



WATTS NEWS



The Best of Amateur Radio

OARC e-Magazine

www.OgdenArc.org

MAY 2016

Next Club Meeting/Activity

Meeting: Golden Spike Recap + Field Day & T-Hunt Prep



Gil Leonard NG7IL
President



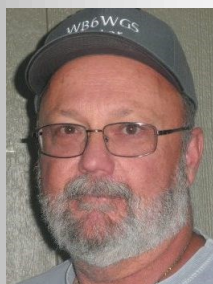
Jason Miles KE7IET
Vice President



Mike Taylor KE7NQH
Secretary



Jerry Cottrell KG7IGW
Treasurer



Pete Heisig WB6WGS
Program Director



Dave Mamanakis KD7GR
Activity Director



Val Campbell K7HCP
Webmaster/NL Editor

PREVIOUS CLUB MEETING

Meeting: HF Stations—Getting on the Air

Date: 3rd Saturday 16 April 2016

Time: 9:00 AM

Location: Riverdale Fire Station

NEXT CLUB MEETING/ACTIVITY

Meeting: Golden Spike Recap

+ Field Day & T-Hunt Prep

Date: 3rd Saturday 21 May 2016

Time: 9:00 AM

Location: Riverdale Fire Station

PREVIOUS MEETINGS PICS



Photo of ... John Shupe K7DJO
Taking photos at the OARC club meeting.

PREVIOUS MEETINGS PICS

Photos by ... John Shupe K7DJO









QRM from Gil



Gil Leonard NG7IL

Looking:

OARC is looking for a new photographer and QSL manager.

Our club is looking for a new club photographer and QSL manager. This opportunity is open to any current club member. As the club photographer, duties would include taking photos at club meetings and events. These photos would then be used in the club newsletter or archived with our club historian. They may also be used in newspaper articles or other periodicals. The photographic record of club activities becomes a very important part of club history and may have unimagined value to future club members and historians.

As the club QSL manager, duties are very simple but vital. All requests for a QSL card from the club are honored. As a club we usually only offer QSL cards for contact with our special event station, W7G, Golden Spike. There may be a few other requests from field day or any other time we use W7SU. Currently we have a good supply of W7G cards to cover the 2016 event. Future cards will need to be designed, printed, and made available. All requests for cards are received via the club post office box address.

I wish to express my thanks and appreciation to John Shupe, K7DJO, who has fulfilled these duties for our club. John has carried out these duties silently and faithfully for many years. He served as our club photographer, QSL manager, and Treasurer as listed below:

Photographer: 2010 – 2016,

QSL Manager: 2010 - 2016,

Treasurer: 2011 – 2015.

Continued ...

Sadly, for personal reasons, John can no longer fulfill these duties and feels it is time another club member should have the opportunity to serve in these capacities.

John, thank you for your dedication to the club and its members. Perhaps now we will see your photo in the newsletter.

We all enjoy a great club because of the contribution of its members and those who fill board positions. It is this spirit and desire to contribute by volunteering that has allowed this club to exist for the last 95 years! What contribution do you have for the club?

Elections for board members is coming up and is held at the steak fry in August. I would encourage everyone to either consider throwing their hat into the ring or nominate someone for a position. Please check with them first. Everyone has something special to share, what can you share with your club?

The Golden Spike special event is upon us and operation will commence Saturday May 7th and again on Tuesday May 10th. I hope you have signed up for a slot as control operator or are planning on helping the club make many contacts. Everyone, licensed or not, is encouraged to try their hand at making contacts. It can be quite challenging and exciting when you have someone on the air and the whistle blows. We get to be a part of reliving the history of our state and our nation.

We will also be making contacts for National Parks on the Air. The national park system is celebrating 100 years of service. Together with the ARRL and the National Park Service, W7SU, will be activating Golden Spike National Monument. This event will only happen this year. Don't miss your chance to be a part. Do a google search for "NPOTA" for a complete information, descriptions, and rules.

To sign up and participate, please contact me – Gil – NG7IL:

ng7il@arrl.net

I am looking forward to seeing you there,

73 de Gil



OARC COMING EVENTS



OARC Golden Spike Special Event

07th + 10th May 2016

Also ... National Parks in the Air

7QP

The 7th Call Area QSO Party

07th & 08th May 2016

OARC VE Test Session

First Wednesday 01 June 2016

OARC Field Day Event

Last Weekend 25 & 26 June 2016

The Great Salt Lake Hamfest .org

08 & 09 July 2016

OARC T-Hunt Event

3rd Saturday 16 July 2016

OARC Steak Fry / Elections

3rd Saturday 20 August 2016

*** Free Steaks for all Paid-up Members ***

Joint Swap Meet

3rd Saturday 17 September 2016

CLUB NEWS

ARRL QST—May 2016

May 7-May 10, 1500Z-2300Z, W7G,
Ogden, UT. Ogden Amateur Radio Club. 1869
**Transcontinental Rail Road Golden Spike
Commemorative and NPOTA Special Event
Station.** 21.285 14.255 14.040 7.235. QSL.
Ogden ARC, W7G, PO Box 3353, Ogden, UT
84409. *From Golden Spike National Historic Site
(Code NS31).* ogdenarc.org/w7g.html

HOBBY NEWS

Davis County Licensing Class

... on going ...

Beginning Thursday, April 7, 2016 we will be holding a Technician Class for anyone interested in getting their Amateur Radio License. The class will last for 8 weeks. VE test session follows.

Dates: Every Thursday starting April 7 through May 26, 2016

Time: 1800 - 2100

Place: Layton City Building - 437 N Wasatch Drive, Layton, UT 84041

We will be using the Technician License Course Book by Stu Turner W0STU. We will have books available for \$20.00. If you have any questions please contact Spencer at ae7io@arrl.net

HOBBY NEWS

By Brad AC7BR

A new map is available that shows many of the mesh nodes across the state of Utah. The map can be viewed at <http://tinyurl.com/jfvqx6s>. Mesh operators can add a new node or manage existing nodes via the map as well. For details on how to do this expand the map description in the upper left corner of the map when it first loads.

You may be asking why this map was created. After all, there is an existing map on the Broadband Hamnet web page. The reason for creating this map is:

- While basic maps are great, just knowing the location of a node does not give mesh operators the information they need to connect to a node. They need additional information like the SSID, where a directional antenna is pointing, frequency, etc. This map provides that information and more.
- I want to see mesh succeed in Utah. I don't believe that can happen if we as mesh operators don't know where the mesh nodes are and how to connect to them.

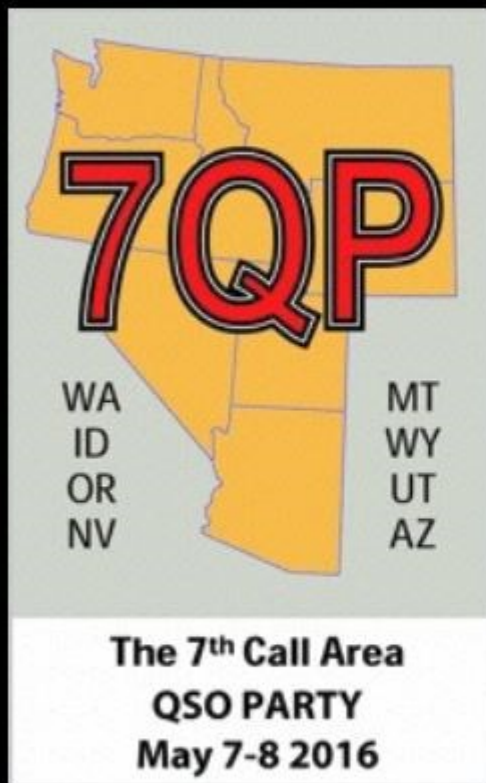
I like the idea of having a map that is specific to Utah rather than covering the entire United States and in some cases the world.

So there you have it. My hope is that this map will prove useful to mesh operators around the great state of Utah. We all know a map won't do anyone any good if no one knows it exists. With that in mind, please tell any mesh operators you know about this map.

Brad Rupp

AC7BR

7th Call Area QSO Party



Saturday May 7-8, 2016

HOBBY NEWS



*Don't Miss the
Opportunity to
Hear...*

Rick Roderick – K5UR **President of ARRL**



**Conference Keynote Speaker
Friday Night Kickoff**

HamCon Colorado 2016
May 13-15, 2016

President Roderick, 63, is the ARRL's 16th president. An ARRL Life Member, he has been a radio amateur for 48 years and lives in Little Rock, Arkansas. He sat on the ARRL Board of Directors for 24 years, and he served as a member and chairman of the DX Advisory Committee. He is an enthusiastic DXer with many operating awards to his credit.

President Roderick holds bachelor's, master's, and JD degrees from the University of Arkansas and is a managing partner in a law firm.

Register Now at: www.hamconcolorado.org

Editors comments:

HAM CON 2016 Rates

Room Reservations: \$111 / night

Event Early Bird Registration: \$20

Food:

Friday Evening BBQ: \$36

Saturday Subway Lunch: \$33

Saturday Evening Banquet: \$46/\$48

Sunday Morning Breakfast: \$28

Unclaimed Club Badges

Our club treasurer is worried about several of you that have not picked up your new pre-paid OARC club badge. Your badge doesn't look quite like this one because it has your call sign and your name on it but we are quite sure you will enjoy yours just the same. You can claim your badge at any future club function, meeting, activity or event or contact our club badge czar Jerry KG7IGW.



<p>KD7RPT, Sparky KF7HNU, Ralph KG7WXB, Jared</p>	<p>KT7JIM, Jim</p>
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Club Swapmeet



“SALE” or “WANTED” ITEMS NEEDED

OARC's **O-bay (On-Line Swap-Meet) items needed** for the web site...

Visit <http://www.ogdenarc.org/> then click on **Obay-Swap**.

FEATURED ITEMS

Two new deals just went on the WIMU for sale page,

1. A BRAND NEW 7 element 20-15-10 meter triband Hy-Gain TH7DX antenna, never in the air (Pocatello)

2, A like new Icom 756 Pro 3 HF transceiver (Boise area.)

PLUS lots of other great stuff like a Yaesu FT1000MP,
A Yaesu FT450D, some Collins equipment, a 1kw amplifier
and lots of other stuff, take a look !

<http://www.pocatelloarc.org/swap/>

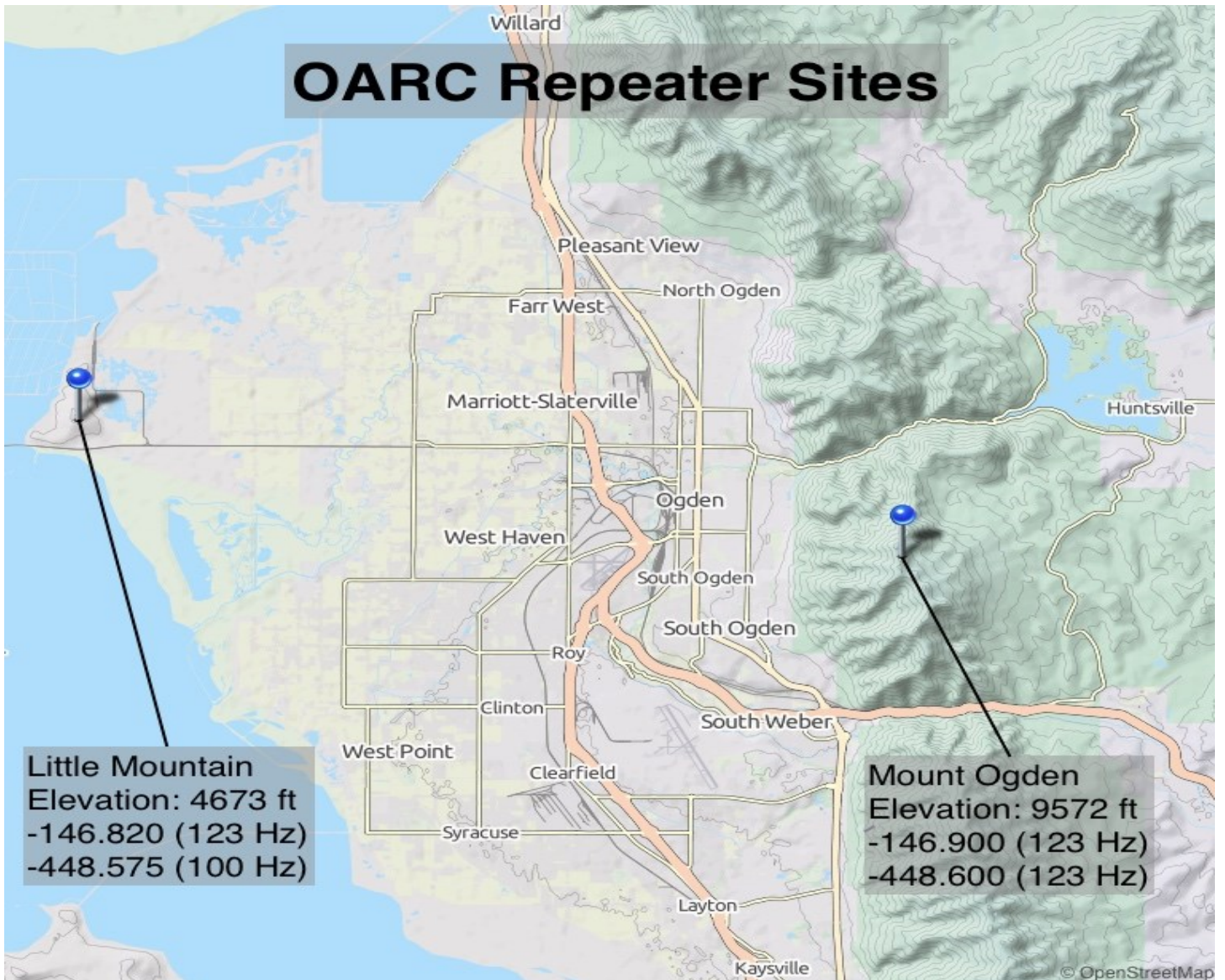
jcwilson@ida.net

NOTICE

FREE on-line, local swap - help spread the word

<http://www.pocatelloarc.org/swap/>

CLUB REPEATER NEWS



Scott Willis KD7EKO



Mike Fullmer KZ7O

Scott Willis KD7EKO and Mike Fullmer KZ7O are the OARC repeater engineers that keep our club repeaters at Mt Ogden and Little Mountain operational.

**More to come ...
following the next 3 pages of commercials.**

Please stay tuned.

OARC YAHOO GROUP




Did you know that OARC has a Yahoo Group?

We occasionally communicate with our OARC members via the Yahoo Group. Receive notices regarding upcoming club meetings and future e-newsletter release notices and much more like CHAT items of interest.

You can also send/receive notices to/from other group members yourself.

It's easy to sign up...



Just click on the  icon at the top of the club website home page and then follow the Yahoo Group instructions to create yourself a user ID and password.

Club Badges

OARC Club badges are available for all licensed club members.

The cost is \$10.00 each. The badge comes with a “MAGNETIC” clip. Badge includes your Call Sign in large letters and your First Name in a somewhat smaller font in white lettering on a pitch black background with the club logo. See example below.



Place your order along with \$10.00 in advance for each badge ordered and specify Call Sign and First Name. Contact webmaster or any club officer via email or contact the club treasurer at the next club meeting.

For additional information see club website left side menu and click “Join” to fill out a club application form to order a club badge.

OARC MEMBERSHIP DRIVE

SUPPORT YOUR RADIO CLUB

Don't forget to signup/renew your OARC membership now (\$15) which runs August to August. Consider signing up your spouse as well.

Ham + Spouse = \$15 + \$10 = \$25

THANK YOU FOR YOUR SUPPORT

Join OARC

Renew your membership now!

Membership in the Ogden Amateur Radio Club is open to anyone interested in Amateur Radio. You do not need an amateur license to join us. You do not need to join the club to participate with us. Dues are used to operate the club, field day activities, and repeater equipment maintenance.

Joining is easy. Come to a club meeting or fill out an application form from the club website (click "Join" from the left side main menu). Instructions for mailing on the form.

DUES: Dues are \$15.00 per person and runs August - August. (Ham + spouse = \$25.) More than one ham in the family? Consider the OARC Family plan for \$25.

NOTE: New Hams >>> Membership in OARC is complimentary for remainder of 1st year licensed.



FCC Invites Comments on Petition to Eliminate 15 dB Gain Limit on Amateur Amplifiers

04/27/2016

The FCC has put on public notice and invited comments on a *Petition for Rule Making* ([RM-11767](#)), filed on behalf of an amateur amplifier distributor, which seeks to revise the Amateur Service rules regarding maximum permissible amplifier gain. [Expert Linears America LLC](#) of Magnolia, Texas, which distributes linears manufactured by SPE in Italy, wants the FCC to eliminate the 15 dB gain limitation on amateur amplifiers, spelled out in §97.317(a)(2). Expert asserts that there should be no gain limitation at all on amplifiers sold or used in the Amateur Service.

“There is no technical or regulatory reason [that] an amplifier capable of being driven to full legal output by even a fraction of a watt should not be available to Amateur Radio operators in the United States,” Expert said in its *Petition*.

Expert maintains that the 15 dB gain limitation is an unneeded holdover from the days when amplifiers were less efficient and the FCC was attempting to rein in the use of Amateur Service amplifiers by Citizens Band operators. While the FCC proposed in its 2004 *Notice of Proposed Rulemaking and Order* in WT Docket 04-140 to delete the requirement that amplifiers be designed to use a *minimum* of 50 W of drive power and subsequently did so, it did not further discuss the 15 dB amplification limit in the subsequent [Report and Order](#) in the docket.

“Although no party advocated retention of the 15 dB limit, it remains in place today,” Expert pointed out in its filing. “In the intervening years, advancements in Amateur Radio transmitter technology have led to the availability of highly compact, sophisticated low-power transmitters that require more than 15 dB of amplification to achieve maximum legal power output. Therefore, Expert seeks to remove the 15 dB limit from §97.317 so that Amateur Radio manufacturers and distributors will not be forced to needlessly cripple their amplifiers for sale in the United States.”

Expert pointed to its Model 1.3K FA amplifier as an example of a linear “inherently capable of considerably more than 15 dB of amplification,” which would make it a suitable match for low-power transceivers now on the market having output power on the order of 10 W.



ARRL Tells FCC to Restore Balance of Modes on 80 and 75 Meters

03/28/2016

In [comments](#) filed on March 23 on its *Petition for Rule Making* ([RM 11759](#)) seeking changes to 80 and 75 meters, the ARRL has told the FCC that its primary objective is to “rebalance” the bands by correcting a 10-year old FCC error.

“ARRL’s proposal is not fairly viewed as a proposal to take anything away from anyone,” the League’s comments assured. “It is more properly viewed as the effectuation of a fair, equitable, and efficient ‘band plan’ looking forward for the foreseeable future that balances everyone’s needs, and which remedies a plainly unfair plan, imprudently created in the 2006 [Report and Order](#) in WT Docket 04-140.”

Prompting the League’s assurances were comments filed on the ARRL’s *Petition* by a number of Amateur Extra class licensees, who felt that refarming 3600 to 3650 kHz for data modes could prove to be a disincentive to General licensees to upgrade. Others commenters saw it as an unfair spectrum grab. The ARRL noted that prior to 2006, the band was evenly divided between RTTY/data and phone/image subbands, with the RTTY/data subband extending from 3500 to 3750 kHz, and the phone/image subband extending from 3750 to 4000 kHz.

The 2006 FCC *Report and Order* “substantially altered” what the League called “this even division of emission types.” In outlining the history of the proceeding, the ARRL pointed out that the FCC’s *Notice of Proposed Rulemaking* in Docket 04-140 would have shifted the line between the 80 meter RTTY/data subband and the 75 meter phone/image subband from 3750 kHz to 3725 kHz, pursuant to a 2002 ARRL *Petition for Rule Making*, RM-10413. This would change the ratio of spectrum between phone/image and RTTY/data segments on 75/80 meters from 50/50 to 55/45, and it is what the FCC proposed in its *NPRM*.

In its *Report and Order* in Docket 04-140, however, the FCC made “a very substantial and unjustifiable departure” from what it had proposed in its *NPRM*, the ARRL recounted. The Commission expanded the phone/image subband at 75 meters to 3600-4000 kHz, and it reduced the 80 meter RTTY/data subband to 3500-3600 kHz, eliminating RTTY operation above 3600 kHz and changing “the entire dynamic of this band,” the League said.

The FCC had said in its proposal that no licensees would lose operating privileges. Nonetheless, the FCC’s phone band expansion reduced by 100 kHz the spectrum between 3500 and 4000 kHz that was previously available to General class licensees, while Advanced licensees lost 75 kHz. In an apparent FCC oversight, the *Report and Order* completely eliminated access by automatically controlled digital stations (ACDS) to 3620 to 3635 kHz. A subsequent FCC *Report and order and Order on Reconsideration* only made the situation worse by replacing the deleted ACDS segment with 3585-3600 kHz.

“It resulted in a sudden and severe dislocation of traffic-handling nets using telegraphy, without advance planning or notice,” the ARRL said. “It disaccommodated net participants with General and Advanced class licenses; and it worsened the effect of the overexpansion of the 75 meter phone/image subband.”

The result, the ARRL noted, has been “a shortfall in available RTTY/data spectrum on 80 meters” that has created a significant obstacle to narrowband digital data communications and experimentation. The League said its current *Petition* “simply restores that which was disrupted in 2006 in error.”

In its comments, the League conceded that compromises are inevitable in managing a heavily used band like 75/80 meters, no matter the band planning approach. “Looking forward, it is necessary, in order to encourage experimentation with and expand the use of digital communication techniques, to rebalance the 75 and 80 meter subbands,” the ARRL concluded.

MEMBER CONTRIBUTATION

By Chris K7CTC

Golden Spike Special Event

As we gear up for the annual Golden Spike special event station, I would like to share with you a relevant music selection from my personal library. This particular track was produced by one of my favorite progressive rock bands, Genesis (it's possible you may have heard of them). It is the third track on their 1991 album "We Can't Dance" and is titled, "Driving the Last Spike."

Links:

Studio Album Version - <https://youtu.be/vHGqGmzzQaY>

Live Concert Version - <https://youtu.be/rG9-7WmeSdc>

Or if you have it in your library... Dig it out and give it a listen!

It is a somber yet powerful song about the railroad workers of the 19th century and the challenges they faced. It speaks of a specific incident regarding a collapsed tunnel, and the human toll taken for the efforts of building one of the most critical pieces of infrastructure, still relied upon today.

Though this song (from a English band) was written with the English railroad workers in mind... I think the lyrics and spirit of the song are just as applicable to those who sacrificed so much to build the American railway system.

I humbly suggest to anyone who will be attending the OARC Golden Spike special event station this year... Give this track a listen... Ponder the history of our trans-continental railway system, about the true significance of the Golden Spike, and of those workers who gave all, making this engineering marvel a reality. All the while keeping in mind those voices who said it could not be done. I hope that you'll agree that this song serves as a beautiful tribute to the time, and the place... even the true significance and reason behind our special event station...

"Driving The Last Spike" -By Genesis

Leaving my family behind me, not knowing what lay ahead,

waving goodbye as I left them in tears, remembering all we'd said.

I looked to the sky, I offered my prayers, I asked Him for guidance and strength!

But the simple beliefs, of a simple man, lay in His hands and on my head... my head.

I gave everything that they wanted, but still they wanted more.

We sweat and we toiled, good men lost their lives... Don't think they knew what for.

I sold them my heart, I sold them my soul, I gave everything I had!

Oh but they couldn't break my spirit, my dignity fought back.

Fight back!

Can you hear me? Can you see?

Don't you hear me? Don't you see?

We worked in gangs for all we were worth! The young boys pulling the wagons.

We were digging the tunnel, shifting the earth! It was then that it happened.

No-one knew how the cracks appeared, but as it fell they all disappeared!

Stone fell like rain!

Can you hear me? Can you see?

Don't you hear me?... Can you breathe?!

The smoke cleared, the dust had settled, no-one knew how many had died.

All around, there were broken men. They'd said it was safe... they lied.

You could hear the cries, you could smell the fear.

But good fortune that day was mine!

And it occurred to me the heart of a good man,

it seems is hard to find.

Can you hear me? Can you see?

Don't you hear me? Don't you see?

We worked... oh we worked like the devil for our pay.

Through the wind, though the snow, and through the rain.

Blasting, and cutting through God's country like a knife.

Sweat stinging my eyes, there has to be a better life...

Oh but I can hear my children's cry,

and I can see the tears in their eyes.

Memories of those I've left behind,

still ringing in my ears!

Will I ever go back again?

Will I ever see her face again?

Oh I'll never forget that night,

as they waved goodbye to their fathers!

We came from the north, and we came from the south,

with picks and with spades, and a new kind of order.

Showing no fear of what lies up ahead,

they'll never see the likes of us again!

Driving the last spike, lifting and laying the track.

With blistering hands, the sun burning your back.

Oh but I can hear my children's cry,

I can see the tears in their eyes.

Memories of those I've left behind,

still ringing in my ears!

Well I'll always remember that night,

as they waved goodbye to their fathers!

We followed the rail, we slept under the stars.

Digging in darkness and living with danger.

Showing no fear of what lies up ahead,

they'll never see the likes of us again!!!

Can you hear me? Can you see?

Don't you hear me?! Don't you see?!

...Side note and quasi-spoiler: (it took me a while to recognize this)

If you listen carefully, you can hear the rhythm of the

"cho-cho train" as well as the "hiss" being released from

the steam engine. (evident at the 3 minute mark)

See you at the Golden Spike special event station!

73, K7CTC & K2SEC

GUEST ARTICLE

By Dan, KB6NU

I'm EXTRA Ignorant

On Sunday, I received the following e-mail from a reader:

"Just wanted to let you know I passed the *General* exam using your study guide. It was very helpful. I am now generally ignorant whereas before I was only technically ignorant. Ha!"

My reply to him was:

"Well, if you're generally ignorant, I guess that makes me EXTRA ignorant!"

This isn't just a joke--being ignorant is part of the hobby. Amateur radio operators will always be ignorant about something or other. Even if you could master every facet of the hobby at some point in time, your mastery would be short-lived as the technology continued to advance.

Over the course of my amateur radio career, we've gone from equipment that primarily used vacuum tubes, to solid-state gear that first used discrete transistors and then integrated circuits, to software-defined radios. I could have, at some point, simply given up on the new technology and still enjoyed amateur radio. Some guys do that, and that's OK. It is only a hobby after all.

I'm not one of those guys, though, and if you're not one of those guys, then you have to resign yourself to being ignorant. But, that's a good thing, as long as you realize that you're ignorant. Realizing that you're ignorant will spur you on to learn new things and accept new challenges.

Recently, I realized that I'm mostly ignorant about satellite operation. I know some of the basics from having read articles and writing about the topic in my study guides, but I have never made a contact using a satellite. I think that might be one of my next challenges. With the advent of CubeSat, there are many new satellites up in the air and many more opportunities to have interesting contacts.

So, what are you ignorant about? By that I mean, of course, what's going to be your next challenge in amateur radio?

.....
When he's not challenging himself with new things, Dan falls back on something he knows pretty well--operating CW. You'll find him mainly on the 80m, 40m, and 30m bands. Dan is the author of the "No Nonsense" amateur radio license study guides, and blogs about amateur radio at KB6NU.Com, and you can contact him by e-mailing cwgeek@kb6nu.com.

FEATURE ARTICLE

By Kent Gardner WA7AHY

The Magic of Crystals

After attending a Rock and Mineral Show recently, I came away with a renewed interest in quartz crystals. For a ham radio operator this means “rock steady” frequency control.

For a person who is sick in the hospital, this means flowers and get-well cards with a healing crystal or two thrown in. This gesture shows a natural concern towards the patient and a hope for an improved medical condition. This idea conjures up a “channeling” of energy from the crystals.

At a swap meet some time back I picked up a military manual entitled “Fabrication of Quartz Crystal Plates”. It was marked Restricted. It proved to be interesting reading.

- -----The finished product turned out by the Quartz Crystal Section may be termed a Crystal Resonator....a form of electro-mechanical resonator designed to hold the frequency of a transmitter very closely to a certain definite value, or keep it within an assigned frequency range. The use of this product is based on the fact that crystals of certain crystalline substances, such as quartz, tourmaline, Rochelle salt, and cane sugar possess the dual quality of producing an e.f.m. (my emphasis--probably surface electrical properties of the crystals as per Google) when they are mechanically strained--i.e., compressed or expanded, or of changing shape when the action is reversed--i.e., when an electrical charge is placed upon them. This property is known as the piezo-electric property, and the result is termed piezo-electric effect.
- -----Brazil still contains the world's only important commercial source of supply-----In general, shipments of raw quartz from Brazil (containing both faced and un-faced material) has a usability of approximately 40%. The following Figure shows a faced crystal.

FIGURE IV
SECTION THRU A RAW
QUARTZ CRYSTAL
SIDE VIEW (a)
(showing how oscillator-
plates of various cut
are removed from raw
quartz).

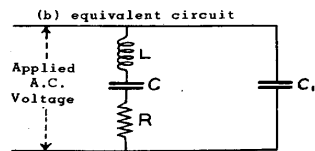
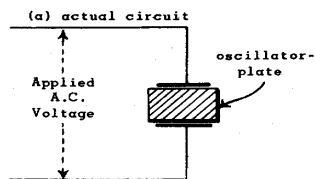
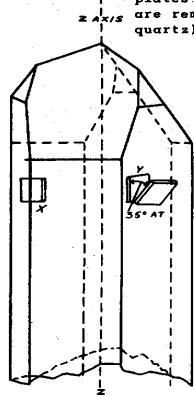
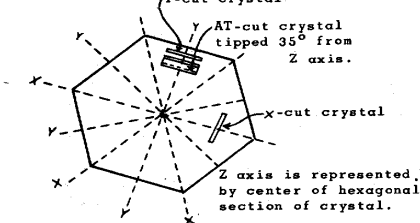


FIGURE V.
Equivalent electrical
network representing the effect
which a vibrating quartz crystal
has on the electrical circuits
associated with it.

TOP VIEW (b)
Y-cut crystal



Crystals are ground and packaged in various configurations and packaging. Some are third overtone such a Citizen's Band crystals. The military and ham operators have generally used FT-243 packaging as shown below.



One of my favorite finds at a swap-meet, was a Navy tube type VHF-UHF receiver covering 200-400 MHz. The nomenclature reads R482C/URR-35.



The beauty of this swap meet find is evident when you open the box of crystals that come with the unit. You can see one of the crystals in the socket above inside the left door. The switch above it chooses between the crystal and Manual Tuning.



There are 100 crystals in the set. I am guessing that these receivers were used in the Pacific Island airstrips during WWII. I don't know for sure, but it would seem that each landing strip that was carved out of the jungle would be assigned to one particular control frequency and the pilots would know which channel to tune to for tower control on the different islands.

As a Novice back in the 60's, crystals took on a special meaning. We Novices were restricted to crystal control and an input power maximum of 75 watts. The following picture shows Jason Miles', KE7IET, Knight T-60 Transmitter XTAL and variable frequency oscillator (VFO) sockets. On my first Novice transmitter, the Heathkit AT-1, it only had one socket for both the crystal and VFO.



The T-60 instruction book shows what crystals or VFO settings were needed.

FREQUENCY COVERAGE

The chart below lists the recommended frequencies of operation for the different bands.

Band (Meters)	Frequency of Crystal or VFO (MC)	Transmitter Freq. Range (MC)
80	3.5 to 4.0	3.5 to 4.0
40	7.0 to 7.3	7.0 to 7.3
20	7.0 to 7.175	14.0 to 14.35
15	7.0 to 7.150	21.0 to 21.45
10	7.0 to 7.425	28.0 to 29.7
6	8.334 to 9.0	50.0 to 54.0

From the above information, you can select the crystals for the bands in which you wish to operate.

SPECIFICATIONS

Keep in mind that the Novice sub-bands dictated which crystal would work. As shown by the chart above. One 7 MHz crystal would work for the other Novice bands. The band switching and coils inside the transmitter tripled or quadrupled that particular crystal frequency. The frequencies were assigned so they would be multiples of a 7 MHz crystal.

This brought up some interesting situations. A novice calling CQ would hope that there was another operator on or near that frequency so they could respond and enter into a two-way continuous wave (CW) conversation (QSO). What generally happened however; was that the other station would be transmitting on another crystal frequency. All operators had to tune up and down the band as a matter of routine to see if there was another station trying to reply. A higher class licensee with a VFO could easily tune to the Novice's frequency, but another Novice would hope that when he transmit-

ted, the Novice calling CQ would tune up or down to his/her frequency, so they would be working at a different portion of the same band. Better engineering practices nowadays dictate that one must monitor the frequency being transmitted on in case he/she might be interfering with another station. In the Novice days, owning another receiver to monitor the transmit frequency would not be cost effective, so I think that didn't happen.

The Novice bands in 1975 were:

3700-3750 kHz telegraphy, A-1 only (80 meter band)

7100-7150 kHz telegraphy, A-1 only (40 meter band)

21.1-21.2 MHz telegraphy, A-1 only (15 meter band)

28.1-28.2 MHz telegraphy, A-1 only (10 meter band)

A 7.05 MHz crystal would **not** work on 40 because it is below the sub-band edge. It **would** work on 15 ($7.05 \times 3 = 21.15$), but would be on the sub-band edge on 10 meters ($7.05 \times 4 = 28.2$) **so could not be used**. A CW signal would need to be inside the band or sub-band edge by about 100 Hz so as not to spill over.

A 7.04 MHz crystal would again **not** work on 40 because it is below the sub-band edge. It **would** work on 15 ($7.04 \times 3 = 21.12$) and **would** also on 10 ($7.04 \times 4 = 28.16$).

A trick that some used, including myself was to disassemble the FT-243 crystal case and draw a graphite pencil line on the surface of the crystal. This would lower the frequency somewhat.

A note of interest to some: the use of kilocycles and megacycles were discontinued by 1975 and recognition to Heinrich Hertz, the founder of alternating current, was given by capitalizing the H for Hertz. As a writer who tries to follow the rules of grammar and capitalization I had always thought that kilo and mega should be lower case, but the American Radio Relay League (ARRL) kept kilo in the lower case and Mega in the upper case as shown in the 1975 frequency list above. Microsoft Word also insists on the capital M in MHz or it will underline it in red.

Another thought: Crystals can change in frequency due to heat or the lack thereof. I remember owning an old tube type FM transceiver...a Motorola FMTRU-40. It was originally a commercial radio. My unit had the commercial crystal with a crystal oven taken out. It was re-crystalled to 146.94 MHz without the oven. I could talk from Logan to Preston simplex using the 40 watts into a mobile whip on my 1957 Plymouth. When I traveled along the Wasatch Front the local repeater guys would have to switch their transmitter settings to simplex just to talk to me.

I traveled to Southern California a lot. I had a Rambler Ambassador station wagon and installed the rig under the rear seat. The crystal was not in an oven as it should have been. I could talk to other mobile hams all along I-15, but for only about 15 minutes at a time. It seemed that the crystal would heat up under the seat and change frequency enough that I couldn't copy anyone. In frustration, I would turn the rig off. After awhile I would turn it back on and have perfect copy for another 15 minutes or so before the temperature again changed the frequency. It wasn't worth the cost to get a crystal with an oven. Anyway, I learned a lot about heat and crystals.

Many crystals still are in use today, but their modern uses are outside the purview of this article.

Kent Gardner, WA7AHY

ANNOUNCEMENTS

Next Club Meeting:

3rd Saturday of each Month

The Ogden Amateur Radio Club meetings are usually held on the **3rd Saturday** of each month.

Meeting/Activity:

See notices above

Talk-in: **-146.82 (pl 123.0)**

Check OARC web site for details

www.ogdenarc.org

Please invite a friend to join you. You do not have to be a member of the club to participate in our club meetings or activities. We invite all to join us.

If anyone is interested in doing a presentation on something or just have something unique to show at the meetings. - Please get a hold of any of the officers and let us know.

Next Weber Co VE Test Session:

1st Wednesday Feb, Jun & Oct

Exam sessions are held in Ogden every few months, **usually** the first Wednesday in February, June, and October.

Time: 06:00 PM *Walk-ins allowed*

Location: Permanent location

Weber County Sheriff Office
Training Room
712 W 12th Street Ogden Utah

Contact: VE Liaison:

Rick Morrison W7RIK (Liaison)

morrisonri@msn.com (801-791-9364)

Jason Miles KE7IET (IT)

Cost: \$ 14.00

Two forms of **ID**, one of which must be a **picture ID**.

For "Upgrades" bring current **license** and a **copy** of current license, and any **CSCE's**

Most **calculators** allowed. Calculator memories must be cleared before use.

Club Web Site

Be sure to visit our club web site.

www.OgdenARC.org

Club membership is open to anyone interested in Amateur Radio. You do not need an amateur license to join us. Dues are used to operate the club, field day activities, and repeater equipment maintenance.

Club Call Sign

Listen to the club repeaters for this very familiar CW ID. You do know Morse Code don't you?

W7SU

ARRL Field Day is held on the last full weekend of June every year.

Location may vary each year so watch this notice for details as time draws near.

See you there.

OARC REPEATERS			
(*) Yaesu Fusion digital/FM compatible			
FREQ	CLUB	TONE	LOCATION
146.900-	OARC (*)	123.0	Mt Ogden
448.600-	OARC (*)	123.0	Mt Ogden
146.820-	OARC (*) "Talk-in"	123.0	Little Mtn
448.575-	OARC	100.0	Little Mtn (w/auto patch)

OTHER AREA REPEATERS			
FREQ	CLUB	TONE	LOCATION
146.620-	UARC	none	Farnsworth Pk
147.120+	UARC	100.0	Farnsworth Pk
449.100-	UARC	146.2	Farnsworth Pk
449.500-	UARC	100.0	Farnsworth Pk
147.040+	DCARC	123.0	Antelope Isl
447.200-	DCARC	127.3	Antelope Isl
449.925-	DCARC	100.0	No Salt Lake
145.290-	GSARC	123.0	Brigham City
145.430-	GSARC	123.0	Brigham City
147.220+	GSARC	123.0	Brigham City
448.300-	GSARC	123.0	Brigham City
146.640-	BARC	none	Logan
146.720-	BARC	103.5	Mt Logan
147.260+	BARC	103.5	Promontory Pt
449.625-	BARC	103.5	Mt Logan
145.250-	WSU	123.0	* coming soon
449.250-	WSU	123.0	* coming soon
145.490-	K7HEN	123.0	Promontory Pt
146.920-	N7TOP	123.0	Promontory Pt
449.775-	N7TOP	123.0	Promontory Pt
147.100+	Morgan	123.0	Morgan Co
448.825-	IRLP/Echo	123.0	Clearfield City
449.950-	IRLP	123.0	Clearfield City
449.425-	IRLP	100.0	Nelson Peak
147.360+	Summit Co	100.0	Lewis Peak

AREA CLUB MEETINGS & WEB SITES

CLUB	WEB SITE	DATE/TIME	LOCATION
OgdenARC	ogdenarc.org	3 rd Saturday 09:00 am	Check OARC web site ...
WC ARES	ogdenarc.org/ join.html#ares	2 nd Thursday 06:30 pm	Weber Co. Library Ogden Utah
WC Sheriff Comm-O		1 st Saturday 10:00 am	Weber Co. Sheriff Complex West 12 th Street Ogden Utah
Barc	barconline.org	2 nd Saturday 10:00 am	Cache Co. Sheriffs Complex 200 North 1400 West Logan Ut
CSERG	dcarc.net /ares.htm/	Last Wednesday 8:30pm	Clearfield City Hall Clearfield Utah
DCarc	dcarc.net	2 nd Saturday 10:00 am	Davis Co. Sheriff Complex Farmington Utah
NU Ares	home.comcast.net/ ~noutares/	3 rd Wednesday 7:00 pm	Cache Co. Sheriff Office Logan Utah
Uarc	xmission.com /~uarc/	1 st Thursday 7:30 pm	UofU EMC Bldg Room 101 Salt Lake City Utah
GSarc	Ubetarc.org	Check Website	Check Website
Utah DX Association	udxa.org	3 rd Wednesday check web page for details	check web page for details Salt Lake City area
UvhfS	ussc.com /~uvhfs/	Each Tuesday 8:00 pm (refer to web site)	Weekly 2 meter net (no eye ball meetings)
WDArc	westdesertarc.org/	1 st Tuesday 7:00 pm	Tooele County Courthouse Tooele Utah
WsuArc	https://groups.google.com/forum/#! forum/wsuarc	3 rd Thursday 5:30 pm	WSU Blding #4 Room ? Ogden Utah

LOCAL AREA NETS

DATE	CLUB	FREQ
Daily @ 12:30 PM mt	Utah Beehive net HF	7.272 Mhz HF LSB
Daily @ 07:30 PM mt	Utah Code net HF	3.570 Mhz HF CW
Daily @ 02:00 UTC	Utah Farm net HF	3.937 Mhz HF LSB
Sunday @ 8:45 AM	Ogden Old Timers HF net	7.193 Mhz HF LSB
Sunday @ 7:30 PM	GS ARC	145.430 - 123.0 (training net)
Sunday @ 8:30 PM	SATERN Net	145.900 - 123.0
Sunday @ 9:00 PM	Morgan Co Net	147.100 +123.0
Sunday @ 9:00 PM	UARC Info net	146.620- no PL tone required
Monday @ 9:00 PM	2-meter SSB net	144.250 Mhz 2-meter USB
Tuesday @ 8:00 PM	Weber ARES	448.600 - 123.0
Tuesday @ 8:00 PM	VHF Society Swap	147.120 + 100.0
Tuesday @ 9:00 PM	Bridgerland ARC	147.260 + 103.5
Wednesday @ 8:00 PM	GS ARC	145.290-, 145.430-, 448.300- (all 123.0)
Wednesday @ 8:30 PM	CSEARG	145.770 simplex
Wednesday @ 9:00 PM	No. Utah 10m HF net	28.313 Mhz HF USB
Wednesday @ 9:00 PM	6-meter SSB net	50.125 Mhz 6-meter USB
Thursday @ 6:30 PM	Davis Co Elmers Net	147.040 + 123.0 New Hams
Thursday @ 8:00 PM	Weber State ARC	146.820 - 123.0 (coming soon)
Thursday @ 8:00PM	State RACES VHF/IRLP	145.490 - 123.0, 146.680 - 123.0 3 rd Thursday - even months only
Thursday @ 8:30 PM	Davis ARES	147.420 = simplex
Thursday @ 9:00PM	Wasatch Back Net	147.360 + 100.0
Saturday @ 8:00AM mst	RACES State HF	3.920 Mhz HF LSB 3 rd Saturday – odd months only
Saturday @ 11:00AM mst	QCWA net HF	7.272 Mhz HF LSB

OARC OFFICERS

President: Gil Leonard NG7IL

Vice Pres: Jason Miles KE7IET

Secretary: Mike Taylor KE7NQH

Treasurer: Jerry Cottrell KG7IGW

Program Director:

Pete Heisig WB6WGS

Activity Director:

Dave Mamanakis KD7GR

"WATTS NEWS" e-Magazine

NL Editor: Val Campbell K7HCP

"OARC" web site

Webmaster: Val Campbell K7HCP

OTHER CLUB APPOINTMENTS

VE Liaison: Richard Morrison W7RIK
Jason Miles KE7IET (IT)

Repeater Engineers: Mike Fullmer KZ7O
Scott Willis KD7EKO

Photographer:

QSL Manager:

Historian/Librarian: Kent Gardner
WA7AHY

Equipment Manager: Val Campbell K7HCP

Club Call Sign Trustee: Larry Griffin AD7GL

Advisors: Stan Sjol W0KP
Mike Fullmer KZ7O
Kent Gardner WA7AHY
Kim Owen KO7U
Larry Griffin AD7GL

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