

Slow Scan TV

What is it?

How to get started?

What it can be!

by Ed Poccia, KC2LM

What is Slow Scan TV?

- * image transmission mode using audio tones
- * used by hams to send each other grainy pictures
- * different resolutions 120 x 120 pixels to 320 x 256
- * different transmit times; 10 seconds to more than a minute, depending on mode
- * takes up 3kHz of bandwidth, that is why SSTV operates on the SSB phone band

SSTV History

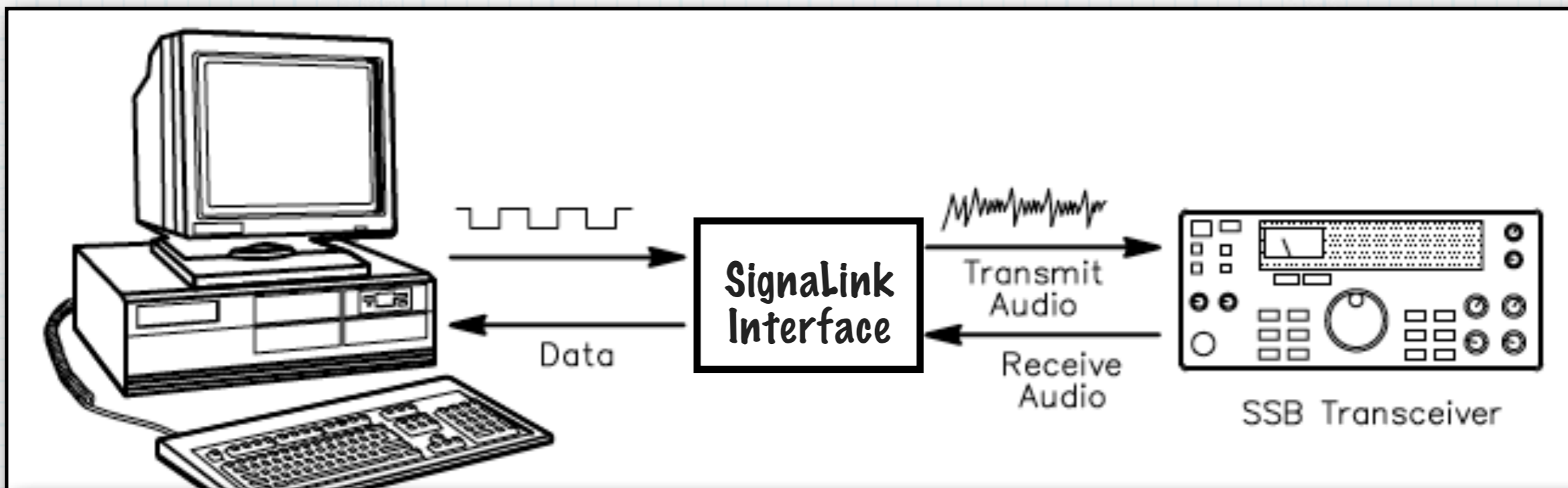
- * Developed by Copthorne Macdonald in 1957
- * Journals from Bell Labs about image transmissions using phone lines suggested implications for use with ham radio
- * Developed an early system using surplus, long persistence phosphor CRTs (cathode ray tubes)



SSTV 1980

Robot Scan Converter digitized each image line into 128 pixels, each having only 16 shades of grey. When converting to fast-scan it doubled each line to produce 256 lines in a frame.

SSTV HF Set-Up Today



SSTV Frequencies

- * 80 meters: 3.845, 3.857 MHz (LSB)
- * 40 meters: 7.171 MHz (LSB)
- * 20 meters: 14.230, 14.233 MHz (USB) most popular
- * 15 meters: 21.340 MHz (USB)
- * 10 meters: 28.680 MHz (USB)
- * 2 meters: 145.5 MHz (FM)
- * 2 meter: 144.450 (USB)

SSTV MMSSTV Software

Download MMSSTV free from the tigertronics.com web site.
Click on Signalink Software

1.



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TIGERTRONICS

Manufacturers Of Innovative Communications Products
154 Hillview Drive Grants Pass, Oregon 97527 (541) 474-6700

3. Click on **Signalink Software**

2.

Software

- [BayPac Software](#)
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*Digital Communication
the Fun & Easy way!*



SSTV Software - Loading MMSSTV

1. Scroll Down the long list of SignalLink software & locate, **MMSSTV**

2. Click on **MMSSTV**

	ThruB, Fax (KX Only), SSTV, M105
MMSSTV	Freeware Windows XP/Vista/7/8/10
	SSTV

RTTY **MM HAMSOFT** SSTV
Site Provided by [VE5KC](#) & [Kteck Webs](#)

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MMSSTV
BY
JE3HHT - Makoto Mori
Slow Scan TV with Windows and Soundcard
WinXP - Vista - Win7

"MMSSTV is free for Amateur Radio Use"

Manual Online

[Click for full screen view](#)

Attention Programmers!
You can use MMSSTV to add SSTV to your programs.
Please read the terms of use carefully!

Please use the Yahoo User Groups to request help!
[Click to subscribe to MM-SSTV Users Group](#)

Webmasters: Please Do Not link to files from your website!

Downloads
MMSSTV Ver 1.13A
September 29, 2010
[MMSSTV113A.exe](#)
(Full Version - 2.5 mb)

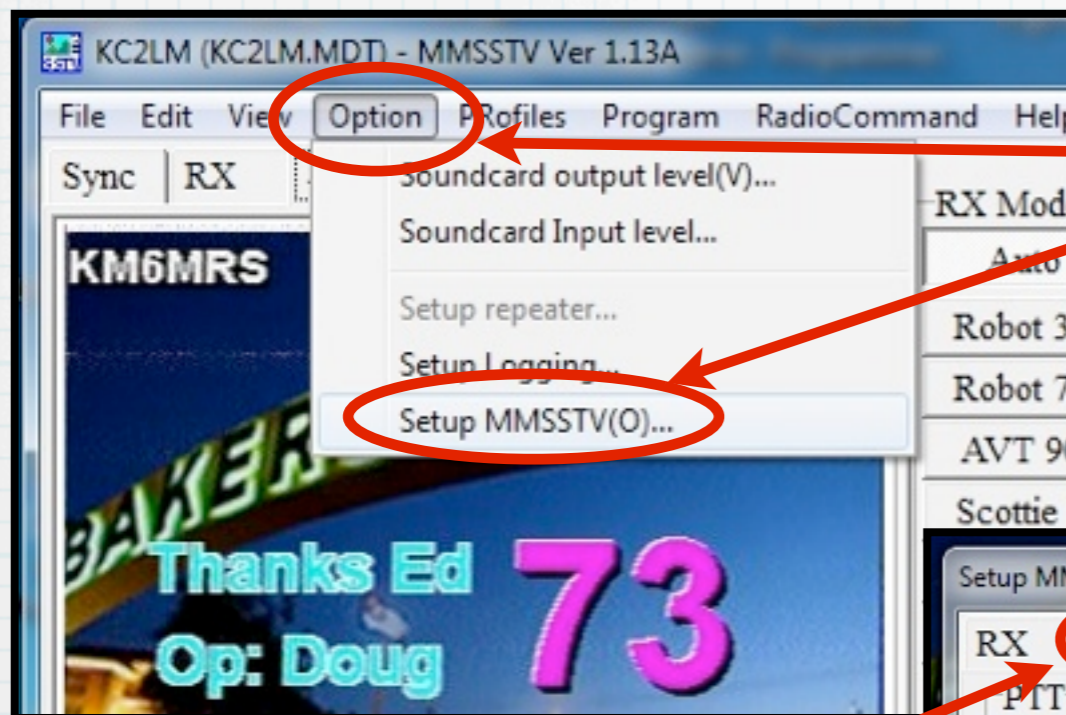
Downloads

MMSSTV Ver 1.13A
September 29, 2010

[MMSSTV113A.exe](#)
(Full Version - 2.5 mb)

3. Click on **MMSSTVV113A.exe** to download

Configure MMSSTV Software



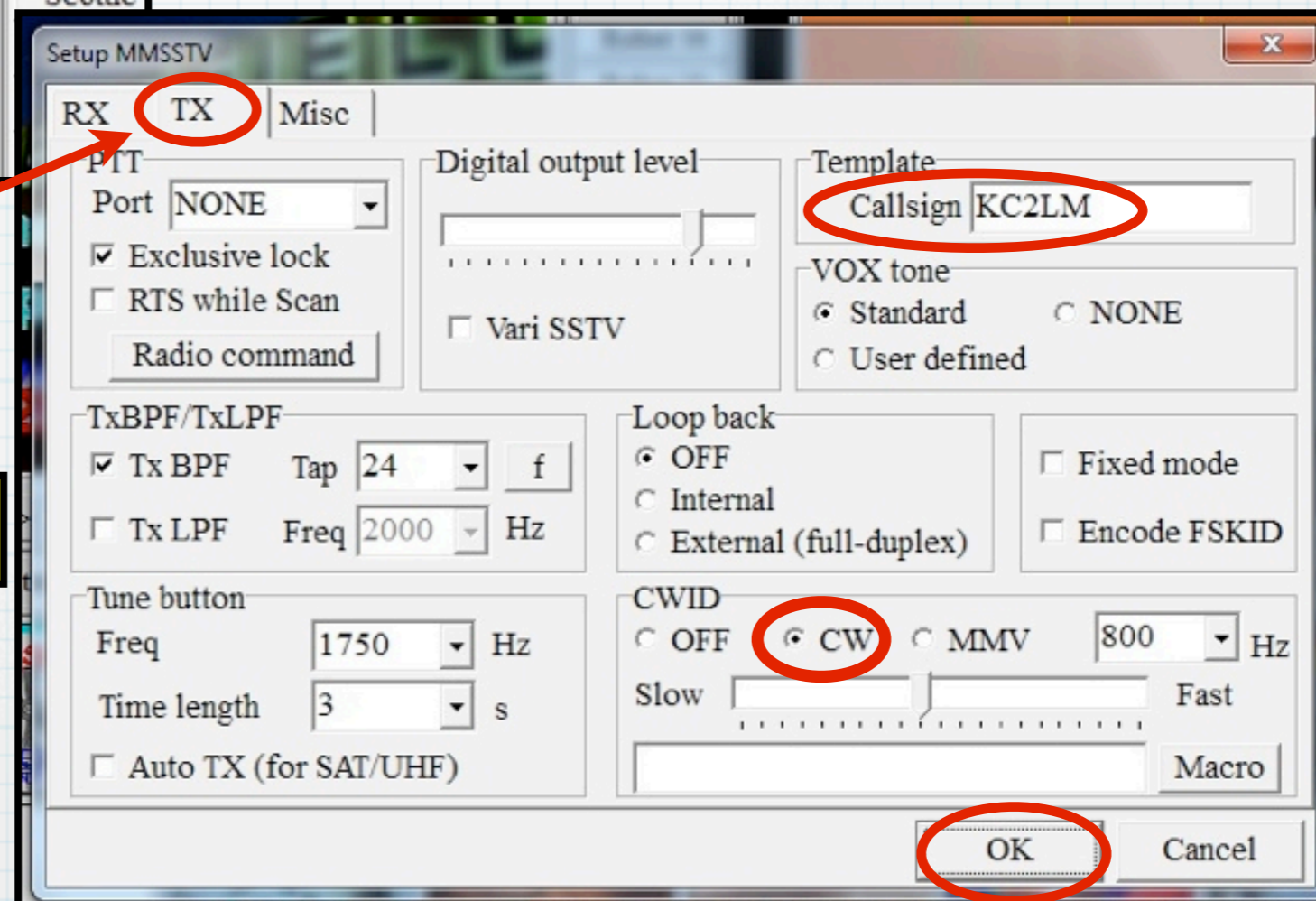
1. Click **Option & Setup**

2. The **Setup MMSSTV** Panel is Revealed

3. Select the **TX** Tab

4. Fill-In **Call Sign** w/Your Call

5. Click on **CW** to permit identification as required



6. Use **Default settings** for the rest.

Click **OK** When Done

SSTV MMSSTV Software

Viewing Panel

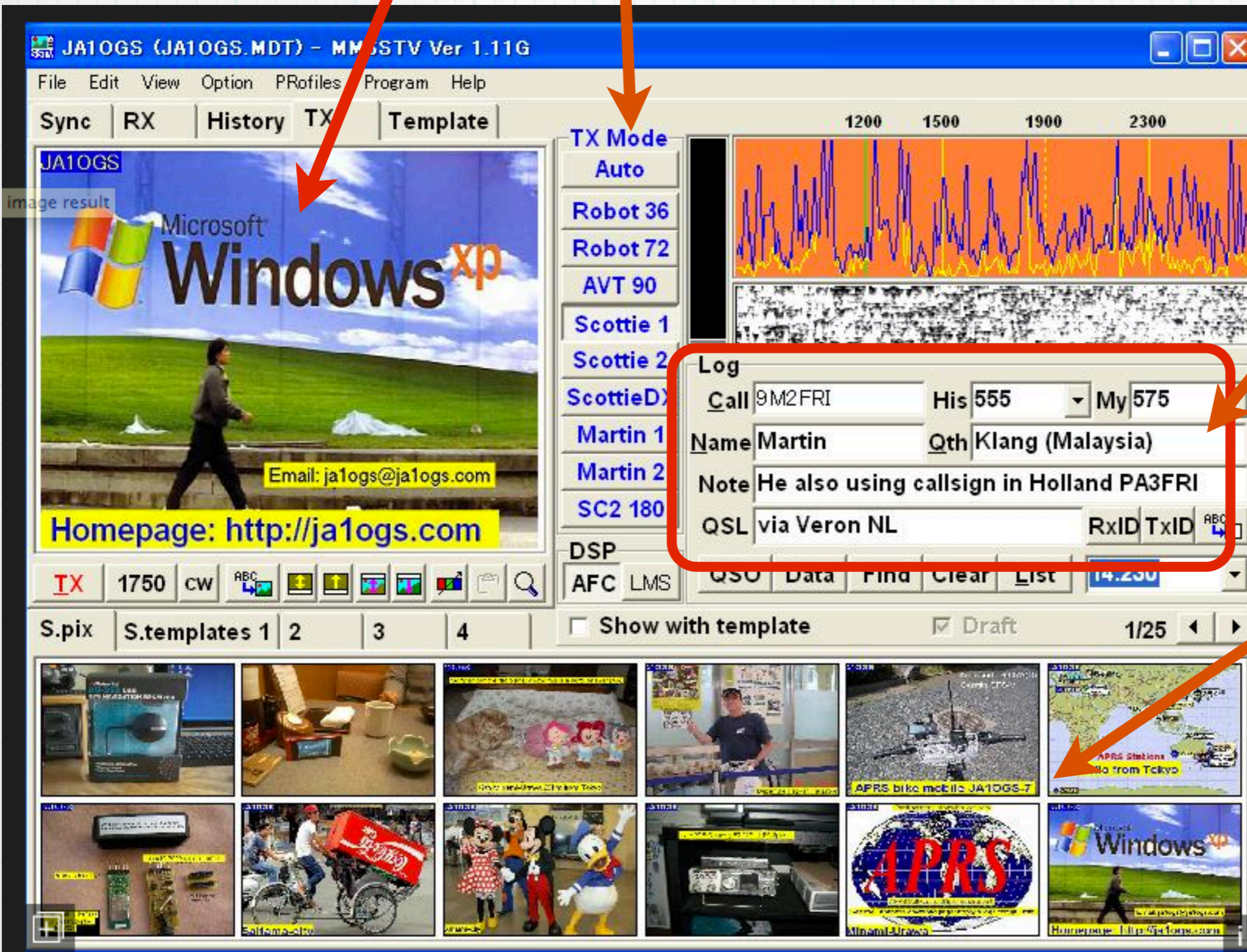
Mode Selection - Put cursor on any mode & Rt Click for more options

* B/W 8 used for contests

* B/W 12 for quick exchanges
- 73s

Record QSO Info
- this info can be included in future transmissions

Image Gallery



MMSSTV - Receiving Images

Click on **Auto** to have the computer select the SSTV mode.



To Receive an Image

1. Listen patiently for the distinctive sound of SSTV on one of the SSTV frequencies.
2. Use the scope to help you center the signal & tune it in.
3. Click on **RX**, when you hear the SSTV sounds.
4. The image will appear scrolling down in the **viewing panel**.
5. Click on the **History** button & use **the arrows circled in BLUE** to navigate through the images received.

MMSSTV Screen - Add Pictures

The screenshot displays the MMSSTV software interface (Ver 1.13A) with a 'Pictures library' window open. The library window shows a grid of image thumbnails, including 'Sample Pictures', 'Balloon Launch', 'Ed n Greg', 'Jeeps in Moab', 'PPG By Shore', 'Rocks Moab', and 'Three PPGs'. A red arrow points from the 'S.pix' button in the bottom toolbar to the 'Sample Pictures' folder. Another red arrow points from the 'List' button in the Log section to a specific image thumbnail in the library grid.

Software Interface Details:

- Top Menu:** File, Edit, View, Option, PProfiles, Program, RadioCommand, Help
- Buttons:** Sync, RX, History, TX, Template
- TX Mode:** Auto, Robot 36, Robot 72, AVT 90, Scottie 1, Scottie 2, ScottieDX, Martin 1, Martin 2, SC2 180
- DSP:** AFC, LMS
- Log Section:** Call, Name, Note, QSL, His (595), My, Qth, RxID, TxID, ABC, QSO, Data, Find, Clear, List, 14.230
- Bottom Toolbar:** TX, 1750, CW, ABC, S.pix, S.templates 1, 2, 3, 4, Show with template, Draft, 1/25

MMSSTV Software - Transmit Your Pictures



1. Toggle between the **S.Pix** and the **S.templates** buttons to select picture & text.

2. Click on the **TX** button to transmit.

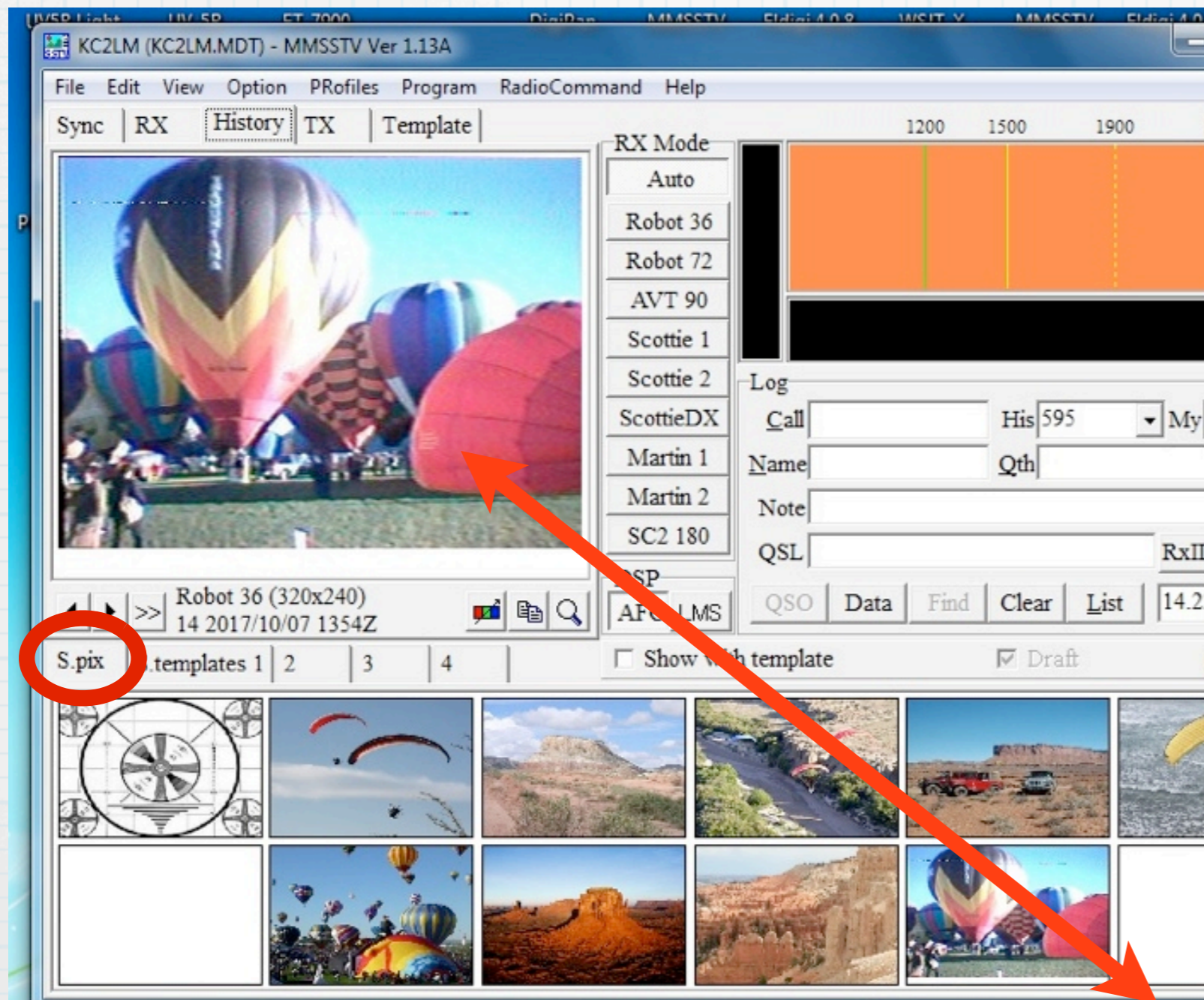


MMSSTV - Transmit Images You've Received

Members have captured and sent back to base amazing pictures from the VC-H1 portable SSTV units at Balloon fiesta.

To transmit them over HF:

1. Right Click on the picture & select **Copy**
2. Move the cursor to an empty frame in the image gallery (**S.pix** key)
3. Rt Click **Paste**.
- OR Drag & Drop
4. Select a Template and Transmit as usual.



You may want to **Enhance** the received image before re-transmitting or saving it.

MMSSTV Software - Enhance Pictures

The screenshot shows the MMSSTV software interface. The main window displays a photo of a man on a motorcycle. A yellow callout box with the text "1. Click Here to Access the Image Adjustment Panel" points to a small icon in the bottom toolbar. Another yellow callout box with the text "2. Use the Sliders to adjust the image" points to the "Image adjustment" dialog box. This dialog box contains sliders for Brightness, Contrast, Sharpness, Hue, Saturation, and Noise filter. The "OK" button is circled in red, and a red arrow points to it from a yellow callout box with the text "3. Click OK When Satisfied".

1. Click Here to Access the Image Adjustment Panel

2. Use the Sliders to adjust the image

3. Click OK When Satisfied

MMSSTV Software -Moving Text - Part 1

Preset Text on a Template may not align well with the image you want to send. Here's how to move it.



The template works well with this picture

But sadly, the text covers parts of the new picture.

By moving the text, the image now works.

MMSSTV Software -Moving Text - Part 2



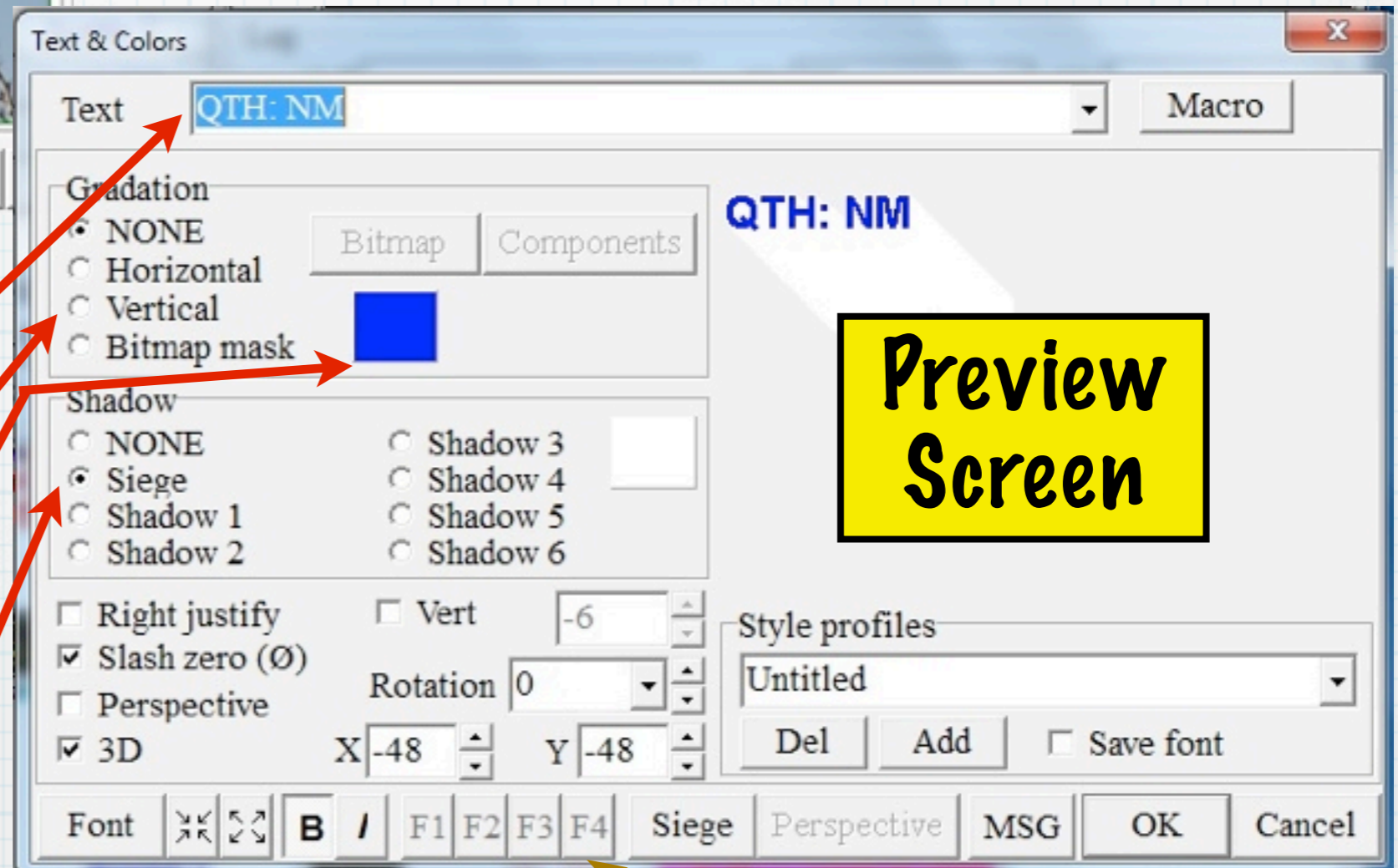
1. Click on the arrow
(barely visible)

4. From this screen, you can:

- Type in new text
- Select text gradation
- Change text color
- Shadowed Lettering

5. Select **Font**, **Bold/Italics**,
Adjust **Siege**

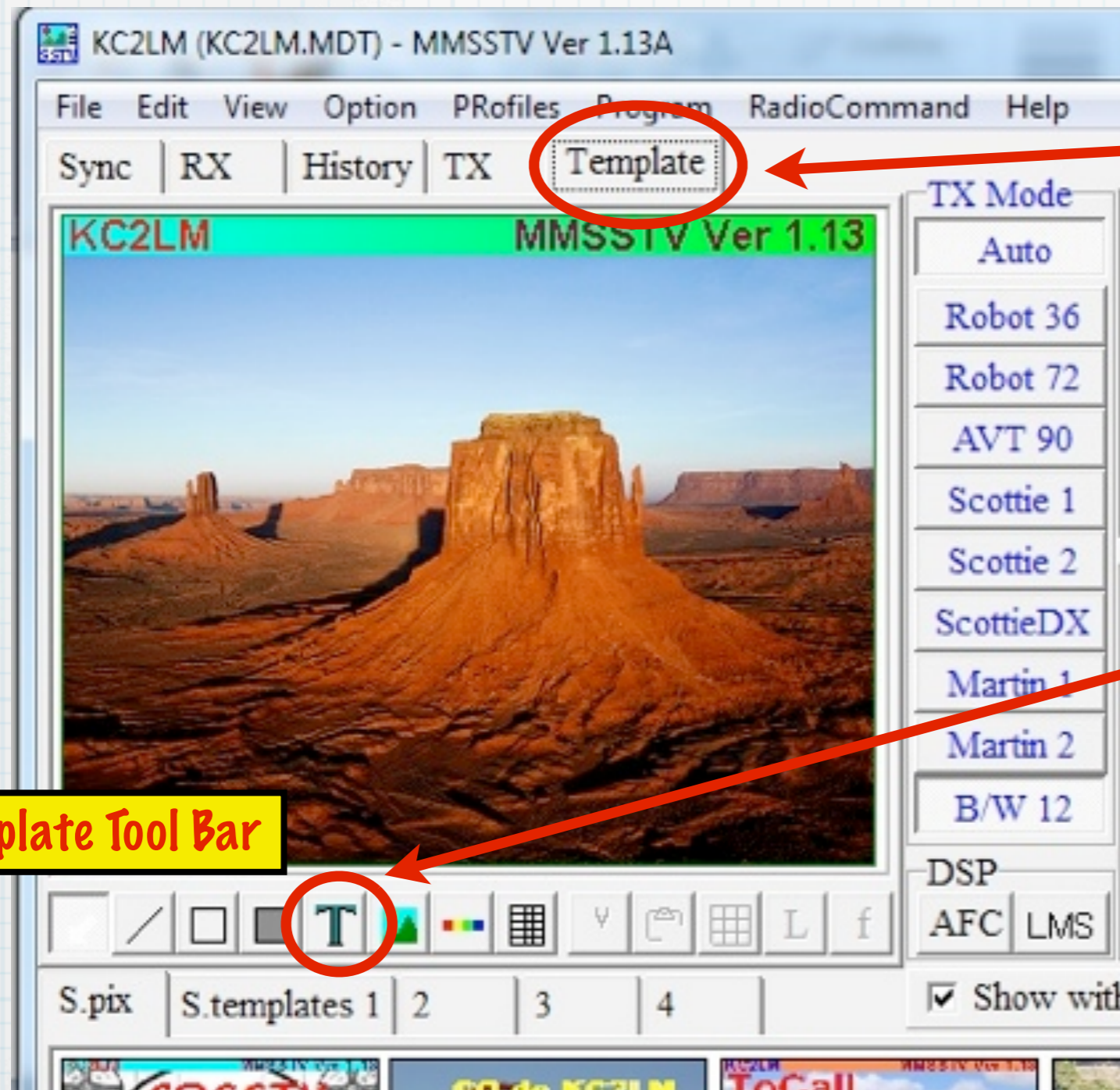
2. Click on the text you want to edit.
- The text will have a dashed line around it.
3. Then grab the text with your cursor. Now,
move it and/or resize it, change color....



Line Style, Width, & Color

6. Click on **OK** when finished.

MMSSTV Software - Creating a Template - Part 1



1. Click on **Template**, to bring-up the **Template Tool Bar**

2. Click on the **T** to access the **Text & Colors Panel**

Template Tool Bar

MMSSTV Software - Creating a Template - Part 2

1. With the **T** depressed, use your cursor to draw a box & define the area in which you want to add text.

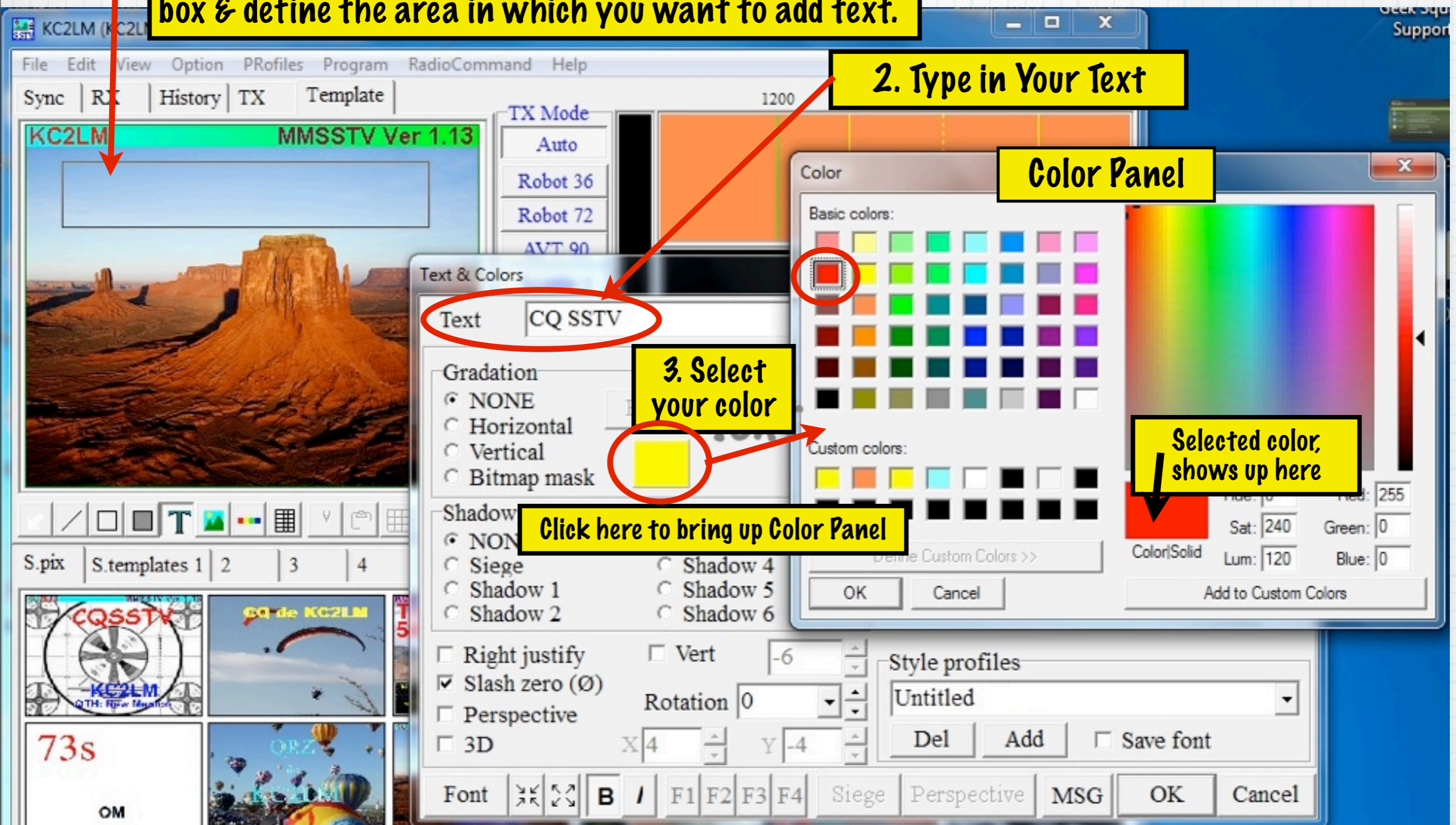
2. Type in Your Text

Color Panel

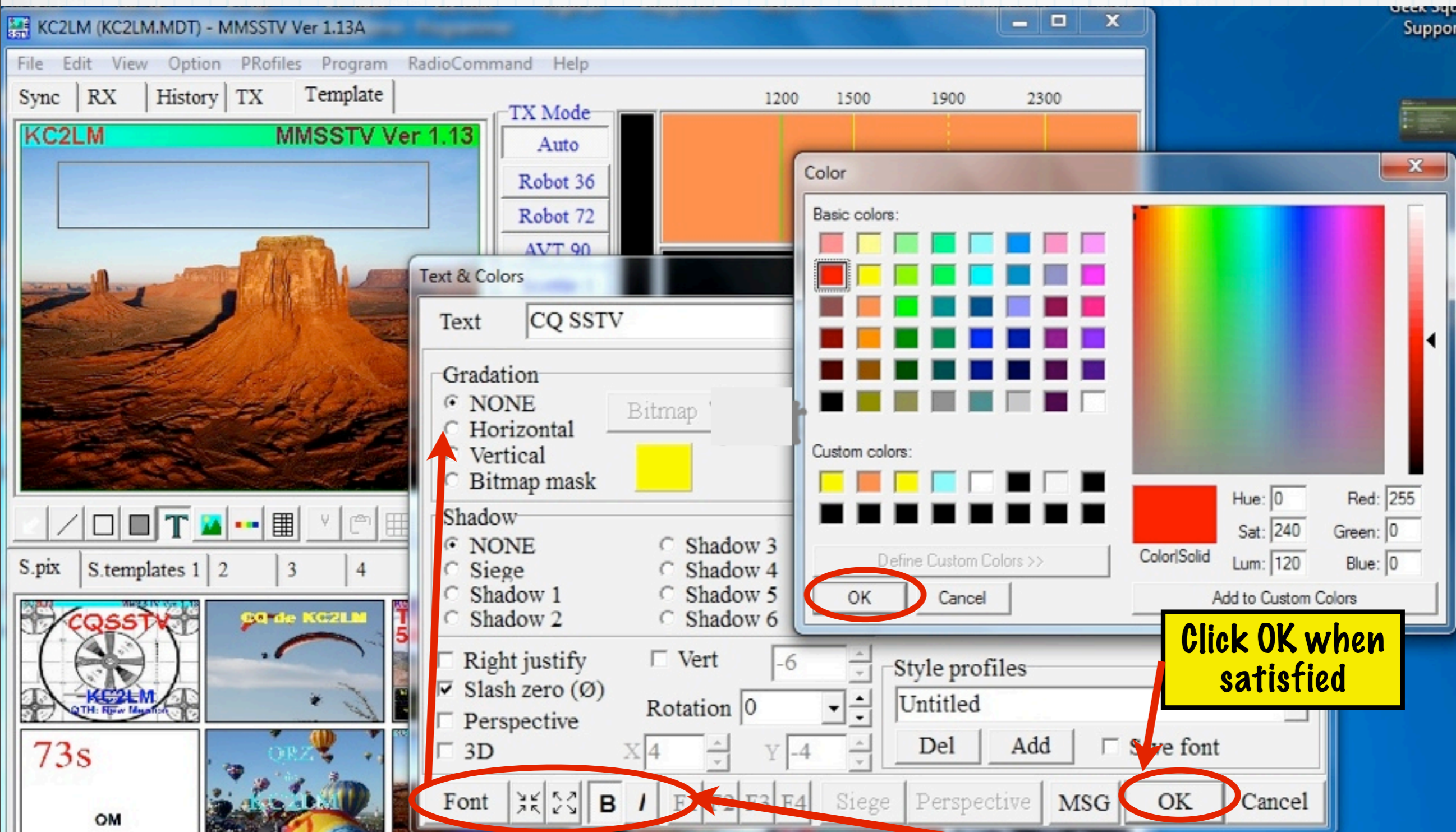
3. Select your color

Selected color, shows up here

Click here to bring up Color Panel



MMSSTV Software -Creating a Template - Part 4



Select from among additional options to enhance text.

MMSSTV Software -Creating a Template - Part 4



1. With your new template completed, use the cursor to drag the image into a panel in the **Template Gallery**.

2. You are ready to transmit.

3. Select a **TX mode** from the available options.

4. Press **TX** to transmit.

5. Click on **CW** when transmissions completed to identify

SSTV Signal Reports

Readability on a 5 point scale,
Strength on a 9 point scale, ↔ Same as Phone & CW
Video uses a 5 point scale

Samples:



P5: Broadcast quality



P4: Good, some noise



P3: Usable, noisy



P2: Barely use, noisy



P1: Barely see text

- 1 - Unusable, text unreadable
- 2 - Barely Viewable, some text readable
- 3 - Viewable w/considerable difficulty
- 4 - Viewable w/little difficulty, some noise
- 5 - Perfectly viewable, broadcast quality

SSTV Operating Tips

- * SSTV is 100% Duty Cycle
- * Use CW Identification after each transmission
- * Cut power using **SignalLink's** Tx Audio Control to 50 watts on a 100 Watt HF Rig
- * Do Not Use Audio Compression
- * Listen, and be patient
- * SSTV contests are listed in QST
 - * use mode B/W 8 during contests

SSTV VHF Set-Up



- * For **Simplex** Ops with our Portable VC-H1, or other VHF units use **145.500**
- * All computer & MMSSTV settings are the same as for HF
- * Through **Repeaters**
 - **ONLY** after securing permission from the owner, as repeaters usually mute the audio to suppress DTMF tones
 - Narrow deviation may be preferable
 - Use faster Tx modes so as NOT to tie up the repeater
 - B/W 8 or B/W 12, and Robot 12 or 24 for Color

Interface Units for your HT, Mobile, or Base Rigs

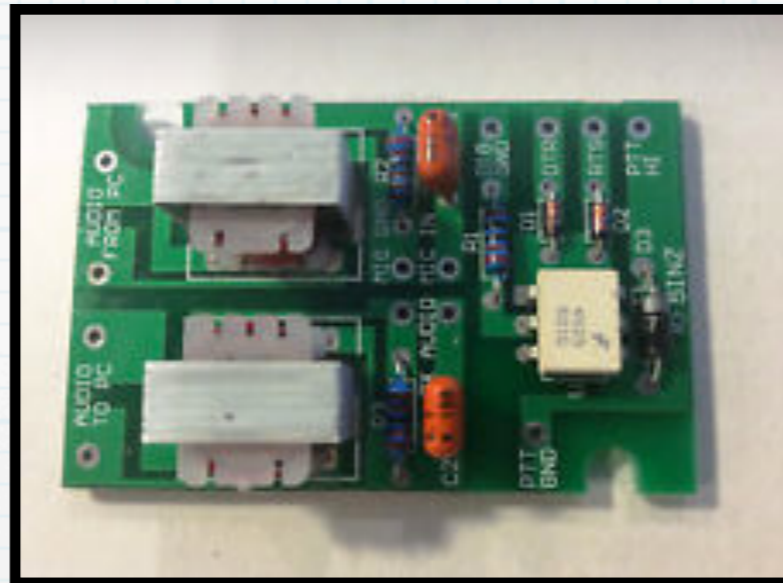
EZ Digi Interface



Completed unit with cables of different types & enclosure

\$45.48 from **EBay**

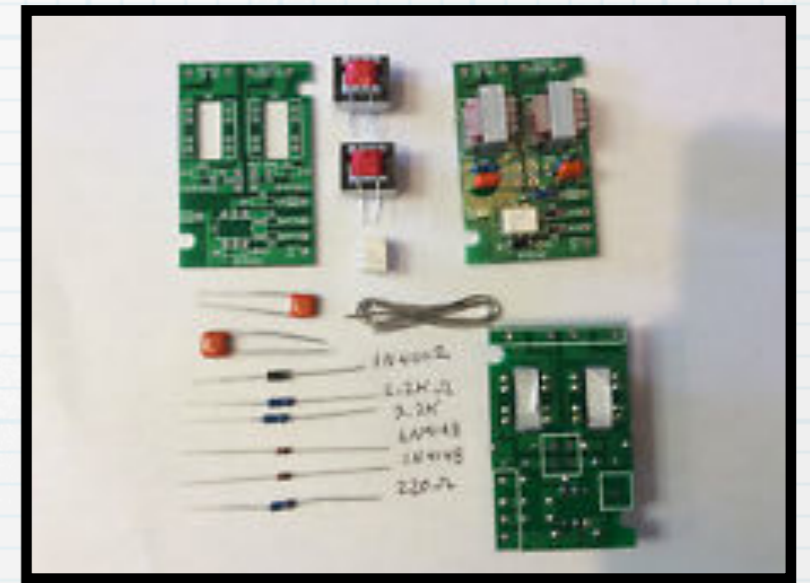
EZ Digi Interface



Completed unit but No Enclosure Nor Cables

\$14.35

EZ Digi Interface



In Kit Form, sans cables, enclosure

\$8.95

* Search "Youtube" videos for SSTV to iPhone & iPad



Signalink **\$116** from Tigertronics

* w/rig specific cables

* excellent customer service

* trim pots for Tx, Rec. and Delay

HDARC's Portable SSTV Unit

Kenwood VC-H1

- * image-scan converter
- * detachable CCD camera
- * 1.8 inch color LCD monitor
- * 10 picture memory
- * Four AA Alkaline batteries
- * The same SSTV unit is on the ISS



Operating the VC-H1 - part 1

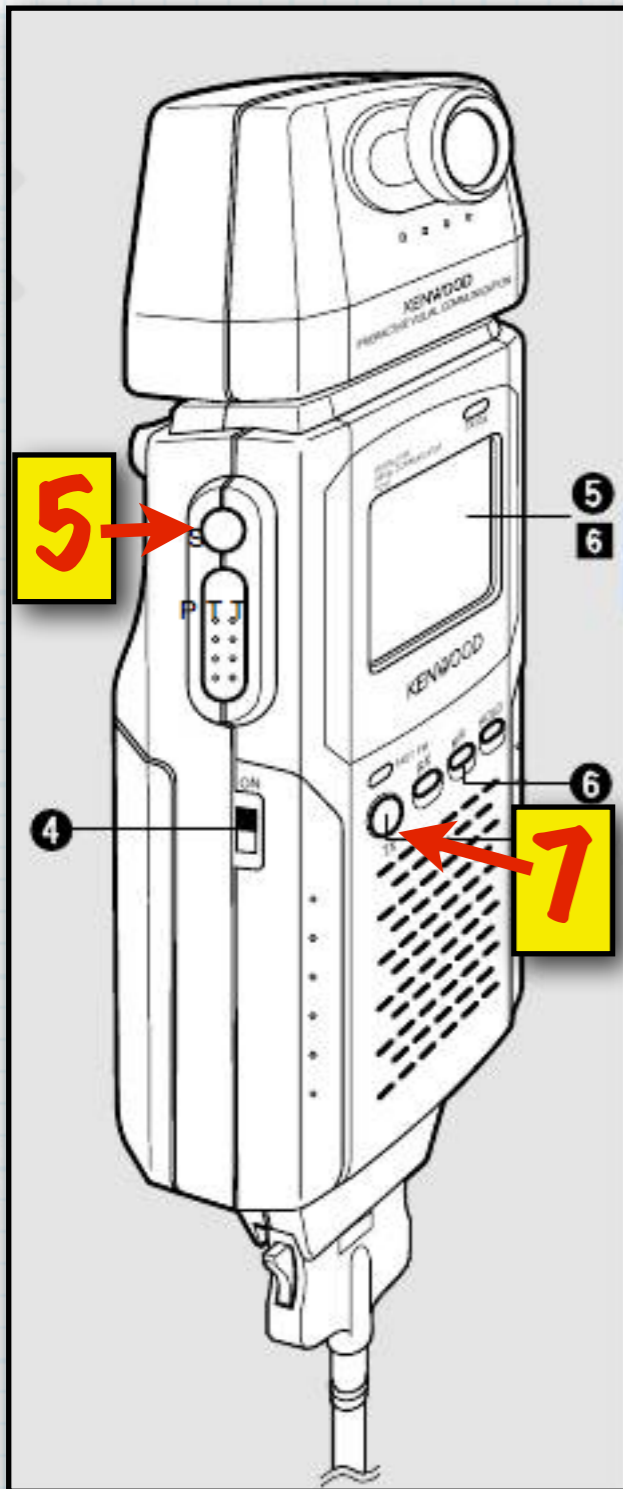
1. Connect the VC-H1 cable to the Handi-talkie (HT)
2. Turn on the HT's power.
This must be done **BEFORE** applying power to the VC-H1.
3. Slide the **PWR** switch upward to turn the VC-H1 power ON.
4. Select **145.5**, the FM SSTV simplex frequency



Kenwood, Baofeng, & Wouxun HTs,
will also work with the VC-H1 Unit

Operating the VC-H1 - part 2

To Transmit



5. Press S (#5) to activate both the camera & the LCD monitor.

6. Frame the image in the LCD monitor

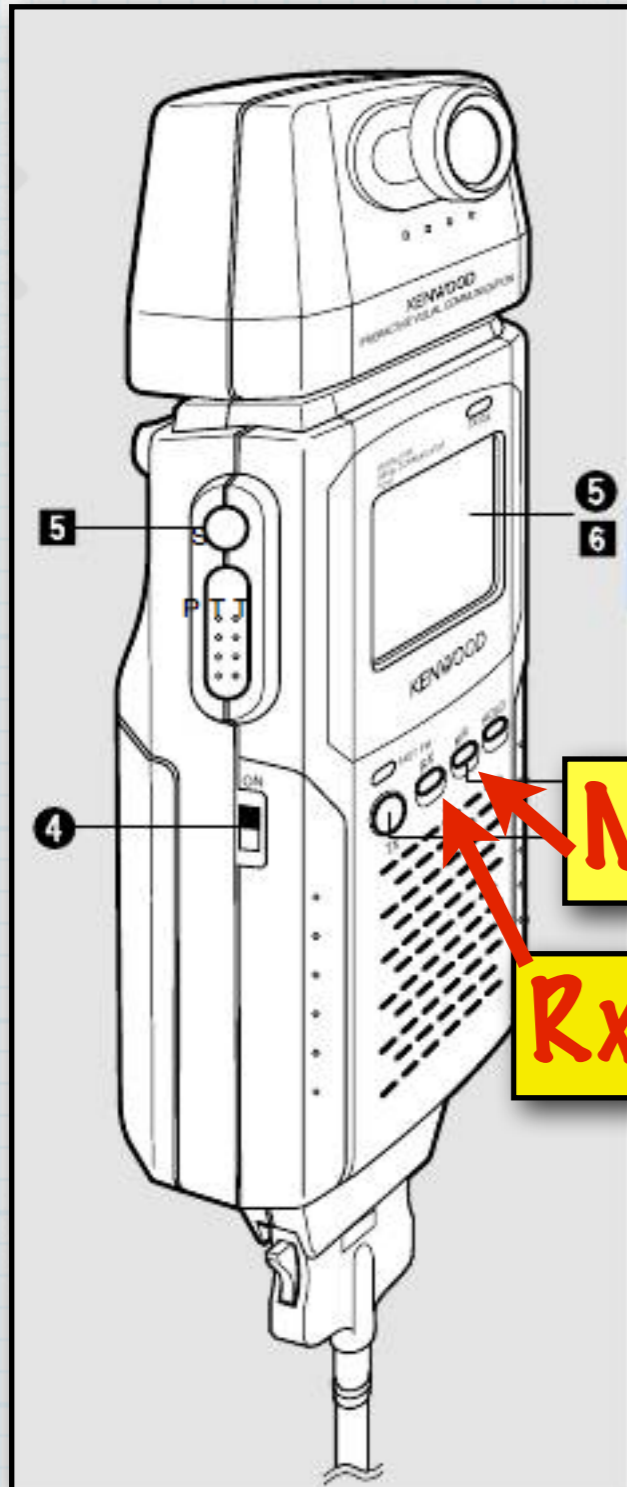
7. Press S, (#5) again to capture the image.

8. Press TX (#7) to transmit the image.

- * You need NOT press the PTT on the radio nor VC-H1
- * TX/Rx indicator lights RED
- * Horizontal line appears & slowly moves downward to show tx progression

Operating the VC-H1 - part 3

To Receive



9. Press **RX** button on the front panel when you hear an image signal. A picture will begin to appear on the monitor. The TX/RX indicator lights **ORANGE**.

10. To store the image in memory, press **MR**.

Ten images may be stored. They will self erase when replaced by another picture

Operating the VC-H1 - part 4

FM Voice Communication with the VC-H1

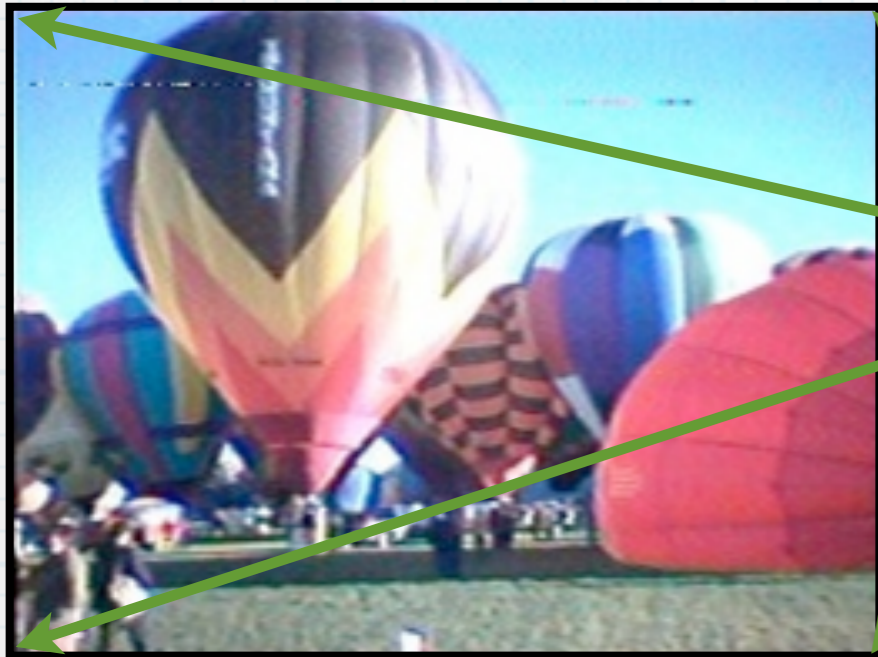
With the video-interface connected to an HT, the PTT (push to talk) on the VC-H1 can be used for a normal transmit/receive function

Push to Talk



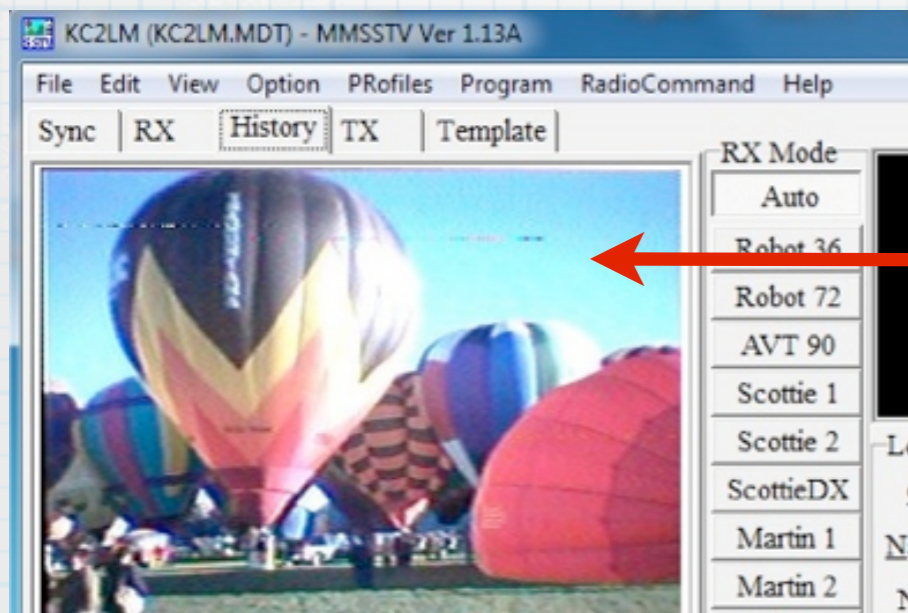
Images Taken with VHF and Sent Over HF

1. Capture an Image with the VC-H1



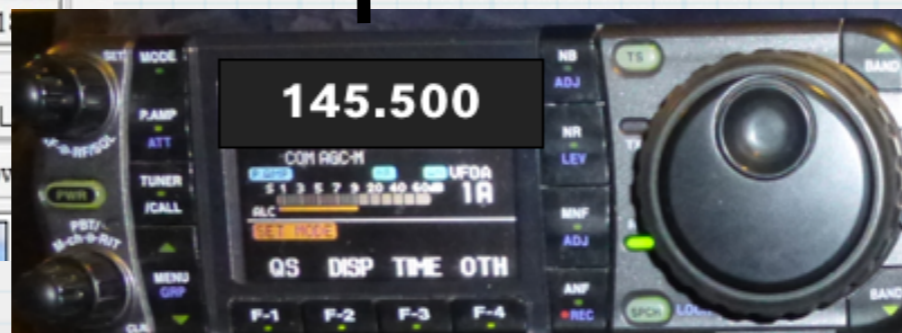
Kenwood HT

2. Send image to the Icom 7000 on 145.5



3. Change Frequency on the Icom

4. With the image on the screen & the Icom now on HF, simply Tx the image



Wednesday is SSTV Day

- * Ham Satellite Fox-1, AO-85 is open for SSTV image transmission contacts
- * Downlink: 145.980 MHz, (145.975) toward the LOS
- * Uplink:

Memory #1	435.160 MHz, PL 67.0 Hz Tone
Memory #2	435.165 "
Memory #3	435.170 "
Memory #4	435.175 "
Memory #5	435.170 "
- * Check to be sure satellite is clear before making an SSTV contact.

SSTV from the ISS

- * Well Publicized Announcements proceed the Tx of SSTV images from the ISS
 - * ARRL's QST & Newsletter
 - * HDARC emails
- * Receivable with an Handi-talkie (HT)
 - * Using a base station's vertical antenna will help
- * Several pictures are sent at a time
- * Record Audio and play back into mic of computer running MMSSTV software



SSTV Can Be More than Pictures

- * Visual medium is more interesting for students
- * Additional activity at EXPLORA
- * Educational Activity for Field Day (100 pts)
- * Images can make a meaningful contribution to Search & Rescue missions
- * Demonstrates Ham Radio's visual capability during Hamfest & Balloon Fiesta
- * Images communicate more clearly to administrators, activity levels during "Fun Runs" & "Bike Rides."

SSTV at Balloon Fiesta



In Conclusion

- * The slide show will be available on the High Desert Amateur Radio Club website:
www.nm5hd.com
- * HF & VHF SSTV Demonstration
- * Questions and/or Comments