

STRATEGIC BALANCING OF PATENTS AND THE WIRELESS TECHNOLOGY REVOLUTION TO MAXIMIZE MARKET EXCLUSIVITY

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I. Introduction

Wireless technology startups and their investors should be primarily concerned with optimizing the value of the company. A company's value can be measured by the quality and lifetime of its patents. Longer patent terms produce longer market exclusivity, which consequentially leads to increased profits and value. Patents are crucial to protect a company's ideas while FCC regulations are necessary to outline what wireless technology companies are allowed to do. This article addresses and outlines strategies to extend patent terms and maximize market exclusivity while addressing the FCC's goals and recent changes regarding the wireless industry.

II. Overview of FCC

2.1 Who are the FCC?

The Federal Communications Commission (FCC) is an independent United States government agency, directly responsible to Congress. The FCC was established by the Communications Act of 1934 and is charged with regulating interstate and international communications by radio, television, wire, satellite, and cable.

2.2 The FCC's goals regarding spectrum required for wireless technology

The FCC has outlined several general goals to meet by the year 2008. The goal pertaining to the wireless industry depends heavily on regulation of spectrum, a limited resource, for which the FCC wishes to encourage the highest and best use of spectrum domestically and internationally in order to encourage the grown and rapid deployment of innovative and efficient communications technologies and services. More specifically, the goals are as follows:

- Advance spectrum reform by developing and implementing market-oriented allocation and assignment reform policies.
- Vigorously protect against harmful interference and enforce public safety-related rules.
- Conduct effective and timely licensing activities that encourage efficient use of the spectrum.
- Provide adequate spectrum and improve interoperability for better public safety and commercial purposes.
- Serve as a dependable information source for Congress and the American people on the complex issues inherent in using the finite spectrum resource.

III. The New FCC Challenge: The Wireless Technology Revolution

3.1 Economic and social impact of wireless technology

The wireless era may very well bring on the next technology boom. Compared to how the Internet changed commerce back in 1995-1996, wireless and mobile technology promises to be an even bigger disruptive force. The Wi-Fi Alliance, a trade association working with "wireless-fidelity" technologies which allow information to be sent from one device to another without wires, says laptop computer and personal digital assistant (PDA) users can now sit down and instantly sync up on the Internet at tens of

thousands of “hotspots” in homes, cafes and other high-traffic areas nationwide. Wi-Fi has taken advantage of the network void, allowing those with the technology (built into their device or channeled via a network card adapter) and within reach of a “base station” to connect to the Internet without having to plug the device into a wall.

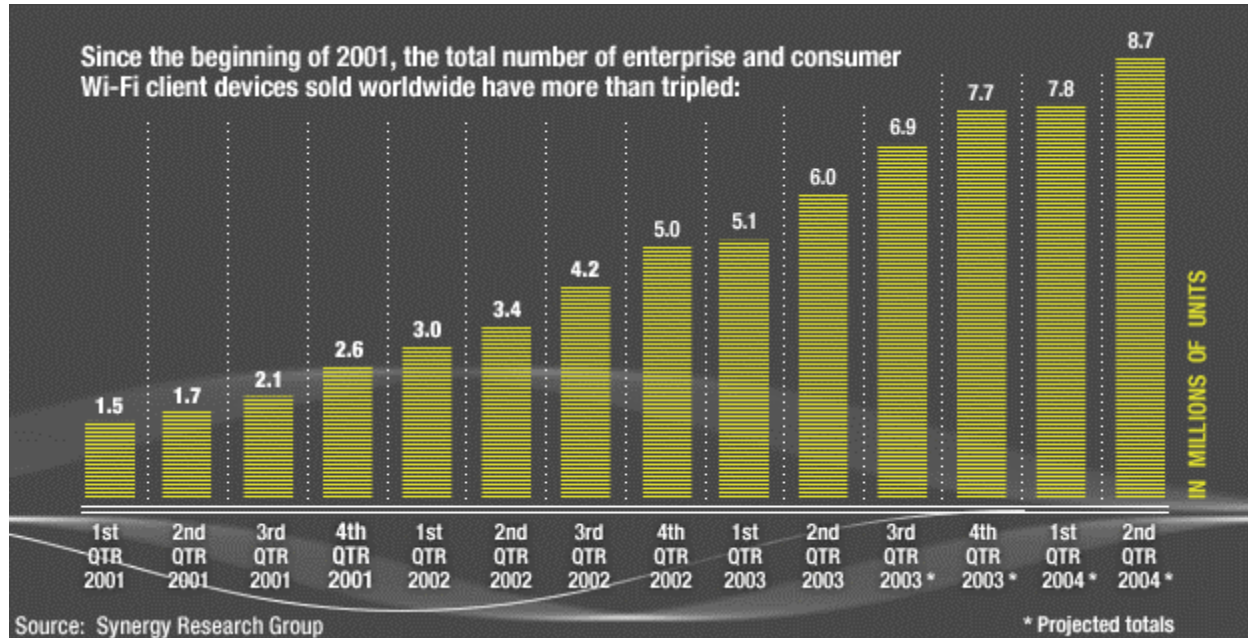


Figure 1 depicts Wi-Fi client devices sold since 2001.

On a more practical level, a wireless office will lower overhead costs, especially when linking up hundreds of PCs. The recent slump in corporate IP expenditures has turned wireless office upgrades into a luxury rather than a strategic necessity for most corporate decision-makers. However, in one to two years, companies hoping to cut back costs will employ wireless technology as a necessity to cut costs. Air stations and wireless hubs will take the place of tangled wire bundles running across floors and ceilings, as well as the maintenance and cable laying labor. Companies will also cut costs by trimming back office space, saving on wires and hardware that clog up office space.

3.2 Recent changes from the FCC affecting 3G technology

The FCC recently agreed to follow through on its ongoing commitment to remove regulatory barriers to the deployment of advanced wireless broadband services, and approved on October 16, 2003 to open up 90 MHz of spectrum for 3G and advanced broadband wireless services in the 1700- and 2100-MHz bands. This action enables a variety of advanced 3G wireless services, including voice, data and broadband for both fixed and mobile networks. The FCC additionally opened up 12.9 GHz of spectrum divided between the 70-, 80, and 90-GHz bands, designed to spark development of “millimeter wave” high-speed, point-to-point wireless local area networks and broadband Internet access and includes spectrum between 71 and 76 GHz, 81 and 86 GHz and 92 and 95 GHz.

New rules for 3G spectrum include provisions for applications procedures, licensing, technical operations and competitive bidding. This spectrum will be licensed by geographic areas under the FCC’s flexible, market-oriented rules, and will be assigned through auctions. Caveats for licensees include 15-year terms with 10-year renewal options, with a requirement to show substantial service by the end of the license term. Licensees will also be able to aggregate spectrum, as well as partition and disaggregate their licenses.

As smaller and cheaper 3G base stations are being developed, service will become increasingly available, with expanded coverage areas and better reception inside buildings. However, one of the biggest risks may be a new inclination to slap more regulations on telecom's fastest growing sectors. In the U.S., California and other states may move to regulate wireless prices and reliability as soon as this year. Such regulations could do serious damage to a fragile rebounding economy.

3.3 FCC proposals impacting 4G

4G is the next major generation of mobile cellular systems to be deployed around the year 2010. This wireless technology, such as Bluetooth (2.4 GHz), WLAN (2.4 GHz), and 802.11a (5 GHz), uses unlicensed frequencies. There is considerable disagreement among the FCC, however, as to what should be the main focus of 4G. Possibilities include the wireless Internet, higher bit rates, cost reduction, new user services, wireless-wireline integration, new air interfaces (or a strict limitation to a single global interface), a completely new network, and advanced opportunities for service providers. The domain of 4G extends beyond that of 1G, 2G, 2.5G, and 3G. It could coexist with 2G and 3G. 4G is not necessarily defined by the bit rate, but by a significant advance in system capability beyond what can be achieved with 3G.

Some of the key challenges of 4G relate to coverage, capacity, and spectrum. Transmit power limitations and higher frequencies limit the achievable cell size. Current air interfaces have limited peak data rate, capacity, and packet data capability. Location and availability are key spectrum issues, especially considering that lower carrier frequencies (ideally less than 5 GHz) are best for wide-area coverage and mobility.

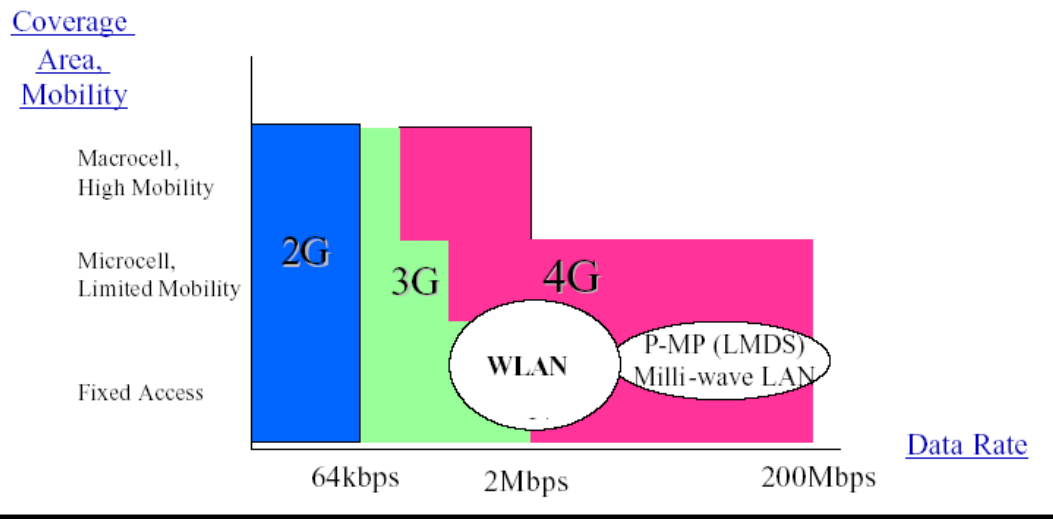


Figure 2 depicts various domains of application proposed for 4G commercial wireless.

3.4 Emerging market opportunities based on recent FCC decisions

In September 2003, the FCC proposed several rule changes that will remove unnecessary regulatory impediments to deployment of advanced technologies for wireless networking. In other words, the FCC's loosening of regulations of unlicensed devices is meant to encourage more inventions involving 4G devices. Those with expertise in 4G technology, or perhaps even in 3G, ought to take immediate advantage of this FCC trend as an excellent opportunity to patent ideas in the 4G realm.

3.5 Patent strategies for 4G technology

As far as patenting ideas go, many inventors often wonder whether a prototype or model is necessary before seeking legal counsel. The answer is no. However, what a start-up company does in fact

need to have is an offensive patent strategy and to build its patent portfolio. Even the various components auxiliary to the major innovation of a start-up need to be patented comprehensively.

In this space, a start-up must quickly establish a niche with patents by taking advantage of an often-overlooked leverage in the patent law. Specifically, patent law allows a person to patent an idea without actually having implemented the idea in physical form. Thus, a start-up can aggressively patent ideas not yet materialized to leverage its innovative concepts.

In practice, while implementing nothing in practice, a start-up would anticipate possible applications of its innovations in both the vertical and horizontal markets by incorporating its innovations into patents. In doing so, a start-up can quickly carve out a niche in the market and increase market share.

IV. Conclusion

Multiple opportunities and strategies to increase market exclusivity for a patent's term exist. Many possible pitfalls in evaluating the USPTO timelines also exist. Timing is critical for the economic fate of small start-up wireless technology companies creating innovations. A diligent and detailed patent prosecution team is necessary to balance the multiple USPTO and FCC concerns, while maximizing the opportunities to extend patent terms and market exclusivity.