

# Anchorage Amateur Radio Club

Next Meeting January 5<sup>th</sup>, 7:00 PM



## January Program

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**Radio propagation** is a term used to explain how radio waves behave when they are transmitted, or are propagated from one point on the Earth to another.

In free space, all electromagnetic waves (radio, X-rays, visual, etc) obey the inverse-square law which states that an electromagnetic wave's strength is proportional to:

$$\text{Signal Strength} = \frac{1}{x^2}$$

where  $x$  is the distance from the source.

Doubling the distance from a transmitter means the signal strength is reduced to nearly one quarter of the original value.

Propagation on Earth is not only affected by the inverse-square model, but by a number of other factors determined by its path from point to point. This path can be a direct line of sight path or an over-the-horizon (see also radio horizon) path aided by refraction in the ionosphere. Lower frequencies (between 30 and 3000 kHz) have the property of following the curvature of the earth via ground-wave propagation in the majority of occurrences. The interaction of radio waves with the ionized regions of the atmosphere makes radio propagation more complex to predict and analyze than in free space.

Since radio propagation is somewhat unpredictable, such services as emergency locator transmitters, in-flight communication with ocean-crossing aircraft, and some television broadcasting have been moved to satellite transmitters. A satellite link, though expensive, can offer highly predictable and stable line of sight coverage of a given area.

## The Antenna

The beginning and end of a communication circuit is the antenna. The antenna will provide gain and directivity on both transmit and receive. The take off angle of the antenna is based on the type of antenna, the height of the antenna above ground, and the type of ground below and in front of the antenna. The take off angle will determine the angle of incidence on the ionosphere, which will affect where the signal will be refracted by the ionosphere.

## Ground wave

Ground waves are radio waves that follow the curvature of the earth. These waves may be vertically polarized to alleviate short circuiting the electric field through the conductivity of the ground. Since the ground is not a perfect electrical conductor, ground waves are attenuated as they follow the earth's surface. At low frequencies, ground losses are low and become lower at lower frequencies. The VLF and LF frequencies are mostly used for military communications, especially with ships and submarines.

Early commercial and professional radio services relied exclusively on long wave, low frequencies and ground-wave propagation. To prevent interference with these services, amateur and experimental transmitters were restricted to the higher (HF) frequencies, felt to be useless since their ground-wave range was limited. Upon discovery of the other propagation modes possible at medium wave and short wave frequencies, the advantages of HF for commercial and military purposes became apparent. Amateur experimentation was then confined only to authorized frequencies in the range.

## Line-of-sight propagation

Line-of-sight is the direct propagation of radio waves between antennas that are visible to each other. This is probably the most common of the radio propagation modes. Because radio signals can travel through many non-metallic objects, radio can be picked up through walls even though you cannot see through them. This is still line-of-sight propagation. Examples would include propagation between a satellite and a ground antenna or reception of television signals from a local TV transmitter.

Ground plane reflection effects are an important factor in VHF line of sight propagation. The interference between the direct beam line-of-sight and the ground reflected beam often leads to an effective inverse-fourth-power law for ground-plane limited radiation.

## Sky-wave propagation

Sky-wave propagation, also referred to as skip, is any of the modes that rely on refraction of radio waves in the ionosphere, which is made up of one or more ionized layers in the upper atmosphere. These layers are directly affected by the sun on a daily cycle, and the 11-year (sunspot cycle) determines the utility of these modes. Forecasting of sky-wave modes is of considerable interest to amateur radio operators and commercial marine and aircraft communications, and also to shortwave broadcasters.

## Tropospheric scattering

At VHF and higher frequencies, small variation in the density of the atmosphere at a height of around 6 miles (10 kilometers) can scatter some of the normally line-of-sight beam of radio frequency energy back toward the ground, allowing over-the-horizon communication between stations as far as 500 miles (800 km) apart.

### Tropospheric ducting: enhancement or refraction via inversion layer

Sudden change in atmosphere's vertical moisture content and temperature profiles can on random occasions make microwave and UHF & VHF signals propagate hundreds of km up to about 2000 km and for Ducting mode, even farther beyond normal radio-horizon. The inversion layer is mostly observed over high pressure regions, but there are several Tropospheric weather conditions which create these randomly occurring propagation modes. Inversion layer's altitude for non-Ducting is typically found between 100 m to about 1 km and for Ducting about 500 m to 3 km and the duration of the events are typically from several hours up to several days. Higher frequencies experience most dramatic increase of signal strengths, while on low-VHF and HF the effect is negligible. Propagation path attenuation may be below free-space loss. Double hop sporadic E propagation is a rare phenomenon in VHF dxing.

### Meteor scattering

Meteor scattering relies on reflecting radio waves off the intensely ionized columns generated by meteors. While this mode is very short-duration, often only from a fraction of second to couple of seconds per event, digital Meteor burst communications allows remote stations to communicate to a base that may be hundreds of miles up to over 1000 miles (1600 km) away, without the expense and power input required for a satellite link.

### Rain scattering

Rain scattering is purely a microwave propagation mode and is best observed around 10 GHz, but extends down to few GHz - the limit being the size of the scattering particle size vs. wavelength. This mode scatters signals forwards and backwards when using horizontal polarization and side scattering with vertical polarization. Forward-scattering typically yields propagation ranges of 800 km. Scattering from snowfall and ice pellets also occurs. The most common application for this phenomenon is microwave rain radar, but it can be a nuisance causing unwanted signals to intermittently propagate where they are not anticipated to get. Similar reflections may also occur from insects though at lower altitudes and shorter range.

### Airplane scattering

Airplane scattering (or most often reflection) is observed on VHF through microwaves and besides back-scattering, yields momentary propagation up to 500 km even in a mountain-type terrain. The most common back-scatter application is air-traffic radar and bistatic forward-scatter

guided-missile and airplane detecting trip-wire radar and space radar.

### Lightning scattering

Lighting scattering has sometimes been observed on VHF and UHF over distance of about 500 km. The hot lightning channel scatters radio waves for a fraction of a second. The RF noise burst from the lightning makes the initial part of the open channel unusable and the ionization disappears soon because of combination at low latitude high atmospheric pressure. This mode has no practical use. Heavy rain and snow also affect microwave reception. In the article [Electric ice](#), Science @ NASA interviews lightning researchers at the National Space Science and Technology Center in Huntsville, Alabama. The scientists found "a strong correlation between ice and lightning in all environments - over land, over sea and in coastal areas". The correlation coefficient between lightning flash density (flashes per square-kilometers per month) and ice water path (kilograms of ice per square-meter of cloud) exceeds 90 percent. The strong correlation exists on a global scale but also on smaller scales when analyzing individual storm cells.

### Diffraction

[Knife-Edge diffraction](#) is the propagation mode where radio waves are bent around sharp edges. For example, this mode is used to send radio signals over a mountain range when a line-of-sight path is not available. However, the angle cannot be too sharp or the signal will not diffract. The diffraction mode creates a large loss, so higher power or better antennas will be needed than for an equivalent line-of-sight path.

Diffraction phenomena by small obstacles are also important at high frequencies. Signals for urban cellular telephony tend to be dominated by ground-plane effects as they travel over the rooftops of the urban environment. They then diffract over roof edges into the street, where multipath propagation, absorption and diffraction phenomena dominate.

### Aurora Activity

Aurora (also known as "aurora borealis" or "northern lights") is caused by interaction between the Earth's magnetic field and the solar wind (a mix of charged particles blowing away from the sun). During solar storms, enough of these charged particles make it through to the Earth's upper atmosphere that they interact with the earth's natural magnetic field lines. When enough of these particles collide, energy is released in the form of auroral light. In addition to creating a pretty light show (mostly in upper latitudes), radio signals scatter off of these particles and can greatly enhance propagation on 6 meters and above. High levels of aurora can also make HF propagation via polar routes difficult.

Radio Frequencies and their Primary mode of Propagation			
Radio Band		Frequency	Propagation Via
VLF	Very Low Frequency	3 - 30 kHz	- Guided between the earth and the ionosphere
LF	Low Frequency	30 - 300 kHz	- Guided between the earth and the ionosphere - Ground Waves
MF	Medium Frequency	300 - 3000 kHz	- Ground waves - E layer ionosphere refraction at night, when D layer absorption disappears
HF	High Frequency (Short Wave)	3 - 30 MHz	- E layer ionosphere refraction - F layer ionosphere refraction
VHF	Very High Frequency	30 - 300 MHz	- Line-of-sight
UHF	Ultra High Frequency	300 - 3000 MHz	- Line-of-sight
SHF	Super High Frequency	3 - 30 GHz	- Line-of-sight

loss along a link or the effective coverage area of a transmitter.

## Characteristics

As the path loss encountered along any radio link serves as the dominant factor for characterization of propagation for the link, radio propagation models typically focus on realization of the path loss with the auxiliary task of predicting the area of coverage for a transmitter or modeling the distribution of signals over different regions.

Based on the fact that, each individual telecommunication link has to encounter different terrain, path, obstructions, atmospheric conditions and other phenomena, it is impossible to formulate the exact loss for all telecommunication systems in a single mathematical equation. As a result, different models exist for different types of radio links under different conditions. The models rely on computing the median path loss for a link under a certain probability that the considered conditions will occur.

## Absorption

Low frequency radio waves travel easily through brick and stone and VLF even penetrates sea-water. As the frequency rises, absorption effects become more important. At microwave or higher frequencies, absorption by molecular resonance in the atmosphere (mostly water, H<sub>2</sub>O) is a major factor in radio propagation. For example, in the 58 - 60 GHz band, there is a major absorption peak which makes this band useless for long-distance use. This phenomenon was first discovered during radar research during World War II. Beyond around 400 GHz, the Earth's atmosphere blocks some segments of spectra while still passes some - this is true up to UV light, which is blocked by ozone, but visible light and some of the NIR is transmitted.

## Propagation modes

Radio waves at different frequencies propagate in different ways.

A **Radio Propagation Model**, also known as the *Radio Wave Propagation Model* or the *Radio Frequency Propagation Model*, is an empirical mathematical formulation for the characterization of radio wave propagation as a function of frequency, distance and other conditions. A single model is usually developed to predict the behavior of propagation for all similar links under similar constraints. Created with the goal of formalizing the way radio waves are propagated from one place to another, such models typically predict the path

## Development Methodology

Radio propagation models are empirical in nature, which means, they are developed based on large collections of data collected for the specific scenario. For any model, the collection of data has to be sufficiently large to provide enough likeliness (or enough scope) to all kind of situations that can happen in that specific scenario. Like all empirical models, radio propagation models do not point out the exact behavior of a link, rather, they predict the most likely behavior the link may exhibit under the specified conditions.

## Variations

Different models have been developed to meet the needs of realizing the propagation behavior in different conditions. Types of models for radio propagation include:

- Models for indoor applications
- Models for outdoor applications
- Ground wave propagation models
- Sky wave propagation models
- Environmental Attenuation models
- Point-to-Point propagation models
- Terrain models
- City Models

[www.spaceweather.com/](http://www.spaceweather.com/)

<http://www.haarp.alaska.edu/>



# KL7AA Club Business

## Board Meeting Minutes

ANCHORAGE AMATEUR RADIO CLUB

BOARD MEETING

November 21, 2006

540 WEST INTERNATIONAL ROAD

*(Unapproved at time of printing)*

The meeting was called to order at 7:02 PM by President Jim Larsen. Due to lack of attendance of officers and Board Members and the holiday week, no quorum was established. The meeting was dismissed at 730PM.



*By Jim Wiley, KL7CC  
Chairman, Anchorage ARC VEC, Inc.*

Recent announcements by the FCC will impact almost every Alaskan amateur radio operator. These actions are primarily a result of two groups of petitions, the first resulting in FCC Report and Order (R&O) 04-140, the second in R&O 05-235. Only the actions associated with 04-140 have actually taken place. The actions associated with 05-235 will become effective 30 days after the R&O is published in the Federal Register, which is expected to take place within the next 15 days or so. That means that actions associated with 05-235 will become effective as new rules sometime in February.

### ***Let's take a look at 04-140 first:***

This action is generally known as the "Novice Band Re-Farming" order, but it also includes some items of particular interest to Alaska hams.

For most of us, the most interesting item is that the HF voice bands have increased in size on the 75, 40, and 15 meter bands. Depending on your class of license, the increase can be just a bit more room, or a substantial increase.

General class licensees gain 75 meter spectrum down to 3800 kHz on phone, a gain of 50 kHz, Advanced class licensees can go down to 3700 kHz, a gain of 75 kHz, and Extra class licensees can use voice all the way from 3600 kHz to 4000 kHz, a gain of 150 kHz.

On 40 meters, Generals can use voice down to 7175 kHz, a gain of 50 kHz, Advanced and Extra class voice now begins at 7125 kHz, a gain of 25 kHz.

On 20 meters, there is no change in allocations, but on 15 meters, we again see a small increase, but this time for Generals only. For Generals, the lower limit for voice is now set at 21275 kHz, a gain of 25 kHz over the previous plan. Advanced and Extra class licensees remain at their present limits.

All of these frequency changes imply that some other users will be shifting frequencies to accommodate the new arrangements. Time will tell how all of this sorts itself out.

A special item for Alaskan amateurs is the provision that will allow use of the special Alaska Emergency Frequency, 5167.5 kHz, to be used for testing and drills, not just emergencies. We will have a more detailed report about this in a future issue.

This action also made some changes to the linear amplifier rules, particularly as they apply to 10 meter operation. These changes remove much of the onerous restrictions placed on manufacturers and hams themselves because of illegal CB radio use of amateur equipment. In a nutshell, it means that hams will soon be able to purchase RF power amplifiers that include coverage of the 12 and 10 meter bands at full rated power.

### ***Now, let's move to 05-235:***

he biggest item for many will be the elimination of Morse code testing. Whether you are dismayed or pleased about this action, the fact remains that this change will soon be the law of the land. Actually, this was an expected action, given that the only reason the FCC had turned down previous requests was that the international regulations mandated that all countries to require a 5 words per minute exam for anyone having a license that allowed amateur radio transmissions below 30 MHz. This requirement was eliminated at the 2003 World Administrative Radio Conference (WARC), and shortly thereafter, administrations around the world began to drop the code requirement from their licenses.

However, you can be sure that Morse code itself is not going to disappear from the ham radio bands any time soon. For one thing, there are several CW only allocations for the HF bands, with the 30 meter band being CW (and data) only. For another, serious DX and QRP (low power) operators almost all use CW for most of their contacts. CW will remain for a long time as the simplest and least expensive way to get an amateur radio station on the air.

We expect to see a surge in applications for upgrade of Technician licenses to General class once this rule change becomes effective. However, even for those Tech's that choose not to upgrade at this time, they will still gain access to the General class CW portions of the 80, 40, 15 and 10 meter bands (but not the remaining General and Advanced CW allocations at 160, 30, 17, and 12 meters).

### *Changes to the exams:*

All these changes mean that some of the questions in the existing question pools have become outdated, and must be removed. The way the question pools work, the FCC mandates that each pool must have a minimum number of questions (10 times the number of questions on the exam). There is no upper limit, however. To accommodate possible changes in rules and technology, the Question Pool Committee (QPC) of the National Conference of Volunteer Examiner Coordinators (NCVEC) has made it policy to include several additional questions in each pool so that changes can be accommodated without requiring a re-issuance of the pool.

For example, the new Technician pool that became effective in July of 2006 is required by FCC rule to have at least 350 questions, but due to the intentional "overhead", there are actually about 390 in the current pool. Removal of the questions that are no longer valid will shrink the pool a bit, but it will still have more than the minimum allowable amount. The same thing will be happening with the other two pools.

In this latest round of changes, a total of 19 questions are being removed, affecting all 3 pools. Because the Anchorage ARC VEC uses pre-printed exam booklets (as do several other VECs), we will have to reprint the exams for all 3 classes to make sure that none of the deleted questions are accidentally included on one of the exams.

This requirement to rebuild the entire set of exams and print new materials means that, unfortunately, we will have to cancel the exam sessions that were scheduled for the month of January at all locations. We apologize for this necessary action, and plan to be back up to speed for the February offerings.

As far as Morse code testing goes, and as of this writing, depending on when the FCC gets the R&O published in the Federal Register, the eliminations of Morse testing may or may not occur in time to lift the Morse code proficiency requirement from the exams given in February. We can be almost certain that the requirement will be history by the time that the March tests come along. So – we might be offering code exams at the February sessions, but we might not.

In any case, we will not be offering code tests "just for the fun of it" once the legal requirement has been lifted. In a practical sense, and again depending on when the new FCC rules become effective, we may have already seen the last code exams given by our VEC.

### *What does this mean for you?*

If you have passed the Element 3 (General class written) exam, and hold a CSCE (Certificate of Successful Completion of Examination) that has not expired, all you have to do is bring it to an exam session after the rule change becomes effective and you will get an immediate upgrade to General class with no further testing required.

Likewise, you could come to an exam session between now and that time, and if you pass, you will get a CSCE for Element 3. Once the rule change is effective, just bring it in and get your upgrade.

A reminder: A CSCE is valid for 365 days from issue. If your CSCE has expired, you can no longer use it to claim element credit, and will have to pass the exam again to upgrade. There are no exceptions to this rule!

For those of you holding a Technician license, or even no license at all, then the changes make it very attractive to go ahead with the Element 3 (General class) written exam as soon as you are ready. Having the General license will open up the entire world of ham radio to you, including the HF bands, and will, I predict, make your ham radio experience substantially more fun and rewarding.

So, in conclusion, there are some interesting rules changes that will certainly impact ham radio very soon. We can expect to see an upsurge in the number of hams using our HF bands, and a similar increase in HF related activities such as Field Day and the ARRL Sweepstakes contest, as well as the international HF contests that occur frequently.

How these new HF capable hams are welcomed by the existing "old timers" will set the tone of how our hobby looks for some time. I for one am looking forward to meeting some new friends.■

## HAM RADIO CLASSES

Anyone interested in getting their license may contact [instructor@kl7aa.net](mailto:instructor@kl7aa.net) for assistance and a tutor. Anyone interested in performing one-on-one tutoring may also contact us. If you are a General or Extra willing to volunteer your teaching abilities to ELMER other operators, please feel free to contact us to coordinate your schedule.

### GENERAL Course

A General will be taught for 4 weeks this January 2007. The course will be held at the American Red Cross building in downtown Anchorage at the corner of 8th and Cordova. The course will run Monday and Wednesday evenings from 6:30 PM to 9:00 PM starting on December 8. Please email [instructor@kl7aa.net](mailto:instructor@kl7aa.net) to register or for more information.

### EXTRA Course

We would like to offer an extra class, however we are in need of instructors and mentors for this course. If you would be interested in teaching this class, facilities, materials and classroom support is available. We have several operators who would like to upgrade and just need some good classroom instruction to be successful. Please contact KL7KO at [instructor@kl7aa.net](mailto:instructor@kl7aa.net) if you are interested in volunteering for this opportunity.



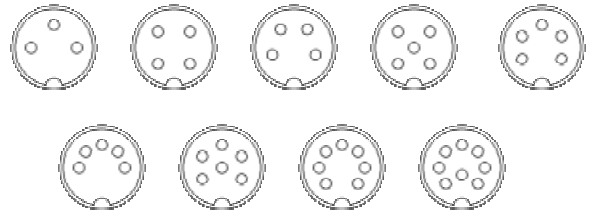
## Connector of the Month

A **DIN connector** is a connector that was originally standardized by *Deutsches Institut für Normung (DIN)*, the German national standards organization. There exist DIN standards for a large number of different connectors, therefore the term "DIN connector" alone does not unambiguously identify any particular type of connector unless the document number of the relevant DIN standard is added (e.g., "DIN 41524 connector"). In the context of consumer electronics, the term "DIN connector" commonly refers to a member of a family of circular connectors that were initially standardized by DIN for analog audio signals. Some of these connectors have later also been used in analog video applications and for digital interfaces such as MIDI or the IBM PS/2 computer keyboard and mouse cables. The original DIN standards for these connectors are no longer in print and have been replaced with the equivalent international standard IEC 60130-9



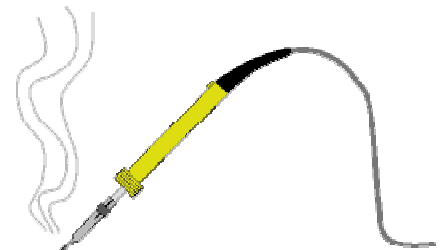
## Circular radio connectors

All male connectors (plugs) of this family of connectors feature a 13.2 mm diameter metal shield with a notch that limits the orientation in which plug and socket can mate. A range of connectors of the same form that differ only in their pin configuration exist and have been standardized originally in DIN 41524 (3- and 5-pin), DIN 45322 (5-pin at 60°), DIN 45326 (8-pin), DIN 45329 (7-pin), and other standards for a range of different applications.



The plugs consist of a circular shielding metal skirt protecting a number of straight round pins. The skirt is keyed to ensure that the plug is inserted with the correct orientation and to prevent damage to the pins. The basic design also ensures that the shielding is connected between socket and plug prior to any signal path connection being made.

There are seven common patterns, with any number of pins from three to eight. Two different five-pin connectors exist, known as 180° and 240° (sometimes called 270°) after the pin arrangement. There is some limited compatibility, for example a three-pin connector will fit any 180° five-pin socket, engaging three of the pins and leaving the other two unconnected, but a five-pin connector will fit some but not all three-pin sockets. As well, a 5-pin plug will fit into a 7-pin or 8-pin socket.



Do you have a connector that you would like to contribute? Email us the connector name and we can include it in the newsletter.

[Contact Us](#)

## Editor's Corner

Thank you,  
Kathleen O'Keefe, KL7KO  
editor@kl7aa.net

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### News Letter Submissions, Information or corrections:

Submissions must be received 2 weeks before meeting Email: [editor@kl7aa.net](mailto:editor@kl7aa.net)  
Mail: 2003 W. 46<sup>th</sup> Avenue, Anchorage, AK 99517-3176

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**NEWSLETTER ARTICLES:** All articles from members and interested persons are very welcome. If you wish to submit any articles, jokes, cartoons, please have it typed or neatly handwritten. It can be submitted by mail, computer disk or E-mail to the newsletter editor at the address listed above. Submissions must be in the hands of the editor **no later than the 10 days prior** to the meeting or it may not be included.



## CLUB COATS

With a removable liner, lots of pockets, and waterproof, the coat gives the radio club great publicity with a full back, club logo and a Name and Call-Sign Personalization on the left chest. For those of you interested in purchasing a coat, the costs are \$50 per club member. This is a great price for a coat than can be used during summer amateur activities or as a winter coat during Sled Dog races or November Sweepstakes.

If you are interested in ordering a coat, a sign up sheet will be available at the club meeting or feel free to contact [KL7SP@arrl.net](mailto:KL7SP@arrl.net).



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## KL7AA Mail Reflector

If you like to **stay in touch** on **KL7AA** news and other posts of local interest.

Step #1: First point your browser to (click the link below):

<http://mailman.qth.net/mailman/listinfo/kl7aa>

Step #2: On the web page you will see a section titled "Subscribing to KL7AA". Enter your e-mail address in the "Your email address" entry box.

Step #3: Pick a password for your account and enter it in the box marked "Pick a password" and then enter the same password in the box marked "Reenter password to confirm". This password will be used to change your settings on the list such as digest mode, etc.

Step #4: If you would like the e-mails in daily digest form click yes on the line marked "Would you like to receive list mail batched in a daily digest?"



## Silent Key

Lucy Hilpert KL7LH became a silent key November 25 2006. She is survived by her husband Connie KL7JKE, daughter Lynne Duncan KL7IO of Eagle River AK, sons Quentin Hilpert KL7VOU in AZ, and Fred Hilpert (no Ham call) unknown location. Lucy was in here early 80's.

We were close friends with Connie and Lucy in Anchorage AK while we were there from 1977 to 1980. We'll never forget the humor and close companionship they shared. Both were active members of the Anchorage Amateur Radio Club. In the late 80's, while living in Iowa, Connie and Lucy came for a visit on BMW motorcycles that they later drove up the Alcan. What fantastic sports they were. Our hearts go out to Connie, Lynne, Quentin and Fred. 73 es so long Lucy, we'll miss you. Rest in peace. dit dit

Tom and Mary Moore  
WX4TM & WX4MM ex KL7Q and KL7P

This news came to us today via the following letter



To:  
Young Ladies Radio League  
Mary Moore, WX4MM  
1593 Lee Rd 375  
Valley, AL 36854

Dear Mary,

With total sadness I must inform you that my mother Lucille Hilpert KL7LH became a silent key November 25 2006.

Big fat rotten bumper!

In the middle of July she was going out to play tennis, as she did three times a week, when she stopped and told dad to take her to the hospital.

The diagnosis was cancer of the gall bladder which had spread to her liver and other near organs. On August 18 she started a battle for her life which was only possible because she had been playing tennis for the last 20 or so years of her life. After two operations and a true thought that she was recovering, we came home to Butte (MT) in early November. But nuts berries and stronger language, the cancer returned with no hope. When mom heard the news 'she' removed all her IVs and such and said to dad she thought dad should get her out of his life. Five days later she was gone.

I was able to be with them from the end of July till the first week in November when my brother Quentin KL7VOU, took over during what I thought would be the first steps in recovery. I returned to Butte the last week in November to be with dad as did my brothers Fred (no call) and Quentin.

Dad is doing ok but we both have good days and days that are a bit sad here and there. Dad traded in the old cars for a new Escalade we call the Black Brontosaurus with which we will drive down to Quentin's QTH in Arizona.

Hopefully dad will stay there with Quentin and his family till the snow melts. As I am like mom was, a kept woman, I have the freedom to visit dad often.

Here in Butte he has a tremendous support group, part of which is at Montana Tech where he taught for 20 or so years. They have asked and made space for him to continue teaching a once credit class each week as a volunteer. Mom called it the bull shit class, but students do attend every class and enjoy and have said the bull shit is the best information they have received.

As both Quentin and I had schedules with mom on HF with CW (each week), we will be working on dad to get back on the air other than on 2 meters.

Quentin and I could hear Butte fine, but from Alaska to Arizona is a bit iffy with legal power.

From us hams to you hams Have a safe holiday.

Lynne Duncan, KL7IO  
10820 Chain of Rock St  
Eagle River, AK 99577



### What is YLRL

Organized in 1939, YLRL (Young Ladies' Radio League) is a nonprofit organization of women Amateur Radio Licensees. With a membership of approximately 800, it is international in scope with about 100 of those members who are DX YLs.

### YLRL Encourages

YLRL exists to encourage and assist YLs (Young Ladies) throughout the world to enter into the Amateur Radio Service. There are a variety of interests to offer licensed YLs from traffic handling, public service, contests, Awards, etc., Of course, there are the infinite benefits derived from just plain gal-to-gal ragchewing or eyeball QSOs at YL conventions and the resulting friendships. You are always welcome in any YLRL activity. Come on in - the YLs are anxious to meet you!

### YLRL Provides

YLRL provides a bimonthly newsletter, *YL Harmonics* to their members which highlight news about YLs in the US and DXYL's as well as news that may be of interest to both.

YLRL provides 2 *scholarships* to worthy YLs to continue their educations, with preference given to those in the academic study of communications and electronics or related arts and sciences.

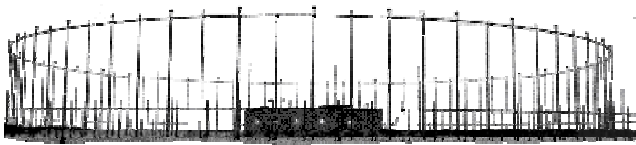
YLRL also offers a program of specialized service to blind YLs through the Tape Topics program. *YL Harmonics* is sent to the visually impaired members upon request. For more information, contact the Tape Topic Librarians.

Make your check (US only) or International Postal Money Order (in US Funds) payable to the Young Ladies' Radio League, Inc. and send to it to the Receiving Treasurer (RT) if its for a US, KH6, KL7 or VE YL or the DX Receiving Treasurer if you are sponsoring a DX-YL or are a DXYL paying for yourself.



## AN/FRD-10 CLASSIC BULLSEYE

The Naval Security Group (NAVSECGRU) worldwide CLASSIC BULLSEYE (now FLAGHOIST) network is part of the DOD Worldwide High Frequency Direction Finding System for strategic intelligence collection and emitter location. High-Frequency Direction-Finding [HF-DF, popularly known as *huff-duff*] intercepts and locates voice and message traffic transmitted on short-wave channels. HF-DF systems operate at frequencies where the signals are reflected from the earth's ionosphere [skywave signals]



HF-DF stations detect radio signals from aircraft or ships, and calculate the direction, or line of bearing, of the radio transmitter from the direction finding antenna. When the same signal is received by two or more antennae, the intersection of the lines of bearing mark the transmitter's location, using either precision single station location (SSL) capability, or in a network of DF stations using both multi-station azimuth triangulation and SSL. High Frequency Acquisition (AQ) and Direction Finding (DF) operations are performed with the Narrowband System (NBS) and Wideband Direction Finding (WBDF) Subsystem in support of normal and degraded communications modes, using both adaptive reception and super-resolution direction finding techniques.

CLASSIC BULLSEYE stations consist of the AN/FRD-10 circularly disposed antenna arrays (CDAA), popularly known as *elephant cages*. With a nominal range between 150 to 5000 kilometers, these arrays consist of two rings of HF antennae. The inner ring, for monitoring longer longer wavelength signals, is typically some 230 meters in diameter with some containing 40 folded dipoles. The outer ring for monitoring shorter HF wavelengths is about 260 meters in diameter and contains some 120 sleeve monopoles. Inside each ring is a large wire screen, supported by 80 towers, to shield antennae on the other side of the array from HF signals from crossing the array, which would interfere with geolocation operations. A horizontal ground screen about 400 meters in diameter surrounds the entire site. The station's intercept operators work in an operations building in the center of the array.

**CQ CQ CQ**

by: Jesse L. Jones, KL1RK

Ladies and Gentlemen (or Hams), it's that time of year again! Actually, it's a little past that time of year but who's counting? The Iditarod is looking for volunteers to serve as Anchorage Comms and Trail Comms. Most positions require only a Tech. Class license so all of you new KL2- calls can sign up too! Don't be shy, training is provided for all volunteers. This is an opportunity to see Alaska like only few get to see it. If interested, please contact me at [KL1RK\(at\)yahoo.com](mailto:KL1RK(at)yahoo.com) and let me know when your available, contact information and any preference as far as where you would like to work. Also, don't forget to fill out the Volunteer Application online at [www.iditarod.com](http://www.iditarod.com). Thanks and we hope to see 'ya on the trail!



## ORIGIN OF 73

*Via Louise Ramsey Moreau, W3WRE  
and Charles A. Wimer KC8EHA*

"The traditional expression "73" goes right back to the beginning of the landline telegraph days. It is found in some of the earliest editions of the numerical codes, each with a different definition, but each with the same idea in mind - it indicated that the end, or signature, was coming up. But there are no data to prove that any of these were used.

"The first authentic use of 73 is in the publication The National Telegraphic Review and Operators' Guide, first published in April 1857. At that time, 73 meant "My love to you"! Succeeding issues of this publication continued to use this definition of the term. Curiously enough, some of the other numerals used then had the same definition as they have now, but within a short time, the use of 73 began to change. "In the National Telegraph Convention, the numeral was changed from the Valentine-type sentiment to a vague sign of fraternalism. Here, 73 was a greeting, a friendly "word" between operators and it was so used on all wires.

"In 1859, the Western Union Company set up the standard "92 Code." A list of numerals from one to 92 was compiled to indicate a series of prepared phrases for use by the operators on the wires. Here, in the 92 Code, 73 changes from a fraternal sign to a very flowery "accept my compliments," which was in keeping with the florid language of that era. "Over the years from 1859 to 1900, the many manuals of telegraphy show variations of this meaning. Dodge's The Telegraph Instructor shows it merely as "compliments." The Twentieth Century Manual of Railways and Commercial Telegraphy defines it two ways, one listing as "my compliments to you"; but in the glossary of abbreviations it is merely "compliments."

Theodore A. Edison's Telegraphy Self-Taught shows a return of "accept my compliments." By 1908, however, a later edition of the Dodge Manual gives us today's definition of "best regards" with a backward look at the older meaning in another part of the work where it also lists it as "compliments."

"Best regards" has remained ever since as the "put-it-down-in-black-and-white" meaning of 73 but it has acquired overtones of much warmer meaning. Today, amateurs use it more in the manner that James Reid had intended that it be used - a "friendly word between operators." I hope that this helps you in some way....

73, Charles A. Wimer Amateur Radio Call: KC8EHA  
Assistant Emergency Coordinator, Trumbull County  
(OH) ARRL Official Emergency Station (OH)

## ORIGIN OF 33,

### The History and Proper Use of 33

*Reprinted from YL Harmonics, Issue #2, 1980*

"33", the signature used between YL's is often misused and its origin tends to get lost. YLRL was organized in 1939 and it was at this time that, through YLRL women amateur Radio Operators seemed to find their niche. "YL" was adopted as a general term denoting any licensed Amateur feminine operator, regardless of age or marital status. "33" was originated this same year by Clara, W2RUF - ex W8KYR- and adopted by YLRL for exclusive YL use. It means "Love sealed with friendship between one YL and another YL". With this background and meaning, it is very understandable that "33" is not only exclusive with YL's but is **NEVER** used in the plural. We sign "33", never 33"s.

Thanks to Lea AB5TY for the reference. (Note also that 73 and 88 should **NEVER** be used in the plural form. You would not say Best Regards's nor Hugs and Kisses's would you?)



Thanks to all those who made our  
Christmas party 2006 a great success.



# The Effects of Icing on UHF Yagi antennas

By Joseph H. Reisert

Icing is one of the most serious problems for antenna installations. Ice buildup not only increases antenna wind load and weight but often detunes an antenna to the point where it's no longer usable. Ice affects the performance of all antennas to some degree and the problem gets more serious the higher the frequency. The dipole elements in an antenna transform electromagnetic signals into electromagnetic waves radiating into free space. The impedance of free space is 377 ohms.

When ice first forms on an antenna, it is usually wet and conductive. This is the most destructive condition for electrically detuning an antenna. Afterwards, ice build-up increases and eventually will freeze solid. Detuning may not be as severe after the ice dries but now the wind load has greatly increased and the antenna may be stressed to the breaking point.

When ice melts, it may do so in an asymmetrical fashion so one side of the antenna may be more affected than the other. Antennas can also be damaged by flying ice from other nearby antennas often found on a tower installation. This can often cause catastrophic failures since ice is heavy and large ice sheets often break loose with wind or melting.

The best way to handle ice is to not let it form on the antenna in the first place. Over the years many attempts have been made to protect against ice build up by the use of various antenna coatings. Hydrophobic agents are recommended for coating antennas but they are expensive and must be periodically reapplied. Other coatings such as teflon (RTM) or PVC type materials have been tried but while they may delay icing, they seldom prevent ice buildup altogether.

Another method of protection against ice buildup is to enclose the antenna in a radome. Fiberglass tubes or radomes are often used on vertical omni directional antennas and are quite effective. However, vertical omni antennas are not as vulnerable to detuning and hence are less affected by ice. However, icing will still increase windload significantly.

Antenna elements are usually encased in a plastic

protective housing (radome). This provides an air space between the elements and ice casing so that the lower impedance of the ice layer has only a small effect on the radiators. Detuning is greatly reduced but radiation pattern distortion may still be encountered (detuning reduces usable antenna bandwidth). For a given ice thickness, deviation from nominal performance values become worse as frequency increases.

Yagi antennas have a special problem when coated with ice. When the director elements become fat (due to the ice), they electrically lengthen and start to perform like reflectors. In extreme cases of ice buildup, the maximum gain may be higher off the rear of the antenna!



Some manufacturers have resorted to placing a radome completely around a Yagi antenna or at least over some of the elements (e.g. the driven element and first few directors). While this may prevent ice buildup on that part of the antenna, it significantly increases cost and windload and may not completely prevent performance degradation from ice on unprotected elements.

One way to decrease the affects of icing is to use larger (fatter) diameter elements. Fatter elements have a lower Q and the percentage change with ice buildup is decreased. These are available in our

heavy duty Yagi series.

Another technique is to tune Yagi antennas slightly higher in frequency thus increasing the cutoff frequency. If this technique is properly employed, the gain drop over the band of interest is insignificant, typically only tenths of a dB. However, when ice begins to form, the cutoff frequency slowly decreases and the gain gracefully degrades instead of completely reversing direction. We feel that this approach is more cost effective and apply this technique to all our Yagi antennas whether they are the regular or heavy duty type.

Still another possibility to decrease the effects of icing is to use a stack of antennas. This not only increases performance but when icing occurs, if it is not identical on both antennas, the performance may not be degraded completely.





### **Mission statement:**

Dedicated to amateur radio as it pertains to disaster services. The history of amateur radio operators' involvement in sending life-saving information in and out of disaster areas [and] providing help during and after earthquakes, floods, hurricanes and tornadoes. "HAM's have been there to assist local, state, and federal agencies and relief organizations such as the American Red Cross and Salvation Army." When All Else Fails, Amateur Radio.

## **Amateur Tactical Operation**

*By Jeff Schmidt N5MNW*

Hams have, for years, been assisting cross-country foot and bike races, parades, etc. No other radio service provides the coverage, bandwidth, reliability and affordability that Amateur Radio does (hard to beat free). Hams also are well known for their disciplined ability to communicate efficiently.

Operation during times of emergency or time-critical situations is called- Tactical Operations. A different set of operational techniques is used to smooth the flow of information to and from points in the affected area.

In "normal" Amateur communications, we are not pressed for time and will often chat for long periods of time about nothing in particular. Certain "normal" practices become a hindrance to quick, efficient passing of information.

A change in methods is warranted when there is a sense of urgency in our communications. Local ARES groups hold regularly-scheduled "Nets" to practice this disciplined operation for just this reason. The National Traffic System is devoted to the efficient passing of formal message traffic and has many procedures and tools to aid in error-free handling of messages.

One noticeable thing that differentiates "normal" day-to-day operation is that there is usually a single person "in charge" and directing transmissions on the frequency. This station is known as the "Net Control Station" or NCS. People who wish to make communications on the frequency should "check in" with the NCS and follow his/her instructions.

Another difference- Tactical call signs are often used,

such as "Checkpoint One" or "Waterstop Seven". These "call signs" are an aid to the NCS and other responders to quickly identify a location. Tactical check-ins are usually taken FIFO (First In, First Out), unless priority is indicated. If numerous check-ins are being taken, indicate priority when you check-in, including low priority.

Tactical call signs -never- serve as your station's FCC required ID! You must ID your station according to the minimum stated in Part 95. Add your FCC call on the 2<sup>nd</sup> or 3<sup>rd</sup> transmission or when you are sure you are making your last transmission. This sequence will become apparent once you get an idea of how a particular net is handled.

Excessive time spent identifying causes unacceptably long transmissions!

Here's a poor form example:

NCS: "Checkpoint Foxtrot, this is Net Control calling."

KD5ABC: "Roger, Roger, go ahead, Net Control. This is KD5ABC, that's Kilowatt Delta Five Alpha Bravo Charlie, Checkpoint Foxtrot, over."

NCS: "What's your report?"

KD5ABC: "KD5ABC, Checkpoint Foxtrot reports, nothing to report. This is KD5ABC, that's Kilowatt Delta Five Alpha Bravo Charlie, clear and monitoring, over and out."

NCS: "Thank You, Foxtrot, N5NCS"

...Better to say little or nothing at all if you have no report. Can you imagine the frustration of someone trying to make an important transmission during KD5ABC's monologues?

Here's an example of better form:

NCS: "Checkpoint Foxtrot, this is Net Control calling."

KD5ABC: "Foxtrot here, Net, go ahead."

NCS: "What's your report?"

KD5ABC: "No Traffic, nothing to report Net. All clear. KD5ABC"

NCS: "Thank You, Foxtrot, N5NCS"

Notice that FCC regulations are observed in each of these examples. Which is most efficient in terms of time taken vs. information passed?

### **ARES District 7 Contact Information**

Heather Hasper, KL7SP  
[KL7SP \(at\) AARL.NET](mailto:KL7SP(at)AARL.NET)  
907-275-7474





## **ARES - Section 7, District 7 (Anchorage, ALASKA)**

Also notice that the NCS did not berate or correct the individual on the air. A good NCS will seldom if ever, correct an operator during a tactical situation. Not only will valuable net time be wasted but, an obviously well-intentioned volunteer may be dis-encouraged. In person after the event or at the "Post Mortem" off the airwaves is the best place for constructive criticism!

There will be times you have important traffic for stations on the Net. Certain words are reserved to indicate levels of urgency. If you have something urgent, state so. Along with your initial break or quick interjection, add "Medical", "Urgent", "Priority" or some other appropriate single word to indicate how your traffic should be triaged.

The word "**Break**":

"Break" should be used only when you must disrupt the ongoing conversation. Uttering the phrase "Break, Break" indicates urgency and will be handled appropriately.

The word "**Mayday**":

Mayday is the most extreme level of urgency and of course, should ONLY be used when imminent loss of life or property is threatened.

It is vital that everyone remains alert and attentive to calls made on the controlled frequency. It is also important to remain quiet unless you have a real need to make a transmission. That is the hardest thing for some of us chatterboxes to do!

Listen for other stations before calling, especially of you've just tuned in to the frequency. Be sure air is clear of more important traffic than yours. Yield to priority. For example, if NCS is assisting medical, delay your check-in to report "all clear" at your location.

When you don't have critical or time-valued information, it is good practice to leave the frequency as open as possible for priority traffic. Short transmissions and quick, succinct transfer of information is vital to efficient net operations.

-Most Important Thing To Remember-

No one is perfect. Don't put undue stress on yourself or anyone else to be.

I encourage you to contact an organizer of one or more of the many upcoming communications events. They can always use the help and I know you'll learn more about the greatest "hobby" ever—The Amateur Radio Service!

73 N5MNW Jeff

## **Public Service**



It is that time of year again when we start planning for Sled Dog Races. Time to purchase those 2007 calendars and get them pre marked with all the upcoming 2007 events. Listed below are events that local radio clubs and event coordinators will be looking for communication volunteers to support these upcoming public service events. Your participation is appreciated.



### **Knik 200 January 6-7, 2007**

Contact: KL1IL, Ray A. Hollenbeck: 373-6771  
[fuzz@mtaonline.net](mailto:fuzz@mtaonline.net)

### **Copper Basin January 13-16, 2007**

Contact: Eric Lutz [elutz@crsd.k12.ak.us](mailto:elutz@crsd.k12.ak.us)

### **Eagle River Classic January 20 - 21,, 2007**

Contact: TJ Sheffield: [KL7TS@arrl.net](mailto:KL7TS@arrl.net)

### **Klondike 300 January 20 - 21, 2007**

Contact KL1WG Bob Morgan 892-8910  
[bobm1@mtaonline.net](mailto:bobm1@mtaonline.net)

### **Goosebay 120** No info at this time

### **Fur Rondy Sled Dog Race February 24 - 26**

(We have confirmed that this is planned weather permitting) Contact:



### **Junior Iditarod**

Contact KL7DY Richard Plack 745-5222  
[kl7dy@arrl.net](mailto:kl7dy@arrl.net)

### **IDITAROD XXXV START: March 3, 2007**

Contact: AL1W, Gordon Hartlieb  
[al1w@arrl.net](mailto:al1w@arrl.net)



### **Iditarod Restart March 4, 2007**









Contact KL1IL Ray A. Hollenbeck 373-6771  
[fuzz@mtaonline.net](mailto:fuzz@mtaonline.net)



# January 2007

**Anchorage Amateur Radio Club**  
**PO BOX 101987**  
**Anchorage, AK 99510-1987**  
[www.KL7AA.net](http://www.KL7AA.net)

**ANCHORAGE ARES**  
**DISTRICT 7 & 5**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
EARS: R1 North, Contact: Ron Keesch: KL1PL@arrl.net	1	2 MARA Board Meeting 7PM	3	4 	5 AARC Meeting 7PM 	6 KNIK 200
7 KNIK 200	8 General HAM CLASS 6:30	9	10 General HAM CLASS 6:30	11 	12 SCRC Meeting 7PM 	13 PARKA meeting 11 AM EARS: 3PM 
14	15 General HAM CLASS 6:30	16 AARC Board Meeting 7PM	17 General HAM CLASS 6:30	18 	19 QRP meeting 7PM	20 Eagle River Classic
21 Eagle River Classic	22 General HAM CLASS 6:30	23	24 General HAM CLASS 6:30	25 	26 MARA meeting 7PM 	27
28	29 General HAM CLASS 6:30	30	31 General HAM CLASS 6:30	SCRC: South Central Radio Club & QRP club meetings held at the Denny's at Bragaw and DeBarr. Parka, meets at Peggy's restaurant, 11AM Contact: Lil Marvin NL7DL, 277-6741		

**ARES NET: Thursday Nights 8:00 PM 147.27+ PL: 103.5 or 443.30+ PL 103.5**

## Schedule of Events:



### ARES NETS:

**1st Thursday:** HT / Portable  
**2nd Thursday:** Mobile Madness  
**3rd Thursday:** RED CROSS  
**4th Thursday:** Emergency Power

### 1/6 & 1/7 Knik 200 Sled Dog Race:

Contact: Ray Hollenbeck, KL1IL: [fuzz@mtaonline.com](mailto:fuzz@mtaonline.com)

### 1/13 - 1/16 Copper Basin

Contact: Eric Lutz [elutz@crsd.k12.ak.us](mailto:elutz@crsd.k12.ak.us)

### 1/20 & 1/21 Klondike 300:

Contact: Bob Morgan: KL1WG: 892-8910

### 1/20 & 1/21 Eagle River Classic:

Contact: TJ Sheffield: [KL7TS@arrl.net](mailto:KL7TS@arrl.net)

To add to the Calendar please contact: John Lynn at [Johnlynn@gci.net](mailto:Johnlynn@gci.net)

# End of an Era:

## FCC to Drop Morse Testing for *All* Amateur License Classes

*ARRL Letter, December 15, 2006*

NEWINGTON, CT, Dec 15, 2006 --

In an historic move, the FCC has acted to drop the Morse code requirement for *all* Amateur Radio license classes. The Commission adopted, but hasn't yet released, the long-awaited *Report and Order* (R&O) in WT Docket 05-235, the "Morse code" proceeding. The FCC also has adopted an *Order on Reconsideration* in WT Docket 04-140 -- the "omnibus" proceeding -- modifying the Amateur Radio rules in response to an ARRL request to accommodate automatically controlled narrowband digital stations on 80 meters in the wake of rule changes that became effective December 15. The Commission designated the 3585 to 3600 kHz frequency segment for such operations, although the segment will remain available for CW, RTTY and data as it has been. So far, the FCC has only issued a [public notice](#) and *not* the actual orders detailing the rule changes. ***The effective date of both orders is not yet known***, but it appears likely at this point that it will be sometime in February. Currently, Amateur Radio applicants must pass a 5 WPM Morse code test to operate on HF. The FCC's action will eliminate that requirement all around.

"This change eliminates an unnecessary regulatory burden that may discourage current Amateur Radio operators from advancing their skills and participating more fully in the benefits of Amateur Radio," the FCC said. The ARRL had asked the FCC to retain the 5 WPM for Amateur Extra class applicants only. The FCC proposed earlier to drop the requirement across the board, however, and it held to that decision. A list of frequently asked questions ([FAQs](#)) on both orders is posted on the ARRL Web site.

The FCC's action in WT Docket 05-235 will grant limited HF privileges to all Technician licensees, whether or not they've passed a Morse code examination. Once the R&O goes into effect, all Technician class license holders will be able to enjoy current "Tech Plus" HF privileges in addition to their current VHF/UHF privileges. The FCC said the R&O in the Morse code docket would eliminate a disparity in the operating privileges for the Technician and Technician Plus class licensees -- something the ARRL also has asked the Commission to correct following the release of its July 2005 *Notice of Proposed Rule Making* ([NPRM](#)) in WT Docket 05-235.

"With today's elimination of the Morse code exam requirements, the FCC concluded that the disparity between the operating privileges of Technician class licensees and Technician Plus class licensees should not be retained," the FCC public notice said. "Therefore, the FCC, in today's action, afforded Technician and Technician Plus licensees identical operating privileges."



Technician licensees *without* Element 1 credit currently have operating privileges on all amateur frequencies above 30 MHz. Technicians with Element 1 credit (i.e., "Tech Plus" licensees) have limited HF privileges on 80, 40, 15 and 10 meters. Under the Part 97 rules the Commission proposed last year in its *NPRM* in WT Docket 05-235, current Technicians lacking Morse credit after the new rules went into effect would have had to upgrade to General to earn any HF privileges.

Privileges will remain the same for Novice, General, Advanced and Amateur Extra class licensees. Typically, the effective date of a FCC order comes 30 days after its publication in the *Federal Register*. If that's the case, the new exam requirement and the revised 80-meter segment for automatically controlled digital stations would likely not go into effect until sometime in February 2007. At the time the rule changes adopted in the R&O are published in the *Federal Register*, the effective date also will become known (it is included in the *Federal Register* summary). In any event, the new rules will *not* go into effect anytime *before* they show up in the *Federal Register*.

The FCC has clarified that there will be no changes in the administration of Amateur Radio examination elements and in granting a *Certificate for Successful Completion of Examination* (CSCÉ) for General and Extra class until the new rules go into effect. CSCÉs are only valid for examination credit for 365 days from date of issuance; applicants cannot use CSCÉs older than that to upgrade. Volunteer Examiner Coordinators (VECs) will handle all upgrades through volunteer examiner teams.

Candidates for General or Amateur Extra testing between now and the effective date of the new rules will still have to pass Element 1 (5 WPM Morse code) to obtain new privileges. Those earning Element 3 or Element 4 credit between now and the effective date of the new rules will receive a CSCE from the VE team. Once the new rules are in place, anyone holding a valid CSCE may apply for an upgrade at an exam session and pay the fee, if any.

The wholesale elimination of a Morse code requirement for all license classes ends a longstanding national and international regulatory tradition in the requirements to gain access to Amateur Radio frequencies below 30 MHz. The first no-code license in the US was the Technician ticket, instituted in 1991. The question of whether or not to drop the Morse requirement altogether has been the subject of often-heated debate over the past several years, but the handwriting has been on the wall -- especially since the FCC instituted an across-the-board 5 WPM Morse requirement effective April 15, 2000, in the most-recent major Amateur Radio licensing restructuring ([WT Docket 98-143](#)).

The FCC said the *Re&O* in WT Docket 05-235 will comport with revisions to the international *Radio Regulations* resulting from the International Telecommunication Union (ITU) World Radio Communication Conference 2003 (WRC-03). At that gathering, delegates agreed to authorize each country to determine whether or not to require that applicants demonstrate Morse code proficiency in order to qualify for an Amateur Radio license with privileges on frequencies below 30 MHz.

The list of countries dropping the Morse requirement has been growing steadily since WRC-03. A number of countries, including Canada, the UK and several European nations, now no longer require applicants for an Amateur Radio license to pass a Morse code test to gain HF operating privileges. Following WRC-03, the FCC received several petitions for rule making asking it to eliminate the Morse requirement in the US.

The ARRL will provide any additional information on these important Part 97 rule revisions as it becomes available.

## Frequently Asked Questions

### About the FCC's Morse Code Report and Order in WT Docket 05-235 and the FCC Order on Reconsideration in WT Docket 04-140

If you have a question not covered in this FAQ, please contact the ARRL [Regulatory Information Branch](#).

#### **Q. The *Report and Order* in WT Docket 05-235 that eliminates the Morse Code testing requirement for all license classes was adopted by the FCC on December 15, 2006. When will it become effective?**

A. Typically, the effective date of a FCC order comes 30 days after its publication in the *Federal Register*. If that's the case, the new exam requirement and the revised 80-meter segment for automatically controlled digital stations would likely go into effect sometime in February 2007. When the rule changes adopted in the *Re&O* are published in the *Federal Register*, the effective date will be included in the *Federal Register* summary. In any event, the new rules will *not* go into effect anytime *before* they show up in the *Federal Register*.

As soon as the *Re&O* is published in the *Federal Register* the ARRL will verify the effective date and publicize it on the **ARRLWeb** and in **QST**.

#### **Q. I am a "no-code" Technician. What does WT Docket 05-235 mean to me?**

A. Once the changes are in effect, all Technician licensees -- whether or not they have passed a Morse code examination -- will have "Tech Plus" operating privileges. This means you will have all of your current VHF/UHF and above frequencies and also will have access to the Novice/Technician Plus frequencies on HF. These include:

3525-3600 kHz CW only

7025-7125 kHz CW only

21,025-21,200 kHz CW only

28,000-28,300 kHz CW, RTTY and Data

28,300-28,500 kHz CW, SSB

The power limit is 200 W PEP output for Technician operators.

Technicians can upgrade to General by passing the Element 3 written exam and to Amateur Extra by also passing the Element 4 written exam. No Morse code test will be required.



**Q. What about other bands and modes?**

A. There are no additional new privileges available to Technician/Tech Plus licensees as a result of WT 05-235. The R&O does not change the operating privileges of Novice, General, Advanced and Amateur Extra class licensees either.

**Q. I have a Certificate for Successful Completion of Examination (CSCE) for Element 3 (General written test) and have been waiting for the FCC to drop the Morse code requirement. What will I need to do? Will I automatically receive my General license?**

A. *It will not happen automatically.* You also will need to wait until the new rules are in effect. CSCEs remain valid for 365 days. There's been no change in that rule. If you have a *non-expired CSCE* for Element 3 credit, you would need to go to take the CSCE to a VE test session, pay the test session fee, if any, and have the examination team prepare and submit the paperwork for your license upgrade.

*If the CSCE for Element 3 credit has expired* or expires before you attend a test session to process your upgrade, you will have to retake the examination element in order to receive the credit toward your upgrade. The test session fee will apply.

*Remember: A CSCE is only valid for 365 days. An expired CSCE for the General license theory will not be usable for an upgrade.* If your CSCE expires before the new rules go into effect you will have to re-take the Element 3 General class theory exam in order to upgrade.

**Q. I hold a Novice license. Am I grandfathered to Technician now?**

A. No. There is no grandfather provision. In order to upgrade to Technician, you will need to pass the Element 2 written examination. The FCC did not change operating privileges for Novice, General, Advanced and Amateur Extra class licensees.

**Q. I am a current Advanced licensee. Am I affected by this change?**

A. No, this ruling does not impact your license. While no new Advanced class licenses are being issued, current Advanced class licensees will have the same privileges they already enjoy. The R&O does not change operating privileges for Novice, General, Advanced and Amateur Extra class licensees.

**Q. I got my Technician license prior to March 21, 1987. What happens to my license?**

A. You actually could have already taken that license and proof that you had the Technician license before that date to a volunteer examiner (VE) test session, paid the test session fee and already enjoying General privileges. This latest R&O doesn't change anything in this regard.

This is based on the fact that before that date, the only difference between the Technician and General class licenses was the Morse code speed; the theory exams were identical. Starting March 21, 1987, the Technician and General class license exams no longer were the same, so the "grandfather" rule doesn't apply for Technician licenses issued after March 21, 1987.

Proof that you held the license prior to March 21, 1987, could be a copy of your old Technician license or the page from the amateur *Call Book* showing your license class as Technician).

**Q. Do I still need to pass a Morse code test in order to use CW on the air?**

A. No. Any Amateur Radio licensee who wishes may use Morse code on the amateur frequencies they are authorized to use -- except the five USB-only channels at 5 MHz.

**Q. The FCC issued an Order on Reconsideration involving automatically controlled digital operations previously allowed on 3620-3635 kHz. What is that Order's effect?**

A. The FCC *Order on Reconsideration* states that when it becomes effective, the automatically controlled digital operation formerly allowed on 3620-3635 kHz will now be allowed on 3585-3600 kHz. The change affects Part 97.221 (b). While it is correcting a problem in the R&O for WT Docket 04-140, this change does not take effect immediately but on the date announced in the *Federal Register* when the R&O is published -- no sooner. Until that time, you may not have unattended automatically controlled digital stations on either the old or the new 80 meter subband.

## Data You Can Use:



### 2007 Board of Directors

**President:** Kathleen O'Keefe, KL7KO [president@kl7aa.net](mailto:president@kl7aa.net)  
**Vice Pres:** Jim Larsen, AL7FS [vicepresident@kl7aa.net](mailto:vicepresident@kl7aa.net)  
**Secretary:** Diane Olson, KL1MY [secretary@kl7aa.net](mailto:secretary@kl7aa.net)  
**Treasurer:** Heather Hasper, KL7SP [treasurer@kl7aa.net](mailto:treasurer@kl7aa.net)  
**Activities Chairman:** Pat Wilke, WL7JA [activities@kl7aa.net](mailto:activities@kl7aa.net)  
**Trustee:** Keith Clark, KL7MM [trustee@kl7aa.net](mailto:trustee@kl7aa.net)  
**Membership Chairman:**  
Fred Erickson, KL7FE [membership@kl7aa.net](mailto:membership@kl7aa.net)  
**News Letter Editor:** Kathleen R. O'Keefe, KL7KO

### Three Year Board Members

Frank Pratt, KL7RX kl7rx at arrl.net (3rd year)  
Paul Spatzek, WL7BF Paul.Spatzek at acsalaska.net (2nd Year)  
Michael OKeefe, KL7MD mok at gci.net (1st Year)

### One Year Board Members

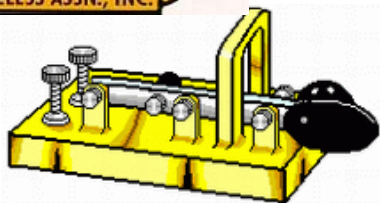
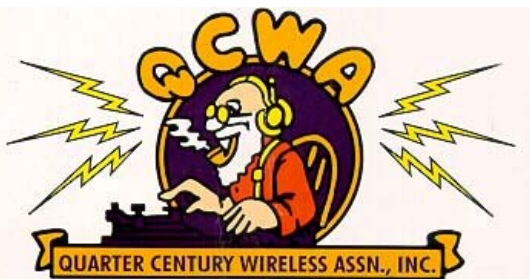
Richard Kotsch - WL7CPX, richardkotsch at yahoo.com  
TJ Sheffield - KL7TS, kl7ts at arrl.net  
Edward Moses - KL1KL, kl1kl at ak.net  
Nick Cassler - KL1XD ncassler at tertiary.net  
Judi Ramage: WL7DX, damage at gci.net  
John Orella: KL7LL, kl7ll at arrl.net  
Susan Woods: NL7NN, nl7nn at arrl.net  
Richard Block: KL7RLB, kl7rlb at clearwire.net

### AARC web page & Email contact addresses:

**Homepage:** <http://www.KL7AA.net/>  
**Webmaster:** [webmaster@kl7aa.net](mailto:webmaster@kl7aa.net)  
**Membership:** [membership@kl7aa.net](mailto:membership@kl7aa.net)  
**Newsletter:** [editor@kl7aa.net](mailto:editor@kl7aa.net)

### News Letter Submissions, Information or corrections:

Submissions must be received 2 weeks before meeting  
Email: [editor@kl7aa.net](mailto:editor@kl7aa.net)



Any AARC sponsored repeater, with or without an auto-patch, will always be open to all licensed amateur radio operators in the area who are authorized to operate on those frequencies.

### Anchorage & Mat Valley Area Repeaters-a/o Dec 31 2006

**KL7AA: Flattop Mountain** 2,200 ft  
146.94/34 MHz, 80 watts, auto-patch, 141.3 Hz PL  
224.94/223.34, 25 watts, no patch, no PL  
444.70/449.70, 25 watts, auto-patch, 103.5 PL

**WL7CVG: Mount Susitna** 4,396 ft  
VHF: WL7CVG/R1 147.270/147.870 PL 103.5, no auto-patch  
UHF: WL7CVG/R3 443.300/448.300 PL 103.5, no auto-patch

**WL7CVF: Grubstake: Hatcher Pass** 4,536 ft  
VHF: WL7CVF/R1 147.330 / 147.930 PL 103.5 Hz (no patch)  
UHF: WL7CVF/R3 443.900 / 448.900 PL 103.5 Hz (no patch)

**KL7CC, Anchorage Hillside, SCRC & QCWA**  
146.97/.37 MHz, 30 watts, auto-patch, 103.5 Hz PL

**KL7M Anchorage Hillside**  
147.21 / 147.81 MHz, on IRLP, 97.4 Hz PL

**KL7ION at Mt. Gordon Lyon, PARKA** 3,940 ft  
147.30 / 147.90, MHz - 80 watts, no patch, 141.3 Hz PL

**KL7AIR Elmendorf AFB, EARS:** 146.67/146.07, 107.2 Hz PL

**KL7JFU, KGB road, MARA:** 146.85/146.25, auto-patch, no PL  
Palmer IRLP: 146.64/.04, simplex patch, no PL

Mile 58.3 Parks Highway IRLP: 147.09/.69 MHz, 97.4 Hz PL

**KL3K, Girdwood - IRLP**  
146.76 / 146.16 MHz, 25 watts, no patch, 97.4 Hz PL

South Anchorage IRLP—**KL7AX:** 146.79/ 146.19 MHz, 100 Hz PL

**WL7CWE** Anchorage IRLP  
2 Meter: 146.82/146.22MHz PL 103.5  
6 Meter: 51.65 output / 51.15 input, PL 103.5Hz  
70 cm: 444.85/449.850 MHz PL: 103.5 Hz (Node 3400)

**South Central Area Simplex Frequencies**  
146.52 MHz Calling and Emergency frequency  
147.57 MHz National DX Calling / Coordinating frequency  
146.49 MHz Anchorage area simplex chat  
146.43 MHz Mat-Su Valley simplex chat

### Nets in Alaska:

The following nets are active in South-central Alaska:

**Alaska Sniper's Net** 3.920 MHz 6:00 PM daily  
**Alaska Bush Net:** 7.093 MHz 8:00 PM daily  
**Alaska Motley Net:** 3.933 MHz 9:00 PM daily  
**Alaska Pacific Net:** 14.292 MHz 8:00 AM M-F  
**ACWN (Alaska CW Net)** 3534, 7042 Daily @ 0700 -1000, and 1900 - 2400 Alaska Time - AL7N or KL5T monitoring.  
Net Purpose: Formal NTS traffic via CW.  
**No Name Net:** 146.85/.25 repeater Sundays 8:00 PM  
**Grandson of SSB Net:** 144.20 USB Mondays 8:00 PM local  
**Big City Simplex Net:** 146.520, 446.0, & 52.525 FM  
With Packet 145.01 Tuesdays 8:00 PM local  
**ARES Net:** 147.27/87 103.5Hz - Thursdays at 8:00 PM local  
**PARKA Net** 147.30/.90 Thursdays at 7:00 PM local  
**ERC VHF Net:** 147.27/87 103.5Hz - Sunday 7:30 PM local  
**ERC HF Net:** 3.880 MHz - Sunday 8:30PM local  
**Statewide ARES Net:** 147.27/87 103.5Hz Sunday 7:30 PM local

## Internet Links, the favorites from our readers:

AARC <http://www.KL7AA.net/>

SCRC <http://www.KL7G.org>

EARS <http://www.qsl.net/kl7air>

MARA <http://www.kl7jfu.com>

Moose Horn ARC <http://www.alaksa.net/~kl7fg>

ARES <http://www.qsl.net/aresalaska>

Practice Exams : <http://www.AA9PW.com>

Fairbanks AARC: <http://www.kl7kc.com/>

Yukon Amateur Radio Association:

<http://www.klondike.com/yara/index.html>

Links for Homebrewers & QRPers

<http://www.haarp.alaska.edu/>

<http://www.amqrp.org/misc/links.html>

QRP and Homebrew Links <http://www.AL7FS.us>

Solar Terrestrial Activity <http://209.130.27.95/solar/>

ARRL <http://www.arrl.org/>

Propagation Report Recording 566-1819

Please let us know if there are other clubs pages or good starting points that should appear here. **Report dead links or bad info to [editor@kl7aa.net](mailto:editor@kl7aa.net)**

### Regular HAM Gatherings:

**Tuesday Lunch, 11:30 AM:** Denny's on Denali behind Sears. Several old timers show for this and have lots of stories to share.

**Thursdays Brunch, 9:30 AM:** Brunch NW corner of Debarr and Bragaw at Birch Tree Dining. A great bunch of folks attend this one.

**Saturdays Breakfast, 7:30 AM:** Here is a good way to get started on the weekend. Come and meet with some of the locals and have a great breakfast at American Diner, at the SE corner of Arctic and International. Great Fun.

### Who Do I Contact to Join AARC

Fred Erickson KL7FE

12531 Alpine Dr

Anchorage, AK 99516-3121

E-mail: [membership \(at\) kl7aa.net](mailto:membership(at)kl7aa.net)

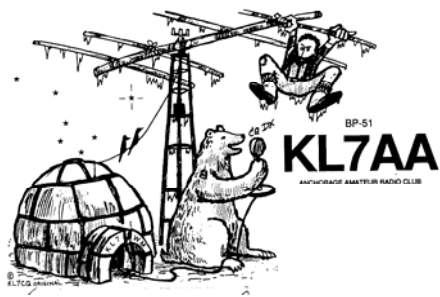
Phone number: 345-2181

Annual Dues are \$12 (prorated as appropriate)

Additional Member in same household is \$6.

Full Time Student is no charge.

Ask about Life Memberships



## MONTHLY EVENTS

**1<sup>st</sup> Friday each month: AARC general meeting - 7:00 PM** in the Carr-Gottstein Building, on the APU Campus. Talk in will be on 147.27+ repeater.

**1<sup>st</sup> Tuesday each month (except for holidays):**

**VE License Exam 6:30 PM**, at the Hope Cottage offices, 540 W International. Bring photo ID, copy of license (if any) and any certificates of completion. Contact: Jim Wiley, KL7CC 338-0662.

**2<sup>nd</sup> Friday each month: SCRC general meeting at 7:00 PM** at Denny's on Denali Street. Talk in on 147.27+.

**2<sup>nd</sup> Saturday each month: PARKA Meeting at 11:00 AM.** at Peggy's, across from Merrill Field.

**2<sup>nd</sup> Saturday each month (except for holidays):**

**VE License Exams at 2:00 PM.** at Hope Cottage 540 W. International. Be sure to bring photo ID, copy of license (if any) and any certificates of completion. Contact: Jim Wiley, KL7CC 338-0662.

**2<sup>nd</sup> Saturday of each month: EARS general meeting at 3:00 PM.** Meetings are held at R1 North, next scheduled meeting is Saturday, November 11, 2006 at 1500. Contact info - PO Box 7069, Elmendorf AFB 99506 or email Ron Keech, KL1PL for information. (Home) 349-2442

Email: [kl7air@qth.net](mailto:kl7air@qth.net) or [ronkeech@kl1pl.us](mailto:ronkeech@kl1pl.us)

**3<sup>rd</sup> Tuesday each month: AARC Board meeting at 7:00 PM** at Hope Cottage 540 W. International. All are invited and encouraged to attend.

**3<sup>rd</sup> Friday each month: Alaska QRP Club meeting 7:00 PM:** Hams with QRP (low power under 5 watts) and Homebrewing interests meet for a social meeting monthly. Meet at Denny's on DeBarr & Bragaw in the back room. Bring projects to share with the group. Hungry QRPers start showing up about 6PM. Info contact Jim Larsen, AL7FS, [JimLarsen2002@alaska.net](mailto:JimLarsen2002@alaska.net) or 345-3190.

**3<sup>rd</sup> Saturday each month: ARES General meeting 9:30AM to 12:00 PM.** Call TJ Sheffield - KL7TS: kl7ts at arrl.net HM: 248-3864 for additional information. Also check for ARES Info at: <http://www.qsl.net/aresalaska/>

**4<sup>th</sup> Saturday of each month: Valley VE Testing at 7PM.** sessions will be held at the Wasilla Red Cross at 7 pm on the fourth Saturday of each month unless it is a major holiday weekend. Wasilla Red Cross is in the Westside Mall, next to Speedy Glass...it's just a click up from AIH hardware.

**The last Friday each month: MARA meeting at 7PM** Fire Station 61, located two blocks up Lucille Drive, from the Parks hwy. Talk-in help for the meeting can be acquired on either the 146.640 or 146.850 repeaters. Further details can be found by contacting Len Betts, KL7LB, [lelbak@yahoo.com](mailto:lelbak@yahoo.com).



Anchorage Amateur Radio Club, Inc  
Post Office Box 101987  
Anchorage, Alaska 99510-1987  
[www.kl7aa.net](http://www.kl7aa.net)

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