

AmRRON FTX21-1

Exercise Plan

Redeeming the time, because the days are evil (Ephesians 5:16)

Overview: This exercise simulates a National Signals Center (SigCen Nat) attempting to fill an intelligence void by having remote stations report a Priority Intelligence Requirement (PIR) within their area of operations (AO) while keeping as low an RF footprint as possible.

Scenario: SigCen NAT has had several unconfirmed reports of Organized Criminal Gangs (OCG) using RF directional equipment to locate HAM operators and steal their equipment. SigCen Nat wants to verify these reports and understand if it is a wide spread issue or just regional. Sigcen NAT has one or more Listening Posts (LP) within each time zone quietly monitoring the frequency and collecting reports.

Challenge: AmRRON stations would like to report, but they also want to keep a very low profile -- *aka stealth mode-- using the minimum possible transmission power (QRP) and fewest transmissions to get their PIR through.*

PIR(s) for this exercise:

1. What is the level of Organized Criminal Gang (OCG) activity in your AO that is targeting Ham stations -- (G)reen, (Y)ellow, (R)ed, or (U)nknown?

Exercise Focus: JS8Call program, group message, mapping and stealth operation.

Venue: Operators are encouraged to participate from whatever location and with whatever equipment/antenna they choose. Operators that need further experience with off-grid power and field-deployable antennas are encouraged to participate from a location other than their normal ham shack (backyard, park, etc.), in other words, truly a *Field Training Exercise. QRP transmission (less than 10 watts of power) and well-tuned antennas are highly recommended.*

Date: Saturday, January 2, 2021, 1500-1900 Zulu

Time/Frequency	Eastern	Central	Mtn	Pacific
1500Z 7.120 MHz	10:00 AM	9:00 AM	8:00 AM	7:00 AM
1600Z 7.120 MHz	11:00 AM	10:00 AM	9:00 AM	8:00 AM
1700Z 10.141.5 MHz	12:00 N	11:00 PM	10:00 AM	9:00 AM
1800Z 7.120 MHz	1:00 PM	12:00 N	11:00 PM	10:00 AM

Frequencies: **7.120** and **10.141.5**

Mode: JS8Call using the group address @AMRFTX, with a JS8Call offset transmitting between 1900 and 2300 on the waterfall.

Listening Posts

This exercise will utilize multiple Listening Posts (LP), in each time zone (Eastern/Central/Mountain/Pacific), that will be collectors of PIR reports. LPs will not be identifying their presence, nor will they be acknowledging reception of PIR reports – *they are passive listeners only*. At the end of the exercise (shortly after 1900Z), each LP will compile a summary of the intel they have collected and will forward their compiled information to SigCen Nat via HF. This is the first and only transmission that the LPs will undertake.

Participant Requirements:

1. JS8Call installed and settings adjusted to “Mode Settings” section of this document.
2. Functional familiarity with JS8Call (Send, Receive, Retrieve and Relay).
3. Formulate your "Station Info" precisely as directed in these exercise instructions.
4. Add the group @AMRFTX to your “callsign groups” in JS8Call.

Participant Goals:

1. Deliver your PIR to the exercise group (@AMRFTX) by transmitting at minimum power at most once every 60 minutes.
2. Remain as stealthy as possible by not transmitting (no ACKs, no SNRs, no INFO requests, etc.).
3. Monitor the "Station Info" you receive, record that information, and create a map for your personal situational awareness.

LP Goals:

1. Collect PIRs from reporting stations.
2. Transmit PIRs collected to SigCen Nat via HF at the end of the exercise.

SigCen Nat Goals:

1. Aggregate all PIRs received from LPs.
2. Analyze PIRs creating a summary report.
3. Share that report via AIB (if space permits) on Tuesday, January 5, 2021.

Participant Assistance: Though the exercise simulates a “grid down” scenario, exercise organizers will be available on the Zello Breakout channel to assist participants with questions regarding the exercise and use of the exercise mode.

JS8Call Station Info Field Settings to report your PIR: enter the information requested in the PIR(s):

1. Your Four-or Six-character grid locator (depending on your comfort level), e.g. EN09ab.
2. One semicolon character (;) and NO SPACES. (Semicolons also separate multiple PIRs, when present.)
3. OCG activity in your AO, with Green/Yellow/Red/Unknown (abbreviated G, Y, R, U) conditions. The conditions are defined as follows:
 - a. Green (**G**): All is normal
 - b. Yellow (**Y**): Caution advised
 - c. Red (**R**): Dangerous situation
 - d. Unknown (**U**): Unable to determine.
4. Example "Station Info" field messages:
 - a. DN09ab;PIR1=G < North Dakota location; no OCG activity >
 - b. FN56cd;PIR1=Y < Maine location; some OCG activity>
 - c. BQ40ef;PIR1=R < Northern Alaska location; confirmed OCG activity >

JS8Call Mode Settings:

1. JS8Call (Normal....) However, stations may try different (faster/slower modes) depending on their signal strength with the LP. For example, transmission times for the "Station Info" field *DN09ab;PIR1=G* are: Normal=45sec, Fast=30 sec, Turbo=18 sec).
2. Enable Simultaneous Decoding of all Speeds...
3. Disable Autoreply (Auto)
4. Disable Heartbeat Networking
5. Disable Heartbeats
6. Disable Heartbeat Acknowledgements
7. Enable Grid Locator Column (View>Show Call Activity Columns>Grid Locator)
8. Turn OFF all reporting (Settings>Reporting), and verify that the SPOT button (upper right-hand corner of the main screen) is grayed out

The screenshot shows the JS8Call v2.2.0 interface. At the top, the frequency is 7.120000 MHz and the time is 17:36:19 on Dec 14, 2020. A settings menu is open, showing the following options:

- JS8 (Slow, 30s, 25Hz, ~8 WPM)
- JS8 (Normal, 15s, 50Hz, ~16 WPM)**
- JS8 (Fast, 10s, 80Hz, ~24 WPM)
- JS8 (Turbo, 6s, 160Hz, ~40 WPM)

Other settings in the menu include:

- Decoder Sensitivity...
- Enable Simultaneous Decoding of All Speeds (MULTI)
- Enable Autoreply (AUTO)
- Enable Heartbeat Networking (HB)
- Enable Heartbeat Acknowledgments (ACK)

The main interface displays a list of received callsigns and their details:

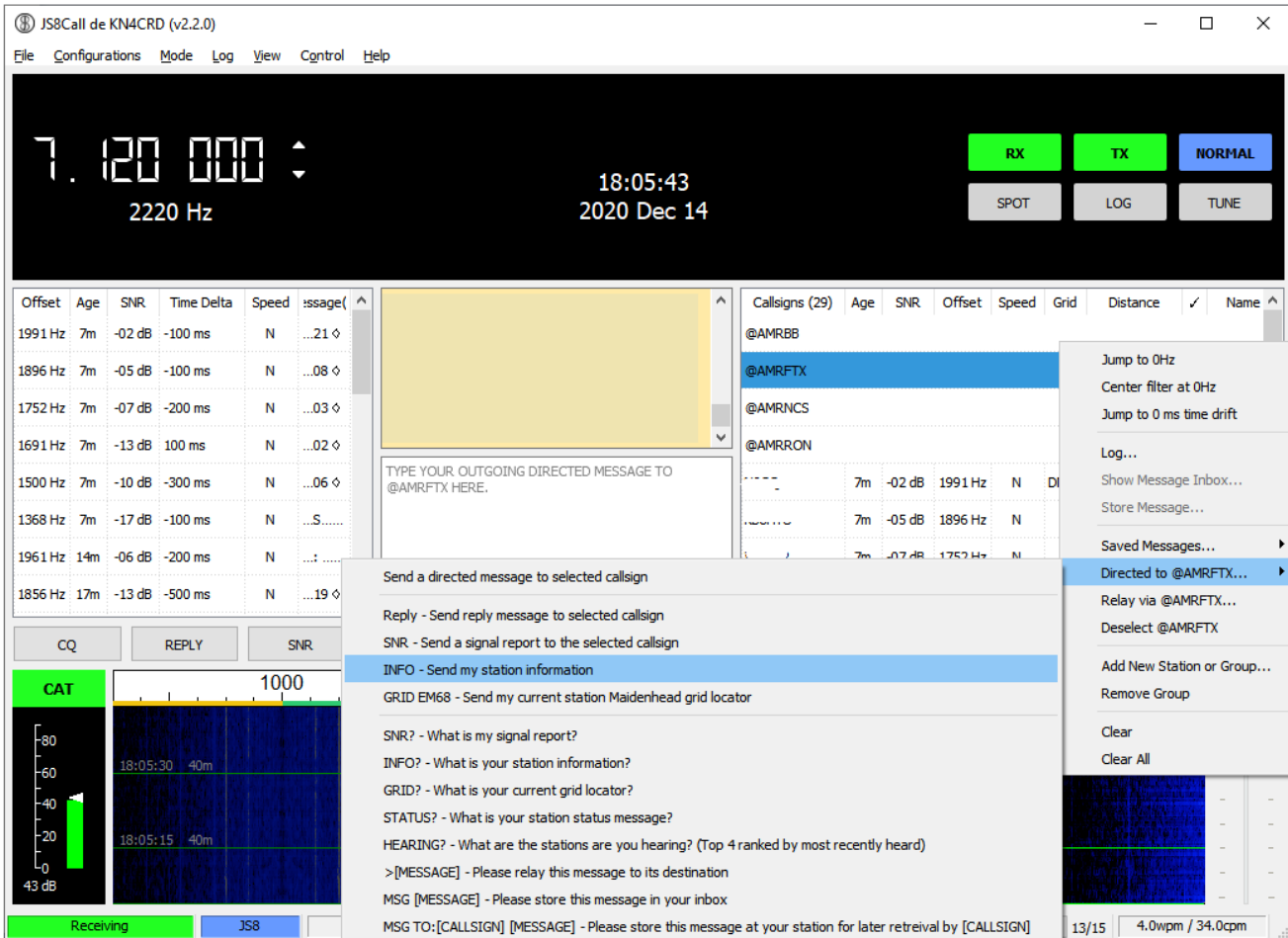
Offset	Age	SNR	Time Delta	Speed	Message
1543 Hz	now	-13 dB	100 ms	N	...17
1991 Hz	now	+01 dB	200 ms	N	...04
1702 Hz	now	+01 dB	100 ms	N	...15
1500 Hz	now	-07 dB	100 ms	N	...16
1887 Hz	3m	-15 dB	0 ms	F	...O
1946 Hz	6m	-04 dB	300 ms	N	...10
2403 Hz	7m	-02 dB	500 ms	F	? ?
1403 Hz	7m	+03 dB	699 ms	F	...0

Below the list is a text input field for outgoing messages: "TYPE YOUR OUTGOING DIRECTED MESSAGE TO VE3SCN HERE." To the right, a "Callsigns (26)" list shows details for stations like @AMRBB, @AMRFTX, @AMRNCs, and @AMRRON. At the bottom, a waterfall plot shows signal activity over time (17:35:45 to 17:36:15) and frequency (1000 to 2600 Hz). The status bar at the bottom indicates "Receiving JS8" with a signal strength of 4/15 and a speed of 8.0wpm / 64.0cpm.

9.

How to transmit my station info field without requesting an acknowledgement

1. Select the exercise group by with a right mouse click.
2. Select "INFO-send my station information". Your transmission command string will look like this:
callsign: EM68;PIR1=G



Exercise Best Practices for FTX21-1

1. This is a “Listen, Transmit and Trust that I will be heard” exercise. You will **NOT** be querying any station for their info. Participants will NOT be transmitting any Beacons, Acknowledgements, Signal Report Requests, Directed Messages or other extraneous transmissions (stealth mode – off the radar).
2. Periodically (approximately every 60 minutes when the frequency is available) send your “Station Info” to the group. You will NOT make any other transmissions during that hour. This will allow other stations to identify regional conditions.
3. Log the reports that you hear on your map for your own situational awareness.
4. Several days before the exercise, and using the SOI frequencies during the same time periods for the exercise, send end out practice PIRs requesting an Acknowledgement. Learn how well your station is getting out at lower and lower power settings. Determine the minimum amount of power, and at what times you get favorable responses. Let this be your template for getting your PIR out during the exercise.

Participant Responsibilities:

1. Formulate your "Station Info" **precisely** as directed in these exercise instructions.
2. Periodically (approximately every 60 minutes as frequency allows) transmit your "Station Info" to the exercise group.
3. Monitor the information you receive and create a map for your personal situational awareness.
4. Review your map and notes, and report the following in an After-Action Report (AAR), rating yourself on a scale of 0 (I was totally unsuccessful) to 5 (I was highly successful):
 - a. How successful were you meeting Participant Goal #1?
 - b. How successful were you meeting Participant Goal #2?
 - c. How successful were you meeting Participant Goal #3?
 - d. What questions regarding JS8 would you like answers to?
 - e. Send your AAR to: AMRFTX@protonmail.com
5. If you would like feedback regarding your message transmission (e.g. "did I get through?"), send your request with FCC callsign to AMRFTX@protonmail.com, and the exercise team will respond. (We recognize some stations are very cautious about revealing their FCC call. We respect this. We just wanted to create a way for stations to know if their message got through. This is totally voluntarily.)

Maidenhead Grid Map

If you do not have a mapping solution, you can use the Maidenhead U.S. Grid Square Map (available from http://www.icomamerica.com/en/amateur/amateurtools/2013_GridSquareMap.pdf).

JS8Call Configuration Software

FTX21-1 will have an optional software component for the participants. Given the goal of the exercise to be as "radio quiet" as possible (e.g. Heartbeats disabled and SPOT off), the software will do two things:

1. It can audit your JS8Call configuration and verify that the settings are correct for FTX21-1.
2. It can assist you in constructing an INFO field that's compliant with the FTX21-1 documentation.

Note that the config checker makes NO CHANGES to your system; it checks your configuration and suggests changes. The INFO field program gives you the option of automatically changing your INFO field via the JS8Call API, but only if you give it permission to do so and only if your API settings are configured and turned on. This software is entirely optional, and the exercise can be completed manually if desired. The software will run on Linux, OSX, and Windows, and available at <https://github.com/EchoJuliet-01/ftx21-1>. The README file included on that web page will point you towards additional Windows resources. If you plan on using the software, download and test it now, rather than at the last minute. Additionally, download the newest version of the software immediately prior to the exercise, as updates are being made during a testing phase leading up to the date of FTX21-1. At the conclusion of the exercise return your JS8 settings to those recommended in the JS8 White Paper noted in the SOI: <https://amrron.com/2019/12/04/white-paper-js8call-settings-for-amrron-ops/>.

Future Exercise: Super Stealth (reporting my PIR with one low power transmission)

Heads up – a future FTX will incorporate the following procedures:

1. Single PIR to be transmitted, with Listening Posts strategically placed across the United States
2. Participating stations can transmit ONE TIME during the exercise period (1500-1900Z).
3. Stations will choose the frequency, time, power level, and JS8Call transmission speed (Turbo, Normal, etc.) that will provide them the greatest probability of getting their message heard.

Do your homework – learn the propagation characteristics of your location, band conditions during the day, etc. The AmRRON Persistent Presence runs 24/7 and is available to test your propagation at different power levels and JS8 speeds. Send a short message requesting an auto-response to see how your signal is being received.