Casestudy of conformity of telecommunications terminal equipment in Japan

Mar. 4th, 2009

Japan Approvals Institute for Telecommunications Equipment

Yasushi Saida
Agenda

- Outline of JATE
- Flowchart from application to approval
- Application documents
- Example of Application for Technical Conditions Compliance Certification under Telecommunications Business Act
- Application form
  - Example of POTS
  - Example of Cellular Phone
  - Example of Router
- Certification Mark and Number
- Certification
- Report to MIC
- Service Charge
- Ratio of certification per country
History

JATE, Japan Approvals Institute for Telecommunications Equipment, was established in 1984 as a neutral and non-profitable organization to ensure the conformity of telecommunications terminal equipment to Public Telecommunications Network, when the Japanese government was proceeding with its Telecommunications reform intending to make its telecommunications market open and competitive.

Since then, JATE has been the biggest institute among the five Registered Bodies for the approval of Telecommunications terminal equipment in Japan, even after the government introduced the Self-Declaration of Conformity System in 2004.

※JATE had approved 24,352 types of equipment from 1985 to September 2007.

And JATE started examination for IPv6 Ready Logo Program in April 2008.

Scope of Activity of JATE

In addition to approving the conformity of tele communications terminal equipment, JATE has been contributing to development, standardization and reliability of telecommunications system through various means such as;
- testing telecommunications terminal equipment upon request and
- publishing lists of approved terminal equipment.
Technical Conditions Compliance

- Technical Conditions Compliance Certification under Telecommunications Business Act
- Technical requirements Compliance Certification under Telecommunication Business Act
- Measurement of terminal equipment to get the required data for compliance certification

Information Security Management System

ISMS Inspections Registration Center
- Inspection for ISMS
- Inspection for ITSMS (Information Telecommunication System Management System)

IPv6 Examination and Testing

IPv6 Certification Center of Japan
- Examination for IPv6 Ready Logo
- Consultation and promotion for IPv6 Ready Logo

Research and Study

- Research and Study
- Seminar, Network facility observation, etc
(1) Application

Attachments
- Brief description of the equipment
- Test results description
- Exterior view drawings
- Schematic diagram of circuit connection
- Block diagram
- Equipment operation manual
- Design Verification

(2) Issue of acceptance notice

(3) Examination of documents
- Examination of design
- Test
- Examination verification method

(4) Notice for certification or rejection

(5) Inspection to coincide with design making inspection record and preservation
- Certification number
- Inspection date and place
- Responsible person of inspection
- Inspection method and results

(6) Indication for certification to equipment

(7) Shipment and sale

Certified Dealer (Applicant)  JATE (Registered approval body)
1. Brief Description of Equipment
   • Outline of terminal equipments included following items is described.
     Name, Use, Composition, Principal functions and Outline of specifications

2. Test Result Description
   • The terminal equipment certified to technical standards is described.
   • Test results and reports are confirmed following.
     i. Tests of Technical standards conformity approval are conducted by using the
        measuring instruments or other equipments which calibration or correction of
        Article 87 paragraph (1) item (i) in Act no.86† has been carried out. Following
        items are listed with measuring instruments used for tests.
        a. Equipment name, b. manufacture name, c. serial number,
        d. date of calibration, e. name of calibration body
     ii. Test results are measured by measuring method specified in the MIC
         notification, or more suitable than that.

3. Exterior View Drawings
   • The exterior view are drawn with the size and the structure.

†: Telecommunications Business Act (Act no. 86 of December 25, 1984)
4. Schematic Diagram of Circuit Connection
• The connection of terminal equipments, other equipments and telecommunications circuit facilities is drawn.

5. Block Diagram
• The functional block diagram of terminal equipments is drawn.

6. Explanatory for handling Instruction and Operation
• Explanation for handling instruction and operation is described.

7. Design Verification
• Confirm method that the terminal equipment is accordance with the type is described. And following items in Appended Table 3 of Act no. 86† are attached.
  a. Quality control organization and its roles and responsibilities
  b. Control method for manufacturing products to be the same design as certified
  c. Inspection process and method
  d. Measuring instrument maintenance
  e. and same information
• If the copy of ISO 9001:2000, TL9000, etc. certificate is attached, omit documents described in items.
To the Chairman of Japan Approvals Institute for Telecommunications Equipment

Applicant's Address: [Provide address]
Applicant’s Name: (Company Name, Representative’s Name)
Name / Title of Responsible Person for Application, Signature:
Phone Number:

In order to obtain Technical Conditions compliance certification for the equipment listed below, we hereby submit this application with its attachments in accordance with:

| Technical Conditions compliance single unit certification, Article 8 regulations |
| Terminal equipment design certification, Article 19 regulations |
| and technical requirements compliance single unit certification / design certification |

### NOTE

<table>
<thead>
<tr>
<th>Equipment Name</th>
<th>Application Type</th>
<th>New Application</th>
<th>Partial Modification Application</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Terminal Equipment to Be Connected to Telephone Lines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone Set</td>
<td></td>
<td>PBX (1 line)</td>
<td></td>
</tr>
<tr>
<td>Modem</td>
<td></td>
<td>PBX (2 or more lines)</td>
<td></td>
</tr>
<tr>
<td>Facsimile</td>
<td></td>
<td>Key Telephone System (1 line)</td>
<td></td>
</tr>
<tr>
<td>Other Terminal Equipment</td>
<td>Key Telephone System (2 or more lines)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wireless Paging Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISDN Terminal Equipment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leased Line Terminal Equipment (1 type of interface)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leased Line Terminal Equipment (2 or more types of interfaces)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Attachment of Test Results got under the conditions described in the right column:

1. Tested by measuring apparatus those are calibrated under conditions specified in paragraph 1, item 2 in Article 87 of Telecommunication Business Act.  
2. Tested by measuring methods those are announced by MPHPT notice No. 99 (Jan. 26, 2004) or those are suitable compared with the announced methods. (See Note. 5)
Application documents in case of Telephone Set 1/3

Terminal Equipment to Be Connected to Telephone Lines (Telephone Set)

Application Form (common Form)
- Application Form for Technical Conditions Compliance Certification
- List of Attachments
- Supplementary Items
- Legal Representative’s Power of Attorney
- Power of Attorney for Application Process Handling
- Description of Partial Modification

Brief Description of Equipment (common Form)
- Brief Description of Equipment

Drawings, Diagram (common Form)
- Exterior View Drawings
- Schematic Diagram of Circuit Connection
- Block Diagram
- Explanatory for handling Instruction and Operation
- Design Verification
Test Result Description of Analog Telephone Terminals’ conformity testing for Technical Conditions / Technical Requirements

Art. 3 Network–Terminal Demarcation
Art. 4 Prohibition of Leaked Signal Detection
Art. 5 Prevention of Causing Singing
Art. 6 Insulation Resistance
Art. 7 Prevention of Excessive Acoustic Shock
Art. 8 Premises Wiring Facilities etc.
Art. 10 Call Control Functions (Common Condition)
Art. 11 Calling Function – Item 1, 2, 3, 4
Art. 12 Address Signal Requirements – Item 1, 2
   see next pages
Art. 13 Electrical Requirements for DC loop – Item 1, 2, 3
Art. 14 Transmitter Power
Art. 15 Crosstalk Attenuation
Art. 16 Special Analog Terminals
Art.12 The address signals generated from analog telephone terminals shall meet the following requirements.

1 Dial pulses shall meet the requirements described in Appendix 1

Appendix 1: Requirements for Dial Pulses (reference to Article 12-1)

1. Number of Dial Pulses
The number of dial pulses shall be the same as the number dialed, except that “0” is considered as ten pulses.

2. Dial Pulse Signals

<table>
<thead>
<tr>
<th>Type of Dial Pulse</th>
<th>Dial Pulse Speed</th>
<th>Dial Pulse Making Ratio</th>
<th>Minimum Pause</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 pps Method</td>
<td>10±1.0pps</td>
<td>30 to 42%</td>
<td>600ms or longer</td>
</tr>
<tr>
<td>20 pps Method</td>
<td>20±1.6pps</td>
<td>30 to 36%</td>
<td>450ms or longer</td>
</tr>
</tbody>
</table>

Note 1. Dial pulse speed means the number of pulses per second (pps).
Note 2. Dial pulse making ratio is derived by the following formula and is defined by the proportion of making time duration in single pulse. 
Dial pulse making ratio = (making time duration / (making time duration + breaking time duration)) * 100%
Note 3. Minimum pause is defined as the possible smallest value for interval time duration between succeeding address numbers by dial pulse signals.

Art.12 The address signals generated from analog telephone terminals shall meet the following requirements.

2 The Push Button dialing signals shall meet the requirements described in Appendix 2

Appendix 2: Requirements for Push Button Dialing Signals (reference to Article 12-2)

<table>
<thead>
<tr>
<th>No. 1. Dialing Number Frequency</th>
<th>No. 2 Other Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dialing Signal</strong></td>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>1 697Hz and 1,209Hz</td>
<td>Signal Frequency Error</td>
</tr>
<tr>
<td>2 697Hz and 1,336Hz</td>
<td>Permissible Range of Power for Signal Output</td>
</tr>
<tr>
<td>3 697Hz and 1,477Hz</td>
<td></td>
</tr>
<tr>
<td>4 770Hz and 1,209Hz</td>
<td>Difference of Power in Two Frequency Groups</td>
</tr>
<tr>
<td>5 770Hz and 1,336Hz</td>
<td></td>
</tr>
<tr>
<td>6 770Hz and 1,477Hz</td>
<td>Signal-On Time</td>
</tr>
<tr>
<td>7 852Hz and 1,209Hz</td>
<td>Minimum Pause</td>
</tr>
<tr>
<td>8 852Hz and 1,336Hz</td>
<td>Cycle Time</td>
</tr>
<tr>
<td>9 852Hz and 1,477Hz</td>
<td></td>
</tr>
</tbody>
</table>

Note 1: The low group frequencies are 697Hz, 770Hz, 852Hz, and 941Hz, and the high group frequencies are 1,209Hz, 1,336Hz, 1,447Hz as well as 1,633Hz.
Note 2: “The Minimum Pause” refers to the least possible interval between succeeding two dialing signals.
Note 3: “The Cycle Time” is the sum of “Signal-On Time” and “Minimum Pause.”
Test Result Description of Mobile Terminal Equipments’ conformity testing for Technical Conditions / Technical Requirements

- Mobile Terminal Equipments : PDC
- Mobile Terminal Equipments : PHS
- Mobile Terminal Equipments : MC(1X)–CDMA
- Mobile Terminal Equipments : DS–CDMA
- Mobile Terminal Equipments : DS–CDMA + HSPA
- Mobile Terminal Equipments : 1xEV–DO
- Equipment connected in down-line of certified Mobile Terminal Equipments
- Mobile Terminal Equipments : Wireless paging system
- Mobile Terminal Equipments : N Star
- Mobile Terminal Equipments : N Star Packet
- Mobile Terminal Equipments : MC(1X)–CDMA + 1xEV–DO
- Mobile Terminal Equipments : Iridium
- Mobile Terminal Equipments : HSPA
- Mobile Terminal Equipments : WiMAX
Application documents in case of Mobile Telephone 2/2

Test Result Description of Mobile Terminal Equipments’ conformity testing for Technical Conditions / Technical Requirements

In case of DS−CDMA + HSPA, MC(1X)−CDMA+1xEV−DO

• Articles of Mobile Terminal Equipment

  Art. 17 Basic functions
  Art. 18 Calling functions
  Art. 19 Transmission timing
  Art. 20 Random access control
  Art. 21 Time alignment control (for PDC only)
  Art. 22 Location registration control
  Art.23 Function for complying with channel switching indication
  Art.24 Function for receiving level reports (excluding PHS)
  Art. 25 Function to comply with the direction to stop transmission
  Art. 26 Function automatically to suspend transmission when the receiving level has become degraded
  Art.27 Function automatically to suspend transmission
  Art.28 Function to ensure important communication
  Art.29 Function to prevent change of inherent information that is part of the mobile telephone terminal information
  Art.30 Signal output power in the part of communications with an analog telephone terminal, etc.
  (for PDC and PHS only)
  Art.31 Crosstalk attenuation
  Art.32 Special mobile telephone terminals

• Articles of Leased Line Terminal Equipment

  D−1 Basic functions
  D−2 Calling functions
  D−3 Transmission timing
  D−4 Random access control
  D−5 Location registration control
  D−6 Function for receiving level reports
  D−7 Function to comply with the direction to stop transmission
  D−8 Function to prevent change of inherent information that is part of equipment information
  D−9(23) Function for complying with channel switching indication
  D−9(26) Function automatically to suspend transmission when the receiving level has become degraded
  D−9(27) Function automatically to suspend transmission
  D−9(28) Function to ensure important communication
Terminals Connected to Leased circuit Facility and Digital Data Transmission Facility
In case of ISO Standard 8802-3 Section 14 (10BASE-T)

(Electrical Requirements)

Article 34–7 The terminal for private circuit facilities, etc. shall comply with either electrical or optical requirements as notified separately by the Minister for Public Management, Home Affairs, Post and Telecommunication.

2. The terminal for private circuit facilities, etc. (excluding digital terminals for optical transmission interface) shall not charge the telecommunication circuit with DC voltage.

MPT Announcement No. 162 of March 5, 1999 (Partially changed by MPHPT Notice No. 96 of January 1, 2004)

The electrical conditions and optical conditions of private communication line facilities, etc. terminals shall be stipulated pursuant to the provisions of Article 34–7–1 of the Ordinance Concerting Terminal Facilities, etc. (MPT ordinance No. 31 of 1985), as follows.

4. The digital terminal of other interfaces shall be subject to the conditions specified in Table 6 below

<table>
<thead>
<tr>
<th>Interface Types</th>
<th>Electrical Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO Standard 8802-3 Section 14 (10BASE-T)</td>
<td>Transmitter voltage of terminal facilities shall be 6.2 V (P–P) or less with 100 ohms load resistance</td>
</tr>
</tbody>
</table>

- What is the transmitter voltage?
- Does the applying equipment give any DC voltage to a telecommunication line?
- Indicate the element(s) prevents the application of DC voltage
Certification mark and Certification number

Certification mark

Diameter of Approval Mark shall be 5 mm or more. (3 mm or more in case of equipment volume of 100 cc or less)

Certification number of Technical Condition Compliance approval

<table>
<thead>
<tr>
<th>Type of Terminal Equipment</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Equipment to Be Connected to Telephone Lines</td>
<td>A</td>
</tr>
<tr>
<td>Wireless Paging Equipment</td>
<td>B</td>
</tr>
<tr>
<td>ISDN Terminal Equipment</td>
<td>C</td>
</tr>
<tr>
<td>Leased Line Terminal Equipment</td>
<td>D</td>
</tr>
</tbody>
</table>

Example: Certification number

ACD 09 − 0100 001

Type of Terminal Equipment  Year (2009)  Serial number  Agency code (in case of JATE)
The Certificate

日本電気通信技術基準適合認定等証書

設計認証を受けた者

株式会社

機器名

展開機器名

機器の種類 その他の電話端末

認証番号 A08ー001

認証年月日 平成21年1月日

備考

端末機器の取扱については、下記事項を遵守願います。
① 本証は、申請書類等に基づき、図面等を提出したための技術基準に適合しているかどうか及び
当該設計に合致する機器を導入できるかどうかを確認したもので、機器の品質、性能を保証
するものではありません。
② 機器への認証の表示は、端末機器の技術基準適合認定等に関する規定第21条（業務規則第20
条参照）の検査記録を完成の後、機器の表裏の見易い場所に容易に消えない方法で行い、下記
③ 本機器設置時に必要な機器の直線接続機器の取扱説明書等を同封して下さい。

(Japanese Only)
Terminal equipments certificated of technical standards conformity approval are reported to MIC from registered approval body†, including following items, twice a month.

1. The name (or company name and representative’s name) and address of the applicant body
2. Equipment Type
3. Equipment Name
4. Certification Number
5. Certification Date

These equipments will be public notice by MIC.

†: Article 92 paragraph (1) of Telecommunications Business Act (Act no. 86 of December 25, 1984)
# The Certification Fees

## Technical Conditions - Type-Approval (In Japanese: "Design Certification")
Based on JATE regulations are set as follows Japanese Only

<table>
<thead>
<tr>
<th>Terminal Equipment Type</th>
<th>When a test results certificate is submitted</th>
<th>Regular submission process without a test results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Application</td>
<td>Partial Change</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>Multiple</td>
</tr>
<tr>
<td>1 – Terminal equipment to be connected to the PSTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) PBX or key telephone system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) 2 or more lines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Modem, facsimile and other terminal equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 – Wireless paging equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 – ISDN terminal equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 – Leased line or digital data transmission terminal equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) 1 type of interface</td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
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### Fee (JPY: Japanese Yen)

<table>
<thead>
<tr>
<th></th>
<th>Japan Approvals Institute for Telecommunications Equipment</th>
<th>JATE 2009. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technical Conditions - Type-Approval (In Japanese: &quot;Design Certification&quot;) based on JATE regulations are set as follows Japanese Only</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Certification Fees</td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
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The Certification Fees are set as follows Japanese Only. The fees are categorized based on the type of terminal equipment and whether a test results certificate is submitted. The table provides the fees for both single and multiple applications for new and partial change processes. The fees are expressed in Japanese Yen (JPY).
Certification Ratio per Country of Manufacture
in fiscal year 2007

- China (included Hong Kong, Taiwan): 78.3%
- USA: 7.5%
- Korea: 0.5%
- Israel: 0.5%
- USA: 2.4%
- Malaysia: 0.9%
- Germany: 0.9%
- Canada: 0.5%
- Singapore: 7.1%
- Indonesia: 1.4%
- Canada: 3.5%
- Korea: 4.3%

Certification Ratio per Country of Applicant
in fiscal year 2007

- China (included Taiwan): 76.5%
- USA: 10.4%
- Canada: 4.3%
- Korea: 3.5%
- Israel: 2.6%
- Malaysia: 1.7%
- Germany: 0.9%
- Singapore: 0.9%
- Indonesia: 0.5%

Certification Ratio per Foreign Country

- Japan Approvals Institute for Telecommunications Equipment (JATE) 2009.3
Thank you very much!