Open Access at 700 MHZ: Opening Doors for Mobile Devices

With the 700 MHz auction rapidly approaching and established carriers rethinking their “restrictive carrier” policies, open access may allow wireless designers to provide a variety of consumer products.

by By Frederick M. Joyce, Esq. and Ronald E. Quirk, Jr., Esq., Venable LLP

The 20-year history of U.S. mass-marketed wireless services has been marked by phenomenal growth. In 1987, less than one million people subscribed to cellular phone service. By 1997, the figure had risen to 55 million. Today, more than 250 million Americans &#151 82.5% of the population &#151 subscribe to a cellular service. Mobile high-speed data services have also grown rapidly. By the beginning of this year more than 22 million people subscribed to such services &#151 a 600 percent increase over the previous year alone.

While the strong expansion of cellular and wireless data services has increased the demand for advanced equipment to suit those technologies, the market for innovative mobile devices could soon expand dramatically. On January 24, 2008, the FCC will commence an auction for valuable spectrum in the 698 to 806 band (the “700 MHz band”). Assuming the bidding reaches what the FCC calls a “reserve price,” winning bidders for some of the auctioned spectrum will be required to allow any device or application to work over their networks.

New Kids on the Spectrum Auction Block

The players in this auction are many and varied. Two hundred sixty-six entities have submitted applications to bid in the 700 MHz auction. They are planning everything from cheap mobile phone service, to advanced digital broadcasting, Internet access, and various types of wireless broadband services.

A sample of these players and their initial proposed uses of the 700 MHz spectrum illustrate the enormous interest in this spectrum auction. Qualcomm plans to update and increase coverage of its MediaFLO broadcast network that distributes one-way video and audio feeds over long distances. Cox Cable aims to create a state-of-the-art wireless Internet service. Verizon Wireless intents launch its “Long Term Evolution” network to provide wireless broadband at speeds that exceed cable and DSL. Google, which as long advocated open access, also plans to bid in ths auction. It is not yet apparent what services Google intends to provide with the new 700 MHz spectrum, but some industry insiders believe Google will, among other things, provide spectrum management services with an open access software platform for cellular and wireless data carriers.

All of these potential 700 MHz service providers will require innovative

infrastructure vendors and manufacturers to provide devices that can operate on these new systems. This will create abundant opportunities for creative wireless designers. Wireless designers will want to keep abreast of this 700 MHz auction, including the players and services that will be offered.

The 700 MHz Auction: “Beachfront Spectrum” for Wireless Broadband

The 700 MHz band, a.k.a. “beachfront spectrum,” is ideal for wireless broadband services. Its propagation characteristics enable signals to reliably travel long distances and penetrate deep into thick-walled buildings. The FCC has implemented a “flexible use” policy, permitting new 700 MHz licensees to use the spectrum for a wide variety of services.

The FCC will auction 62 MHz of spectrum in the 700 MHz band, offering a total of 1,099 licenses on five spectrum blocks covering various geographic areas. Wireless equipment designers will likely find substantial opportunities in the networks that will be built by winners of the 12 wide-area “C Block” licenses and the nationwide “D Block” license.

Open Access in the C Block

The C Block is a 22 MHz &quotpaired block&quot of spectrum comprised of 746-757, 776-787 MHz frequencies. The reserve price for the C Block is $4.6 billion. This block is subject to the FCC’s new &quotopen platform&quot rules, requiring licensees to allow customers, device manufacturers, and third party application developers to use or develop devices and applications of their choosing in C Block networks, as long as they meet applicable regulatory requirements (e.g., the equipment authorization requirements in Part 15 of the FCC’s Rules) and cause no harm to the licensee’s wireless network. Specifically, C Block licensees will not be allowed to disable features or functionalities in handsets, unless it is necessary to protect the network; or block, degrade, or interfere with the ability of end-users to utilize the applications of their choice on the network.

As a practical matter, many now-common practices among wireless carriers will be prohibited for C Block licensees, including:
&#149No locking handsets to prevent their transfer from one system to another; &#149 No standards that block services that compete with the carriers’ own offerings; &#149 Standards for third-party applications must be no more stringent than those used by the carrier itself; &#149No discriminatory charges or conditions on customers who seek to use devices or applications outside those provided by the carrier; and &#149No denial of access to a device solely because it makes use of other spectrum bands.

Because of these open access requirements, the market for new hardware options may increase substantially. As more sophisticated applications are deployed on the C Block network, the demand for new, advanced equipment will be strengthened. Wireless manufacturers will be able to more easily fill that demand, as they will not be restricted to designing devices or applications for just one carrier.

Open Access Beyond 700 MHz

The 700 MHz auction may already have caused a shift in how wireless carriers manage their proprietary networks. Verizon Wireless, for example, which had filed a Petition for Review of the FCC's open access rules with the U.S. Court of Appeals for the DC Circuit, recently abandoned its legal challenge and announced that it will allow customers the option to use any wireless devices, software, and applications on its nationwide network by the end of 2008. Any CDMA handset will be allowed to operate on Verizon Wireless' network; customers will be able to download and use third party applications of their choice after the carrier publishes technical standards for the development community.

Some Control over Devices Will Remain

While opportunities will surely increase for wireless designers to develop and market equipment and applications independently of the network operators in this new C Band, some degree of cooperation with licensees will be necessary. C Block licensees are permitted to use their own certification standards and processes to approve use of devices and applications on their networks, including the choice of air interface technology. They will also be able to deny service to devices or applications that cannot operate using the carriers' technology.

D Block is for Niche Products

The 700 MHz auction will create prospects for wireless designers beyond those in the C Block realm. The D Block, a.k.a. the &quotPublic/Private Partnership Block&quot (paired spectrum encompassing the 758 to 763, 788 to 793 MHz frequencies) will enable creative wireless manufacturers to produce innovative products for use by first responders and other public safety entities. The reserve price for the D Block is $1.3 billion.

The nationwide D Block license will be awarded at auction to a commercial bidder. But, the winning bidder will be grant its license only after it has entered into an FCC-approved Network Sharing Agreement (&quotNSA&quot) with the FCC-selected Public Safety Broadband Licensee (the &quotPSBL&quot). The FCC recently announced that it selected the Public Safety Spectrum Trust Corporation (the &quotPSST&quot) as the PSBL. The PSST is a non-profit corporation whose Directors come from several public safety associations throughout the U.S.

By virtue of its selection as the PSBL, the PSST now effectively controls 10 MHz of public safety spectrum in the upper 700 MHz band for nationwide wireless broadband use. This public safety spectrum will be combined with an adjacent 10 MHz of spectrum licensed to the commercial D Block license winner. These spectrum assets will be used to create a shared nationwide broadband wireless network that will provide commercial services, while also maintaining a nationwide network for public safety. The Commercial D Block licensee is responsible for constructing and operating the network, which will span the D Block and 700 MHz public safety spectrum. The PSST will have priority access to the network during emergencies.

The PSST and D Block licensee &quotPublic/Private Partnership&quot is required to incorporate, among other things, specifications for a broadband technology platform that provides mobile, voice, and data capability that is seamlessly interoperable across agencies, jurisdictions, and geographic areas. This platform must include current and evolving state-of-the-art technologies made available in the commercial marketplace with features such as increased bandwidth that are useful for public safety entities.

This platform will require new and advanced wireless equipment. The PSST and D Block winner will decide the specifics of the equipment that will be used on the network, which are expected to be many and varied. The PSST has authority to purchase its own subscriber equipment from any vendor it chooses, subject only to the network controls that will be established in the NSA. Additionally, the D Block licensee is required to make available to the PSST at least one handset that is suitable for public safety use, to include an integrated satellite solution capable of operating over both the 700 MHz public safety spectrum and on satellite frequencies.

Consequently, there should be ample opportunities for wireless designers to provide niche products for use on this public safety/commercial network. Designers and manufacturers will need to work closely with the PSST and eventual D Block winner to develop suitable equipment.

A Brave New World for Wireless Designers

With the 700 MHz auction rapidly approaching, and established carriers rethinking their network access policies, open access could well unleash competitive forces that will allow wireless designers a wide array of products that serve consumer and business interests. Although the wireless industry is in the nascent stages of open access, the time may well come where it will resemble the Internet world, where potentially anyone can develop the next killer app and hardware, and make them readily accessible to the market.

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