

Clandestine Transmitters
November 1942

Classification:
Eyes Only

1 Background

It has been brought to the attention of the director that clandestine transmitters have been detected in an area around the Hickory Hill Park area. It is believed that these transmitters are being operated by special agents of the Japanese Military Intelligence Office that have infiltrated the area.

At least one set of stations appear to be broadcasting using encoded conversational texts. The message traffic is being sent at varying word rates and appears, on the surface, to contain simple conversations. We believe the message content is updated on a regular basis after dark when the park is closed, and therefore uninhabited. These transmitters are to be located and their positions reported but otherwise are to be left undisturbed and operating so as not to alert the station operators that their locations have been detected.

Additional low power transmitters may be operating as a numbers station to provide Command & Control over the field agents. This station is managed in much the same manner as the other clandestine transmitters, having their message content updated when the park is uninhabited.

Several of the transmitters may have poor frequency control causing operation slightly off frequency. This may have some unknown purpose or this may simply be equipment that is poorly adjusted. Please note issues with the signal quality on the log sheet.

2 Assignment

Your assignment is to locate these transmitters, marking them on the supplied map, and recording any identifying serial numbers that can be found on the transmitters.

Include any other pertinent information on the log sheet to assist our field agents in locating the transmitter, such as the message being sent.

There is a limited time window in which you can conduct operations without compromising the confidentiality of your effort. Your window is between 10:00 hours and 12:00 hours local time. Any transmitters not located within this window will be reacquired at the next available opportunity.

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Known Operating Frequencies:

These frequencies are current best estimates.
The station transmitting frequency may drift due to equipment aging, poor setup or operator error.

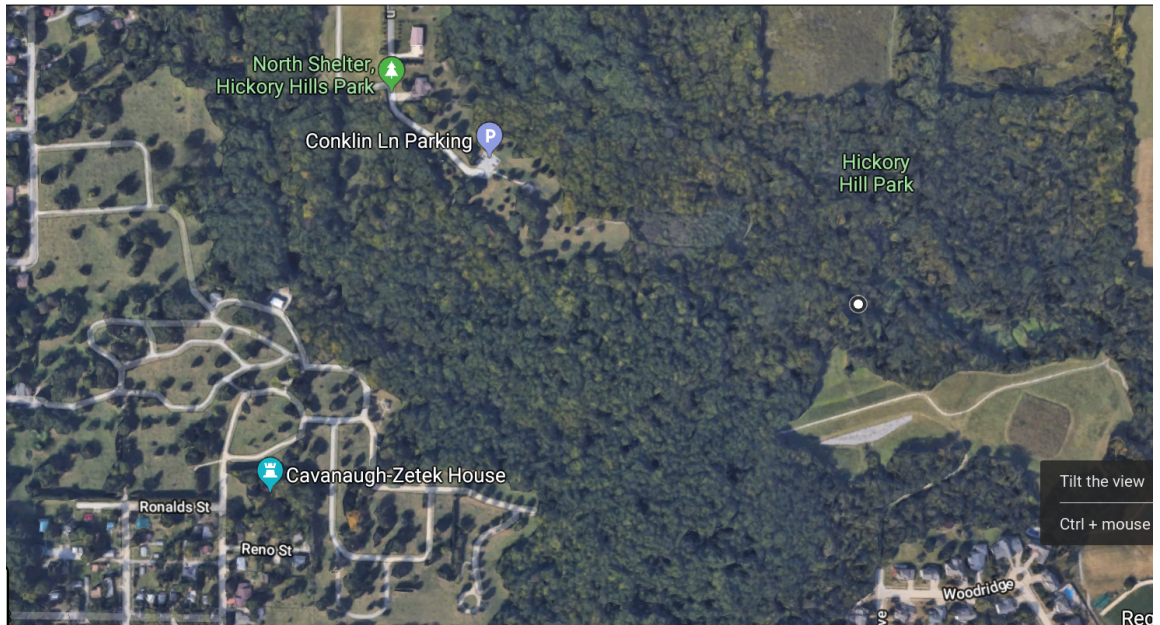
Frequency	ID Marking	Comments
144.250		
144.285		
144.305		
146.565		

April 24, 2020

FOX TRANSMITTER W0JV/13
Nickname: FOX13 144.250 MHz 102_73176_0.
ID: 454695 Power: 33.0mW Ref Xtal: 20.000
Valid 7 days from Fri Apr 3 14:22:48 2020
Iowa City Amateur Radio Club
Hickory Hill Park FOX HUNT
Event Validation Code: 4M4HC06J

Example Identification marking with *ID*: value.

Record the 6 digit *ID* number if it can be found on the clandestine transmitter.



Iowa City Amateur Radio Club

Name:	Freq	Validate

Start Time ____:____		
End Time ____:____		
Elapsed Time _____ MIN		
Referee:		

Sample Log Card

Record the *Frequency* that the transmitter was detected operating on in the *Freq* column.

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Record the 6 digit *Validate* code from the transmitter if it can be found on the clandestine transmitter in the textitValidate column..

Event Preparation

All transmitters send a startup message on 144.135MHz or 144.150MHz. The reference clock in the transmitter dictates the available operating frequencies which will be 144.135MHz or 144.150MHz. A radio at the event gathering point may be used to monitor the startup of the various transmitters. This startup message occurs when power is first switched on to confirm the transmitter is operational.

All ICARC/KC0JFQ transmitters have internal clocks. The clock will be accurate enough if the systems have been synchronized within a day or two. Field synchronization may be accomplished by connecting the network port of a time master to each time slave in sequence. The Raspberry PI verbally announces when a synchronization message has been received. The zNEO units will emit an RF chirp at the programmed operating frequency (not the startup frequency).

Scoring

As we are operating in a very mixed environment, with some transmitters active almost continuously, our scoring system is weighted toward awarding points for the more difficult to find transmitters.

Transmitter Power

We appear to have three classes of transmitters:

A low power (below 5mW) transmitter. We assign an arbitrary multiplier of 5 to this class of transmitter.

An intermediate power (below 50mW) transmitter.

We assign an arbitrary multiplier of 3 to this class of transmitter.

And a high power (above 50mW) transmitter.

We assign an arbitrary multiplier of 1 to this class of transmitter.

Duty Cycle

We can break this into three classifications and use the 5/3/1 multiplier here as well.

Assign a multiplier of 5 to transmitters with less than 25% duty cycle
Assign a multiplier of 3 to transmitters with less than 66% duty cycle
Assign a multiplier of 1 to transmitters with more than 66% duty cycle

Frequency Hopping

One last classification is a frequency hopping transmitter.

This mode of operation sends short messages and changes the operating frequency with each message.

Intended to be more difficult to find.

Assign a multiplier of 6 to transmitters with less than 25% duty cycle that cycle through unique frequencies every 60 minutes/

Assign a multiplier of 4 to transmitters with less than 66% duty cycle that cycle through unique frequencies every 30 minutes.

Assign a multiplier of 2 to transmitters with more than 66% duty cycle that operate on two frequencies.

Calculation

Apply all the multipliers for each station found.

The referee will have the full foxhunt document that shows the multipliers for each station.