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

REVISED: 6/7/2022 and 6/17/2022 -- Added new information about N3FJP automated transmissions and 2022 power limits (no amplifier required)

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, 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.

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

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 FLDGI going as a helper to RECEIVE CW but it isn't much help even at that and won't log. 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** Press physical button **MENU** Touchscreen **KEYER** Touchscreen **EDIT/SET** Touchscreen **CW-KEY SET** to choose type of key. Set for either **straight key** or **keyer** depending on what you will plug into the 1/4" phone jack on the back.	If you have a STRAIGHT KEY it is easy to get a continuous transmit power -- just press and hold the key down. If you're using PADDLES, there are two solutions: a) Change the CW-KEY SET temporarily to either BUG or STRAIGHT KEY to gain the ability to send a long dash, OR 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: MENU	Set	Connections	USB SEND -- set to DTR to match instructions below for N3FJP setup MENU	Set	Connections	USB Keying (CW) -- set to RTS to	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 transmission.

	match instructions below for N3FJP setup	
N3FJP Setup	Settings | Transmit | CW Setup 1. Pick correct COM port (use Device Manager to check if unsure) 2. Set Keying Options to RTS (unless using WINKEYER -- if so, adjust your keying as needed) 3. Click CW PTT for Amps (will use DTR to key push-to-talk 4. Set WPM (speed) 5. Choose Timing Option, test for good keying performance. TIMER worked well for me. 6. Set your MACROS 7. Probabaly choose "Faster ESC" so you can stop transmitting immediately if necessary. You can always transmit using a keyer connected to the back panel key input -- set 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)	Potential MACROS: See Table Below

POWER LEVEL:
FIELD DAY 2022 Rules allow only 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).

FUNCTION KEY	TEXT SENT	*How this Function Key is used*
F1	CQ FD DE NF4AC NF4AC K [repeats]	repetive CQ; station K4AAA answers "K4AAA"
F2	$ 2F NFL BK	We respond: K4AAA 2F NFL BK He answers R 1D GA
F3	R TU NF4AC FD K	We confirm & thank and proceed to next QSO
F4	$?	If we didn't copy his response in F2 above
F5	NFL NFL	If he asks NFL? or similar?
F6	2 F 2 F	If he needs category
F7	AGN	If we need a repeat
F8	NF4AC	CQ FD DE K4AAA K We answer "NF4AC"
F9	R 2F NFL K	He sends NF4AC 1D GA K We respond R 2F NFL K
F10		He responds R TU CQ FD DE K4AAA and we don't need to respond at all
F11	DUPE	to notify someone they would be a duplicate

Typical Field Day CW Exchanges

OUR STATION	THEIR STATION	COMMENT
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, F2 $ *(it sends K4AAA)* 2A NFL BK		
	R 1D GA	
F3 R TU NF4AC FD K		END OF QSO
Hunt and Pounce Technique		
	CQ FD DE K4AAA K	Other station calling
F8 NF4AC		We answer
	NF4AC 1D GA K	His exchange
F9 R 2F 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		FILLS & REPEATS		HUNT AND POUNCE	
F1	CQ..de NF4AC K	F4	$?	F8	NF4AC
F2	$ 2A NFL BK	F5	NFL NFL	F9	R 2F NFL K
F3	R TU NF4AC FD K	F6	2 F 2 F		
		F7	AGN		

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. (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!

10 Meters (28 MHz)
28.000 28.300 28.500 29.700 MHz
E,A,G
N,T (200 W)

6 Meters (50 MHz)
50.0 50.1 54.0 MHz
E,A,G,T

2 Meters (144 MHz)
144.0 144.1 148.0 MHz
E,A,G,T

1.25 Meters (222 MHz)
219.0 220.0 222.0 225.0 MHz
E,A,G,T
N (25 W)

*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)*
420.0 450.0 MHz
E,A,G,T

33 cm (902 MHz)*
902.0 928.0 MHz
E,A,G,T

23 cm (1240 MHz)*
1240 1270 1295 1300 MHz
E,A,G,T
N (5 W)

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

40 Meters (7 MHz)
7.000 7.025 7.075 7.100 7.125 7.175 7.300 MHz
E
A
G
N,T (200 W)
ITU 1,3 and FCC region 2 west of 130° west or below 20° north
N,T outside region 2

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)
200 Watts PEP
10.100 10.150 MHz
E,A,G
Avoid interference to fixed services outside the US.

20 Meters (14 MHz)
14.000 14.025 14.150 14.175 14.225 14.350 MHz
E
A
G

17 Meters (18 MHz)
18.068 18.110 18.168 MHz
E,A,G

15 Meters (21 MHz)
21.000 21.025 21.200 21.225 21.275 21.450 MHz
E
A
G
N,T (200 W)

12 Meters (24 MHz)
24.890 24.930 24.990 MHz
E,A,G

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)
135.7 kHz 1 W EIRP maximum 137.8 kHz
E,A,G

630 Meters (472 kHz)
472 kHz 479 kHz
E,A,G
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)
1.800 1.900 2.000 MHz
E,A,G
Avoid interference to radiolocation operations from 1,900 to 2,000 MHz.

80 Meters (3.5 MHz)
3.500 3.525 3.600 3.700 3.800 4.000 MHz
E
A
G
N,T (200 W)

60 Meters (5.3 MHz)
5330.5 5332 5346.5 5348 5356.5 5357.0 5358.5 5371.5 5373 5403.5 5405 kHz
CW, Dig
USB
2.8 kHz
E,A,G (100 W)

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.