Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Conformity Certification to Technical Standard in Japan]
Date Submitted: [Sep. 21, 2011]
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Abstract: [Tutorial presentation on Sep. 21]

Conformity Certification to Technical Standard in Japan

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2011/09/21
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TELEC

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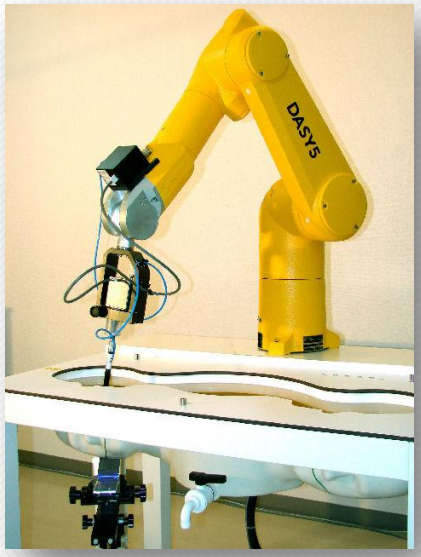
About TELEC

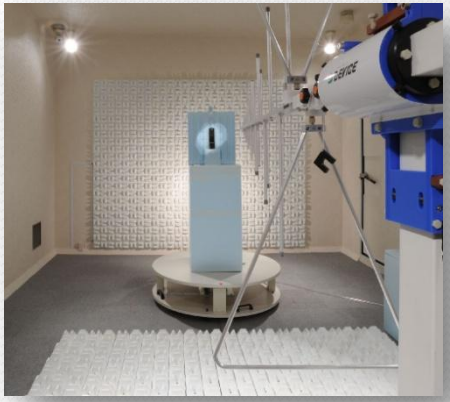
- Technical regulations conformity certification services (Radio Certification)
  - TELEC is a **Registered Certification Body** (RCB) for Specified Radio Equipment
    - Dealing with ALL categories of Specified Radio Equipment
  - Development (establishment) of test method for Radio Certification
  - Technical consulting/ Support for making application document
- Testing of various RF devices
  - GCF Conformance Test* for Cellular phones, W-CDMA/ GSM
  - RFID/ ITE* / Inductive devices
  - SAR*
  - Extremely Low Power Radio equipment
  - Measurement of field strength near by the base station
- EMC testing
  - Emission & Immunity* for radio equipment and ITE and so on
- CE mark testing* and conformity assessment
  - TELEC is a **Notified Body** under the MRA of EU - Japan for R&TTE Directive
- Calibration of measuring instrument*
  - TELEC is a **Designated Calibration Laboratory** under the Radio Law
- **ISO/ IEC17025 accredited*** in some testing scopes
- Support for research and development
- International cooperation

About TELEC

Certification RF test

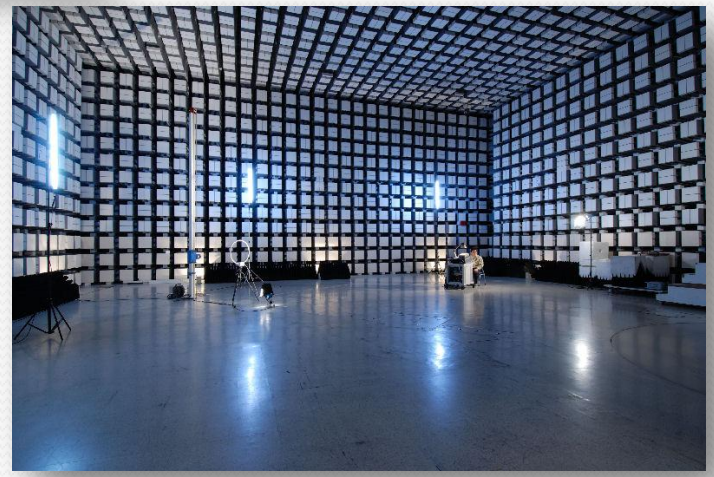
SAR test





RF immunity test

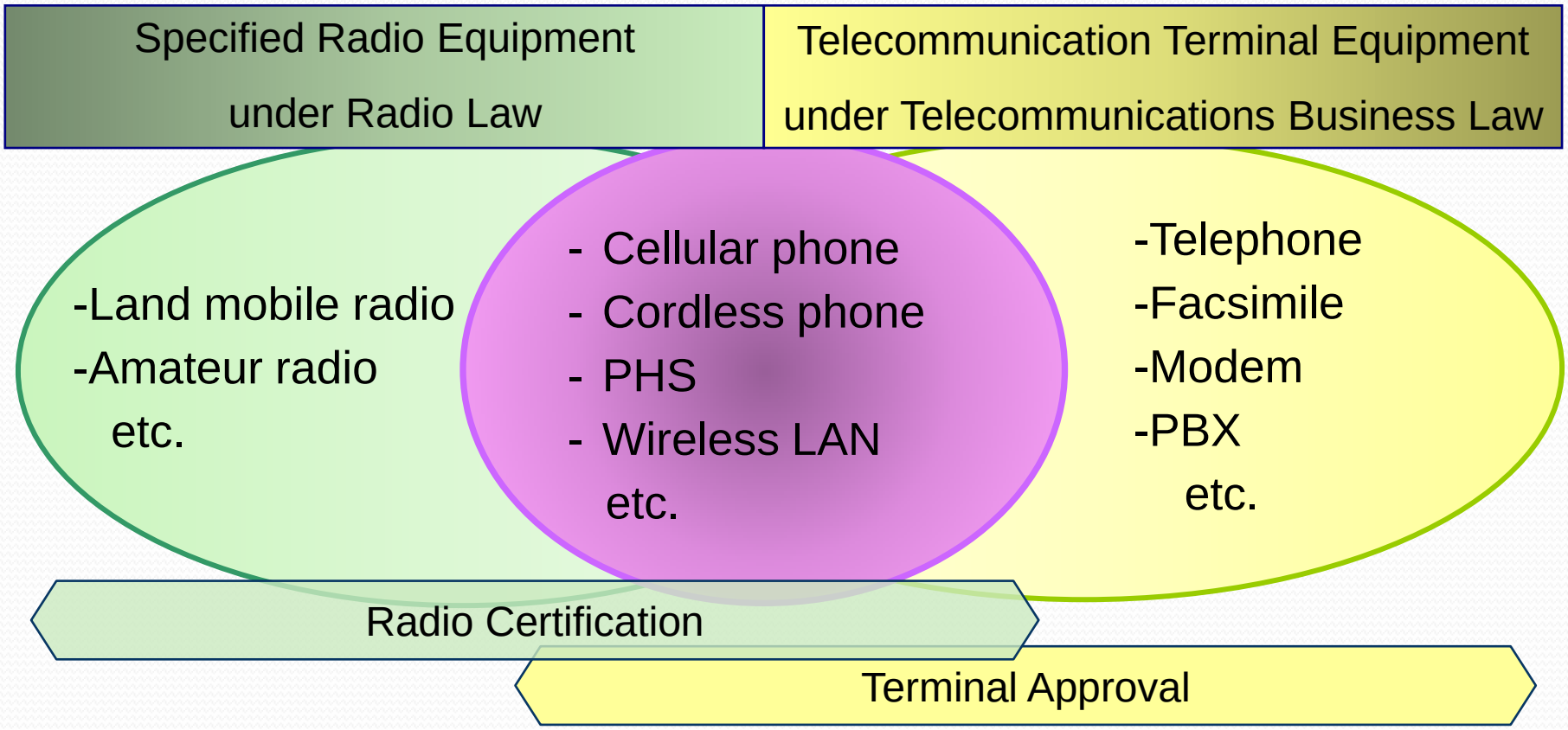
10m anechoic chamber



Technical standard and Certification

Scope of Certification System

Radio Law and Telecommunications Business Law



Legislation

	Radio equipment	Telecommunication terminal equipment
Laws	Radio Law	Telecommunications Business Law
Ordinances regarding Technical Regulations	Ordinance Regulating Radio Equipment	Ordinance Concerning Terminal Equipment etc.
Ordinances regarding Conformity Assessment Procedures	Ordinance concerning Technical Regulations Conformity *Certification (**証明**) of Specified Radio Equipment	Rules Concerning the Technical Conditions Compliance *Approval (**認定**) for Terminal Equipment

Categories in Ordinances

Technology	Frequency band	Radio equipment ordinance article 49-20-**	Certification ordinance article 2-1-**	Code
IEEE 802.11 a	5.2GHz	3	19-3	XW
	5.5GHz	3-2	19-3-2	YW
IEEE 802.11 b	2.4GHz	1	19	WW
IEEE 802.11 g	2.4GHz	1	19	WW
IEEE 802.11 n	2.4GHz	1	19	WW
	5.2GHz	3	19-3	XW
	5.5GHz	3-2	19-3-2	YW
Bluetooth	2.4GHz	1	19	WW
Zigbee	2.4GHz	1	19	WW

2-1-19: 2.4GHz sophisticated low power data transmission system
2-1-19-3: 5GHz low power data transmission system (I)
2-1-19-3-2: 5GHz low power data transmission system (II)

Technical standard comparison

Category		Japan (Radio Law)	USA (FCC)	EU (R&TTE Directive)
Cellular Mobile Phone	2G	Ordinance Regulating Radio Equipment (**無線設備規則**) Article 49-6-2: TDMA	Part 22 H: Cellular Radiotelephone Service Part 24 E: Broadband PCS (GSM, PCS, cdma2000, etc.)	EN 301 511: GSM
	3G	Article 49-6-4: W-CDMA/ cdma2000		EN 301 908: W-CDMA
Wireless LAN/ Bluetooth	**2.4GHz**	**Article 49-20-1/ 2**	**Part 15 subpart C §15.247**	**EN 300 328**
	5GHz	**Article 49-20-3/ 3-2**		**EN 301 893**
Short Range Devices		Article 49-14 etc.	Part 15 subpart C	EN 300 220 EN 300 330 EN 300 440
Private Mobile Radio		F3E/ Digital Article 49-7: MCA (like Trunked System) Article 54-1-1: Convenience Radio	Part 90: Private Land Mobile Radio Part 95: General Mobile Radio Service (GMRS)	EN 300 086: Analogue EN 300 113: Data EN 303 035: TETRA
ITE (Information Technology Equipment)		VCCI Standard (CISPR22) (Voluntary)	Part 15 subpart B	EN 55022

Certification test items

Focused on
W-LAN equipment

- Frequency accuracy
- Occupied bandwidth
- Spurious emissions, conducted
- Output power
- Spreading bandwidth
- Hopping dwell time
- Receiver spurious emission, conducted
- Interference prevention function

Test item comparison

Focused on
W-LAN equipment

Test		Japan (Radio Law)	USA (FCC Rules)	EU (R&TTE Directive)
RF	Radio parameter	- Spreading bandwidth/ Hopping dwell time - Output power - Occupied bandwidth - Frequency accuracy - Interference prevention function - (Antenna gain)	- Frequency hopping and Digital modulation requirement -Maximum conducted RF power - Antenna gain requirement - Out of band emissions - Power spectral density	- Frequency hopping and Direct Spread requirement - Equivalent isotropic radiated power - Maximum EIRP spectral density - Frequency range
EMC	Emission	- Conducted Spurious Emissions - Conducted Receiver Spurious Emissions - (Radiated Emission if permanent integral antenna) - (if ITE then goto VCCI)	- Radiated Emissions	- Transmitter spurious emissions (ERP) - Receiver spurious emissions (ERP)
	Immunity			- RF Radiated/ Conducted Immunity - ESD (Electrostatic Discharge) - Fast Transient Burst - Surge - Transient Surge Vehicle Environment - Voltage Dip & Interruption
Safety	Electrical safety			EN 60950-1
	RF Exposure	SAR (Body SAR is coming soon)	SAR/ Exposure	SAR/ Exposure

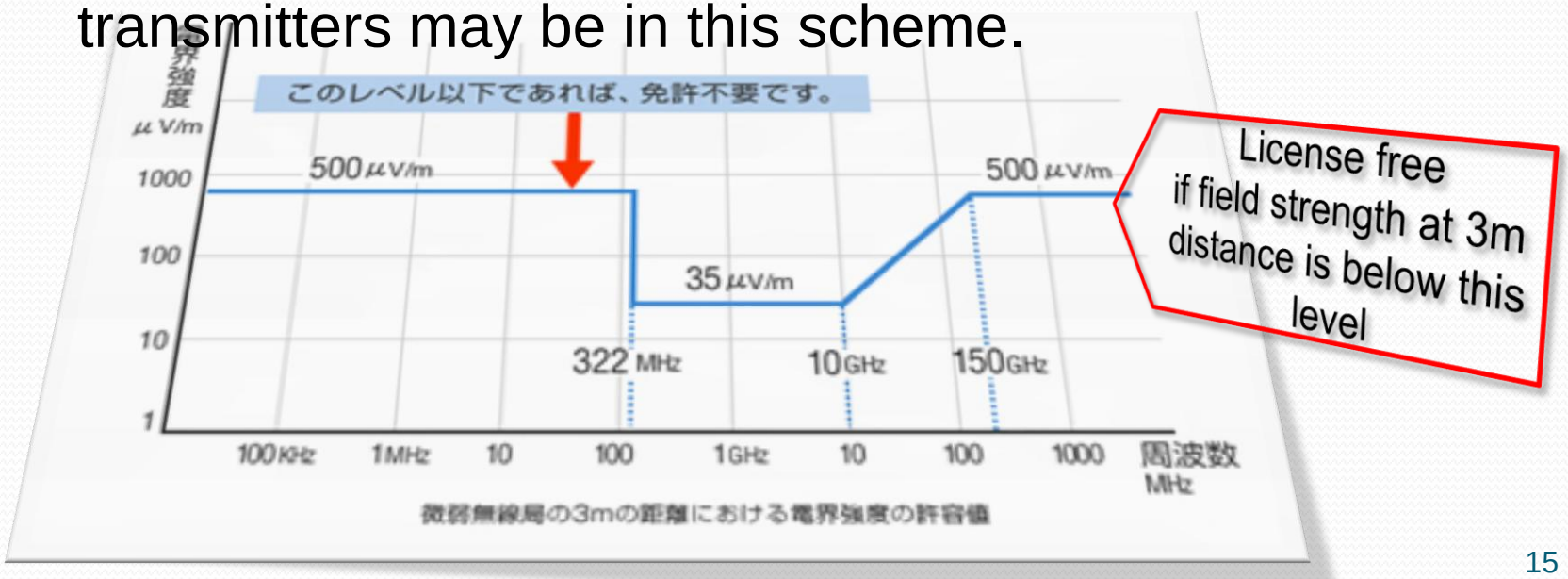
Certification procedure

Categories of Specified Radio Equipment

- Category 1
  - Unlicensed station
    - **Wireless LAN**, **Bluetooth** & low power radio equipment etc.
- Category 2
  - Blanket Licensed station
    - Cellular mobile phone, etc.
- Category 3
  - Licensed station
  - subject to simplified licensing procedure or registration
    - Land Mobile Radio, Base station for Cellular mobile phone,
    - 5GHz-band radio access system base station etc.

Extremely low power radio equipment

- The radio station its transmission power is extremely low are not required license.
- **Out of the scope of Specified Radio Equipment**
  - Various types of equipment such as cordless telephones, wireless microphones and audio FM transmitters may be in this scheme.



Test certification and Type certification

Type certification aims at mass-production models

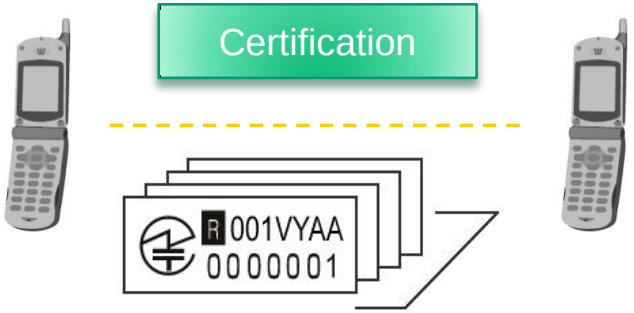
Test certification

Application
e.g. application for 100 devices

Assessment and testing (of 100 units)

Serial no. 1 ---------- Serial no. 100

Certification



Different numbers

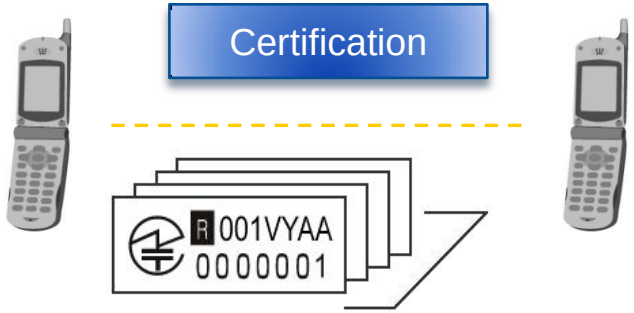
Each device is assigned different certification numbers

Type certification

Application
1 random test sample/ type

Assessment and testing of 1 random device

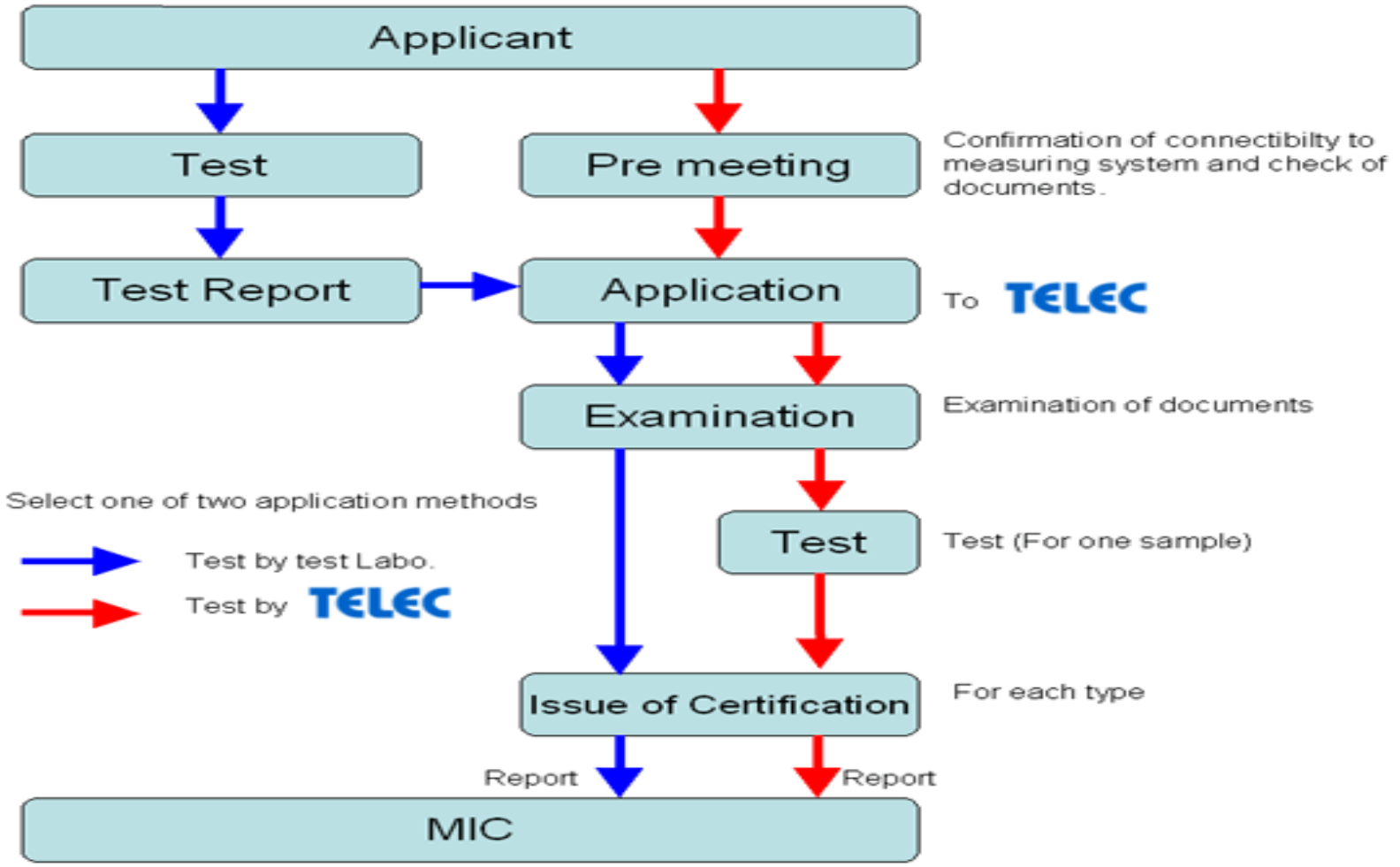
Certification



Same number

Devices have the same certification number on a model

Type Certification flow

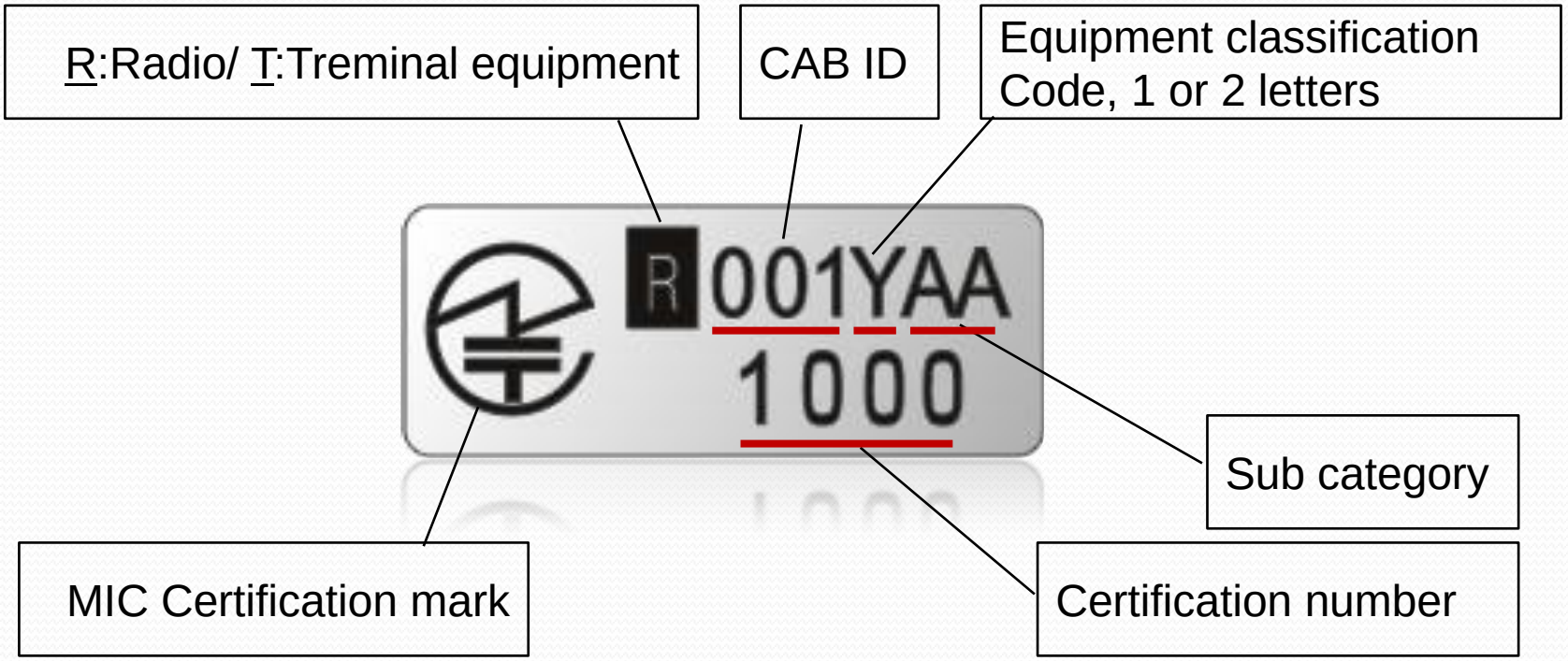


Test data acceptance

- The test result is accepted if the test conducted;
  - In accordance with the test method notified by MIC
  - Using calibrated measuring instruments
  - By qualified test engineer

➢ discretion of the Registered Certification Body

Labeling


R:Radio/ T:Treminal equipment
CAB ID
Equipment classification Code, 1 or 2 letters
R 001YAA
1000
Sub category
MIC Certification mark
Certification number

Grantee's obligation

- The manufacturer or the dealer of the certified radio equipment shall;
  - Make sure the certified equipment continues to comply with the requirement
  - Inspect the equipment according to their confirmation method declared in the Certification
  - Save the record of the inspection

Market Surveillance by MIC

- MIC purchases certified equipment from the market
  - Test their conformity to the technical standards
- If a non-compliant equipment is detected,
- MIC takes actions as follows;
  - Orders supplier to Improve business activities
  - Prohibits supplier from affixing the Certification mark
  - Takes any actions to prevent disturbance or harm caused by the non-compliant equipment

Thank you

Questions to; koshima@telec.or.jp

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