Lee County ARES Training net - Oct 3, 2022 by WB5YYQ

Slow Scan TV

Recently, Lee County ARES members participated in a Williamson County ARES exercise in which one of the tasks involved was receiving a Slow Scan TV signal (SSTV) broadcast on a 2 meter simplex frequency from a ham operator in Leander, TX and then responding via Winlink that the image had been successfully received.

Although SSTV has been around for many years, it may be a mode new to many of our members, and warrants a bit of discussion.

Let's first think about conventional television.

A commercial broadcast television signal with live motion video occupies 6 Mhz of bandwidth, which eliminates any activity in the HF or VHF ham bands. It is allowed on the 70 cm and higher ham bands, and is used frequently in conjunction with other hobbies such as radio controlled aircraft, balloon and model rocket launches.

As a compromise, we have Slow Scan TV for HF and VHF bands. A Slow Scan TV signal

occupies the same amount of bandwidth as a typical single side band (SSB) signal. With this reduced bandwidth, live motion video is not possible, so a single static video image is used.

An SSTV signal consists of a constant amplitude analog audio tone, varying only in frequency. A simplistic explanation of how it works is that high tones are for bright areas and low tones for dark areas of the image. The image is scanned and transmitted one line at a time. There are many different modes for SSTV, with different resolutions and scan rates. A typical color image is 320 x 256 pixels. Depending on which mode is used, transmission can take anywhere from one to 4.5 minutes

In the early days of SSTV, the equipment used was big, bulky, and expensive. For example, in the mid-seventies, a popular SSTV converter would cost over $800.

With the advances of modern technology, it's now very easy to operate in this mode. If you can do VARA FM, or VARA HF in Winlink, you already have the equipment to do SSTV.

All you need is a computer (which could be a simple as a Raspberry Pi), an external sound card interface such as a Signallink, or one of the Master Communications DRA series boards, a ham radio, and the appropriate cables to connect them together.

To make things even easier, some of the newer ham radios have built in sound card capabilities, so you don't need the external sound card interface, just an USB cable to go from the computer to the radio.

The primary software used for this mode is MMSSTV, which has been around for many years and is available for free from the website HamSoft.ca. They also have a wealth of info on that site.

There are versions of this software available for Windows, Mac, Raspberry Pi, IOS, and Android.

Once you have the software downloaded and installed, you may be somewhat overwhelmed by the menu options. However, there are really not many things to setup to make this work. You'll need to enter your call sign, and identify which sound card is being used for

input and output audio, and the com port being used. This should be identical to what you used to setup VARA in Winlink Express.

In my opinion, the most difficult part of the MMSSTV software is setting up the image you want to transmit; adding your personal touch to what could be considered a digital QSL card.

The software will automatically decode and record what is received, so if you just let it run, you can come back later in the day and scroll thru many images that have been transmitted. The most popular spot for SSTV is 14.230 Mhz on the 20 meter band, and you can almost always find a slow scan signal there.

I haven't tried it yet, but I understand that there is SSTV capability on the International Space Station.

Operating on 2 meters presents some very interesting opportunities, both for public demonstrations and for emergency operations. We could very easily add SSTV operations to our EMCOM trailer and the EOC with equipment we already have, and no additional funds required.