CTU Presents

Small-Station Projects and Contest Operating Strategies
Ward Silver, NØAX
Overview

- Example Projects to Spark Ideas
  - Audio, Receiving, Transmitting
  - Antennas
- Strategic Principles
  - S&P and CQing
  - Attacking A Pileup – From Each End
  - Off-time Management
  - Different Contest Types
Sparking Ideas

- Think in terms of continuous improvement
- Bang for the buck
- Dollars per dB
- Note things that bug you – then fix them
- Keep records
- Share stories
- Don’t be afraid to experiment (a little)
Projects are Personal

- Each station has different needs
- Depends on operator preferences
- Different contests have different needs
- Look for commonality
- Lots of easy projects are not complicated!
- Your irritations are your inspirations
Station Audio

- Low-hanging fruit
  - Headphones
    - High-quality
    - Comfortable
  - An extra pair of different phones
  - Noise-canceling headphones
- Lower shack noise levels
- Check rig fidelity and audio settings
- Remove high-frequency hiss
Station Audio Project

- The **Buddy Box**
- For one or two operators
  - Share two audio sources
  - One or two operators
- Good for SO2R
- Good for two-operators on one band
- Excellent for training
The Buddy Box
The Buddy Box
The Buddy Box

All phone jack grounds are connected together.
The Buddy Box

- DP3T switches
  - Digi-Key
  - Mouser
- Make switches strong and big
- Pay attention to grounding
Receiver – Front-End Saver

- Protect sensitive input
- Particular problem when SO2R
- Front-End Saver
  - KD9SV makes an active protection device
- Make your own!
Receiver – Front-End Saver

3 – 6 V
“Grain Of Wheat” bulb

Place in receiver input antenna loop
Receiver – Front-End Saver

- Do NOT use diodes
  - Harmonic generation
- Use a socket for the light bulb
- Have spare bulbs on hand
Broadcast-Reject Filter

- Reduce overload and out-of-band noise
- Can easily be scaled up to 150 watts
Transmitting Projects

- Microphone switchbox by N1GY
  - mysite.verizon.net/cpthaines/id19.html
  - Uses printer data switch box (cheap!)

- Voice memory keyer controller by G4IFB
  - www.g4ifb.com/html/ts850_mod.html#VoiceKeyer
  - Each radio is somewhat different
Transmitting Projects

- Transmitting band-pass filters
- “Field Day Filters” by W3NQN
Bandpass Filters

www.k8gu.com/w3nqn/index.html
Field-Day Stub

- One coaxial stub with a switch at the end
- Switch changes null from 20/10 to 40/15
- 23’ 3” stub with a toggle switch at one end
- If made from RG-58, might even fit INSIDE a radio (K6LL WRTC trick)
- 7.075, 14.150, 21.225, and 28.300
- Silver, “Experiment #22 – Stubs” QST, Nov 2004
Field-Day Stub

Trim
- Put film can on FIRST!
- Twist together 1/2"

Attach Switch
- Solder

Completed Stub
- 23’ 3”
- Closed/Short
- Open
- Lid
Antenna Projects

- “Temporary” antennas 😊
- Second-radio antennas
- Receive antennas
- Targeted transmit antennas
Seekrit Weapon – Low Dipoles

- 80 meter dipole, 10-20’ off the ground
  - Omni-directional
  - High angle
  - NVIS – a fancy name for “crappy low dipole”
- Big signal in 200-300 mile range
Project Ideas

- Your contest club’s web site and past newsletters
- *National Contest Journal* back issues
- New *Antenna Book* and *ARRL Handbook*
- 3830 entries and comments
- *ARRL Soapbox* entries ([arrl.org/soapbox](http://arrl.org/soapbox))
- *CQ-Contest, Topband, Towertalk, Amps reflectors* ([www.contesting.com](http://www.contesting.com))
Strategic Principles

- Devise strategic principles for each contest
- Apply them in YOUR circumstances
- Study contest rules and scoring
- Combine with propagation
- Evaluate with respect to your strengths and weaknesses
- Continually re-evaluate
Search and Pounce

- Learn when to S&P – rate-driven
- Grab low-hanging fruit – multiplier sweep
- Day 1 and Day 2 can be very different!
- Beware of the Spotted Rate Constrictor
- Contrarian S&P strategy
  - Up or down?
Speed Search-and-Pounce

- Use VFO-A and VFO-B
- Set radio for “one-touch” button activation
- Allows high-speed band coverage
- Great for a one-pass multiplier sweep
Speed Search-and-Pounce

- Tune in a station on either VFO
- Set VFO-A = VFO-B
- Tune in another station and switch VFOs
- Assess, call, switch...repeat
- When one is worked, switch and equalize your VFOs
- Leapfrog your way along the band
CQ-ing For Mid-Sized Stations

• Timing
  • Being the first on a band
  • Being the last on a band

• Don’t fight with giants – move
  • High in the band is perfectly OK!
  • Position yourself where you can be heard

• Know your rate goal and thresholds

• Good calling technique (and audio) is crucial
Attacking A Pileup as a Caller

- Think “opportunity cost”
- Assess the worth of the target
- Assess the size of the pileup
- Is propagation improving or decaying?
- Contrarian strategies
  - Avoid zero beat
  - Varying timing
Attacking A Pileup as a CQ-er

- Rhythm
- Watch for rate decay
- Maximize each minute
  - Grab loud, fast, easy callers
  - Phonetics not always necessary
- Move listening frequency around on CW
- Minimize back-and-forth
Off-Time Management

- Know the rules!
- Don’t get cute – big penalty for mistakes
- Study past logs to find the right times
  - Link to rate goals and thresholds
  - Plan for propagation
- Leave yourself room to maneuver
- Be realistic about your sleep needs & cycles
Different Contest Types

- Domestic versus DX
- Multiplier Types
  - Single/Multi-band, Geographical, “Novelty”
- Single or Multiple Contacts Allowed
  - Sweepstakes vs NAQP
- Different durations
  - Weekend vs One-day vs Sprints
Strategy Summary

- No plan survives contact with the enemy
  - Adjust according to principles
- Maximize benefits defined by contest type
- Set goals to stretch yourself a bit
- Utilize your and your station’s strengths
- Keep it fun!