# ARRL FIELD DAY



# www.arrl.org







- June 28-29
- Setup: Friday, June 27, 10:00 AM\*
- Concord Rod & Gun Club
  - > 74 Strawberry Hill Rd, Concord, MA

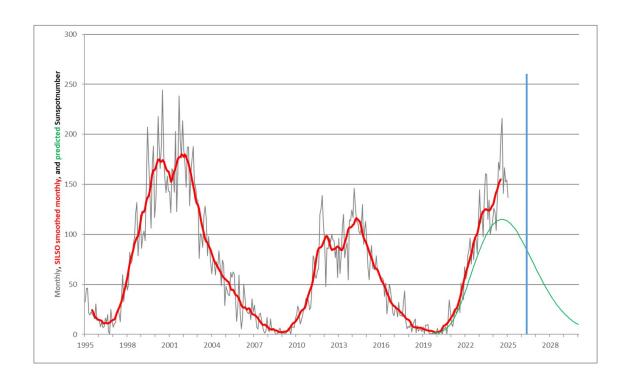
\* Time may change depending on weather



# Field Day 2025



- No conflicts!
- 100 watts
- CW, Phone, Digital, GOTA, Satellite
- Class: 3A







# **Stations & Leads**

- Phone
  - •George, K1IG
- •GOTA
  - Andy, KB10IQ

- •Digital
  - •Carl, WG1V
- •Satellite
  - Bob, KB1SWZ

- CW
  - Bob, W1IS

Responsible for: rig, connectors, power supply, power distribution, antenna switch, headsets, office supplies, computer, logging SW, lighting, <u>fire extinguisher, first</u> <u>aid kit</u>, spare parts, RF exposure calculations, control operators



Infrastructure Leads

- HF Antennas
  - Bob, W1IS
- Food
  - Rick, W1RAG
- Site Liaison
  - Dale, KB1ZKD

- Safety
  - Dale, KB1ZKD

FIELD DAY

NNFC

- Finance
  - Alan, W1AHM
- Signage
  - Alan, W1AHM



#### Concord Rod & Gun Club 74 Strawberry Hill Rd, Concord

ARRL FIELD DAY

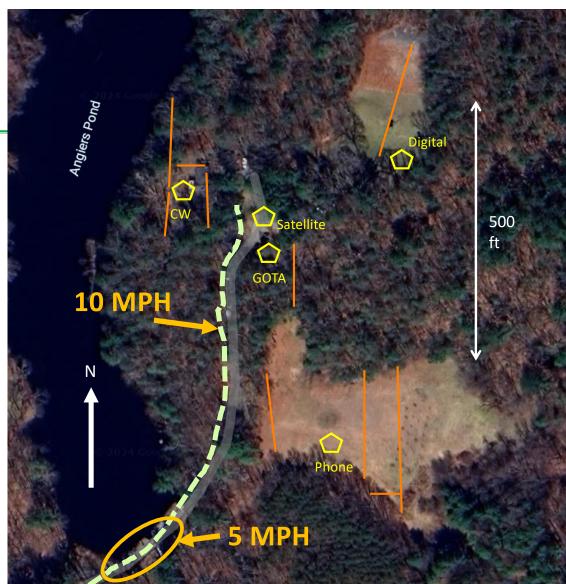
FD¥25

www.arrl.org

RADIO CONNECT









### Site Plan

Antenna locations are approximate



# Schedule



#### Friday June 27

<u>10:00\* AM – ?</u> Antenna Setup

\*Weather Permitting Saturday June 28 8:00 AM Rig Setup & Check 11:00 AM Training 12:30 PM Lunch 2:00 PM Operations Begin 6:00 PM Dinner

#### Sunday June 29

<u>12:00 PM</u> Lunch <u>2:00 PM</u> Operations End Teardown



## Weather

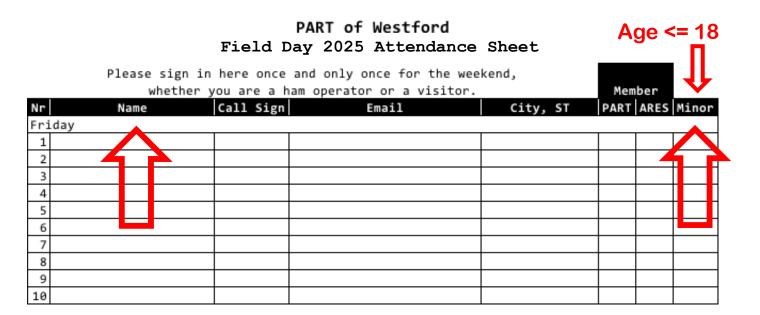


### • TBD





# **Attendance Sheet**



# **EVERYBODY** signs in Once, and ONLY once!





- Saturday Lunch
- Saturday Dinner
- Sunday Breakfast?
- Sunday Lunch



# Help Wanted!

Food!



### **Field Day Site Operations**

- Safety
- 446.025 simplex for site coordination
- Visitors Likely
  - Wear your badge
  - Invite your neighbors



We're selling Amateur Radio! Greet all the visitors and explain what you're doing!





## **Bonus Points**

- Emergency Power (400 points)
- Media Publicity
- Satellite QSO
- Alternate Power
- W1AW Bulletin
- Educational Activity
- Youth Participation
- Web Submission
- Site Responsibilities

- Public Location
- Public Info Table
- Safety Officer
- Site Visit by Elected Official
- Site Visit by Agency Rep
- Social Media
- Message Handling
- Message to Section Mgr.
- sibilities GOTA Station

#### Most Items Are Worth Up To 100 Points





### **Contacts and Logging**

RRL FIELD DAY

Y25

CONNECT

- Exchange: Class and ARRL section
- We are: "<u>3A EMA</u>" or "<u>3A Eastern Massachusetts</u>"
- Stations can be worked once per band mode

#### • Don't say "Please copy"

| W1                          |       | W6                 |     | Canada                    |     |            |
|-----------------------------|-------|--------------------|-----|---------------------------|-----|------------|
| Connecticut                 | СТ    | East Bay           | EB  | Alberta                   | AB  |            |
| Eastern Massachusetts       | EMA   | Los Angeles        | LAX | British Columbia          | BC  |            |
| Maine                       | ME    | Orange             | ORG | Manitoba                  | MB  |            |
| New Hampshire               | NH    | Santa Barbara      | SB  | New Brunswick             | NB  |            |
| Rhode Island                | RI    | Santa Clara Valley | SCV | Newfoundland and Labrador | NL  |            |
| Vermont                     | VT    | San Diego          | SDG | Nova Scotia               | NS  |            |
| Western Massachusetts       | WMA   | San Francisco      | SF  | Ontario East              | ONE | 🔰 🛏 Canada |
|                             |       | San Joaquin Valley | SJV | Ontario Golden Horseshoe  | GH  |            |
| W2                          |       | Sacramento Valley  | SV  | Ontario North             | ONN |            |
| Eastern New York            | ENY   | Pacific            | PAC | Ontario South             | ONS |            |
| New York City - Long Island | d NLI |                    |     | Prince Edward Island      | PE  |            |
| Northern New Jersey         | NNJ   | W7                 |     | Quebec                    | QC  |            |
| Northern New York           | NNY   | Arizona            | AZ  | Saskatchewan              | SK  |            |
| Southern New Jersey         | SNJ   | Eastern Washington | EWA | Territories               | TER |            |
| Western New York            | WNY   | Idaho              | ID  |                           |     |            |
|                             |       | Montana            | MT  | DX                        |     |            |
| W3                          |       | Nevada             | NV  | DX                        | DX  |            |



### **Operator Signup**

|      | PART Field Day | Station O | )perators |  |
|------|----------------|-----------|-----------|--|
|      | C              | W         |           |  |
|      | Saturday       |           | Sunday    |  |
| Time | Call           | Time      | Call      |  |
| 1400 |                | 0000      |           |  |
| 1430 |                | 0030      |           |  |
| 1500 |                | 0100      |           |  |
| 1530 |                | 0130      |           |  |
| 1600 |                | 0200      |           |  |
| 1630 |                | 0230      |           |  |
| 1700 |                | 0300      |           |  |
| 1730 |                | 0330      |           |  |
| 1800 |                | 0400      |           |  |

Optional but, Those who sign up have priority!

ARRL FIELD DAY

FD¥25

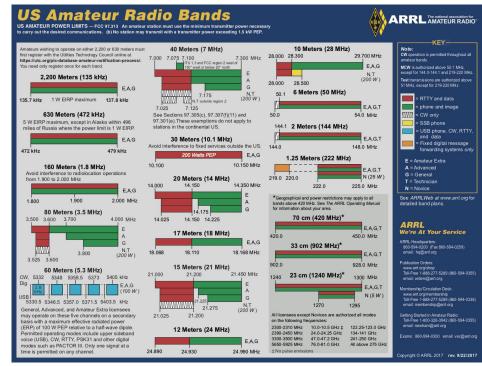
www.arrl.org

RADIO CONNECTS



### **Field Day Operations**

# The <u>Control Operator's</u> license class determines the band limits



Every station will have a copy of the band plan. ARRL FIELD DAY

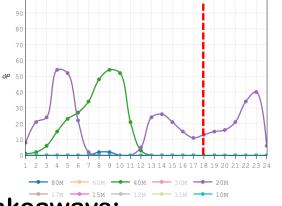
FDY25

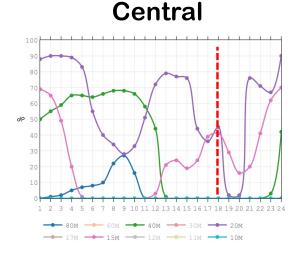
www.arrl.org

RADIO CONNECTS

### **Propagation Forecast**

#### West Coast

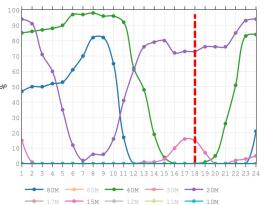




#### South

ARRL FIELD DAY

www.arrl.org



#### Takeaways:

ΡΔΡ΄

of WESTFORD

- There's a path open to somewhere all the time
- 20 & 40 should be best bands
- Midnight morning operations are very productive
- Try 80 meters! Look for openings on 10 meters!
- Best for HI/AK: 20M (Day), 40M (Night) (Check DX spots)
- Colors 80 Meters 40 Meters 20 Meters 15 Meters 10 Meters



### Messages



#### • One radiogram to Section Manager and 10 others

|                    | ARRL — the nati          |      |           |                     |           | R ++   |
|--------------------|--------------------------|------|-----------|---------------------|-----------|--------|
| NUMBER PRECEDEN    | ICE HX STATION OF ORIGIN |      |           | PLACE OF ORIGIN     | TIME FILE | D DATE |
| TO<br>PHONE NUMBER |                          | NAME | R STATION | S RADIO MESSAGE WAS | PHONE     |        |
| ARL                | FIFTY                    | ON   |           | FIELD               |           | DAY    |
|                    |                          |      |           |                     |           |        |
|                    |                          | TIME | то        |                     | DATE      | TIME   |
| FROM               |                          |      | SENT      |                     |           |        |

\* "Greetings by Amateur Radio. This message is sent as a free public service by ham radio operators at <u>Field Day</u>. Am having a wonderful time."



### **Generator Operations**

- All stations will have a generator
- Generator can run 24 hours with aux tank









# Antennas

# Bob, W1IS





FIFI D DAY

- 1,700 ft Rope
- 1,400 ft RG-8X, 150 ft RG-58au (receive antennas)
- Bow and Arrows
- Air Guns
- Slingshots
- Twine
- Safety Tape to mark ends in the woods & trip zones
- At least 15 energetic hams to launch & tear- down!



# SSB, GOTA & Digital



#### SSB

- 800 ft rope, ~400 ft RG-8X, 200 ft RG-213
- 80M-6M End Fed
- 3 element tri-band wire antenna
- 2 element 40 M beam
- 10 M Stacked Dipoles
- Receiving loop 100 ft wire, vertical loop, 9:1 balun
- Safety tape

GOTA – 40M-6M End Fed (200 ft rope, 100 ft RG-8X)

Digital

- Multi-Band 80M OCF
- 300 ft rope, 100 ft RG-8X
- Safety Tape



# **CW Station**



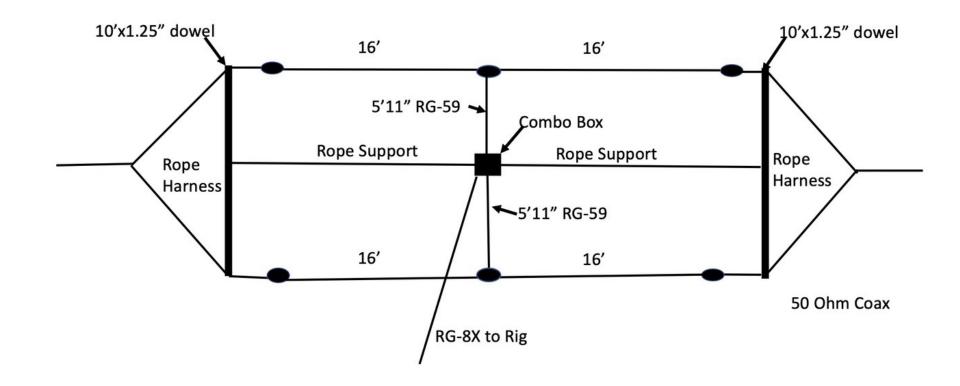
#### CW

- 600 ft rope, ~ 400 ft RG-8X
- 80M end-fed
- 2 element 40M Beam
- 2 element 20M Phased Dipoles
- Receiving loop 100ft wire, vertical loop, 9:1 balun



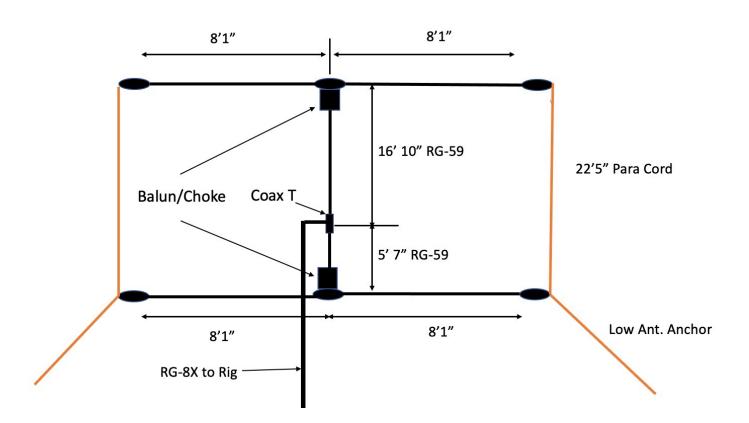
### 20 Meter Antenna







### **10 Meter Antenna**



ARRL FIELD DAY

FD¥25

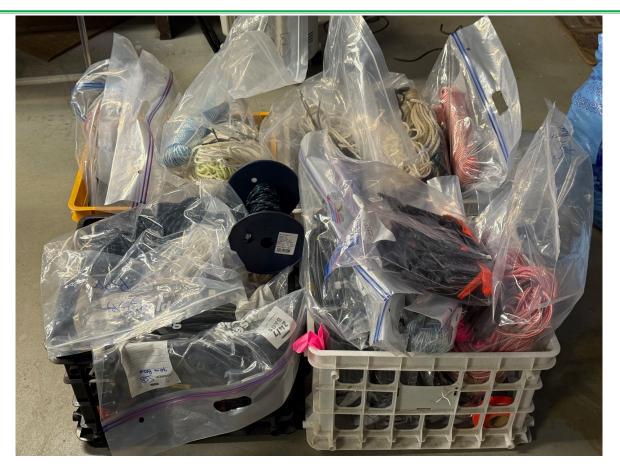
www.arrl.org

RADIO CONNECTS



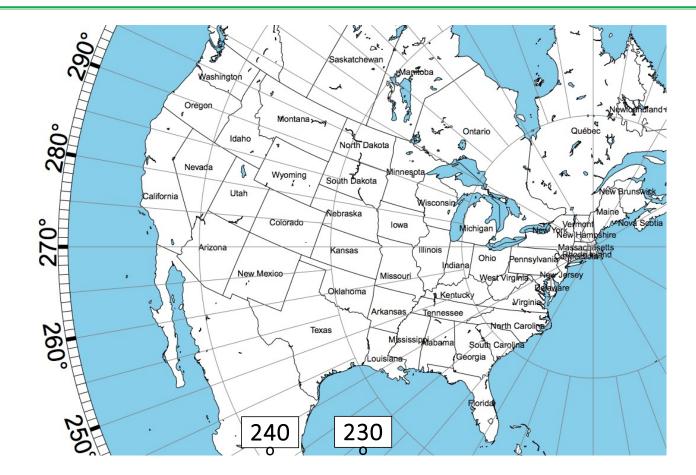
### **Ready for Set-Up**











ARRL FIELD DAY





FIFI D DAY

- Rolling up wires & ropes neatly will save time next year.
- 2 people to roll up beams one spreader at a time.
  - Start at one end & roll towards center
  - Roll up other end rolling in the same direction
  - Watch the ends they tend to slip off when rolling up
- Return cables & ropes to their owners
- Names/Calls on coax really helps, otherwise it's probably W1IS's.





# Thank You & Let's Have Fun This Weekend





# Field Day Stations



## **Information Packets**

Each station will be given a packet with:

- 1. Station Identifier Sign
- 2. Band Plan
- **3. ARRL Section List**
- 4. Exchange Information Sign
- **5. Operator Sign-Up Sheet**
- 6. ARRL Bulletin Schedule





# Get On The Air







Get On The Air (GOTA)

- Station Lead: Andy, KB10IQ
- Rig: Yaesu 857-D
- Antenna: Multi-band dipole
- Power: Generator
- Tent: Provided by Andy, KB10IQ
- Logging Computer: Provided by Andy (KB10IQ)



RRL FIELD DAY

arri.or

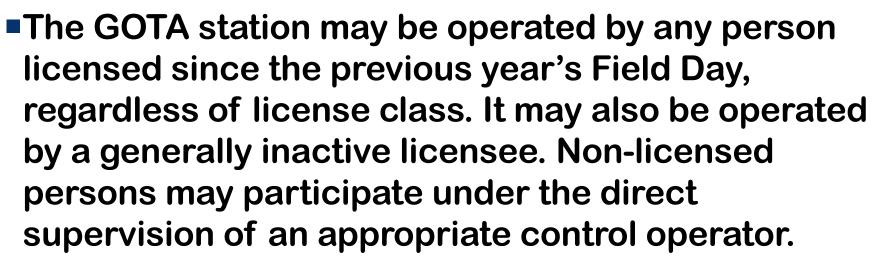
CONNEC<sup>®</sup>





**GOTA Station Rules** 

FIFI D DAY



Each GOTA contact is worth 2 points – no limit.

Full-time coach adds 100 bonus points – coach can't make contacts or log them.



# **CW Station**







### Elecraft K3



6







- 1. Main Tuning
- 2. Width Control: Don't Push changes filter type leave in Band-Pass
- 3. Speed Control: Internal Keyer Speed Adjustment
- 4. Volume control
- 5. ATU: Push & Hold to turn on tuner Momentary Push to Tune
- 6. Band Change Buttons
- 7. Pre-ATT: Push for Pre-Amp, Push & Hold for Attenuator (ATT helps with QRM, QRN especially on 80 & 40 M)
- 8. NB: Push for Noise Blanker, Hold to set Blanker Level w/VFO B knob
- 9. Spot: Zero beats signal, very handy
- 10.CWT: CWT turns on tuning meter tune to center to zero beat
- 11.RIT Control: Receiver offset tuning (Use when running a perch)

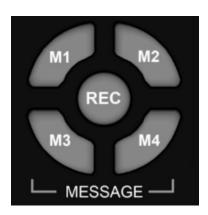






12 – K3 Memory Keyer

- M1 sends K1IG
- M2 sends 4A EMA
- M3 sends CQ FD K1IG
- Same & more also on Keyboard / RumLogNG



FIELD DAY

ONNEC.

• Please don't touch the "Rec" button!

Note that pro-signs like K and AR are rarely used in the heat of "the battle" unless you are dealing with a new operator at the other end. Then do what you can to make it easier for them.



- Don't touch any button with an X unless you are sure what it does. FD is not the time to experiment.
- If you accidentally hit an X button, please contact: George - K1IG or Bob - W1IS.
- If all else fails READ THE MANUAL!







FIELD DAY

ONNEC



- You can do QSOs with keyer, straight key or keyboard.
- Most importantly –

### HAVE FUN!



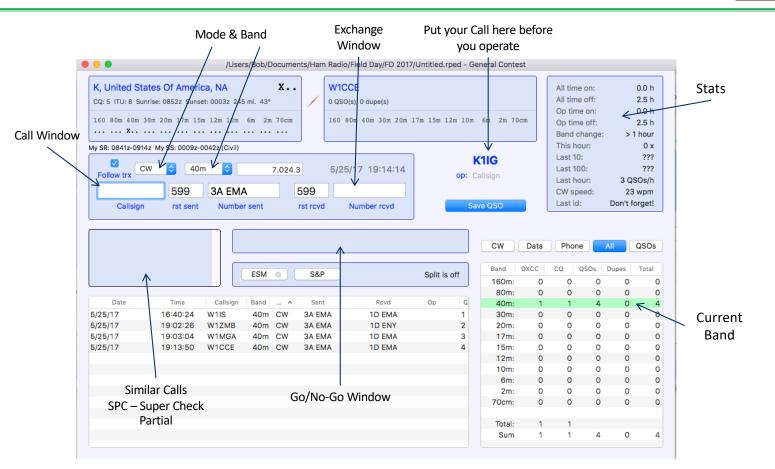


# RumLogNG Contest Logger

W1IS, K1IG



#### **Logging Window**





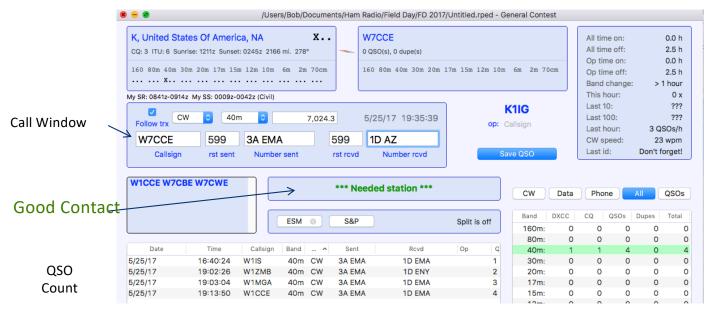


#### **Good S&P Contact**

ARRL FIELD DAY

www.arrl.org

- 1. Enter Call in Call Window
- 2. "Space" to go to Exchange Window Green means not a Dupe
- 3. Enter Exchange Received in Exchange Window
- 4. F6 to send our Exchange or send it by hand
- 5. "Return" to Log QSO









- 1. Identify Dupe in RED
- 2. If in "Run," Complete QSO SW will remove it before submittal
- 3. If in "S&P" quickly move on

| Users/Bob/Documer  | nts/Ham              | n Radio/F                      | ield Day/FD 2017                              | /Untitled.rped - Ge | neral Conte       | st   |   |                         |                   |   |
|--|----------------------|--------------------------------|---|---------------------|-------------------|--|---|-------------------------|-------------------|---|
| K, United States Of America, NA X<br>CQ: 5 ITU: 8 Sunrise: 0852z Sunset: 0003z 245 mi. 43° |                      | W1MGA X<br>1 QSO(s), 0 dupe(s) |   |                     | •••               | All time on:<br>All time off:<br>Op time on: |   | 0.0 h<br>3.0 h<br>0.0 h |                   |   |
| 160 80m 40m 30m 20m 17m 15m 12m 10m 6m 2m 70cm   |                      |                                | 50 80m 40m 30m 20m 17m 15m 12m 10m 6m 2m 70cm |                     |                   |  | Op time off:<br>Band change:  |                         | 3.0 h<br>> 1 hour |   |
|  | 3<br>599<br>rst rcvd |                                | 17 19:45:30<br>lumber rcvd                    | op: Ca              | allsign<br>ve QSO |  | This hour<br>Last 10:<br>Last 100:<br>Last hour<br>CW speed<br>Last id: | :                       |                   | 0 x<br>???<br>???<br>SOs/h<br>wpm<br>orget! |
| W1RGA  | •                    | *** DU                         | PE ***  |                     | CW                | Data   | Phone   | ) [                     |                   | QSOs  |
| ESM  | S&P                  | ·                              |   | Split is off        | Band<br>160m:     | DXCC<br>0                                    | CQ QS   | Os I                    | Dupes<br>0        | Total                                       |
| Date Time Callsign Band ^  | Sent                 | t                              | Rcvd  | Op Q                | 80m:<br>40m:      | 0  | 0   | 0<br>5                  | 0                 | (   |
| 5/25/17 19:03:04 W1MGA 40m CW  | 3A EN                | AN                             | 1D EMA  | 1                   | 30m:              | 0  | 0   | 0                       | 0                 | (   |

DUPE!!!







- F1 CQ FD K1IG
- F2 **QRZ**
- F3 (Empty for technical reasons)
- F4 K1IG
- F5 Sends Call entered in Call Window
- F6 Sends 4A EMA
- F7 **TU**
- F8 AGN







- 1. Enter Your Call in the "Op" window below K1IG
- 2. CRITICAL Always Check Band & Mode when Starting and Changing Bands
- 3. If RUMlogNG doesn't show same frequency as the rig, follow steps below
  - 1. Transceiver > Reset CAT #1
  - 2. If that doesn't Exit RUMlogNG RUMLog>Exit Rumped or  $\Re Q$
  - 3. Restart RUMlogNG Click "Book Icon" on bottom screen menu <
  - 4. If that doesn't work continue.
  - 5. Restart Computer Click Apple Icon in upper left >Restart or Hold on-off button for 10 seconds.
  - 6. If that doesn't work SEEK HELP from K1IG or W1IS









- To Edit a QSO Double click, Edit in new window and SAVE
- Incorrect Band or Frequency Menu at top of screen > Transceiver> Reset CAT #1
- Accidentally get into RST or Number Sent Windows Fix them by hand and Tab to Number Received and complete entry
- Delete QSO Menu on top > QSO>Delete QSO



# **Phone Station**







#### Elecraft K3





- Generator for rig and fans
- Headsets & mic / speakers
- 4 antennas manual switching



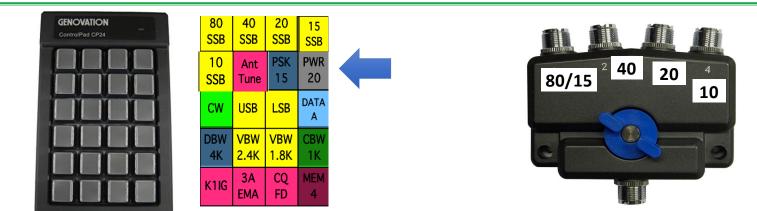


#### **Keypad Control**

ARRL FIELD DAY

D¥25

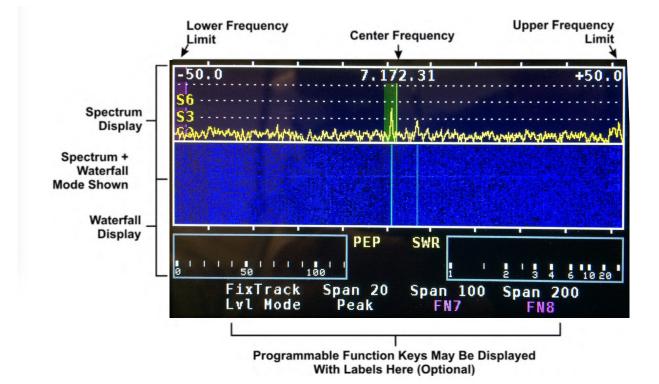
www.arrl.org



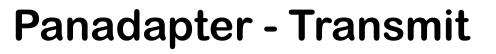
- Single button selects band, mode, power, frequency (bottom of Extra class phone band), sets filter and bandwidth
- For phone operations, just use the yellow buttons (mostly)
- Switch antenna manually then ANT TUNE button!!!











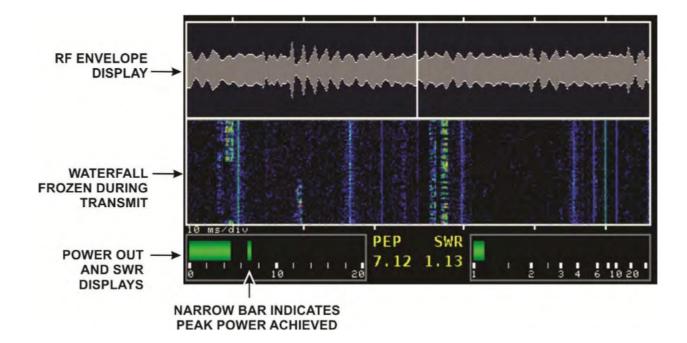
ARRL FIELD DAY

FD¥25

www.arrl.org

RADIO CONNECTS







### **K3 Diversity Reception**

**RRL FIELD DAY** 

D¥25

v.arri.or

CONNEC

- The K3 has two receivers in diversity mode, each can be on a different receive antenna
- The two receivers are on the same frequency and both are controlled by the same VFO
- Main rcvr: left ear; sub rcvr: right ear







# **Digital Station**

Carl, WG1V



- All digital contacts count 2 points, the same as CW!
- If you are new to digital, use FT8 mode. A full QSO takes about 1 minute

RRL FIELD DAY

- Most digital stations run FT8, which allows 60 QSOs per hour
- Advanced stations run FT4 at 120 QSOs per hour, but also requires faster reflexes to decide which stations to work
- Use whichever one you feel most comfortable with
- Be aware that our logging software considers the two modes distinct, but ARRL considers them both "digital", meaning we will see dupes from stations running both modes.
  - 6.3. Field Day contacts are allowed using Phone, CW and Digital (non-CW) modes. Stations can be worked once per band per mode under this rule.
  - 6.7. All non-CW digital contacts are equivalent.



### Icom IC-7300



- All-band 160m-70cm SDR transceiver
- Antenna should be a good match for 80m-6m
- 100 watts max output, which we'll run at 50% (50 watts)
- Most functions will be computer controlled via USB

#### Press and hold to power on



#### Audio volume control



# Macbook Pro Screen



🗯 Messages File Edit View Conversation Window Help

🗩 🗢 Q 🖀 Wed Jun 12 3:50 PM



Login credentials: user name: *part* password: *fieldday* 

External keyboard and mouse will be provided

Double-click to start WSJTX if it isn't already running

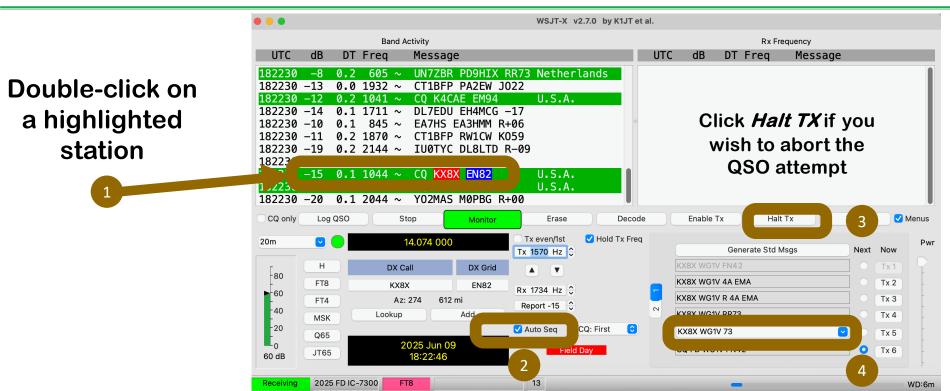


#### **Select Your Band Using the Drop-Down Menu**



|                   | •••  |  | WSJT-X v2.7.0 by K1JT et al. |                   |                      |  |  |  |  |  |
|-------------------|--|--|------------------------------|-------------------|----------------------|--|--|--|--|--|
|                   |  | Band Activity                                      |                              | lency             |                      |  |  |  |  |  |
|                   | UTC dB DT Fr   | req Message  | UTC                          | dB DT Freq        | Message              |  |  |  |  |  |
|                   | 150045 -18 0.1 25  | 506 ~ CQ W8CTO EN91<br>20m                         | U.S.A.                       |                   |                      |  |  |  |  |  |
|                   | 150100 -16 0.1 10<br>150100 -17 0.2 12<br>150100 -15 0.4 12                    | 249 ~ CQ AF4CZ EM84                                | U.S.A.<br>U.S.A.             |                   |                      |  |  |  |  |  |
| You should        | 150115 -7 0.2 17<br>150115 -10 0.2 4<br>150115 -15 0.2 25<br>150115 -17 0.1 15 | 463 ∼ KB1CRN AC8XI EN82<br>539 ∼ JA1SJS WD9HSY -11 |                              |                   |                      |  |  |  |  |  |
| never             | 150115 -17 0.1 15   150115 -20 0.1 10   CQ only Log QSO Log QSO                |  | U.S.A.<br>Erase Decode       | Enable Tx Halt Tx | Tune  Menus          |  |  |  |  |  |
| need to touch the | 20m  | 14.074 000   | even/1st V Hold Tx Freq      | Generate Std Msg  |                      |  |  |  |  |  |
| radio itself!     | 60 FT8 FT4   | Rx 1   | 1734 Hz 🗘 🧧                  |                   | Tx 1<br>Tx 2<br>Tx 3 |  |  |  |  |  |
|                   | 40 MSK<br>20 Q65   | Lookup Add ✓ Au<br>2025 Jun 09                     | oort -15 🗘 💦                 | CQ WG1V FN42      | ✓ Tx 5<br>✓ Tx 6     |  |  |  |  |  |
|                   | 60 dB 2025 FD IC-7300  | 15:01:34   | 5                            |                   | WD:6m                |  |  |  |  |  |



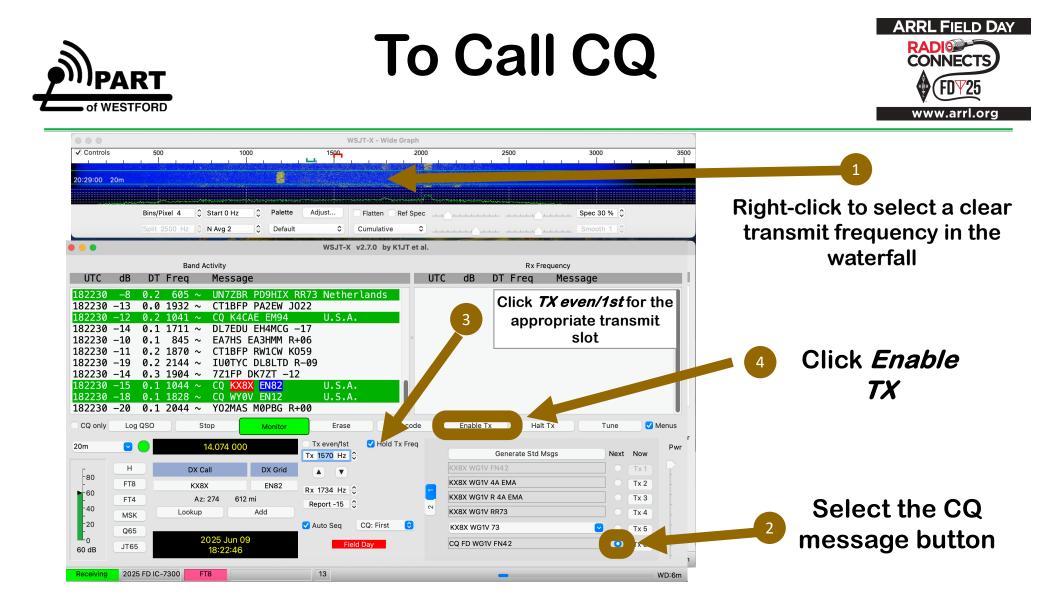


To Answer a CQ

So long as the *Auto Seq* box is checked, the QSO exchange will proceed automatically

of WESTFORD

The contact will be auto-logged if and when 73 is received

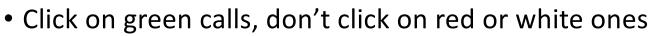




ARRL FIELD DAY

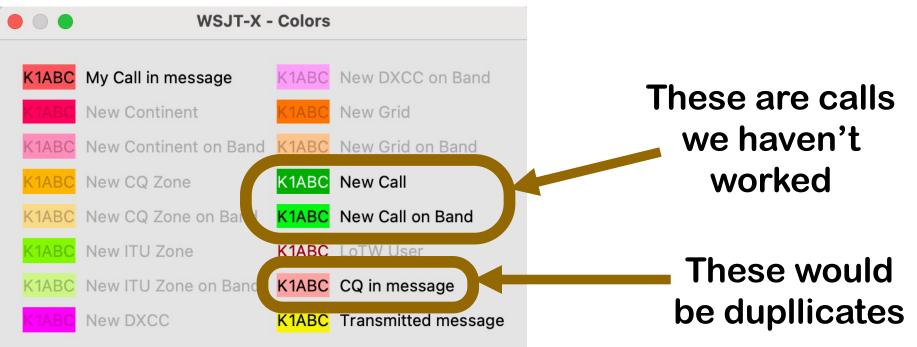
F**D**¥25

www.arrl.org



PART

of WESTFORD





- We trained several hams to operate last year who had never done digital before
- It's really pretty easy and addictive!



### **Satellite Station**







### We Need



- Antenna Crew
  - Friday, June 27
  - 10:00 AM\* to ~2:00 PM (show up any time)
  - At least 15
  - Launcher/slingshot/bow & arrow
  - Major rewards!
- Ambassadors
- Cleanup Crew on Sunday







- 100 watts max
- Use your own call sign & exchange (e.g., 1D EMA)
- Submit your own entry on ARRL FD website
- If you operate at the PART station, you can't contact the PART station for points.

# **Safety Briefing**

### PART Field Day 2025

#### Credits to Steve N1BDA (2016) Since 2017 Dale KB1ZKD







- RF Exposure Calculations @ 100 watts
- FCC rule effective May 3, 2023
- Station Leads are responsible for calculations
- Minimal hazards when antennas are raised



### Safety Risks



- Fires
- Critters & plants: ticks, poison ivy
- Weather: lightning, heat
- Generators & fuel
- Tripping hazards
- Guy wires
- Overhead wires
- Antennas







- Safety Officer (or asst.) on site for entire event
- Fuel for generators properly stored
- Fire extinguisher on hand at each location
- First Aid kit(s)
- First Aid, CPR and AED trained participant/s on site for full Field Day period (Send KB1ZKD an email please)
- Access to NWS alerts to monitor for inclement weather







- Tent stakes properly installed and marked
- Temporary antenna structures properly secured and marked
- Site secured from tripping hazards
- Site set up in a neat and orderly manner to reduce hazards
- Stations and equipment properly grounded
- Access to means to contact police/fire/rescue if needed



## Checklist (3)





- Safety Officer is designated point of contact for public safety officials (Need more assistants)
- Minimize risks and control hazards to ensure no injuries to public
- As necessary, monitoring participants for hydration and ensure an adequate water supply is available (but we can't drink it for you.)















- Most likely sources are generators and kitchen
  - Fire extinguisher locations (at each site)
  - At first signs of fire, smoke, or burning odor alert folks, and call the Concord Fire Dept.

#### **911 (wired phone) Mobile: 978-318-3400 Site: 446.025 MHz, simplex**





### Bees, wasps, ticks, and mosquitos pose serious health risks

**Risk: Critters (1)** 

- Mosquitos
  - (treated) long pants & sleeves, light colors
  - Repellant on skin (next slide)
- Ticks
  - (treated) long pants & sleeves esp. outdoors
  - Check often (dark nooks and crannies)
- Bees and wasps
  - Carry your EpiPens <u>and</u> antihistamine pills (let folks around you know about potential problems)



©DESIGNALIKIE









- Skin treatment
  - Be aware of other's personal concerns (e.g. DEET)
  - There are facts and data:
  - <u>https://www.cdc.gov/ncezid/dvbd/about/prevent-bites.html</u>
  - https://www.consumerreports.org/insect-repellent/howsafe-is-deet-insect-repellent-safety/
- Clothing and gear treatment
  - Permethrin works (read the precautions, use it correctly, pre-treat clothes and let them dry)
- Check often
  - Particularly in dark nooks and crannies



# **DEET vs. Electronics\***



\* Includes:

- Radios
- Computers

RRL FIELD DAY

w.arrl.org

CONNEC

- Mice
- Keyboards
- Headphones



# **Risk: Weather**





#### • The primary danger is lightning

- It can occur miles from a storm under clear skies and up to 30 minutes after the storm "ends"
- We will monitor SKYWARN & NOAA radio
- All antennas will be disconnected during a storm and we will go inside
- Old school counting seconds is a myth
- If you can hear thunder you are at risk we will stop and go to the club house basement







- Heat dehydration is a risk
  - There will be bottled water, but bring a water bottle (please) and use it
  - Over hydration (hypernatremia) is also a risk
  - "Clear and copious" means too much water
- Cold onset of hypothermia is the brain making bad decisions
  - You can become hypothermic in warm weather. Don't wait for shivering to start!







- Cables, extension cords, guy wires
- Solar panels
- Cables (antennas, power,....)
  - Taped down (indoors), pegged down
  - Marked with colored flagging
- Tent pegs
  - Marked with colored flagging
- Be careful entering and leaving the clubhouse some steps are odd



#### Guy Wires: Antennas & Tent



- Be watchful around masts and poles
- Avoid tent corners
- Don't run
- Guy wires marked with colored flagging
- Danger areas flagged off







- There are several around the grounds
- Be careful during antenna setup
- Note where the wires are, especially if you have a tall antenna on your vehicle
  - Lower your antenna
  - Find another route







- Line launchers: slingshots, arrows, and pneumatic "potato" guns
  - Clear area down-range
  - Be sure you have a safety observer
  - Wear safety glasses
- Ropes and wires
  - Avoid fish lines, small cordage, ropes unless you are handling them
  - Look overhead, not just in front of you







- With all these dangers lurking, don't be discouraged from participating
- All these *potential* dangers can be managed if we are aware of them
- Keys:

# Common Sense (is rare) Patience (is a virtue)







- Wired phone in the bar
- Life Rings around the pond
- AED in the clubhouse (bar area)
- Trauma kits
  - Dale, KB1ZKD, has one
  - Tan bag under the back seat of his van
  - Above the driver's visor in my van