



## **SINGLE SIDEBAND (SSB)**

All CB radios operate on AM, which is the same type of transmission as your typical AM radio station. In addition, some higher-end CB radios are equipped with single sideband, which is a different mode of transmission. People using a regular CB radio cannot properly receive SSB signals, it will sound garbled. Here is a brief description of single sideband:

Please note that single sideband does not use different frequencies. For example channel 19 has a frequency of 27.185MHz. When you switch to single sideband, channel 19 is still 27.185MHz. The mode of transmission changes, but the frequency does not change.

All AM transmissions take up a certain amount of space, called "bandwidth". The bandwidth for CB radios is 8KHz. As an example, lets look at channel 19. The frequency of channel 19 is listed as 27.185MHz, but the signal actually consists of a range of frequencies. The range is 4KHz below and 4KHz above (making an 8KHz bandwidth). So the actual range of channel 19 is 27.181 to 27.189MHz, with a center frequency of 27.185MHz. The range of frequencies below 27.185MHz is called the Lower Sideband (LSB). The range of frequencies above 27.185MHz is called the Upper Sideband (USB).

So AM transmissions consist of a lower sideband and an upper sideband. CB radios equipped with SSB can operate on just one of the sidebands (lower or upper). So in effect you have extra channels. A person operating on channel 19 LSB will not interfere with a person operating on channel 19 USB. In this manner an SSB radio offers 80 discrete channels. You don't really get 120 discrete channels (40 AM plus 80 SSB) because there will be interference between AM and SSB. If someone is operating on channel 19 AM, it will interfere with sideband transmissions and vice versa. But you do get 80 discrete SSB channels in addition to the regular 40 AM channels.

Radios equipped with SSB have an additional control, usually called a "voicelock" or "clarifier". This control is adjusted to clarify received signals when using SSB. This is necessary because there is not enough information in an SSB transmission for the receiver to properly decode the signal. A manual control is necessary to clarify the reception. This typically needs to be done only once when communicating to a person on SSB.

The advantages of single sideband:

- More channels
- Higher power (12 watts is allowed on SSB, only 4 watts is allowed on AM)
- Quieter reception

One interesting difference between AM and SSB is that single sideband only transmits a signal when you talk. If you key the microphone on AM, the power meter will always indicate transmit power. If you key the microphone on SSB, the power meter will not indicate power unless you talk. In addition, the power meter will fluctuate with your speech. This is normal operation for SSB.

One other note: As previously stated, a person on AM will not be able to understand an SSB transmission. However, it is possible to receive AM transmissions when you are on sideband. If a person transmits on channel 19 AM, it will be possible to properly receive him on either USB or LSB. This is normal. So if you are trying to talk to someone on SSB and they don't respond, switch to AM and see if they are operating on AM.