

# Amateur Radio Station Set-up

When setting up an amateur radio station, choosing the radio itself is the most important consideration, but you must also choose a wide range of accessories, such as power supplies and microphones. In addition, how you set up the station is important for it to operate efficiently.

One accessory that you'll definitely need is a power supply to provide the DC voltage and current that your radio needs. A good reason to use a regulated power supply for communications equipment is that it prevents voltage fluctuations from reaching sensitive circuits. (T4A03) When choosing a supply, check the voltage and current ratings of the supply and be sure to choose one capable of supplying a high enough voltage and enough current to power your radio.

If you are going to operate with one of the voice modes, you'll need a microphone. When considering the microphone connectors on amateur transceivers, note that some connectors include push-to-talk and voltages for powering the microphone. (T4A01)

A computer has become a very common accessory in an amateur radio "shack." All of these choices are correct when talking about how a computer is used as part of an amateur radio station (T4A02):

- For logging contacts and contact information
- For sending and/or receiving CW
- generating and decoding digital signals

If you plan to operate packet radio, you will need a computer and a terminal node controller, or TNC, in addition to the radio. A terminal node controller would be connected between a transceiver and computer in a packet radio station. (T4A06) The TNC converts the ones and zeroes sent by the computer into tones sent over the air.

A more modern way to operate digital modes, such as RTTY or PSK-31, is to use a computer equipped with a sound card. When conducting digital communications using a computer, the sound card provides audio to the microphone input and converts received audio to digital form. (T4A07) The sound card may be connected directly to the radio, but it's usually better to connect it through a device that isolates the radio from the computer. This prevents ground loops from causing the signal to be noisy.

Audio and power supply cables in a amateur radio station sometimes pick up stray RF. At minimum, this RF can cause the audio to be noisy. At worst, it can cause a radio or accessory to malfunction. To reduce RF current flowing on the shield of an audio cable (or in a power supply cable), you would use a ferrite choke. (T4A09)

Modern radio equipment is very well-designed, and harmonic radiation is rarely a problem these days. Even so, there may be times when it does become a problem, and you'll have to take steps to attenuate the harmonics. To reduce harmonic emissions, a filter must be installed between the transmitter and the antenna. (T4A04)

Good grounding techniques can help you avoid interference problems. When grounding your equipment, you should connect the various pieces of equipment to a single point, keep leads short, and use a heavy conductor to connect to ground. Flat strap is the type of conductor that is best to use for RF grounding. (T4A08)

If you plan to install a radio in your car and operate mobile, you have a different set of challenges. One is connecting the radio to the car's power system. Some amateurs connect their radio with a cigarette lighter plug, but this plug is not designed for high currents. Instead, a mobile transceiver's power negative connection should be made at the battery or engine block ground strap. (T4A11) The positive connection can also be made at the battery or through an unused position of the vehicle's fuse block.

Another challenge is noise generated by the car itself. One thing that could be happening if another operator reports a variable high-pitched whine on the audio from your mobile transmitter is that noise on the vehicle's electrical system is being transmitted along with your speech audio. (T4A12)

The alternator is often the culprit. The alternator is the source of a high-pitched whine that varies with engine speed in a mobile transceiver's reception audio. (T4A10) Should this be a problem, there are filters that you can install to mitigate the alternator whine. One thing that may reduce ignition interference to a receiver is to turn on the noise blanker. (T4B05)

**QUESTION POOL: (12)**

T4A03	T4A01	T4A02	T4A06	T4A07	T4A09
T4A04	T4A08	T4A11	T4A12	T4A10	T4B05