

Radio Approval Regulations in Japan

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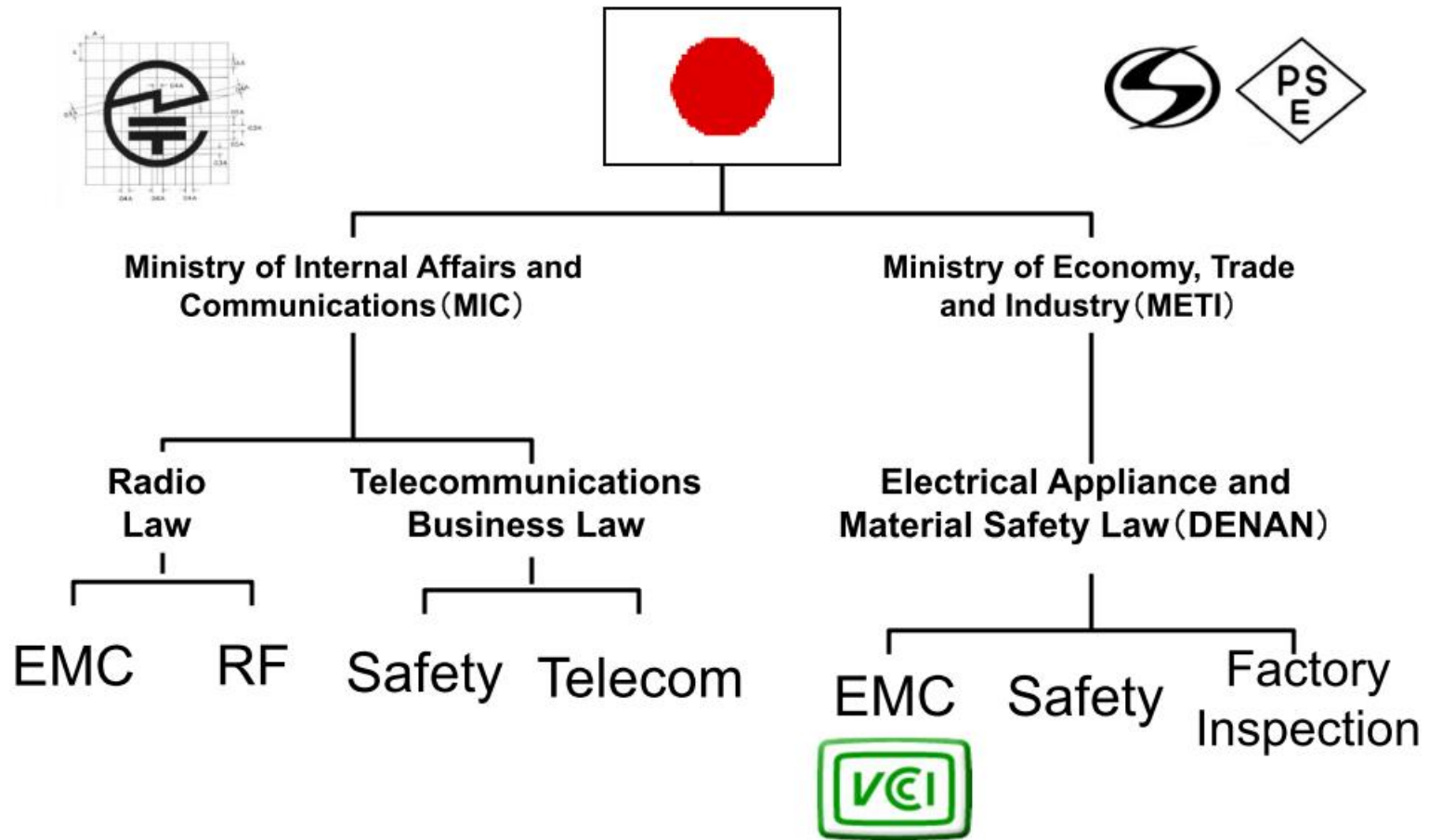
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Introduction



Introduction

	Radio Equipment	Terminal Equipment
Law	Radio Law	Telecommunications Business Law
Law supplement	Regulations for Enforcement of the Radio Act	Regulations for Enforcement of the Telecommunications Business Law
Technical Requirement	Ordinance Regulating Radio Equipment	Ordinance Concerning Terminal Facilities Etc.
Conformance certification procedure	Ordinance concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment	Rules Concerning the Technical Conditions Compliance Approval for Terminal Equipment



Legislative documents

- Radio Law (Law No. 131, 2 May 1950).
- This document contains the general provisions and requirements for radio equipment intended for use in Japan.
- A tentative but outdated English translation in PDF format may be found in section 5 on the MIC Radio Use website at:
<https://www.tele.soumu.go.jp/e/sys/equ/tech/index.htm>
- A bilingual 2014 version of the Radio Law may be found here (the English translation is tentative):
<https://www.japaneselawtranslation.go.jp/ja/laws/view/3205>
- A bilingual version of the latest version of the Radio Law with 2022/2023 amendments may be found here (the English translation is tentative):
<https://www.japaneselawtranslation.go.jp/ja/laws/view/4510>
- Official consolidated version, effective as of 16 June 2023 (in Japanese only):
https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=325AC0000000131



Legislative documents

- Radio Law Enforcement Regulations (Radio Regulatory Commission Regulations No. 14, 30 November 1950).
- This document contains general provisions and requirements for radio equipment intended for use in Japan in addition to the Radio Law.
- Official consolidated version, effective as of 25 December 2023 (in Japanese only):
https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=325M50080000014



Legislative documents

- Ordinance Regulating Radio Equipment (Radio Regulatory Commission Regulations No. 18, 30 November 1950).
- This document contains the detailed technical requirements for the various classes of radio equipment
- A tentative but outdated English translation in PDF format may be found in section 5 on the MIC Radio Use website at:
<https://www.tele.soumu.go.jp/e/sys/equ/tech/index.htm>
- Official consolidated version, effective as of 22 December 2023 (in Japanese only):
https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=325M50080000018



Legislative documents

- Rules Concerning Technical Regulations Conformity Certification of Specified Radio Equipment (Ministerial Ordinance No. 37, 21 November 1981).
- This document contains frequency use information and general requirements for the various classes of radio equipment.
- A tentative but outdated English translation in PDF format may be found in section 5 on the MIC Radio Use website at:
<https://www.tele.soumu.go.jp/e/sys/equ/tech/index.htm>
- A bilingual 2013 version of the Radio Law may be found here (the English translation is tentative):
<https://www.japaneselawtranslation.go.jp/en/laws/view/2610>
- Official consolidated version, effective as of 22 December 2023 (in Japanese only):
https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=356M50001000037



Legislative documents

- Test methods (MIC Notice 88, 26 January 2004, appendix to Ministry of Posts and Telecommunications Ordinance No. 37, 21 November 1981).
- These documents contain the test methods for the various classes of radio equipment.
- The documents containing the test methods for the various classes of radio equipment are available at (in Japanese only):
<http://www.tele.soumu.go.jp/j/sys/equ/tech/test/index.htm>



Legislative documents

- Temporary test methods.
- These documents are developed for the Radio Law by certification bodies in Japan in order to keep up with changes in technology.
- Links to these documents are published on the MIC website.
- Only available in the Japanese language.
- The temporary test methods for various classes of radio equipment are available at:

<https://www.tele.soumu.go.jp/j/ref/material/test/rinji/index.htm>



Certification system Radio Law

- Certification systems
 - Technical Regulations Conformity Certification (Article 38-2-2).
 - Type or test certification
 - Designated certification bodies / authorized inspection companies (designated and authorized by MIC or designated and authorized under a MRA).
 - Technical Regulations Self-confirmation (Article 38-33).
 - Authorized inspection companies carried out testing
 - Being an authorized inspection company enables a manufacturer to perform testing and measurements itself.



Certification system Radio Law

- Repair services
 - Only authorized (by MIC)/registered (at MIC) repair service companies can repair radio equipment without voiding the existing certification.
 - When repairs are carried out on certified radio equipment by unauthorized or non-registered repair service companies then this will result in radio equipment which MIC considers as no longer being certified.



Types of radio equipment

- Japan divides radio equipment into three main categories.
- Specified Radio Equipment specified in Article 38-2, paragraph 1, item 1 of the Radio Law: license-free (low power) stations, 32 classes. Type 1: 27 classes. Type 4 (special specified radio equipment): 5 classes.
- Specified Radio Equipment specified in Article 38-2, paragraph 1, item 2 of the Radio Law: licensed stations (blanket license), 56 classes. Type 2: 34 classes. Type 4 (special specified radio equipment): 22 classes.
- Specified Radio Equipment specified in Article 38-2, paragraph 1, item 3 of the Radio Law: licensed stations, 123 classes. Type 3: 123 classes. Type 4 (special specified radio equipment): 0 classes.
- Some classes of Type 1 and Type 2 radio equipment when combined with a class of Type 4 radio equipment in the same housing will become Type 4 radio equipment. The list of the three main categories on the link below indicates these classes with an *.
- The list of the three main categories of radio equipment may be found at (in Japanese): <https://www.tele.soumu.go.jp/j/sys/equ/tech/type/index.htm>
- Each type of radio equipment (class) within a main category has its own “category code”.

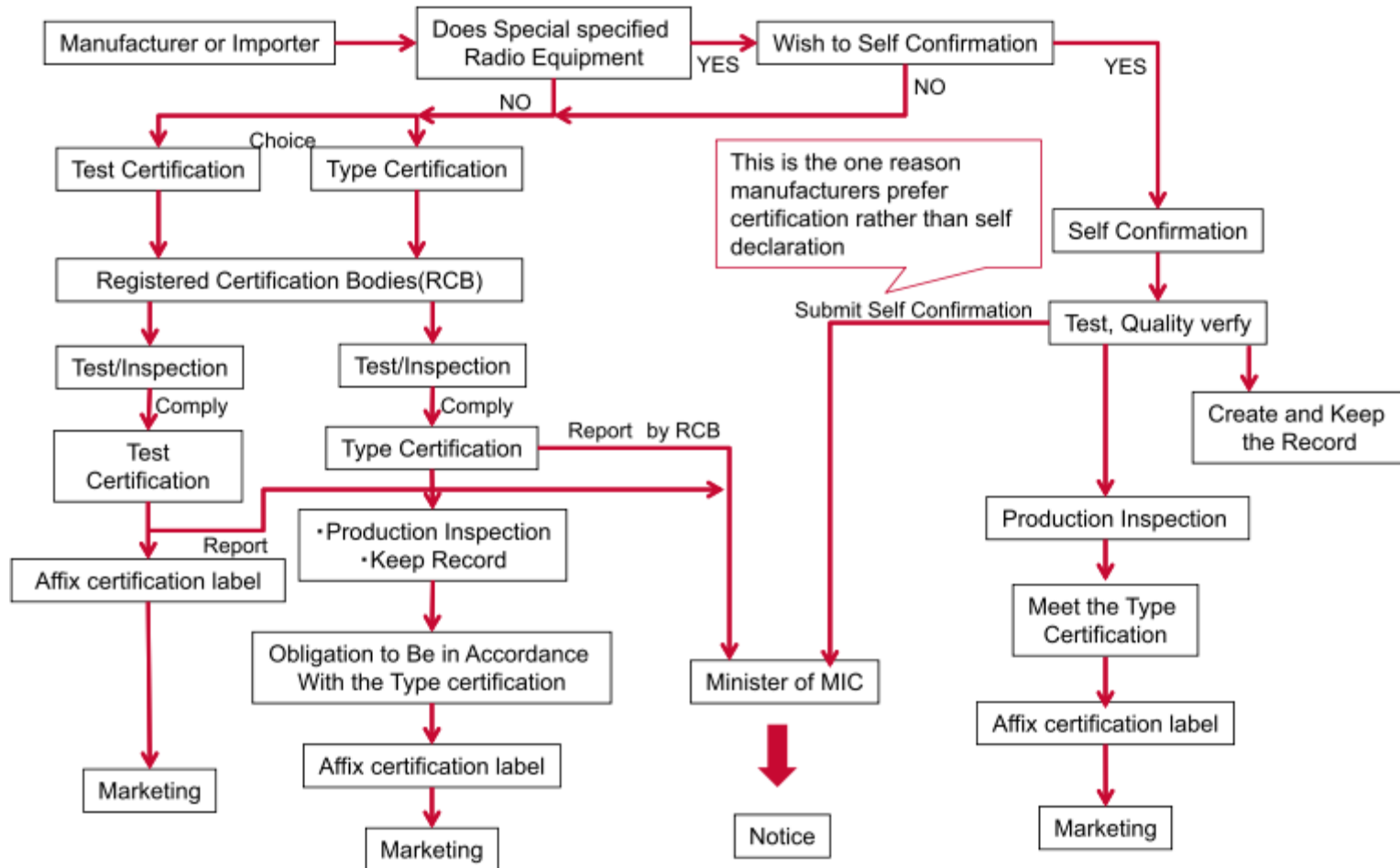


Types of radio equipment

- Unlicensed radio equipment
 - Does not require a license to operate.
 - Extremely low power equipment - certification is not required (self-declaration of conformity).
 - Specified radio equipment (license-free) Type 1 - certification is required.
- Licensed radio equipment
 - Specified radio equipment (blanket license) Type 2 - certification is required. Applies to cellular and similar devices.
 - Other specified radio equipment (licensed) Type 3 - certification is required.
 - Special specified radio equipment Type 4 - “self-certification” is allowed. Applies to cellular and similar devices.
- Note: using the “self-certification” option requires an authorization of MIC and it requires interaction with MIC because radio equipment which has been “self-certified” needs to be notified to MIC by the manufacturer/certificate holder.



Types of certification schemes



Type certification

- A sample of the radio equipment will need to be tested.
- An application will need to be submitted to a certification body having the appropriate scope.
- When the certification body deems the radio equipment compliant with the requirements of the Radio Law (based on the submitted documentation) then the certification body will issue a certificate and a certification number.
- The certification number is valid for all radio equipment which are manufactured in mass-production.
- The Japanese certification mark (GITEKI mark) and certificate number needs to be affixed to each individual radio equipment.
- The certificate holder remains responsible for the continued compliance of each manufactured radio equipment in mass-production.
- The certificate holder must keep the documentation of the certified radio equipment for a period of 10 years.



Test certification

- Test certification can be applied to batches of radio equipment which are produced in limited quantities or are produced just once.
- The number of samples which need to be tested depends on the number of radio equipment for which certification is required/requested:

Table: Number of Sampling Unit

Number of units applied	Number of sampling units
1~ 2	All units
3~ 15	2
16~ 25	2
26~ 50	3
51~ 90	5
91~ 150	8
151~ 280	13
281~ 500	20

Sampling is performed according to JIS Z 9015: Sampling procedures for inspection by attributes.



Test certification

- Not every sample needs to be tested in full in case a larger number of samples need to be tested. However, the total number of tests on the total number of samples need to demonstrate that every radio equipment within the batch will meet the requirements of the Radio Law.
- An application will need to be submitted to a certification body.
- When the certification body deems the radio equipment compliant with the requirements of the Radio Law (based on the submitted documentation) then the certification body will issue a certificate and a certification number for each individual radio equipment in the batch which was (sample) tested.
- Each individual radio equipment in the batch must be labeled with the certification mark (GITEKI mark) and a unique certificate number.
- The certificate holder must keep the documentation of the certified radio equipment for a period of 10 years.



Experimental/temporary license

- Experimental or temporary licenses intended to enable manufacturers have radio equipment (prototypes, demonstration products, etc.) evaluated by customers or others, or use such products for demonstration purposes, prior to certification do not exist in Japan by default.
- It is not illegal to import radio equipment into Japan which has not been certified (yet). It is, however, illegal to use such radio equipment which has not been certified (yet).
- The only possibilities in this case are either test certification or type certification. In both cases the radio equipment does need to comply with the requirements of the Radio Law.
- An exemption exists for the temporary use of FCC/CE compliant portable Wi-Fi and Bluetooth radio equipment when visiting Japan for a maximum of 90 days.



Extremely low power regulation

- Certain radio equipment does not need to be certified for use in Japan. The requirement is that all radiated emissions of the radio equipment (including the fundamental emission) remain below the “extremely low power” regulation limits:

<http://www.tele.soumu.go.jp/e/ref/material/rule/index.htm> (English)

or

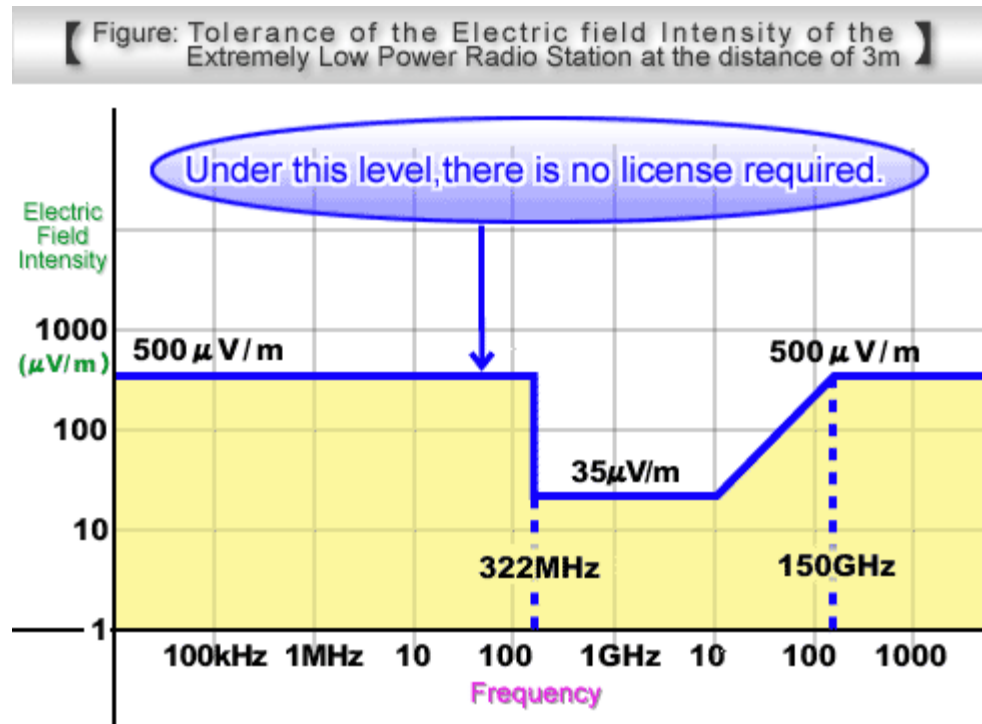
<http://www.tele.soumu.go.jp/j/ref/material/rule/index.htm> (Japanese)

- This regulation may also be used for RF-ID equipment and other (inductive) radio equipment operating below 30 MHz.



Extremely low power regulation

- “Extremely low power” regulation limits:



Extremely low power regulation

- The limit as specified in the “extremely low power” regulation is, or appears to be, quite low.
- However, the Ministry of Posts and Telecommunications Notification No.: 127 (25 February 1988), and its amendments, allows, or actually requires, the application of a correction factor to field strength levels measured up to a frequency of 15 MHz.
- The correction factor is defined as $24 - (20 * \log (f))$ dB, where f is the frequency in MHz.
- This correction factor is essentially an attempt to convert field strength levels which have been measured while using a loop antenna which has been calibrated for use in the far field region to equivalent field strength values in the near field (since the measurement distance in the “extremely low power” regulation is defined as being 3 meters).



Extremely low power regulation

Extremely low power regulation + MIC Notice 127/172 (test method)					
Frequency (KHz)	Limit ($\mu\text{V}/\text{m}$ @ 3m)	Limit ($\text{dB}\mu\text{V}/\text{m}$ @ 3m)	Notice 127/172 correction factor ($24-20\log(f)$) (dB)	Limit+factor ($\text{dB}\mu\text{V}/\text{m}$ @ 3m)	
10	500.00	53.98	-64.00	117.98	
20	500.00	53.98	-57.98	111.96	
30	500.00	53.98	-54.46	108.44	
40	500.00	53.98	-51.96	105.94	
50	500.00	53.98	-50.02	104.00	
60	500.00	53.98	-48.44	102.42	
70	500.00	53.98	-47.10	101.08	
80	500.00	53.98	-45.94	99.92	
90	500.00	53.98	-44.92	98.89	
100	500.00	53.98	-44.00	97.98	
110	500.00	53.98	-43.17	97.15	
120	500.00	53.98	-42.42	96.40	
130	500.00	53.98	-41.72	95.70	
140	500.00	53.98	-41.08	95.06	
150	500.00	53.98	-40.48	94.46	
160	500.00	53.98	-39.92	93.90	
170	500.00	53.98	-39.39	93.37	
180	500.00	53.98	-38.89	92.87	
190	500.00	53.98	-38.42	92.40	
200	500.00	53.98	-37.98	91.96	
205	500.00	53.98	-37.76	91.74	
210	500.00	53.98	-37.56	91.54	
220	500.00	53.98	-37.15	91.13	
230	500.00	53.98	-36.77	90.74	
240	500.00	53.98	-36.40	90.38	
250	500.00	53.98	-36.04	90.02	
13560	500.00	53.98	-1.35	55.33	



Other extremely low power radio equipment

- Other types of radio equipment for which no certification is required are certain types of radio equipment of which MIC in Japan has published a specific list and for which no certification is required when the field strength of the RF carrier is equal to, or below, 200 $\mu\text{V}/\text{m}$ (46 $\text{dB}\mu\text{V}/\text{m}$) at a distance of 500 meters.



Other extremely low power radio equipment

- Examples of such radio equipment are:

1. For microphone and radio transmitter for radio controller:

Frequency	Designator	Occupied Bandwidth
27.12 MHz	A1D, A2D, A3E, F1D, F2D, F3D, F3E	± 162.72 kHz
40.68 MHz	A3E, F3E	± 20.34 kHz

2. Transmitter for radio controller:

Frequency	Designator	Channel	Reference
40.61-40.75 MHz	A1D,A2D,F1D,F2D,F3D	Every 0.02 MHz: 8ch	Other than model airplane
40.77-40.85 MHz 72.13-72.21 MHz 72.79-72.87 MHz	A1D,A2D,F1D,F2D,F3D	Every 0.02 MHz: 5ch Every 0.02 MHz: 5ch Every 0.02 MHz: 5ch	For model airplane
73.22-73.24 MHz	F1D,F2D, F3D	Every 0.02 MHz: 2ch	Other than model airplane but for industries
73.26-73.32 MHz	F1D,F2D,F3D	Every 0.02 MHz: 4ch	For industrial model airplane



Inductive RF-ID equipment

- RF-ID equipment, e.g. operating on 13.56 MHz, and which exceeds the limits of the “extremely low power” regulation needs to be tested after which the RF-ID equipment needs to be registered at, or notified to, MIC in Japan.
- The registration/notification process of MIC in Japan in such cases requires the presence of a local representative in Japan who will be the “registration holder”.
- The RF-ID equipment needs to be marked with the registration number which will be provided by MIC in Japan.
- The applicable regulation is found in the Radio Law, Article 100, section 1 (equipment using high frequency).



Receive only radio equipment

- Radio Law Article 2 (Definitions)
- (iv) "Radio equipment" means radiotelegraphy, radiotelephony, or any other electric equipment used for transmission and/or reception of radio waves.
- (v) "Radio station" means a unit of radio equipment with the person(s) to operate the radio equipment.
- However, the definition of "radio station" shall not include those used solely for receiving purposes.
- Therefore, receive only radio equipment is not a "Radio Station", so it is excluded from Regulations for Enforcement of the Radio Act and as such is exempted from certification. However, it is specified in the Ordinance Regulating Radio Equipment.



Receive only radio equipment

- Ordinance Regulating Radio Equipment:
 - Article 24. The limit on secondary emissions radiated from the receiving equipment prescribed in Article 29 of the Law within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW or lower as measured using the circuit.

NOTE:

secondary emissions = receiver spurious emissions



Common requirements Radio Law

- Basic requirements are to be found in the Ordinance concerning Technical Regulations Conformity Certification of Specified Radio Equipment.
- Article 5: Frequency tolerance.
- Article 6: Occupied bandwidth (99% bandwidth).
- Article 7: Spurious and unwanted emissions.
- Article 14: Tolerance on antenna power.
 - The applicant must state the “rated antenna power” (specification or design value) on the application form.
 - The measured antenna power value must be, depending on the class of radio equipment, within -80 % / +20 % or -50% / +50% of the “rated antenna power” value in case the “rated antenna power” value equals the limit for antenna power. For some classes of radio equipment there is no lower limit requirement (anymore).



Common requirements Radio Law

- Article 15: Condition for frequency stabilization.
 - Article 15-1 requires that all testing must also be performed with a variation of $\pm 10\%$ of the nominal supply voltage.
 - Testing at $\pm 10\%$ of the nominal supply voltage is not required when the radio equipment incorporates an onboard voltage regulator of which the DC output voltage remains within $\pm 1\%$ of the nominal DC output voltage when the supply voltage of the radio equipment is varied by $\pm 10\%$.
 - In case it has been verified that the DC output voltage of the onboard voltage regulator (if present) remains within $\pm 1\%$ of the nominal DC output voltage then a statement to that effect must be included in the test report.
 - It is possible to deviate from the $\pm 10\%$ requirement in case the supply voltage of the radio equipment may range between tighter limits.



Common requirements Radio Law

- As an example, the DC output voltage of a USB bus typically may range between 4.75 – 5.25 Volts DC. In such a case the $\pm 10\%$ requirement may be adjusted to $\pm 5\%$.
- In case of a device which is supplied by a battery; the typical variation in the input voltage ranges between the cut-off voltage of the battery and the maximum voltage which may be generated by the battery (instead of $\pm 10\%$ of the nominal battery voltage).
- However, if the device contains a regulator to which the battery is connected and the output voltage of the regulator remains within $\pm 1\%$ of the nominal output voltage of the regulator when the input voltage of the regulator is varied between the cut-off voltage and maximum voltage of the battery then only testing at the nominal battery voltage is required.



Common requirements Radio Law

- Article 24: Secondary emissions (receiver spurious emissions).
- Article 9-4: Interference prevention function.
 - The interference prevention function is sometimes mistaken for a carrier sense mechanism. The interference prevention function consists of the requirement that the transmitter must be able to transmit/receiver ID codes in order to authorize itself on the radio link.
 - In the case of Bluetooth, WLAN, ZigBee, etc., transceivers the ID code will be 48 bits long.
 - The MAC address of a Bluetooth, WLAN, ZigBee, etc., transceiver is considered to satisfy the interference requirement function (a MAC address consists of 48 bits).



DFS testing (5 GHz bands)

- Japan has their own set of DFS requirements which must be tested for any type of radio equipment which uses the 5 GHz frequency bands as an access point (or, “master” station”), with the exception of access points (or, “master stations”) operating in the 5150-5250 MHz frequency band.
- The requirements and test procedure can be found here (in English):

<https://www.tele.soumu.go.jp/e/sys/equ/tech/5ghz/5ghz.htm>



RF exposure / SAR

- RF exposure regulations, intended to limit the exposure of the general public to RF electromagnetic fields, have been in force since October 1999 for sites (base stations, etc.) where field strength values may exceed the limit values. The basic requirement; put a fence around such sites to prevent the general public from getting too close to the source of the RF electromagnetic fields.
- (Head) SAR: Is a requirement where mobile phones, satellite cellular equipment and broadband wireless access equipment may be operated close to the head. This requirement has been in force since June 2002.
- (Body) SAR: Is a requirement where mobile phones, satellite cellular equipment and broadband wireless access equipment may be operated at a distance closer than 20 cm to the body. This requirement has been in force since April 2014.



RF exposure / SAR

- (Body) SAR: Not a requirement for specified low power radio equipment such as Bluetooth, WLAN, RF-ID, etc., which are operated either stand-alone or in combination with each other.
- (Body) SAR: Is a requirement in those cases where mobile phones, satellite cellular equipment and broadband wireless access equipment is operated in combination with specified low power radio equipment such as Bluetooth, WLAN, RF-ID, etc., and where the radio equipment may be operated at a distance closer than 20 cm to the body. In this case SAR needs to be evaluated under simultaneous transmission modes.
- Radio equipment is exempted from body SAR requirements when the total average output power is equal to, or less than, 20 mW.
- Reference standards are IEC 62209-1 and IEC 62209-2.



RF exposure / SAR

- Guidelines (in Japanese only) regarding body SAR related issues have been published by the Information and Communications Certification Coordination Committee (ICCJ) and are available on the MIC Radio Use website at:

<https://www.tele.soumu.go.jp/j/sys/equ/tech/conference/index.htm>



“Cannot be opened easily”

- The radio equipment shall be housed in a single cabinet and the cabinet cannot be opened easily. The radio equipment must not have an antenna line and an earth connection facility (whether the antenna is included or not may differ for certain specific cases). There are cases where external mounting of the antenna and the separation of the transmitter and receiver are permitted.
- The radio equipment shall be housed in a single cabinet and the cabinet cannot be opened easily. An antenna line and an earth connection facility is permitted but basically all parts of the radio equipment must be enclosed in one enclosure (whether the antenna is included or not may differ for certain specific cases). There are cases where external mounting of the antenna is permitted.
- The cabinet cannot be opened easily. For example; the use of special screws that can not be removed with a normal screwdriver, an enclosure sealed with an adhesive, coating of the RF section etc.



“Cannot be opened easily”

- Some examples of “special” screws:



- The enclosure can be ultrasonically welded, glued, or by using another permanent method such that the device is not intended to be opened.
- For other methods, the applicant must explain how the enclosure can not be opened by the end user and how attempting to open the enclosure would damage the radio equipment.
- If none of the last requirements can be fulfilled, then the key components in the RF/modulation section must be fixed/covered by glue. “Key components” are defined as crystal, VCO, memory, transceiver, base-band circuitry, RF power amplifier, filter or balun, RF switch IC. Any component which is included underneath a fixed shield (no removable cover) has no need to be glued or covered by glue.



Labeling of radio equipment

- The radio equipment must be marked with the certification mark (GITEKI mark) and certification number on an “easily recognizable” part of the radio equipment.
- FYI: GITEKI is an acronym for “Gijutsu kijun tekigō shōmei” (技術基準適合証明), which means “Technical regulations conformity certification”.
- In the case of a mobile phone, and other radio equipment where the certification mark (GITEKI mark) and certification number cannot be placed on the outside of the radio equipment due to practical reasons, the certification mark (GITEKI mark) and certification number may be located inside the battery compartment.
- In case the certification mark (GITEKI mark) and certification number cannot be affixed to the radio equipment because of size restrictions, the certification mark (GITEKI mark) and certification number must be placed in the user manual.



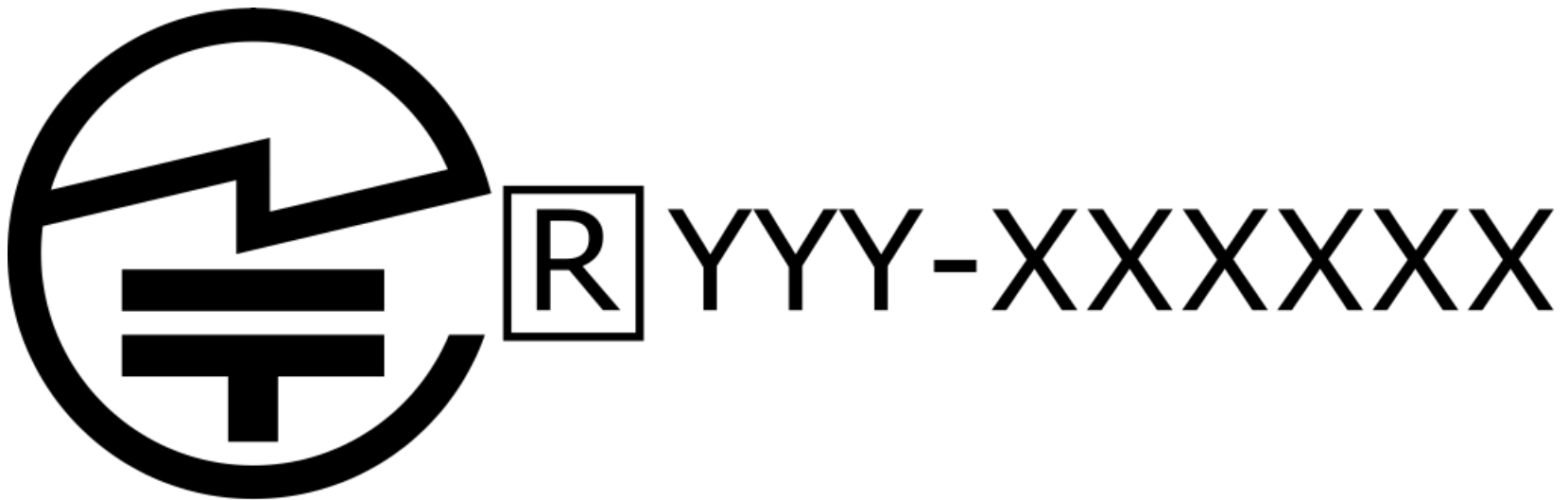
Labeling of radio equipment

- “Electronic labeling” is allowed by the Radio Law in Japan. Electronic labeling can be used with radio equipment having an integrated display.
- As per February 8, 2019; electronic labeling can now also be used with radio equipment without an integrated display but to which an external display can be connected.
- As per February 8, 2019; when electronic labeling is used, and where an external display must be used to display the certification mark (GITEKI mark) and certification number then the certification mark (GITEKI mark) and certification number must be displayed on the external display prior to the (first) activation of the transmitter of the radio equipment. This requirement implies that it is only allowed to connect an external display to the radio equipment by a wired connection.



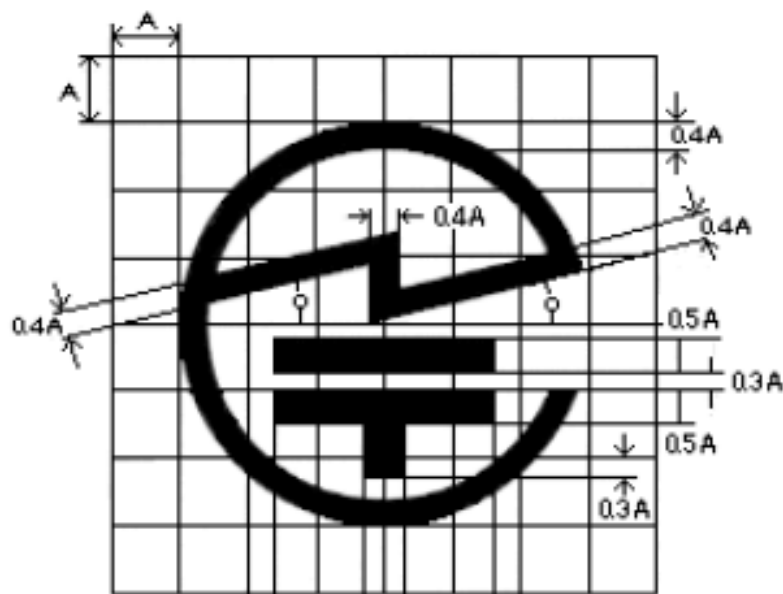
Labeling of radio equipment

- The full certification marking looks like this:



Labeling of radio equipment

- The GITEKI mark can be constructed/drawn as specified below:



Labeling of radio equipment

- The certification mark (GITEKI mark) and certification number must be grouped together, the mark and number must not be located on different locations on the device.
- The certification number has the following format:

Certified Type Number Format

XXX - ABCDEF

ACB's 3 Digit Number CAB ID
assigned by Minister of MIC
(209 for ACB)

Certification Number to be assigned by the CAB.
Up to 6 Arabic digits.



Labeling of radio equipment

- The following is stipulated in the ordinance concerning certification marks (GITEKI marks) (enforced on September 1, 2014 and modified as per February 8, 2019).
- Display the certification mark (GITEKI mark) and certification number in a conspicuous place on certain radio equipment that has been certified in accordance with the requirements of the Radio Law.
- The certification mark (GITEKI mark) must be recognizable but no minimum diameter has been specified as per February 8, 2019 (the previous requirement was that the certification mark (GITEKI mark) needed to have a minimum diameter of 3 mm). No minimum size has been specified for the font used to depict the certification number.
- As for certain radio equipment implanted or temporarily retained in persons or where it is unreasonable to display the certification mark (GITEKI mark) and certification number on the radio equipment (e.g. small hearing aids); the certification mark (GITEKI mark) and certification number may be displayed in a conspicuous place in the user manual and in a conspicuous place on packages or containers.



Labeling of radio equipment

- The following warning notice must be affixed to the certified device in case the device contains transmitters which operate in the 5.15-5.25 GHz and 5.25-5.35 GHz frequency bands. Operation of the radio equipment in these frequency bands is restricted to indoor use only (outdoor operation is allowed for client devices when communicating with a high power 5 GHz base station or relay station):

電波法により5.2/5.3 GHz帯は屋内使用に限ります。

Translation: *“5.2/5.3 GHz band is restricted to indoor use due to the Radio Law.”*

- Or (in case the radio equipment supports just one of the two frequency bands):

電波法により5.2 GHz帯は屋内使用に限ります。

電波法により5.3 GHz帯は屋内使用に限ります。



Modular approval Japan

- A radio module can be certified when tested in a stand-alone configuration in accordance with the full requirements of the Radio Law (although the concept of a “modular approval” does not exist in the Radio Law).
- A radio module **MUST** be certified in combination with at least one antenna. The certificate is only valid for the combination of radio module and antenna(s) as covered by the certificate.
- A certified radio module must be labeled with the certification mark (GITEKI mark) and certification number.
- When certified, the radio module may be integrated in any host equipment without additional testing or certification, except where also certain certified radio modules (e.g. UMTS, LTE, etc.) are integrated in a host product which may be used at a separation distance which is closer than 20 cm to the body (e.g. tablet).
- In such cases the combination of host product and radio module(s) must be tested for the requirements of the body SAR regulation in Japan.



Modular approval Japan

- A new certificate and certification number for the Radio Law is then required to be issued for the combination of host product and radio module(s).
- In such cases the certification body needs to carry out a limited assessment on the combination of host product and radio module(s) where it concerns the RF parameters of the radio module(s).
- The new certificate for the Radio Law will list all the parameters of the radio module(s) which are integrated in the host product and therefore covers the combination of host product and radio module(s) which are integrated in the host product.
- The certification mark (GITEKI mark) and new certification number must be placed on the host product.



Modular approval Japan

- The following is stipulated in the ordinance concerning certification marks (GITEKI marks) (enforced on September 1, 2014 and modified as per February 8, 2019) regarding the labeling of host products with embedded and certified radio modules (excluding products with embedded radio modules which require additional body SAR measurements).
- As per February 8, 2019 it is **no longer mandatory** to affix the certification mark (GITEKI mark) and certification number of an embedded radio module to the host product.
- Choose one of the following methods to **VOLUNTARY** display the certification mark (GITEKI mark) on host products in which radio equipment with the certification mark (GITEKI mark) is embedded:
 - (1) Verify the certification mark (GITEKI mark) and certification number which is attached to radio equipment, which is embedded in host product(s), and display the certification mark (GITEKI mark) and certification number in a conspicuous place on the host product(s).



Modular approval Japan

- (2) Verify the certification mark (GITEKI mark) and certification number which is attached to radio equipment which is embedded in the host product(s) and electronically display the certification mark (GITEKI mark) and certification number on the integrated display of, or on an external display which uses a wired connection to connect to, the host product(s) into which such radio equipment has been embedded.
- It must be noted in the user manual that the certification mark (GITEKI mark) and certification number are electronically displayed and the user manual must describe how the certification mark (GITEKI mark) and certification number can be displayed on the integrated display. In cases where an external display, which uses a wired connection to connect to the host product(s), is used the certification mark (GITEKI mark) and certification number must be displayed on the external display prior to the (first) activation of the transmitter of the radio equipment.



Modular approval Japan

- In addition, it is recommended that the following text is shown on the host product and/or in the user manual to indicate the presence of certified radio modules:

当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。

Translation: “This equipment contains specified radio equipment that has been certified to the Technical Regulation Conformity Certification under the Radio Law.”



Modular approval Japan

- Guidelines (in Japanese only) regarding modular approval related issues have been published by the Information and Communications Certification Coordination Committee (ICCJ) and are available on the MIC Radio Use website at:

<https://www.tele.soumu.go.jp/j/sys/equ/tech/conference/index.htm>



Family approval

- Just as with “modular approvals”, the concept of a “family approval” does not exist in the Radio Law.
- However, it is possible to issue a certificate and certification number for devices having a similar construction and where (limited) differences only exist in the non-intentional radiator part of the device.
- Please note that differences in opinion between certification bodies may exist about what “limited differences” are.



Permissive changes

- A limited number of permissive changes are allowed on certified radio equipment without having to apply for a new certification number.
- For a number of classes of radio equipment it is allowed to make changes in the antenna system of the radio equipment (e.g., adding different antennas).
- It is allowed to replace or substitute components having the same footprint and with equal or better performance.
- Changes in components may not alter the characteristics of the radio equipment.
- There are no changes in the circuit diagram, except for type numbers of components. It is not allowed to replace the radio circuit or chip in certified radio equipment.
- Limited changes in the non-radio part(s) of the radio equipment are allowed.
- Adding a modulation method is allowed in those cases where there is no change in hardware or software of the certified radio equipment.



Permissive changes

- Adding a modulation method in case a software update is required to add the modulation method is only allowed under the control of a telecommunications provider.
- Adding additional frequencies of operation to certified radio equipment by means of a software update is only allowed under the control of a telecommunications provider.
- Ask the certification body for guidance !!
- Spurious emission measurements are always required in case of permissive changes.
- All changes in certified radio equipment require a (partial) assessment by the certification body and require a new release of the certificate.



Permissive changes

- Only the certification body which issued the original certificate can process a permissive change and issue a revised/renewed certificate which includes the permissive change.
- The reason for this is that the certification number contains the identification number of the certification body which certified the radio equipment and issued a certificate for the radio equipment.
- Guidelines (in Japanese only) regarding permissive change related issues have been published by the Information and Communications Certification Coordination Committee (ICCJ) and are available on the MIC Radio Use website at:

<https://www.tele.soumu.go.jp/j/sys/equ/tech/conference/index.htm>



Application documents

- Application form. Note: this must be signed by the CEO of the company (applicant).
- Appropriate “Technical Type Specification Form”
 - Form 1: Land Mobile (PHS, DSRC, 50 GHz convenience radio, etc.).
 - Form 2: Radio Navigation/Radio Location.
 - Form 3: Specified Low Power Devices, CB, Cordless Phones, Special Low Power Radio, LP Security, LP Data, Digital Cordless Phone, Land Mobile station PHS, Land Mobile SDRC, 5 GHz Wireless Access, UWB etc.
 - Form 4: Amateur Radio and 27, 150, 400, 900 MHz.
 - Form 5: Earth Station (fixed and portable).



Application documents

- Authorization letter or POA in case an agent submits the application.
- Quality Management System Declaration and Letter of Quality Control Confirmation Method
(with these letters the manufacturer explains how the quality, relating to the continued compliance of the device with the requirements of the Japanese Radio Law, is controlled for mass-production of the radio device).
- ISO 9001, or equivalent, certificate(s) (must be provided for all involved companies such as applicant, manufacturer and factory when available). In case no ISO certificate(s) is(are) available, and where the company/companies involved do not have a certified quality system, a detailed description of the quality system describing the procedures of how to guarantee the continued compliance of the device with the Japanese Radio Law in mass-production must be submitted.



Application documents

- Construction Protection Confirmation. The applicant has to declare the method(s) to prevent the end user changing the key components of the product.
 - If the housing of the product uses screws, then the type of the screw should be unique. “Unique” is defined as those unable to be opened by tools normally available in the market. A description of these screws should be provided (i.e. exterior view, size, etc.);
 - The housing can be ultrasonically welded, glued, or other permanent method such that the device is not intended to be opened.
 - For other methods, the applicant must explain how the housing can not be opened by the end user and how attempting to would damage the device.
 - If none of the above 3 can be fulfilled, then the key components must be fixed by glue. “Key components” are defined as crystal, VCO, memory, transceiver, base-band circuitry, RF power amplifier, filter or balun, RF switch IC. Any component which is included underneath a fixed shield (no removable cover) has no need to be glued.



Application documents

- Label information. Label information should include label drawing, label location, material of the label, color of the text and background, material of the glue used to affix the label, and size of the label.
- Schematics/circuit diagram (for the whole device).
- Block diagram of the whole device.
- PCB layout and silk screen drawings.
- Exterior photographs of all sides of the devices, including an indication of the dimensions (e.g. by placing a rules next to the device when it is being photographed).
- Interior photographs of the device, including an indication of the dimensions. Both sides of the PCB must be shown. Pictures of the PCB with and without shielding (where applicable) must be submitted.
- Bill of materials / parts list of the whole device.
- Test setup photographs.



Application documents

- Users manual.
- Operational description.
- Antenna information (typically inside the test report, must include the radiation patterns, peak gain values, beam width, photographs and dimensions).
- A report showing compliance to the Radio Law requirements, identify test procedures used, the date the measurements were made, location where measurements were made, the device tested, sample calculations and conversions for comparison with the technical requirements, accreditation status of the test facility. The test report should include, or they can be separately provided, accreditation certificate and scopes when relevant.



Application documents

- The test laboratory does not necessarily need to be accredited. The acceptance of test data is at the discretion of the certification body to which the application for certification is submitted.
- The test report needs to contain calibration information for the measurement equipment which has been used during testing. The calibration interval must be 1 year as prescribed in the Radio Law.
- The calibration of test equipment must be traceable to national standards.



Common oversights

- Using ARIB “standards” for testing may not fully cover the requirements of the Radio Law.
- ARIB “standards” are “unqualified/uncontrolled” documents which may not contain all requirements of the Radio Law.
- ARIB “standards” do not contain test methods.
- Tests are performed without taking the “voltage regulator issue” or “input voltage variation” requirement into account.
- ISO 9001 certificate do, or may, not have an appropriate scope. This requires additional information about the quality system of the applicant, manufacturer and/or factory.



Telecommunications Business Law

- The Telecommunications Business Law, making use of a “standardized” certification system, was enforced on 26 January 2004.
- Certification systems are:
 - Technical Standards Conformity Approval for Terminal Equipment (Telecommunications Business Law Article 53).
 - Can be certified by Minister of MIC / Designated Approval Body.
 - Self-Confirmation of Technical Standards Conformity (Telecommunications Business Law Article 63).
 - Authorized inspection companies carried out testing
 - Being an authorized inspection company enables a manufacturer to perform testing and measurements themselves.



Terminal equipment categories

(1) Telephones to be connected to the equipment for analog telephones or mobile phones, private branch exchange equipment, button telephones, modems, facsimile equipment, and other terminal equipment that is separately notified by the Minister of Internal Affairs and Communications.

(2) Telephones to be connected to the equipment for Internet protocol phones, private branch exchange equipment, button telephones, code converters, facsimile equipment, and other terminal equipment for control

(3) Terminal Equipment to be connected to Internet Protocol Mobile Telephone Facilities

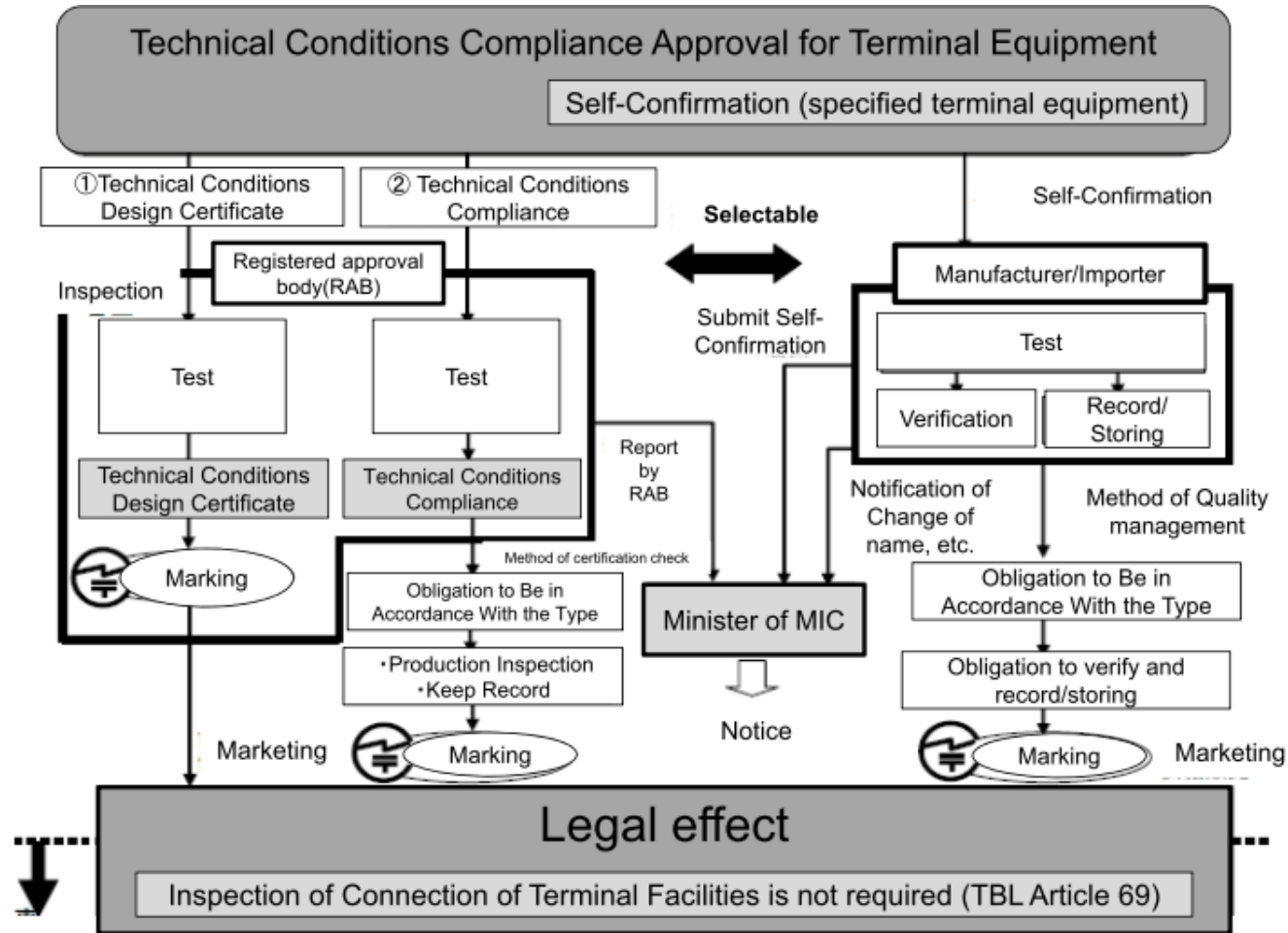
(4) Terminal equipment to be connected to the equipment for radio calling

(5) Terminal equipment to be connected to the equipment for integrated digital communication

(6) Terminal equipment to be connected to the private communication line equipment or the equipment for digital data transmission



Types of certification schemes



Wireless devices as TTE...

According to the Telecommunications Business Law, Ordinance Concerning Terminal Facilities Etc. and Rules Concerning the Technical Conditions Compliance Approval for Terminal Equipment, **regardless of the wired / wireless**, every equipment be connected to the telecommunications carrier (**regardless of the direct / indirect**) is considered as **telecommunications service**. Also, the equipment is **the subject of Telecommunications Business Law**.

If you are unsure of which to determine...

Whether the Information that has been sent transmits through the charge line!

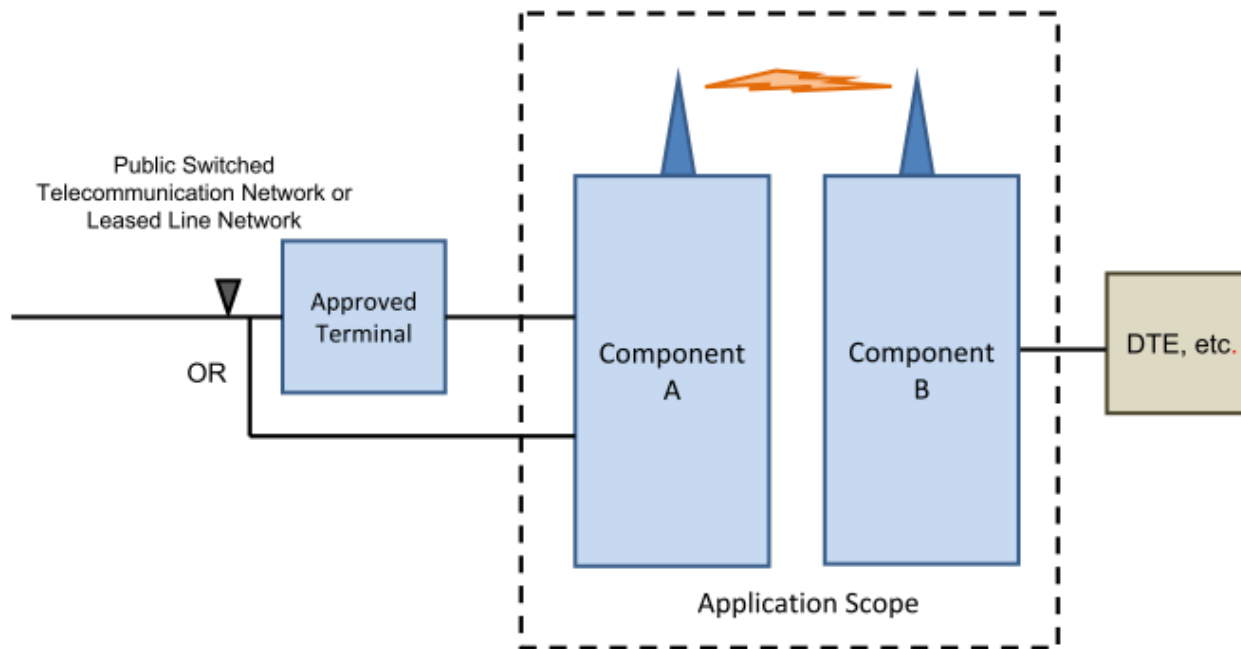
Example	Judgments	Require
Cellular Phone (Normal)	Accounting both Voice and Data	○
PC connected to Access Point	Accounting: basically recognition of ID is required for the connection. (There is a free line, but someone need to pay!)	○
Handset of Cellular Phone	Accounting: Signal(voice) which you are talking	○
VoLTE	Basically charging: Need Provider for internet connection	○
Wireless Microphone	Voice of the microphone is not connected to the public line	×
Wireless Mouse with Bluetooth	Mouse data does not flow through the public line (Only connected to the PC)	×



Wireless devices as TTE...

Scope of the application object on Article 9 (1/3)

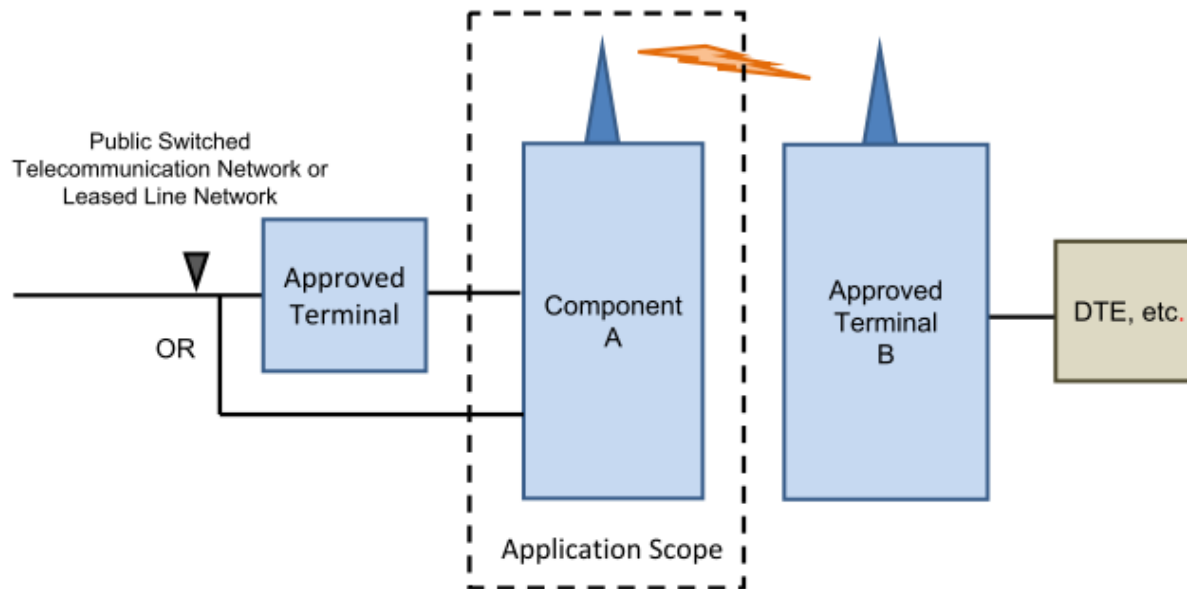
Case 1: General application



Wireless devices as TTE...

Scope of the application object on Article 9 (2/3)

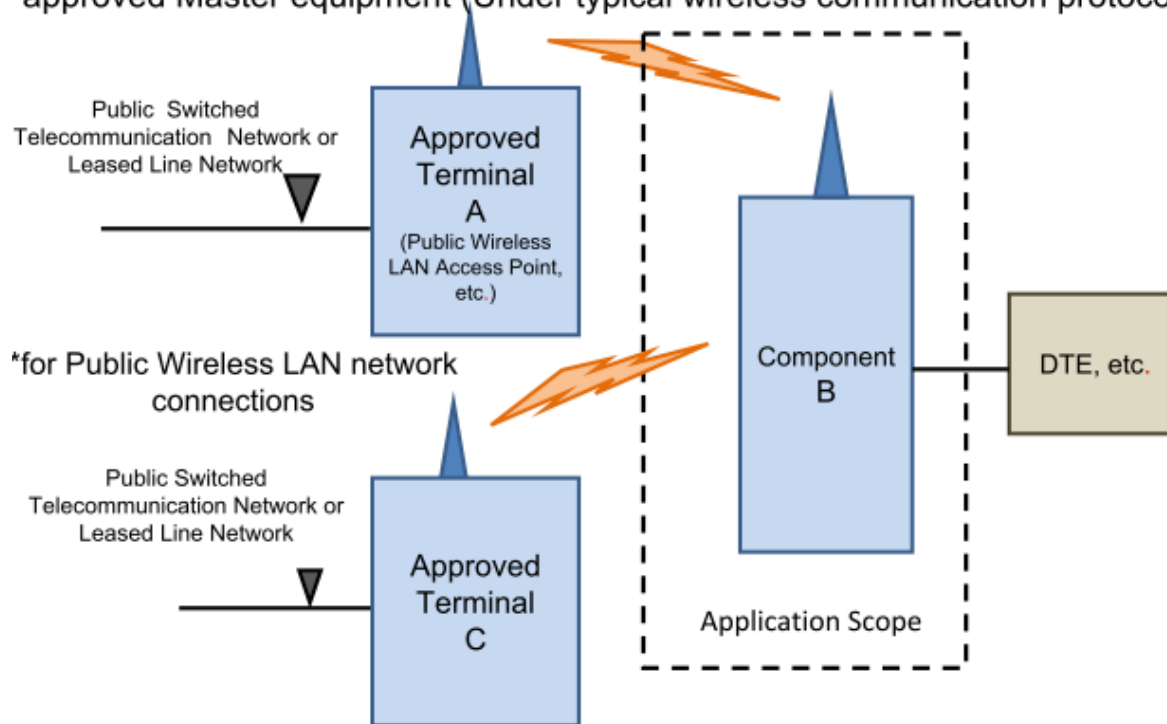
Case 2: In case of Master Terminal (Component A) which connects to the existing approved Client Terminal (Under typical wireless communication protocol)



Wireless devices as TTE...

Scope of the application object on Article 9 (3/3)

Case 3: In case of Client Terminal (component B) which connects to the existing approved Master equipment (Under typical wireless communication protocol)



JATE 財団法人電気通信端末機器審査協会
Japan Approvals Institute for Telecommunications Equipment

JVLATE
Japan Voluntary Laboratory Association for Telecommunication Equipment

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Your Certification Resource

American Certification Body, Inc.

Wireless devices as TTE...

Reference : Ordinance Concerning Terminal Facilities, etc. (Article 9)

Article 9 Terminal equipment that uses radio waves between sections included in the terminal facility must comply with the requirements indicated below.

- 1 An Identification Code (code to identify radio facilities used as terminal facilities and referenced during setting of the communication channel) that conforms to the requirements published separately by the Minister of MIC must be provided.
- 2 This equipment must determine whether the frequency for utilizing electric waves is open or not in accordance with the separately published notice from the Minister of MIC, and must establish a communication channel only when that frequency is open. This stipulation, does not apply to those cases specifically noted by the Minister of MIC.
- 3 The radio facility must be stored in a single cabinet that can not be easily opened. This stipulation, however, does not apply to cases specifically noted otherwise by the Minister of MIC.

*Related Notification: Identification codes and other conditions based on rules of Ordinance Concerning Terminal Facilities, etc. (Article 9 of Ordinance Concerning Terminal Facilities, etc.) :Ministry of Posts and Telecommunications, Notification No. 424 of 1994 (As amended last by Notification No. 537 of December 14, 2011)



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Your Certification Resource

American Certification Body, Inc.

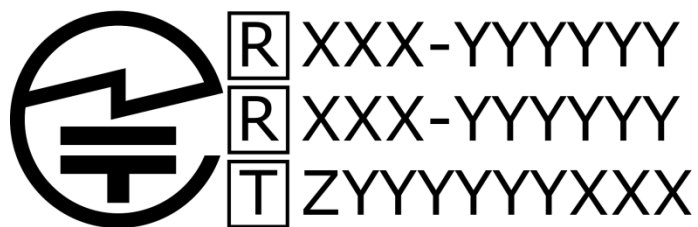
Combined equipment

- TTE equipment and radio equipment containing a TTE part must (also) comply with the requirements of the Telecommunications Business Law.
- Some types of radio equipment which one would usually not consider being TTE equipment also falls within the scope of the Telecommunications Business Law. Examples are Bluetooth headsets intended to be used in combination with a mobile phone and Wi-Fi access points which are used to provide a paid wireless internet service to consumers.



Labeling of combined equipment

- For TTE equipment the same labeling as in the previous slides must be placed on an easily recognizable location of the equipment.
- For TTE equipment the boxed “R” must be replaced by a boxed “T”.
- In case the equipment contains both a radio and TTE part, both certification numbers must be placed adjacent (or next to) the certification mark (GITEKI mark).



Recent updates from MIC

- In 2023 MIC has published a manual for the Technical Regulations Conformity Certification System for Specified Radio Equipment based on the Radio Act.
- A version in English (extract) can be found in section 1 on the following webpage:
<https://www.tele.soumu.go.jp/e/sys/equ/tech/index.htm>
- Direct link to the English version (extract) of the manual:
<https://www.tele.soumu.go.jp/resource/e/equ/tech/scsm.pdf>
- The Japanese version of the manual for the Technical Regulations Conformity Certification System for Specified Radio Equipment based on the Radio Act can be found here:
<https://www.tele.soumu.go.jp/j/sys/equ/tech/manual/index.htm>



Recent updates from MIC

- In 2023 MIC has announced through several publications and presentations that it was considering the acceptance of test results of FCC tests and EU ETSI tests on specific radio equipment for the purpose of certification in Japan.
- The scope of such an acceptance of test results was announced to be considered for Wi-Fi and Bluetooth radio equipment.
- MIC has recently published guidelines regarding European and American standard test data utilization for 2.4GHz wireless LAN, etc
- The guidelines (in English) can be found here (in section 8 at the bottom of the page):
<https://www.tele.soumu.go.jp/e/sys/equ/tech/index.htm>



Recent updates from MIC

- The guidelines and the associated regulation (in Japanese) can be found here:
<https://www.tele.soumu.go.jp/j/sys/equ/tech/manual/index.htm>
- There will be no acceptance of FCC/EU ETSI test results for 5 GHz and 6 GHz Wi-Fi transceivers.
- The use of FCC/EU ETSI test results for Wi-Fi and Bluetooth LE transceivers for the purpose of certification is not exactly straight forward.
- It appears that in the case of Bluetooth Classic (BT-Basic Rate + EDR) any FCC/EU ETSI test results can not be used at all for the purpose of certification.
- On the following slide there is a copy of a slide from a presentation of MIC during the MIC MRA Workshop 2024 relating to the above.



Recent updates from MIC

Test item	2.4GHz Wireless LAN Bluetooth Low Energy		Bluetooth Classic	
	European	US	European	US
Frequency error	NA		Private report	
Occupied bandwidth	European/US standard data			NA
Strength of spurious or unwanted emissions	Conversion is difficult due to differences in base units			
Error of antenna power	European/US standard data			Measurement target is different
Limit of radio waves, etc., of secondary spurious emissions	Conversion is difficult due to differences in base units			
Carrier sense function	European/US standard data (Conditional)	NA		
Transmit antenna absolute gain	Manufacturer specifications			
Angular width of the main radiation of the transmitting antenna	Manufacturer specifications			
Interference prevention function	Private report			
Hopping frequency dwell time			Private report	

NOTE1: Created a simplified version based on the Guideline for Utilization of the US and European standards test data for 2.4GHz wireless LAN and similar technology

NOTE2: NA : No applicable technical standards



Your Certification Resource

American Certification Body, Inc.

Useful links

- MIC Japan Radio Use Website (in the English language)
<http://www.tele.soumu.go.jp/e/>
- MIC Japan Radio Use Website (in Japanese language)
<https://www.tele.soumu.go.jp/index.htm>
- MIC MRA Workshops 2015 - 2024 (available in both the English and Japanese language)
<https://www.tele.soumu.go.jp/j/sys/equ/mra/index.htm>



Questions ?

- Contact information:
 - pieter-at-acbcert.com (replace –at- with @)
 - www.acbcert.com

