Recent W6YX RTTY Ops

- W6LD John
- N7MH Mike
- K6UFO Mork
- ND2T Tom
- KZ2V Nick
- W6RK Risto
- K6TT Phil
- N6CCH Rebar
- N6DE Dean
- K6OWL Mark
- WX5S Matt

Thank You!

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Antennas on hill over here

RTTY from the Stanford University Amateur Radio Club station W6YX

K6UFO - Mark Aaker

Stanford alumni, club member and RTTY operator

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W6YX History

- Rumored to be founded 1922
- Records show a "Stanford University Radio Club“ became affiliated with ARRL in 1924
- Callsign was 6YX, until 1927 change to W6YX
  - Our Field Day GOTA station callsign is K6SU
  - In “prefix” contests we use “rarer” WX5S, KZ2V or ND2T
- Some notable members have included:
  - Dr. David Packard (of Hewlett and Packard)
  - Dr. Frederick Terman (author of *Radio Engineering* and *The Radio Engineer's Handbook)*
  - Dr. Oswald G. Villard, Jr. (First amateur SSB, 1947)

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→ *News Flash* ←

Since the announcement of this talk, club historians have uncovered evidence of RTTY activity in the year 1975.

"The club station is equipped for HF operation with Collins S-Line equipment … Three years ago, a former member of the club, Raymond Boute, donated a teletype unit to the club, and one of our current members, Steve Kolupaev, built the necessary control unit, so W6YX also has HF RTTY capability."

Also of historical interest is this photo of antenna work in 1982 with the student third to right believed to be Wayne Wright W5XD, the author of the Writelog logging program currently used by many RTTY contesters.

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2001 ARRL RTTY Roundup Results

Top Ten Scores

Single Operator		Multioperator	
W/VE—Low Power		W/VE—Low Power	
AA5AU	205,239	N5ZM	116,765
WT4I	156,480	W6YX	96,495
KA4RRU	135,318	W4MR	82,518
N3SL	114,359	WV7Y	76,720
N6OJ	111,588	AA9RR	74,336
KI6DY	109,200	KGØQG	68,276
W4/KL7Q	101,304	N8LRG	61,464
N9CK	97,699	W5VZF	52,560
VE4COZ	87,954	K8VT	49,305
KØZU	87,203	NØIU	44,426

Finishing second, while setting a new Pacific Division record was W6YX with a score of 96,495. Also setting new divi-

RTTY apparently went out of favor among Stanford students until 2001 with an effort by Kent K6ENT and Dean N6DE to enter the ARRL RTTY Roundup 2001 with a HAL DXP38 terminal unit.

Despite getting started with inverted tones, they did quite well, finishing in second place and setting a new Pacific Division Record.

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ARRL RTTY Roundup at W6YX

W/VE, Multi-operator, Single-Transmitter

- 2001 #2, new Pacific Division Record, 2 operators.
- 2002 #2 2 operators.
- 2003 #2, new Pacific Division Record, 2 operators.
- 2004 #3, new Pacific Division Record, 5 operators.
- 2005 #18, three new operators, part time effort.
- 2006 #6 and #9 running two concurrent entries, 7 ops.
- 2007 #8 and #39, 4 ops.
- 2008 #6 and #9, 5 ops.
- 2009 #8 and #28, 5 ops.
- 2010 #6 and #9, 8 total ops, 4 new ops, focus on Mults.

(When we run two entries, our combined score total exceeds any single station, useful for Club Competition of Northern Calif. Contest Club (NCCC) vs Potomac Valley Radio Club (PVRC.)

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ARRL RTTY Roundup is Fun…

Next RTTY RU is Jan. 8-9, 2011

- Four W6YX ops gave a RTTY presentation to NCCC in 2003 to prepare for first Club Competition in RTTY RU in Jan 2004.
- Result: NCCC won the first Club Competition by wide margin, 35 NCCC logs to 16 PVRC logs.
- A notable recruit to RTTY from that 2003 talk: Ed W0YK (P49X) - holder of numerous World records in RTTY.
- In 2009 NCCC submitted 86 logs, becoming first to reach "Unlimited Category" (>50 logs) for Club Competition.
- In 2010 the Triple Play Award added even more interest to the already very fast growth of RTTY!
- But the greatest challenge to our organization and operation skill has been the National Contest Journal NAQP RTTY contest.

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…but NAQP RTTY is Challenging!

Our category: Multi-operator, 2 Transmitter, Low Power

- Why do we find it challenging?
  - Only 12 hours (only 10 hrs for single-ops, with 2 hrs off-time)
  - All five bands 10m -80m (need all 5 bands for high score)
  - QSOs and Multipliers per Band (huge impact away from 20m)
  - Only 100 watts (barely enough for weak 10m and noisy 80m)
  - Ten-minutes required between band-changes (for M2)
  - Very little help from packet spots (no packet for single-ops)

- Challenges from CA: Mostly daylight, only 3 to 4 hours in early darkness. East coast has gone to 40m and 80m long before we can. CA is not a "rare" state.

- Advantages from CA: Much better chance for propagation on 10m and 15m, band lasts longer on 20m.

Held twice a year, Feb & July:
Feb 26, 2011 & **July 17, 2010**

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How has W6YX done in NAQP RTTY?

Mo-Year	Place	QSOs	Mults	Notes
Feb 2004	#1	868	242	
Feb 2005	#1	968	233	New Record
Feb 2006	#1	857	184	
Feb 2007	#1	1,034	194	First to 1,000 QSOs
Feb 2008	#1	1,001	189	10 less Qs, 17 more M than K9SEX
Feb 2009	#1	1,000	188	82 less Qs, 22 more M than K9SEX
Feb 2010	#1	1,070	216	New Record

July 2004	#3	555	158	after W5KFT and W5NN
July 2005	#1	621	170	
July 2006	#1	821	205	
July 2007	#2	779	177	after N0NI
July 2008	#1	792	206	
July 2009	#1	666	157	

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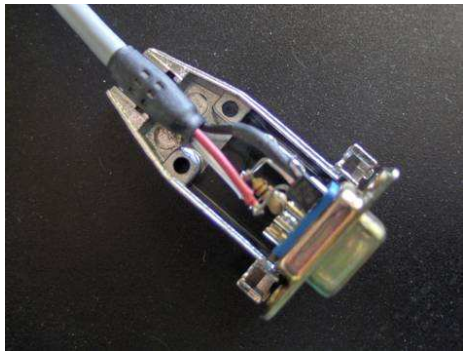
Hardware

- Four Yaesu FT-1000MP, MkV radios
  - Use FSK keying
  - Homebrew FSK cables and Buxcomm Rascal cables
  - Narrow filters 500Hz and 250Hz (~350Hz in reality)

- Have tried an Icom 756ProIII, but all-Yaesu is easier to switch ops around among stations.



- Old 600 MHz computers, Windows 2000, run MMTTY decoder plus Writelog just fine.

- Ethernet networking of four stations
  - two main running stations
  - two stations for spotting new multipliers and new QSOs

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Antennas

- Multiple on each band, over an 800 ft area. Allows two running stations on separate bands, plus two spotting stations on same or different bands.
- Bandpass filters (ICE-419) and coax stub filters added as needed to solve interference problems – but sometimes the spotting stations just have to listen between other transmissions.

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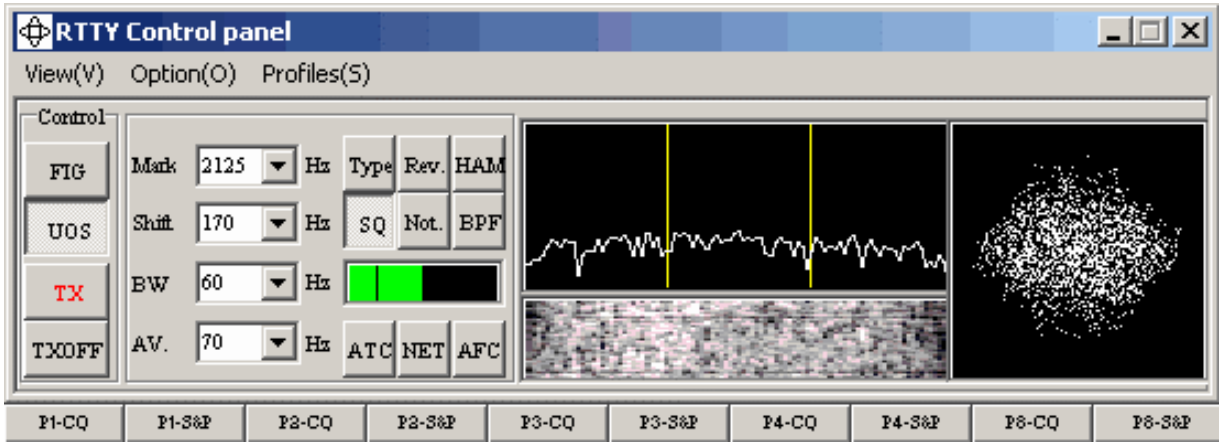
Software

- Started with HAL DXP38 RTTY Decoder
- Writelog logging software

- Then, MMTTY RTTY software via "plug-in" to Writelog logging
  - Learned to use various decoding profiles, esp. for 80m
  - Haven't found "dual decoders" - DXP-38 plus MMTTY to be useful enough to justify screen space and setup complexity
  - Haven't found "dual decoders" – two MMTTY windows with different settings to be useful enough …



Operating Techniques

- Four operators/four stations
  - two main run stations
  - two stations for spotting new multipliers and new QSOs
- Start on 15m and 20m
  - 15m moves to 10m if open
  - 20m is "money band" for 7 hrs
- "QSL, TU we are also on 21.077"
- "Please QSY to 21.077 right now"
- When rate falls, switch bands, S&P, or at least find a new run freq.
- In practice, a new Multiplier is worth 8 QSOs or 10 minutes.

How you can benefit and have fun!

- RTTY provides opportunities for learning in many areas: hardware, software, contest operating, DXing…
- Rapidly growing participation and activity prevents boredom.
- The "Triple Play WAS Award" makes all states "needed."
- Experienced operators and clubs will help you solve setup problems, and are eagerly looking for contacts with you!

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Resources

- AA5AU's incredible: **www.rttycontesting.com**
- *"Getting Started on RTTY"* **aa5au.com/rtty**
- RTTY email reflector on **Contesting.com**
- ARRL Operating Manual, ARRL HF Digital Handbook
- Your local radio club, contest club, RTTY operators.

Questions?

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RTTY Contesting: Beginner to Advanced!
Hardware:

- Eliminate all problems. Improve reliability.
- Document your connections and configuration.
- Consider FSK vs AFSK if it can provide advantage to you.
- (Use narrow filters, or AFC and NET)
- Consider a second decoder (HAL, KAM, 2nd SW decoder...)
- Consider SO2V and SO2R to work more of the band/bands.
- Eliminate hum, noise, any degradation of received and transmitted signals.

Software:

- Document your settings.
- Backup needed files, be able to reinstall/reinitialize quickly if problems.
- Review available software settings and know when to use.
- Adjust audio levels for best dynamic range, or have settings ready for: Crowded/Loud versus Quiet/Weak conditions
- Use USOS, and use spaces (not dashes) in messages.
- If using packet spots, know how to correct if spotted on carrier or space instead of on mark frequency.

Operator:

- Use wide and narrow filters.
- Know your RIT and XIT by hardware and software.
- Know available DSP and audio/noise filtering in rig or SW.
- Know how to decode "unshifted" and "reversed."
- Reduce fatigue, reduce monitor volume, consider low tones.
- Reduce distractions, simplify mouse clicks and button pushing.
- Enjoy what you're doing – Have fun!

Strategy: (relevant or unique to RTTY)

- Go slow (let callers finish printing, see multiple calls, avoid simultaneous transmitting aka "doubling")
- Let PTT drop before jumping in. Make it clear who is sending when.
- Keep control of your CQ freq, minimize confusion.
- Consider SuperCheckPartial "all calls" vs "RTTY-only."
- Know RTTY band segments, where "robots" will QRM you, and avoid DX beacons.
- Know that 20m is center of activity and most QSOs, but how to get valuable mults on other bands.
- RTTY operation is continually improving, so read, discuss and keep up with new information.