Hitachi’s IP Strategy for Achieving Global Growth

10 April 2014

Takashi Suzuki
Corporate Officer,
General Manager
Intellectual Property Division
Hitachi, Ltd.
Contents

1. Intellectual Property (IP) Activities for Social Innovation Business
2. Globalization in our IP Activities
3. Supporting our Business Growth
4. International Standardization Activities
1. Intellectual Property (IP) Activities for Social Innovation Business
Serving the World with our Social Innovation Business

SOCIAL INNOVATION - IT'S OUR FUTURE

Hitachi Group’s IP Slogan
“Let’s make it happen with the Power of Patents”

Create the Power of Patents through Global IP Activities
Support our Business Growth with the Power of Patents
2. Globalization in our IP Activities
2-1 Create the Power of the Patents Globally (1)

Using PCT Applications, Create the Power of Patents Globally

Overseas Patent Appl. Ratio *2
47% ⇒ 59%

PCT: Patent Cooperation Treaty
*1 One PCT application can be treated as applications in multiple PCT signatory countries.

*2 Overseas Patent Appl. Ratio = \[
\frac{\text{The number of overseas patent Applications}}{\text{The number of patent Appl. in W.W.}}
\]
For each PCT application, we counted expected number of countries where we plan to obtain patents.

TOP100 Global Innovators Awards
Receive consecutive 3-year from 2011
“Excellent” evaluation in “Volume”, “Influence” and “Grant Ratio”
## Patent Applications Published in 2013 (Granted patents for U.S.)*

<table>
<thead>
<tr>
<th>Japan</th>
<th>U.S.</th>
<th>PCT</th>
<th>China</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corporate Group</strong></td>
<td><strong>Corporate Group</strong></td>
<td><strong>Corporate Group</strong></td>
<td><strong>Corporate Group</strong></td>
<td><strong>Corporate Group</strong></td>
</tr>
<tr>
<td>1 Panasonic</td>
<td>1 Samsung</td>
<td>1 Panasonic</td>
<td>1 Samsung</td>
<td>1 Samsung</td>
</tr>
<tr>
<td>2 Hitachi</td>
<td>2 IBM</td>
<td>2 Huawei</td>
<td>2 Siemens</td>
<td>2 Siemens</td>
</tr>
<tr>
<td>3 Toyota</td>
<td>3 CANON</td>
<td>3 ZTE</td>
<td>3 Hon Hai</td>
<td>3 BOSCH</td>
</tr>
<tr>
<td>4 CANON</td>
<td>4 SONY</td>
<td>4 Qualcomm</td>
<td>4 Samsung</td>
<td>4 GE</td>
</tr>
<tr>
<td>5 Toshiba</td>
<td>5 Panasonic</td>
<td>5 Hitachi</td>
<td>5 SINOPEC</td>
<td>5 LG</td>
</tr>
<tr>
<td>6 Mitsubishi Electric</td>
<td>6 LG</td>
<td>6 Siemens</td>
<td>6 LG</td>
<td>6 Qualcomm</td>
</tr>
<tr>
<td>7 SHARP</td>
<td>7 Hon Hai</td>
<td>7 Intel</td>
<td>7 Panasonic</td>
<td>7 Panasonic</td>
</tr>
<tr>
<td>8 EPSON</td>
<td>8 Microsoft</td>
<td>8 BOSCH</td>
<td>8 Ericsson</td>
<td>8 Huawei</td>
</tr>
<tr>
<td>9 Fujitsu</td>
<td>9 Toshiba</td>
<td>9 SHARP</td>
<td>9 Panasonic</td>
<td>9 PHILIPS</td>
</tr>
<tr>
<td>10 RICOH</td>
<td>10 Fujitsu</td>
<td>10 SHARP</td>
<td>10 SONY</td>
<td>10 Hitachi</td>
</tr>
<tr>
<td>11 Hitachi</td>
<td>11 Hitachi</td>
<td>11 Hitachi</td>
<td>11 Hitachi</td>
<td>11 Hitachi</td>
</tr>
</tbody>
</table>

### According to the Global Expansion of our Business, Shifting from Japan and US Weighted Application Strategy to Market Weighted

- Based on Hitachi’s survey using Shareresearch, Patolis, IFIPAT/Questel-orbit, and Pat-List/CN
- Ranking is based on the number of the patent applications without rounding off.

© Hitachi, Ltd. 2014. All rights reserved.
2-3 Global Integrated IP Management

Global Business Management and Expansion of R&D Function Overseas

Japan Centric IP Management ⇒ Globally Integrated IP Management (Promote IP Activities of Each Location & Manage Patents Globally as One Portfolio)

R&D and IP Offices for Data Storage Systems

R&D and Business Areas Promoting Global IP Management

<table>
<thead>
<tr>
<th>IP Offices (Cover Areas)</th>
<th>Big Data</th>
<th>Elevator</th>
<th>Railway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan (Asia except for China)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>San Francisco, Washington D.C. (North and South Americas)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Munich (Europe)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beijing, Shanghai (China)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manage over 2,500 Patents * Created in Multiple Countries as One Portfolio

* Maintained US patents for data storage systems

© Hitachi, Ltd. 2014. All rights reserved.
3. Supporting our Business Growth
3-1 Supporting our Business Growth

Customer  Partner

Supporting Sales  Promoting Partnership

Competitor

"Let’s make it happen with the Power of Patents"

Serving the World with our Social Innovation Business
3-2 Supporting Sales: Data Storage System

Create Top-Level Patent Portfolio in a Major Market (U.S.) and Appealing Patents in Website

Maintained U.S. Patents*1 for Data Storage System

Appealing Patent Portfolio in White Paper*2

The 60+ patents either granted or applied for are a testament to the advanced innovation accessible in this controller.

Appealing "Hitachi Accelerated Flash" of Hitachi’s SSD data storage by using patents

SSD: Solid State Drive
*1 Data in 2013
Protecting and Appealing our Technology used in Facility Monitoring Service by Patents

Facility Monitoring Service

Anomaly Decision System: HiPAMPS

Utilize sensor data collected from machines and equipments, and report status changes of them to a user

◆ Data Mining Technology
(Learn normal status of facilities and detect abnormal situations)
Japanese patent #4,832,609

◆ User friendly interface
(Display different statuses of machines and equipments in different colors)
Japanese patent #5,081,999

Appealing our technology by indicating the patent number in our website *

HiPAMPS: Hitachi Power Anomaly Measure Pick up System
PaaS: Platform as a Service
SaaS: Software as a Service
* URL: http://www.hitachi-power-solutions.com/products/product02/p02_73.html

© Hitachi, Ltd. 2014. All rights reserved.
3-4 Promoting Partnership: The Bank of Kyoto, Ltd.

**Filing patents for joint developed systems and appealing them**

**Terminal for tellers**
- Navigate business process
- Display customer information and dealing history
- Check for compliance
- Output application forms
- Input deal negotiation history

**Terminals for customers**
- Customer authentication
- Input and display dealing details
- Display customer information

2006: Developed the navigation system for investing type financial instruments and filed a patent jointly
2008: Installed the navigation system to the Bank of Kyoto
   ⇒ New Released, indicating the joint patent application
2010: Developed the navigation system for public relation business and filed a patent jointly

© Hitachi, Ltd. 2014. All rights reserved.
Enforcing patents for protecting our business

Leading company in Sintered Rare Earth Magnet

- Global patent portfolio (600 patents in W.W.)
- Includes essential patents for manufacturing etc after some basic US patents are expired in July 2014.

Filed patent infringement investigation before ITC against 29 companies.

Achieved settlement with most of the companies

ITC: International Trade Commission

© Hitachi, Ltd. 2014. All rights reserved.
### 3-6 Strengthening Competitiveness:
Washer Dryer (Hitachi Appliances, Inc.)

Creating Patent Portfolios covering the sales points in limited time
⇒ Creating Barriers to Entry for the Competitors

#### Sales points

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Niagara Wash</td>
<td>△</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Self Clean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>△</td>
<td></td>
</tr>
<tr>
<td>Wind Iron</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>△</td>
<td></td>
</tr>
</tbody>
</table>

- **Niagara Wash**: High-flow-rate pumping system to suppress coarsening and darkening
- **Auto Self Clean**: Cleaning the entire tub in every wash to eliminate bacteria from the tub
- **Wind Iron**: Drying with approx. 300km/h wind to smooth out wrinkles

**Filing Patents & Prosecution**

**Obtain 10-20 Patents for Each Sales point**
4. International Standardization Activities
4-1 International Standardization Activities

Hitachi Group Standardization Committee, Supporting Standardization Activities by Corporate, to Accelerate Global Expansion of our Business

Hitachi Group

Standards Organization

IEC, ISO
IEEE
3GPP
JISC

De jure Standards
Academic Institute Standards
Forum Standards
National Standards

Missions of Standardization Committee
◆Select priority themes to support standardization activities
◆Coordinate IP policies among Hitachi group to participate in standard organizations
◆Share best practices, educate employees, and run incentive systems

IEC: International Electrotechnical Commission
ISO: International Organization for Standardization
IEEE: Institute of Electrical and Electronics Engineers
3GPP: Third Generation Partnership Project
JISC: Japanese Industrial Standards Committee

*Organized by CTOs etc from 33 companies and business sections

© Hitachi, Ltd. 2014. All rights reserved.
4-2 Example of Standardization: UHV power transmission

<table>
<thead>
<tr>
<th>Make Japanese Technologies an International Standard to Promote Global Expansion of Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHV power transmission, achieving high transmission efficiency, is highly required in emerging countries to meet with increasing power demand</td>
</tr>
<tr>
<td>Started standardization activities in ALL-JAPAN to make Japanese 1,100kV power transmission technology an international standard (2006)</td>
</tr>
<tr>
<td>Replaced the existing standard, which has neither operation records nor plans with the 1,100KV power transmission (2009)</td>
</tr>
<tr>
<td>Hitachi Participates in an operational test and a practical use projects of State Grid Corporation of China for 1,100KV power transmission</td>
</tr>
</tbody>
</table>
  - 2009: Operational Test between Jin-dong-nan and Jingmen
    - Hitachi installed equipments to the Nanyang facility
  - 2013: Practical use between Huainan and Shanghai
    - Hitachi installed equipments to the Zhejiang north facility

UHV: Ultra High Voltage

© Hitachi, Ltd. 2014. All rights reserved.