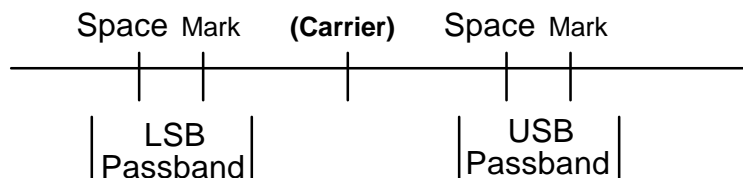


Center vs. Mark frequencies:

The amateur community has traditionally described frequency-shift (FSK) signals by the frequency of the Mark signal, a holdover from RTTY days when transmitters spent a lot of time "idling" on the mark frequency. The practice for commercial stations has long been to describe FSK signals by their Center frequency, the midpoint of the mark and space signals. The mark frequency traditionally is the higher of the two transmitted signals although for Pactor transmissions the choice is arbitrary. Clover transmissions use additional audio frequencies and the mark/space designation is not appropriate, so Clover signals have always been described by their center frequency. .

As new modes have been developed there has been a move towards describing all digital signals by their center frequencies. As with most proposed changes in amateur radio, this will generate lively discussion for years to come. AirMail accommodates either convention, and calculation of dial frequencies in either case is straightforward.

Some transceivers provide an FSK mode, and the dial readout will usually be the Mark frequency for ham transceivers or the Center frequency for marine or commercial transceivers. Pactor-2 is a two-tone phase-encoded signal, however, so SSB mode (USB or LSB) is always used for the PTC-II. The relationship of the mark and space signal for either sideband is shown below.



The dial frequency for SSB modes is always the (suppressed) carrier frequency, so the frequency dial must be offset as indicated below. The following rules apply:

For signals designated as Mark Frequency:

USB mode: Dial frequency = Signal frequency minus mark tone:

LSB mode: Dial frequency = Signal frequency plus mark tone:

(of course the mark tone is different for USB and LSB mode)

For Signals designated as Center Frequency:

USB mode: Dial frequency = Signal frequency minus center tone:

LSB mode: Dial frequency = Signal frequency plus center tone:

The center tone is always the mean of the mark and space tones, and the center of the receiver passband.