

Vision

Lead the future ICT by creating new radio values

values

- Change and Innovation
- Customer Satisfaction
- Performance Enhancement

Mission

- To develop and use efficiently spectrum resources
- To secure a safe electromagnetic environment
- To take the initiative in global standards for broadcasting, communications, and ICT
- To advance the conformity assessment system

Slogan

RRA, Leading Radiocommunication

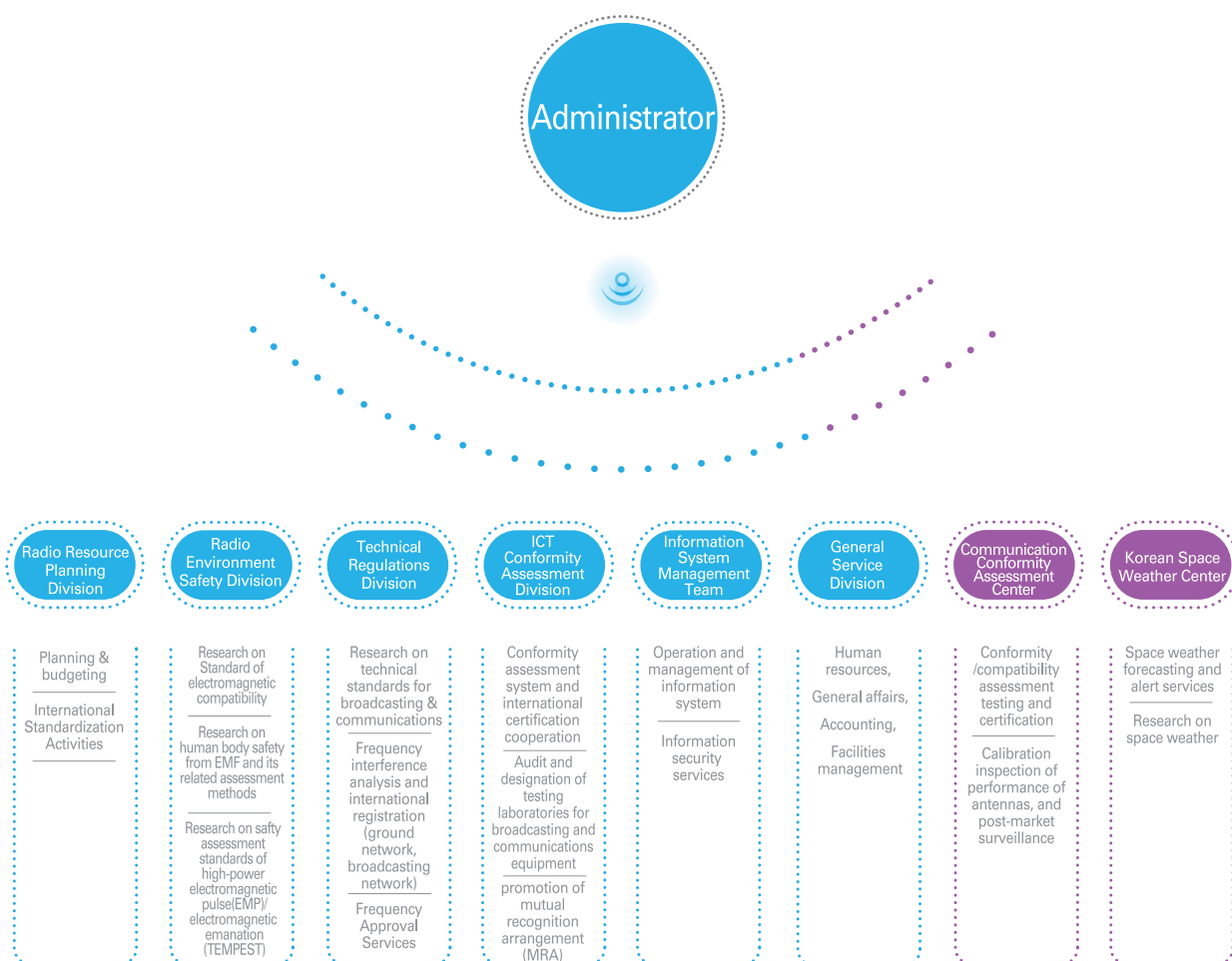
History and Organization

- Feb. 1966 Founded Radio Research Laboratory (Presidential Decree No. 2397).
- Mar. 1967 Conducted ionospheric monitoring service.
- Nov. 1968 Started type approval testing for radio equipment.
- Jan. 1975 Conducted geomagnetic variation monitoring.
- Jul. 1985 Started type approval for electronic communication equipment.
- Nov. 1990 Started EMI inspection.
- Dec. 1990 Introduced a research fellowship program.
- Nov. 1992 Opened the Icheon branch institute (Presidential Decree No.13763).
- Dec. 1995 Conducted solar radio monitoring service.
- May 1999 Relocated from Anyang to Yongsan.
- Dec. 2000 Began national standardization for ICT.
- Dec. 2005 Established the Electromagnetic Waves Measurement Center.
- Feb. 2008 Governmental reorganization (MIC→Korea Communications Commission).
- May 2009 Opened the Information System Management Team.
- Aug. 2009 Anyang Office consolidated into Yongsan Office.
- Dec. 2009 Opened the Cyber Safety Center.
- Dec. 2009 Opened the Radio Waves NURI Center.
- Aug. 2011 Reorganized as National Radio Research Agency (RRA) and Established the Korean Space Weather Center.
- Jun. 2012 Changed the name of Icheon Branch to Communication Conformity Assessment Center.
- Mar. 2013 Governmental reorganization (KCC→Ministry of Science, ICT and Future Planning).
- Jul. 2014 Relocated from Yongsan to Naju.
- Jul. 2017 Governmental reorganization (MSIP→Ministry of Science and ICT).



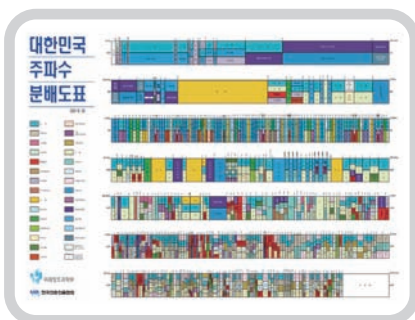
The National Radio Research Agency (RRA)

The National Radio Research Agency (RRA) was founded in 1966 to perform research on the development of spectrum resources and new frequency technology. RRA, which belongs to the Ministry of Science and ICT, performs research activities for the purpose of improving the efficient use of radio spectrum, securing a safe electromagnetic environment, and enhancing the competition in the fields of radio, information and communication technologies. RRA develops Korean ICT standards and participates in the international standards organizations and cooperates with them, actively, to develop international standards in the fields of communications and radio technology.



Efficient use of radio Spectrum resources

RRA studies the efficient use of the spectrum such as development of new radio technologies to meet the rapidly increasing demand on the spectrum. The agency also develops rainfall attenuation and radio wave propagation models that are more suitable for the domestic environment. Moreover, RRA notifies Korean frequency assignments of terrestrial, satellite and broadcasting stations to ITU for obtaining international right in use of frequency assignments and coordinates with foreign countries to resolve issues of international interferences with neighboring countries, while analyzing interference issues in use of broadcasting stations and in designation of radio stations of national defense, diplomatic purpose and international events.



Radio Spectrum Allocations in Korea

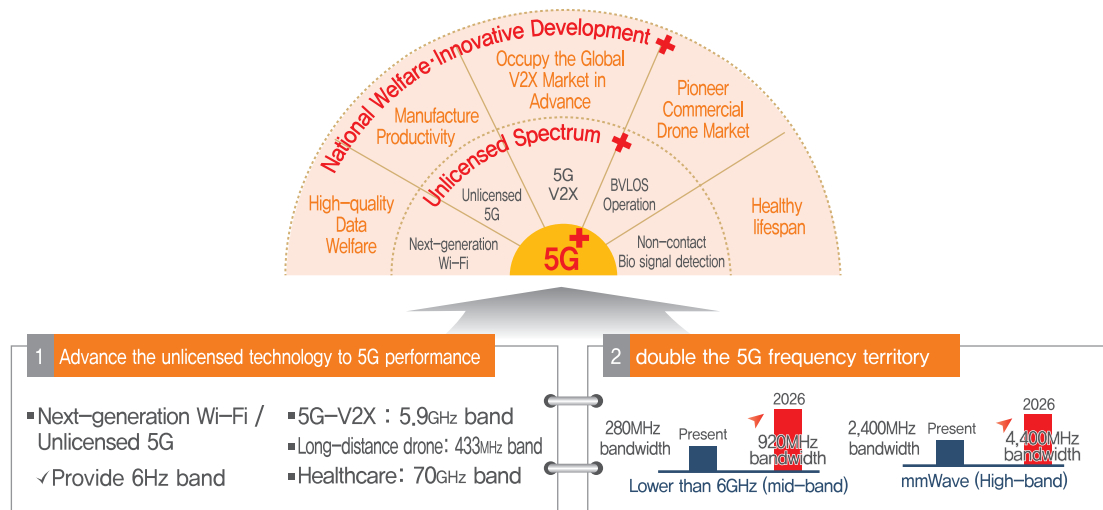
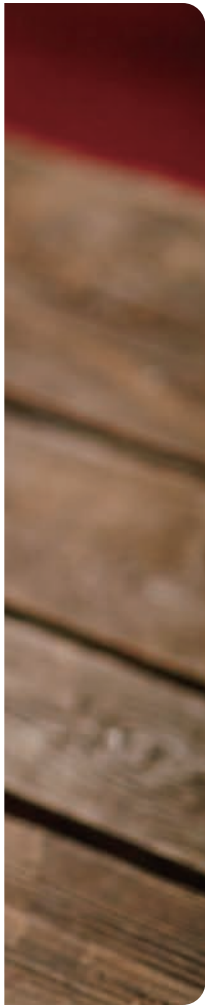


SMS System



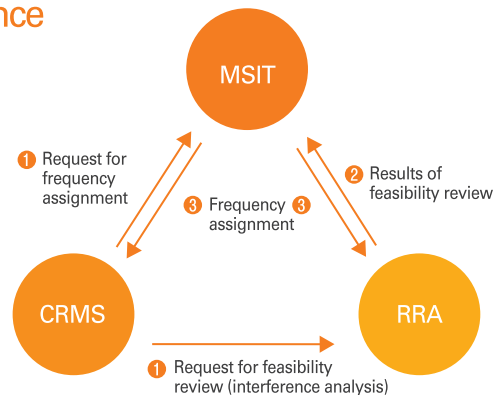
Real-Life Applications of Radio Waves

Real-life applications of radio waves



▶ Analysis on frequency interference

RRA reviews the frequency assignment for authorization of radio and broadcasting stations or approval of public frequencies to be used in order to ensure efficient use of limited resources and it analyzes interference issues on availability or approval of public frequencies to be used.



▶ Laying the groundwork for securing spectrum resources

RRA develops rainfall attenuation and radio propagation models that are suitable for the changing electromagnetic environment, such as urbanization, climate change, and increasing numbers of ICT devices. Moreover, the agency measures and analyzes the characteristics of propagation of unused spectrum resources and studies related technologies. These efforts will help to lay the groundwork for securing spectrum resources

▶ Notifying frequency assignments of radio stations to ITU

RRA coordinates the frequency uses of radio stations in satellite, broadcasting, and terrestrial services with foreign countries and notifies the International Telecommunication Union (ITU) to obtain international right of frequency uses and protect Korean radiocommunication networks from interference.

Broadcasting Media		International Registered Broadcasting Station	Radio Station Type		International Registered Radio Station (wave)	Radio Station Type		International Registered Radio Station (wave)	Station Type		Satellite International Registration
AM		146	Aeronautical radio-navigation	AL	103	Radiolocation	LR	4	Space Station	Non-geostationary	33
FM		449	Aviation	FA	255	Land mobile	ML	643			
T-DMB		254	Base	FB	4,224	Ship	MS	1,242			
			Coast	FC	1,880	Maritime navigation	NL	99			
			Aeronautical (R)	FD	304	Standard frequency and time signal	SS	2			
TV	Analogue	212	Aeronautical (OR)	FG	132	Radio Astronomy		3	Earth Station	Geostationary	29
	Digital	1,402	Land	FL	199	Radiolocation Land		25			
			Fixed	FX	3,238	Total		12,200			

A male researcher with dark hair, wearing a white lab coat over a plaid shirt, is focused on adjusting a large, light-colored knob on a piece of electronic equipment. The equipment is a rack-mounted device with a small screen and various buttons. In the background, there are blue acoustic foam panels on the wall. A computer monitor is partially visible behind the researcher. The scene is set in a laboratory or research facility.

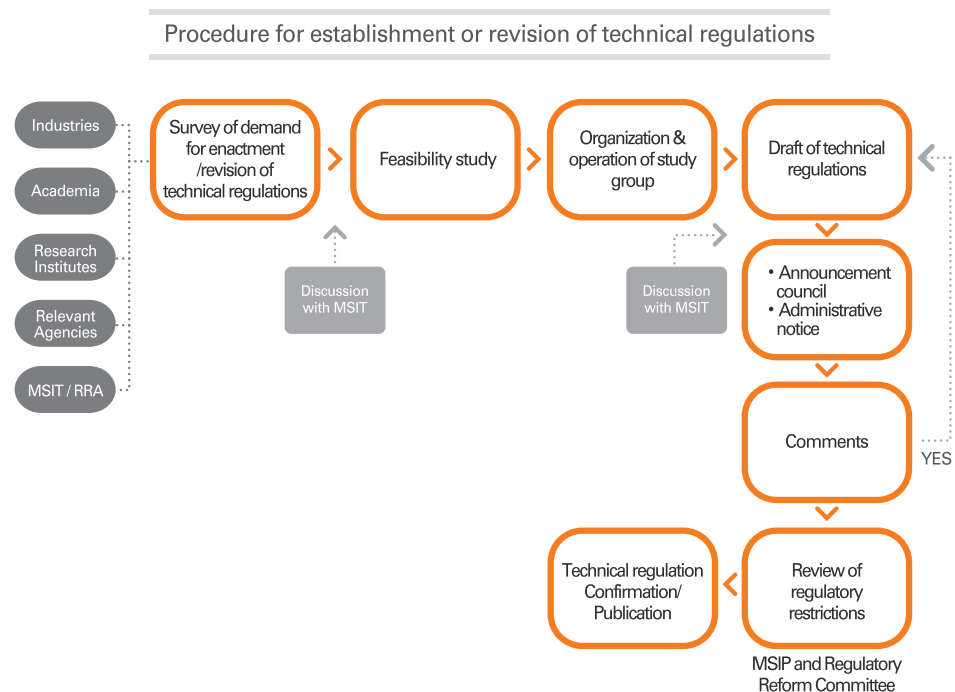
Research on technical regulations for broadcasting and communications services

In response to the environment where the line between communications and broadcasting becomes increasingly blurred, and objects are communicating with one another, RRA conducts research on technical regulations for broadcasting and communications. Its research efforts will contribute to developing creative industries by helping them cope with market changes and disperse new techniques and services, in advance.



► Research on technical regulations for broadcasting and communication services

RRA studies the relevant technical regulations and usage system to allocate and allot new frequencies, to enact or revise relevant laws, and to introduce new techniques, products, and services that reflect the international standards such as ITU, IMO, and IEC.



Initiative in global standards for ICT

The recent explosive growth of information devices like smartphones, tablet PCs, and wearable devices has necessitated standards for ICT. RRA establishes national ICT standards to facilitate safe and convenient use of various devices, and sets up standards for emergency communication in preparation for disasters, supporting underserved communities such as senior citizens and the disabled, with the aim of serving the public interest. Additionally, the agency actively supports international standardization activities of Korea ITU Research Committee and Experts Committee of National Standards to secure international competitiveness of Korean products and technologies.

▶ Procedure and status of Korean ICT standards

RRA establishes national standards to reflect the need and urgency of the Korean ICT industry and services through a procedure involving public review and comments of all interested parties.

Procedure for establishment or revision of Korean ICT standards





▶ International standardization activities

RRA runs the Korea ITU Research Committee and the Experts Committee of National Standards which are comprised of experts to take the initiative in global standards.

Korean Contribution

(as of 2019)

Sector	Conference participation	Contributions submitted	Contributions reflected
ITU-R	32	56	55
ITU-T	22	174	172
ITU-D	6	7	7
ISO/IEC/JTC1	45	60	60

Current Domestic ITU President and Vice President

ITU-R	ITU-T	ITU-D	Total
7 seats, 3 rd place	9 seats, 2 nd place	1 seat, 7 th place	3 rd place



ITU (International Telecommunication Union)

ITU is the specialized agency under the umbrella of the United Nations that develops and disseminates international recommendations in the fields of radio frequency, broadcasting, satellite orbit and telecommunication, and plays a role of coordination internationally.

APT (Asia Pacific Telecommunity)

APT is an international organization that promotes cooperation in the field of broadcasting and communications standardization in the Asia-Pacific region.

ISO (International Organization for Standardization)

ISO is an intergovernmental organization (established in 1947) that covers the widest scope of standards development among the three public standardization organizations (ITU, ISO, IEC) in the world. It facilitates international exchange of goods and services and conducts standardization activities in terms of cooperation and development for science, technology and economy.

IEC (International Electrotechnical Commission)

IEC is an intergovernmental organization (established in 1906) organized to establish international standards and conformity assessment standards for electrical and electronic fields, and conducts standardization activities for the purpose of facilitating international trade and maximizing market efficiency.

JTC 1 (Joint Technical Committee 1)

JTC 1 is a technical committee jointly operated by ISO and IEC (established in 1987). It resolves the problem of standardization duplication in the IT field and promotes international standardization.



Securing a Safe Electromagnetic Environment

Electromagnetic field
strength laboratory

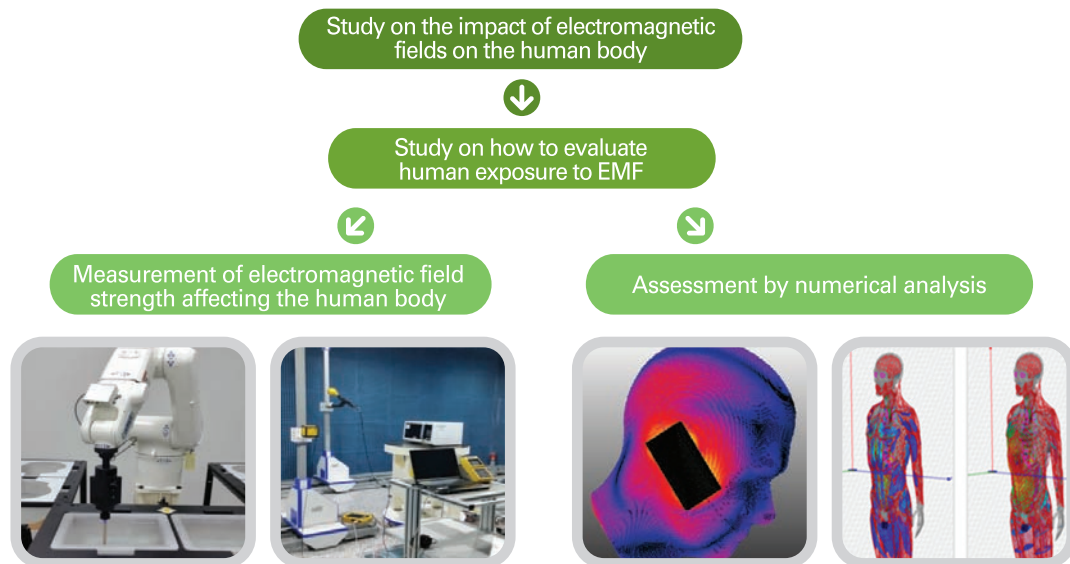
In response to this electromagnetic-based super-connected society, RRA conducts research on safety assessment criteria to minimize the influence of electromagnetic fields on the human body, equipment and radio facilities and to cope with the threat of artificial high-power electromagnetic fields. Furthermore, it suggests reference levels of electromagnetic fields for equipment and the human body and provides information on what is true or not regarding electromagnetic fields through various channels to communicate with the public, hence creating a safe electromagnetic environment.

▶ Research to develop technical regulations of electromagnetic compatibility

To prevent device malfunction caused by harmful electromagnetics generated by broadcasting or communications equipment, medical devices, vehicles, or electronic railroads facilities and to provide stable radio broadcasting and communication services, RRA has established pan-departmental electromagnetic interference prevention regulations and electromagnetic protection standards.

▶ Research to develop new assessment methods and standards on human body exposure to electromagnetic fields

In order to secure a safe EMF environment, RRA has established and has been implementing the standard of measuring electromagnetic strength and electromagnetic absorption levels through the standard and measurement research conducted to protect the human body from electromagnetic fields generated by mobile phones, base stations, and daily appliances.



▶ Operation of programs for high power electromagnetic (EMP) and electromagnetic emanation (TEMPEST) safety assessment

RRA establishes protection performance standards and test methods to assess and secure the safety of indispensable national infrastructures from high-power electromagnetic fields radiating from nuclear and electronic bombs. These also help prevent the leakage of important information from the information equipment via electromagnetic fields. For this purpose, RRA operates programs for high power electromagnetic/electromagnetic emanation safety assessment to ensure the safety of private and public protective facilities.

▶ RF risk communications activities

RRA endeavors to provide correct information on electromagnetic fields and alleviate the concern of the public through interactive communications. The efforts include education programs on electromagnetic safety, forums to enhance risk communication in public, and the "Electromagnetic fields in our daily life space" website (www.rra.go.kr/emf).

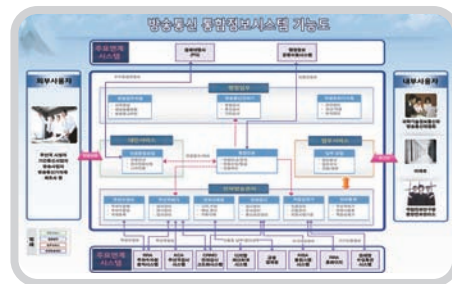
Establishment and operation of information service systems and infrastructure

RRA develops and operates an integrated information system for broadcasting and communications, radio environment information system, spectrum management intelligent system, and other information service systems, to technically support the works of the Ministry of Science and ICT (MSIT) in the fields of radio waves, communications and broadcasting. By constructing a network infrastructure of the MSIT, it provides stable communication services.

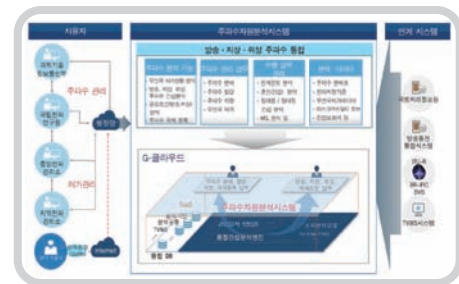


▶ Establishment and stable operation of information service systems

For the advancement of a customer-oriented complaint service and strengthen competitiveness in the administrative services, RRA established the Integrated Broadcasting and Communication Information System to provide integrated services in radio station licenses and spectrum fees. In addition, RRA establishes and operates the Spectrum Management Intelligent System that is designed to analyze radio interference for broadcasting stations, mobile base stations and satellite networks.



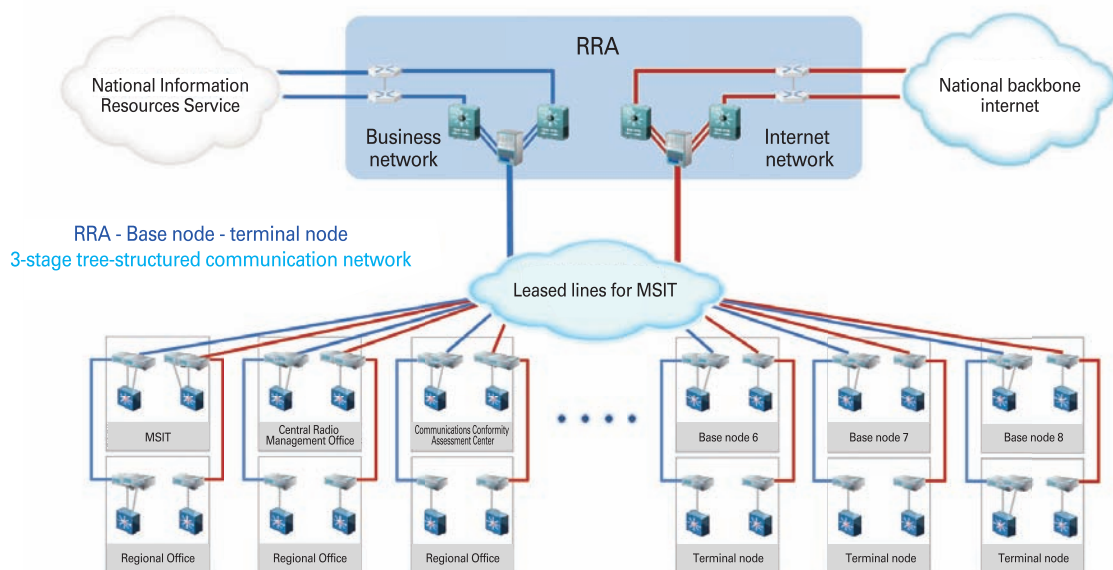
Integrated Broadcasting and Communication Information System



Spectrum Management Intelligent System

▶ Operation of network infrastructure for the Ministry of Science and ICT

RRA operates the Network Infrastructure for the MSIT, consisting of 79 dedicated lines, to provide stable and reliable communication services to 26 agencies, including MSIT and Central Radio Management Office.





Conformity Assessment System for Broadcasting and Communications Equipment

RRA operates a conformity assessment system that verifies that broadcasting or communications equipment conforms to domestic standards (technical regulations) before their sale, to protect the radio environment and users. The agency is also engaged in international cooperation activities, such as promotion of a Mutual Recognition Arrangement (MRA) to strengthen the competitiveness of Korea's broadcasting and communications industry, and in research activities to advance national conformity assessment systems.



Conformity assessment system for ICT equipment

RRA executes a conformity assessment system for broadcasting and communications equipment according to Article 58-2 of the "Radio Waves Act." Certification is divided into three types: conformity certification, conformity registration, and interim certification. Those who want to manufacture, sell, or import broadcasting and communication equipment should obtain the certification related to the corresponding equipment.

Conformity Certification

Equipment which may harm the radio environment and broadcasting communications network or may give important electromagnetic interference, or may be affected by electromagnetic fields as much as normal motion is interfered. (e.g. Wireless telephones with an alarm automatic receiver, radar equipment for ship stations, radio equipment for LTE mobile communication, etc.)

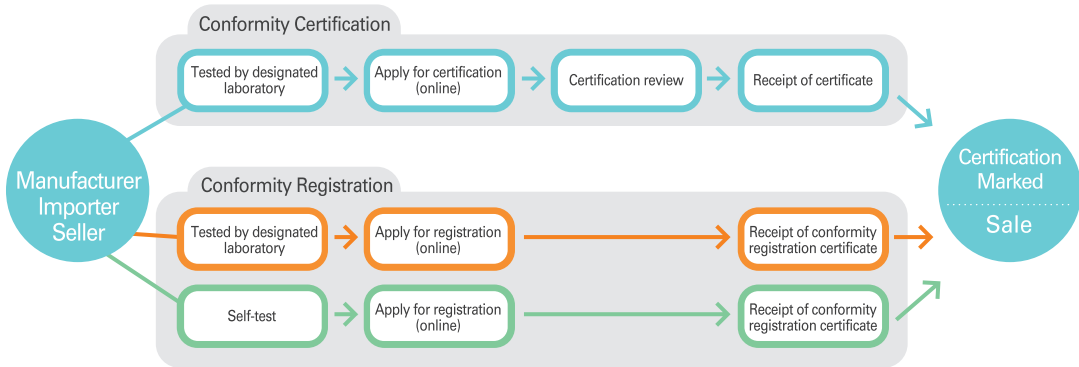
Conformity Registration

In cases where broadcasting or communications equipment, not subject to conformity certification, is manufactured, sold, or imported. (e.g. Computing devices and peripherals, broadcasting set-top boxes, measuring instruments, industrial devices, connectors, etc.)

Interim Certification

In cases where there are no conformity assessment standards for broadcasting or communications equipment, or conformity assessment is difficult for other reasons.

Procedure for conformity assessment



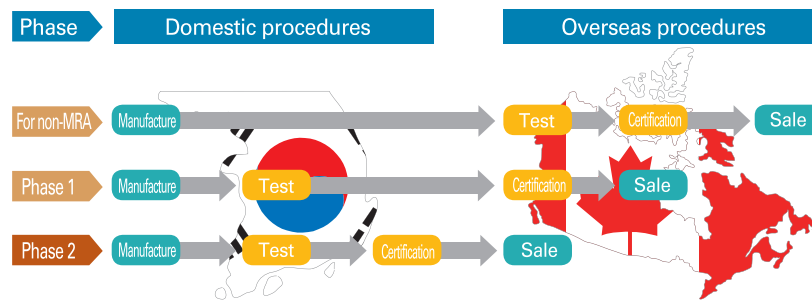
► Designation and management of testing labs

In order to enhance the certification and testing capacity for broadcasting and communications equipment, RRA designates and manages conformity assessment body by auditing whether it has appropriate testing facilities, labor forces, and international standards (ISO/IEC 17025).

At the same time, it makes efforts to reinforce the competitiveness of the laboratories by disclosing information online (scope of testing, testing equipment and any violation of laws, etc.).

► Promotion of a Government-to-Government MRA

RRA supports overseas expansion of Korean broadcasting and communications industries by reducing time and cost for certification and testing for broadcasting and ICT equipment. The MRA is government to government arrangement that goes into effect when two or more countries agree to implement its framework.



Current status of MRA

- (Phase 1) US, EU, Vietnam, Chile
- (Phase 1 and 2) Canada
- For more information on MRA, such as the equipment concerned, please visit the RRA website

► Korea-Canada Phase 2 Mutual Recognition Arrangement and implementation

December 2017, RRA entered into phase 2 of the mutual recognition arrangement with Canada. This has been in implementation since June 2019 and contributing to the export of products subject to the conformity assessment.

► The products subject to the conformity assessment under the Korea-Canada Phase 2 Mutual Recognition Arrangement are as below:



Conformity Assessment and Post-market Maintenance for Broadcasting and Communications Equipment

Open Area
Testing Site



The Communication Conformity Assessment Center (CCAC), located in Icheon, Gyeonggi-do, provides a range of conformity assessment services including conformity certification, conformity registration, and interim certification, in accordance with the conformity assessment system for broadcasting and communications equipment, as well as post-market surveillance services including market monitoring and testing of collected products.

Additionally, the center performs the task of calibration inspection on performance of antennas and measuring instruments required for conformity assessment and post-market maintenance.

► Conformity assessment and Canadian IC authorization services

CCAC provides broadcasting and communication equipment conformity certification, conformity registration, and interim certification services and Canadian IC certification services under the implementation of Korea-Canada Phase 2 MRA. Also, it conducts conformity assessment tests for maritime and aviation radio facilities that are related to human safety, while implementing conformity assessment tests for equipment that are difficult to get tested by private testing institutions.



Wired telecom and RF test lab



EIRP chamber



Electromagnetic anechoic chamber

► Conformity assessment for broadcasting and communications equipment

CCAC conducts an inspection to confirm that certified equipment or material has been manufactured, imported or sold in compliance with the standards in place at the time when they obtained the certification, and also carries out post-market maintenance testing and takes administrative measures in the event of violation of law.

► Calibration inspection on performance of antennas and measuring instruments required for conformity assessment

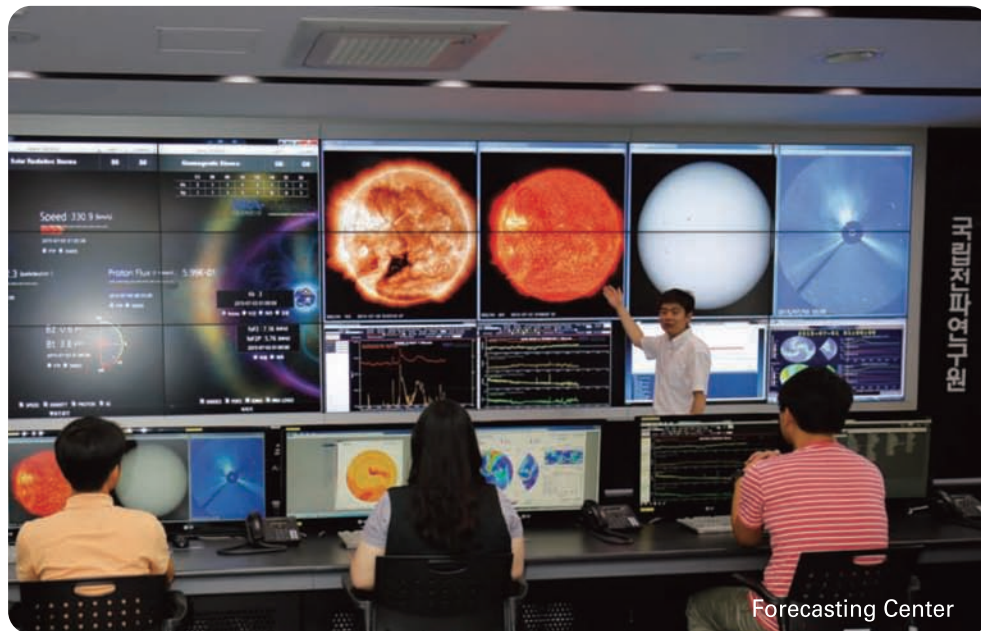
CCAC runs a world-class open area test site for national standards and conducts calibration inspection on performance of measuring instruments and antennas of designated testing laboratories for conformity assessment. By accurately measuring the performance of antennas and other instruments, CCAC provides high reliability.

► Service for radio environment measuring, and technical support for SMEs

CCAC provides the conformity assessment service for testing sites for electromagnetic compatibility assessment, and offers technical support for small and medium-sized enterprises (SMEs) with regard to technologies required to develop new products, such as antenna and EMC measuring.

Space Weather Observation and Forecast & Alert Service

Sudden change in space weather, like solar flares and coronal mass ejection (CME), may have a severe impact on various social infrastructures, such as communications, satellites, aviation, and power grids. The Korean Space Weather Center (KSWC) provides forecast and alert services that give valuable information on solar activity and its potential impact on industries through its accurate observation and fast analysis of solar activity, so that damage caused by space weather can be minimized.



▶ Space weather forecast and alert service

Damage by space weather events has been around for a long time. For example, power grids were damaged in Quebec, Canada in 1989 due to a geomagnetic storm. In 2010, Galaxy 15, one of the U.S. communication satellites, was out of order due to a severe space weather event, which resulted in communication disruption for 8 months.

In order to minimize economic and social damage by space weather events, RRA established the Korean Space Weather Center (KSWC). Since then, KSWC has been accurately monitoring and analyzing solar activity 24 hours a day and predicting possible impacts and providing space weather forecast and alert services for industrial sectors such as broadcasting and communications, satellites, aviation, and power grids.



For information on the space weather forecast and alert service, visit the KSWC website at <http://spaceweather.rra.go.kr>.

▶ Strengthening the domestic and overseas cooperation network on space weather

KSWC is committed to minimizing the damage to our society caused by solar flares through inter-departmental cooperation and industry-academia-institution collaborations, while strengthening preventative measures to respond to space weather disasters.

Furthermore, we have established a close international cooperative network with major nations such as USA (NOAA) and Japan (NICT) and other relevant international institutions in order to develop a forecast model that can predict space weather more accurately and advance forecast and alert techniques. These efforts have enabled the center to effectively manage space weather events like solar flares.



KSWC joining the International Space Environment Service (ISES)

KSWC became the 14th regional warning center (RWC) of the International Space Weather Service (ISES) in November, 2011. As an RWC member of ISES representing Korea, KSWC is on official duty defined by ISES, including collecting space weather observation data, exchanging observation data and analyzed information with warning centers of other countries, and providing space weather forecast and alert services in Korea.

National Radio Research Agency is Always with You.

We are committed to ensuring good broadcasting and communications services benefit all people safely. For more information, such as reports of research projects and civil complaints regarding certification for broadcasting or communications equipment, please visit the RAA's official website.

www.rra.go.kr