

## UNCOMMONLY KNOWN RADIO TRANSMITTERS

Remote control devices are technically referred to by the FCC as “Part 15 Devices.” 46 CFR Chapter 1, Part 15 establishes the rules for low-powered radio frequency transmitting devices that may be operated without a license. A key fob or visor are examples of unlicensed radio transmitters.

Since these transmitters are very low power, they will have difficulty competing with those radio transmitters of the licensed, higher-power nature.

Many manufacturers are now making available systems that “frequency hop,” so if one signal doesn’t work, it changes frequency and tries again. In other cases, a retrofit kit to work on a different frequency will be useful. Most area installers are aware of interference possibilities in a given neighborhood, so it would be best to consult professionals.

## THINGS TO CONSIDER

### Wind Turbines:

Wind turbines can interfere with military installations for radar surveillance, radio communication, and so forth.

The siting of wind farms within 10-30 miles of Offutt AFB could result in impacts to Air Force systems and operations, particularly communication infrastructure and frequency interference.

### Data Bandwidth Usage:

The 55th Wing, STRATCOM, and the 557th Weather Wing are all heavily dependent on data bandwidth.

### Local Radio Frequencies:

Radio frequency interference could interfere with operations at Offutt AFB or aircraft instrumentation if they are on a similar frequency to one used by the base.

# MAPA

2222 Cuming Street  
Omaha, NE 68102-4328  
Phone: (402) 444-6866  
[www.mapacog.org](http://www.mapacog.org)

# OFFUTT AIR FORCE BASE

# FREQUENCY INTERFERENCE



JOINT LAND  
USE STUDY

**MAPA** Omaha - Council Bluffs  
Metropolitan Area  
Planning Agency

## WHAT IS A FREQUENCY SPECTRUM

Frequency spectrum refers to the range of electromagnetic waves capable of carrying signals for point-to-point wireless communications. In a defined area, the frequency spectrum is limited and increasing demand for frequency bandwidth from commercial applications such as cellular phones, computer networking, GPS units, and mobile radios, is in direct competition with the capacity necessary for maintaining existing and future missions and communications on installations.

## FREQUENCY SPECTRUM CAPACITY

Frequency for radio spectrum has intensified in recent years, particularly in bands that are optimal for mobile systems (approximately 200MHz–4GHz). This factor has had an impact on the perceived (and actual) value of spectrum. Spectrum re-allocation heavily favors the private sector. It is this re-allocation of the bandwidth to the commercial industry that threatens the DOD-allocated capacity to conduct secure communications missions. The 55th Wing, STRATCOM, and the 557th Weather Wing all heavily rely on data bandwidth.

## FREQUENCY SPECTRUM INTERFERENCE

The frequency spectrum is the entire range of electromagnetic frequencies used for communications and other transmissions, which includes communication channels used for radio, cellular phones, and television. In the performance of typical operations, the military relies on a range of frequencies for communications and support systems. Similarly, public and private users rely on a range of frequencies in the use of cellular telephones and other wireless devices used on a daily basis. The military relies on a range of frequencies for communications and support systems. Since 1993, Congress has been selling federal spectrum bands for reallocation to the private sector, promoting the development of new telecommunications technologies, products and services. The expanding public and commercial use of the frequency spectrum from wireless transmitters to consumer electronics can encroach on the military's use of the frequency spectrum. Increasing community and DOD demands for this important resource can create conflicts for all users.

## FREQUENCY INTERFERENCE FACTORS

Frequency interference is related to other transmission sources. Interference can result from a number of factors, including:

- Using a new transmission frequency that is near an existing frequency;
- Reducing the distance between two antennas transmitting on a similar frequency;
- Increasing the power of a similar transmission signal;
- Using poorly adjusted transmission devices that transmit outside their assigned frequency or produce an electromagnetic signal that interferes with a signal transmission; and
- Existing electronic sources and uses created by portable systems affecting entire communities utilizing Wi-Fi broadband systems and industrial sources that produce electronic noise by-product.