SSTV

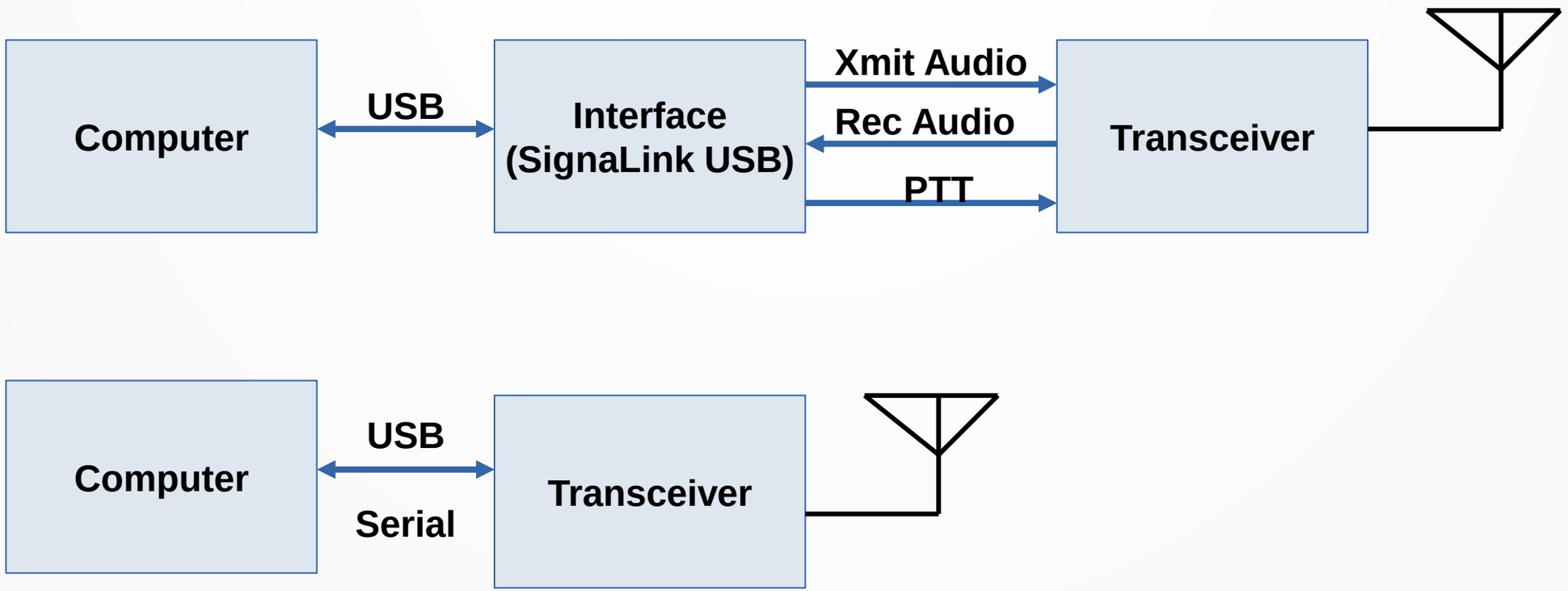
Slow-scan TV for the Radio Amateur

Carl Foster KB7AZ

SSTV Overview

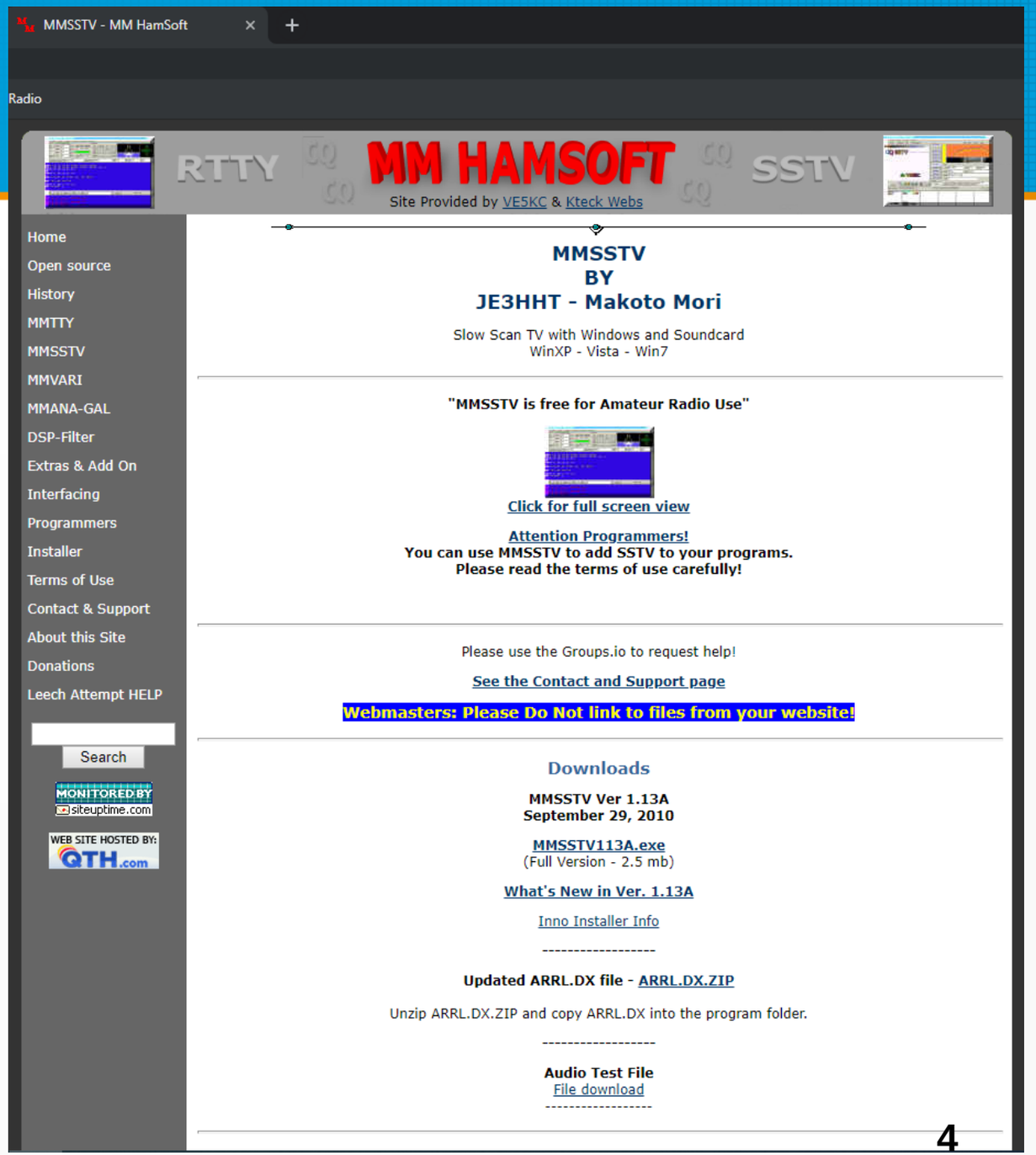
- Slow-scan TV is a way to transmit images over a voice bandwidth audio channel
- The SSTV transmission is very similar to FAX
- SSTV images began as monochrome images displayed on a CRT with a long-persistence phosphor.
- Current technology includes color images

Hardware

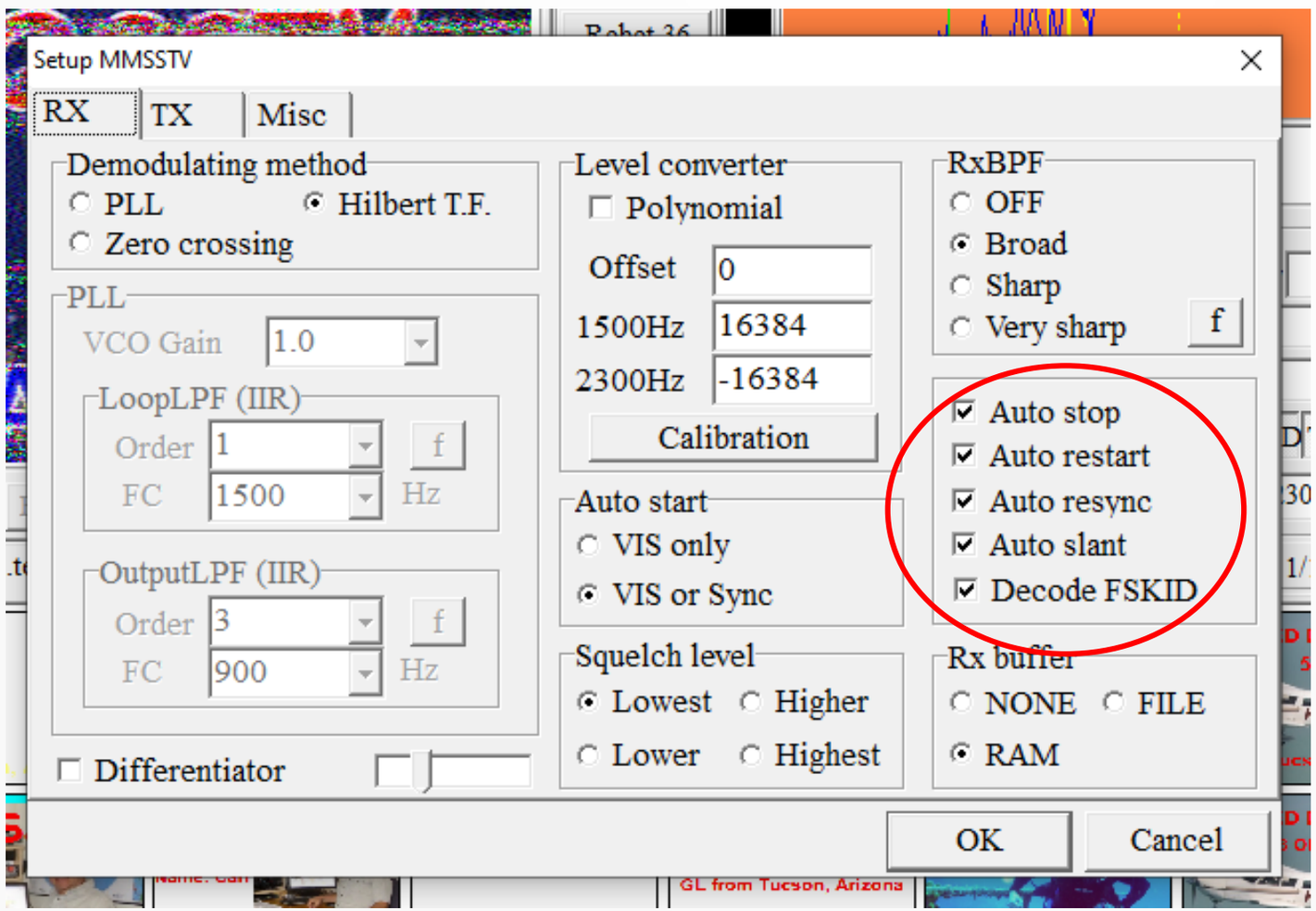

Computer
USB
Interface
(SignaLink USB)
Xmit Audio
Rec Audio
PTT
Transceiver
Computer
USB
Serial
Transceiver

Getting Started

- MMSSTV is the most popular, and it is free
- You will need to download and install MMSSTV software.
- https://hamsoft.ca/pages/mmsstv.php
- Software is also available for LINUX, MAC, and Android



Receive Setup

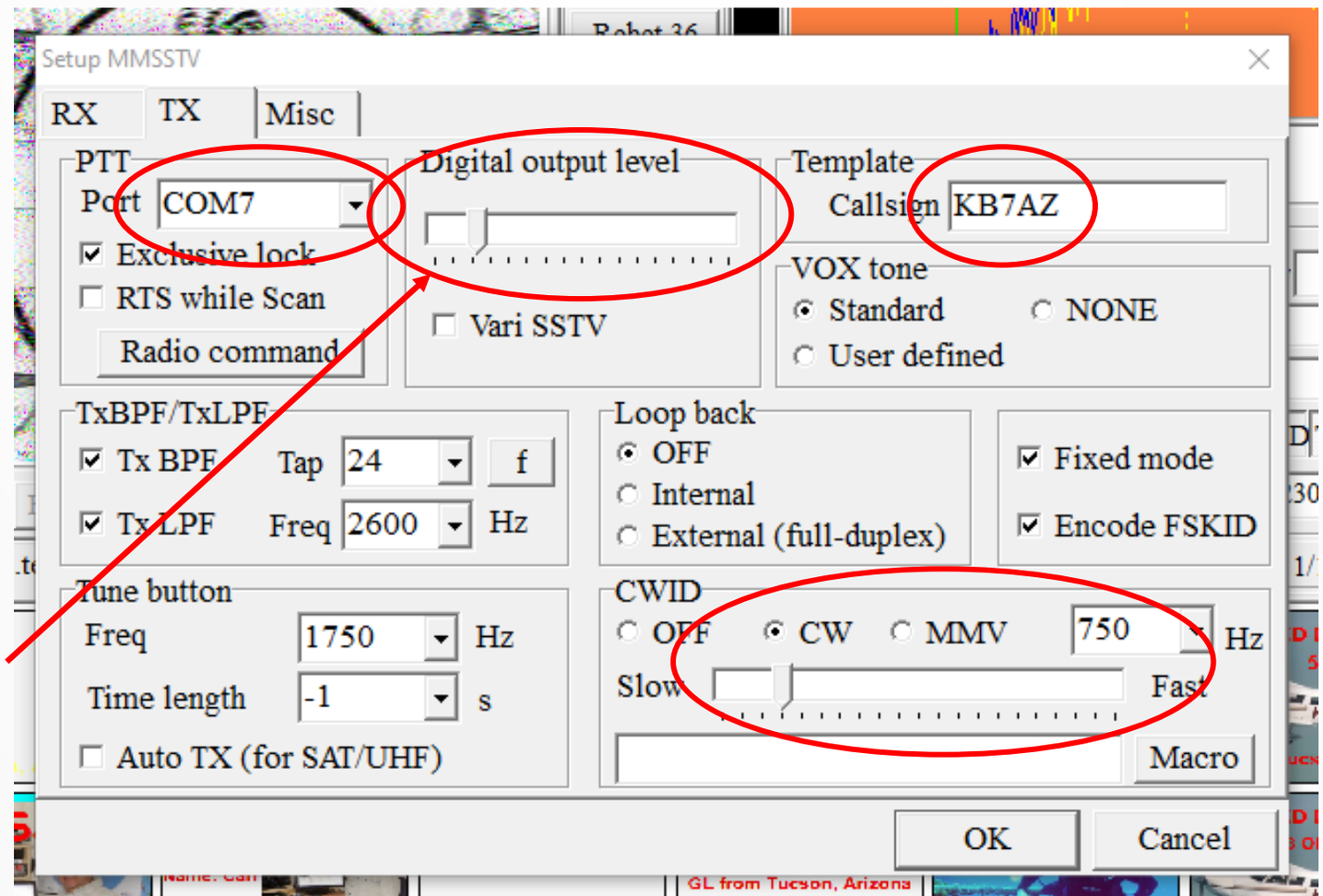


Experiment with Auto restart to see if you like it

Transmit Setup

The transceiver port number and digital output level are specific to the computer to transceiver set-up

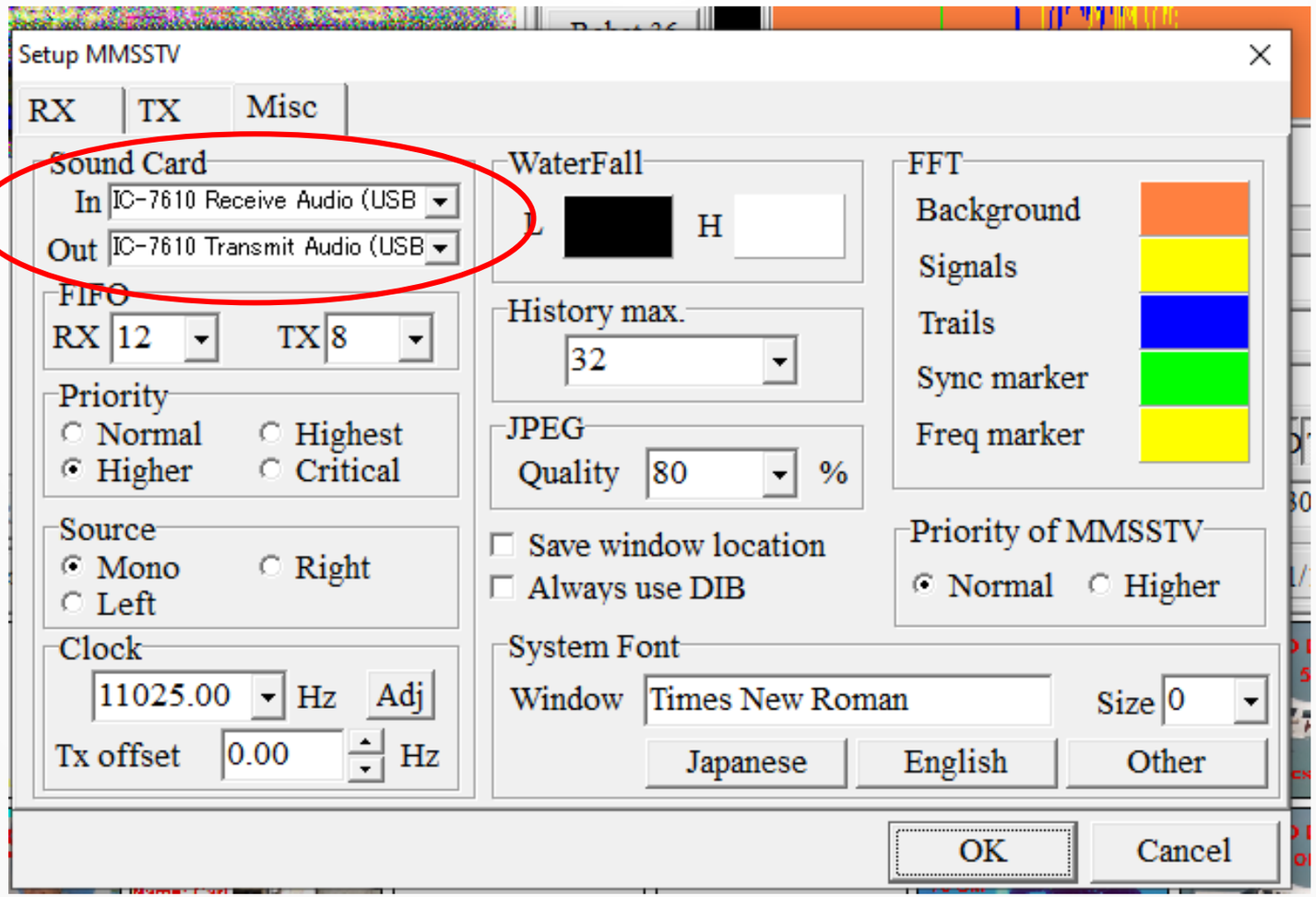
Adjust the Digital Output Level for no (or occasional) ALC indication



I prefer to send a CWID after each transmission

Misc Setup

The transmit and receive audio channels are specific to the computer to transceiver set-up



Main User Interface

Menu Bar

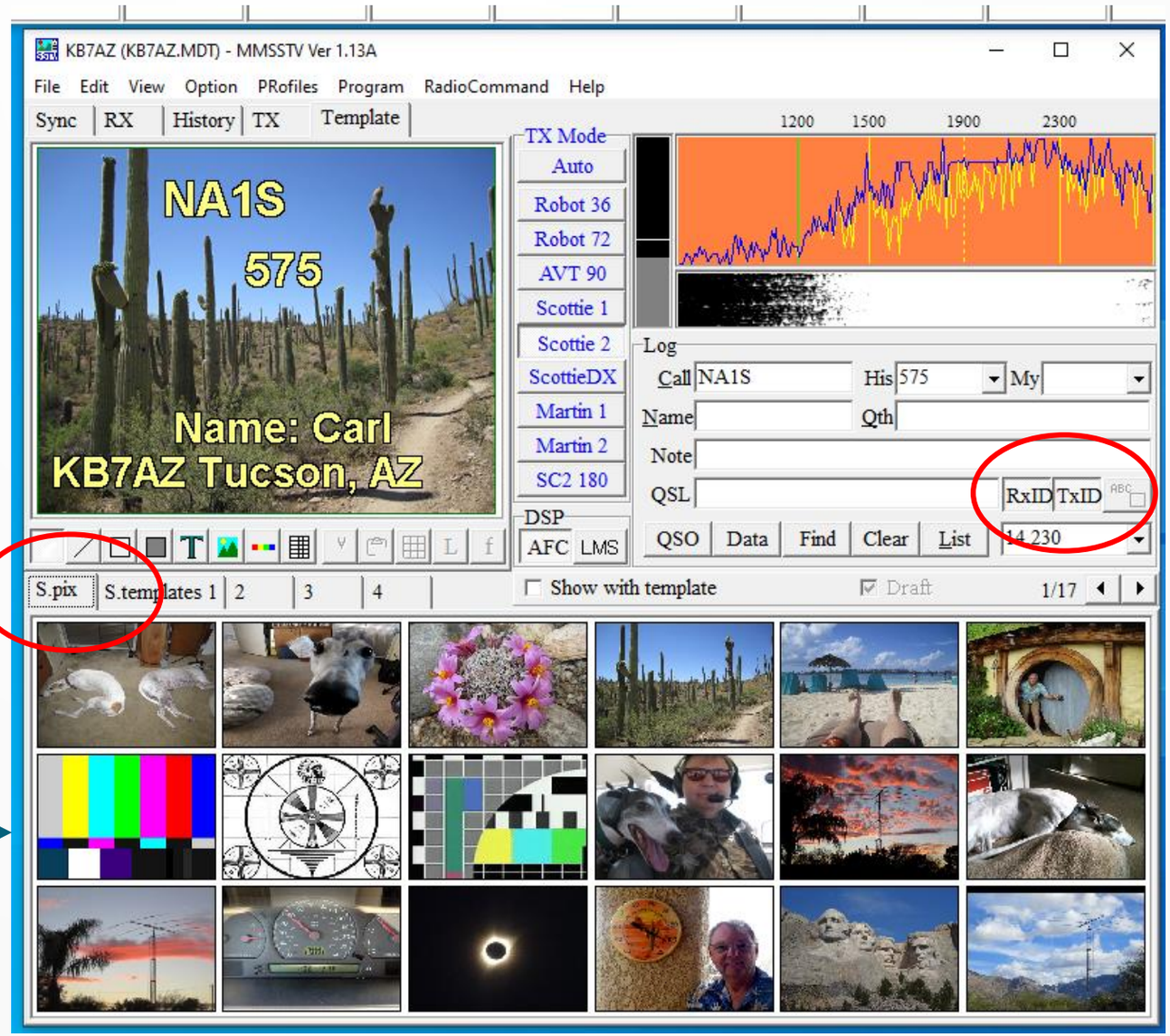
Image space for transmitted and received images

Templates

Spectrum Display

QSO Information

Pictures

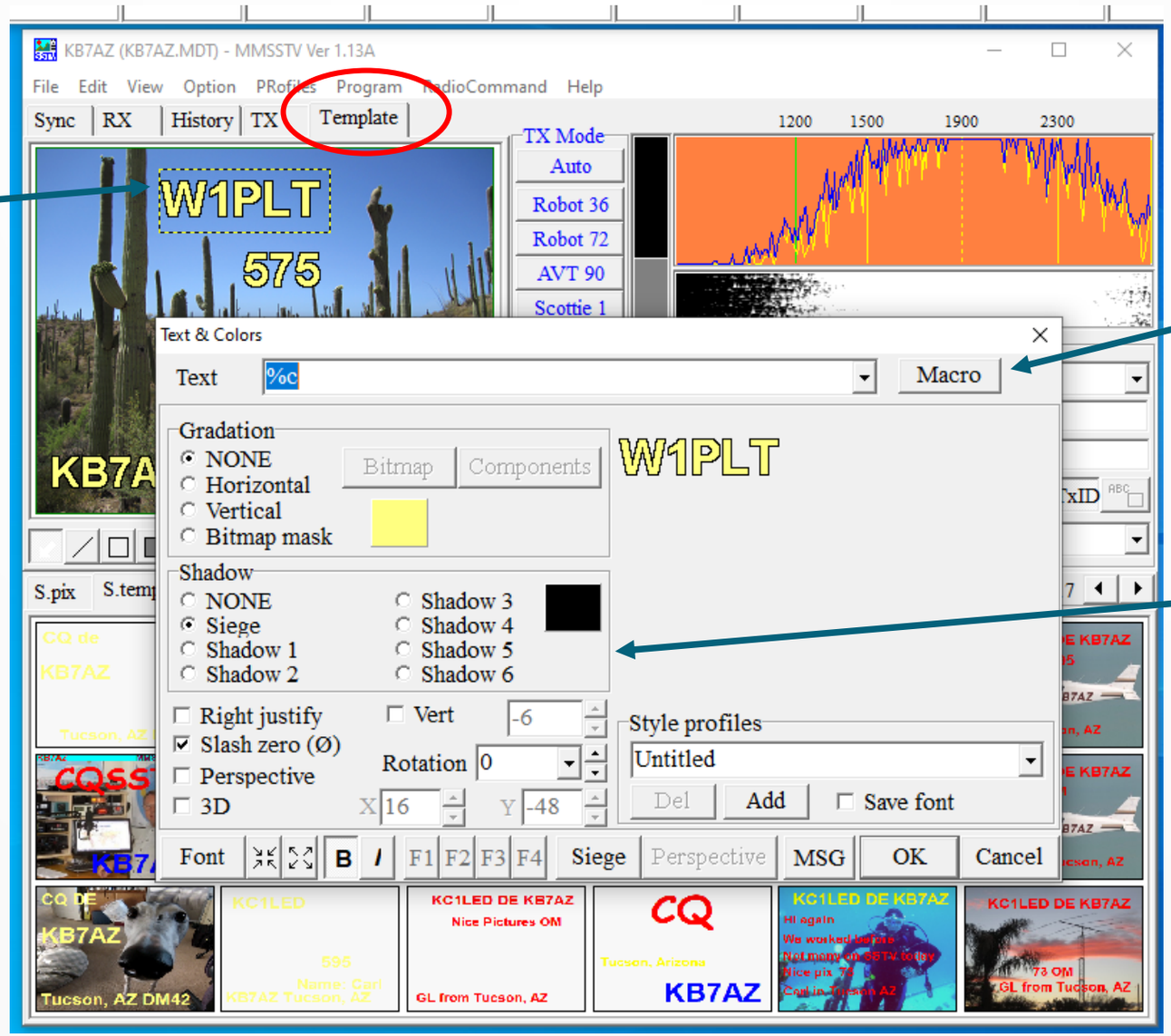


- Use your mouse to move images that you will be transmitting to the “S.Pix” boxes
- The software will re-size the image for you

Click these to automatically send and receive callsigns

Templates

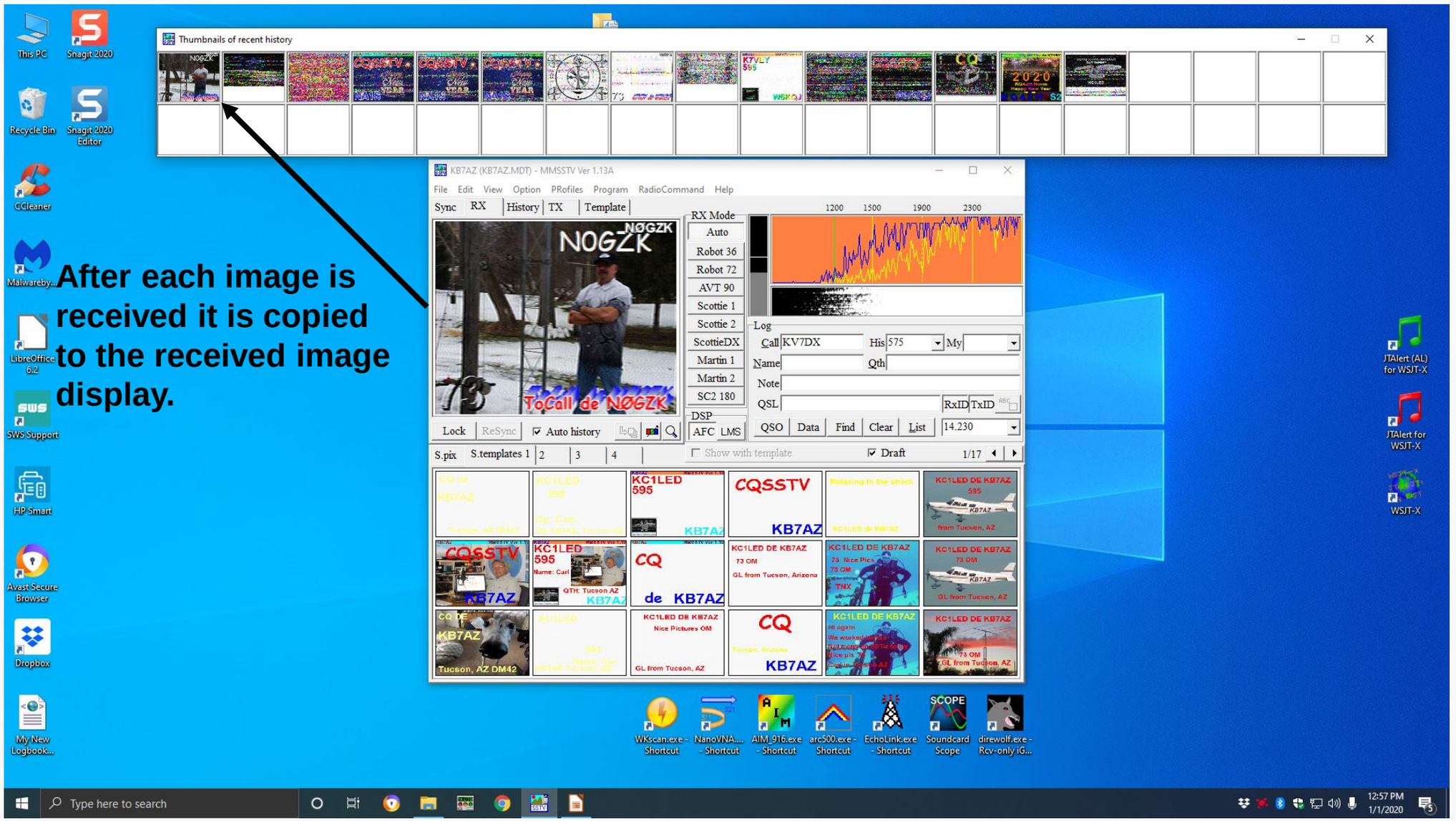
Double click on a text box to edit it



Macros include callsigns, names, QTHs, and signal reports

You can change the font size and color, and add effects

Received Images



SSTV Signal Report

- There are two signal report formats, RSV and Picture quality
- RSV
  - Readability is on a 5-point scale with 5 denoting perfectly readable.
  - Strength is on a 9-point scale with 9 reserved for extremely strong transmissions.
  - Video, or the quality of the received SSTV picture, is placed on a 5-point scale and 5 means perfectly viewable. This would correspond to P5, or broadcast quality.
- Picture Quality is a 5-point scale

Readability

- **Readability**
  - **1 = Unreadable**
  - **2 = Barely readable, occasional words distinguishable**
  - **3 = Readable with considerable difficulty**
  - **4 = Readable with practically no difficulty**
  - **5 = Perfectly readable**

Signal Strength and Video

- **Signal Strength**
  - 1 = Faint, barely perceptible
  - 2 = Very weak
  - 3 = Weak
  - 4 = Fair
  - 5 = Fairly good
  - 6 = Good
  - 7 = Moderately strong
  - 8 = Strong
  - 9 = Extremely strong
- **Video**
  - 1 = Unreadable
  - 2 = Barely viewable, just distinguishable
  - 3 = Viewable with considerable difficulty
  - 4 = viewable with practically no difficulty
  - 5 = Perfectly viewable

Picture Quality Examples

Scale is P0 to P5

More Common SSTV Modes

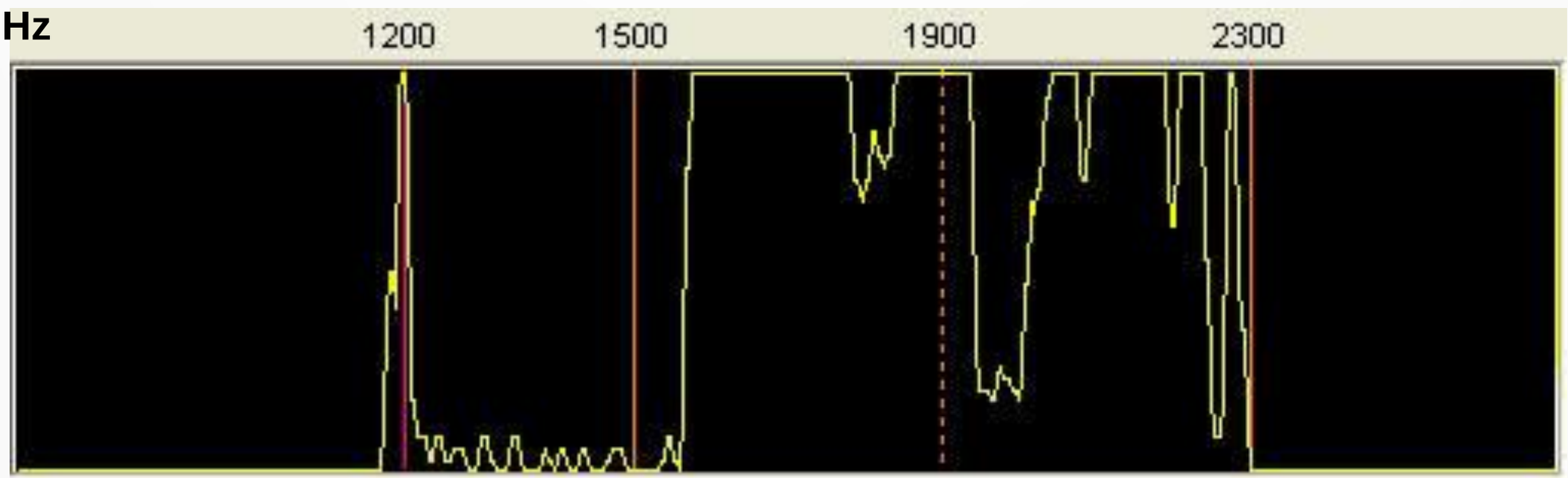
Most Common Modes

Mode	Color	Time (sec/image)	Usable scan lines	Mode	Color	Time (sec/image)	Usable scan lines
Martin				**Robot Color**			
M1	RGB	114	240	**12**	YC	12	120
M2	RGB	58	240	**24**	YC	24	120
M3	RGB	57	120	**36**	YC	36	240
M4	RGB	29	120	**72**	YC	72	240
Scottie				**Robot B&W**			
S1	RGB	110	240	**8**	B&W	8	120
S2	RGB	71	240	**12**	B&W	12	120
S3	RGB	55	120	**24**	B&W	24	240
S4	RGB	36	120	**36**	B&W	36	240
DX	RGB	269	240	**72**	B&W	72	240

SSTV Spectrum

Use a wide receive filter that will pass 2.3 kHz

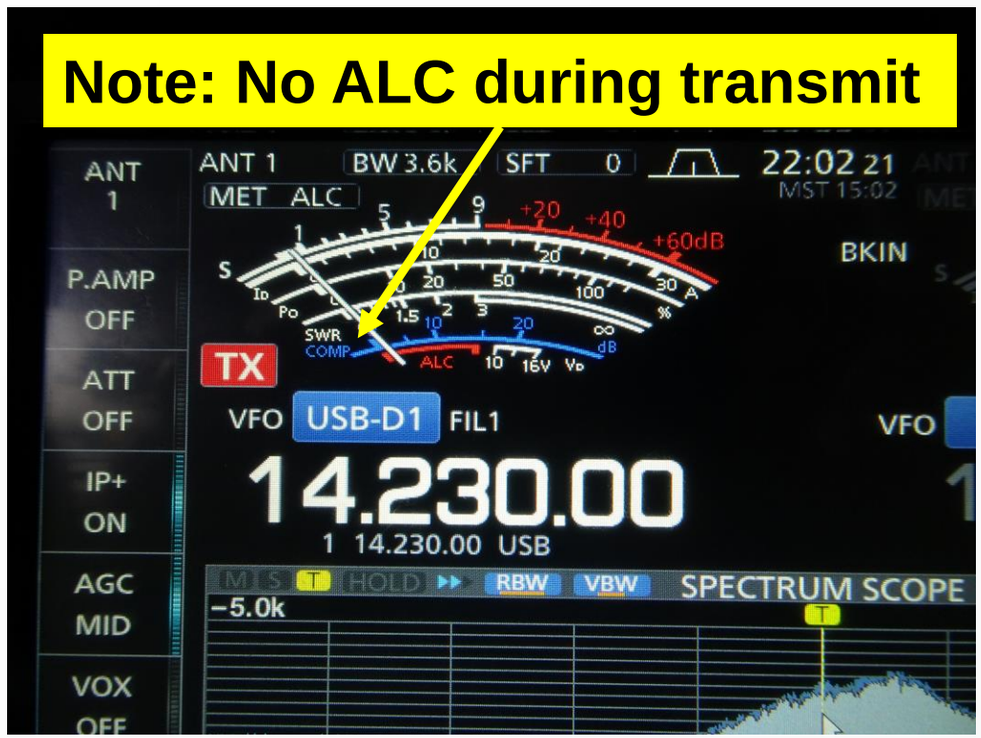
SSB Freq **Sync** **Black** **White**



Typical SSTV QSO

- Receive a CQ
- Transmit a reply
- Receive a reply
- Send a final picture

- Video Follows




KB7AZ (KB7AZ.MDT) - MMSSTV Ver 1.13A
File Edit View Option PRofiles Program RadioCommand Help
Sync RX History TX Template
CQ VE2JCW
Scottie 1 (320x256)
1 2020/01/13 1808Z
RX Mode
Auto
Robot 36
Robot 72
AVT 90
Scottie 1
Scottie 2
ScottieDX
Martin 1
Martin 2
PD90
DSP
AFC LMS
1200 1500 1900 2300
Log
Call His 595 My 595
Name Qth
Note
QSL RxID TxID
QSO Data Find Clear List 14.230
Show with template
Draft
2/25
S.pix S.templates 1 2 3 4
KB7AZ

Common HF Frequencies

- The most common HF frequency is 14.230 MHz
- Other HF frequencies

  14.233 MHz

  3.73 MHz

  7.171 MHz

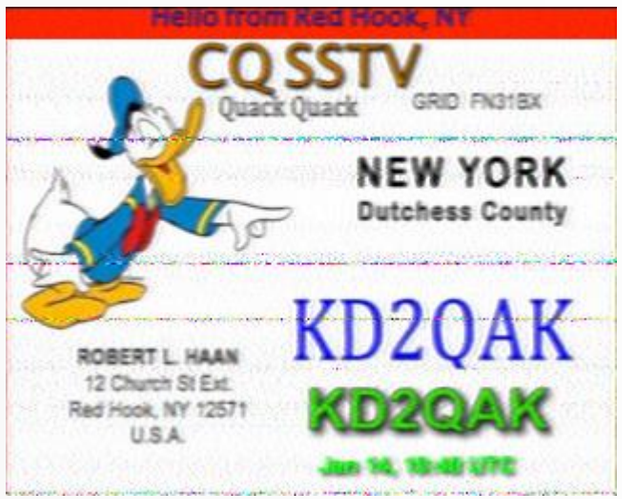
  21.340 MHz

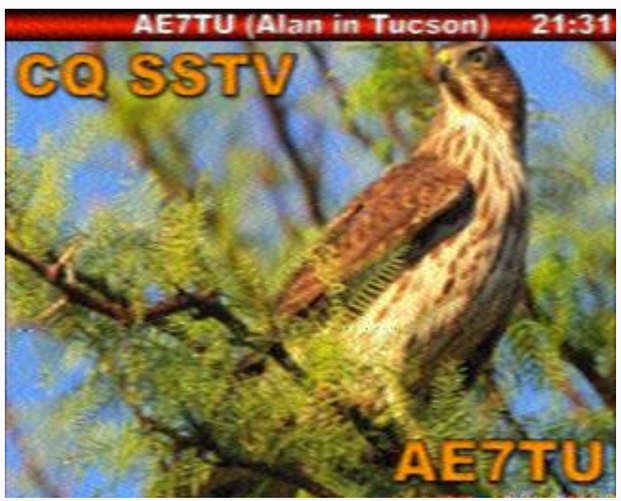
  28.680 MHz
- Images can be sent on FM frequencies, including through repeaters

  Use short image modes to avoid repeater timeout

Some Received Pictures

More Received Pictures





Remember

- SSTV is 100% duty cycle and some images take up to three minutes to transmit
- Do not overdrive the transmitter, i.e., no ALC when transmitting
- Load images before starting so you have something to send
- Size your images as they are loaded into the image area
- Have a few text overlay templates ready to go
- Practice editing templates before starting a QSO
- If answering a CQ, reply with the same mode
- If the calling frequency seems busy, you can always transmit QSY 14.233 MHz (or another nearby frequency)

The QSO is in the Log

Any questions?