

THE PLATTSMOUTH AMATEUR RADIO CLUB

Communicator

October 2022

Our Tax Dollars at Work??

(ARnewsline 9/16-22) A United States agency has begun tackling a longstanding challenge that comes with the use of electrically small antennas. While these antennas are space-saving assets that are noticeably shorter than the wavelengths of the signals they handle, the antennas themselves have significant limitations. As they get smaller, they lose bandwidth and radiation efficiency. These antennas have been in use for many decades and can be found, for instance, on satellites.

Researchers with the US Intelligence Advanced Research Projects Activity agency have begun a four-year project to surpass these kinds of limitations. The initiative is called the Effective Quantitative Antenna Limits for Performance program.

Program manager Paul Kolb told the IEEE Spectrum magazine that within three years, the teams must show that they have an actual antenna with a 6-dB gain in performance over existing electrically small antennas. The ultimate goal is to establish a 10-decibel gain in antenna performance in the HF and UHF bands. Kolb told the spectrum that in the last year of the project, researchers will be required to produce an antenna with the sought-after 10-db gain.

The teams are being required to validate all results with independent labs. Kolb said such antennas aren't likely to become viable for the commercial market.

<https://www.iarpa.gov/research-programs/equal-p>

<https://www.iarpa.gov/newsroom/article/equal-p-not-all-antennas-are-created-equal>

US Emergency Broadcast Network Deemed Vulnerable to Hackers

(ARnewsline 8/26/22) The United States' national broadcast network which transmits child abduction alerts and severe weather warnings - is becoming increasingly vulnerable to fake alerts from hackers unless state and local governments fix security weaknesses in devices that connect to that system.

That was the warning delivered recently by the nation's Department of Homeland Security, which repeated its cautionary message about the US Emergency Alert System at a recent session of DEFCON, a major hacking conference held in Las Vegas, Nevada.

Homeland security officials said that ongoing vulnerabilities in the encoder/decoder devices enable hackers to transmit the bogus warnings over radio and TV stations. Cybersecurity

researcher Ken Pyle, who is credited with discovering the vulnerability, told reporters recently that without a necessary software update for these devices, hackers can pre-empt broadcast signals, exploit web servers and disrupt the legitimate system. He said the problem has existed for several years and has gone uncorrected.

Reporting on this issue, Cable News Network asked the Federal Communications Commission for a tally of how many devices are running the vulnerable software. The FCC had no immediate response.

<https://www.arnewsline.org/>

Key to Creating Smaller Capacitors May be Found

(ARnewsline 8/19/22) Researchers believe they have found a means of building smaller capacitors, allowing for some electronic devices to be greatly miniaturized. The IEEE Spectrum reports that scientists are saying these capacitors could even be as small as one-hundredth the size of many of the ones presently in use. They are creating them with materials they call superlattices and they are made from materials that mimic antiferroelectrics. Antiferroelectrics are important because they have positive and negative poles -- electric dipoles -- pointed in opposing directions, creating zero electric polarization. Exposed to an electric field having sufficient strength, antiferroelectrics can become highly polarized, which results in the large energy densities needed.

Because there are few antiferroelectric materials that occur naturally, scientists have created and used artificial ones and report in the Journal, Science, that their work with the superlattices shows promise for working on a much smaller scale: their ability for energy storing is 100 times greater than conventional capacitors. Physicists believe they will someday be used to create these ultra-tiny capacitors.

Physicist Hugo Aramberri of the Luxembourg Institute of Science and Technology said: "It would be interesting to measure other properties, like how much voltage they can withstand, their endurance in long-term use, and ultimately commercial viability."

<https://www.science.org/doi/10.1126/sciadv.abn4880>

<https://sites.google.com/site/hugoaramberri/list-of-publications>

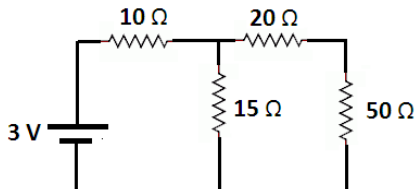
<https://sites.google.com/site/hugoaramberri/diy-experiments-and-curiosities/lenz-s-law>

2022 PAID MEMBERSHIP

AGØL Steve Loyd [E]
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 KBØFSI Pat McCollum [T]
 KBØLF Fred Eriksen [E]
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 WØJRN Jim Nelson [E]
 WFØPCE Paul Ethridge# [T]

*Charter Members #New Ham

Note: Thanks to all who have paid their dues and many who have given additional donations. All donations are greatly appreciated. Please let me know of any corrections.



Meetings are 8am the last Saturday of most months at Mom's Café in Plattsmouth.

Tuesday night get-togethers at Plattsmouth Burger King at 6 PM

**PLATTSMOUTH AMATEUR
RADIO CLUB**

KBØSMX

P.A.R.C. Officers

President

KBØOGO Roger Behrns
rb55930@windstream.net

Vice President

KCØHYD John Titsworth

Secretary

WØDBW Derek Winterstien

Treasurer

KIØPY Kevin Faris

Newsletter Editor

KBØOGO Roger Behrns
rb55930@windstream.net

513 Vine St.

Louisville, NE 68037

(402) 234-6775

Repeaters:

443.45⁺ is located in downtown Omaha
 443.225⁺ is located in Murray.
 147.48 Simplex is also in Murray.

Web Site

www.kb0smx.com

Maintained by Derek (WØDBW)

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**MINUTES of
the
MEETING**

The monthly meeting was held on August 27 at Mom's Café. The meeting was called to order by President Roger Behrns at 8:46 am.

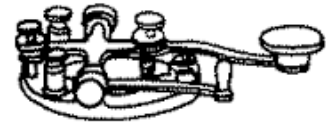
Those in attendance were Roger (KBØOGO), Ray (N5SEZ), John (KCØHYD), Shirley (KCØHYE), Jim (KGØRD) Scott (N8VCL), and Paul (WFØPCE).

The Minutes of the July meeting were approved on a motion by Jim and second by John.

There was no Treasurer's report available.

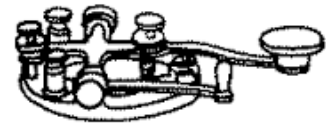
There was no other business that needed to be transacted.

The meeting adjourned at 8:47 am on a motion by John and second by Ray.



The 3900 Club is having HAMBOREE 2022 on Saturday, October 15th at the Boone County Fairgrounds in Boone, IA.

www.3900Club.com/hamboree2022.php



Meeting Calendar

8am, Sat September 24, 2022

8am, Sat October 29, 2022

8am, Sat Nov. 26, 2022

at Mom's Café

PLATTSMOUTH ARC MEMBERSHIP REGISTRATION FORM

Name		Call Sign		Class	
Address		City		State	Zip
E-Mail		Phone #			
Spouse Name		Call Sign		Class	
Membership Type ☐ Primary (\$15) ☐ Spouse (\$5) ☐ Student (\$5) ☐ New Ham	• Additional donations are gratefully accepted. • New Hams are free during the year they receive their first license. • Please give this form and dues to the club treasurer or any club officer.		Donation for: ☐ Repeater fund ☐ Insurance ☐ Other _____ ☐ General	Amount: ☐ I prefer my donation to be anonymous.	
Any additional e-mail or cell phone #s?					