

The Framingham Circuit

Newsletter of the Framingham Amateur Radio Association January, 2022 Vol. 89, No. 1



PRESIDENT'S MESSAGE: Happy Ham Radio New Year! I hope you are able to continue the original "social distancing" practice with radio for the remainder of this pandemic. I have asked on a few nets this week, "what new or past abandoned aspects of the hobby would you like to try to develop this year?" I had set a goal of VHF Winlink so I can do emergency emails if needed, and also SSTV (Slow Scan TV). I was able to log on to the Eastern MA Emergency Winlink net on the first Monday of this month so I accomplished this goal already, both by direct VHF to a digipeater and by APRS/Winlink through an APRS digipeater. I also downloaded an SSTV photo from the ISS and made my first SSTV QSO with Sumner, W1VIV, and Steve, N1MH. Now I have to find new goals. What are your goals? What could we try as a club? What mode would you like to try? I would suggest downloading FLDIGI to be able to run some conversational digital modes used by the emergency nets. We could try an NBEMS (Narrow Band Emergency Messaging Software) net or demo using that program. I think we could do that over the repeater, not 100% sure, or just over Zoom. We could try a Slow Scan TV net on 10 meters on 28.680 MHz to practice that mode. See Sumner's nice article below on SSTV and some of our ISS picture below. There is a Hamfest at the Whitman club this Saturday. There are some North American QSO parties, (CW and SSB), and even Winter Field Day later this month. Remember to send me notes on your new equipment, contacts, modes, interests for the newsletter. Let me know what modes you are interested in to try to expand your expertise this year. I could not get some of the links below to convert to hyperlinks, but I tested them out by cutting and pasting into browser so I think they are good.

Minutes: The minutes of past meetings are available for members on our website. You will have to do a search for "minutes". Thanks to Andy, KC1DMM, for writing them up this year, and I will not repeat them here.

Recent Meetings:

- December 2, 2021: Art Lipatov, W1JAR gave an extremely thorough talk on Digital Voice Modes.
- January 6, 2022: K4M Midway Island DXpedition Video was shown with commentary from Dave Hoaglin, K1HT. Also an SSTV demo was presented by Sumner, W1VIV, and Steve, N1MH.

Odds and Ends. This was a regular section of the old Circuits. Feel free to submit materials.

- **Digital Modes beyond FT8!** Recent discussion on Yankee 6 Meter SSB Net on Sunday mornings at 9:30 am by AF1R on keyboard to keyboard "conversational" digital modes. This was also mentioned at the ARRL meeting below.
- **ARRL New England Division** Director Fred Kemmerer, AB1OC, and Vice Director Phil Temples, K9HI, held the first quarterly division cabinet meeting of the year on January 8, 2022 via Zoom. KB1VXY attended this. For more information and some slides >> <https://nediv.arrl.org/new-england-division-2022-1q-cabinet-meeting>
- Tom Walsh, K1TW, notes the following: Straight Key Century Club, (SKCC), <https://www.skccgroup.com/>, has slow CW K3Y stations <https://www.skccgroup.com/k3y/k3y.php>
- Tom Walsh, K1TW: also notes that there is a Zoom meeting on Tuesday nights at 8 pm and a group.io offering help with CW, from New England CW Friends. While not a training class, this group offers help for those learning CW. <https://nediv.arrl.org/2021/12/19/new-england-cw-friends-meets-weekly-via-zoom> Group.io >> <https://groups.io/g/ne-cw-friends>

Upcoming meetings: We need suggestions for speakers or videos to watch!

- February 3, 2022. Video to be determined. We have one in mind.
- March 3, 2022: History of DBJ and TBJ VHF/UHF Antenna Development by Ed Fong WB6IQN.
- April 7, 2022: Tom Freneye, K1KI on New England QSO Party and other topics.
- May 5, 2022: Open
- June 2, 2022: Field Day discussion and elections.

Upcoming Hamfests

- Whitman Amateur Radio Club's Winterfest, Saturday January 15, 2022, See flyer at >>
<http://www.walnpo.org/WF/WinterFest%20Flyer%202022.pdf>
- Algonquin Amateur Radio (Marlboro) Flea Market, Saturday February 19, 2022. <https://www.qsl.net/n1em/>

Upcoming contests and radio events: (contests selected from WA7BNM calendar)

- | | |
|------------------------------------|--------------------------------|
| • North American QSO Party, CW | 1800Z, Jan 15 to 0559Z, Jan 16 |
| • ARRL January VHF Contest | 1900Z, Jan 15 to 0359Z, Jan 17 |
| • NA Collegiate Championship, SSB | 1800Z, Jan 22 to 0559Z, Jan 23 |
| • + North American QSO Party, SSB | 1800Z, Jan 22 to 0559Z, Jan 23 |
| • <u>Winter Field Day!!</u> | 1900Z, Jan 29 to 1900Z, Jan 30 |

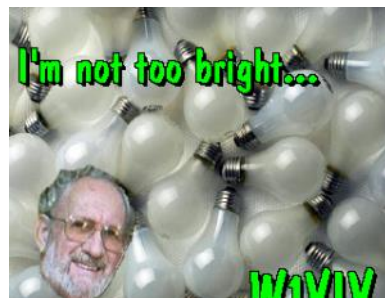
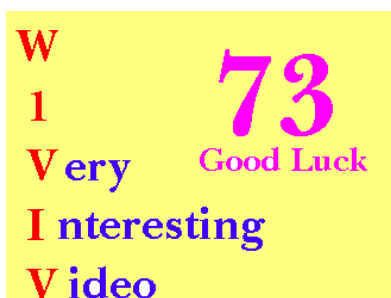
Article:

Slow Scan TV through the Decades

Sumner Weisman, W1VIV

In the Beginning:

Many of today's hams are not aware that slow scan TV was in use before there was a computer in nearly every ham shack. Long before the beautiful full-color SSTV pictures we send today with the aid of computer software, we were on 20 meters sending crude slow scan pictures to other hams around the world. It looked intriguing to a young ham, and I decided that I wanted to be involved in this aspect of our multi-faceted hobby. First, I upgraded my ham license from General to Advanced class, so that I could transmit on the 20 meter frequencies being used for SSTV. I then modified an old Eico 5-inch oscilloscope kit, discarding everything but the case, the power supply, and the horizontal and vertical sweep circuits. I constructed a circuit board containing the additional circuitry required to convert the received audio tones to a picture, and to drive the CRT (cathode ray tube). This was installed in the case. I bought a surplus 5 inch CRT that was made for a military radar PPI scope (plan position indicator), with a long persistence phosphor¹. The received picture was scanned horizontally, one line at a time, from top to bottom, over a number of seconds. There was a problem with this system. Although the long persistence phosphor retained the picture much longer, the top would fade as the bottom was being written. Darkening the room helped. The received picture was amber colored, because that was the color of the phosphor on the radar scope CRT. Since the demodulated picture signals coming in were all at audio frequencies, we recorded them with ordinary audio tape cassettes. We could play them on the air by simply pressing the Play button on an inexpensive tape player. In order to send original pictures, hams used surplus modified TV cameras. I didn't have one, so I asked a friend to make me a CQ SSTV tape with his camera, on a cassette, which I could play when I went on the air. We would also record spoken audio on the cassettes, where a ham would describe the picture being sent or give a signal report. When not on the air, I spent hours playing back and enjoying the received words and pictures.



Computers in the Ham Shack

Figures 1 and 2

Once hams added a computer to the shack, and people wrote SSTV software, we started sending and receiving beautiful color

pictures for the first time. By far the most common frequency was, and still is, 14.230 MHz, with some activity on 14.233 MHz. Band plans show SSTV frequencies on other bands, but 20 meters has by far the most activity. Hams began using programs to enhance or to modify their pictures, and some became quite creative. Figures 1 and 2 show a couple of my pictures from those early computer days. I spent hours nearly every day happily sending and receiving pictures with friends. After spending several years on SSTV, I gradually lost interest and went on to other areas of the ham radio hobby.

SSTV in the Present

In late 2021, I heard that ARISS (Amateur Radio on the International Space Station) would be transmitting SSTV pictures to hams worldwide, on December 26 – 31, 2021, on a frequency of 145.800 MHz. I quickly downloaded and installed MMSSTV, the free slow scan software program that many hams are using. I went to a website called Spot the Station² to get the time of the ISS passes over my QTH. These are published in local time, not in UTC. I discovered that the time that the passes would occur would be about 5 to 6 am, so I set the equipment up the night before and had clear NASA pictures waiting for me in the morning. This was enjoyable for a ham who had not used SSTV for many years. I then filled out a NASA form online and uploaded one of the NASA pictures I had received, and in a few days I received a handsome certificate by email, with my name and call on it. It was written in English and Russian, because their radio system is installed in the Russian segment of the ISS.

Figures 3, 4, and 5 show the three pictures I received.



Figure 3, 4 above, 5 below



Slow Scan TV pictures from the International Space Station are transmitted a few times per year, and periodically checking their website is a good way to prepare for their next SSTV transmissions³.



Figure 6 to left, shows a Massachusetts to Florida QSO made in January, 2022. The game goes on.

Since I already had the software installed to receive the ISS photos, I have been playing radio on SSTV just as in the old days many decades ago

If you would like to try to receive SSTV pictures on your computer monitor, it can be done quite easily. Simply connect a low level audio signal from your transceiver to the sound card Line Input jack on the back of your computer. Ideally you should use transformer isolation, to avoid ground loops between the transceiver and the computer. To make it easier, several vendors sell excellent sound card interface units, and

you may already have one for other digital modes. Then, download and install the free MMSSTV software, and tune to 14.230 MHz. You will hear the signals, and you will see pictures from all over the world. Welcome to SSTV!

Notes

¹ This CRT had a P12 phosphor, classified as medium/long persistence. Thus, the illumination of the phosphor by the electron beam is retained longer. By comparison, a common oscilloscope CRT has a phosphor rated at P1, and a black and white TV of the era had a P4 phosphor.

² spotthestation.nasa.gov

³ ariss.org

Other SSTV References From KB1VXY:

- How to set up pictures and templates. <https://m.youtube.com/watch?v=WcEaTTegazY>
- QST article from April 2001 >> <http://www.arrl.org/sstv-slow-scan-television> look for "**TV on 10**" QST April 2001, members only, pp. 68-71 File = 0104068.pdf
- SSTV QSO Guidelines:reference>>
https://www.reddit.com/r/amateurradio/comments/5hrdet/sstv_qso_how_does_it_work/
 - 1: send pic with callsign & CQ.
 - 2: receive pic with RS.
 - 3: send pic with RS/73.
 - 4: log contact.
 - 5: repeat.
- 10.3: Slide show on SSTV <https://nm5hd.org/resources/SSTV-PDF.pdf>

More ISS photos from SSTV: from N1MH on left, KB1VXY on right



FARA Officers:

- **President:** John Iwuc, KB1VXY
- **Vice President:** Ron Rothman, WO1E
- **Treasurer:** Steve Moro, N1MH
- **Acting Clerk Secretary:** Andy Boughton, KC1DMM
- **Director:** Sumner Weisman, W1VIV

Meetings: Club meetings are held on the 1st Thursday of each month at 7:30 PM and will be on ZOOM. Members will get an email invitation before the meeting. **Members should be sure that they opted in for email notifications and that their email on record is accurate!** Non-members may request an invitation from president@w1fy.org

Club Nets:

- FARA Net: Sunday, 7:30PM, output frequency 147.15 / input frequency 147.75, optional output PL of 100 - social/chat, emergency preparedness, amateur radio questions, Echolink enabled. W1FY-R
- Informal Health and Wellness Check-in Net: Wednesday 7:30 pm, Echolink enabled, W1FY-R.
- Scanner listeners are invited to let us know you follow the nets by sending an email to contact@W1FY.org

Club Web Site: W1FY.org

Social Media:

- <https://www.facebook.com/FARAW1FY/>
- https://twitter.com/fara_w1fy

Dues: Flat rate of \$20 per year per person or family, and no separate repeater fee. Paid members will be posted on the web page. You can join/renew/pay online at <http://w1fy.org/membership-form>

Testing: **Exams on hold while town offices are unavailable.**

Mail Address: Framingham Amateur Radio Association, 330 Cochituate Road, #5123 Framingham, MA 01701-9998