits - Limitation of voltage fluctuations and flicker in low-voltage power supply systems for equipment with rated current greater than 16 A	TR C 0014:1999 (06-05) [IEC TS 61000-3-5: 94 (IDT)]
IEC TR 61000-3-6 [Ed.2.0: 08-02]	SC77A	Electromagnetic compatibility (EMC) - Part 3-6: Limits - Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems	TR C 0015:1999 (04-05) [IEC TR 61000-3-6: 96 (IDT)]
IEC TR 61000-3-7 [Ed.2.0: 08-02]	SC77A	Electromagnetic compatibility (EMC) - Part 3-7: Limits - Assessment of emission limits for the connection of fluctuating installations to MV, HV and EHV power systems	TR C 0016:1999 (04-05) [IEC TR 61000-3-7: 96 (IDT)]
IEC 61000-3-8 [Ed.1.0: 97-09]	SC77A	Electromagnetic compatibility (EMC) - Part 3: Limits - Section 8: Signalling on low-voltage electrical installations - Emission levels, frequency bands and electromagnetic disturbance levels	-
IEC 61000-3-11 [Ed.2.0: 17-04]	SC77A	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection	-
IEC 61000-3-12 [Ed.1.0: 99-10]	SC77A	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase	-

IDT (Identical), MOD (Modified)

Table 1 Standards of IEC 61000-3 (Limits) Series Developed by SC77A (Part 2) [as of 2019-01]

International standard [Latest version]	Prepared by	Name of standard	Domestic TR (year-month of abolishment) [Corresponding international standard]
IEC TR 61000-3-13 [Ed.1.0: 08-02]	SC77A	Electromagnetic compatibility (EMC) - Part 3-13: Limits - Assessment of emission limits for the connection of unbalanced installations to MV, HV and EHV power systems	-
IEC TR 61000-3-14 [Ed.1.0: 11-10]	SC77A	Electromagnetic compatibility (EMC) - Part 3-14: Assessment of emission limits for harmonics, interharmonics, voltage fluctuations and unbalance for the connection of disturbing installations to LV power systems	-
IEC TR 61000-3-15 [Ed.1.0: 11-09]	SC77A	Electromagnetic compatibility (EMC) - Part 3-15: Limits - Assessment of low frequency electromagnetic immunity and emission requirements for dispersed generation systems in LV network	-

IDT (Identical), MOD (Modified)

This standard was issued domestically based on Ed. 1.0 issued in 1996 by TR C 0016: 1999[6]. It was abolished in 2004.

IEC 61000-3-8 regulates emission levels, frequency bands, electromagnetic interference levels, etc. for power line transport in low voltage power equipment (Ed.1.0 was issued in 1997). In addition, IEC TR 61000-3-15 stipulates the evaluation of low frequency emissions and immunity requirements for distributed low voltage power systems (Ed.1.0 was issued in 2011). Meanwhile, IEC TR 61000-3-1 stipulates the outline of emission standards existing in the IEC 61000-3 series and their application guidelines, but in 1997 an NP (New Work Item Proposal) was issued.

[References]

1) EMC Electromagnetic Environmental Studies Handbook (head of the editing committee: Risaburo Sato) References EMC common standards and stipulations (editing chief examiner: Masamitsu Tokuda), Mimatsu (publisher), Maruzen (publisher), pp.88-110, 2009.9.
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 standardization and EMC standards, special feature "World EMC standards and stipulations" (FY 2018 edition), Japan Management Association, p.2-12, 2018.4.
4) IEC, EMC Zone, Basic EMC Publications, IEC 61000 Structure
http://www.iec.ch/emc/basic_emc/basic_61000.htm
5) IEC Guide 107: Electromagnetic compatibility - Guide to the drafting of electromagnetic compatibility publications
https://webstore.iec.ch/publication/7518
6) EMC Related JIS Standards
jishb200707-70



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 VCCI International Forum 2018

International Relations Subcommittee

VCCI provides its members with information about conditions in countries or regions that regulate EMC or are considering doing so. An international forum is held annually as a part of our efforts to help members understand the latest information as soon as possible. VCCI International Forum 2018, continuing from 2017, was held on October 19, 2018 at CEATEC JAPAN.

In this international forum, guest speakers were invited from the EU, China, and South Africa, and presentations were given on regulatory trends in the various countries and regions.

[Invited countries, regions, and presentation themes]

- EU: Updates on EU projects and harmonised standards for electrical equipment
- China: Chinese EMC standard and market access
- South Africa: Latest EMC Information in South Africa

The presentations effectively utilized the scheduled time and provided forum participants with useful information. Also, a Q&A session after each presentation enhanced interaction between guest speakers and forum participants. In the Q&A sessions, participants were able to deepen their understanding of information and issues because the guest speakers directly answered their questions. Below are the guest speakers and the programs.

The VCCI International Relations Subcommittee is planning to hold an international forum in the future. That forum will also select themes that suit the needs of the members and encourage more participation. We would be grateful if you could contact our secretariat to let us know what country/region or theme you would like to hear presentations about.

VCCI International Forum 2018 Program

Time	Minutes	Item
12: 50 - 13: 00	10 min	“VCCI Update” Mr. Akira Oda, VCCI Council
13: 00 - 13: 50	50 min	“Updates on EU projects and harmonised standards for electrical equipment " Mr. Gwenole Cozigou Director Industrial Transformation and Advanced Value Chains DG for Internal Market, Industry, Entrepreneurship and SME's European Commission EU
13: 50 - 14: 05	15 min	Q & A
14: 05 - 14: 55	50 min	“Chinese EMC standard and market access” Dr. He Peng Director Technical Center Ningbo Custom Inspection and Quarantine China
14: 55 - 15: 10	15 min	Q & A
15: 10 - 15: 40	30 min	Coffee break
15: 40 - 16: 30	50 min	"Latest EMC Information in South Africa" Mr. Lawrence Sibeko EMC Specialist South African Bureau of Standards (SABS) South Africa
16: 30 - 16: 45	15 min	Q & A
16: 45 - 17: 00	15 min	Appreciation to the guests and wrap up

Approximately 131 people, mainly from manufacturers and testing organizations of domestic members but also including overseas members, participated in the successful forum.

Summary of Q & A

This summary is only provided as a reference for VCCI members, and it will be up to each organization to make their own final judgements.

◆ Q & A about "Updates on EU projects and harmonised standards for electrical equipment" (Speaker: Mr. Gwenole Cozigou)

Q1: I checked the matching list of radio directives on the website, but the product safety standard was not found.

A1: Basically, please check with the official journal. It is supposed to be uploaded to the website after confirmation. There is some difference between becoming standardized as an EN and its actually taking effect.

◆ Q & A on "Chinese EMC standard and market access" (Speaker: Dr. He Peng)

Q1: Although it is said that air purifiers are not CCC target equipment, they still must satisfy compulsory standards. Should we understand that it is not necessary to display the CCC mark?

A1: Yes. Air purifiers are not CCC target equipment. Tests should be conducted according to compulsory standards, but the CCC logo is not required.

Q2: On the standardization plan page, there is "EMC risk assessment", but what exactly is it?

A2: There are two types of "EMC risk assessment". One is safety in EMC. The second is the issue of design and risk. In response to this, guidance is provided for manufacturers' designers.

Q3: We have heard that the standard corresponding to CISPR 32 in CCC will take 3 years, but there are several versions of CISPR 32 and it is going to be revised now. What version of CISPR 32 will be adopted by CCC after 3 years?

A3: We cannot give you detailed information at this time. As for this standard, discussion has started at CCC. However, this is a very important standard and it will affect compulsory standards; so, I think that considerable deliberation time will be needed. It was only guidance information that an introductory review of CISPR 32 has just begun, but there is no detailed information.

◆ Q & A on "Latest EMC Information in South Africa" (Speaker: Mr. Lawrence Sibeko)

Q1: In the previous system, we could apply for product certification of SABS by using a "CE Test Report". However, in the new system, we realize that it is required to conduct an EMC test at a SABS accredited laboratory.
When you update a product which was once certified by the former system, can you use the past test report (by the former system) as is? Or, is it necessary to completely redo the EMC test at a SABS accredited laboratory? Which is correct?

A1: For example, if a product was tested and a CoC was granted on October 19, 2018, the CoC expires on October 18, 2021. In this case, before the CoC expires you must bring the product's test report and the product itself to a test laboratory for consultation. The laboratory will perform some spot checks, issue another test report and probably give a new CoC. This may vary depending on the laboratory.
In other words, there should be a discussion between the manufacturer and the laboratory. If the manufacturer can provide sufficient information and convince the laboratory, the laboratory will check the test report and may make some changes but eventually I think they will issue a CoC.

Q2: If an ICASA certification is acquired for a RF module or Wi-Fi module, is it necessary to acquire another ICASA certification for the final product as well? Or, do you actually need a SABS CoC?

A2: If the final product is an electronic communication device, you need a type approval from ICASA. Otherwise, the CoC from SABS is also OK.

Q3: Can a manufacturer’s EMC test laboratory apply to become an A laboratory?

A3: That is possible. Please apply to SABS. There are prerequisites before it can be put on the list. SABS will need to evaluate such an application. It takes four weeks before evaluation results come out. And it will also be judged at the closing meeting.

Q4: I have two questions about the transition period of the new standard.
The first question is that the transition period is from 6 months to 18 months, but will that be notified in a government gazette etc.?

The other question is, if the transition from the previous standard expires within the CoC validity period of a product, do we need to apply for another CoC?

A4: (No answer to the first question)

A CoC is valid for three years. Even if the transition period expires during that period, the CoC of that product will remain in effect until the expiration date.



VCCI Executive Director Mr. Oda



Mr. Gwenole Cozigou



Dr. He Peng



Mr. Lawrence Sibeko



Appreciation to the guests and wrap up

Report on EMC China 2018 Shanghai Workshop

Steering Committee

The VCCI workshop was held during the period of EMC China 2018 Shanghai (from the 24th to 26th October). This is a summary report.

EMC China, the 17th Exhibition on Electromagnetic Compatibility & Microwave, celebrated its 17th anniversary and held a joint exhibition with the 13th China Conference & Exhibition on Microwave and Antenna.

1. Date and time: Thursday, October 25, 2018 13: 30 - 15: 30
2. Venue: Shanghai Everbright Convention & Exhibition Center
(上海光大会展中心) Conference Room No.1
3. Participants: 42 participants
4. Purpose: We planned to introduce new regulations, market sampling tests, and equipment registration in compliance with CISPR 32 in China, which has the largest number of members next to Taiwan in Asia. Also, we wanted to take this opportunity to strengthen relations with Chinese members.
5. Speeches
   (1) Greetings and Introduction of VCCI Council,
   Akira Oda, Executive Director (VCCI Council)
   (2) New Technical Requirements Content and Guidance for Operation
   (VCCI - CISPR 32: 2016),
   Minoru Hirahara, Chairman of the Technical Subcommittee (Fujitsu Limited)
   (3) Outline of Market Sampling Test,
   Shin Kanno, Market Sampling Test Subcommittee Chairman
   (NTT Advanced Technology Corporation)
   (4) Overview and Notes on VCCI Facility Registration,
   Seijun Fukaya, Measurement Facility Registration Committee (VCCI Council)

The speeches used documentation in Japanese and English (with a Chinese interpreter). At the beginning of the meeting, Mr. Oda, Executive Director, expressed appreciation to the participants, and in (1) introduced the activities and features of the VCCI Council and the contents of lectures of the day, etc. In (2), the contents of the new technical standards and interpretations of regulations, guidance, and so on were explained. In (3), we introduced the market sampling test, document inspection, and display survey, and in (4) we explained the outline of facility registration, points to be noted for application, and related items.

On the day, a total of 42 people participated (including two from Beijing CQC), and the overall seminar was very

successful. The seminar was held in cooperation with the exhibition for three days, and there was a standard commentary seminar by members of China's domestic CISPR committee.



Appearance of the Exhibition Site



Speakers

6. Impressions

The services supplied to overseas members that account for a majority of VCCI Council members are some of our important activities in order to provide opportunities for communication with members. With members from the four regions of the U.S., Taiwan, China, and South Korea, which reach up to 80% of overseas members, it is significant to hold a workshop at an EMC related event in China, which is one of the countries where the number of members recently increases, and to deepen their understanding of activities of VCCI Council. We would like to continue to raise awareness of overseas members based on the experience of this workshop. Finally, I would like to thank again Chinese stakeholders, who gave us a lot of cooperation during this workshop, the members of VCCI Council, and the two interpreters Ms. Shen and Ms. Xu.

Report on the Shanghai/Suzhou Laboratory Visits

Market Sampling Test Subcommittee

1. Date and time: October 24 (Wednesday) - October 25 (Thursday), 2018

2. Visit to: Three laboratories in Shanghai and Suzhou (in the order below)

(1) DEKRA East Asia Product Testing and Certification (Suzhou Industrial Park Zone)

(2) Cerpass Technology Corporation (Suzhou Industrial Park Zone)

(3) Audix Technology (Shanghai) Co., Ltd. (Shanghai Caohejing Hi-Tech Park)

3. Visiting members

Shin Kanno, Chairman of Market Sampling Test Subcommittee
(NTT Advance Technology Co., Ltd.)
Hiroaki Suzuki, Assistant Chairman of Market Sampling Test Subcommittee
(Casio Computer Co., Ltd.)
Masateru Tagami, Secretariat (VCCI Council)
Minoru Hirata, Secretariat (VCCI Council)
Miki Ichino, Secretariat (VCCI Council)

4. Purpose

The Market Sampling Test Subcommittee conducts sampling tests for approximately 100 products annually and does document inspections for approximately 40 products from among the products for which there have been compliance verification reports. Equipment connected to such products have become quite complicated due to increased product functionalities, and compliance verification tests and the reproducibility of entire sampling tests remain as a future issue with regards to sampling tests. Currently, about 20% of the VCCI Council's tests for compliance verification are being conducted at Chinese laboratories. This is the third largest testing group after Taiwan and Japan. Thus, in order to confirm the extent of familiarity about the content of the technical standards that can influence sampling tests, we visited three representative laboratories at Shanghai and Suzhou during the period of the VCCI Shanghai workshop. This was in addition to the laboratories in Taipei which we visited last year.

5. Summary

At each laboratory, we observed the management status of the testing sites and their facilities. Additionally, we explained the outline of market sampling tests, situations of rejected cases, and points related to CISPR 32 tests, etc., and exchanged questions and opinions.

At each laboratory, we also visited semi-anechoic chambers (SAC) and their measuring rooms, shielded rooms (SR), as well as immunity related facilities. In each of the laboratories, we noted that support equipment units (AE) were placed in a separate room rather than under the floor and that an ISN for measuring communication ports was permanently mounted on a vertical wall surface in the SRs. We observed that test reproducibility was established with consideration of the positioning of facilities.

For each testing laboratory, for both SAC and SR, regarding start-up inspections, we confirmed that the difference from the standard value was within the specified numbers by measuring outputs at multiple frequencies for each frequency band using a comb generator. We also confirmed that the procedure for thorough start-up inspections was displayed on a panel on a wall in the measuring room, proving a good management status.

The Market Sampling Test Subcommittee explained the following three materials:

(1) Outline of market sampling tests and details of revisions of regulations
(by Kanno, Chairman)

(2) Contents of failures in sampling tests and document inspections, notes of the test report (by Suzuki, Assistant Chairman)

(3) Differences and notes on CISPR 32 based test methods (by Tagami, Secretariat)

Following the explanation, we asked for future improvement with regard to points noticed about test reports prepared at each laboratory. In addition, we showed instructions for HDMI cables issued by Shanghai TC 10 Committee, explained its importance, and requested a record of maker name, type name, etc. for cables used for the tests.

6. Summary of Q & A

Questions and answers concerning how to perform the tests were exchanged as follows:

Q1: What is needed for EUT with a wireless functionality?

A1: It is necessary to perform the test with the wireless function in the communication state. Also, record the filter model number, manufacturer name, etc. which are used for the measurement in the test report. In the case of low-level output wireless communication, the measurement can be made without the above filter installed. In such a case, it is necessary to confirm that the wireless spectrum appears in the data chart.

Q2: Is it allowed to use a self-prepared display element that is movable vertically as well as one movable horizontally?

A2: The speed of the movable element used for the color bar display requirement and the size of the pixels are not particularly specified. An example is shown in the VCCI regulation guidance.

Q3: Test condition on power supply voltage

A3: For products for the global market, the VCCI compliance verification may be performed at 110 V and 230 V. For products only for the Japanese market, only the verification at 100 V must be made. Please judge according to the rated voltage specified on the nameplate.

Q4: Is it allowed to conduct preliminary measurements of radiation and conduction at 50 Hz and 60 Hz, and perform the official measurement only at the worst frequency?

A4: Because this procedure corresponds to the "preliminary measurement performed to determine the worst mode", the official measurement only has to be performed at the power supply frequency with the worst disturbance wave.

Q5: What is the highest internal frequency? How is the wireless frequency related to it?

A5: hat would be the highest frequency used in the EUT, and even if the clock frequency of the CPU is 10 MHz, 2.4 GHz should be decided as the highest frequency when the equipment includes a 2.4 GHz wireless module. When a synchronizing signal is input into the EUT for signal transfer from the outside, the synchronizing signal frequency should be determined to be the highest frequency when the synchronizing signal is higher than the internally used frequency.

Q6: I would like to confirm the testing method for products with multiple wireless (standard) functions.

A6: A test should be performed in the actually used state. When the wireless functions do not operate at the same time, emission tests can be performed individually for each function. However, if they may operate at the same time, it is necessary to measure them when the functions are being operated simultaneously.

As a precaution concerning test reports, we requested them especially for the following:

- When a Band Elimination Filter is used, record the model name in the list of measuring devices so that stopband can be specified.
- Describe each operation mode of the EUT and clarify the operation mode of the final measurement.
- Specify that the final measurement was made in the worst-case emission mode (and the reason why that operation mode was selected). In general, record each operation mode (because it is necessary to identify the worst emissions by a preliminary measurement).
- Record the specifications of peripheral devices and cables used. Especially for HDMI cables this is a must because their characteristics differ depending on the product type.
- Take test positions photos for frequencies greater than 1 GHz so that the absorber positions can be clearly seen.

7. Impressions

We visited three representative laboratories in Shanghai area and confirmed the management status of their measuring rooms and measuring instruments. All three of the laboratories have acquired national certification from multiple countries, the management and guidance by the laboratory accreditation bodies were thorough, and they are well-controlled laboratories.

In addition to the contents of the market sampling tests, we were able to deepen mutual understanding about CISPR 32 based test methods. Considering the regulation change scheduled in the next fiscal year, we were able to request to advance the end date of tests performed under the previous regulations. Thus, we can expect a smooth transition.

Finally, I thank the three laboratories for accepting the committee's visit pleasantly.



DEKRA Incorporated


Cerpass Technology Incorporated



Audix Technology Incorporated

Report on the 37th REDCA Meeting

Steering Committee

Date and time: 2018, Nov 12 (Mon) 9: 00 - 17: 00, Nov 13 (Tue) 9: 00 - 12: 00

Location: Mercure Hotel MOA Berlin, Berlin, Germany

Attendees: 128 members and observers from Europe, the United States, Canada, China, Korea, and Japan

Chairman: Mr. Pieter de Beer, Technical Secretariat: Mr. Nick Hooper

Dispatched from VCCI:

Hideyuki Ohashi, Steering Committee Chairman (Mitsubishi Electric Corporation)

Akira Oda, Executive Director (VCCI Council)

Masahiro Hoshino, Secretary General (VCCI Council)

Reference: About 260 organizations (regular members, observers) from RED CA members (as of November 12, 2018)

Regular members: 229 organizations (out of which 16 Japanese organization members participated)

New regular members (approved at this meeting): 11 organizations (out of which no Japanese member)

Observers: 8 organizations (out of which two Japanese organizations participated; Ministry of Internal Affairs and others)

1. Introduction

The REDCA (Radio Equipment Directive Compliance Association) is organized based on the requirements of the RE Directive (2014/53/EU). It holds meetings twice a year for members concerned with the regulations and technical standards in the European Economic Area (EEA). These meetings also address the conformity of wireless devices in countries that signed mutual recognition agreements, such as the EU, the United States, Canada, Japan, New Zealand, and Australia.

The VCCI Council is a REDCA member and has participated in meetings since 2011 in order to comprehend the latest status and trends in European regulations and markets and to provide this information to members of the VCCI Council.

2. Summary of the meeting

(1) REDCA management report, new member subscription status, and administrative report

① The minutes of the previous Copenhagen meeting and 11 new regular members were reported and approved.

② Mr. Dave Imeson of Accounting reported that the financial situation of REDCA is sound and there is no need to raise the membership fee in FY 2019.

(2) Summary of deliberations on RED and TCAM

① Report from the EU committee (Pier Francesco Sammartino):
The RED Guide has been updated recently. At the TCAM meeting scheduled for December 17, we discussed common chargers and delegated acts on privacy and fraud prevention. An expert group is considering a mandate concerning the updating of software installed in hardware.

② TCAM (Telecommunication Conformity Assessment and Market Surveillance Committee) conference report:
The REDCA technical secretary provided information about the minutes of the TCAM conference.

③ EU Gazette (OJEU):
A new EU official gazette is scheduled to be issued at the end of December or January. No problems were raised concerning the RED harmonized standards published in the EU official gazette.

3. Summary of discussions on TGN (Technical guidance notes) and other certifications

① TGN01 (REDCA Technical Guidance Note on the RED compliance requirements for a Radio Module and the Final Radio Product that integrates a Radio Module) (draft) was deliberated and approved. It describes the conformity evaluation of a "Radio Module" and the "Final Radio Product" which incorporates the "Radio Module". Currently this document is available from the REDCA website.

② TGN30 (REDCA Technical Guidance Note for a Risk Assessment under Annex III of Directive 2014/53/EU) (draft) was deliberated. We are collecting comments until the end of December.

③ Deliberated TGN31 (Technical Guidance Note on the RED compliance requirements for multiple transmitters and receivers in same enclosure).
Citations;

· ETSI EG 203 367 (Electromagnetic compatibility and Radio spectrum Matters (ERM))

· ETSI EN 303 446-1 (EMC standard for combined and/or integrated radio and non-radio equipment; Part 1: Requirements for equipment intended to be used in

residential, commercial and light industry locations)

· ETSI EN 303 446-2 (EMC standard for combined and/or integrated radio and non-radio equipment; Part 2: Specific conditions for equipment intended to be used in industrial locations)

TGN31 was approved by majority votes in favor. It was issued with an editorial correction that ETSI EN 303 446-x cited by TGN31 is a draft version.

Since ETSI EG 203 367 on multi-radio and combined equipment does not cover all coexistence problems such as simultaneous transmission handled by TGN31, it is desirable that ETSI revises ETSI EG 203 367 in consideration of TGN31.

④ TGN32 (Guidance on the RED Article 3.2 requirements for wideband receivers and similar equipment)

We are collecting comments on the TGN32 draft.

⑤ TGN33 (Technical Guidance Note on the RED as applied to Vehicles)

The draft is about a guidance for applying the RE Directive to vehicles and we are now seeking comments on that. (Now writing the document based on TGN01 and TGN31. At the next Spring REDCA meeting, we will prepare an updated version.)

4. Report from other organizations

① Report by ADCO (Administrative Cooperation Group)

Recent campaigns focused on WLAN 5 GHz, and specifically Dynamic Frequency Selection (DFS) related functions still remain under evaluation. Increase of interference with weather observation radars has been reported, and an analysis of 57 interference cases shows that mainly two particular models interfere with weather observation radars. We plan to provide a detailed report at the ADCO RED meeting in March, 2019. "IoT equipment" (especially white goods appliances) is set as the theme of the 2019 campaign from January to June 2019. We will report on the results at the end of 2019.

■ Results of Market Sampling Test in 2017

Directive	Contents		Number of Samples	Nonconformity	Nonconformity Rate (%)
R&TTE	Total		10246	8028	78
	Breakdown	Technical Criteria	1269	222	17
		Wireless Function	833	198	24
		Document	504	246	49
RE	Total		805	421	52
	Breakdown	Management	792	393	50
		Technical Document	309	39	13
		Requirements	253	60	24

② ECC report

New artifacts have been introduced since the last REDCA, such as those related to Mobile/Fixed Communications Networks (MFCN) for 5G, satellite communication earth stations, and short-range communication UWBs. Attention topics include 5G , drones, and technical conditions of 9 kHz or less.

After REDCA was completed, EC (European Commission) issued the following important documents on November 22, 2018.

https://ec.europa.eu/docsroom/documents/32615, "Harmonised standards: Enhancing transparency and legal certainty for a fully functioning Single Market"

The committee is reviewing the process for posting consistent standards quickly in the EU Gazette.

③ Report on ETSI (European Telecommunications Standards Institute)

Receiver parameters for SRD (Short-range Radar) and UWB (Ultra-Wide Band) equipment are under consideration.

④ Report on the ETSI ERM EMC conference

Reports were made about ETSI EN 301 489-1 and a series of its subparts, ETSI EN 303 446-1 and -2, which are standards for combined equipment, and ETSI EN 301 843 series standards for maritime equipment. No technical change has been made in the last few years, but ETSI is now working on citation related issues. For example, some paragraphs have tautological references (i.e. part 1 is referred in part n and part n is referred in part 1 simultaneoulyand so on). The EN 301 489 series was rebuilt to resolve this issue. This change has been attempted to be applied in part-1 and part-4, and was approved by ETSI TC ERM (EMC and Radio spectrum Matters) last month. The same goes for the issue of the EMC standard for marine equipment. Another issue relates to ETSI EN 303 446-1 and -2 for what is called combined equipment. Several issues are being discussed, but generally it is very difficult to specify devices like combined equipment in legal terms. ETSI may not be able to avoid releasing the standards as non-harmonized standards and assigning them a new ETSI number for a short period of time, but it is expected that they will be complete in about six months. After that period, ETSI will attempt to resolve the issue and announce its outcome in the official gazette.

Moreover, there is also a concern about performance judgement criteria. The challenge for all the standards including CENELEC is the use of the phrase "as declared by the manufacturer". This wording will be deleted in future standards. Manufacturers declare their intended usage and then the declared usage is controlled by a regulation. The definition of standards must be definite in order for their conformity to be properly judged because a standard can never be considered as a common criterion across the

EU market if each manufacturer can set a separate standard. For example, it has become an issue as to who should decide how far degradation of display quality is allowed. Each manufacturer's self-declaration cannot be used as criteria. The ideal would be to definine the degree of display degradation in a standard, but generally that is not that easy.

Performance judgment criterion A of CISPR 35 states that "the data transmission does not reduce below the figure defined by the manufacturer". Deleting the phrase "defined by the manufacturer" will make the sentence meaningless. This is only an example. Each manufacturer should be able to have its specific performance measurement criteria depending on the individual setting of its products, without creating as many standards as possible to cover a wide range of equipment. However, that condition cannot be met simply by deleting the phrase "defined by the manufacturer". These issues are being raised and under consideration at the ESO and EU committee meetings.

In the discussion about whether the immunity requirement is a quality requirement or a performance requirement, it was concluded that it is an EMC (performance) requirement, not quality requirement. ADCO RED reported that some manufacturers allow a degradation of 40 percent and others accept a degradation of 80 percent.

⑤ Report by CISPR

A report provided an update about the CISPR conference, including a definition of a below 30 MHz test site and a discussion about the test distance that depends on the size of the test volume.

⑥ Report by TCBC

An update was provided by TCBC. They reported that an ISBC (Canada) laboratory accreditation needs to be acquired before the middle of March 2019.

⑦ About regulations in Japan

Mr. Fukatsu, an assistant manager of the Electromagnetic Environment Division of the Ministry of Internal Affairs and Communications, explained the latest updates on regulations for wireless equipment in Japan. He gave examples of fake data and nonconformance to technical requirements. In addition, "MIC MRA Workshop 2019" scheduled in March, 2019 in Japan was introduced.

5. Next Conference

The next conference is scheduled to be held in Sofia, Bulgaria on May 13-15, 2019.

6. Impressions

At this conference, a report was presented about contents related to market sampling tests in EU countries. Also in EU countries, the non-compliance rate in market sampling tests is high. The EU's CEN/CENELEC, ETSI standards, and TGN are among those that have helpful points to be noted when we develop standards.

The VCCI Council would like to continue to participate in REDCA in the future, strengthen cooperative relations with related organizations, deepen mutual understanding and friendship, and obtain and feed back the latest updates of regulations in Europe.



Mr. Ohashi, Steering Committee Chairman of VCCI, Mr. Nick Hooper, and Mr. Oda, Executive Director of VCCI



REDCA Conference Center



REDCA Meeting

Report on the VCCI Seminar Held at Tokatsu Techno Plaza

Steering Committee

Upon a request from Tokatsu Techno Plaza, we held a VCCI seminar at the Plaza. The plaza is located in suburban Tokyo, and participants came from Tokyo, Saitama, Kanagawa, and Ibaraki, as well as from Hamamatsu and Kyoto. The attendance was enthusiastic, with participants listening closely to guest speakers and engaging in question and answer sessions. In addition, because 60 percent of the participants were nonmembers, the meeting provided a good opportunity for explaining and helped them understand our activities.

1. Date and Time: November 29, 2018 (Thu) 13:15 - 16:10
2. Venue: Tokatsu Techno Plaza 3F, The 2nd Training Room
3. Host: Chiba Industry Advancement Center, Public Interest Foundation, Tokatsu Techno Plaza
4. Participants: 35 participants
5. Speeches
   (1) Introduction of VCCI Council activities and future EMC regulatory trends
   Akira Oda, Executive Director (VCCI Council)
   (2) About CISPR 32, the international standard for multimedia equipment
   Minoru Hirahara, Chairman of Technical Subcommittee
   (Fujitsu Limited)
   (3) EMI Education and Training and Points to Be Noted When Measuring
   Shinichi Okuyama, Chairman of Education Subcommittee
   (NEC Platforms Co., Ltd.)
   * General Questions and Answers
   Akira Oda, Executive Director (VCCI Council)
   Hidenori Muramatsu, Technical Manager (VCCI Council)

Since 2006, the VCCI Council has held technical seminars to introduce activities of the VCCI Council and provide EMC updates at places like industrial centers around the country, and it will continue to do so upon requests from organizations and facilities in various prefectures and regions. We would like to express our sincere gratitude to Mr. Mori, Executive Managing Director of Chiba Industry Advancement Center (also Director of Tokatsu Techno Plaza), Mr. Sambe, Deputy Director, Mr. Nakatsugawa, Senior Researcher, and all concerned, who gave us this opportunity.

Report on the 2019 Rules Briefing and Technical Symposium

Technical Subcommittee

We held the 2019 Rules Briefing and Technical Symposium at the Kikai Shinko Kaikan on Friday, January 18, 2019 as described below. Because the application end date was approaching, the main topics covered in the Symposium were: an explanation based on Rules V-2 (compliant with CISPR 22) of the points to be noted about application for conformity verification after the end date, and an explanation of outcomes from the activities of the Technical Subcommittee in the 2018 fiscal year. A total of approximately 130 people participated.

In the opening talk at the 2019 Rules Briefing and Technical Symposium, Mr. Oda, Executive Director of the VCCI Council, explained main activities of the Council and the meaning of the Symposium. He requested members and other attendants for understanding and cooperation to maintain the reliability of the VCCI mark.

Next, Professor Makoto Nagata of Kobe University gave a special lecture entitled "Evaluation of Unnecessary Radio Waves from IoT Devices and Their Countermeasures", in which he introduced the outcomes of his research on IoT devices, and on generation and evaluation of unnecessary radio waves in a semiconductor chips. He explained examples of interference by unnecessary radio waves and the use of the communication performance simulation technology. Then, he discussed how to use the techniques as measures against unnecessary radio waves.

In the first part of the Rules Briefing session, Mr. Hideyuki Ohashi, chairman of the Steering Committee, explained the end of the application period based on the Rules V-2 (compliant with CISPR 22). Then, Mr. Minoru Hirahara, the chairman of the Technical Subcommittee, provided guidance on how intentional transmissions from a radio transmitter and spurious emissions related to the intentional transmissions should be handled.

Part 2 of the Technical Symposium included a talk by Mr. Hirahara, chairman of the Technical Subcommittee, in which he explained the results of work by the Technical Subcommittee and its working groups in the 2018 fiscal year as well as the results of presentations at various domestic and overseas academic societies. This was followed by a presentation about the activities of the working groups.

■ Program of 2019 Rules Briefing and Technical Symposium

Theme	Presenter
Greeting	Mr. Akira Oda Executive Director, VCCI Council
Special lecture Evaluation of Unnecessary Radio Waves from IoT Devices and Their Countermeasures	Mr. Makoto Nagata Professor, Technology and Innovation Department of Science, Graduate School of Kobe University
Part I　Rules Briefing	
Steering Committee Closing of Registration Application According to Rules V-2 (Compliant with CISPR 22) (Closing of Transition Period According to Rules VCCI 32-1 (Compliant with CISPR 32)	Mr. Hideyuki Ohashi Mitsubishi Electric Corporation Chairman, Steering Committee
Technical Subcommittee Guidance VCCI 32-1-D:2018 Interpretation of the Scope of Technical Requirements	Mr. Minoru Hirahara Fujitsu Limited Chairman, Technical Subcommittee

Theme	Presenter
Part II　Technical Symposium	
Technical Subcommittee Opening Considerations for the Technical Symposium	Mr. Minoru Hirahara Fujitsu Limited Chairman, Technical Subcommittee
Technical Subcommittee -- CISPR Project Working Group Trends in Deliberations on CISPR Standards and Endorsement Progress	Ms. Michiko Takahashi Sony Global Manufacturing & Operations Corporation Convener, CISPR Project WG, Technical Subcommittee
Technical Subcommittee -- VHF-LISN Working Group Efforts toward CISPR Standardization for VHF-LISN and the SC-A/I Joint Ad Hoc Group (JAHG6) RRT Plan	Mr. Kunihiro Osabe VCCI Council CISPR/SC-A/I JAHG6 Co-Convenor Member, VHF-LISN WG, Technical Subcommittee
Technical Subcommittee -- Radiated Emission Working Group Report on Verification of Radio Functions in Radiated Emission Measurements	Mr. Yasushi Hirakawa NEC Platforms, Ltd. Convener, Radiated Emission WG, Technical Subcommittee
Technical Subcommittee -- Conducted Emission Working Group Technical Report on the Influence of Radio Function Activation on Conducted Emission Measurements	Mr. Koichi Kakuda NTT Advanced Technology Corporation Convener, Conducted Emission WG, Technical Subcommittee
Technical Subcommittee - Antenna Calibration and Site Validation Working Group Verification of Free-space Antenna Factor Calibration of Biconical, Log-periodic, and Hybrid Antennas	Mr. Masaru Yoshihara Riken Environmental System Co., Ltd. Member, Antenna Calibration and Site Validation WG, Technical Subcommittee



Mr. Oda,
Executive Director



Mr. Nagata,
Professor, Graduate School of
Kobe University



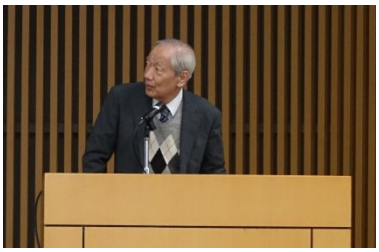
Mr. Ohashi,
Chairman, Steering Committee



Mr. Hirahara,
Chairman, Technical Subcommittee



Ms. Takahashi,
Convener, CISPR Project WG



Mr. Osabe,
Member, VHF-LISN WG



Mr. Hirakawa,
Convener, Radiated Emission WG



Mr. Kakuda,
Convener, Conducted Emission WG



Mr. Yoshihara,
Member, Antenna Calibration and
Site Validation WG

Status on FY2018 Market Sampling Tests

Market Sampling Test Subcommittee

As of January 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	106	6		100	98	21	75	-	-	2
(Previous month grand total)	73	3	3	67	56	15	39	-	-	2
Loan-based testing total	51	6	-	45	44	8	35	-	-	1
1st Quarter	12	1	-	11	11	-	10	-	-	1
2nd Quarter	12	2	-	10	10	1	9	-	-	-
3rd Quarter	12	2	-	10	10	-	10	-	-	-
4th Quarter	15	1	-	14	13	7	6	-	-	-
Purchase-based testing total	55	-	-	55	54	13	40	-	-	1
1st Quarter	18	-	-	18	18	-	17	-	-	1
2nd Quarter	6	-	-	6	6	-	6	-	-	-
3rd Quarter	13	-	-	13	13	-	13	-	-	-
4th Quarter	18	-	-	18	17	13	4	-	-	-

Final Result

Passed	Failed	Pending
75		2

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
	42	2	-	40	32	-	32	31	1

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

Failed at Market Sampling Test – FY2017

As of December 2018

Company name	Godspeed. Co., Ltd
Model/Type	Electronic POP Terminal　GS-043LITE
Measurement Result	Radiated EMI measurement Hor.: 14.8dB excess at 100.0MHz,　Ver.: 9.3dB excess at 100.0MHz
Cause, measures (to be) taken and actions for the prevention of the recurrence	**Cause:** Original test report for registration shows that the product has passed. However, its market product failed at our sampling test. The original product may be changed, but the reason is unknown. **Measures (to be) taken:** Some improvements are taken such as change to spread spectrum clock, addition of Ferrite bead cores and multiple PWB ground connection to rear metal cover. **Measures to take on stocked and shipped products:** Stop the shipment of the product. No action is taken for the shipped products because its life time is short (half a year), and they are disposed after used for sales promotion. **Prevention:** Make sure to grasp design change at ODM and confirm EMI continually.

Report from the Secretariat

● List of Members (November 2018 - January 2019)

New members

Membership	Member No.	Company Name	Country
Regular	3935	Ecolab Limited Liability Company	JAPAN
Regular	3950	Aggregate Co., Ltd	JAPAN
Regular	3952	Tobira Systems Co., Ltd.	JAPAN
Regular	3959	MAMORIO Corporation	JAPAN
Regular	3938	Beijing Horizon Robotics Technology Research and Development Co., LTD.	CHINA
Regular	3945	Access Limited	U.K.
Regular	3946	Arlo Technologies, Inc.	USA
Regular	3947	REMOTEC TECHNOLOGY LTD.	HONG KONG
Regular	3949	ALE International	FRANCE
Regular	3953	Zhejiang Libiao Robotics Co., Ltd.	CHINA
Regular	3954	Genew Technologies Co., Ltd.	CHINA
Regular	3955	AAEON Technology Inc.	CHINESE TAIPEI
Regular	3956	ZT GROUP INT'L, INC.	USA
Regular	3961	MONITORAPP Co., Ltd.	KOREA
Supporting	3951	Shenzhen Microtest Co., Ltd.	CHINA

Company name change

Membership	Member No.	Company Name	Country	Old company name
Regular	3727	Technicolor Japan K.K.	JAPAN	Technicolor Pioneer Japan KK
Regular	3741	Dynabook Co., Ltd.	JAPAN	Toshiba Client Solutions CO., LTD.
Regular	560	Identiv, Inc.	USA	Identive, Inc.
Regular	3045	Delta Electronics, Inc.	CHINESE TAIPEI	Delta Networks, 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	2568	Seiko Time System Inc.	JAPAN

● VCCI Schedule for FY 2018

April • Exhibition at TECHNO FRONTIER	**May** • The basic technique of EMI measurement	**June** • Exhibition at COMPUTEX TAIPEI • The basic of electromagnetic waves, EMI measurement technique below 1 GHz • Release VCCI Dayori No.129
July • VCCI Business Reporting Meeting • Release Annual Report	**August**	**September** • Release VCCI Dayori No.130
October • Exhibition at CEATEC JAPAN • VCCI International Forum • The basic technique of EMI measurement	**November** • The basic of electromagnetic waves, EMI measurement technique below 1 GHz" • The EMI measurement technique above 1 GHz	**December** • The level up of EMI measurement technique • Release VCCI Dayori No.131
January • VCCI Technical Symposium	**February** • The EMI Measurement Instrumentation uncertainty	**March** • Release VCCI Dayori No.132

● VCCI Schedule for FY 2019 (plan)

April • Exhibition at TECHNO FRONTIER • The basic technique of EMI measurement	**May** • The basic of electromagnetic waves, EMI measurement technique below 1 GHz	**June** • Exhibition at EMC SAPPORO 2019 • The EMI measurement technique above 1 GHz • Release VCCI Dayori No.133
July • VCCI Business Reporting Meeting • The level up of EMI measurement technique • The EMI Measurement Instrumentation uncertainty • Release Annual Report	**August**	**September** • Release VCCI Dayori No.134
October • Exhibition at CEATEC JAPAN • VCCI International Forum • The basic technique of EMI measurement	**November** • The basic of electromagnetic waves, EMI measurement technique below 1 GHz	**December** • The EMI measurement technique above 1 GHz • Release VCCI Dayori No.135
January • VCCI Technical Symposium • The level up of EMI measurement technique • The EMI Measurement Instrumentation uncertainty	**February**	**March** • Release VCCI Dayori No.136

● Status of Compliance Test Notifications (V-2+VCCI 32-1)
(October 2018 ～ December 2018)

					October 2018			November 2018			December 2018		
			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	29	2	31	19	7	26	21	2	23
	Tabletop type	WS, Desk-top PCs, etc.	B 2	b 2	2	16	18	2	7	9	4	18	22
	Portable type	Note PCs, Tablet PCs, etc.	C 2	c 2	0	34	34	0	48	48	0	42	42
	Others	Office Computer, Wearable computers, etc.	E 2	e 2	2	0	2	7	5	12	2	1	3
Peripherals/Terminals Equipment	Storage Device	HDD, SSD, USB Memory, Media drives, etc. Disk drives, NAS, DAS, SAN, etc.	G 2	g 2	23	20	43	19	22	41	14	32	46
	Printer	Printer (Compound equipment included), etc.	H 2	h 2	4	5	9	4	7	11	13	8	21
	Display	CRT displays, Monitor, projector, etc.	J 2	j 2	8	51	59	15	57	72	2	51	53
	Input/Output Device （excluding Auxiliary Memory, Printer, Display）	Image scanners, OCR, etc.	M 2	m 2	5	6	11	5	4	9	5	8	13
	General Purpose Terminal	Display control terminals, etc.	N 2	n 2	0	0	0	0	0	0	0	0	0
	Exclusive Terminal	POS, Terminal for Financial and Insurance use, etc.	Q 2	q 2	8	0	8	7	2	9	4	2	6
	Other Peripherals Equipment	Others (PCI cards, Graphics cards, Mouse, Keyboard, etc.)	R 2	r 2	5	34	39	7	43	50	9	36	45
Audio visual equipment	Broadcast receivers	Television, Radio, Tuner, Video recorder, Set-top Boxes, etc.	K 2	k 2	0	0	0	1	1	2	0	0	0
	Audio equipment	Speaker, Amplifier, IC recorder, MP3 player, Headsets, etc.	L 2	l 2	1	9	10	2	8	10	0	3	3
	Video/Camera equipment	Digital video cameras, Web cameras, Network cameras, Video players, Photo frames, Digital-camera, etc.	I 2	i 2	1	7	8	8	6	14	1	5	6
	Others	Other Audio visual equipment	P 2	p 2	5	5	10	2	0	2	2	4	6
Copying Machine/ Compound	-	Copying Machine/Compound equipment, etc.	S 2	s 2	1	3	4	0	0	0	2	0	2
Communications Equipment	Terminal equipment	Mobilephone, Smartphone, PHS telephones	T 2	t 2	0	3	3	0	3	3	0	2	2
		Telephone Equipment (PBX, FAX, Key Telephone System, etc.), Cordless telephones	U 2	u 2	0	0	0	1	1	2	3	3	6
	Network related equipment	Network Channel Terminating Equipment (Modem, Digital Transmission Equipment, DSU, TA, etc.)	V 2	v 2	2	2	4	2	1	3	2	0	2
		LAN Equipment (Rooter, HUB, etc.), Switching-node, etc.	W 2	w 2	64	9	73	39	10	49	31	11	42
	Others	Other Communications Equipment	X 2	x 2	18	8	26	30	10	40	13	7	20
Entertainment and educational equipment	Electronic stationeries	Electronic dictionaries, Electronic book readers, etc.	D 2	d 2	0	0	0	0	3	3	0	1	1
	Electronic toys	Game machines, Game pads, Toy drones, etc.	Y 2	y 2	2	1	3	4	3	7	0	2	2
	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	0	0	0	0	0
Others			O 2	o 2	7	4	11	9	3	12	16	4	20
Total					187	219	406	183	251	434	144	242	386

● Status of Compliance Test Notifications (VCCI 32-1)
(October 2018 ～ December 2018)

					October 2018			November 2018			December 2018		
			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	28	2	30	15	7	22	17	2	19
	Tabletop type	WS, Desk-top PCs, etc.	B 2	b 2	2	13	15	2	6	8	3	17	20
	Portable type	Note PCs, Tablet PCs, etc.	C 2	c 2	0	28	28	0	43	43	0	40	40
	Others	Office Computer, Wearable computers, etc.	E 2	e 2	2	0	2	6	5	11	2	1	3
Peripherals/Terminals Equipment	Storage Device	HDD, SSD, USB Memory, Media drives, etc. Disk drives, NAS, DAS, SAN, etc.	G 2	g 2	22	10	32	17	12	29	9	26	35
	Printer	Printer (Compound equipment included), etc.	H 2	h 2	3	5	8	4	7	11	11	8	19
	Display	CRT displays, Monitor, projector, etc.	J 2	j 2	3	38	41	9	54	63	2	49	51
	Input/Output Device （excluding Auxiliary Memory, Printer, Display）	Image scanners, OCR, etc.	M 2	m 2	1	4	5	3	3	6	2	7	9
	General Purpose Terminal	Display control terminals, etc.	N 2	n 2	0	0	0	0	0	0	0	0	0
	Exclusive Terminal	POS, Terminal for Financial and Insurance use, etc.	Q 2	q 2	8	0	8	6	2	8	4	2	6
	Other Peripherals Equipment	Others (PCI cards, Graphics cards, Mouse, Keyboard, etc.)	R 2	r 2	5	23	28	5	34	39	6	35	41
Audio visual equipment	Broadcast receivers	Television, Radio, Tuner, Video recorder, Set-top Boxes, etc.	K 2	k 2	0	0	0	0	1	1	0	0	0
	Audio equipment	Speaker, Amplifier, IC recorder, MP3 player, Headsets, etc.	L 2	l 2	1	9	10	1	8	9	0	2	2
	Video/Camera equipment	Digital video cameras, Web cameras, Network cameras, Video players, Photo frames, Digital-camera, etc.	I 2	i 2	1	4	5	4	6	10	1	5	6
	Others	Other Audio visual equipment	P 2	p 2	5	4	9	2	0	2	2	4	6
Copying Machine/ Compound	-	Copying Machine/Compound equipment, etc.	S 2	s 2	1	3	4	0	0	0	2	0	2
Communications Equipment	Terminal equipment	Mobilephone, Smartphone, PHS telephones	T 2	t 2	0	3	3	0	3	3	0	2	2
		Telephone Equipment (PBX, FAX, Key Telephone System, etc.), Cordless telephones	U 2	u 2	0	0	0	1	1	2	3	2	5
	Network related equipment	Network Channel Terminating Equipment (Modem, Digital Transmission Equipment, DSU, TA, etc.)	V 2	v 2	1	2	3	2	1	3	2	0	2
		LAN Equipment (Rooter, HUB, etc.), Switching-node, etc.	W 2	w 2	41	5	46	26	6	32	22	10	32
	Others	Other Communications Equipment	X 2	x 2	14	7	21	21	7	28	12	7	19
Entertainment and educational equipment	Electronic stationeries	Electronic dictionaries, Electronic book readers, etc.	D 2	d 2	0	0	0	0	2	2	0	1	1
	Electronic toys	Game machines, Game pads, Toy drones, etc.	Y 2	y 2	2	1	3	4	3	7	0	2	2
	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	0	0	0	0	0
Others			O 2	o 2	3	2	5	3	2	5	12	3	15
Total					143	163	306	131	213	344	112	225	337

● 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 (November 2018 – January 2019)

R: Field strength measuring facility C: Mains Port Conducted interference measuring facility T: Communication Port

Conducted interference measuring facility G: Radiated EMI measurement facilities above 1GHz

会社名	設備名	3 m	10 m	30 m	暗 3m	暗 10m	登録番号	有効期限	設備所在地	問い合わせ先 TEL
Spectrum Research & Testing Laboratory Inc	Spectrum Research & Testing Laboratory Inc.	-	-	-	-	-	T-20035	2021/11/4	No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li District, Taoyuan City, Taiwan	+886-3-498-7684
Audix Technology (WuJiang) Co., Ltd.	Audix WuJiang No.2 3m Semi-anechoic chamber	-	-	-	-	-	G-20050	2021/11/4	No.1289, Jiangxing East Road, The Eastern Part of Wujiang Economic Development Zone, JiangSu, China	+86-0512-63403993-1063
KES Co., Ltd.	KES Co., Ltd. (D-Dong, Yeoju Site)	-	-	-	-	-	C-20036	2021/11/4	473-21 Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea	+86 21 6176 5666 ext 111
KES Co., Ltd.	KES Co., Ltd. (D-Dong, Yeoju Site)	-	-	-	-	-	G-20057	2021/11/4	473-21 Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea	082-31-425-6200
KES Co., Ltd.	KES Co., Ltd. (D-Dong, Yeoju Site)	-	-	-	-	-	T-20040	2021/11/4	473-21 Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea	082-31-425-6200
大分県産業科学技術センター	電磁環境測定棟 電波暗室	-	-	-	○	-	R-20053	2021/11/4	大分県大分市高江西 1-4361-10	097-596-7100
大分県産業科学技術センター	電磁環境測定棟 電波暗室	-	-	-	-	-	G-20055	2021/11/4	大分県大分市高江西 1-4361-10	097-596-7100
大分県産業科学技術センター	電磁環境測定棟 電波暗室	-	-	-	-	-	T-20037	2021/11/4	大分県大分市高江西 1-4361-10	097-596-7100
大分県産業科学技術センター	電磁環境測定棟 測定室（シールド室）	-	-	-	-	-	C-20037	2021/11/18	大分県大分市高江西 1-4361-10	097-596-7100
大分県産業科学技術センター	電磁環境測定棟 測定室（シールド室）	-	-	-	-	-	T-20036	2022/1/20	大分県大分市高江西 1-4361-10	097-596-7100
大分県産業科学技術センター	電磁環境測定棟 電波暗室	-	-	-	-	-	C-20038	2022/1/20	大分県大分市高江西 1-4361-10	097-596-7100
SINGAPORE EPSON INDUSTRIAL PTE LTD	Singapore EPSON EMC test centre	-	-	-	-	-	T-20039	2021/11/4	1, Tuas Link 4, Singapore 637898	+65 68618311
SINGAPORE EPSON INDUSTRIAL PTE LTD	Singapore EPSON EMC test centre	-	-	-	-	-	C-20039	2021/11/4	1, Tuas Link 4, Singapore 637898	+65 68618311
SINGAPORE EPSON INDUSTRIAL PTE LTD	Singapore EPSON EMC test centre	-	-	-	-	-	G-20056	2021/11/18	1, Tuas Link 4, Singapore 637898	+65 68618311

会社名	設備名	3 m	10 m	30 m	暗 3m	暗 10m	登録番号	有効期限	設備所在地	問い合わせ先 TEL
SINGAPORE EPSON INDUSTRIAL PTE LTD	Singapore EPSON EMC test centre	-	-	-	-	○	R-20052	2021/11/18	1, Tuas Link 4, Singapore 637898	+65 68618311
Shenzhen Morlab Communications Technology Co., Ltd.	EMC LAB-2	-	-	-	-	-	C-20040	2021/12/9	Fl.1,Building A, Feiyang Science park, No.8 Longchang Road, Block 67, Baoan District, Shenzhen, Guangdong Province, China	+886-3-498-7684
LG Electronics Inc.	LG Electronics Inc. Digital Media Standards Laboratory	-	-	-	-	-	C-20041	2021/12/9	222 LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, Korea	82-31-610-6649
LG Electronics Inc.	LG Electronics Inc. Digital Media Standards Laboratory	-	-	-	-	○	R-20054	2022/1/20	222 LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, Korea	82-31-610-6649
DEKRA Testing and Certification Co., Ltd.	ACB1	-	-	-	-	-	G-20060	2021/12/9	No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist., New Taipei City, Taiwan	+886 2 2602 7968
DEKRA Testing and Certification Co., Ltd.	ACB1	-	-	-	○	-	R-20057	2022/1/20	No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist., New Taipei City, Taiwan	+886 2 2602 7968
国立大学法人京都工芸繊維大学	３ｍ法電波暗室	-	-	-	-	-	C-20044	2021/12/9	京都府京都市左京区松ヶ崎橋上町 1 番地	075-724-7759
国立大学法人京都工芸繊維大学	３ｍ法電波暗室	-	-	-	○	-	R-20058	2021/12/9	京都府京都市左京区松ヶ崎橋上町 1 番地	075-724-7759
DSTech Co.	Shield room	-	-	-	-	-	C-20043	2021/12/9	25, 2565beon-gil, Jungbu-daero, Yangji-myun, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea	82-031-336-1798
DSTech Co.	Shield room	-	-	-	-	-	T-20042	2022/1/20	25, 2565beon-gil, Jungbu-daero, Yangji-myun, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea	82-031-336-1798
Intertek ETL SEMKO Korea Ltd.	Intertek ETL SEMKO Korea Ltd.	-	-	-	-	-	G-20061	2021/12/9	Intertek building, 3, Gongdan-ro 160beon-gil, Gunpo-si, Gyeonggi-do, Korea	82 31 8069 3750
Intertek ETL SEMKO Korea Ltd.	Intertek ETL SEMKO Korea Ltd.	-	-	-	○	○	R-20064	2022/1/20	Intertek building, 3, Gongdan-ro 160beon-gil, Gunpo-si, Gyeonggi-do, Korea	82 31 8069 3750
Intertek ETL SEMKO Korea Ltd.	Intertek ETL SEMKO Korea Ltd.	-	-	-	-	-	C-20045	2022/1/20	Intertek building, 3, Gongdan-ro 160beon-gil, Gunpo-si, Gyeonggi-do, Korea	82 31 8069 3750
Intertek ETL SEMKO Korea Ltd.	Intertek ETL SEMKO Korea Ltd.	-	-	-	-	-	T-20044	2022/1/20	Intertek building, 3, Gongdan-ro 160beon-gil, Gunpo-si, Gyeonggi-do, Korea	82 31 8069 3750
日本 NCR 株式会社	NCR WHQ EMC Radiated above 1GHz	-	-	-	-	-	G-20059	2022/1/20	864 Spring Street NW, Atlanta, GA 30308, USA	+17704952825

会社名	設備名	3 m	10 m	30 m	暗 3m	暗 10m	登録番号	有効期限	設備所在地	問い合わせ先 TEL
NTREE Co., Ltd.	Conducted Test Shield Room	-	-	-	-	-	T-20041	2022/1/20	228-60, Saneop-ro, 155beon-gil, Gwonson-ru, suwon-si, Gyeonggi-do, Korea	+82-31-893-0999
NTREE Co., Ltd.	Conducted Test Shield Room	-	-	-	-	-	C-20042	2022/1/20	228-60, Saneop-ro, 155beon-gil, Gwonson-ru, suwon-si, Gyeonggi-do, Korea	+82-31-893-0999
NTREE Co., Ltd.	3 m Chamber	-	-	-	-	-	G-20058	2022/1/20	228-60, Saneop-ro, 155beon-gil, Gwonson-ru, suwon-si, Gyeonggi-do, Korea	+82-31-893-0999
Sporton International Inc.	KunShan 3m Semi-anechoic Chamber 03CH06-KS	-	-	-	-	-	G-20062	2022/1/20	No. 1098, Pengxi North Road, Kunshan Economic Development Zone, Jiangsu province, China	+886-0512-57900158
Sporton International Inc.	CO01-KS	-	-	-	-	-	T-20048	2022/1/20	No. 1098, Pengxi North Road, Kunshan Economic Development Zone, Jiangsu province, China	+886-0512-57900158
TUV Rheinland (Guangdong) Ltd.	Conducted room_test area C	-	-	-	-	-	C-20046	2022/1/20	No.102, 1F of Southwest and No.205, 2F of West Warehouse Building, No.767 Tianyuan Road, Tianhe District, Guangzhou, Guangdong, China	+862028391159
TUV Rheinland (Guangdong) Ltd.	Conducted room_test area C	-	-	-	-	-	T-20045	2022/1/20	No.102, 1F of Southwest and No.205, 2F of West Warehouse Building, No.767 Tianyuan Road, Tianhe District, Guangzhou, Guangdong, China	+862028391159
TUV Rheinland (Guangdong) Ltd.	Radiated emission Chamber_District B	-	-	-	-	-	G-20065	2022/1/20	No.102, 1F of Southwest and No.205, 2F of West Warehouse Building, No.767 Tianyuan Road, Tianhe District, Guangzhou, Guangdong, China	+862028391159
Beijing Boomwave Test Service Co., Ltd.	10 Meters Semi-Anechoic Chamber	-	-	-	-	-	G-20063	2022/1/20	EMC Building, No.1 Wang Jing East Road, Chao Yang District, Beijing, China	+86-10-64711866
Beijing Boomwave Test Service Co., Ltd.	Shielding Room	-	-	-	-	-	C-20050	2022/1/20	EMC Building, No.1 Wang Jing East Road, Chao Yang District, Beijing, China	+86-10-64711866
Beijing Boomwave Test Service Co., Ltd.	Shielding Room	-	-	-	-	-	T-20049	2022/1/20	EMC Building, No.1 Wang Jing East Road, Chao Yang District, Beijing, China	+86-10-64711866

The other day, my wife called me on my way home, and said the bath was broke. My goodness, this is really bad in a season like winter! I rushed home found that the faucet worked fine but no hot water entered the bathtub! It seemed not to be a problem with the water heater because the temperature of hot water could be adjusted. Instead, the bathroom remote control for the hot water supply was suspicious.

My wife's and children's outcry was "Hey Expert! Fix it at once!" Then I hurried to look for tips on Internet and found out that it is not rare for thatmodel controller to break in a few years or so. Then, the repair desk told me "The repair won't be done until the beginning of the next week because of lack of stock." The other choice was actually a trick, "We can solve the problem as soon as tomorrow if you decide to replace with a new water heater unit."

I was at a loss as to what to do for a while but I ended up figuring out that the same model remote control could be obtained from an Internet site the next day. The Internet is really a genius tool! I also found many movies uploaded on a video site which show how to replace the remote control. They seem to have been shot by someone like an electrical contractor. Even good points to be noted and techniques for sealing and waterproofing can be acquired. Such guides are very useful and informative!

Although conscious of the risks of Do-It-Yourself projects, I decided to carry out the replacement by myself under self-responsibility. I ordered all necessary parts at once and started the repair work the following afternoon.

The electrical wiring work wasn't difficult, but caution was required anyway. For example, I had to avoid the mistake of swapping the wiring to the first floor when making the change. (If the mistake is made, they say you will need to call a specialist!). The repair work was complete in two hours including waterproofing the wire holes so water cannot get inside the wall.

It has been one month, but the stream of water is quite normal. I expect this fix will be good for several years. So, until the water heater becomes suspicious again, I will not hear the "Hey Expert! Fix it!" chorus.

I often try such simple repairs as I like Do-It-Yourself stuff, but what I feel these days is that highly specialized information and technology is now much easier to access than before. That means that people like us, who receive compensation for providing services relying on information and technology, are now much more strictly checked for price, speed and service quality by our customers. In other words, we are living in a world where customers severely expect our differentiation from other companies and seek high added values from us. Thus, we must do our best to be chosen by customers who can now easily choose the best things wisely.

(K.K.)

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