

How do I?

An occasional series

This week: SSTV



Slow Scan TeleVision or SSTV for short is a method of transmitting pictures by radio. How is this useful? If you enjoy seeing NASA and other space agency photos taken in space, they were transmitted via radio back to earth. Your satellite or over the air TV signal uses commercial NTSC protocols with at least 6 **MHz** of bandwidth and 30 frames per second.

SSTV uses a mere 3 **KHz** of bandwidth, the same as single side band voice on HF frequencies. As a result amateur radio SSTV signals are sent over HF, UHF and VHF frequencies.

SSTV was “invented” in 1957-1958 by Cophorne MacDonald. NASA used it extensively from the mid to late 1960’s through Apollo 11. According to Wikipedia, NASA deliberately erased the tapes used to record downloads so the tapes could be reused.

Originally SSTV required very specialized equipment to receive, as well as transmit. Since the 1990’s your PC and radio can do it all.

All you need is a radio to receive the signal, a sound card and some software. The free MMSSTV software found on the web or included on the Tigertronics Signalink install CD is a great place to start. There are other SSTV software programs available, but I have only used MMSSTV and believe most of the others start with the MMSSTV engine and add features.

1. Connect your radio to the sound card. For HF SSTV use a HF rig, for 2M or 440 MHz SSTV a simple 2M rig or dual band 2M/70 cm rig will do.
2. Connect the sound card to the computer.
3. Start the MMSSTV software. Enter your call sign when prompted and you should be good to go! There are several methods of SSTV. MMSSTV can automatically decode which mode is being received, so you don’t have to worry if it is Scottie 1 or 2, Martin, Robot or something else. Scottie and Martin varieties are the most common in amateur use.

Some common HF watering holes:

80M	3.845	LSB
40M	7.170	LSB
20M	14.230	USB
15M	21.340	USB
10M	28.680	USB

VHF and UHF transmission is on FM
145.500 is a popular watering hole for 2M.

for more info:

<http://www.hamuniverse.com/sstv.html>

Makoto Mori's MMSSTV software and lots of information can be found here:

<https://hamsoft.ca/pages/mmsstv.php>

How easy is it?

I'd never tried SSTV before. Steve N3FWE reminded me Friday that on Saturday <https://reachfornearspace.com/> was launching a hot air balloon and would be transmitting on 145.600. I downloaded the free MMSSTV software Friday evening. Set up a new Tigertronics Signalink sound card and attached it to a USB port on my computer and the other end to the data port on a Yaseu FT8900R. Total set up time, including opening up and wiring the Signalink was less than 30 minutes.

Saturday I turned the radio on and went to do errands. Came home and found emails from N3FWE saying no one had heard anything yet. Then I heard noises but nothing was coming on screen. So I adjusted the Signalink knobs and set both VFO's on the FT8900R to 145.600. The FT8900R is a fairly recent acquisition and my total time on it is maybe 2 hours. Then the magic happened. It took about 90 seconds but this photo appeared on the computer screen.



Then the hard part: how to save it. I received 5 images but only managed to correctly save 2. Seems I need more practice! Rain was moving into the area and after receiving 2 or 3 images like the above I could only get green test screens:



From N3FWE's reports I'd expect to receive the test screens in advanced of the actual transmission as well as after.

<https://reachfornearspace.com/users-post-gallery/> has photos uploaded by recipients. Many describe the equipment used. This morning there are only a few posted but the radios used are a Icom 746 with a homebrew J pole antenna mounted 46' up; a Yaesu FT991A with a slim jim antenna at 23'; an unnamed HT (hand held) with a 5/8 wave magnetic mount mobile antenna using an Android Phone app as the software.

If you want to carry on a conventional QSO, MMSSTV has built in templates and macros that superimpose your call sign on stock images. Or you can create your own.

What is SSTV used for? Besides experimentation and plain old "can I do that?" the practical uses are found primarily in the EMCOMM and public service community. For example: photos from a disaster scene can be sent via SSTV to county emergency communications centers. Or if a bike race needed rerouted due to a sudden road closure mid race, the central command station could draw up a new map and send it to the individual check points and SAG-support and gear vehicles so they all knew the plan.

Catch ya on the air!