SLOW SCAN TV



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<u>Areas covered:</u> • Brief History • Technical Requirements • Equipment



SSTV: HISTORY

- 1957 Copthorn Macdonald develops the fundamental concepts behind SSTV
 - 1968 FCC makes SSTV legal for advanced class hams (USA).
 - 1969 SSTV used to transmit Apollo 11 images from the moon.

• 1970 - W7FEN uses double sideband SSTV providing simultaneous voice and SSTV (voice on lower sideband, SSTV on upper sideband) for the first time

- 1970 WB8DQT, W2DD send the first color SSTV pictures using Polaroid camera.
 - 1977 Personal Computer 1st used to send & receive SSTV
 - 1997 PC Windows based SSTV software marketed



SSTV: HISTORY

- Monochrome SSTV image
- 10 frames per second (FPS)
- 320 scan lines
- Multiplexed with comms and telemetry





SSTV: TECHNICAL

- Color images transmit 120, 128, 240, or 256 scan lines
- The image will take from 12 seconds up to 4 minutes to transmit depending on format, e.g. Martin M1,...M4, Scottie S1,...,S4
- Scottie S1, the format that I've used, has a frame time of 110 sec. and pushes 256 scan lines to the receiving station (this includes 16px room for HAM's callsign, etc.)
 - Sync pulses signifying new lines are sent as bursts of 1200 Hz tones



SSTV: TECHNICAL

- A code is transmitted with each frame for the receiving equipment to discern the mode of the SSTV image.
- The code is sent during the vertical sync pulse and is called 'vertical interval signaling' of VIS.
- Receiving SW reads the code and adjusts its decoding settings to properly acquire and display the image.



SSTV: EQUIPMENT



- CQ SSTV Slow Scan TV by Black Cat Systems for Iphone
- SDR Console vers. 3.0.9 (https://www.sdr-radio.com/Software/ %F0%9F%92%BEDownloads)
 - VBCABLE (https://www.vb-audio.com/Cable/index.htm)
 - MMSSTV vers. 1.13a (https://hamsoft.ca/pages/mmsstv.php)











Setup MMSSTV			×
RX TX Misc			
PTT Port NONE	Digital output level		2WF
□ RTS while Scan Radio command □ Vari SST	v	• Standard • User define	⊂ NONE ed
TxBPF/TxLPF Tx BPF Tap 24	C Internal C External	l (full-duplex)	☞ Fixed mode□ Encode FSKID
Tune button Freq 1200 • Hz Time length -1 • s □ Auto TX (for SAT/UHF)	CWID • OFF C CW C MMV 1000 • Hz Slow Fast Macro		
		C	OK Cancel



Setup MMSSTV		×	
RX TX Misc			
Sound Card In CABLE Output (VB-Audio Vir • Out CABLE Input (VB-Audio Virtu • FIFO RX 12 • TX 8 • Priority C Normal C Highest C Critical	WaterFall L H History max. 64 JPEG Quality 80	FFT Background Signals Trails Sync marker Freq marker	
Source Mono CRight Left	□ Save window location □ Always use DIB	 Priority of MMSSTV 	
Clock 11025.00 • Hz Adj Tx offset 0.00 • Hz	System Font Window Times New Rom Japanese	an Size 0 - English Other	
		OK Cancel	



SSTV: IMAGE VS RANGE

322 ft (0.06 mi) away from receiver (Scottie S1 mode)





CFMC

CHICAGO EM CLUB

SINCE 1965

636 ft (0.12 mi) away from receiver (Scottie S1 mode)

SSTV: IMAGE VS RANGE



1,112 ft (0.2 mi) away from receiver (Scottie S1 mode)



1,984 ft (0.38 mi) away from receiver (Scottie S1 mode)



SSTV: CONCLUSION

- Remember this is a terrific hobby!
- If you need help, please ask! There are plenty of experts willing to help.
- Repeaters, servers, and networks require maintenance and funding.
- Get involved in your local radio club and help others around you.



