



General Incorporated Association

# KEC Electronic Industry Development Center





Mission

We will promote the electronics industry and contribute to the Japanese economy through our activities in improving technology, productivity, and quality.

Message

In 1961, Kansai Electronic Industry Development Center (KEC) was established by 24 companies mainly in the Kansai region as promoters with the support of the Ministry of Economy, Trade and Industry (former Ministry of International Trade and Industry) and the Osaka prefectural government.

Our core business consists of Committee activities supporting the growth of engineers through seminars, technical courses, qualification exams, and EMC and Product Safety Testing services to ensure safe and reliable products.

Our committee business organizes various technical seminars providing leading technologies, and training courses for engineers, and also administrating international certification exams for EMC and product safety engineers in business alliance with iNARTE (currently known as Exemplar Global, Inc.) in the U.S.

For the EMC and Product safety testing services, we have obtained a laboratory certification based on ISO/IEC17025 and have about 20 fully equipped test facilities, such as large and small anechoic chambers and shielded rooms, including the E3 lab in Seika-cho, Soraku-gun, Kyoto Prefecture, which began operation in 2024. We will provide EMC and Product safety testing based on international and domestic standards to support your product development.

We will contribute to the growth of the electronic industry together with thoughts of foundation and missions.

We appreciate your continued support, encouragement, and use of our services.



Chairman  
Tatsuo Ogawa



Senior managing Director  
Yoshifumi Yanagawa

History

- 1961

KEC was founded by 24 companies with the support of the Ministry of International Trade and Industry (currently the Ministry of Economy, Trade and Industry) and Osaka Prefecture.

Chairman  
Konosuke Matsushita  
Vice Chairmen  
Toshio Iue  
Shintaro Okagami  
Tokuji Hayakawa  
Akira Murata
- 1969

The Ikoma radio frequency measurement site, 30m OATS, was established. (OATS: Open Area Test Site)

1970

Measurement services of spurious emissions from electronic apparatuses were started.
- 1980

The services were extended into immunity tests for electronic apparatuses. Technical Working Groups were organized.

1983

Shielding material evaluation devices were developed. (the KEC method)
- 1993

The EMC Test Center (Ikoma 1st Test Site) was established.

1996

The first EMC Kansai Seminar was held.

1997

The site was accredited as a testing laboratory based on ISO/IEC17025.

1998

The NARTE qualification test program started.
- 2002

The first electronic-related seminar (Currently KEC seminar) was held.

2005

The Keihanna Test Center (E1 Building) started operations.

2008

The EMC and Product safety testing division was relocated from Ikoma to the Keihanna area.
- 2010

Shifting to the general incorporated association was approved and the legal name was changed.

2011

The head office was relocated to the Keihanna area to consolidate the business functions.

2014

A patent for shielding material evaluation devices using the GHz KEC method was approved.

2017

The Keihanna Test Center (E2 Building) started operations.
- 2020

ISO/IEC 17043 certification was acquired as an EMC proficiency testing provider.

The reverberation chamber was installed in the E2 Building.

2024

The Keihanna Test Center (E3 Labo) started operations.

Overview

Name	General Incorporated Association KEC Electronic Industry Development Center
Establishment	January 31, 1961 It was established as Kansai Electronic Industry Development Center as an incorporated association. October 1, 2010 Transferred to a general incorporated association
Address	Head office・Keihanna Test Center (E1 Bldg. /E2 Bldg.) 3-2-2, Hikari-dai, Seika-cho, Soraku-gun, Kyoto, 619-0237 Japan Keihanna Test Center (E3Labo) 2-2-6, Hikari-dai, Seika-cho, Soraku-gun, Kyoto, 619-0237 Japan
Business Line	<b>Committee Business</b> Research on advanced electronic technologies with the cooperation of industry, academia, and government, and support human resource development by holding seminars and technical courses management international certification exams for EMC and Product safety engineers.



E1 Building



E2 Building



E3 Labo

Ikoma 1st Test Site  
12128 Takayama-cho, Ikoma-city, Nara 630-0101 Japan  
Ikoma 2nd Test Site  
10632 Takayama-cho, Ikoma-city, Nara 630-0101 Japan

EMC・Safety product Testing Services

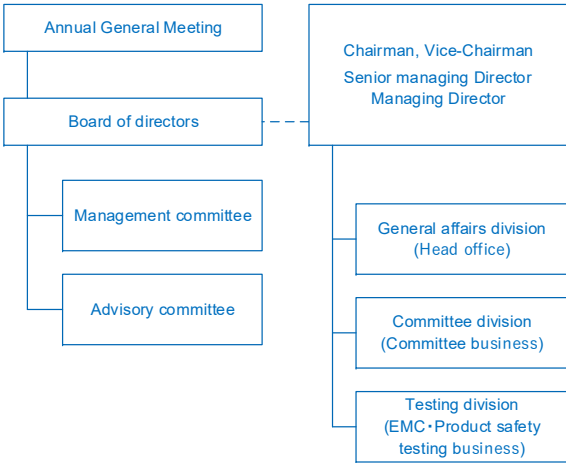
EMC and Product safety testing services using various large and small anechoic chambers and shielded rooms as an accredited test laboratory according to ISO/IEC 17025.

Administrative structure (As of June 14, 2024)

Chairman	Tatsuo Ogawa (Panasonic Holdings Co., Ltd.)
Vice-Chairman	Katsuaki Kaito (Shimadzu Corporation) Kenji Furuhashi (Hosiden Corporation) Hiroshi Iwatsubo (Murata Manufacturing Co., Ltd.)
Senior Managing Director Managing Director	Yoshifumi Yanagawa (KEC Electronic Industry Development Center) Hidetada Tokioka (KEC Electronic Industry Development Center)
Director	Hajimu Yoshimura (SANSHA ELECTRIC MANUFACTURING CO., LTD.) Yoshinori Takahashi (NEW COSMOS ELECTRIC CO., LTD.) Yasuo Miyagi (Diamond Electric Holdings Co., Ltd.) Masahiro Taniguchi (TOA Corporation) Nobuyuki Takamori (NICHICON CORPORATION) Eiji Tanaka (Nihon Denon Co., Ltd.)  Shinji Ishihara (FURUNO ELECTRIC CO., LTD.) Akira Ishihara (Mitsubishi Electric Corporation) Minoru Okubo (YANMAR HOLDINGS CO., LTD.)
Auditor	Kenichi Kojiyama (ICOM INCORPORATED) Keiji Oshima (ESPEC CORP.)

Company names are in Japanese syllabary order.

Organisation



Consists of Members

KEC is composed of members related to the electronics industry. Members are corporations or organizations that assent to our objectives and activities.

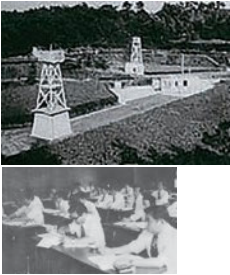
Members: 250 companies

Regular Members (168 companies)	Support Members (40 companies)	Affiliate Member (42 companies)
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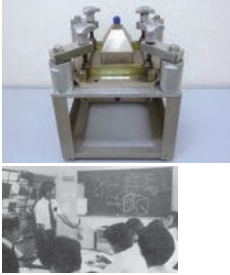
1960



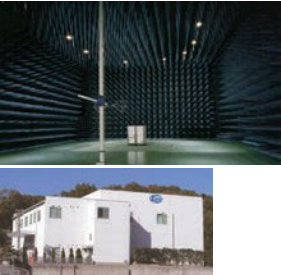
1970



1980



1990



2000



2010



2020





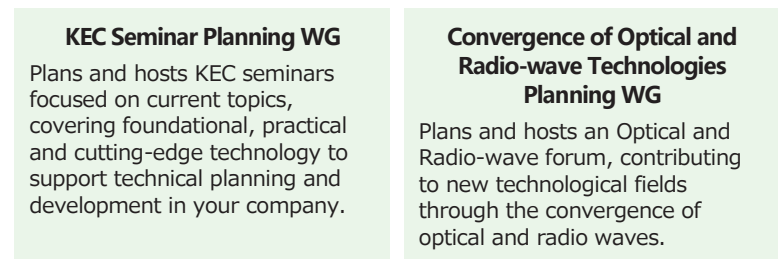
# Activities of Committee

KEC organizes five expert/promotion committees, and more than 20 subcommittees/working groups with the cooperation of industry, academia and government. We also support improving technical capabilities and the growth of human resources in the electronics industry through activities such as research and surveys on advanced electronics-related technologies, holding various seminars and technical courses, and publishing standards handbooks and guidebooks.

= **Features of KEC Committee** =

<b>Surveys and research on cutting-edge electronics technology</b>	<b>Seminars and forums for advanced technology and information exchange</b>	<b>Technical courses and training for the development of engineers</b>	<b>Administration of international qualifications for EMC and product safety engineers</b>
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The committee contributes to the improvement of the technological capabilities of the industry and the creation of new businesses in companies by conducting surveys of advanced and applied technologies, and providing information through seminars, forums, and technical courses.



The committee conducts research, gathers and interprets technical information, and strives to improve the industry's product safety technologies and reliability, contributing to the delivery of safe and reliable products.



Researches and analyzes trends and content of domestic and foreign product safety standards, and publishes translated foreign standards as necessary.

Researches and studies reliability and safety assurance, focusing on end-of-life failure mechanisms. Plans and hosts Reliability Seminars every two years.

Researches and studies new technologies for product safety, such as functional safety, hazard-based safety engineering, and risk assessment.

The committee researches, provides, and translates EMC-related standards and technical information, contributing to the industry by improving EMC testing technology and fostering engineer development.

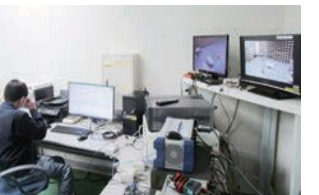
WG activities include validation testing of new proposed standards, technology development to improve measurement accuracy, standard research for products with new technologies, and round-robin evaluation.

Verifies measurement inconsistencies between EMC sites and identifies causes and countermeasures.

Verifies the latest CISPR and IEC standards and identifies issues. Reflects these in standards development.

Validates EMC standards for automotive equipment, identify issues, and incorporates them into the standard formulation.

Validates the latest power electronics standards, identifies issues, and considers countermeasures.



Researches and translates foreign EMC standard trends, standard interpretations, and measurement techniques, by country and theme, and provides the results as publications.



## EMC Design Engineer Qualification Promotion Committee

The technical level of EMC design at the product development stage is certified as an EMC Design Engineer qualification. KEC has established and operates this qualification in cooperation with iNARTE.




Plans and hosts EMC Kansai seminars, introducing leading technologies, trends, and common issues on EMC, and exchanging technical information.

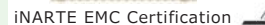


iNARTE (Exemplar Global, Inc.) conducts personnel certification in EMC and product safety. These qualifications reflect not only in individuals but also in the technical level of organizations employing qualified engineers. KEC collaborates with iNARTE to administer exams in Japanese domestically.

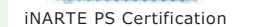
The technical level of EMC design at the product development stage is certified as an EMC Design Engineer qualification. KEC has established and operates this qualification in cooperation with iNARTE.



Promotes EMC engineer and technician qualifications, education, and qualification exams.

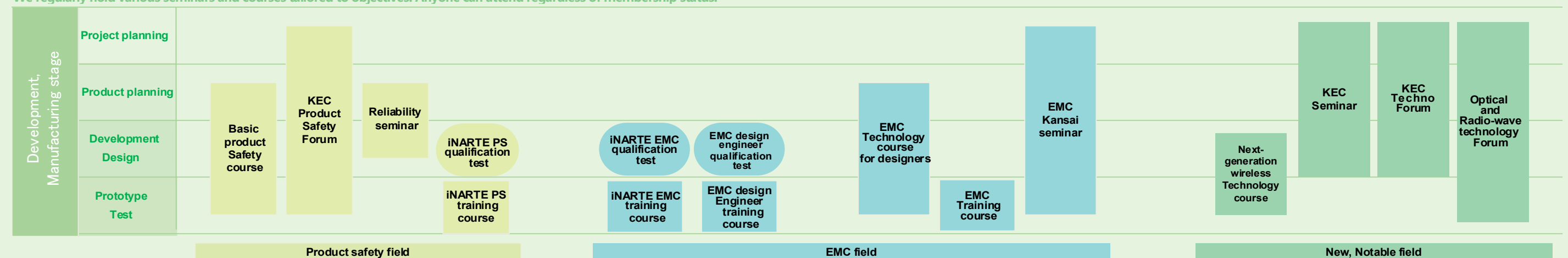


Promotes PS engineer and technician qualifications, education, and qualification exams.



KEC/iNARTE EMC Design Engineer Certification **iNARTE:** International Association for Radio,Telecommunications Electromagnetics.

We regularly hold various seminars and courses tailored to objectives. Anyone can attend regardless of membership status.

☐ Seminar, Course, Training course ☒ qualification test



# EMC and Safety Product Testing Services

KEC has been accredited under ISO/IEC 17025, allowing us to issue globally recognized test reports. We possess extensive test facilities and provide high-quality EMC and product safety tests across a wide range of product fields. Additionally, our experienced engineers offer EMC proficiency tests through interlaboratory comparison, and provide an EMC consulting service, including technical support (for members only).

## = Features of KEC Testing Service =

**Official test reports according to ISO/IEC 17025**  
KEC is a testing laboratory accredited by certification bodies(\*). We issue globally recognized test reports that meet customer needs. (\*JAB, VLAC)

**Extensive test facilities for diverse product fields**  
We have 20 test facilities, including anechoic chambers and shielded rooms compliant with the latest standards for various EMC and product safety tests.

**Testing and Technical Support by Specialized Engineers**  
Internationally qualified engineers conduct EMC and product safety tests, as well as proficiency tests under ISO/IEC 17043.

**Type of Test** The following four types of tests can be selected according to the customer's needs.

**Compliance Test**  
Our engineers conduct conformity evaluation tests and issue test reports, including pass or fail results.

**Pre-EMC Test**  
Customers can measure their test samples themselves using KEC's facilities. (※Outside the scope of ISO/IEC 17025 certification.)

**Commissioned Pre-Test**  
Our engineers carry out EMC tests on behalf of the customer. (Only a report of test results without pass or fail.) For members only. Remote testing is available.

**On-site Measurement**  
Our engineers travel to conduct on-site measurements of large equipment, evaluate electromagnetic environments, and characterise EMC test facilities.

## EMC Test

**Compliance Test**

**Pre-EMC Test**

**Commissioned Pre-Test**

**On-site Measurement**

EMC test verifies that the equipment does not cause electromagnetic interference and operates normally even when exposed to electromagnetic disturbances. We can issue test reports based on ISO/IEC 17025 for equipment in various product fields, such as automotive, military, industrial equipment, power electronics, medical, marine, rail-related equipment and IT equipment.

**Main test items**

- Radiated disturbance
- Radiated electromagnetic field immunity
- Conducted disturbance
- Conducted disturbance immunity
- Power frequency magnetic field immunity

- Antenna characterization
- Noise power measurement
- Anechoic chamber characterization

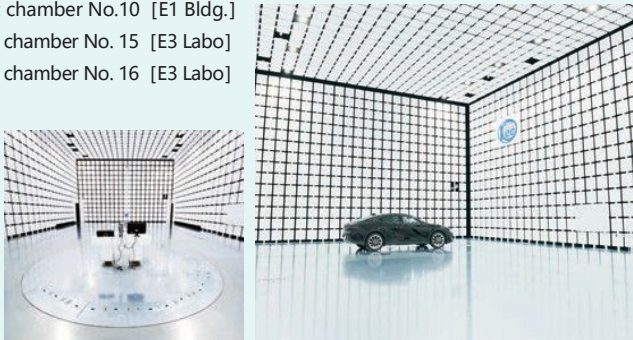
etc.



## Test Facility

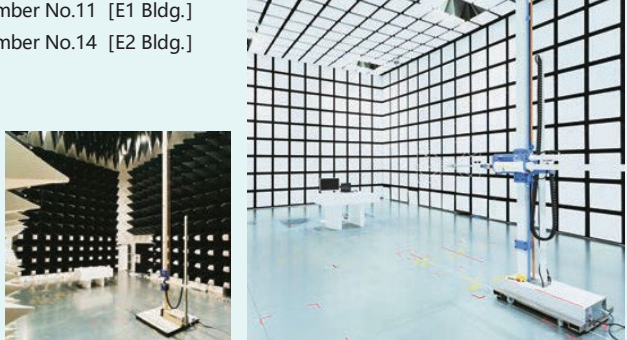
### 10m method anechoic chamber

Anechoic chamber No.10 [E1 Bldg.]  
Anechoic chamber No. 15 [E3 Labo]  
Anechoic chamber No. 16 [E3 Labo]



### 3m method anechoic chamber

Anechoic chamber No.11 [E1 Bldg.]  
Anechoic chamber No.14 [E2 Bldg.]

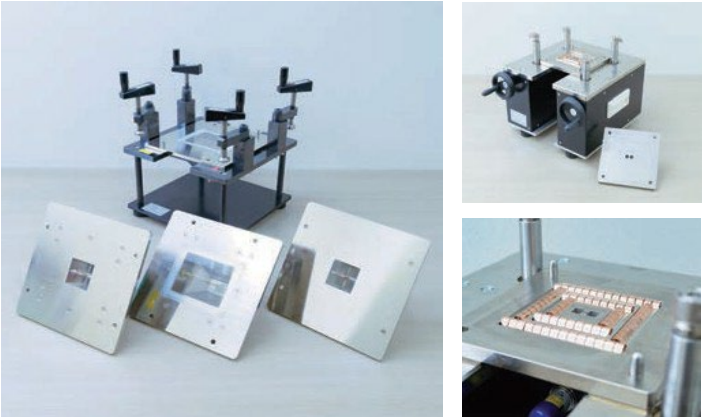


## Shielding Effectiveness Test

**Compliance Test**

**Type of test**

- KEC method (500Hz to 1GHz)
- GHz KEC method (1GHz to 6GHz)
- Expanded GHz KEC method (5GHz to 18GHz)



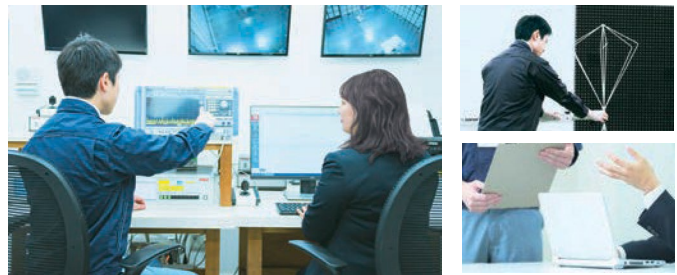
## Consulting Services (Technical Support)

Member Only

KEC offers technical support, including addressing the lack of information on EMC standards and regulatory trends for product development, the shortage of engineers, human resource development, and support for the introduction of EMC testing facilities.

**Example of Support menu**


- **Training of engineers**  
Seminars and hands-on practice through individual visits (Trends in EMC standards and regulations, hands-on training using EMC test facilities owned by member companies, etc.)
- **Introduction and Management of Test Facility**  
Supporting everything from planning the introduction to conducting performance evaluations (NSA, SVSWR).
- **Quality System (management)**  
Advice on quality system, and conducting internal audits (staff dispatch).



## Product Safety Test

**Compliance Test**

**Pre-EMC Test**



Evaluation tests based on domestic and international safety standards are conducted for electronic devices. Compliance tests, pre-tests for product safety, and services for obtaining the S-JQA mark (application assistance) are also provided.

## Reliability Test (Environmental Test)

**Compliance Test**

**Pre-EMC Test**

The durability of electrical products against environmental changes, such as temperature fluctuations, can be verified.



## EMC Proficiency Test (by Interlaboratory Comparison)

EMC proficiency tests are conducted by statistically processing the test results of participating laboratories on the same sample according to a predetermined evaluation method, and comparing the results among participants. The main objective is to confirm the validity of the test facilities, measurement methods, and test results of the participants. Proficiency testing operation team, which is an independent organization from EMC Testing Division provides EMC proficiency tests based on the general requirements of ISO/IEC 17043 (JIS Q 17043).



### Small anechoic chamber

Anechoic chamber No.7, 8, 9, 12 [E1 Bldg.]  
Anechoic chamber No.13 [E2 Bldg.]



### Shielded room

Shielded room  
No.7, 8, 9, 10 [E1 Bldg.]



### Reverberation chamber

Reverberation chamber No.1 [E2 Bldg.]



### Safety testing room

Safety testing room [E1 Bldg.]



●Other test facilities /Harmonic Current Meas. Room [E1 building], Evaluation testing room [E1 building], Shielding effectiveness testing room [E1 building]



# Applicable standards for major EMC Test

Visit our website for other applicable standards.



## Consumer, Industrial, Medical device etc.

### ■ Consumer, Industrial standards

<b>CISPR</b>	CISPR 11 etc.
<b>AS/NZS</b>	AS/NZS CISPR 11 etc.
<b>CISPR</b>	
<b>IEC</b>	Basic Standard : IEC 61000-4-3 etc. Generic Standard : IEC 61000-6-1 etc. Other : IEC 61326-2-1 etc.
<b>JAPAN</b>	Basic Standard : JIS C 61000-4-3 etc. Generic Standard : JIS C 61000-6-1 etc. Other : JISC-4411-2 etc.
<b>USA</b>	FCC Part 15,18 etc.
<b>CANADA</b>	ICES-001 etc.
<b>EU</b>	Product family standard : EN 55011 etc. Basic Standard : EN IEC 61000-4-2 etc. Generic Standard : EN IEC 61000-6-1 etc. Other : EN 61326-1 etc.
<b>RUSSIA</b>	GOST 30805.22 etc.

### ■ Medical device

<b>IEC</b>	IEC 60601-1-2 etc.
<b>JAPAN</b>	JIS T 0601-1-2 etc.
<b>EU</b>	EN 60601-1-2 etc.

### ■ Industrial,Power electronics

<b>IEC/ISO</b>	IEC 61851-21-2 etc.
<b>EU</b>	EN 12015 etc.

### ■ Railway applications

<b>IEC</b>	IEC 62236-3-2 etc.
<b>EU</b>	EN 50121-3-2 etc.

### ■ Marine equipment

<b>IEC</b>	IEC 60945
<b>JAPAN</b>	JIS F 0808
<b>EU etc.</b>	EN 60945 etc.

## Automotive Components

### ■ EMI for automotive electronic components

CISPR 25, ISO 7637-2 etc.

### ■ EMS for automotive electronic components

ISO 11452, ISO 10605, ISO 16750-2, ISO 7637, SAE J1113-25, JASO D001-94 etc.

### ■ Each automobile manufacturer specification

GM, Ford, MAZDA

## MIL and Airborne Equipment

### ■ MIL standard

MIL-STD-461A/B/C, MIL-STD-461D/E/F/G etc.

### ■ Airborne standard

RTCA DO160-D/E/F/G etc.

### ■ Ministry of Defense

NDS C0011B, NDS C0011C etc.

## Radio Equipment characteristics Test

### ■ Radio equipment

<b>EU</b>	ETSI EN 300 328 etc.
<b>FCC</b>	FCC 15C etc.
<b>JAPAN</b>	Extremely Low-Power Devices, High-Frequency use facilities, etc.

# Information of Accreditation and Registration

Visit our website for more information about accreditation and registration.



## Accreditation

### JAB (Japan Accreditation Board)

#### Accreditation No.

RTL02810

#### Field

Airborne Equipments  
Department of Defense Interface  
Automotive EMC Tests



### VLAC (Voluntary EMC Laboratory Accreditation Center)

#### Accreditation No.

VLAC-005-1, -2, -3

#### Field

Consumer Products  
Industrial Devices  
Medical Equipments  
Wireless Devices



## Registration

### FCC (Federal Communications Commission)

#### Designation Number

JP5204, JP5225

#### Scope

FCC Part 15 subpart B&C, 18  
U-NII for FCC Part15, subpart E

### VCCI (VCCI Council)

Registered facilities through VLAC Accreditation.

### S-JQA

#### Registration No.

JQLAB-1003

#### Products Category

Cat.7 Electric Motor-operated  
Cat.8 Electric Heating Appliances  
Cat.11 Electronic Appliances



### MAZDA (Mazda Motor Corporation)

Registered as Mazda Motor Corporation's EMC Testing Laboratory.

## Certification

### TÜV Rheinland

#### Certificate Number

50054524



### GM (General Motors Corporation)

Approved EMC testing laboratory by General Motors (GM).

### Ford (Ford Motors Company)

Approved EMC testing laboratory by Ford.



<https://www.kec.>

## General Incorporated Association

## KEC Electronic Industry Development Center

### Head office·Keihanna Test Center (E1 Building /E2 Building)

3-2-2, Hikari-dai, Seika-cho,  
Soraku-gun, Kyoto, 619-0237  
Japan TEL: +81-774-93-4563  
(main number)

### Keihanna Test Center (E3Labo)

2-2-6, Hikari-dai, Seika-cho,  
Soraku-gun, Kyoto, 619-0237  
Japan

### Ikoma 1st Test Site

12128 Takayama-cho,  
Ikoma-city, Nara 630-0101  
Japan

### Ikoma 2nd Test Site

10632 Takayama-cho,  
Ikoma-city, Nara 630-0101  
Japan

