DEVELOPMENT OF JAPANESE INDUSTRIAL STANDARDS ON ACCESSIBLE DESIGN, AND JOINT PROPOSAL FOR INTERNATIONAL STANDARDS

Koichi AIZAWA

The secretariat of Japanese Industrial Standards Committee (JISC)
Director, Standardization office on Environment and Consumers
Ministry of Economy, Trade and Industry (METI)
1-3-1, Kasumigaseki, Chiyoda-ku,
Tokyo, Japan Postal 100-8901
e-mail: aizawa-koichi@meti.go.jp

Abstract: This paper explains the progress on national standardization in Japan and international standardization in ISO/TC159 (Ergonomics) and so on. Japan with China and Korea jointly proposed to develop international standards in order to promote accessible design in products and services addressing especially the needs of older persons and persons with disabilities, based upon the ISO/IEC Guide 71. These new proposals deal with very important subjects in products and services in order to improve much more people’s quality of life: addressing the global population ageing, and aiding for social life of older persons and persons with disabilities. The international standard will serve for further development of the related industries worldwide. And the standards will provide a useful hint for product design that improves accessibility of all users including older persons and persons with disabilities.

1. INTRODUCTION

1.1 Unprecedented population aging in the world

With the advent of the 21st century, the aging of the population has become a great social issue not only in Japan but also in many other countries in Asia Pacific region.

Meantime, social participation of persons with disabilities is increasingly rapidly. <See figure 1>

![Unprecedented population aging](image_url)

Unprecedented population aging

※Source: UN, The Sex and Age Distribution of the World Populations - The 1994 Revision

1.2 Needs of Accessible Design for products and services
Since accessibility is a key term for all people including persons with disabilities and older persons, the spread of such products and services that are easy to use, that is to say accessible for persons with disability and older persons is an urgent need for the world and for the individual countries.

Incorporating “Accessible design” into products and services promises benefits in terms of improvement of living, market expansion and industry improvement.

1.3 Accessible Design and the standardization

Standardization is one of the important ways to promote accessibility of products and services.

Without standards for Accessible Design products, manufacturers would devise accessible designs in different ways, which might result in confusion for the users’ part.

Therefore, Japanese Industrial Standards Committee (JISC), which is the Japanese member body for international standardization organizations, ISO (International Standardization Organization) and IEC, (International Electrotechnical Organization) has established 28 Japanese Industrial Standards (JIS) in the Accessible Design field until now. <See figure 2>

The JIS standards have drafted through the close cooperation among stakeholders such as industry, research institutes, disabled associations, accessible design foundation, and governments.

In the world of high mobility on a global scale, it is indispensable that domestic standards should align with international standards.

In 2004, JISC has started to discuss the way to propose international standards on accessible design based upon the experience through development of JIS.

2. INTERNATIONAL PROMOTION OF ACCESSIBLE DESIGN THROUGH STANDARDS

2.1 Proposals to ISO and the progress

In the Northeast Asia Standardization Cooperation Meetings held in 2004, China, Japan and Korea had a discussion on promotion of accessible design through international standardization, and the three countries have discussed to establish the C-J-K accessible design conference.

In the discussion, the national standardization bodies of China (SAC, Standardization Administration of China), Japan (JISC) and Korea (KATS, Korean Agency for Technology and Standards) agreed to submit five new work item proposals (NWIPs) to the ISO in the accessible design area.

The NWIPs composed of the following five JIS standards. <See Figure 3>
While the three parties continued further discussion, the Japanese delegates visited Malaysia, Thailand and Singapore in order to explain the contents of the proposals and ask for their support.

The delegates visited standardization bodies in each country (TISI: Thailand, DSM: Malaysia, SPRING: Singapore) and had a fruitful discussion.

In the end of 2006, representing China (SAC), Japan (JISC) and Korea (KATS), JISC officially submitted the five NWIPs as C-J-K Joint Proposals to the ISO/TC159 (Ergonomics) /SC4 (Ergonomics of human system interaction), SC5 (Ergonomics of the physical environment), and TC122 (Packaging). <See Figure 4>

<table>
<thead>
<tr>
<th>Title</th>
<th>TC</th>
<th>SC</th>
<th>WG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marking tactile dots on consumer products</td>
<td>159</td>
<td>4</td>
<td>WG10</td>
</tr>
<tr>
<td>Auditory signals</td>
<td>159</td>
<td>5</td>
<td>WG5</td>
</tr>
<tr>
<td>Sound pressure level of auditory signals</td>
<td>159</td>
<td>5</td>
<td>WG5</td>
</tr>
<tr>
<td>Packaging and receptacles</td>
<td>122</td>
<td></td>
<td>New</td>
</tr>
<tr>
<td>Age-related relative luminance</td>
<td>159</td>
<td>5</td>
<td>WG5</td>
</tr>
</tbody>
</table>

The proposals were in circulation for voting.

By the ISO criteria, positive votes by a simple majority and participation of the future process by five participating members (P-members) are required for the approval of the proposals. <See Figure 5>
The process that develops an international standard

<table>
<thead>
<tr>
<th>STAGE1</th>
<th>Acceptance of NWIP</th>
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<tr>
<td>STAGE2</td>
<td>Preparation of Working Draft (WD)</td>
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<tr>
<td>STAGE3</td>
<td>Consensus on CD in P-members</td>
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<tr>
<td>STAGE4</td>
<td>Acceptance of DIS</td>
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<td>STAGE5</td>
<td>Acceptance of FDIS</td>
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<tr>
<td>STAGE6</td>
<td>Publication of IS</td>
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</tbody>
</table>

Simple majority of P-member and 5 P-members participating the work <3 months voting>

Consensus or 2/3 Positive Votes of P-member <3 months voting>

All ISO member can vote 2/3 Positive Votes of P-members Not more than 1/4 of negative votes of all members voted <5 month voting>

The same criteria as DIS voting Simple Positive or Negative vote is needed <2 months voting>

The deadline for the vote was April or May, 2007.

After the official submission of the NWIPs, the delegates from JISC visited Malaysia (DSM) and Thailand (TISI) again to explain the progress and to ask for their support in voting and participation in the relevant Technical Committees (TCs) and Sub Committees (SCs).

As the result of casting votes by P-member of the relevant TCs and SCs for five NWIPs, the proposals have been approved officially.

We could be convinced that the fundamental reason for the proposals reaching to approval was to realize the Asian close cooperation for international standardization.

That is to say, Four of P-members, who voted positively and declared to dispatch an expert to the relevant working groups, were Asian countries, China, Japan, Korea and Malaysia. And Thailand also cast the positive vote cooperatively.

3. CONCLUSION

When the NWIPs be approved, the proposals are forwarded to the preparatory stage, where the experts of the working groups start to discuss the themes in details.

JISC has had opportunities with China in August and Korea in September in order to exchange opinions concerning actions for C-J-K cooperation in the working groups.

For the reason that the themes suggested by the five NWIPs were quite new fields in ISO, the working groups in TC159/SC4 and SC5, and TC122 have been established newly, namely SC4/WG10 (Accessible Design for consumer products), SC5/WG5 (People with special requirement) and TC122/WG9 (Accessible Design of packaging and receptacles).

JISC has undertaken the convenors of the WGs, and C-J-K also took on the project-leader for the new projects.

According to the ISO rules, the new projects shall proceed to publication as ISO standards within three years.

From now on, it is very important for C-J-K to contribute toward discussing sufficiently among experts dispatched from various European, North American and Asian countries, and making consensus as the first international standards on Accessible Design.

4. THE JOINT ISO PROPOSALS ON ACCESSIBLE DESIGN (INFORMATIVE)

4.1 The titles of the five NWIPs submitted to the ISO and where they will be discussed

(i) Marking Tactile Dots on Consumer Products
TC159/SC4  (Ergonomics of human-system interaction)
(ii) Auditory Signals on Consumer Products
(iii) Auditory Signals on Consumer products - Sound Pressure Levels of Signals for the Elderly and in Noisy Conditions
(iv) Visual Signs and Displays - Specification of Age-Related Relative Luminance and Its Use in Assessment of Light

From (ii) to(iv)

TC159/SC5  (Ergonomics of the physical environment)
(v) Packaging and receptacles

TC122  (Packaging)

4.2 The themes of the five NWIPs

- TC159/SC4  (Ergonomics of human-system interaction)
  (i) Marking Tactile Dots on Consumer Products: Positioning and form of raised dot on “ON” switches, the 5 in a 10-key keypad, and so forth

- TC159/SC5  (Ergonomics of the physical environment)
  (ii) Auditory Signals on Consumer Products: Auditory signals conveying the state of home electronic products (rice cookers, washing machines, air conditioners, etc.).
  (iii) Auditory Signals on Consumer products - Sound Pressure Levels of Signals for the Elderly and in Noisy Conditions: Defining range and sound levels for signals described in theme (ii) above, low-pressure sounds suitable for elderly persons whose hearing has deteriorated and for audibility over environmental sound
  (iv) Visual Signs and Displays - Specification of Age-Related Relative Luminance and Its Use in Assessment of Light: As shorter-frequency light becomes harder to see with age, markings, signs, and guidance labels are often hard for elderly people. We thus provide means of quantitatively assessing visibility of visual displays.

- TC122  (Packaging)
  (v) Packaging and receptacles: Specifying package and receptacle formats for enhanced distinguishability and usability of packaging and receptacles of consumer products