



# ***IREDELL WIRELESS***

Newsletter

W4SNC 146.685- Repeater

Published monthly as a service to the Iredell County Amateur Radio Community  
By the Iredell County Amateur Radio Society (ICARS)  
P.O. Box 142 Statesville NC 28687

[www.w4snc.org](http://www.w4snc.org)  
*Click to go to ICARS Website*

President: Rick McClure, KE4TEP~~Vice-President, Dennis White N4WHK  
Secretary: Greg Cason KJ4ENR~~Treasurer: John Lamson, WB4WRY  
Members-at-Large: Tim Misenheimer, KC4MJC ~~Howard Hecht W1HO

Wireless Editor, Tim Misenheimer KC4MJC

***HAPPY NEW YEAR***

**JANUARY 2008**

This month's Meeting will be held at Julia's Tally House. **January 8, 2009**. Come early (6:30PM) and eat or rag chew. The Meeting Starts at 7:00 PM. *All ICARS members and Families are encouraged to attend!*

**Iredell County Amateur Radio Society Meeting Minutes  
December 11 2008, 2008**

The Iredell County Amateur Radio Society met at Julia's Tally House for the regular monthly meeting. President Rick McClure KE4TEP called the meeting to order at 7:00 PM. There were fifteen (15) attending – eleven (11) members and four (4) visitors. Rick McClure asked everyone to introduce him or herself.

**Minutes-** A motion to approve the November 13 2008 minutes as published was made and seconded. Motion carried.

**Treasurer's Report** – Treasurer John Lamson, WB4WRY presented and submitted a written report dated December 11 2008.

A motion was made and seconded that the report be accepted. Motion carried.

**Audit Committee** – Rick formed an audit committee last month consisting of:

Greg Cason.....KJ4ENR.....Chairman

Dennis White....N4WHK

Rick McClure...KE4TEP

This committee will check the treasurer's records for accuracy and will form a budget for 2009. This will be done at the January meeting.

**Reminder Letters** - Rick next passed around copies of two letters. One to remind members that dues are due for the new year. The Treasurer will send this letter, after the March meeting. Rick will send the other to former members and perspective members inviting them to or back to the club.

**Technical** – Don, W4DON had nothing new to report.

**ARES** – Dennis, N4WHK reported last month that he wants to test the emergency shelters that haven't been used in the past, to see what radio capabilities are possible from them. This will be done some time in January.

**SERA Membership** – Due to the increase in dues by SERA, ICARS executive board voted not to renew membership with SERA. A question was raised from the membership that "If we give up SERA membership do we (ICARS) also lose our coordination?" No one knew the answer so it was decided to table this issue till we had more information.

**New Officers** - New Officers were then installed. They are:

President.....	Rick McClure.....	KE4TEP	
Vice President.....	Dennis White.....	N4WHK	
Secretary.....	Greg Cason.....	KJ4ENR	
Treasurer.....	John Lamson.....	WB4WRY	
Member-At-Large.....	Tim Misenheimer.....	KC4MJC	2009
Member-At-Large.....	Howard Hecht.....	WIHO	2010

**Ham-Of-The-Year** – Dennis, N4WHK presented the Ham Of The Year award to John Lamson WB4WRY. Congratulations!

**Meeting Place** – It was decided to stay at Julia's Tally House for the monthly meeting.

**Antenna Building** – Rick, KE4TEP invited all members to his home for an Antenna Building Party Date to be decided later.

A motion was made to adjourn at 7:50. Motion Carried

Tim Misenheimer KC4MJC  
Acting Secretary

# Rewind - The Russian Woodpecker.

**Date :** 21 / 12 / 2008

**Author :** Robert Broomhead - VK3KRB

The Russian Woodpecker was a notorious Soviet signal that was heard on the shortwave radio bands worldwide between July 1976 and December 1989. It sounded like a sharp, repetitive tapping noise, at 10 Hz, giving rise to the "Woodpecker" name. The random frequency hops disrupted legitimate broadcast, amateur radio, and utility transmissions and resulted in thousands of complaints by many countries worldwide.

The signal was long believed to be that of an over-the-horizon radar (OTH) system. This theory was publicly confirmed after the fall of the Soviet Union, and is now known to be the Duga-3 system, part of the Soviet ABM early-warning network.

## History

The Soviets had been working on early warning radars for their anti-ballistic missile systems through the 1960s, but most of these had been line-of-sight systems that were useful for raid analysis and interception only. None of these systems had the capability to provide early-warning of a launch, which would give the defenses time to study the attack and plan a response. At the time the Soviet early-warning satellite network was not well developed, so work started on over-the-horizon radar systems for this associated role in the late 1960s.

The first experimental system, Duga-1, was built outside Mykolaiv in the Ukraine, successfully detecting rocket launches from Baikonur Cosmodrome at 2,500 kilometers. This was followed by the prototype Duga-2, built on the same site, which was able to track launches from the far east and submarines in the Pacific Ocean as the missiles flew towards Novaya Zemlya. Both of these radars were aimed east and were fairly low power, but with the concept proven work began on an operational system. The new Duga-3 systems used a transmitter and receiver separated by about 60 km.

## The Appearance Of The Woodpecker

Starting in 1976 a new and powerful radio signal was detected worldwide, and quickly dubbed the Woodpecker by radio amateurs. Transmission power on some woodpecker transmitters was estimated to be as high as 10 MW EIRP. As well as disrupting shortwave amateur radio and broadcasting it could sometimes be heard over telephone circuits due to the strength of the signals. This led to a thriving industry of "Woodpecker filters" and noise blankers.

One idea radio amateurs had to combat this interference was to attempt to "jam" the signal by transmitting synchronized unmodulated continuous wave signals, at the same pulse rate as the offending signal. This idea was considered, but abandoned as impractical. Simple CW pulses didn't appear to have any effect. However, playing back recordings of the woodpecker transmissions sometimes caused the woodpecker transmissions to shift frequency leading to speculation that the receiving stations were able to differentiate between the "signature" waveform of the woodpecker transmissions and a simple pulsed carrier.

## Identification Of The Woodpecker

Triangulation quickly revealed the signals to come from Ukraine. Confusion due to small differences in the reports being made from various military sources led to the site being

alternatively located near Kiev, Minsk, Chernobyl, Gomel or Chernihiv. All of these reports were describing the same deployment, with the transmitter only a few kilometers southwest of Chernobyl (south of Minsk, northwest of Kiev) and the receiver about 50 km northwest of Chernobyl (just west of Chernihiv, south of Gomel). Unknown to most observers, NATO was well aware of the new radar installation, which they referred to as Steel Yard.

Even from the earliest reports, it was suspected they were tests of an over-the-horizon radar and this remained the most popular theory during the cold war. Several other theories were floated as well, including everything from jamming western broadcasts to submarine communications. The broadcast jamming theory was debunked early on when a monitoring survey showed that Radio Moscow and other pro-Soviet stations were just as badly affected by woodpecker interference as Western stations. More speculative explanations were also offered, claiming it was a system for weather control or even an attempt at mass subconscious mind control.

As more information about the signal became available, its purpose as a radar signal became increasingly obvious. In particular, its signal contained a clearly recognizable structure in each pulse, which was eventually identified as a 31-bit pseudo-random binary sequence, with a bit-width of 100  $\mu$ s resulting in a 3.1 ms pulse. This sequence is usable for a 100  $\mu$ s chirped pulse amplification system, giving a resolution of 15 km (10 mi) (the distance light travels in 50  $\mu$ s). When a second Woodpecker appeared, this one located in eastern Russia but also pointed toward the US and covering blank spots in the first system's pattern, this conclusion became inescapable.

In 1988, the Federal Communications Commission conducted a study on the Woodpecker signal. Data analysis showed an inter-pulse period of about 90 ms, a frequency range of 7 to 19 MHz, a bandwidth of 0.02 to 0.8 MHz, and typical transmission time of 7 minutes.

### **Disappearance Of The Woodpecker**

Starting in the late 1980s, even as the FCC was publishing studies of the signal, the signals became less frequent, and in 1989 disappeared altogether. Today Google Map photography of the area shows that the antenna has been removed. The original Duga-3 site lies within the 30 kilometer Zone of Alienation around the Chernobyl power plant. It appears to have been permanently deactivated, since their continued maintenance did not figure in the negotiations between Russia and Ukraine over the active early warning radars at Mukachevo and Sevastopol. The antenna still stands, however, and has been reported to have been used by amateurs as a transmission tower (using their own antennas) and has been extensively photographed.

Thanks to John Alcorn VK2JWA for bringing this to out attention.

Text from [http://en.wikipedia.org/wiki/Russian\\_Woodpecker](http://en.wikipedia.org/wiki/Russian_Woodpecker)

**Images of the abandoned giant Duga-3 system antenna near prypiat. (powerpoint file)**

[The abandoned giant Duga-3 system antenna near prypiat.pps](#)

*Be sure to view the .pps file listed above via the Internet. W4DON*

**Remember to pay your  
2009 dues. \$24.00  
ICARS needs you!**