FRAND Works

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Major FRAND Successes

• Video Codecs
  – Widely used in DVDs, broadcast streams, PCs and smartphones
  – 29 voluntary licensors and 1,000 licensees to H.264 patent pool
  – Efficiently administered by pool supported by patent examiners
  – Proprietary and open source software (eg, x.264) implementations
  – Aggregate patent royalties approximately $4 per device

• Mobile Phones
  – 5 billion phones in a $1 trillion market including services
  – Prices down to $20 (unsubsidised)
  – Most vibrant and innovative market with smartphone revolution
  – Data speeds 1,000 faster in 10 years from 56kbps GPRS in 2000
  – Hundreds of companies contribute to 3GPP and 3GPP2 standards
  – 10 major standards releases by 3GPP and pace increases
  – Aggregate royalty rates have declined
Royalties Increasingly Reasonable

Aggregate royalty rates based on total ownership expenses

- INTUG re GSM in 1992*
- CSFB re WCDMA, 2005*
- ABI re WCDMA, 2007
- PA Consulting Group re GSM, 2005*
- Cap proposed by Alcatel-Lucent, Ericsson, Nokia, NEC et al*
- Nokia WCDMA, 2007

Legend:
- Western Europe
- USA & Canada
Market Supply is Unconcentrated

Herfindahl-Hirschman Index Market Share Concentration Tracking in Mobile

- Phone suppliers by volume share
- Phone suppliers by revenue share
- Smartphone OS suppliers by volume share
- Baseband Processor suppliers by volume share
Increasing Choice

Handset Manufacturers and Handset Models Offered, U.S., 2006-2010

<table>
<thead>
<tr>
<th>Reporting Handset Manufacturers</th>
<th>2006 (Nov)</th>
<th>2007 (Nov)</th>
<th>2008 (Dec)</th>
<th>2009 (June)</th>
<th>2010 (June)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Total Number Offering Ten or More Handset Models</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Total Number of Handset Models Offered</td>
<td>124</td>
<td>168</td>
<td>316</td>
<td>260</td>
<td>302</td>
</tr>
</tbody>
</table>

Source: U.S. Federal Communications Commission, 2011
Persistent Questions about FRAND

• **Should FRAND be defined?**
  - Set of principles
  - FRAND is voluntary commitment to offer licenses on those terms
  - Bilateral negotiation is key
  - Patent pooling should be voluntary

• **Commercial implications of FRAND violation?**
  - Agreement to offer licenses on FRAND terms requires a bilaterally negotiated license agreement
  - Violation would be a commercial dispute under this contract
  - Courts can resolve matters when parties cannot agree

• **Is FRAND a regulatory tool or a commercial necessity?**
  - FRAND is required to facilitate various business models
  - Innovators deserve market-based financial returns and implementers deserve market-based licensing terms
  - Regulated rates are a tourniquet to innovation incentives
  - Mandatory “ex-ante” auctions would distort competition and encourage buyer cartel
The Peril of Imposing Valuation Methods

Disagreement on LTE Essential Patent Determinations: \( R^2=0.0008 \)

Families with a patent judged essential or probably essential to LTE/SAE (Fairfield Resources International)
FRAND Works
Thank You

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