# FIELD DAY CONTACT SUGGESTIONS: CW
## Alachua County ARES(R) / NFARC

REVISED: 5/29/2023 6/6/2023 (synchronized texts)
REVISED: 7/01/2023 -- update to SAVE CW SETTINGS
REVISED: 7/04/2023 -- updated with results of experimental testing on HF-1 with WINKEYER

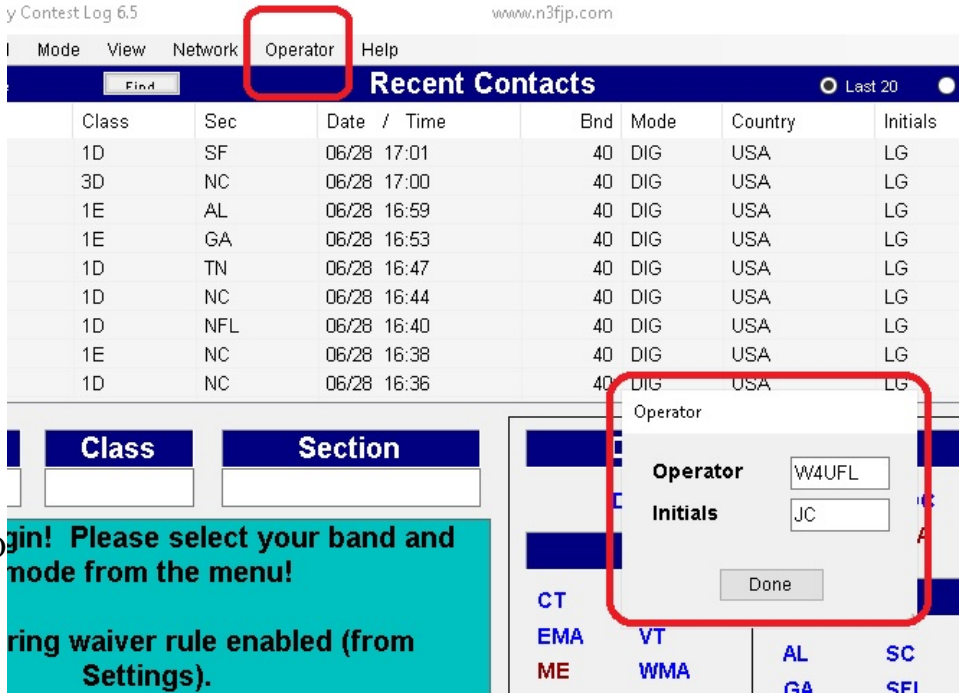
CW Decoder Software Download: https://qsl.net/nf4rc/2023/cw%20decoder.exe
Set the Sound Card to listen to the 7300 and it should work very nicely for you!

**MOUSE SPEED:** Due to RF interference to touchpads, you are likely going to want to use an external mouse (either wired or wireless to a little dongle). You may need to adjust the POINTER SPEED to your preferences. Click the Windows icon lower left edge of screen, then the starburst SETTINGS icon; type in the search window "mouse speed" and it will take you to dialog boxes where you can set the pointer speed, size etc.

If you wish to use your own personal keyer or paddles with the 7300, just bring them with a 1/4" stereo phone plug and be sure they are OK switching a small positive voltage and a small current. The IC-7300 allows you to set it to respond to left- and right-paddles (and the 7300 does the automatic keyer function) OR you can use a full external keyer (paddle + electronics) and set the IC-7300 for a "straight key" and your full external keyer, connected to the TIP and SLEEVE of the 1/4" phone plug, will send CW correctly.

In order to use them with the WINKEYER, you'll need a 1/8" stereo plug.

**FIRST** Enter yourself as the operator into the Logging System -- click "Operator" and enter call and initials:




CW HOW-TO

# SECOND

**Set your BAND and MODE -- Click on BAND to pick the band, and click on MODE to select CW (This is important to properly check for duplicates)**

For CW you're basically going to have log for yourself or with a helper, into N3FJP. You may wish to have CW DECODER. https://qsl.net/nf4rc/2023/cw%20decoder.exe If you type into N3FJP it will automatically check for duplicates and it **can transmit extremely helpful macros and repetitive CQ calls**. (The alternatives are to do everything by yourself, or use the memory transmissions options in the IC-7300)

| ICOM SETTINGS FOR CW | | |
|---|---|---|
| ITEM | CHOICE | COMMENT |
| **MODE** | Select **CW.** Touch the current mode (USB LSB, whatever it is) on the screen and you'll get the options | |
| **VOX/BK-IN** (left-sided physical button just below TUNER button, left hand side of 7300 | Set for **BKIN** (not F-BKIN) | Required for the radio to go into TRANSMIT when you begin sending. |
| **KEY TYPE** | With **MODE= CW**<br>Press physical button **MENU**<br>Touchscreen **KEYER**<br>Touchscreen **EDIT/SET**<br>Touchscreen **CW-KEY SET** to choose type of key.<br><br>Set for either **straight key** or **keyer** depending on what you will plug into the 1/4" phone jack on the back.<br><br>(FOR WINKEYER, SELECT STRAIGHT KEY) | If you have a STRAIGHT KEY it is easy to get a continuous transmit power -- just press and hold the key down.<br><br>If you're using PADDLES, there are two solutions:<br>a) Change the CW-KEY SET temporarily to either BUG or STRAIGHT KEY to gain the ability to send a long dash, OR<br>b) click the mode RTTY and push the TRANSMIT button -- you'll get a continuous signal to check settings with. Press again to stop transmitting. |
| **To Use N3FJP to send Morse Code via the RTS signal from the USB** | ICOM 7300:<br>MENU \| Set \| Connections \| USB SEND -- set to DTR to match instructions below for N3FJP setup | This presumes RTS used to key morse code, and DTR used as an automatic push-to-tranmit control so you don't have to deal with the vox-break-in-delay timing out during your |

| | | |
|---|---|---|
| | MENU \| Set \| Connections \| USB Keying (CW) -- set to RTS to match instructions below for N3FJP setup | transmission. |
| **TO USE WINKEYER TO TRANSMIT** | No need for the DTR stuff.<br>Set up WINKEYER in the N3FJP.<br><br>**BE CERTAIN TO SAVE THE SETTINGS IN THE "CW SETUP FORM 1.4"** | *The behavior of N3FJP software with Winkeyer is somewhat unusual and is documented in an Appendix at the end of this document.* |
| **N3FJP Setup** | Settings \| Transmit \| CW Setup<br>1. Pick correct COM port (use Device Manager to check if unsure)<br>2. Set Keying Options to RTS (unless using WINKEYER -- if so, adjust your keying as needed)<br><br>3. Click CW PTT for Amps (will use DTR to key push-to-talk<br>4. Set WPM (speed) (for WINKEYER, lock to use its control)<br>5. NON-WINKEYER: Choose Timing Option, test for good keying performance. TIMER worked well for me.<br>6. Set your MACROS<br>7. Probabaly choose "Faster ESC" so you can stop transmitting immediately if necessary.<br><br>BE CERTAIN TO "SAVE" YOUR SETTINGS IN THE CW SETUP FORM ESP TO MAKE THE WINKEYER CONTINUE TO WORK<br><br>You can always transmit using a keyer connected to the back panel key input -- set | Potential MACROS: See Table Below |

| | | |
|---|---|---|
| | appropriately for whether you're using a full external keyer (telling the IC-7300 to presume a "straight key"), or only a paddle (hence needing the internal keyer to work) | |

# THIRD -- Helpful hints

## POWER LEVEL:

**100 Watts** -- Adjust the power level by pressing the Multifunction Button, selecting the power and adjusting with the knob.

**Morse Code Speed:** Faster stations will tend to be down in the Extra Class segments or just above. Slower stations will be at higher frequencies up to about .070 above each band where various digital modes begin. So scan around and find people sending at a comfortable speed!

*Never send CW faster than you can receive*...the other station will respond at or above the speed you send!

**Using automated features of IC-7300 (if you aren't going to use the more useful features of N3FJP)**
Setting up the MEMORY SEND in the Icom 7300 will take a lot of work off of you. The Speed can be easily changed with the multi-function button.

When you are in CW mode, pressing the physical MENU pusbhbutton (below touchscreen) and then the softkey KEYER will make the Memory Keyer available. Simply touch one to get it to sent.

The MULTIFUNCTION knob allows you to easily change the SPEED of the keyer if you are using the internal electronic keyer (or the memory keyer).

| | These TEXTS are the same whether you are using a WINKEYER or having N3FJP key the 7300 directly. Numbering synhcronized with other modes | |
|---|---|---|
| FUNCTION KEY | TEXT SENT | How this Function Key is used |
| F1 | CQ NF4AC NF4AC FD [repeats]<br>Dave suggests:<br>CQ DE NF4AC NF4AC FD | repetive CQ;<br>station K4AAA answers "K4AAA" |
| F2 | $ 4F 4F NFL NFL BK<br>(Gordon shortened this to $ 4F NFL BK in the 2023 Field Day with good success) | ANS EXCH<br>We respond: K4AAA 2F NFL BK<br>He answers R 1D GA |
| F3 | 4F 4F NFL NFL | EXCH ONLY |
| F4 | QSL TU QRZ NF4AC FD | QSL QRZ? |
| F5 | NF4AC | POUNCE |
| F6 | QSL 4F 4F NFL NFL | QSL EXCH |

| | | |
|---|---|---|
| F7 | AGN? | If we need a repeat |
| F8 | $ ? AGN PSE | (missed callsign to our CQ) |
| F9 | | |
| F10 | | |
| F11 | DUPE | to notify someone they would be a duplicate |

## Typical Field Day CW Exchanges

| OUR STATION | THEIR STATION | COMMENT |
|---|---|---|
| "RUNNING"<br>Holding Frequency and Calling CQ | | |
| NF4AC | Other Station K4AAA | |
| F1 CQ FD CQ FD DE NF4AC NF4AC K | | CALL CQ |
| | K4AAA | |
| Type in K4AAA into N3FJP Log,<br>F2 $ *(it sends K4AAA)* 4A NFL BK | | |
| | R 1D GA | |
| F3 R TU NF4AC FD K | | END OF QSO |
| F4 QRZ? | | *Didn't get the call* |
| Search & Pounce (S&P)<br>Hunt and Pounce Technique | | |
| | CQ FD DE K4AAA K | Other station calling |
| BE AGGRESSIVE!! ANSWER INSTANTLY OR YOU'LL MISS THE CHANCE!!<br><br>F8 NF4AC | | We answer |
| | NF4AC 1D GA K | His exchange |
| F9 R 4F NFL K | | Our Exchange |
| | R TU K4AAA FD K | End of contact |

## This Table May Be Helpful To Organize the Canned Texts:

| CQ ON FREQUENCY | | HUNT & POUNCE | | | |
|---|---|---|---|---|---|
| F1 | CQ..de NF4AC K | F5 | NF4AC | F9 | |
| F2 | ANS EXCH<br>$ 4F NFL BK | F6 | QSL EXCH | F9 | |
| F3 | EXCH ONLY<br>4F 4F NFL NFL | F7 | AGN? | F10 | |
| F4 | QSL QRZ | F8 | $ ? AGN PSE<br>(missed callsign) | | |

## THIS TABLE MAY BE HELPFUL TO SUGGEST FREQUENCIES

| | | |
|---|---|---|
| CW | Typically for non-Extra Class, begins 25 kHz above bottom of band. | CW speeds generally ***get slower as you get to higher frequencies***.<br>DONT GO BEYOND<br>70 kHz from bottom -- may be PSK31<br>74 kHz above -- that is where FT8 starts! |
| PSK31 | Typically about 70kHz up from bottom of band, to 3kHz above that<br>80 M: try 3.580<br>40 M: try 7.040 | |
| FT8 | Typically 74kHz above bottom of band, to 3kHz above that.<br>Note these frequencies:<br>3.573<br>50.313 | (During FD this may extend slightly higher or lower) |
| FT4 | 3.568<br>3.575 (overlaps FT8 slightly)<br>7.0475 (pse confirm)<br>14.080<br>21.140<br>28.180<br>50.318 | |
| JS8 | Typically 78 kHz above | |

| | | |
|---|---|---|
| | bottom of band | |
| RTTY | Typically from 80 kHz above bottom of band to and through the 97.221(b) automated station frequencies. | For 40 meters, may extend up to 7.125 (end of legal frequencies)<br>For 20 meters, may extend up to 14.150<br>For 15 meters, may extend up to 21.200<br>For 10 meters, ?? up to 28.3?? (doubt it would get that high at all) |

## Nitty Gritty of CW Contacs on IC-7300

CW operators typically transmit to each other very near to each others' frequency. This is because some operators use very narrow CW filters....and if you are a few hundred Hz away from THEIR frequency, they may not even hear you!

How do you make sure you answer a station on their exact frequency?
On the IC-7300 it is easy -- dial them in so that their pitch is the same pitch as your CW Sidetone from the 7300. OR so that their signal is centered on the display. (And if there is only one station in the passband, you can hit the AUTO TUNE button and it will take them right there!) If you are using a very narrow filter, this is even easier -- tune them until they are LOUD in your filter and then they are centered.

The IC-7300 like many other CW transceivers, offsets the beat frequency oscillator (BFO) during RECEIVE, about 700Hz - 1 kHz *higher* than your carrier frequency, specifically so you will hear a TONE rather than a "whoossh" on their dits and dahs. In effect, you are receiving in Lower Side Band Mode. A nice outcome of this is that if you turn the dial clockwise to a higher frequency, the received signal INCREASES in pitch.

You can choose what offset you like! Some people like a lower pitch (like 600 Hz) and others like a higher pitch (like 1000 Hz). If you want to change it, there is a CW sidetone pitch adjustment and it automatically adjusts the receiver offset also to match. Pretty cool!

## APPENDIX: N3FJP and WINKEYER

N3FJP actions with WINKEYER hardware in CW mode appear to be dependent on loading a saved configuration file, which (if it exists) happens by default in the turn-on sequence. For unknown reasons, the functionkeys appear largely disabled in the CW Setup dialog. If there is no saved confgiuration, and no configuration is saved/loaded, the keyer is likely to fail to work as desired with the function keys.

The following table documents some states verified by experimental practice.

| Condition | Outcome | Notes |
|---|---|---|
| Starting N3FJP logging, when cw settings (CW.cws) have already been properly created for Winkeyer and saved; user has logged into N3FJP; CW mode selected both on Icom 7300 and in N3FJP | Everything works as desired:<br>- Paddles work and send CW<br>- Function keys work and send CW as desired | The program appears to read CW.cws configuration at some point in its turn-on process. |
| IF you go into configuration: SETTINGS \| Transmit Setup \| CW Settings | - if previously configured and saved for winkeyer operation, winkeyer button will be found already selected<br>- the F9 test will work in this screen<br>- the other Function Keys WILL NOT WORK (unknown why not) | |
| Load cw settings | Stil lthe same; F9 test will work, but function keys in this screen will not. | |
| Click "Confgure Winkeyer" | Status will indicate "connected" | The meaning of "connected" is not quite clear |
| Click "open" | Status will change to "Success" as if it has re-opened the connection to the Winkeyer hardware, however the Function keys still will no work within he CW Setup dialog. | |
| Click DONE and go back to main program | Everything now works -<br>- Keyer paddles send CW and activate radio<br>- Function keys will send CW scripts as desired. | |
| | | |

Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at **https://utc.org/plc-database-amateur-notification-process/**. You need only register once for each band.

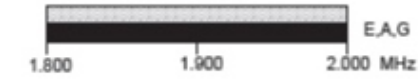
### 2,200 Meters (135 kHz)


### 630 Meters (472 kHz)

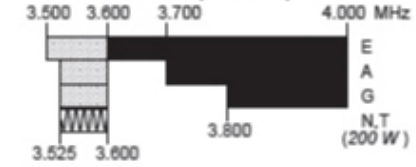
5 W EIRP maximum, except in Alaska within 496 miles of Russia where the power limit is 1 W EIRP.


### 160 Meters (1.8 MHz)

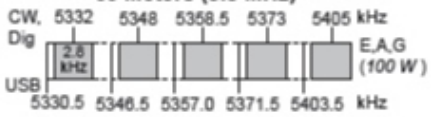
Avoid interference to radiolocation operations from 1.900 to 2.000 MHz




### 80 Meters (3.5 MHz)

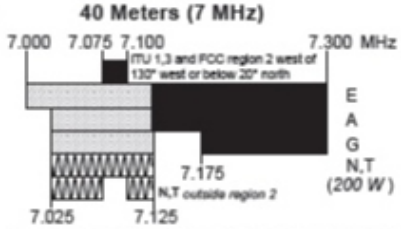



### 60 Meters (5.3 MHz)




General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.

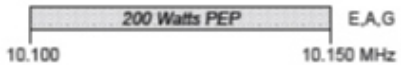
### 40 Meters (7 MHz)



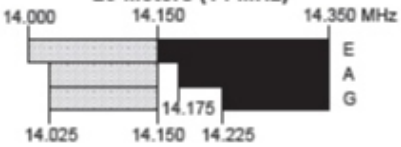

See Sections 97.305(c), 97.307(f)(11) and 97.301(e). These exemptions do not apply to stations in the continental US.

### 30 Meters (10.1 MHz)

Avoid interference to fixed services outside the US.

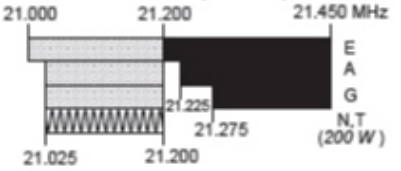



### 20 Meters (14 MHz)




### 17 Meters (18 MHz)


### 15 Meters (21 MHz)



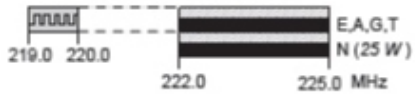

### 12 Meters (24 MHz)


### 10 Meters (28 MHz)


### 6 Meters (50 MHz)

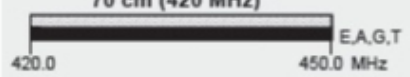

### 2 Meters (144 MHz)


### 1.25 Meters (222 MHz)

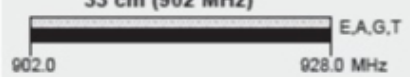



*Geographical and power restrictions may apply to all bands above 420 MHz. See *The ARRL Operating Manual* for information about your area.

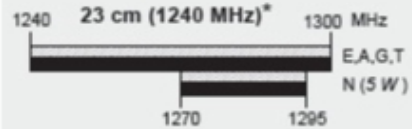
### 70 cm (420 MHz)*




### 33 cm (902 MHz)*




### 23 cm (1240 MHz)*




All licensees except Novices are authorized all modes on the following frequencies:

| | | |
|---|---|---|
| 2300-2310 MHz | 10.0-10.5 GHz ‡ | 122.25-123.0 GHz |
| 2390-2450 MHz | 24.0-24.25 GHz | 134-141 GHz |
| 3300-3500 MHz | 47.0-47.2 GHz | 241-250 GHz |
| 5650-5925 MHz | 76.0-81.0 GHz | All above 275 GHz |

‡ No pulse emissions

### KEY

***Note:***
CW operation is permitted throughout all amateur bands.

**MCW** is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.

Test transmissions are authorized above 51 MHz, except for 219-220 MHz

- = RTTY and data
- = phone and image
- = CW *only*
- = SSB phone
- = USB phone, CW, RTTY, and data.
- = Fixed digital message forwarding systems *only*

E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice

***See ARRLWeb at www.arrl.org*** for detailed band plans.

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