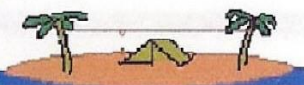


WATTS NEWS



The Best of Amateur Radio

OARC e-Magazine

www.OgdenArc.org

OCTOBER 2026

Next Club Meeting/Activity/Events

Look Inside



Dave Mamanakis KD7GR
President



Paul Petty
Vice President



Brian Nielson
Secretary



Mike Fullmer KZ7O
Treasurer



Don Burris KI7UAO
Program Director



John Anderson NJ6A
Newsletter Editor



Val Campbell K7HCP
Webmaster

OPEN
Activity Director

OARC Website Masthead

www.OgdenArc.org

OARC OFFICERS

President: Dave Mamanakis KD76GR

Vice President: Paul Petty KM7GKZ

Secretary: Brian Nielson KJ7PWI

Treasurer: Mike Fullmer KZ7O

Program Director: Don Burris KI7UAO

Activity Director: OPEN

OARC ADVISORS (past presidents)

Gary Liptrot N7ZII

Mike Fullmer KZ7O

Kent Gardner WA7AHY

Kim Owen KO7U

Gil Leonard NG7IL

Jason Miles K7IET

Dave Mamanakis KD7GR

Craig Howe W0VRM

"WATTS NEWS" e-Magazine

NL Editor: John Anderson NJ6A

Executive Operations Manager

Val Campbell K7HCP

"OARC" web site—AI influenced

Webmaster/Postmaster/Membership:
Dave Mamanakis KD7GR

OARC VOLUNTEER APPOINTMENTS

10m Net Control - rotation

Assistant Photographer - Rick Hansen N7EGA

Badge Manager – Barbara Siddle KB7FWW

Club Call Sign (W7SU) Trustee – John Metcalf KE7VVT

Club Caterer - Ceva Cottrell W7CVA

Club Chef - Dave Mamanakis KD7GR

Club Elmer – Stan Sjol W0KP

Club Facility Manager—Dave Mamanakis KD7GR

Equipment Loan Program - Val Campbell K7HCP

Equipment Manager - Dave Mamanakis KD7GR

FD Log Manager - Jason Miles KE7IET

Ham & Eggs Breakfast – Dave DeHeer KJ7DAD

Ham & Eggs Net Control - Kenny Pronschinske KI7UFN

Ham & Eggs Net Control – Stan Sjol W0KP

Ham & Eggs Net Control – Bryce Draper KI7YZU

Ham & Eggs Net Control – Mark Berger KK7YAC

Photographer – Alan Buttars N7AFR

POTA - Gary Hudman KB7FMS

QSL Manager – Gale Sjol WD0CWK

Repeater Engineer – Mike Fullmer KZ7O

Social Media Manager - Dave Mamanakis KD7GR

YouTube Videos - Jason Miles KE7IET

VE Liaison Operations – Rick Morrison W7RIK

VE Assistant - Robert Smith KG7EIZ

VE Education - Craig Howe W0VRM

VE IT – Jason Miles KE7IET

YL Net Control - Colleen Pike KJ7EAY

OARC Message from our Leaders

Dave's Rag Chew A Message from our President



By Dave Mamanakis KD7GR

Greetings My Friends!

It's October. My FAVORITE month!

Halloween, Moab, actual Fall... cooler temperatures!

Here are some things you might want to know:

1) The Club Website, OgdenARC.org has been updated.

There is a Members' Login area, where you can claim your Account.

Every member in the club has a latent account just waiting for you to come claim it.

1.1) But, let me warn you, there are still bugs. If you find some bugs, go ahead and email webmaster@ogdenarc.org and we'll get those fixed.

1.2) All the old information is there. There is new information. The menu has most topics you are accustomed to.

1.3) One of my favorite pages is the Radio Active page. I tried to include information useful to operating radio.

1.4) If there is a feature or some other information you'd like to see, again, email the webmaster and we'll get those ideas on a list for possible development.

1.5) I have a list already... They include Member Specific items, to celebrate our Members and their Creativity...

1.5.1) One page that will be developed soon:

"Member's Ham Shacks".

You'll be able to take pictures of your ham shack, post them with any details you like, and tell us all about what you've done and **why**.

1.5.2) Another page will be "Eyeball QSO".

Have you seen a fellow ham out on the road? At a park? In a parking lot?

This will be your place to say, "I saw you" ...

I'm even thinking of having a special "Eyeball QSO" QSL Card printed up, so we can let our Fellow Hams know, they are being seen!

1.6) Anyway... go explore the new Website. Tell me what you think!

And prepare for more features to come as time goes on!

2) This month, the club meeting is our annual Auction.

2.1) If you need something, be sure to stop in and bid on the items... you may not find a better deal ANYWHERE...

2.2) If you have hardware you'd like to donate to the club... bring it. This is how the Club funds the bulk of the Steak Fry and our other activities.

2.3) otherwise come out, support the club, and have a good time talking with friends, and cheer on the bidding!

3) Winter Field Day

We will definitely have to make different plan for Winter Field Day...

If you have some ideas, please contact w7su@ogdenarc.org ...

3.1) I know... WFD isn't until January... but if I wait until then, we won't have anything ready for it.

I think that is about all I have for you this month...

Remember, the cold weather is coming. Make sure to keep a blanket or jacket in your car, some extra snacks, and some water, and don't forget an HT or Mobile Radio. These things can come in handy if you end up stranded.

--Dave (KD7GR)

OARC Message from our Leaders

John's Corner - A Message from your WATTS NEWS Editor



By John Anderson NJ6A

To our readers:

I am sure that you don't want to miss out on the opportunity of being a buyer, seller, donor or observer at our annual OARC auction at our next club meeting October 17th. Bring yourself and maybe your cash, and radio or electronic treasures for sale (or donation) to the meeting Saturday! I look forward to meeting you there.

Congress may yet require automobile manufacturers to include AM radio in all new automobiles, as has been proposed for years. Read all about it in the article **"AM Radio to be Mandated by Law!"** referenced on the next page.

How does your electronic equipment figure out how much battery power remains? This interesting topic is covered in some detail in a short article I have titled **"Battery Power Measurement"** referenced on the next page.

When does a 50,000-Watt AM transmitter put 50,000 watts on the air? And how about that FM station, when does it put out its maximum power? The author discusses these and other power issues in the article **"50,000 Watts !"** again referenced on the next page.

How do modern digital radio tuners compare to traditional variable capacitor designs?; this is the question of discussion covered by the excellent article **"Interesting Use of Technology!"** again, see the next page.

John NJ6A
johnandersoncpa@gmail.com
(928) 531-6773

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OARC Nets & Meets

OARC
Next Club Event

The Annual OARC Auction

Saturday, October 17, 2026 at 9:00 AM MDT

Utah Military Academy,

5120 S 1050 W, Riverdale, UT 84405)

OARC Prior Club Event

SEPTEMBER 2026

Date: 2nd Saturday, 12 September 2026 <<< Note date correction

Time: 8:00 am - 12:00 pm

Location: Bountiful City Park (100 West 400 North Bountiful) >>>

Activity: DCARC / OARC / UARC - Joint (tri-county) Swap Meet

AM Radio to be Mandated by Law!

(Editor's Headline- we shall see.)



The 3-year effort to keep AM radio on vehicle dashboards cleared a huge hurdle September 15th as the House passed the AM Radio for Every Vehicle Act (H.R. 979) by voice vote. Months of lobbying by Public Safety leaders and broadcasters attracted more than 300 co-sponsors enroute to passage. The legislation directs the US Department of Transportation to require AM radio receivers in all new passenger vehicles sold in the US.

According to Rep. Gus Bilirakis (R-FL), the lead sponsor, it's all about what happens when other communications go belly-up during a disaster – a familiar situation for those tasked to manage public safety. “Just imagine if, in that critical moment, you find that your vehicle is not receiving those AM alert transmissions,” Bilirakis pronounced. ...”it takes away the last resort of communication and leaves people vulnerable during moments where seconds matter.”

Michigan's Rep Debbie Dingell labeled the effort a “strong compromise” that followed “a lot of tough discussions” among lawmakers, broadcasters and automakers – not to mention the

American public. “This bill mandates AM radio in every new car, but it also includes a sunset provision recognizing that Congress should reassess the mandates as technology evolves,” Dingell stated. She took the opportunity to point out that 99% of the 286 million vehicles currently on the road in the US have AM receivers, as do 90% of all new vehicles – including most EV’s. “This is about putting consumers in the driver's seat and maintaining broad access to emergency communications,” Dingell observed.

Glenn Grothman, representative from Wisconsin stated bluntly, “Can you imagine spending \$60,000 on a new car and not getting AM radio? Why don't you just take the transmission too?” National Association of Broadcasters President / CEO Curtis LeGeyt who has led the effort for broadcasters said the action was “a significant step forward” for those who count on the medium not only for emergency communications but for local news, weather and information.

The Senate’s version of the bill passed out of the Commerce Committee in 2025 but has not yet made it to the floor. When it does, it will find a filibuster-proof majority of 61 Senators awaiting its arrival. iHeartMedia’s CEO Bob Pittman, labeled the passage an important achievement. “We look forward to working with the Senate leadership and lead sponsors Sens. Markey and Cruz, to finish the job, send this legislation to the president’s desk and ensure AM radio remains available to listeners and communities across America.”

The AM Radio band, though referred to as the “Antique Band,” would be irreplaceable in a national emergency because of its unique geographic reach and its resilience. Fewer than 100 full power AM stations reach more than 90% of US citizens. Many of the facilities have hardened studios that anticipate disruption of standard communications and power. Local communities and agencies leverage the same medium for similar reasons, installing low power AM Emergency Stations so safety leaders can address residents directly when power and mobile phones are off-line.

---- The Source Newsletter -- September 2026

GUEST CONTRIBUTION

By Rick Hansen N7EGA



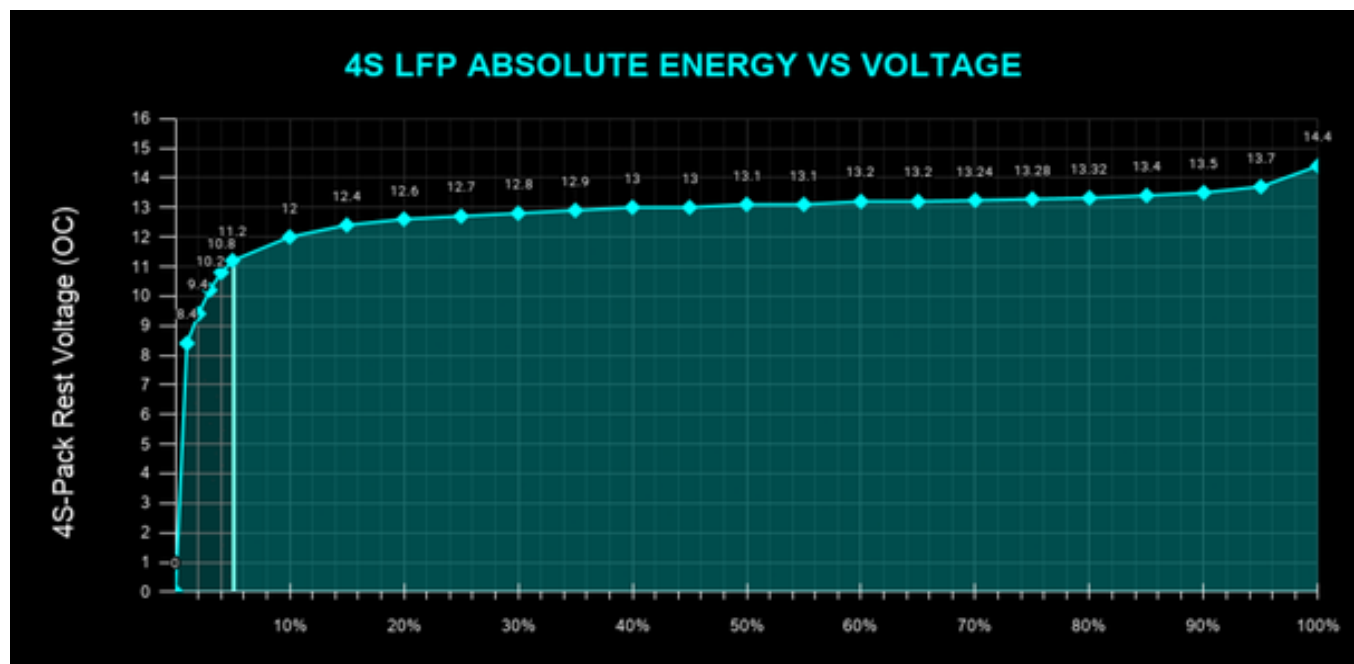
Battery Power Measurement

How do they measure the amount of energy left in a battery if all they can measure is current and voltage?

Your phone doesn't know how much battery is left. Measuring its energy is like guessing the water level in a closed bucket using only pressure (voltage) and flow rate (current).

To solve this, battery management systems combine two different techniques: voltage translation and coulomb counting.

Voltage translation works like a pressure gauge. A fully charged battery pushes electrons out with more force (higher voltage) than a nearly empty one. In older lead-acid car batteries, this drop in voltage forms a steady, predictable slope, making it a reliable fuel gauge. But modern lithium-ion batteries—especially lithium iron phosphate (LFP) cells—have incredibly flat discharge curves.



A discharge curve for a lithium iron phosphate (LFP) battery. Between 90% and 20% capacity, the voltage remains almost flat, making it impossible to determine the state of charge using voltage alone. Photo by [Thomas Appel](#) is licensed under [CC BY-SA 4.0](#).

As the graph illustrates, an LFP battery's voltage barely drops as it empties from 90% down to 20%. If a system relied on voltage alone, a minor fluctuation caused by a heavy processing load or a drop in air temperature could trick the computer into thinking the battery just gained or lost half its capacity in an instant.

To fix this blind spot, modern batteries rely heavily on Coulomb counting. Since current is a measure of electron flow, a specialized chip tracks every milliamp that enters or leaves the battery over time ($\text{Amps} \times \text{Hours}$). Operating like an accountant tallying deposits and withdrawals, the chip subtracts the exact amount of energy used from the known total capacity.

However, Coulomb counting suffers from drift. If the current sensor is off by just 1%, that error compounds over dozens of charge and discharge cycles. If left unchecked, the battery indicator might read 15% when the cell is actually empty, causing a device to shut off unexpectedly.

To calculate the final number you see on your screen, the battery management system runs a sensor-fusion algorithm, often a Kalman filter. It relies on Coulomb counting for precise second-to-second tracking while the device is in use. Then, when the battery is completely at rest—such as sitting untouched on a nightstand overnight—the system takes a pristine open-circuit voltage reading to quietly recalibrate its baseline and erase the accumulated drift.

GUEST CONTRIBUTION

By Rick Hansen N7EGA



Interesting Use of Technology!

How do modern digital radio tuners compare to traditional variable capacitor designs?

For decades, turning a radio dial meant physically rotating metal plates to catch a signal. Today, finding a station is a math problem solved by a microchip.

The traditional radio tuner relied on a variable capacitor. Inside this component, two sets of semi-circular metal plates—a stationary set (stator) and a rotating set (rotor)—sat closely together without touching. As you twisted the tuning knob, the rotor plates slid in and out of the stator plates. This changed the overlapping surface area, which altered the circuit's capacitance. Combined with a wire coil (an inductor), this created a resonant circuit that acted like a filter, letting only one specific radio frequency pass through to the amplifier.

This mechanical design had a unique advantage: infinite resolution. Because the plates moved fluidly, you could tune to the exact microscopic sliver of bandwidth where a weak signal came in clearest. But physical moving parts are vulnerable. Dust between the plates could cause static. Changes in room temperature would expand or contract the metal, causing the capacitance to drift and forcing the listener to readjust the dial to keep the station locked in.

Modern digital tuners, typically based on Phase-Locked Loop (PLL) synthesizers or Software-Defined Radio (SDR) architecture, eliminate the moving parts entirely. A PLL tuner uses a highly stable quartz crystal oscillator as a digital reference. By dividing and comparing frequencies against this crystal, the radio can lock onto an exact target frequency—like 93.3 MHz—with absolute precision. There is no drift from temperature changes, and stations can be perfectly saved as presets.

In more recent SDR designs, the radio antenna dumps a wide swath of the radio spectrum into an analog-to-digital converter. Software algorithms then mathematically filter out unwanted noise and isolate the desired station. The entire tuning process happens in code rather than copper.

While digital tuners provide rock-solid stability and allow radios to shrink to the size of a postage stamp, they have a minor trade-off. PLL tuners usually step through frequencies in rigid increments. If a distant station happens to drift or broadcast slightly off-center, a digital tuner cannot always slide halfway between its rigid steps to catch it, whereas a steady hand on an analog variable capacitor could easily hunt it down.

GUEST CONTRIBUTION

By Rick Hansen N7EGA



50,000 Watts !

If a radio station says they broadcast 50,000 watts, does that mean they use 50,000 watts of electrical power from the grid?

A 50,000-watt radio station almost never draws exactly 50,000 watts from the grid. Depending on whether it is AM or FM, it might sip just 15,000 watts—or gorge on over 120,000.

For AM stations, 50,000 watts describes the Transmitter Power Output (TPO)—the raw radio frequency power pushed into the antenna. Because no electronic amplifier is perfectly efficient, generating that much radio frequency requires a much larger electrical input. Modern solid-state AM transmitters operate at around 75 percent efficiency, while older vacuum-tube models often ran near 50 percent. To push out 50,000 watts of signal, the transmitter alone draws between 65,000 and 100,000 watts from the grid.

That electrical inefficiency manifests as waste heat. A transmitter pulling 75,000 watts to make 50,000 watts of radio frequency is continuously dumping 25,000 watts of heat into the room. Preventing equipment failure requires industrial HVAC systems, air handlers, or liquid cooling pumps running constantly. When you add the power needed for tower lighting, aircraft warning beacons, and dehydrators that keep transmission lines free of moisture, the total site load for a 50-kilowatt AM station routinely exceeds 120,000 watts.

FM stations flip the math in the other direction. When an FM station claims 50,000 watts, it is referring to Effective Radiated Power (ERP), a measurement that includes antenna gain. FM signals travel line-of-sight, so

engineers stack multiple antenna bays to compress the signal into a flat disc aimed directly at the horizon, rather than wasting energy shooting it into space. If an antenna array has a gain multiplier of five, the station only needs a 10,000-watt transmitter to achieve a 50,000-watt ERP. Factoring in efficiency, that 10,000-watt transmitter might draw just 15,000 to 18,000 watts from the grid—a fraction of the power its on-air branding suggests.

OARC Remember When **5 Years Ago - October 2021**



OARC e-Magazine

www.OgdenArc.org

OCTOBER 2021

Next Club Meeting/Activity/Events

In Person—Club Meeting



Dave Mamanakis KD7GR
President



Justin Hall KB7LAK
Vice President



Colleen Pike K7EAT
Secretary



J. Siddle KB7CJN
Treasurer



Mike Wilde KJ7HEX
Program Director



Cody Hearrell KJ7OHU
Activity Director



Val Campbell K7HCP
Webmaster/NL Editor

HOBBY NEWS

**The ARRL Board of Directors
Honors the
Ogden Amateur Radio Club, W7SU**

**On the occasion of their
100th Anniversary**

Presented by:

Jeff Ryan, KØRM
Rocky Mountain Division Director

Dan Grady, N2SRK
Rocky Mountain Division Vice Director

Rick Roderick, K5UR
President, ARRL



ARRL the national association for
amateur radio®

CLUB NEWS

ANTENNA INSTALLATION AT KW7TES

9-3-2021

Setting up the DX Commander antennae at Todd Shobe KW7TES house.

Pic are of the installation of a DX Commander vertical antenna in Todd's back yard.

25 radials in the ground, 500 feet of #14 stranded, insulated wire.

Those assisting and supporting Todd's installation are Gene WB7RLX, Cody KJ7OHU, Rick KF7VAW and Alan N7SHA.



OARC Remember When **10 Years Ago - October 2016**



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OCTOBER 2016

Next Club Meeting/Activity

October Meeting—Riverdale Fire Station



Jason Miles K2TET
President



Mike Taylor K2TQJH
Vice President



Cava Cottrell K2TIEV
Secretary



Jerry Cottrell K6TIGW
Treasurer



Mike Neal K7MLN
Program Director



Dave Mamenski KD7GR
Activity Director



Val Campbell K7HCP
Webmaster/NL Editor

CLUB NEWS



Warning, a tornado is nearby.

James Clarke K7JSC of Washington Terrace seemed to have lost his roof top vertical antenna during the tornado that touched down only 1 block north and one block east of his QTH.

PREVIOUS CLUB MEETING/ACTIVITY

Joint DCarc & Oarc Swap Meet

3rd Saturday 17 September 2016

Davis County Utah

NEXT CLUB MEETING/ACTIVITY

October Meeting

Riverdale Fire Station

3rd Saturday 15 October 2016

Ham Logging Software

by Mike Neal K7MLN

OARC Nets & Meets

HAM and EGGS Net

Tuesday Evenings at 6:30 PM Mountain Time

Mt Ogden 70 cm repeater 448.600 MHz (- offset, 123.0 PL Tone)

New, Intermediate & Old Timers. Elmering, Education, General Ham Discussion and Rag Chew.

New hams encouraged to check in. Get connected, learn new things and ask questions.

Net Control: Stan Sjol (W0KP), stansjol@xmission.com

Kenny Pronschinske (K17UFN), kennypron@hotmail.com

Bryce Draper (K17YZU), brycejill@outlook.com

Mark Berger (KK7YAC), mark@bandfec.com



Stan Sjol

W0KP



Kenny Pronschinske

K17UFN



Bryce Draper

K17YZU



Mark Berger

KK7YAC

10 Meter Net

Thursday Evenings at (18:30) 6:30 PM MT

10 Meters HF - **28.375 MHz SSB (USB)**

Purpose is to promote activity on the 10 meter band (especially during low sunspot activity).

To give technician class operators an opportunity to operate phone, and to provide a venue for conversation and experimentation with antenna and ground wave propagation.

NOTICE: **“Work toward getting your “10 on 10 Award”**

“Work toward getting your “10 meter WAS Award”

Questions and Net Control: by rotation

Net control is passed around to regular check ins.

“YL” Ladies Only Net

Monday Evening (19:00) 7:00 PM MT

70 cm Repeater - 448.600 MHz (neg offset, PL=123)

Purpose is to promote the “YL” lady operators an opportunity to mingle together (without men operators bothering them—Hi Hi).



Net Control: Colleen Pike, KJ7EAY

Ham & Eggs Breakfast

Each Wednesday, at a very early 8:00 am, some of the club members meet for an informal breakfast get-to-gather. Everyone is welcome.

Now at:

The Rusted Spoon-Ogden (previously The Stagecoach)

1310 Wall Ave, Ogden, UT

NOTE: See you there ... if you can get up that early.



73, Dave KJ7DAD

73 de W7SU

www.OgdenARC.org

w7su@arrl.net

PO Box 3353 Ogden UT 84409