

PHONE RECOMMENDATIONS

What phone works best with *CellSet*? Iridium satellite phones (Motorola Model 9505): It works everywhere, it connects directly to our *CellSet* with no adapters and it rings into the headset when a call comes in. It has great features but is too expensive for most people.

For the rest of us... here are some notes and considerations. They include; RF interference (digital noise), audio connections, power, operation, and mounting.

RF INTERFERENCE

Digital phones use a variety of modulation techniques to transmit information (voice). Information is transmitted via digital (square) waveforms. Square waves contain a near infinite number of frequencies, some of which are located in the audible spectrum. These frequencies can feed into *CellSet* and the vehicle's audio system, and cause a very distracting buzzing noise. It may be periodic or continuous.

The digital data is placed atop a carrier frequency and the higher the frequency, the less low frequency signals are generated.

Of course, an analog phone will not generate these frequencies, but the coverage is becoming smaller daily.

The following is a list of increasingly noisy phone modulation techniques and carrier frequencies:

1. Satellite (too costly for most), but best.
2. GSM 1900 MHz (limited coverage)
3. CDMA and TDMA
4. Nextel 800 MHz - worst.

Please note: Most GSM tri-mode phones will switch to CDMA or TDMA when you roam. As a result, it will sound great in the garage and around town, but lousy when roaming (when you need it).

RF interference can be effectively eliminated by attaching a remote mount

antenna to the phone, but if your phone does not have this connection, you're out of luck.

AUDIO CONNECTIONS TO THE CELLSET

Most phones have a 2.5mm diameter personal headset jack on them. Although they vary in configuration (3 circuit vs. 4 circuit), they offer a single point of connection between the phone and the *CellSet*.

Many phones have a proprietary data connector on the bottom of the phone and the manufacturer offers headsets terminated with a mating connector.

Since it is cost prohibitive to manufacture *CellSet* units with the huge variety of proprietary connectors, we attempt to provide connections to the most popular phones with a 2.5mm diameter headset jack.

Many phones with proprietary data connectors can be connected to *CellSet* via adapters which convert the data connector to a 2.5mm headset jack. The problem with these adapters is that they break, wear out, or get lost. Try to avoid them

A note about BlueTooth: There are headset adapters such as Sony's HBH 200 or Motorola HF820 that provide a radio link to the phone and connect to the *Cellset* via a universal 2.5mm headset jack, but they are pricey. The HBH-200 can be a bit noisy (digital noise coming from the unit's internal display CPU). They do, however, offer ring tones and other features such as voice dialing and caller identification.

POWER

Some phones will not go to sleep when a device (headset or *CellSet*) is connected to its headset jack or data connector. As a result, the battery will drain in a few hours: A charger is indicated. Some headset adapters cover the charger port making it impossible to keep the phone powered.

OPERATION

Ring on incoming calls

Some phones send a ring tone out the headset/ data connector, but most do not. To test this feature, connect a personal headset to the phone and call it. Listen for the ring tone in the headset. If you hear it in the headset, then you will hear it through the *CellSet*.

If you do not hear a ring tone, you will need to:

- ◇ wear the phone and set it to vibrate
- ◇ program the phone to auto answer and listen for the calling party to start speaking
- ◇ listen for the phone to wake up (via clicking in the audio system)
- ◇ listen for the phone ringing over the ambient noise
- ◇ set the phone where you can see it “light up” on an incoming call

Answering calls

Answering calls can be accomplished by pressing the answer button or flipping the phone open. Furthermore, most phones can be programmed to:

- ◇ auto answer (after a preset number of rings)
- ◇ “any button” answer (flip style phones)

Hang up

Call termination can be accomplished via pressing the hang-up button or flipping the phone closed. Furthermore, most cell phones hang up when the landline phone hangs up.

Dialing

Phone numbers can be dialed manually. Some phones offer voice dialing when properly programmed. Usually this is initiated by pressing a button on the cell phone.

MOUNTING

Most belt clip buttons that attach to the back of the phone are the same size as a hand microphone, thus a hand microphone bracket can be used.

Many phones are small and light enough to velcro it to the vehicle.

Given the above, these are the things to consider when selecting a cell phone for use with a Kennedy Technology CellSet:

- ◇ **Does it ring in the headset jack?**
- ◇ **Does it require a headset adapter?**
- ◇ **Can an external antenna be connected to it?**
- ◇ **Can it be charged while a CellSet is connected?**