RTTY Contesting

Building your Strategy and Optimizing Your Score

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29 August 2015

Strategy?

- A strategy is a plan to achieve a goal

- So, what is the goal? *(next slide)*

- And, what is the context of the goal?

  – RTTY contesting?

  – A specific contest?

  1. **Let's focus on the 2016 ARRL RTTY Round-Up**

  2. **What we learn can be adapted to other contests**

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Goals: 2016 ARRL RTTY Round-Up

1. Have fun!
2. Win the Club Competition gavel
   a. Unlimited (>50 logs)?
   b. Medium (11-50 logs)?

NCCC RTTY Round-Up History

- In 2004, ARRL offered Club Competition in RTTY Round-Up for the first time. NCCC won the Medium Category.
- 6th place in 2008

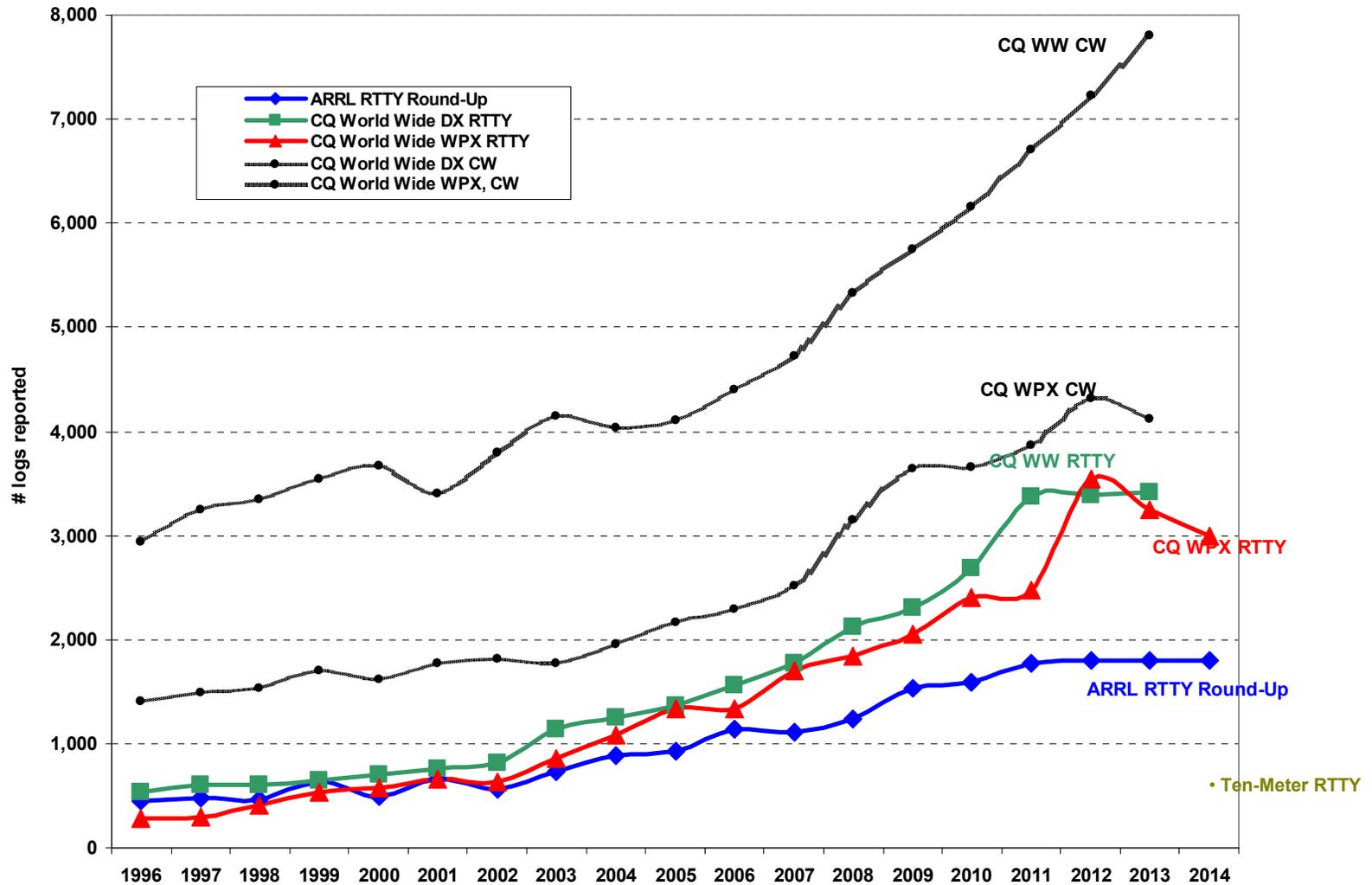---

- In 2009, NCCC was first to compete in Unlimited Club category. We won!
- We won again in 2010.
- We got beat in 2011 by MWA. [64/52, 2.2M/1.8M]
- We won in 2012, 2013, 2014.

- We were 11th in Medium! (MLDXCC was 6th)

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2016 ARRL RTTY Round-Up Rules

- 2-3 January 2016 (10am Sat – 4pm Sun PST); logs < 2 February
- 24 of 30 hours; maximum two off-times, at least 30 minutes each
- Everyone works everyone
- 10-80m
- Stations count on each band
- Mults count once per contest
  – US states & VE provinces (includes DC)
  – DXCC countries (includes KH6 & KL7)
- HP & LP: SO; SOU; MS (6 band changes per hour)
- Exchange:
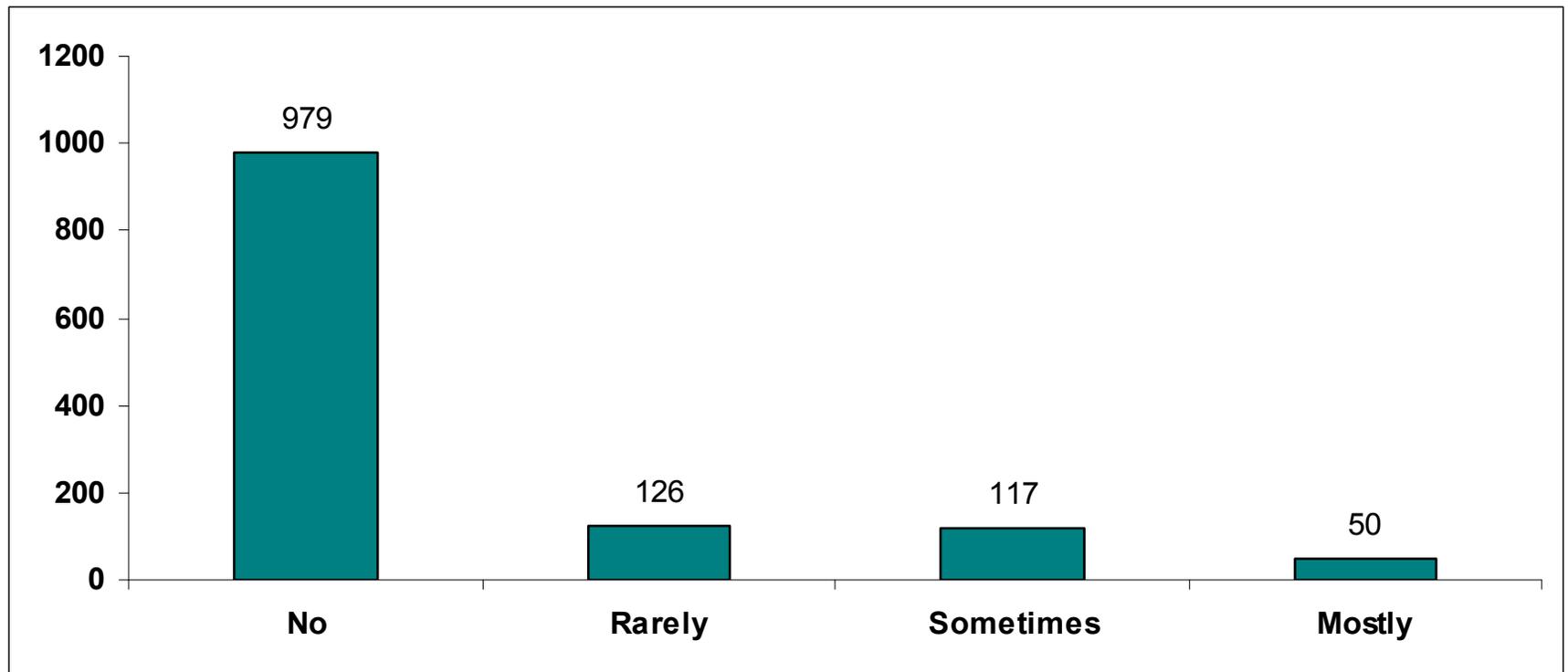 – US/VE: RST QTH
  – DX: RST <serial #>

The Third Largest RTTY Contest

2015 10-Meter RTTY Contest

- 6 Dec 2015 UTC (4pm Sat to 4pm Sun PST)
- Same rules as ARRL RTTY Round-Up, except:
  - 10m only
  - 100 watts maximum power
  - Packet assistance allowed
  - No off-time
  - Different Cabrillo header line:
    - CONTEST: 10-RTTY
- Sponsored by AA5AU & W0YK
  - Plaques, certificates, SO wine awards
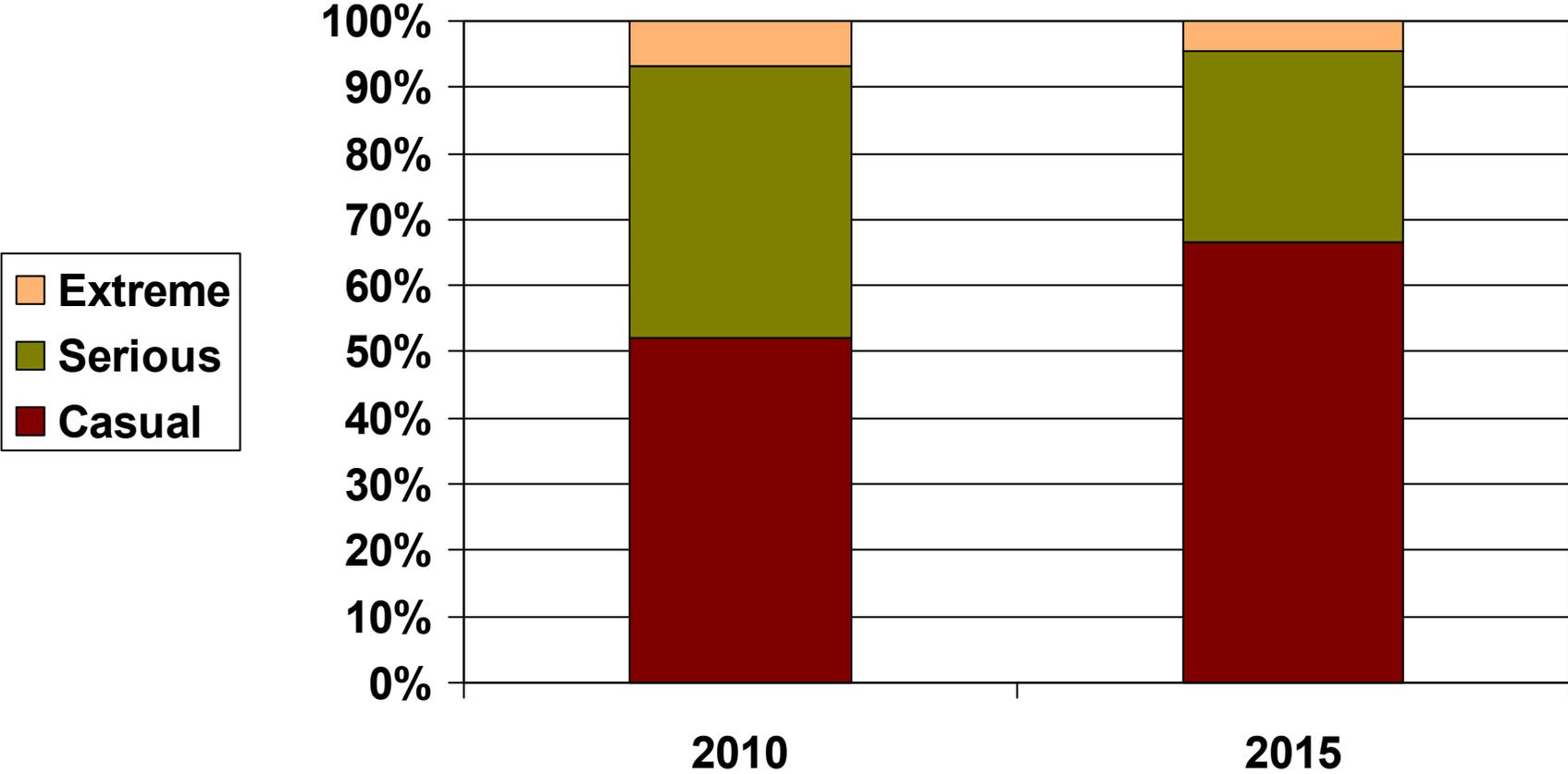- *www.rttycontesting.com/the10meterrttycontest.html*
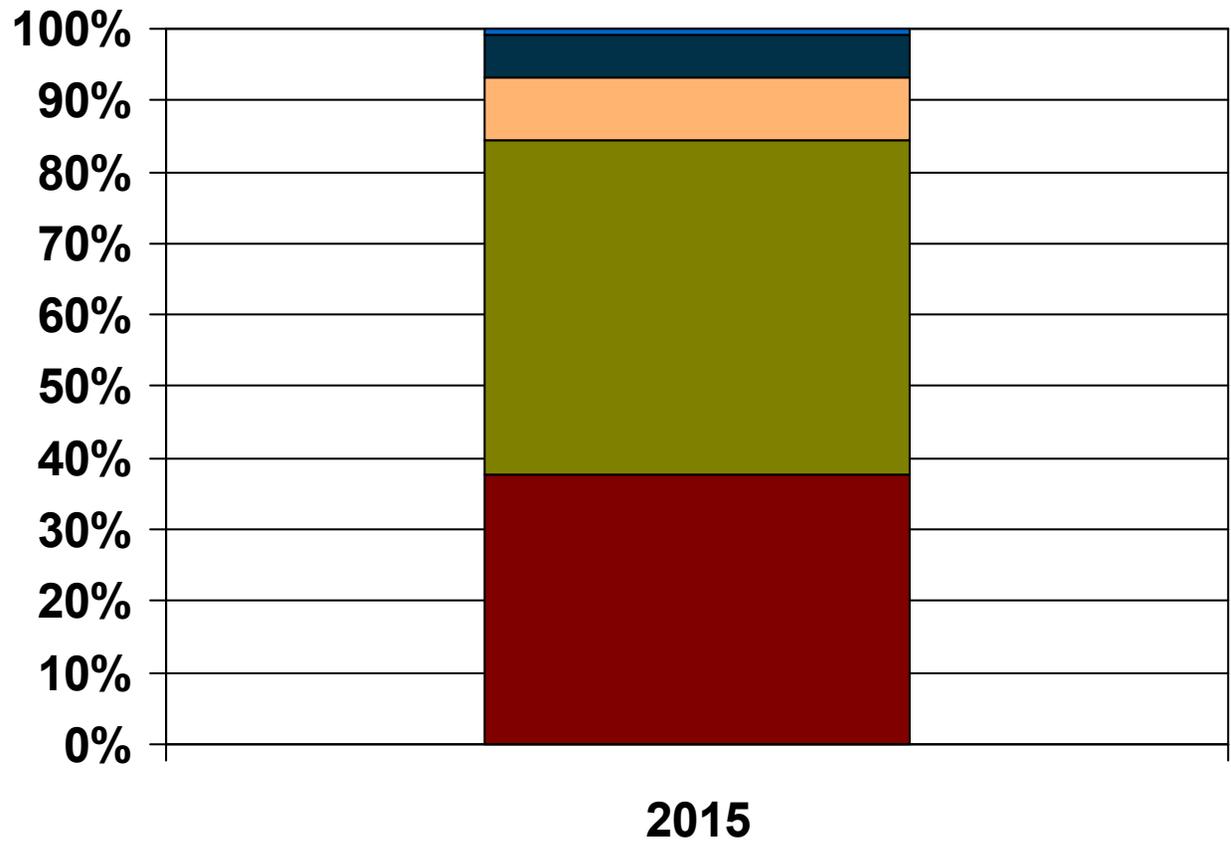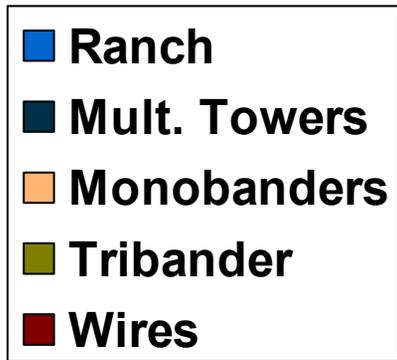
Travel to RTTY Contest

Contester Type

- Casual
  - New
  - Exercising station
  - Chasing awards
  - ➔ 95% of participants … slower operating and verbose
- Serious
  - High rates; snappy QSOs; no chit-chat
  - ➔ 5% of participants … faster operating (and easily annoyed by slower operating!)

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Contester Type

Antenna Farm

Basic Strategy

- Enter SOU (or MS)
  - Spots populate logger bandmap
  - Mults, but also for new stations when rate drops
- Run vs. S&P
  - Run whenever you can
  - Little pistol S&P to start, then Run
  - QRV where you can be heard
- Chase mults only so far
  - QSO/mult ratio ~ 20/1
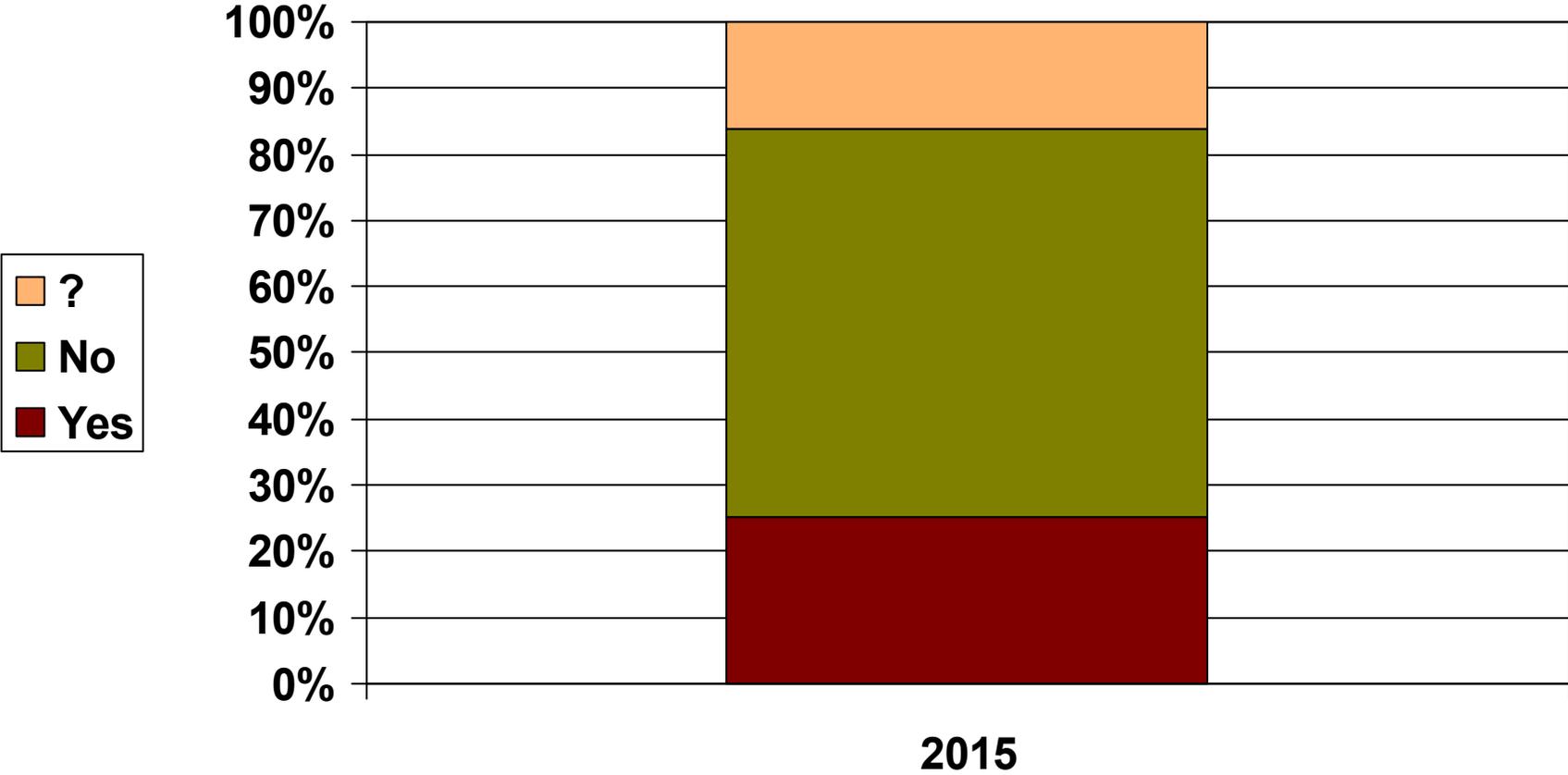 - Mults only count once; catch the few EU openings

Basic Strategy, continued

- Choose band(s) for maximum rate and/or scarce mults
- Off-time strategy
  - 6 hours between 1-7am PST
  - 3 + 3 hours
  - 5.5 hours + 30 min. reserve

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Advanced Strategy

- Call sign stacking
- Multiple decoders per signal
- SO2V
  - Run on main receiver, S&P on sub-receiver
- SO2R, SOnR
  - Dual CQing
  - CQ on one radio, S&P on the other
- SO4V
  - Dual CQing and S&P on each of two radios

Call Sign Stacking

Operating

(disciplined QSO flow)

- Standard keystroke (or mouse) sequences for:
  - Normal contact in Run mode
  - Normal contact in S&P mode
  - Repeats/Fills (in either mode)
  - QSO phase skip & tail-enders (in Run mode)
- Each sequence is executed the same way hundreds (thousands) of times during the contest
- Avoid deviations and special sequences

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Operating

(disciplined QSO flow)

- **Normal Run mode flow:**
  1. Enter or F1 (CQ)
     - repeat
     - AGN?
  2. pile-up
  3. Insert or ' (grab call sign, send exchange)
     - Send fill(s)
  4. receive exchange
  ➢ check pre-fill, click their exchange
     - AGN? or NR? or QTH? or NAME?

  1. Enter or + (log contact, send TU/CQ)
     - optionally send F7 (QRV message)

- **Normal S&P mode flow:**
  1. CQ

  2. Enter or F4 (mycall)
     - repeat
  3. receive exchange
  ➢ check pre-fill, click their exchange
     - AGN? or NR? or QTH? or NAME?
  4. Enter or F5 (send exchange)
     - send fill(s)

  1. find next CQ

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Operating

- Sailboat racing analogy:
  - Pinwheel effect at mark-rounding
- Let pile-up continue 1-3 seconds after getting first call sign
  - Increase chance for another call sign or two
  - Increase chance for QSO-phase-skip
- Apply same tactic for tail-enders … pause before sending TU/CQ message

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Operating

Normal	**Shortened**
1. *RU P49X P49X CQ, or TU P49X CQ*	1. (skip CQ)
2. *K3LR K3LR K5ZD K5ZD*	2. (skip pile-up)
3. *K3LR 599 2419 2419*	3. *K3LR TU NW K5ZD 599 2420 2420*
4. *TU 599 PA PA*	4. *TU 599 MA MA*

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Operating

Normal

1. *RU P49X P49X CQ, or*
   TU P49X CQ

2. *K3LR K3LR*

3. *K3LR 599 2419 2419*
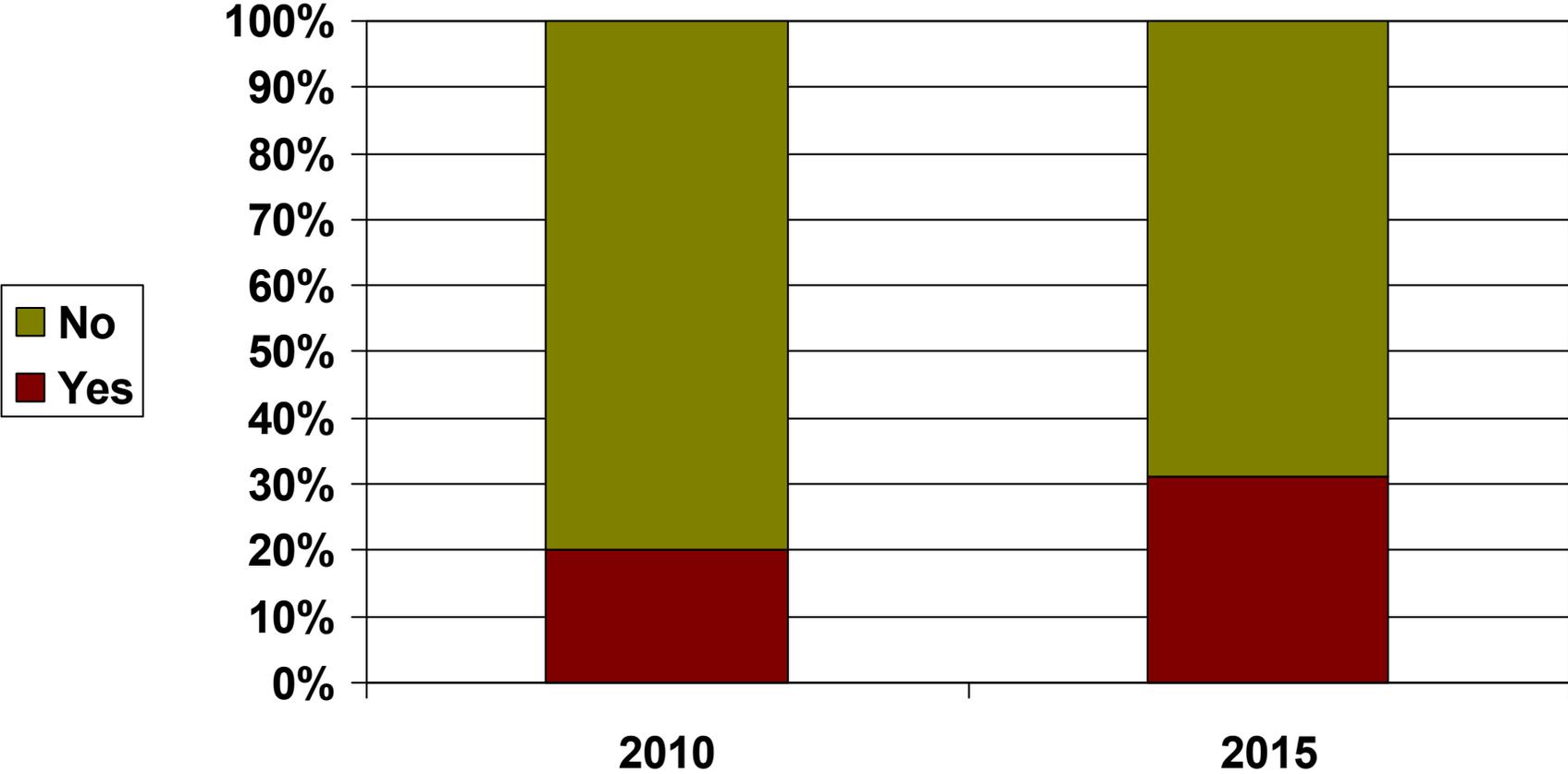   *K5ZD*

4. *TU 599 PA PA*

Shortened

1. (skip CQ)

2. (skip pile-up)

3. *K3LR TU NW*
   K5ZD 599 2420 2420

4. *TU 599 MA MA*

Operating

(call sign stacking)

- Efficiently work:
  - multiple callers in a pile-up, and
  - tail-enders to a completing QSO
- Calls pushed onto the stack as they arrive
- Message parameter pops call off of the stack into the Entry window
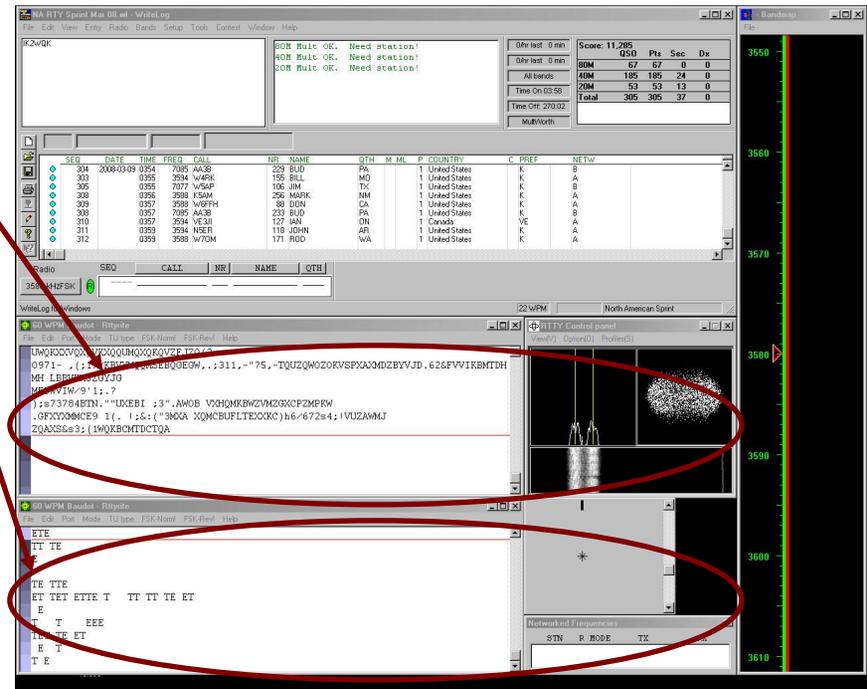- Eliminates 2 of 4 QSO phases, which doubles rate

Multiple RTTY Decoders

Multiple RTTY Decoders
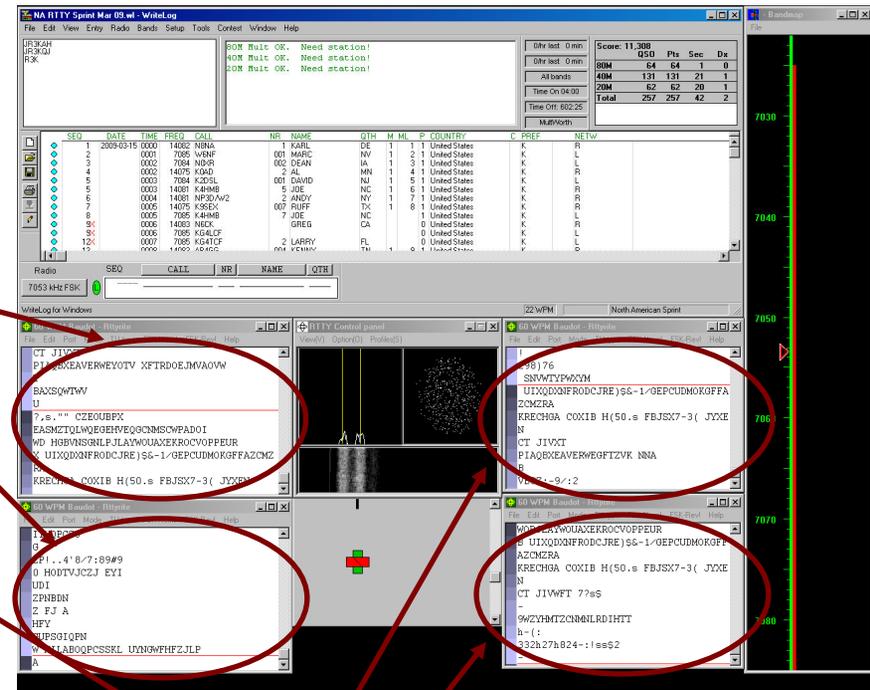
(*MMTTY & DXP38)*

- Parallel decoding
  - Software, e.g., MMTTY
  - Hardware, e.g., DXP38
- Diverse conditions
  - Flutter
  - Multi-path
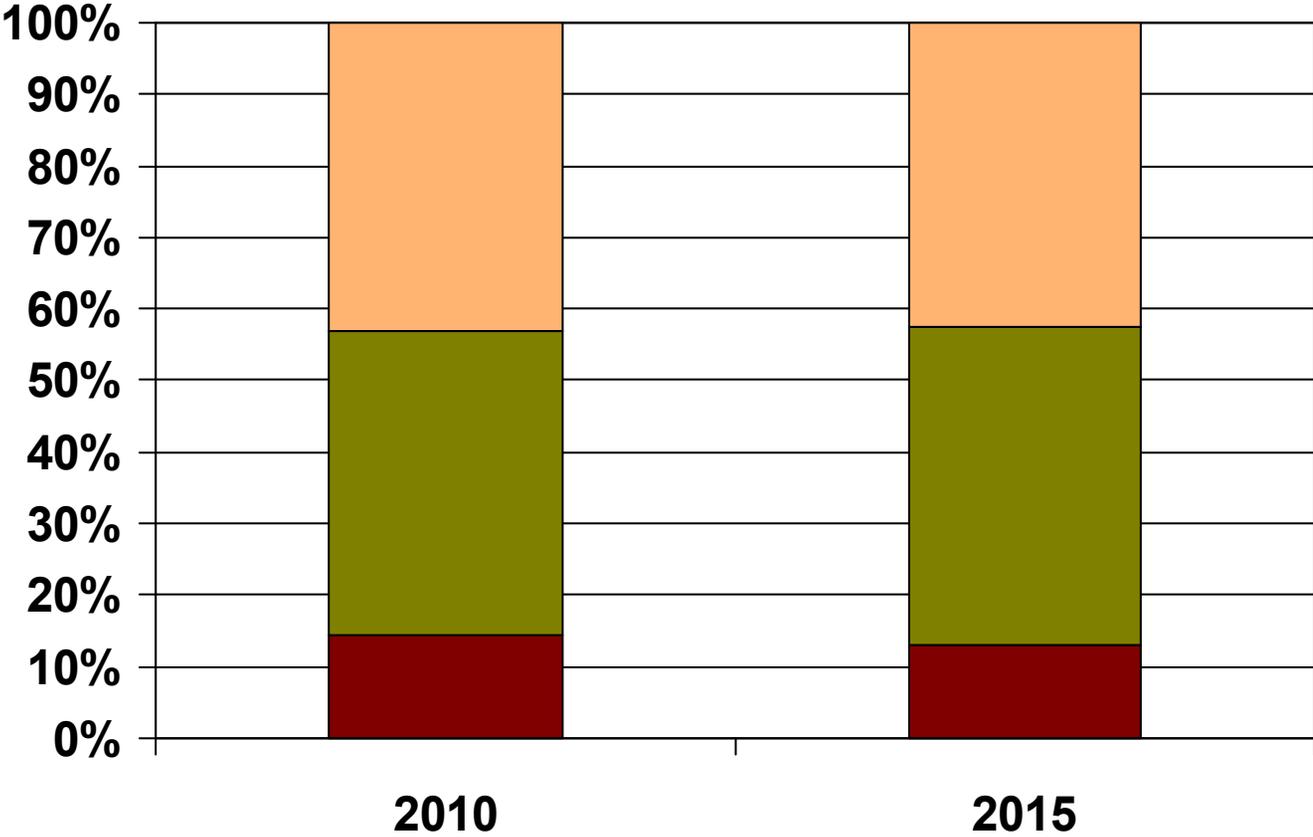 - QRM, QRN
  - Weak signals
  - Off-frequency stations

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Multiple RTTY Decoders
(*multiple MMTTY profile windows*)

- Parallel decoding
  - same audio stream
  - switching takes too long
- Multiple profile windows
  - Standard
  - Fluttered signals
  - Fluttered signals (FIR)
  - Multi-path
  - hyper sensitive
  - EU1SA
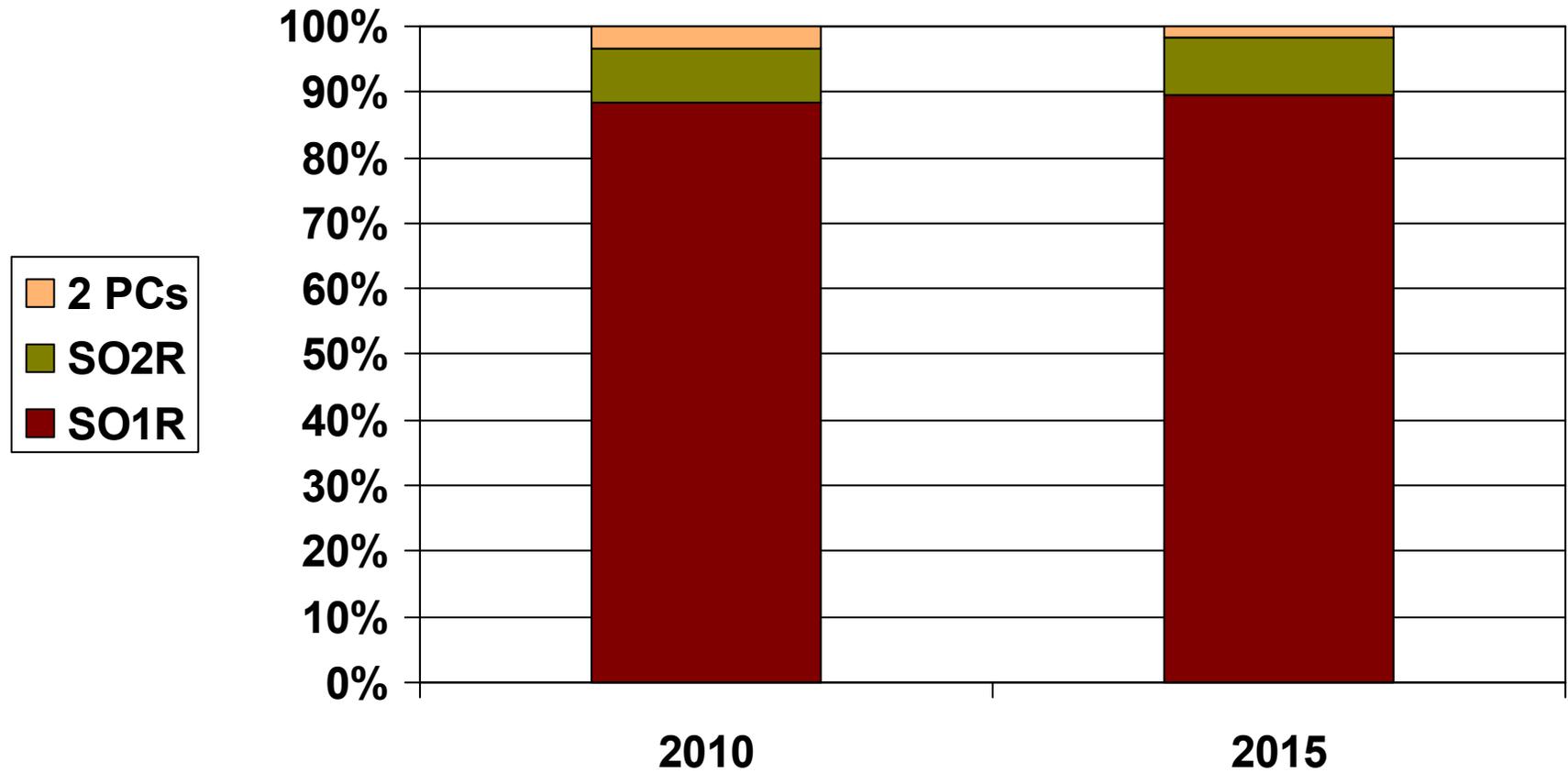 - AA6YQ-FIR-512
    - weak signals in QRN

SO2V

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Operating

- If Assisted and running on VFO-A, then
  - A<>B
  - Click spot, tune, ID station, work station
  - A<>B, resume running
- Or, setup decoder windows on A and B
  - Radio must have two true receivers
  - Monitor both frequencies simultaneously with right/left channels of sound card
    - Right-click call call from 2nd RTTY window into VFO-B Entry Window
  - Two ways to transmit on VFO-B:
    - A<>B, work the mult, A<>B
    - SPLIT, work the mult, SPLIT, resume running
      - Requires "wire-OR'd" FSK or AFSK and two transmit RTTY windows
      - K3/WriteLog invokes SPLIT when call is right-clicked

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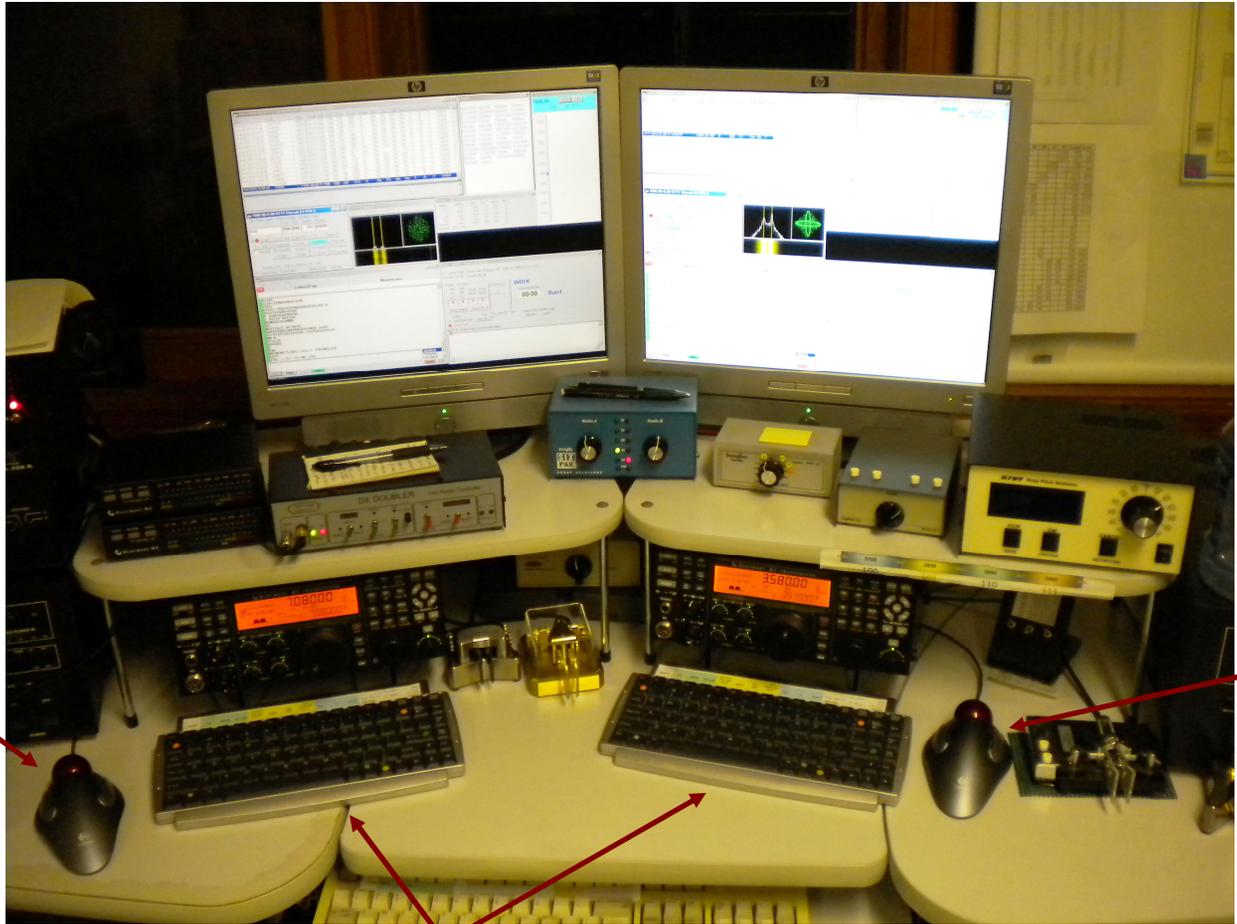# SO2R

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Operating

- Eliminates SO1R RTTY boredom
- Think beyond run and S&P:
  - Dueling CQs; run on two bands simultaneously
  - S&P on two bands simultaneously, esp. w/Packet
  - SO2V on one or both radios
- Two networked computers:
  - Eliminates PC focus swapping
  - RTTY doesn't require much typing
    - Mini-keyboards ideal for RTTY
  - 2 x SO2V for picking up mults on run band
  - Easily extendible to SO4R

No time to watch TV or read spy novels!

Operating

(SO2R)

Left-hand Trackball

Right-hand Trackball

Mini-Keyboards
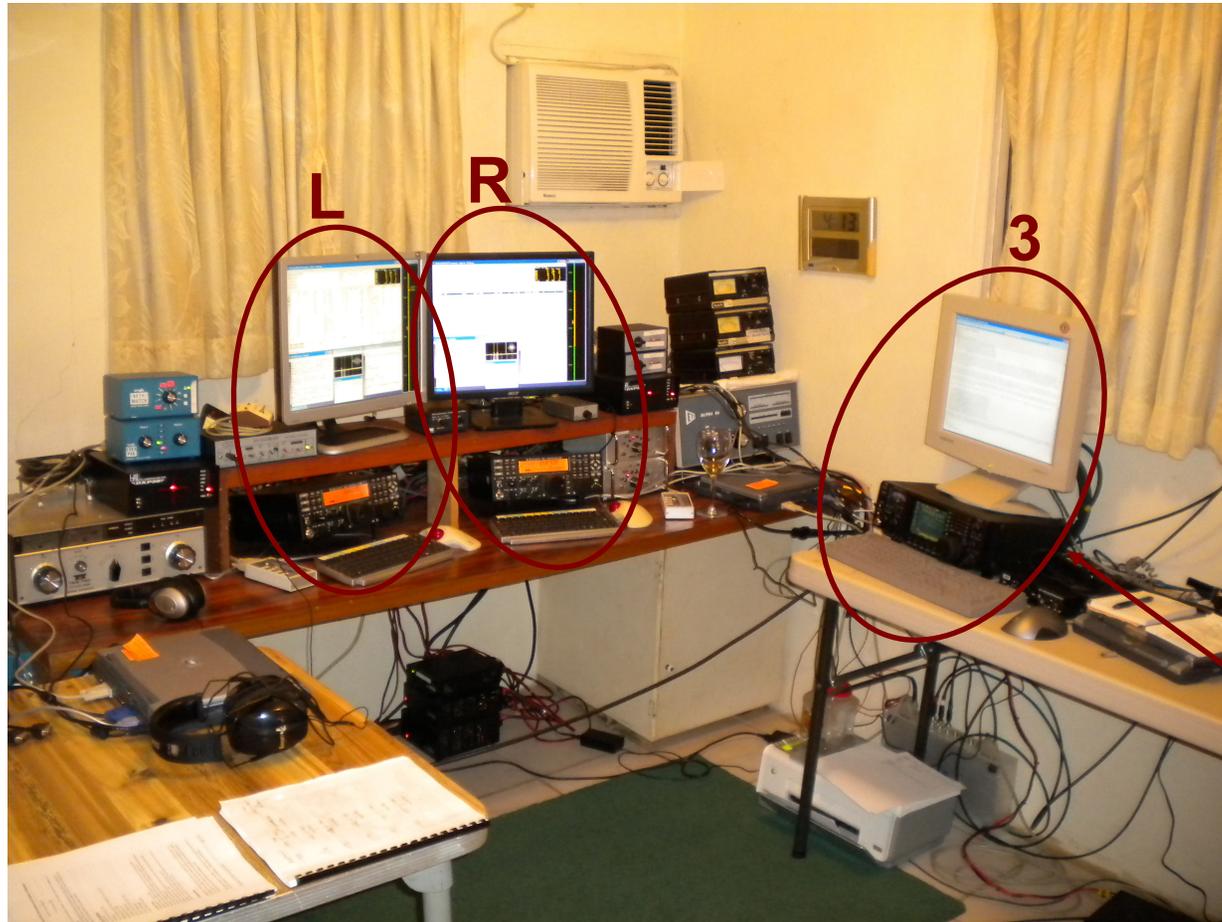
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Operating

- Simplify antenna/filter band-decoding:
  - Dedicate a band/antenna to the 3rd (or 4th) radio
- Networked PC/radio simplifies configuration
- RTTY (vs. CW or SSB) easier for operator
  - PC decodes and encodes for operator
  - Low tones & high tones allows two radios per ear
    - Classic audio headphone mixer provides radio 1, radio 2 or both

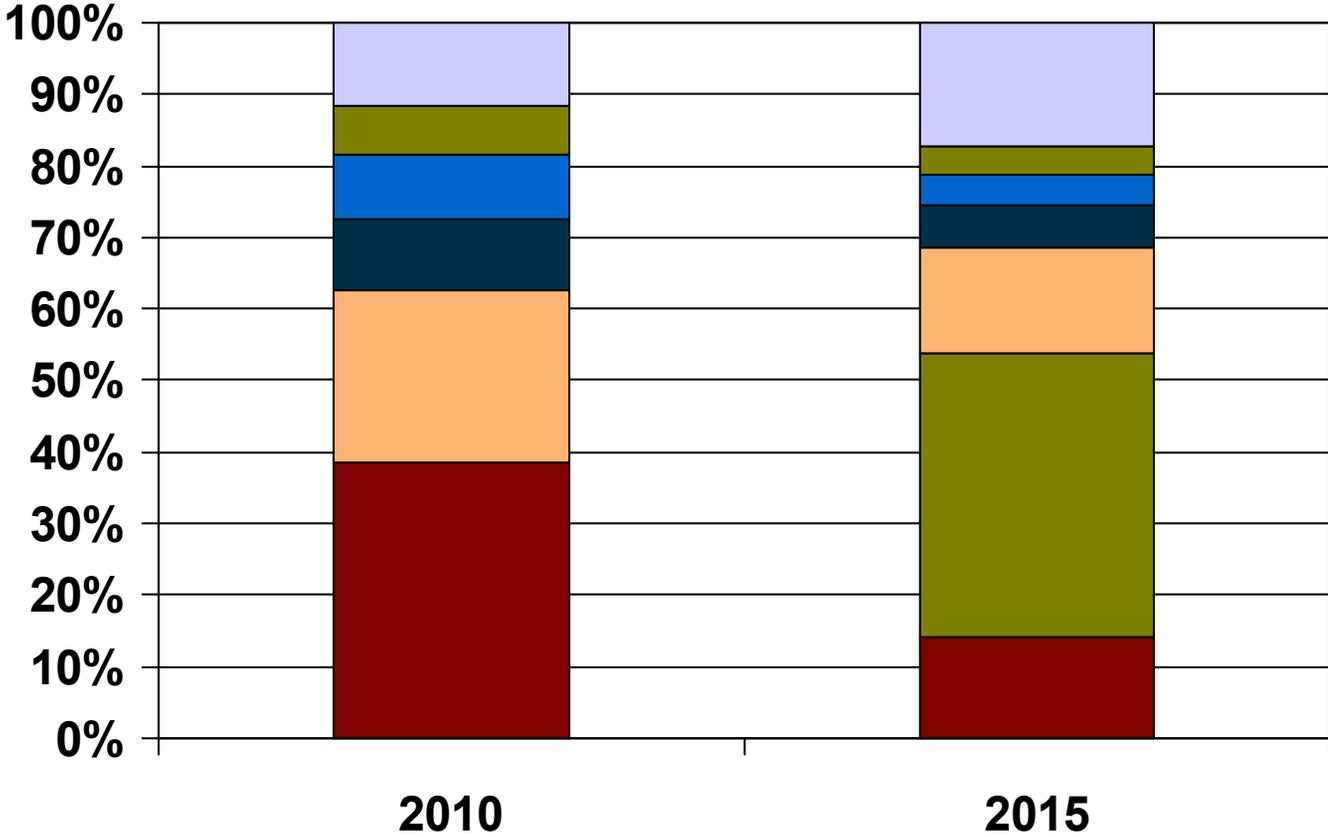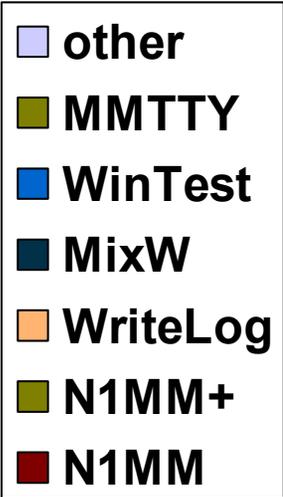NCCC · NORTHERN CALIFORNIA CONTEST CLUB

Operating

dedicated to 10 meters

The Cynics Say …

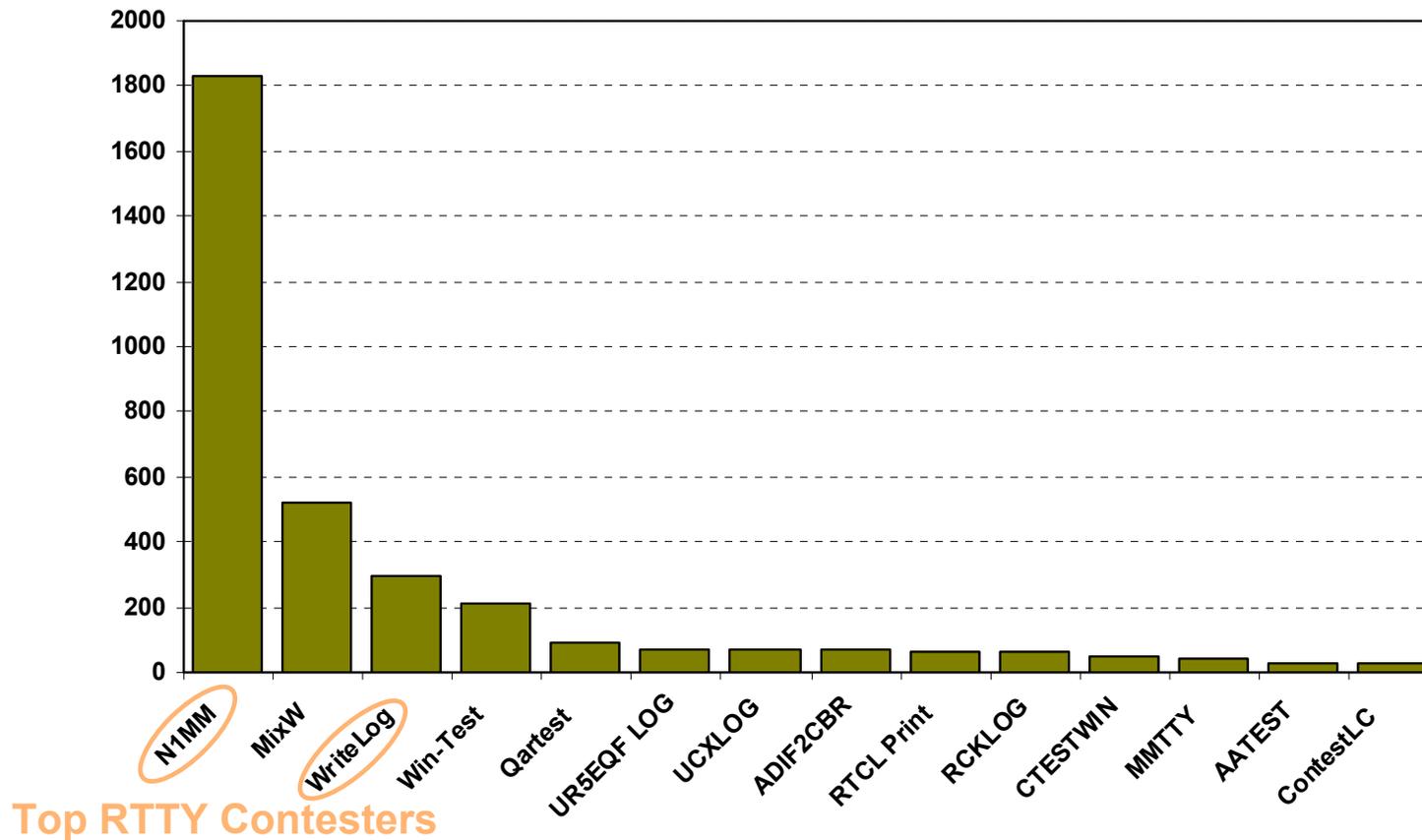- "The RTTY decoder/encoder does everything."

  however, this …

  - frees the operator to improve other skills
  - enables many new hams to contest
  - provides mode diversity for contest junkies

- "RTTY is a pain to set up and get working."

  … stay tuned, it's really not that bad!

Logger

Legend:
- other
- MMTTY
- WinTest
- MixW
- WriteLog
- N1MM+
- N1MM

2010   2015

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2012 CQ WPX RTTY

(3550 submitted logs)

Top RTTY Contesters

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RTTY Contest Loggers

	N1MM	WriteLog	Win-Test
MMTTY	☻	☻	☻
- other decoders	some	☻	none
Call sign acquisition	☻	☻	☻
Contests supported	☻	☻	fewer
Advanced RTTY	☻	☻	none

- *All three are entirely adequate for basic RTTY contesting*
- *Use the logger you are already familiar with for CW & SSB*

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RTTY Sub-Bands

- 10 meters: 28080-28100, during contests 28060-28150
- 15 meters: 21080-21100, during contests 21060-21150
- 20 meters: 14080-14100, during contests 14060-14140
    - JA: 14070-14112
- 40 meters: 7025-7050 and 7080-7100, during contests 7025-7100
    - JA: 7025-7045
    - EU: below 7050
- 80 meters: 3580-3600, during contests 3560-3600
    - JA: 3520-3530 and 3599-3612
- 160 meters: No RTTY contesting

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Frequencies to Avoid

- Avoid PSK-31 operations near:
  - 28120, 21070, 14070, 7070 and 3580
- Avoid the NCDXF beacons:
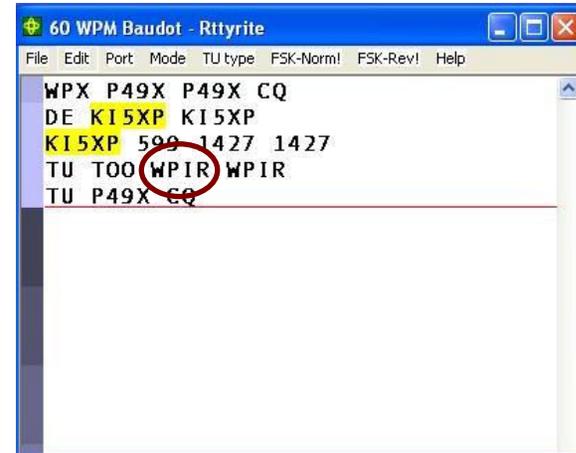 - 21150 and 14100
- More details:

  www.aa5au.com/gettingstarted/rtty_subbands.htm

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Tips

- "Upside-down"
  - Reverse Mark & Space in software
  - LSB vs. USB
- Figures vs. letters
  - TOO=599, WPIR=2084
  - Shift-click to convert, or
  - Look at top two rows
- Mic/Line In, level, muting, tones, flutter

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Tips

("They never answer me!")

- "Upside-down"
  - FSK polarity switch in radio
  - AFSK mode, LSB vs. USB
- MMTTY AFC & NET
  - AFC & NET are on by default!
    (and every time you choose a profile!)
  - Change defaults in USERPARA.INI
- Radio mode, tones, FSK interface,
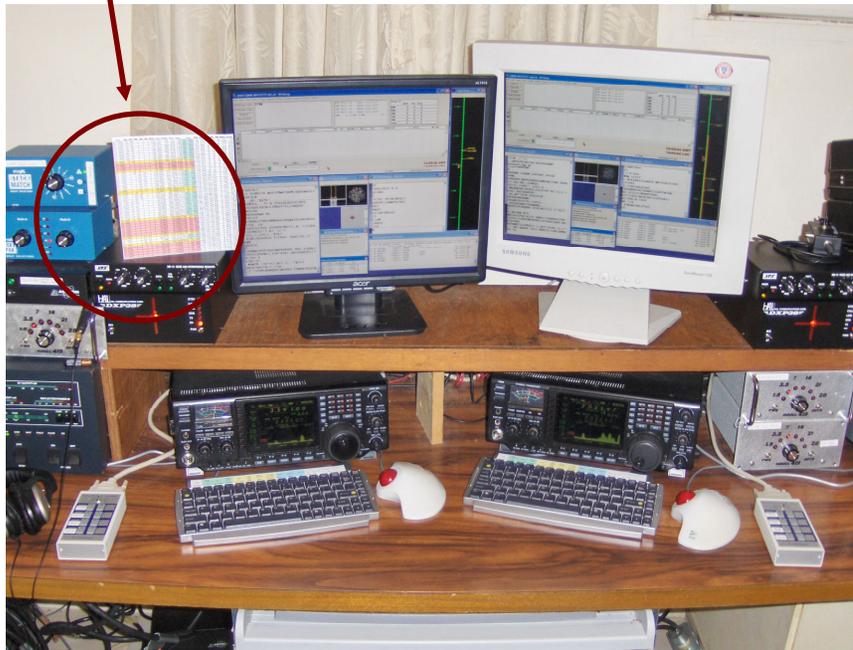 AFSK: Mic & SC level & speech processor

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Tips

- Transmit when others stand-by
- Add his call at end of exchange in pile-ups
- Recommend RIT, but if you use AFC/NET …
  - AFC only for running, not S&P
  - Use AFC/NET for S&P (only avail. with AFSK)
- Mode-independent skills, e.g.,
  - Bandmap usage
  - QSO B4
  - Roving mult: "Squat & Shoot" *(Cajun-speak!)*

Ergonomics

(user interface)

hourly targets

- Comfortable heights, reaches, layout
- Right-sized keyboard
  - Fn keys template
  - Marked multi-function short-cut keys
- Trackball
- Bose QC2 phones
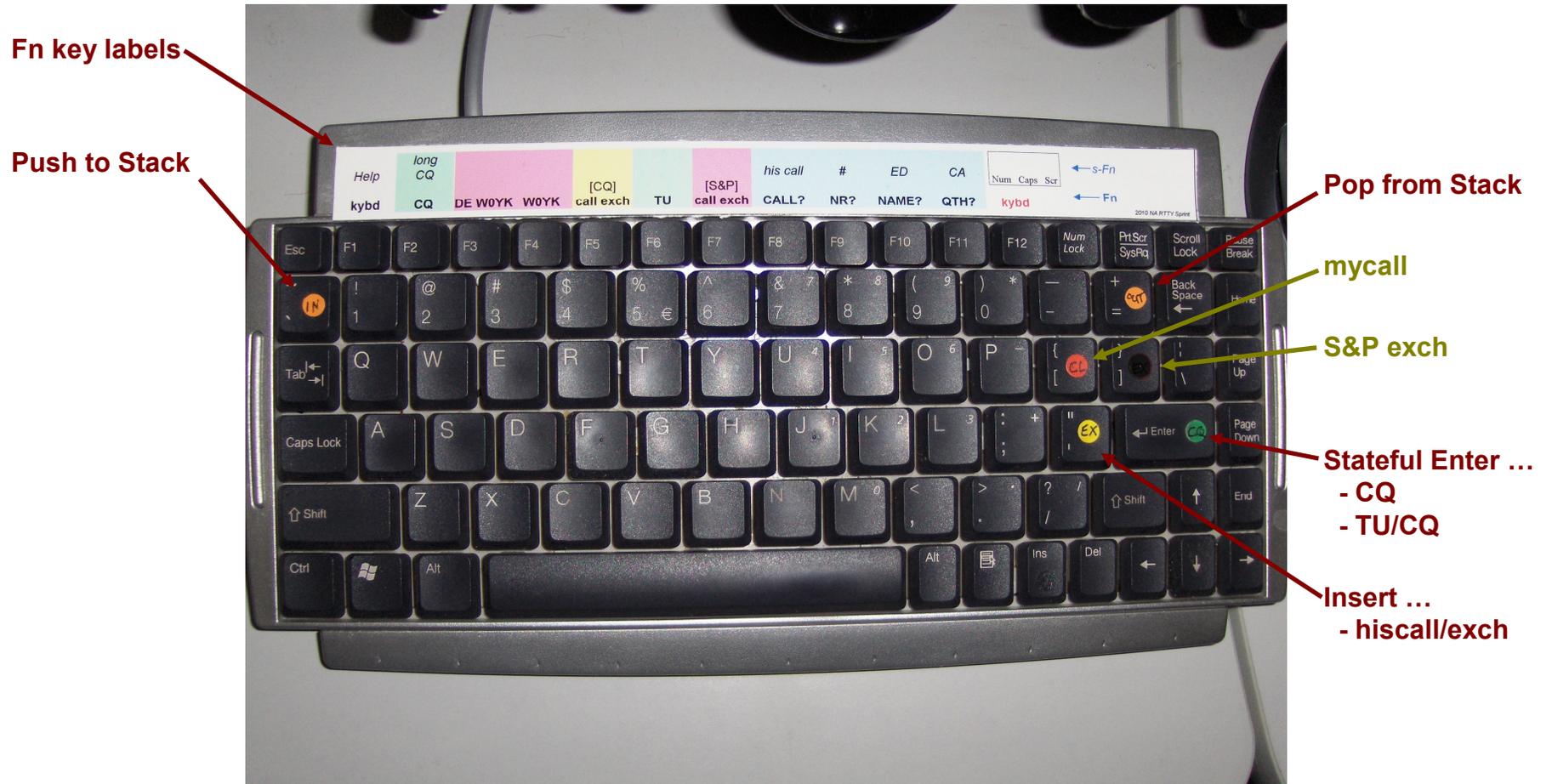 - Minimal volume
  - Stereo

Operating
(*keyboard or mouse?*)

- Keyboard – minimal typing in RTTY
  - Either:
    - F1, Insert and + … or,
    - Enter, Insert and Enter (ESM – Enter Sends Message)
  - Mouse click received exchange, if not pre-filled
- Mouse/trackball
  - 100% (N1MM Logger)
  - 80% (WriteLog and Win-Test)

Operating

(keyboard)

Resources

- chem.ch.huji.ac.il/~eugeniik/history/baudot.html
- www.rttycontesting.com
    - Tutorials and resources (beginner to expert)
    - WriteLog/MMTTY
- rtty@contesting.com
    - Email reflector
    - RTTY contester networking
    - Q&A
- Software web sites
    - mmhamsoft.amateur-radio.ca/ (MMTTY)
    - n1mm.hamdocs.com/tiki-index.php (N1MM Logger)
    - www.writelog.com (WriteLog)
    - www.wintest.com (Win-Test)
- Software Reflectors
    - mmtty@yahoogroups.com (MMTTY)
    - N1MMLogger@yahoogroups.com (N1MM Logger general)
    - N1MMLogger-Digital@yahoogroups.com (N1MM Logger RTTY & PSK)
    - writelog@contesting.com (WriteLog)
    - support@win-test.com (Win-Test)

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