

Tech Nite: June 2023

**Reaching out to the PUBLIC via Field Day
Additional ideas on “efficient communications”**

Part One: Reaching The Public

Reaching out to the PUBLIC via Field Day

Core Team – At 4 weeks out

- 1) David Huckstep
- 2) Eric Pleace
- 3) Wendell Wright
- 4) Gordon Gibby
- 5) Mike H.
- 6) Leland Gallup
- 7) Earl McDow
- 8) Craig Fugate
- 9) Ron Lewis
- 10) Susan Halbert
- 11) Reid Tillery
- 12) Rosemary Jones
- 13) Lorilyn Roberts
- 14) Jim Bledsoe
- 15) Steve Panaghi

*“Instead of herding cats,
build a TEAM”*

Christine Duez, SEC WCF

Why reach out to the public?

- **Family Need:** Parents with sons/daughters glued to a cellphone screen or getting involved in unhealthy activities NEED great alternatives like AMATEUR RADIO & involvement with great community leaders such as in our groups.
- **Young People Need:** Amateur radio offers tremendous opportunities for young people to try out or improve career opportunities – electrical, mechanical, radio, interpersonal relationships skills

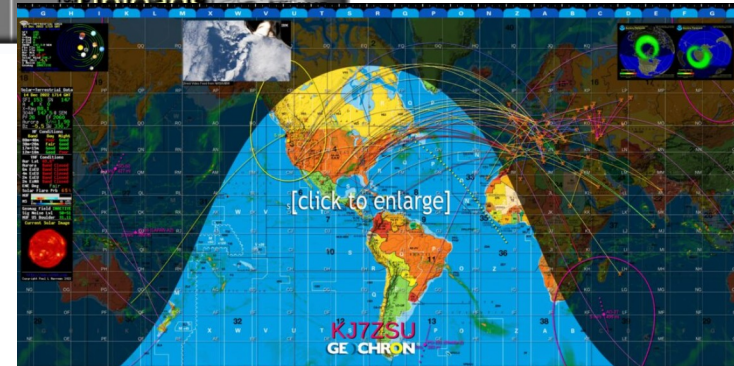
- **National Need:** Amateur Radio, by law, is one of the FEW legal opportunities for Americans to develop skills at building, repairing, operating RADIO equipment of significant transmitter power. FCC Part 97.1 specifically sets the goal of a pool of technically trained people
- **Community Need:** Traditionally, government alone cannot always provide all the communications needs in disasters, and volunteer ham radio operators have frequently come alongside to help.

Field Day Outreach - OUTSIDE

- **GetOnTheAir (GOTA) Station:** Our RV Trailer/Awning station can provide a chance for the general public to try out
 - Voice communications
 - Data communications (RTTY, FT8)
 - Even CW (using a decoder & canned scripts)
- Also let people **SEE how our stations look - inside**
- **The MARC UNIT Tower** is an oversized example of what is required for emergency comms. MUCH larger than TV/ham radio towers and will be festooned with wire antennas.

Field Day Outreach - INSIDE

- **Smiling friendly Greeter** at the reception desk (Green Vest)
- **GEOCHRON** to demo ham radio connections (FUGATE)
- **LOGGING SYSTEM** to show contacts being added (Visitor Computer)
- **MAKER TABLE:** projects we've built or related
- **VIDEOS:** short promotional videos (Leland Monitor)
 - ARRL 2-3 Minute: <https://m.youtube.com/watch?v=wDn-6SDxyD4>
 - 5-minute: <https://m.youtube.com/watch?v=K40HpljDLRs>
 - 10-minute: https://m.youtube.com/watch?v=8x6x_6mDVIQ




Maker Table

- Maker Projects
 - **Direct Conversion Radio** – 6th graders at Cornerstone Academy
 - **Morse Code Key** – TRY IT!! 6th graders at Cornerstone Academy
 - **Soundcard Interface Circuit** (Signalink equivalent)
 - **Baluns**
 - Possibly the LORA WAVESHARK (ham radio related)
 - Other ideas?? Heathkit radios??

VOLUNTEER GUIDES

- Worldwide participation
- USA Current Data (May 27)
 - Technicians: 380,747
 - General: 187,073
 - Extra: 155,054
 - Other (Novice, Advanced etc)
 - TOTAL: 762,631
- 0.22% of population hold license / 1 out of every 435 people. About the same as MDs

Country	Number of amateur radio operators	% population	Year of Report	Source
 United States	779,545	0.233	2021	[4]
 Japan	381,899	0.304	2021	[5]
 Thailand	101,763	0.147	2018	[6]
 China	150,000	0.010	2019	[7]
 Germany	63,070	0.073	2019	[8]
 Canada	70,198	0.187	2018	[9]
 Spain	58,700	0.127	1999	[6]
 United Kingdom	75,660	0.114	2018	[10]
 South Korea	42,632	0.082	2012	[11]
 Russia	38,000	0.026	1993	[6]
 Brazil	32,053	0.016	1997	[6]
 Turkey	32,000	0.037	2023	[12]
 Italy	30,000	0.049	1993	[6]

Tour Guide Ideas

- **Stations:** Walk them into the operating area & explain the stations
- **Audio:** Let them listen into what is going on (bluetooth speaker)
- **Modest Expense:** Carry a Baofeng UV-5R and explain \$25 radio / repeaters
- **QRP/WSPR** – tiny transmitters go a long long way on HF!
- **Antennas** – walk them out to the tower area & explain dipoles
 - Accelerating electron charges create an electromagnetic field (theorized by Maxwell in the 1800's) that can be a force field even thousands of miles away on our earth surface, reflected/refracted by ionosphere

Tour Guide (continued)

- GOTA – walk down to the GOTA station where they can get on the air for real – to say something or even make a contact!
- MAKER Display: lots of hams do TECHNOLOGY, from simple circuits like high school physics, to microprocessors and digital radios
- Public Service: groups like ours step up to help out their communities in time of crisis
- **Upcoming Technician Course** – August. Free.
- **BROCHURE. BUSINESS CARD.**

Tour Guide (continued)

- Youth: Wholesome learning activity, a hobby that can lead toward great careers
- Retired People: Great comraderie among hams whether on radio talk groups or in service groups like ours
- MEETINGS: NFARC/ARES(R) meets 2nd Wednesday of every month, typically at Queen of Peace but during summer at Alachua County EOC. 6:30 conversation; 7 PM meeting.
- GROUPS.IO: NF4RC – great way to be involved in our group

Tour Guide (continued)

- Our new webpage: nf4rc.club
- BROCHURE – has our QR code for our website
- History of ham radio
 - Amateurs grew in number shortly after invention of radio (Marconi)
 - Competition with commercial stations led to “banishment” to “unusable” higher frequencies than then technologically usable.
 - Amateurs ended up making them work and making trans-atlantic connections on “unusable” frequencies.
 - Very active in helping communities during/after disasters

**North Florida Amateur
Radio Club**

FCC Call Sign: NF4RC

*Communications Volunteers
for Alachua County*

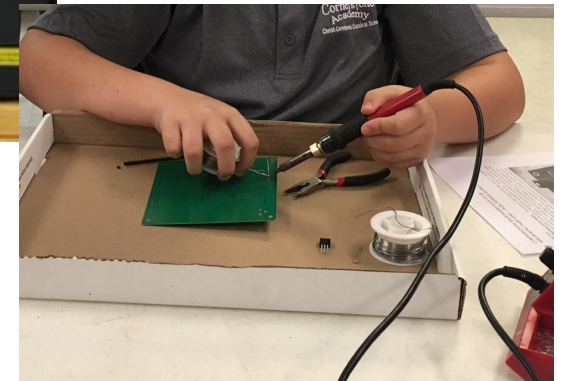
**Experienced community volunteers
from retired doctors, lawyers, law
enforcement, even federal
government leadership!**

FRIENDS to answer questions and provide
YOU with encouragement
CLASSES to help YOU learn electricity,
electronics, radio waves, and how to get
YOU on the air!
MENTORS for schools, clubs, anywhere we
can serve locally to benefit YOU.



- Some of our activities:

- Solar Power
- LIFEPO4 BATTERIES
- Diesel Generators
- Shortwave Radio
- Walkie-Talkies
- Microwave
- TCP/IP Networks
- World Wide Communications
- U.S. Government Communications
- Emergency Communications
- Circuit Design
- Microprocessors
- C Programming
- Printed Circuit Boards



Tour Guides – look for growth opportunities

- **SCHOOLS**

- Modest group of MENTORS who can help schools offer some radio-based STEM training as volunteers.
- Surprisingly, MORSE CODE has been rather popular among middle school students!
- Soldering projects have also been popular
- Technician license well within reach of students – any math at worst is 8th grade level

Bifold CheatSheet for Docents

FOYER

LOGGING SYSTEM to show contacts being added (Visitor Computer)

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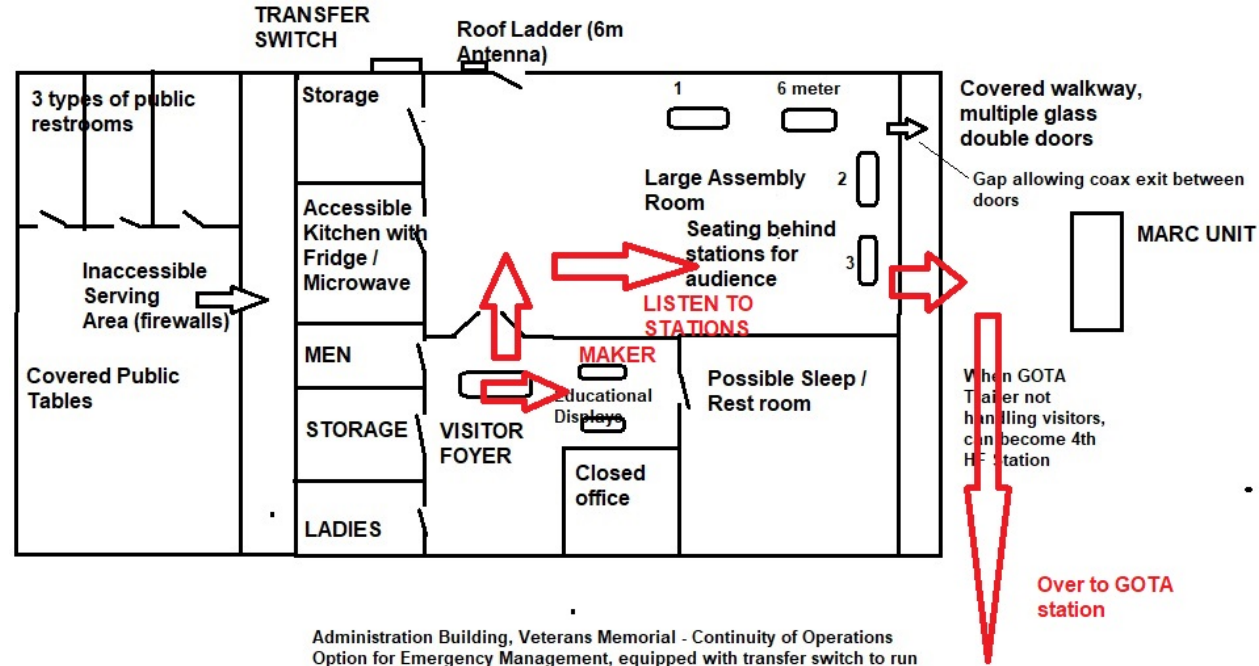
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QR CODE IS ALSO IN BROCHURE



Note the QR code if anyone needs to scan to get to our website.

- Circulation Possibilities
- Suggestion only -
- Stop at exhibits, opportunities and bring up topics and answer questions



Administration Building, Veterans Memorial - Continuity of Operations Option for Emergency Management, equipped with transfer switch to run entire facility.

Part Two:

Increasing Efficiency

Easier to understand the rules...

- ARRL headquarters or simply google
- Save you some heartache.

Efficiency Suggestions

- <https://nescitech.org/wp-content/uploads/2019/06/Field-Day-Guide-2019.pdf>
 - Great suggestions for voice etc operations
- “Running“ versus “Search & Pounce“
- Key is ASSERTIVENESS (aggressiveness)
- Start at one end, find clear spot, CALL CQ & attempt RUN until you run out of people to contact...then S&P upwards until next clear spot.
 - Three strikes & **Yer OUT** – no response in 3 tries, move on!
- ICOM bandscope extremely helpful to find clear spots – learn how to change SPAN from narrow <--> wide scan.

Voice

- Requires the LEAST in computers
- Requires the MOST in assertiveness
- Help: tape record at least your CQ & Exchange, +/- QSL

Data Techniques – WSJT-X Intro

- FT8 – RUNNING

- **Find a clear spot**, LOCK YOUR TX FREQUENCY (Shift-Click)
- “Call 1st” – so system will automatically pick among responses
- (If there are NO clear spots, either move your bandpass (dial) up or down ½ kHz and try the edges. Or switch to S&P)

The screenshot displays the WSJT-X software interface. At the top, there are two tables for 'Band Activity' and 'Rx Frequency'. The 'Band Activity' table shows a list of stations with their UTC, dB, DT, Freq, and Message. The 'Rx Frequency' table shows the received stations. Below these tables are various control buttons and checkboxes, including 'CQ only', 'Log QSO', 'Stop', 'Monitor', 'Erase', 'Decode', 'Enable Tx', and 'Halt Tx'. A central display shows the current frequency '28.074 000' and the call sign 'K4WPC EM97'. A 'Wide Graph' window is visible at the bottom, showing a spectrum plot with a red box highlighting a specific frequency. A callout box on the right explains the color coding: Yellow = your TX, RED = stn answering you!!, Green = stn you're calling. Another callout box at the bottom left explains the mouse actions: Left Click: Sets RX frequency, Shift Click: Sets TX frequency, CTRL-Click: Sets BOTH.

UTC	dB	DT	Freq	Message
130715	-14	1.3	2459	~ MM0UKI DL5XAT J053
130715	15	0.7	734	~ CQ K4WPC EM97
130715	10	1.3	176	~ KN22 KB9RP EN43
130715	-11	0.9	2576	~ VE5JOE G0OIL -16
130715	2	0.2	989	~ KB3FN K4MBD EM86

UTC	dB	DT	Freq	Message
130445	-4	0.8	1458	~ YC1RDH AG9SG EM12
130515	-11	0.8	1457	~ YC1RDH AG9SG EM12
130545	-9	0.7	1460	~ N2RDT AE0DC RR73
130715	15	0.7	734	~ CQ K4WPC EM97
130738	Tx		932	~ K4WPC KX4Z EL89

Yellow = your TX
RED = stn answering you!!
Green = stn you're calling

Left Click: Sets RX frequency
Shift Click: Sets TX frequency
CTRL-Click: Sets BOTH

Data Techniques – WSJT-X Cont'd

• FT8 – Search & Pounce

- Select “CQ ONLY”
- Unless you have a really clear spot for your TX, **don't lock it** – let it go to the frequency of the fellow calling CQ.
- Setting is for double-click automatically enables calling the CQ station

The screenshot shows the WSJT-X v2.6.1 interface. The 'Band Activity' window displays a list of stations. A call sign 'CQ K4WPC EM97' is highlighted in green. A call sign 'K4WPC KX4Z EL89' is highlighted in yellow. A call sign 'K4WPC KX4Z EL89' is highlighted in red. The 'Controls' window shows the 'CQ ONLY' checkbox checked. The 'Wide Graph' window shows a frequency spectrum with a peak at 28.074 000 MHz. A call sign 'K4WPC KX4Z EL89' is visible in the 'Last Tx' field.

Yellow = your TX
RED = stn answering you!!
Green = stn you're calling

CQ Stns Only

Left Click: Sets RX frequency
Shift Click: Sets TX frequency
CTRL-Click: Sets BOTH

Data Techniques – FT4

- FT4
- Different frequencies
- Twice as fast as FT8
- (= more contacts!)
- Field Day likely will bleed excess stations onto FT4

The screenshot displays the WSJT-X v2.6.1 interface. At the top, there are two tables for 'Band Activity' and 'Rx Frequency'. The 'Band Activity' table shows several stations, with 'CQ K4WPC EM97' highlighted in green. The 'Rx Frequency' table shows 'CQ K4WPC EM97' and 'K4WPC KX4Z EL89' highlighted in yellow. Below these tables are control buttons for 'CQ only', 'Log QSO', 'Stop', 'Monitor', 'Erase', 'Decode', 'Enable Tx', and 'Halt Tx'. A 'CQ' button is circled in red. The central display shows the frequency '28.074 000' and '2023 May 31 13:07:48'. To the right, there is a 'Generate Std Msgs' section with a list of messages and a 'Tx' button. A callout box explains the color coding: 'Yellow = your TX', 'RED = stn answering you!!', and 'Green = stn you're calling'. At the bottom, there is a 'Wide Graph' showing a spectrum plot with a red box around a peak at 4000 Hz. A callout box explains the graph interaction: 'Left Click: Sets RX frequency', 'Shift Click: Sets TX frequency', and 'CTRL-Click: Sets BOTH'.

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
130715	-14	1.3	2459	~ MM0UKI DL5XAT JO53	130445	-4	0.8	1458	~ YC1RDH AG9SG EM12
130715	15	0.7	734	~ CQ K4WPC EM97	130515	-11	0.8	1457	~ YC1RDH AG9SG EM12
130715	10	1.3	176	~ KN2Z KB9RP EN43	130545	-9	0.7	1460	~ N2RDT AE0DC RR73
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130715	2	0.2	989	~ KB3FN K4MBD EM86	130738	Tx		932	~ K4WPC KX4Z EL89

Yellow = your TX
RED = stn answering you!!
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CQ CQ only Log QSO Stop Monitor Erase Decode Enable Tx Halt Tx

10m Tx even/1s Hold Tx Freq
Tx 932 Hz Rx 734 Hz Report 15 Auto Seq CQ: None

Generate Std Msgs Next Now Pwr

Msg	Next	Now	Pwr
K4WPC KX4Z EL89	<input checked="" type="radio"/>	<input type="radio"/>	Tx 1
K4WPC KX4Z +15	<input type="radio"/>	<input type="radio"/>	Tx 2
K4WPC KX4Z R+15	<input type="radio"/>	<input type="radio"/>	Tx 3
K4WPC KX4Z RR73	<input type="radio"/>	<input type="radio"/>	Tx 4
K4WPC KX4Z 73	<input type="radio"/>	<input type="radio"/>	Tx 5
CQ KX4Z EL89	<input type="radio"/>	<input type="radio"/>	Tx 6

Receiving FT8 Last Tx: K4WPC KX4Z EL89 30

WSJT-X - Wide Graph
 Controls 500 4000
Bins/Pixel 4 Start 0 Hz Palette Adjust... Flatten Ref Spec Spec 30 %
Split 2500 Hz IN Avg 5 Default Cumulative Smooth 1

Left Click: Sets RX frequency
Shift Click: Sets TX frequency
CTRL-Click: Sets BOTH

Data Techniques - RTTY

- Not auto-sequencing like FT8/FT4
- FLDGI software instead of WSJT-X
- RTTY-45 (170 Hz shift)
- Not difficult to pick out exchange elements.

The screenshot shows the fldigi software interface during an ARRL Field Day session. The main window displays a frequency of 570 kHz and a call sign of K1AAA. A red box highlights the 'Call' field and the 'Class' and 'Section' dropdown menus. A yellow box highlights the received RTTY exchange elements, including 'AHHJGC', 'KX4Z GORDON FL K', 'MU1#(', 'QSL TU', 'QKBSF6 BTU DE KX4Z K', 'CQ', 'QSL TU CQ KX4Z', 'GLOKPNF4AC K1AAA 1D EPA', and 'YUCVU'. A white arrow points from the 'LOG CONTROLS (ALSO SOFT KEYS BELOW)' text to the 'Call' field, and another white arrow points from the 'CLICKING ON PARTS OF RECEIVED EXCHANGE WILL AUTOMATICALLY POPULATE CORRECT BOX' text to the 'QSL TU' element. The interface also shows a 'CQ' field with a volume control slider, a 'Pounce' button, and a 'Log QSO' button. The bottom of the window shows a waterfall display with a frequency scale from 500 to 1500 Hz.

TRAINING CONTESTS

- NS Contests: QSY Rule eliminates hogging
- 8 day contest calendar
- <https://www.contestcalendar.com/weeklycont.php>
- Just google „ham radio contest calendar“
- READ the rules. HAVE FUN. Give it an easy whirl the first time

The End

