Major Commercial Wireless Services*

**Broadcast TV**
- Channels 2-4 (VHF) 54 to 72 MHz
- Channels 5-6 (VHF) 76 to 88 MHz
- Channels 7-13 (VHF) 174 to 216 MHz
- Channels 14-20 (UHF) 470 to 512 MHz
- Channels 21-36 (UHF) 512 to 608 MHz
- Channels 37-68 (UHF) 614 to 806 MHz

**3G Broadband Wireless**
- 746 to 764 MHz; 776 to 794 MHz
To be used for “third-generation” advanced wireless services.
- 1,710 to 1,885 MHz
The Clinton administration has proposed auctioning this spectrum for 3G broadband wireless services.
- 2,305 to 2,320 MHz; 2,345 to 2,360 MHz
Intended for wireless data services; proximity to the satellite radio band could make it a good addition to digital radio services in the future.
- 12.2 to 12.7 GHz
EchoStar and DirectTV now dominate this fast-growing business, offering hundreds of TV channels via satellite. They have become major competitors to cable TV companies. Both DBS firms are adding interactivity using wire-line and satellite back channels.

**Digital Electronic Message Service (DEMS)**
- 24.25 to 24.45 GHz; 25.05 to 25.25 GHz
This high-capacity allocation carries a lot of data but the signal can’t travel far. Teligent owns most of the licenses and offers broadband data services to businesses in dense, urban areas.

**Local Multipoint Distribution Service (LMDS)**
- 27.5 to 29.5 GHz; 31.0 to 31.3 GHz
XO Communications (the merger of NextLink and Concentric), a venture founded by Craig McCaw, dominates this band, with 95 percent coverage in the top 30 markets. Winstar also holds some licenses here. Both are building fixed wireless systems.

**Teledesic**
- 18.8 to 19.3 GHz
28.6 to 29.1 GHz
Teledesic, the two-way digital satellite service scheduled for full deployment by 2005, plans to use the 18-GHz band for downstream transmissions and the 28-GHz band for upstream. Teledesic’s investors include wireless pioneer Craig McCaw, Bill Gates, and Saudi prince Al-Waleed bin Talal.

**Satellite-Delivered Digital Radio**
- 2,320 to 2,325 MHz

**Multichannel Multipoint Distribution Service (MMDS)**
- 2,150 to 2,680 MHz
Sprint and WorldCom bought several of the failing “wireless cable” companies with MMDS spectrum and are converting them from TV service to two-way digital data services.

**3G Fixed Wireless Service**
- 38.6 GHz to 40 GHz
Winstar was the top bidder at the May auction of this spectrum, paying $161 million for 931 licenses. It plans to offer fixed wireless services in combination with its LMDS capacity at 28 GHz.

*This diagram shows only a select number of U.S. commercial services. Not represented are hundreds of more minor commercial and noncommercial services. The government is the single largest user of U.S. airwaves. It runs services ranging from low enforcement radio to satellite space research and top-secret military communications.

The future of many giant communications companies rests on the outcome of those auctions. It’s tricky business and complex science. Here’s a primer.