

SATELLITE POLICIES



By Raul Magallanes

The Status of 3.65 GHz

There have been fierce spectrum battles between the satellite and wireless industries, but there is no rule saying that satellite service providers cannot provide wireless services. As the United States becomes a more sophisticated market for broadband services, satellite service providers are reaching into new territory with the use of spectrum. The 3650-3700 MHz band (the 3.65 GHz band) is yet another available option that should not be overlooked.

Attractive features of the 3.65 GHz band include light regulation and cost-effectiveness. All too often, access to the electromagnetic spectrum represents a barrier to market entry. Auctioned spectrum, for example, often is available only to the “big” players because of its price tag. In contrast, the application fee for a nationwide 3.65 GHz license is less than \$300.

It is true that the 3.65 GHz band is non-exclusive and, therefore, interference is a concern, but it is not an unlicensed band in the true meaning of the word. The 3.65 GHz band is a step above unlicensed spectrum in that it works on a registration system. Once a license is obtained, every base station operating under that license must be registered in a national database. This allows for transparency and encourages coordination among providers in order to reduce harmful interference.

Currently, the entire 50 MHz of the 3.65 GHz band is allocated to terrestrial wireless services, but the band coexists with some 100 Earth stations and government radar sites. These services were grandfathered from previous allocations of the band. In fact, terrestrial wireless services in the 3.65 GHz band are not allowed to operate within 150 kilometers of grandfathered Earth stations and 80 kilometers of grandfathered radar sites. These protected services operate primarily along the East and West Coasts of the United States.

So how can satellite service providers benefit from the 3.65 GHz band? For some, the band could be a possible substitution or extension of a satellite link — a backhaul. For others, the band could be a last-mile solution. These two applications are designed as point-to-point line-of-sight, but 3.65 GHz also can be setup for non-line-of-sight applications. In general, the band has good propagation characteristics.

Although a 3.65 GHz license is nationwide, there exists the implicit assumption that operators will focus on selected geographical areas. This means that for some operators offering services in remote areas, there could be few operators (or perhaps only one) using the band in that area. There is, however, a word of caution: A first-to-market operator does not gain priority rights, so the first-comer cannot sit back and expect the incumbent to do all the work when it comes to interference avoidance. The process requires ongoing cooperation from all parties.

The 50MHz of available bandwidth in the 3.65 GHz band is divided into two segments. The lower 25 MHz is reserved for applications with restricted contention protocols (“listen-before-you-talk”) which manage interference among devices using the same wireless interface (e.g. WiMax). The upper 25 MHz is reserved for applications using unrestricted contention protocols which work across multiple wireless air interfaces.

Regulation of maximum power is always a primary factor to consider when contemplating a new service. Operations in the 3.65 GHz band are limited to effective isotropic radiated power of 25 watts/25 MHz for base stations, and 1 Watt/25 MHz channel for mobile devices. Power ultimately determines reach, but a frequency with good propagation characteristics also will contribute to reach. In the end, further reach translates to a need for fewer base stations.

Consider the following key points of the 3.65 GHz band:

- Nationwide coverage
- Good propagation characteristics
- Quick and inexpensive authorization
- Ideal for non-line-of-sight applications
- Well suited for IP applications
- No build-out requirements
- Non-exclusive licensing
- Self-coordination required

For a nominal price, the 3.65 GHz band presents an important alternative to rising players. A 3.65 GHz license has no buildout requirement, as is often the case with auction spectrum, so it should be viewed as an opportunity and not a commitment to deploy service. The 3.65 GHz band combines the advantages of the unlicensed bands while at the same time offering manageable levels of harmful interference. ▽

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