



**DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS  
COMPETITION COMMITTEE**

**DAF/COMP/WP2/RD(2010)4  
For Official Use**

**Working Party No. 2 on Competition and Regulation**

**STANDARDS, HIGH-TECH, INTELLECTUAL PROPERTY AND ANTITRUST**

**-- Presentation by Paul Lugard --**

**14 June 2010**

*The attached document is submitted to Working Party No. 2 of the Competition Committee FOR INFORMATION under item III of the agenda at its meeting on 14 June 2010.*

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**JT03285888**

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**Standards, High-tech, Intellectual  
Property and Antitrust**

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**Introduction**

- Standard setting, *i.e.* the definition of common characteristics for products is essential in high-technology sectors.
- Technical specifications enable compatibility and interoperability between complementary components and are often crucial for the creation of demand and markets.
- ICT examples include standards for GSM, UMTS, DVD, Blu-ray and MPEG.
- Standard setting is widespread. (1995: 100.000 US public and private standards).
- Efficiencies include market creation, increased inter-technology competition, downstream competition, reduction of transaction costs, increased consumer choice and increased innovation.
- However, there is a limited risk of collusion, foreclosure and reduced innovation.

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**The Practice of Standard Setting**

- Industry collaboration in general or dedicated SSOs or ad-hoc organizations
- Rules of procedure regarding (i) admission (ii) input, (iii) standard building process, (iv) voting.
- IP disclosure rules, (F)RAND licensing requirements, ex-ante disclosure of maximum royalty
- Quality/ Price trade-off
- Performance standards versus specification standards
- Periodical upgrades

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**7 Common Misunderstandings about Standards**

1. Standards are developed for the sole benefit of manufacturers and IP holders
2. Standard setting activities must be analyzed from an ex-post perspective
3. Standards do not compete for market acceptance and become instantaneously successful
4. Standard wars produce suboptimal market outcomes
5. Standards have a long life-span
6. SSOs should involve all parties that express an interest
7. Standard setting activities are particularly prone to anticompetitive behaviour

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Standard Setting and Intellectual Property Rights- 1

- The implementation of many standards involves the use of IP-protected technology. The number of essential patents has sharply increased.
- Standard setting generally does not involve future (joint) exploitation of essential (and valuable non-essential IP).
- Hold-up by holders of essential IP is rare and SSOs seek to further limit potential for hold-up.

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A Closer Look at Intellectual Property Rights-2

- Patent filings increase sharply: since mid 1980s protection and enforcement of patents improved.
- Patents become strategic assets that can be leveraged for business benefits.
- Originally, patents were mostly owned by US and EU companies. Over time, Japanese, Korean and Taiwanese companies have entered the patent arena.
- Currently, Chinese companies are catching up to become major IP holders (1998: 5000 – 2008: 30000).

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## A Closer Look at Intellectual Property Rights-3

- Originally, only few companies were involved in ICT standard setting. Today, a large number of companies, universities and research institutes are involved.
- In the ICT sector patent density has increased over time, in particular on technology standards.
  - CD: 100, DVD: 400, Blu-ray: (2000);
  - GSM: 140, 3G UMTS: 1227, 4G: unknown;
  - MPEG- Video1: 50, MPEG-2: 700 , MPEG-4: 850.
- Increase in number of essential patents per standard has reduced the value per patent, but companies have larger number of essential patents to maintain their competitive position.

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## A Closer Look at Intellectual Property Rights-4

- Companies increasingly understand the value of essential patents and file many patents during the standardization process.
- It is increasingly difficult to compete on standardized products without having sufficient essential patents.
- As a consequence, commercial success is not only determined by quality of products, but increasingly also by a company's patent portfolio. Examples: TVs, STBs, PCs, DVD/BD players, mobile phones.
- The convergence of technologies going into these types of products makes the impact of patents on these products even larger: high cumulative royalties erode profit margins to a large extent.
- Patent battles with high stakes take place in the mobile phone/ PDA area.
- Selective enforcement of IP may have negative impact on downstream competition.

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### Standards and IP in the Mobile Phone Sector

- GSM: 23 essential patent holders with 140 essential patents. In contrast: UMTS: 72 patent holders and 1227 essential patents- an increase of 800% (Nokia 248, Qualcomm 228, Philips 45).
- Gaining IP clearance to build UMTS compliant products is complex and time-consuming.
- Work on UMTS patent pool started in 1998. But Platform WCDMA 2004 includes only 7 out of 72 firms, only 1 out of 10 largest patent holders and includes only essential patents.
- Thus: patent pools may reduce licensing costs and generate other efficiencies, but may not be the ultimate remedy.

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### The Concern

- High cumulative royalties increase transaction costs and may slow down development of markets and innovation.
- Traditional pool licensing is efficient but may not correct this trend and be insufficient to control level of royalties. This is so despite (F)RAND regimes.
- To be fully effective, the pool must also include essential IP of non SSO participants and access to valuable, non-essential IP must be possible.
- Today many products include multiple technologies: need for multiple pool licenses.
- Possible solution: pooling of pools: licenses for products, instead of IP rights, possibly with several "menus."

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**Intermediate Conclusion**

- Developments in ICT are largely autonomous and not the result of widespread antitrust violations.
- Vast majority of cases do not raise antitrust concerns. Application of antitrust law may even be counterproductive.
- Antitrust law should not be applied to remedy possible shortcomings in the IP protection regime.

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**Some Specific Issues Relating to Standards and Intellectual Property- *Hold-up***

- Deliberate refusals to disclose known essential patents or making and breaking false promises to license proprietary technology on RAND terms are rare.
- Empirical evidence for hold-up is weak and major ITC standards (GSM, DVD) have been set successfully and flourish.
- Anticompetitive hold-up critically depends on number of necessary conditions (ex-ante substitute, market power, harm to competition, credible theory of harm including analysis of incentives).

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**(F)RAND and Ex-Ante Disclosure of Maximum Royalty Rates**

- (F)RAND requirements, in particular "ND" requirements seem to work. The "reasonable" part of RAND is most complex; what is inexpensive to the patent owner may seem unreasonably high to potential licensees. Courts and antitrust agencies are not well equipped to determine those terms. Para 284 and 286 draft EC GLs too narrow.
- RAND regimes leave open important parameters: the basis for royalty calculation (component, module, final product), lump sum or percentage, upward or downward adjustments, depending on market success. In sum, RAND may provide only limited certainty.
- Disclosure of licensing terms may sometimes be beneficial, but (i) creates uncertainty and strategic conduct and (ii) involves risk of anticompetitive collusion among buyers.
- Ex- ante disclosure: long-run dynamic efficiency may be sacrificed to short-term cost reductions as SSO participants may favour low-cost/ low quality technology.

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**Over-reaching Standards and Over-inclusive SSOs?**

- In theory overreaching standards may not optimize consumer welfare, but antitrust agencies are not well-placed to determine whether standards are reasonably well related to meet perceived future market needs or not. Para 260 and 308 draft EC GLs too narrow.
- The ability to restrict membership to a SSO may be efficient and pro-competitive. (This is because a relatively small group may function more effectively than an over-inclusive one. Over-inclusiveness may pose more significant competitive problems than exclusion).
- Markets may be better off with competition among standards.
- Input from stakeholders in standard setting process is crucial, but excessive involvement of buyers may result in wrong technology choices (through (F)RAND mechanism).