IP Challenges for Personalized Medicine: Navigating Bilski, Myriad & Prometheus

Librassay™
Patent Licensing Supermarket
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on behalf of MPEG LA, LLC
June 29, 2011
Who/What is MPEG LA?

- MPEG LA pioneered modern patent pool licensing
- In the 1990s, the MPEG-2 standard, which is required for digital television applications including DVD, faced a patent thicket
- Biggest challenge to adoption of the MPEG-2 standard was access to essential IPR
  - IPR of many parties created risk and potential for conflict if Standard could be used at all given the patent “bottleneck”
MPEG LA® Licensing Model

- MPEG LA revolutionized IPR management by enabling multiple users to acquire essential MPEG-2 patent rights from multiple patent holders in a single transaction as an alternative to negotiating separate licenses.
  - MPEG-2 License grew from initial 8 to 27 patent holders with 159 patent families consisting of more than 900 patents in 57 countries.
  - 1600+ Licensees accounting for most MPEG-2 products (TVs, DVD players/recorders, Blu-ray Disc™ players, set-top boxes, PCs, DVD Video discs, game machines, cameras) in the current world market
MPEG LA® Licensing Model

- MPEG-2 became the most successful standard in consumer electronics history
  - ~ 5 billion devices
  - ~ 50 billion video discs
  - ~ $3.3 trillion in product sales
MPEG LA® Licensing Model

“One-to-Many”

“Many-to-One”

MPEG LA® “Many-to-Many” Licensing Model

IPR
Licensee
Licensee
Licensee

IPR
Licensee
IPR
IPR
Licensee
Licensee
Licensee

IPR Thicket
Licensee
Licensee
Licensee
Licensee
Licensee
Licensee
Licensee

MPEG LA® Licensing Model

- MPEG-2 became the most successful standard in consumer electronics history, and the MPEG LA® Licensing Model has become the template for addressing other patent thickets.

- Today, MPEG LA operates licensing programs consisting of more than 5000 patents in 70 countries with over 130 licensors and 5000 licensees.

- Each program is separately administered by MPEG LA under authority granted by Licensors with patents determined to be essential to the technology under license.

- MPEG LA does not advocate or promote the use of any technology. Each pool license is offered for the convenience of users who make their own choices.
# MPEG LA® Licensing Model

## Active Patent Pools

<table>
<thead>
<tr>
<th>Pool</th>
<th>Owners</th>
<th>Patents</th>
<th>Licensees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MPEG-2 Video and Systems</td>
<td>27</td>
<td>710</td>
<td>1,835</td>
</tr>
<tr>
<td>2. ATSC Broadcast Standard</td>
<td>8</td>
<td>198</td>
<td>133</td>
</tr>
<tr>
<td>3. AVC/H.264 (MPEG-4 part 10) Video</td>
<td>27</td>
<td>1,733</td>
<td>1,227</td>
</tr>
<tr>
<td>4. VC-1 Video</td>
<td>18</td>
<td>519</td>
<td>236</td>
</tr>
<tr>
<td>5. MPEG-4 Visual (part 2) Video</td>
<td>26</td>
<td>981</td>
<td>1,066</td>
</tr>
<tr>
<td>6. MPEG-2 Systems (w/o MPEG-2 Video)</td>
<td>10</td>
<td>204</td>
<td>171</td>
</tr>
<tr>
<td>7. IEEE 1394 High Speed Data Network</td>
<td>10</td>
<td>270</td>
<td>232</td>
</tr>
</tbody>
</table>

*As of February 8, 2011*
MPEG LA® Licensing Model
Licensors in MPEG LA Pools*

- Alcatel Lucent
- Apple Inc.
- British Telecommunications
- Canon, Inc.
- CIF Licensing, LLC
- Cisco Systems Canada
- Competitive Technologies, Inc.
- Columbia University
- Comcast/Sedna
- DAEWOO Electronics
- Dolby Laboratories Licensing Corporation
- ETRI
- France Télécom
- Fraunhofer-Gesellschaft
- Fujitsu Limited
- General Instrument Corp./Motorola
- GE Technology Development, Inc.
- Hewlett-Packard Company
- Hitachi, Ltd.
- KDDI Corporation
- Koninklijke Philips Electronics N.V.
- LG Electronics Inc.
- Microsoft Corporation
- Mitsubishi Electric Corporation
- Multimedia Patent Trust
- Nippon Telegraph and Telephone Corporation
- NTT DOCOMO
- Oki Electric Industry Co., Ltd.
- Oracle America, Inc.
- Panasonic Corporation
- Pantech Co., Ltd.
- Polycom, Inc.
- Robert Bosch GmbH
- Samsung Electronics Co., Ltd.
- SANYO Electric Co., Ltd.
- Scientific-Atlanta, LLC
- Sharp Corporation
- Siemens AG
- Sony Corporation
- STMicroelectronics N.V.
- Tandberg Telecom
- Telefonaktiebolaget LM Ericsson
- Telenor ASA
- Thomson Licensing
- Toshiba Corporation
- Victor Company of Japan (JVC)
- Zenith Electronics, LLC

*Some Licensors participate in multiple pools
Biomarkers, Diagnostics & the Promise of Personalized Medicine

• As a driver of precision (or personalized) medical therapy, biomarkers and detection technologies have the potential to make diagnostics a more important part of the value chain.

• But restrictive licensing practices in addition to emerging patent thickets threaten their delivery, the lives they can save and the cost-savings they can achieve.
Patent Thicket Examples

**Lynch Syndrome**

- A predisposition to various cancers, *e.g.*, colorectal and endometrial, is believed to be caused by mutations in one or more of at least 7 genes covered by 12 patents and 1 published application owned by 10 institutions, and there is reason to believe that the number of gene associations is even larger.
Other Patent Thicket Examples

Other patent thickets with similar characteristics exist in:

- Hereditary Hearing Loss
- Cardiovascular Disease
- Schizophrenia
Patent Licensing Supermarket

• Goal: clear patent rights to enable researchers, laboratories and testing companies to design comprehensive diagnostic genetics test panels, and make such tests widely available to the public

• Calls for a new business model with pro-competitive benefits that can balance social costs with innovation incentives to IP owners and developers
Librassay™
What is it?

• Librassay™ vision is larger than any single disease/test (although some of those previously discussed may be covered in part) and is not limited to gene patents.

• It is a web-based store of molecular diagnostic (field of use limited) patent rights in support of existing and emerging tests for diagnosis of disease and other medical conditions, patient monitoring and personalized treatment, from which users may select what they need to design multiplex (including whole genome/exome) tests and research tools.
Librassay™
What’s on the Shelf?

Patents and Pending Applications:
• Composition of matter patents on isolated nucleic acid sequences, polypeptides, proteins, and reagents.
• Methods of use – in diagnosis and as research tools
• Methods of manufacture
• Conceivably – computer software patents
Librassay™
What’s on the Shelf?

• Many of these patents are owned by academic and research institutions
• MPEG LA has well-established relationships with such institutions
• A licensing supermarket is compatible with their technology transfer goals
• MPEG LA is concluding terms with a core group of leading institutions
Librassay™
Advantages for IP Owners & Users

• Complies with Bayh-Dole requirement to make technology widely available – public good – by creating new market for a nonexclusive licensing alternative in diagnostic field of use
• Bundling -- new market also incentivizes discovery by enabling aggregation of patents in attractive bundles that may otherwise not be licensed as one-offs
• Makes affordable pricing possible
• Promotes industry / university partnerships
• Can generate licensing income, which patent holders can use to fuel new innovation
Librassay™
Aisles and Related Search Terms

Disease Condition

Newborn Screening
  Subcategories

Cardiovascular
  Subcategories

Central Nervous System
  Subcategories

Cancer
  Subcategories

Other
  Subcategories

By Gene/Gene Mutation
  By Patent Claim
  By Patent Owner
  By Patent Number
  Gene Test Registry Link
  Other Search Terms
The Licensing Supermarket

- MPEG LA’s licensing supermarket also may be ideal for addressing patent thickets or aggregation needs in other biotech and emerging technology areas, thereby giving
  - Users the opportunity to address patent licensing needs with cost predictability
  - Patent owners the opportunity to monetize their intellectual property
  - Mass markets the opportunity to receive the benefits of new technology