

# Anchorage Amateur Radio Club

Next Meeting September 7<sup>th</sup> 2007, 7:00 PM



## SEPTEMBER PROGRAM:

Mead Treadwell, Chair

### U.S. Arctic Research Commission,

Mr. Treadwell served as Deputy Commissioner of Alaska's Department of Environmental Conservation in the Hickel Cabinet from 1990-1994, and represented the State of Alaska on US Delegations circumpolar government groups

Mead Treadwell was appointed to the US Arctic Research Commission in 2001 and was designated chair by the President in 2006. During his 30 years residency in Alaska, Mead Treadwell has played an active role in Arctic research and exploration.

As Senior Fellow of the Institute of the North, Treadwell helped establish the Siberia Alaska Gateway Project of the Alaska State Chamber of Commerce which worked to open the US-Russia border with the Friendship Flight and a series of follow-on exchanges in 1988 and 1989. His research at the Institute focuses on strategic and defense issues facing Alaska and Arctic regions, management of Alaska's commonly owned resources and integration of Arctic transport and telecommunications infrastructure.

## Explanation of "Flat Audio"

By Shorty Stouffer, K6JSI

I'd like to start off with a quick "Fly-By" description of just how audio works in FM two-way radio. Here we will briefly examine pre-emphasis and de-emphasis, repeater audio, and then we will discuss Flat Audio, and how it differs from most repeater audio scenarios today. Later, we will delve into the details in more depth. So here we go with the "Fly-By."

### Fly-By

When FM began to be used in the late 1930's and early 1940's it quickly became the preferred mode of radio communications, primarily because of its far superior signal-to-noise ratio, and its ability to provide noise-free communications. At that time it was a one-radio to one-radio service. The same as what we call 'Simplex' today. Repeaters were not even dreamed of yet.

All early FM transmitters used Phase Modulation, which means they automatically doubled the deviation of an FM signal with every doubling of the audio frequency. This effect is called Pre-Emphasis, and works as a 6 dB per octave increase in deviation, or a 'roll-up' in deviation. It provided for a much better signal-to-noise ratio, by making the higher frequencies have as much audio punch as the lower frequencies, as it evened out the audio. The receivers of the day all had a De-Emphasis, or a 'roll-down' circuit in them, to restore the audio back to normal.

This is the way we still do it today, even with FM transmitters. FM transmitters have a pre-emphasis circuit built in, to be compatible with the existing PM transmitters, and because all of the receivers out there are running de-emphasis circuits.

When repeaters came along, hooking up the audio between the repeater RX and TX became a hotly contested topic, with many variations on how to do it. Some repeater builders took the user's pre-emphasized audio and de-emphasized it in the repeater RX, then pre-emphasized it again in the repeater TX for delivery to the end user. Then the end user's receiver de-emphasized it again, thus returning the audio to normal. Whew! This could probably work out if all of the emphasis curves in the repeater are matched (a difficult task). Also, all the processing in the TX's speech amplifier affects the audio quality too.

Another scenario is when a mismatch occurs in a repeater because only one side of the repeater processes the audio. For instance, if there is an extra pre-emphasis stage in the repeater, the audio will sound very tinny, and high-pitched, all high's with the low's missing. If there is an extra de-emphasis stage in the repeater, the audio will sound very mushy and lifeless, all low's with the high's missing.

Many repeater builders have different approaches, for instance, taking speaker audio and cramming it in to microphone input. Ouch! Others try to run CTCSS on the repeater TX by just connecting the RX audio and the CTCSS encoder audio outputs together, thereby loading down both circuits, and making everything sound mushy. Then when we begin to link repeaters together, it gets even worse, with all those link and repeater receivers and transmitters. Double Ouch. There have been some really interesting lash-ups over the years, with varying degrees of success and failure.

### Flat Audio

When most of us talk about 'flat audio' we're talking about passing audio through the repeater without any de-emphasis or pre-emphasis stages, or other audio processing in between. Since the audio is already pre-emphasized by the user's transmitter, you're not dealing with 'flat audio' in the repeater anyway.

Taking the audio from the discriminator on the RX, where it is still pure and pre-emphasized by the user, before it is de-emphasized, we pass it through a controller, and then inject it in the transmitter's audio chain well past the microphone input, past the speech amplifier, past the pre-emphasis network, and directly into the modulator. This keeps the audio 'flat' through the repeater. Hence the term, 'flat audio.'

## Explanation of Flat Audio (cont)

This way the audio is un-modified as it works its way through the repeater. The RX leaves it alone, the controller leaves it alone, and the TX leaves it alone. The only audio shaping, or processing, is done at the user's transmitter, and the end user's receiver, just like simplex.

There are two things that need to be addressed in this Flat Audio scenario however. That is: 1) a Clipper (or Limiter) in the TX audio chain, to limit the deviation of the transmitter; and 2) a Low Pass audio filter past the clipper in the audio chain, to eliminate the high-order harmonics produced in the clipping process (and to reduce the high-frequency noise, especially squelch bursts, generally up around 8000 Hz or so, that are very annoying to listen to in FM radio).

If these two items are not addressed, the repeater system, while sounding flat, will pass high frequency noise, and can produce very wide over-deviated signals. It is important to stay within the 5 KHz deviation bandwidth with our repeaters, and not over-deviate.

So, that was our quick "Fly-By" of Flat Audio. Now, we will delve into the subject in more detail, with a thorough description of how it really works.

### What is Modulation?

Just over 100 years ago, back in 1902, Fessenden developed a system to modulate a continuous wave with the human voice. Prior to that most voice transmissions were attempts at modulating spark transmitters, with generally poor results.

Modulation is a mixing process. When RF and Audio frequencies are combined in a standard AM transmitter (such as one used for commercial broadcasting) four output signals are generated: the original carrier or RF signal; the original audio signal; and two sidebands, whose frequencies are the sum and difference of the original RF and audio signals, and whose amplitudes are proportional to that of the original audio signal. The RF envelope (sum of the sidebands and carrier), as viewed on an oscilloscope, has the shape of the modulating waveform.

The bandwidth of an AM signal is twice the highest audio frequency component of the modulating wave. So, if the highest audio frequency is 3000 Hz, the occupied bandwidth of an AM signal will be double that, or 6 KHz wide.

Frequency Modulation (FM) was first technically addressed by John R. Carson in the February, 1922 issue of the *Proceedings of the IRE Journal*. By mathematical analysis, he "proved" FM inferior to AM on two counts: bandwidth requirements and distortion.

The Carson analysis held until May 1936, when another paper on FM appeared in the same Journal. In this work Major Edwin H. Armstrong set the stage for a new viable FM mode of communications. The basic theory behind his ideas is still in use today!

### A Little History

I will start off with a little history of NBFM, or Narrow Band Frequency Modulation.

Methods of radiotelephone communication by Frequency Modulation were developed in the late 1930's by Major Edwin Armstrong in an attempt to reduce the problems of static and noise associated with receiving AM broadcast transmissions of the day. The real advantage of FM, its ability to produce high quality signal-to-noise ratio audio when receiving a signal of only moderate strength, has made FM the preferred mode chosen for mobile communication services and quality broadcasting.

With AM, and SSB, the very process of demodulating audio causes the receiver to be looking for changes in amplitude, therefore any static or noise is recovered in the receiver along with the audio. When FM was first introduced, the main selling point for the new mode was that noise-free voice reception was finally possible. This is still very true today. FM inherently has a much better signal-to-noise ratio than AM. That is one of the reasons why FM sounds so good, compared to an equivalent AM or SSB signal.

The disadvantages of FM are few, most notably its wider bandwidth requirement. By way of example, a 5 KHz deviated FM signal with an audio (voice) frequency of 3000 Hz occupies about 16 KHz of radio spectrum. Compare this to AM, which occupies about 6 KHz of radio spectrum for the same 3000 Hz of audio, and less spectrum (about half) for an equivalent SSB signal.

This is one reason why FM is most popular in the VHF and UHF regions, where spectrum is more available. For the amateur radio service the FCC limits the low end for FM to 29.500 MHz. On the high frequency amateur bands, 80 through 10 meters, single sideband is the most widely used radiotelephony mode, partly because it occupies comparatively less spectrum which is important for frequencies that travel by sky wave.

### Audio Frequencies

We'll leave the radio world for now, and enter the audio world. In today's FM two-way radio communications, the audio frequencies we utilize are between 300 Hz and 3000 Hz for voice. Another way of stating it is that frequencies between 300 Hz and 3000 Hz are the "audio range" or "voice band" of frequencies. The sub-audible, or CTCSS (PL) frequencies in FM are well below 300 Hz, and will be discussed in another section.

To understand just what the "audio band" of frequencies is, let's think about the piano for a moment. Most of us know what "Middle C" sounds like, that is the white key in the middle of the keyboard, just to the left of the two black keys. If you have a piano nearby, it may be helpful to sit at it, and try this little exercise. If not, try to imagine how the notes sound from memory.

Play the “Middle C” key. Middle C is technically called C4, as it is the fourth “C” from the bottom (left-hand end) of the keyboard. Middle C, or C4, has a frequency of 261.63 Hz, if the piano is tuned properly. That’s right, 261 Hz. It is even a little lower than our 300 Hz low-end cut-off limit of the FM audio spectrum described above. It is technically in the Sub-Audible frequency range because it is below the voice band. Although most of us can still hear it, can’t we. That is why you don’t see many PL’s above 200 Hz... and that is because you can actually hear them. Most PL’s are usually around 100 Hz or so. More on PL’s later.

Now, let’s get back to our piano exercise. If you go up one octave on the piano, to the C that is twelve keys higher (both black and white keys) and play that key, the frequency will be 523 Hz. This is called C5. Notice that it is twice the frequency of C4 ( $261 \text{ Hz} \times 2 = 523 \text{ Hz}$ ). This difference is called one “Octave.”

An “Octave” is defined as follows: *“a one-octave separation occurs when the higher frequency is twice the lower frequency.”* Thus, the octave ratio is 2:1. Every time you double the frequency, you go up one octave in frequency.

Moving to the next higher octave, or to the next ‘C’ which is called C6, play it, and the frequency will be 1046 Hz. This is twice the frequency of C5. Play the next higher octave, which is C7, and the frequency will be 2093 Hz. This is again twice the frequency of C6.

The upper limit of our “Audio Range” in FM is 3000 Hz, and the closest piano key for that frequency is the highest F# (F sharp) on the piano, which is the very left-hand black key of the last set of three black keys on the keyboard, or the seventh key from the top (right-hand end) of the keyboard. The frequency of F# is 2960 Hz.

So, when I say that the audio frequencies used in our modern-day FM radios are from 300 to 3000 Hz, I am saying that the frequency range is the same as playing the piano keys from Middle D, or D4 (296.66 Hz) to the highest F#, or F#7 (2960 Hz).

### Speech

Let’s talk a little about how this audio frequency business translates into communication. Human speech is an interesting subject. Speech is comprised of multiple audio frequencies, mostly in the 125 to 4000 Hz range. But, all frequencies are not created equal in human speech. Some frequencies are louder than others, and some carry more intelligence than others. Here are a couple of facts concerning audio frequencies and human speech:

**Fact Number One:** The lower frequencies, those between 125 and 500 Hz, contain about 55% of the speech energy. But, only contribute about 4% to speech intelligibility.

**Fact Number Two:** The higher frequencies, those between 1000 and 4000 Hz, contain only about 4% of the total speech energy, but contribute an amazing 50% to speech intelligibility.

However, to understand human speech, we actually need to hear the higher frequencies (above 1000 Hz) more than the lower frequencies, as that is where about half the speech intelligibility is contained. Interesting, isn’t it?

So, when a radio manufacturer says he is producing a “communications quality” radio, what frequencies do you think he is enhancing? Why the high frequencies, of course. As that is where over 50% of the speech intelligibility is.

### Frequency Modulation Defined

Now, let’s get back to radio. We now understand that over half of the speech energy is contained below 500 Hz when we are transmitting FM, so it normally follows that the amplitude of the lower frequencies is going to be much greater than the amplitude of the higher frequencies.

Let’s step back for a moment, and define what FM is. When a modulating voice signal is applied to an FM modulator, the carrier frequency is increased during one half-cycle of the modulating signal and decreased during the half-cycle of the opposing polarity. In other words, the carrier frequency of our transmitter varies at an audio rate above and below our carrier frequency according to what the amplitude of the audio voice signal is.

So, to define Frequency Modulation, or FM, we would say that:

**The change in the carrier frequency is proportional to the instantaneous amplitude of the modulating signal.**

Amplitude, then, is what drives FM. So, it follows that if 55% of the amplitude energy is contained in the voice frequencies below 500 Hz, then a true FM transmitter is putting 55% its energy, or its power, into the lower audio frequencies. That is where only 4% of speech Intelligibility is.

Also, by the same logic, the same true FM transmitter is only putting 4% of its energy, or power, into the voice frequencies above 1000 Hz. And that is where over 50% of the speech intelligibility is, remember?

That means that if you listen to a true FM transmitter, with 55% of its power in the voice band below 500 Hz, it will sound very mushy, almost all bass or low frequencies with hardly any high frequency component at all.

### Phase Modulation Defined

Next, let’s define Phase Modulation, or PM. It is possible to convey intelligence by modulating any property of a carrier, including its frequency and phase. When the frequency of the carrier is varied in accordance with the amplitude variations in a modulating signal, the result is frequency modulation (FM).



Similarly, varying the phase of the carrier current is called phase modulation (PM). Frequency and phase modulation are not independent, since the frequency cannot be varied without also varying the phase, and vice versa. In other words, phase is the mathematical derivative of frequency.

If the phase of the current in a circuit shifts, there is an instantaneous frequency change during the time that the phase is shifting. The amount of frequency change, or deviation, is directly proportional to how rapidly the phase is shifting and the total amount of the phase shift. The rapidity of the phase shift is directly proportional to the frequency of the modulating signal. Further, in a properly operating PM system the amount of phase shift is proportional to the instantaneous amplitude of the modulating signal.

So, to define Phase Modulation, or PM, we would say that:  
**The change in the carrier frequency is proportional to both the instantaneous voltage and the frequency of the modulating signal.**

This is the outstanding difference between FM and PM, since in FM the frequency deviation is proportional only to the amplitude of the modulating signal.

By contrast, in Phase Modulation the deviation increases with both the instantaneous amplitude and the frequency of the modulating signal. That means that PM has a built-in Pre-Emphasis, where the deviation increases with modulation frequency. Apart from this difference, when receiving FM or PM, it is difficult to distinguish between the two. Notice I used the word Pre-Emphasis above. This is probably a good place to explain how Pre-Emphasis and De-Emphasis works.

### Pre-Emphasis and De-Emphasis

What is pre-emphasis? Pre-emphasis follows a 6 dB per octave boost rate. This means that as the audio frequency doubles, the amplitude (and deviation) doubles (by 6 dB). So, with pre-emphasis, the following examples are typical of pre-emphasis on an FM transmitter's deviation:

- a 500 Hz audio tone will make 1 KHz of deviation
- a 1000 Hz audio tone will make 2 KHz of deviation
- a 2000 Hz audio tone will make 4 KHz of deviation

Why do we even have pre-emphasis in NBFM communications? There are actually two reasons:

1) The early transmitters were really PM (Phase Modulated), not FM, so they naturally had a 6 dB/octave 'roll-up' or pre-emphasis. PM was the standard modulation method. When FM transmitters came along, their audio had to be intentionally pre-emphasized to maintain compatibility with the PM transmitters already in service. In very early narrowband

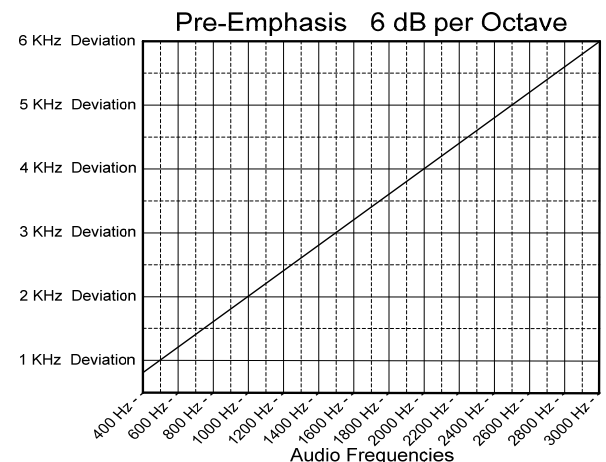
literature, you won't even find the terms "pre-emphasis" and "de-emphasis." Engineers simply 'rolled-off' the audio in the receiver with a single-pole filter to reverse the PM transmitter's 'roll-up' characteristic and restore the transmitted audio back to normal;

2) Pre-emphasis is needed in FM to maintain a good signal-to-noise ratio across the entire voice band. Theory tells us that white noise increases with frequency at a receiver discriminator. When de-emphasis is added to a receiver this noise is attenuated, thus improving the signal-to-noise ratio.

Pre-emphasis is used to shape the voice signals with the increased level of the higher frequencies being applied to the modulator, which results in a better transmitted audio signal-to-noise ratio due to the highs being above the noise as much or more than the lows.

The following graph illustrates the Pre-Emphasis Curve, audio frequencies along the bottom.

We must recognize that early narrowband FM radio was in-



tended for one transmitter – one receiver applications. This business of repeaters, and linking repeaters came much later. Virtually all FM radios today, including commercial broadcast, use pre-emphasized and de-emphasized audio. When you talk with someone on simplex, their TX pre-emphasizes their audio. If you could listen to 'raw' pre-emphasized audio it would sound very tinny, mostly highs. However, your receiver de-emphasizes the audio, returning it back to normal

By contrast, if you could listen to 'raw' FM audio it would sound almost all bass, or low frequencies, as most of the amplitude, or energy, is in the low frequency range, and hardly any highs, or treble at all, as the higher frequencies would be more in the noise, as their amplitude would be much less, and would virtually not be readable.



### **Signal-to-Noise Ratio**

This is a ratio which defines the ability to demodulate, or recover the audio, of a radio signal. This is one of the best advantages of FM over any other form of modulation.

Noise is an ever-present part of radio communications. If you aren't aware of this phenomenon, tune to the Low Bands with a communications receiver, from say 160 to 10 meters, and simply tune across the band. What you hear is noise, lots of noise. Hopefully, if you're lucky (if the band is "in"), as you tune across say 20 meters, 14.000 to 14.300 MHz, the noise will be interrupted occasionally by signals. If you're really lucky, some of the signals will be loud enough to overcome most of the noise. You are experiencing Signal-to-Noise at its finest. This is a low Signal-to-Noise ratio situation.

In FM, when a sufficient signal arrives at the receiver, the signal quiets – that is, because of the high RF limiter, the background noise disappears. Completely. This differs greatly from AM on the Low Bands, because most natural occurring noise is amplitude modulated, noise is ever-present. In FM, unless the station you're talking to is very weak and barely making it, there will be no noise at all on his signal. This is a high Signal-to-Noise ratio situation.

In fact, the sensitivity of an FM receiver is rated in terms of the amount of input signal required to produce a given amount of quieting, usually 20 dB. The use of solid-state devices allows modern FM receivers to achieve 20 dB quieting with only 0.15 to 0.10  $\mu$ v of input signal.

So, the big difference between the AM or SSB on the Low Bands and FM communications is the amount of noise you must listen to while communicating. The lower the amount of noise on a signal, the better the Signal-to-Noise ratio is.

### **Speech Clipper**

A Clipper, or Limiter, is a safety valve that limits the peak deviation of an FM or PM transmitter. In broadcast, it is sometimes referred to as a Safety Clipper. It keeps the deviation down to a pre-set level, usually 5 KHz for land mobile communications.

Because the modulation index, or bandwidth, of the transmitted pre-emphasized FM signal increases with the modulation audio frequency, it can easily exceed 3000 Hz. For example, if a long squelch tail is re-transmitted through a repeater, that audio frequency is usually somewhere up around 8000 Hz. That means that the maximum deviation of 5 KHz can easily be exceeded. In the case of the 8000 Hz squelch noise, a deviation of 8 KHz is possible. Deviation that wide would surely ingress into adjacent channel repeaters.

Not only do these wider deviated signals go outside the normal bandwidth of most receivers and cut off the audio (as they over-deviate past the capability of the receiver to demodulate the audio) but more importantly, these wider sidebands can interfere with other adjacent channel repeaters and radios.

Therefore it is necessary that some sort of frequency clipping or limiting be placed between the audio source and the modulator. This clipper or limiter should provide clipping at about 5 KHz of transmitter deviation.

### **Low-Pass Audio Filter**

The clipping process produces high-order harmonics which, if allowed to pass through to the modulator stage, would create unwanted sidebands. Therefore, an audio low-pass filter with a cut-off frequency between 2600 Hz and 3000 Hz is needed at the output of the clipper. This keeps the harmonics, and other high-frequency noise (such as squelch noise) out of the transmitter. This also keeps the occasional long squelch tail, or blast of white noise, from being heard so loudly. Oh you can still hear these noises, but their amplitude is far lower than without a low-pass filter.

### **Sub-Audible Frequencies**

Sub-audible tones are frequently used to limit access, and are commonly called PL, a Motorola term standing for Private Line, or CG, a General Electric term for Channel Guard, but whatever name you apply to the sub-audible tone, it is simply describing CTCSS, or Continuous Tone Coded Squelch Systems.

This is a continuous tone that is sent along with the transmitted signal, at a much lower volume (I usually have it at .4 KHz deviation) and at a lower (sub-audible) frequency that you hopefully will not be able to hear really well. This is called 'encoding.' It simply means that you are transmitting this continuous tone along with your normal speech in your transmitter.

Decoding is where your receiver hears the continuous CTCSS tone, and 'decodes' the tone, thereby opening your receiver's squelch so it can hear your transmitted audio.

These frequencies are much lower in frequency than normal, usually around 100.0 Hz. The lowest CTCSS frequency on most radios is about 67.0 Hz and the highest is about 254.1 Hz.

### **Flat Audio**

Now that you are becoming experts in the audio and modulation arenas, I will now explain "Flat Audio."

As we have discussed previously, early FM radios were designed to be one-radio to one-radio devices. And, to improve the signal-to-noise ratio, they were all PM transmitters, with the built-in audio 'roll-up' or pre-emphasis of 6 dB per octave. This made the signal-to-noise ratio better for reception, making the high frequencies usually as strong as the lows. The receivers all had the audio 'roll-down' or de-emphasis network, to restore the audio back to its original state. Everything worked great.

Enter repeaters. Repeaters extended the range of one-radio to one-radio communications. If they were high enough above average terrain, they greatly extended the range. However, because repeaters are duplex, and the RX repeats the audio it hears to the TX, there are issues with audio quality, and the processing of the audio.

## Explanation of Flat Audio (cont)

There are many different ways to hook up the audio in repeaters. Some repeater builders take speaker audio out of the receiver, and connect it to the microphone input on the transmitter. This has several ramifications:

1. The RX speaker audio will be de-emphasized (again) by the repeater RX.
2. The RX speaker audio is almost always shaped or processed somewhat to match the speaker that the manufacturer specified to be used with the RX.
3. The speaker audio is almost always amplified well beyond what the microphone requires, usually somewhere between 3 to 5 watts of audio power. The microphone needs milli-watts of audio power. Some audio distortion will most likely be present in the amplification, typically 10%, and noise is amplified as well.
4. What is the impedance of the average speaker? 4 ohms? 8 ohms?
5. The squelch crash after a user stops transmitting will always be passed along through the audio chain from the repeater RX speaker. You are at the mercy of whatever squelch circuit the repeater RX is using.
6. The TX microphone input audio is always shaped by the manufacturer to match whatever kind of microphone element they are using, be it crystal, or dynamic, or cardioid, or ceramic. This is usually called the speech amplifier. The bottom line is that the audio is shaped, or processed, to match the microphone element. If the mic input is used, this shaping has an effect on the audio coming out of the repeater TX.
7. The audio is pre-emphasized (again) in the repeater TX.
8. The audio input impedance is usually several thousand ohms, not the 4 ohms, or 8 ohms of a speaker. If a controller is used, or an emitter follower, or a cathode follower, the impedance mismatch can probably be overcome however.
9. Once you set the volume, squelch, and modulation level knobs on the repeater, you'd better not touch them again, or your repeat audio levels will go crazy. If someone accidentally bumps one while near the repeater, you'll know it right away.

As you can see, this method leaves a lot to be desired. Why do folks do it? Because it's easy! There is not much work involved to strap a speaker to a microphone. However, if you're willing to invest the time, there are better ways to get the audio from the receiver to the transmitter. Some folks have become very clever at this.

One more point. As we've discussed before, the audio from the user's transmitter is already pre-emphasized, isn't it. It enters the repeater RX pre-emphasized. If the repeater RX de-emphasizes it, and then the repeater TX pre-emphasizes it again, in theory it should sound about the same coming out of the repeater TX. But it usually doesn't. One reason is because the de-emphasis and pre-emphasis curves in the repeater RX and TX are usually not exactly the same. They don't track one another perfectly. There is usually a difference.

It is much better to leave the audio alone when going through a repeater, and not process it, keeping the repeater audio path linear. The originating audio is pre-emphasized by the user's transmitter, and we let it be de-emphasized in the end user's receiver. This is the way it is done on simplex, without a repeater in-between. This is

what Flat Audio is.

Another way of saying it is: When the repeater RX hears a signal, it leaves the audio alone, or keeps it flat, without any changes. The controller should likewise leave it alone, with no changes. And finally the repeater TX should leave it alone, without adding anything to it. That way, as far as the audio is concerned, the repeater was never there. Because the audio path is flat through the repeater. It has not been de-emphasized, shaped, pre-emphasized, and shaped again. It is flat. No processing. No changes.

How one accomplishes this Flat Audio is pretty simple, really. Here is a quick run-down:

1. Pick off the audio at the discriminator of the receiver. Usually the top (high side) of the squelch pot is a good starting point. That is where you can find discriminator noise with an oscilloscope.
2. Use a fast-acting, noise-free squelch circuit, like the Motorola MICOR squelch chip or a microprocessor controlled digital squelch Board. More on this digital squelch in a subsequent article.
3. If your controller gives you a choice, set the controller's input for Flat Audio.
4. Inject the audio well past the microphone input, past the speech amplifier circuitry, and past the pre-emphasis network in the repeater TX. This point is usually at the PL, or CTCSS injection point. This is usually past the TX's built-in Clipper and Low-Pass filter too, as they are typically in the low-level audio stages of the exciter.

If proper impedance techniques are used, then this will result in Flat Audio. It will sound great. However, you really need to install your own Clipper, to keep your transmitter from over-deviating. And, you need to install your own Low-Pass filter to keep the harmonics and high-frequency noise out of your transmitted audio. Finally, and very important, all stages in the repeat audio path must be designed with adequate headroom, or dynamic range.

Also, if you plan on running CTCSS on the transmitter output, you need an isolated input for the CTCSS encoder, so it won't load down your audio circuitry making it sound mushy.

And, if you are using a Phase Modulated transmitter, say a GE or most Japanese radios, you need to be able to compensate for its natural pre-emphasis or 'roll-up' characteristics. That means you need to shape the audio going to the TX to reverse the pre-emphasis roll-up.

Finally, when adjusting audio levels in a repeater, quite often the RX has too little audio level available at the discriminator, or too much level. Similarly, some transmitters need more audio drive than others at the CTCSS input location. Many controllers cannot handle big variations in audio input and output levels, so you must build op-amps to balance the levels.

Thanks for taking the time to read my article on quality audio. It is my hope that more repeater builders will take the time to make their audio sound fantastic. It can easily be done. Please direct any question or comments to the author.

Jeff (Shorty) Stouffer, K6JSI  
k6jsi@winsystem.org



# ALASKA State Fair

Public Service

Satellite Communications

Education

Scholarships

Public Outreach

# Volunteers!



# KL7AA Club Business

## Meeting Minutes

ANCHORAGE AMATEUR RADIO CLUB  
GENERAL MEETING

**August 3, 2007**

APU Carr Gottstein Building

Anchorage, AK

(UNAPPROVED at Printing)

### Call to Order

The meeting was called to order at 7:00 PM by President Kathleen O'Keefe (KL7KO). Members, guests and visitors introduced themselves to all.

### Presentations

The August speaker, Ray Hollenbeck (KL1IL) opened the meeting with a presentation on Packet. Ray gave an overview of equipment required for Packet operation, basic command structure and software packages available for Packet operation. Mead Treadwell will present at the September membership meeting on the Polar Year Research Project.

AARC President Kathleen O'Keefe presented Heather Hasper (KL7SP) with an award recognizing Heather for all of the hours she has spent volunteering for the club. Kathleen noted that volunteers need to be recognized by the club on a regular basis for their participation and involvement.

Richard Tweet (KL2AZ) reported as 2007 Election Committee Chair. Richard reported that additional Election Committee members are Paul Spatzek (WL7BF), Richard Kotsch (WL7CPX). The election timeline and rules of procedure were presented to the membership.

Heather Hasper presented a PowerPoint presentation which detailed work to date in preparation for Hamfest 2008. A draft budget, sample themes and sample schedules for the event were made available. National vendors are still being sought. Heather noted that AARC Hamfests have been held since 1956 and they have been an annual event since 1971. Numerous Alaska radio clubs have expressed an interest in making this a combined radio club event. The presentation provided detailed results of the Hamfest survey to which there were 483 responses. The Moose Horn Amateur Radio Club has opted to forgo a local Hamfest in 2008 to participate in this event. MARA, SPARC, and Bethel operators have also expressed an interest in participating. Heather reported that the Sheraton Anchorage has been secured as the venue for this event with the \$10,000.00 approved at the June

membership meeting. An additional \$16,847.00 will be required to secure the event and will be sought at the August Board meeting. Heather reported that the AARC would be able to cancel this reservation until April 2008 without a penalty. An advisory vote was held of the members in attendance to note support of this funding and event. An estimated 2/3 of those in attendance noted their support.

David Stevens (KL7EB) reported that ARRL has recognized the 2008 event as a Statewide Convention. It was noted that with ARRL's support, this event receives national attention and inclusion in the QST magazine.

### Announcements

Kathleen O'Keefe noted John Murray (NL7WW) has upgraded from Tech to Extra class recently. Kathleen noted that volunteers would be meeting at the CCV garage on August 16<sup>th</sup> to transport trailers and equipment to the State Fair location.

Heather Hasper reported that the next Technician Ham class will be a joint venture with the Municipality of Anchorage E.O.C. The classes will be held at the Red Cross building at 8<sup>th</sup> and Cordova. Books will be free and class instructors will be Heather Hasper and Michael O'Keefe (kl7MD).

Heather also reported that AARC coats are available for purchase and that the minimum order for the club is 4 coats.

Michael O'Keefe reported the ARES class on August 18<sup>th</sup> will be held at the CCV garage with the hands-on topic being installation of the Rohn Tower at the CCV garage. Michael reported that the CCV is expected to be able to roll within 30 minutes of a call and if anyone notices damage to the vehicle that could impede this, please bring it to his attention.

Heather Hasper noted that the 2007 Hamfest Grand Prize (Icom 746 PRO) was on display at the entrance to the meeting. Tickets will be sold at the August and September membership meetings as well as the Hamfest location. A maximum of 5 tickets per person is allowed and the winner must be present to win. The winning ticket will be drawn on September 15<sup>th</sup> at 4pm at the event.

### Door Prize Drawing

KL7SP, Guest Vincent Brown, KL1MY, WL7BER, KL7CC, KL2FP, NL7TZ (passed on prize), KL7BP, AL7FS, KL1IL.

Meeting adjourned at 8:25pm

Respectfully submitted as recorded on 8/3/07 by:

Richard Tweet, Secretary



# KL7AA Club Business (cont)

ANCHORAGE AMATEUR RADIO CLUB  
BOARD MEETING  
July 17, 2007  
540 WEST INTERNATIONAL ROAD  
Anchorage, AK  
(UNAPPROVED at Printing)

The meeting was called to order at 7:00 PM by President Kathleen O'Keefe. A quorum was established: (2 Officers, 7 Board members needed)

## **BOARD MEMBERS PRESENT:**

President Kathleen O'Keefe KL7KO, Vice President Jim Larsen AL7FS, Treasurer Heather Hasper KL7SP, Activities Director Richard Kotsch WL7CPX, Paul Spatzek WL7BF, Piet van Weel KL2CR, Frank Pratt KL7RX, TJ Sheffield KL7TS, Jim Wiley KL7CC, Diane Olson KL1MY, Michael O'Keefe KL7MD, Susan Woods NL7NN, John Orella KL7LL, Edward Moses KL1KL.

## **NON-VOTING MEMBERS PRESENT**

Fred Erickson KL7FE, Keith Clark KL7MM

## **EXCUSED**

Secretary Richard Tweet KL2AZ

## **UNEXCUSED**

Richard Block KL7RLB

## **GUESTS**

Eric McIntosh KL2FM

## **SECRETARY REPORT**

Previous Board meeting minutes for June and General Membership meeting minutes for July were presented. Motion made Heather Hasper KL7SP, seconded Diane Olson KL1MY to accept the Board and General Membership meeting minutes as printed. Motion carried unanimously.

## **TREASURER'S REPORT**

Heather Hasper presented the Treasurers report for month ending June 2007. Gaming income for June as well as year to date was presented. Gaming income is up 2% for the year to date. There have been no new grant requests or major purchases to report. Field Day receipts need to be in by the end of August for reimbursement. Motion made Diane Olson KL1MY, seconded Frank Pratt KL7RX to accept the Treasurers report as given. Motion carried unanimously.

## **VE REPORT**

Jim Wiley reported that the VE program is moving along normally. Testing in Kenai, Fairbanks, Anchorage and Wasilla has resulted in 12 new hams and several upgrades. Jim noted that he would be attending the National Conference of Volunteer Examiner Coordinators at the end of July. Jim responded to questions with information that the website has had several pages updated and that more work is needed. The remote testing program is in limbo at this time and in need of a champion to complete the project.

## **TRUSTEE REPORT**

Keith Clark reported that the AARC license has been renewed to 2017. KL7AA approvals for the next month include the Dog Jog. We are now registered with Log Book of the World and are in the process of uploading logs. 1500 QSO's and 230 confirmations have been uploaded to date from the sweepstakes logs. Keith noted that when the club station is operational, accurate logs must be kept and training provided to insure accuracy and tracking if need be. Logging software will be the same in the CCV as well as the club. Current copies of the license need to be posted in the CCV, Garage and Repeater sites. Keith agreed to assist with preparation of a reference manual for the position of Trustee. Heather Hasper noted the goal to have manuals prepared for all positions to allow for easy transition after elections with the responsibilities for the positions detailed.

## **OLD BUSINESS**

### **Flea Market 2007 September 15<sup>th</sup>, 2007**

Heather Hasper reported the flyers for the event have been created and are available online at <http://www.kl7aa.net> for download. Heather reported that Ray with Icom and also Leon with HRO Portland will be attending and that other speakers are being sought. Heather noted that a completed schedule will be available by the end of the month. Heather noted the budget of \$2500.00 that was allocated for this event and last year's cost ran approximately \$3200.00. Heather noted that a budget increased to \$4000.00 would allow for better grand prizes. Motion made Diane Olson KL1MY, seconded John Orella, KL7LL to authorize an additional \$1500.00 for the 2007 Flea Market. The motion passed with one abstention and one no vote.



### **Alaska 2008 Statewide HAMFEST:**

Heather Hasper noted that co-chairs for this event were actually herself and Mike Romanello KL7BK. Heather has letters drafted for hand delivery to Billy Cross and Riley Hollingsworth, to be delivered by Jim Wiley. Heather reported that she and Richard Tweet KL2AZ had reviewed the packet of information for available venues and had selected the Sheraton Anchorage for the event. The Sheraton provides an exhibit hall, banquet room, several complimentary rooms, and VIP upgrades and catering. Heather has signed a contract with the Sheraton and will be pursuing providing the down payment for the event. The Sheraton contract allows for cancellation up to 60 days prior to the event with an 85% refund guarantee. The <http://www.akhamfest.com> and <http://www.kl7aa.net> websites have been updated with current information. Heather noted support by Arctic Amateur Radio Club where she attended the monthly meeting did a presentation of the event. A presentation to MARA is to be done soon. The Moosehorn Amateur Radio Club and the Juneau Club are in support of this Statewide event.

### **Real Estate Purchase**

Jim Larsen reported that he is receiving information on 2 to 3 properties a week for review. A general discussion involving land vs. building purchase, membership approval of earnest money and Board approval of use, AARC officers availability for phone poll, long term lease arrangement, possible available State or FCC properties. Motion made Diane Olson KL1MY, seconded Richard Kotsch WL7CPX that \$5000.00 in pre-approved earnest money be made available for the purchase of an AARC property. Motion Carried unanimously.

### **State Fair**

Kathleen O'Keefe reported that John Lynn KL7CY indicated that he wanted to move the equipment on site on August 18<sup>th</sup>. Mike O'Keefe has been arranging for volunteers for moving equipment at 5pm on the 16<sup>th</sup>. Possible use of the StepIR antenna at the fair was discussed. It was noted that we are not approved for HF use at the fair. A statement from or appearance by John Lynn is requested at the next Board meeting to inform the Board of what type of station he will be operating on behalf of KL7AA and how he plans on operating it at the State Fair.

### **Tower Project**

Michael O'Keefe reported that the tower has been purchased. The landlord will be digging the hole for installation of the tower and is working to provide access with another tenant as the tower will be installed be-

hind the East wall where we don't have access. The installation date will be August 18<sup>th</sup> as part of the ARES training. Jim Wiley will be looking into the availability of a crane for installation. Jim Wiley asked that his personal towers and antenna assets be delivered to his home QTH.

### **Capital Project (misc.)**

Jim Larsen noted the ARCC bought 15ea. 30 foot push up masts, 2ea 50 foot push up masts and 5ea 10 foot tripods at the Kenai Hamfest. Total cost to the AARC was \$600. They will be delivered prior to the September Hamfest. Heather Hasper noted that 8 of the 30 foot masts are designated for the Packet system, 3 of the 30 foot masts are for door prizes, 4 of the 30 foot masts and the 2 - 50 foot masts are for the ARES/NVIS projects.

### **Ham Shack Electrical Project**

Michael O'Keefe reported that Richard Tweet has completed the electrical installation for the motor home and equipment. Most pieces and parts are on site for completion of the ham shack. Final purchase to complete the project will be the rotor and rotor controller. Michael is looking for someone to champion having the Mark V professionally packed up and sent out for repair. Jim Wiley indicated that professional packing would cost approximately \$150.00. Heather Hasper offered to have the unit packaged and shipped out for repair. Heather noted she needs receipts for these projects turned in ASAP.

### **Alarm System Installation Project**

Heather Hasper reported that Bruce McCormick KL7BM verified that his employer has not yet ordered the equipment for the alarm system extension and that the project is on hold.

### **Packet Project**

Michael O'Keefe reported that both Packet stations are operational in the CCV. Building future stations will be easily done with the limitations being computers.

### **File Cabinets**

Kathleen O'Keefe noted that the stand up cabinet was installed today and that it is locked with 2 keys. The lateral file cabinet is on back order.

### **Phone Bridge**

T.J. Sheffield is requesting that the Board members contact their employers to see if a phone bridge is available for use in the evenings by the AARC. Heather Hasper volunteered to contact ACS to see what the cost would be to add a phone bridge to our current service.

## **Brochures**

Heather Hasper reported on and presented a draft copy of the updated brochure for review prior to printing. General discussion was held on content and layout of the brochure.

## **Incomplete Projects**

Heather Hasper reported on Capital Projects approved in November of 2006. Heather reported that many of the projects have not been acted upon. Heather intends to prepare a full report of actual costs vs. cost estimates of projects. Tracking of these projects relies on all receipts being turned in. T.J. Sheffield KL7TS noted that the AARC has a list of approved projects but noted the need for a list of associated project managers responsible for them. General discussion was held on AARC project management, responsibility for projects by those bringing the project idea forward, time availability by volunteers, technical definition for projects, formalization of project process, project flowchart development. It was suggested and agreed to have the President to appoint a committee to report on uncompleted projects and decide on a project management process for future projects and to report back to the Board at the September meeting. The President appointed Heather Hasper, T.J. Sheffield and Jim Larsen to this committee.

## **NEW BUSINESS**

### **Program for August Membership Meeting**

Ray Hollenbeck KL1IL will present at the August Membership meeting on Packet. Mead Treadwell will speak at the September meeting regarding the 2007-2009 International Polar Year Research Project

### **Approvals, KL7AA in the next month**

Approval was earlier noted for the possibility of Dog Jog and Heather Hasper noted approval was needed for the 10K Classic to be held on August 4<sup>th</sup>.

### **147.27 Repeater**

Jim Wiley reported on instances of jamming on the 147.27 repeater. Jim noted that when the IRLP connection was approved for Net's, it did not include Echo-Link. The MOU for IRLP use was discussed. Jim noted that the 147.27 system was operated on the backup antenna for approximately 1 month with no noted problems. Jim suggested an annual inspection of the equipment in place at Mt. Susitna and explained antenna placement and coverage. Jim noted that he will have time to devote for a battery backup installation for the Mt. Susitna equipment. T.J. Sheffield suggested including annual inspections of additional club antenna equip

ment. Jim noted that the UHF receiver at Grubstake is offline and ArcticCom is planning a trip to the site and will inspect the equipment.

## **Christmas Party**

Rick and Lil Marvin are championing the Christmas Party this year at the Sourdough Mining Company. The Party is scheduled for December 7<sup>th</sup> beginning at 6pm and is in conflict with the AARC Membership meeting. Kathleen O'Keefe will contact these individuals to see if the date can be moved to the 14<sup>th</sup> for the party.

## **Ham Shack Purchase Items**

Michael O'Keefe noted that a stand-off will need to be purchased for the Rohn tower for mounting the X-50's as well as the rotor and controller as noted above. T. J. Sheffield recommended a PC controlled rotor controller and will provide information to Michael O'Keefe.

## **Missing Equipment/Found Equipment**

Michael O'Keefe noted that a MFJ dummy load is missing from the CCV garage and asked that anyone involved with Field Day check their vehicles to see if it was misplaced.

## **Field Day – What Worked and What Didn't**

T.J. Sheffield requested that this discussion be delayed and offered that he and Keith Clark are willing to be co-chairs for the 2008 Field Day event. Motion made Heather Hasper KL7SP, seconded Diane Olson KL1MY that T.J. Sheffield KL7TS and Keith Clark KL7MM be co-chairs for the 2008 AARC Field day event and noted appreciation for all work done in the past and future. Motion carried unanimously.

## **Ham Class**

Municipality of Anchorage EOC Emergency Watch Program wishes to provide a Technician class for those who have signed up for the program. The EOC will be covering all costs and the American Red Cross has provided the training room at their headquarters at 8<sup>th</sup> and Cordova. The class will run Monday and Wednesday nights from September 5<sup>th</sup> until September 26<sup>th</sup> from 6-9pm and will include a tour of the EOC and AARC CCV facility.

Motion made Paul Spatzek WL7BF, seconded Diane Olson KL1MY, that the meeting be adjourned. Motion passed unanimously.

Respectfully submitted as recorded on 7/17/07 by:  
Richard Tweet,  
Secretary





ANCHORAGE AMATEUR RADIO CLUB  
BOARD MEETING  
August 21, 2007  
540 WEST INTERNATIONAL ROAD  
Anchorage, AK  
(UNAPPROVED at Printing)

The meeting was called to order at 7:00 PM by President Kathleen O'Keefe

A quorum was established: (2 Officers, 7 Board members needed)

**BOARD MEMBERS PRESENT:**

President Kathleen O'Keefe KL7KO, Vice President Jim Larsen AL7FS, Treasurer Heather Hasper KL7SP, Secretary Richard Tweet KL2AZ, Activities Director Richard Kotsch WL7CPX, Paul Spatzek WL7BF, Piet van Weel KL2CR, Frank Pratt KL7RX, Diane Olson KL1MY, Michael O'Keefe KL7MD, Susan Woods NL7NN, John Orella KL7LL, Edward Moses KL1KL, Richard Block KL7RLB.

**NON-VOTING MEMBERS PRESENT**

Keith Clark KL7MM

**EXCUSED**

TJ Sheffield KL7TS, Jim Wiley KL7CC

**UNEXCUSED**

**REQUEST FOR AGENDA ITEMS**

Election committee report was added.

**GUESTS**

Eric McIntosh KL2FM, T. J. Tombleson KB8JXX, Don Bush KL7JFT, Tom Rutigliano NL7TZ, Bruce McCormick KL7BM, Craig Severson KL2FN, Calex Gonzalez KL2BT, Kimi Gonzalez KL2BQ, Mike Romanello KL7BK, Scott Honaken N7SS, David Stevens KL7EB.

T.J. Tombleson (KB8JXX) inquired as to the possibility of utilizing the AARC's analyzer along with a trained AARC member this coming weekend. Discussion indicated that concern exists over loaning AARC equipment. Limited personnel are available this weekend and TJ was given a contact number for more information. TJ also reported on WinSystem members visit to Alaska and get together on the 25<sup>th</sup> at 4pm at the Sourdough Mining Company, everyone is welcome.

Tom Rutigliano (NL7TZ) reported on APRS (Automatic Positioning Reporting System) IGATE (Internet uplink) to AARC at CCV garage request to install system at AARC Ham Shack. Tom has been hosting this but is running against a Gigabit limit. Discussion noted this would assist with permanent internet installation at the CCV garage, could possibly cause interference issues that could be worked around, possible instant messaging use, usable for emergency operations. Proposal was passed out for review. Jim Larsen noted this equipment has been purchased in December of 2006. License for software is approx \$35. Motion made Heather Hasper KL7SP, seconded Diane Olson KL1MY to approve APRS IGATE equipment installation at the CCV garage or AARC ham shack location, accept Tom's proposal and coordinate the monthly DSL billing. Motion carried unanimously. Tom agreed to manage this project and work will begin soon. Tom also reported that the Digipeater installation on KGB Road is operational and will provide more packet coverage. No action is needed on this item, this is for information only.

Bruce McCormick (KL7BM) reported on sale of tickets for 2007 Hamfest. Bruce noted certain state gaming laws apply to ticket sales. AARC cannot restrict the number of tickets sold to an individual to 5; the winner must be present to win. Must insure we have different printed tickets from differentiate the Grand Prize drawing from door prize drawing.

Kathleen O'Keefe (KL7KO) reported that a separate locking drum has been purchased for the grand prize ticket drawing. KL7MD will take possession of the drum and monies from grand prize ticket sales another individual will hold the key to the drum padlock and another individual will hold the tickets for sale. The ticket purchaser will personally put the tickets into the ticket drum.

Kathleen noted there will be beverages only and no food will be provided. AARC cannot bring food for sale to the facility and KL7BK noted that HRO Portland and Ray Novak with Icom will be coming with a 30' display. Heather Hasper report that the total amount budgeted for this event is \$6300.00 and to date the amount spent is \$3025.43.

**AMATEUR RADIO**

Discussion of the ability of Hamfest organizers to purchase grand prize tickets was held. Motion made Heater Hasper KL7SP, seconded Frank Pratt KL7RX that individuals involved with organizing Hamfest 2007 are NOT allowed to participate in the Grand Prize drawing. The motion failed with 3 Yays and 8 Nays with 1 abstention

### **SECRETARY REPORT**

Previous Board meeting minutes for July and General Membership meeting minutes for August were presented. Richard Block KL7RLB noted a correction that he should be shown as excused and not absent for the July Board meeting as he had requested to be excused through the President. Motion made Diane Olson KL1MY, seconded Richard Kotsch WL7CPX to accept the Board meeting minutes as corrected.

### **TREASURER'S REPORT**

Heather Hasper presented the Treasurers report for month ending July 2007. Heather reported on Hamfest finances and expenses, Field Day expenses, State Fair expenses, corporate credit card idea, Donations, Grants to date in 2007 are \$12,487.00. In 2007 assets were purchased by members cc and reimbursed by the club. This doesn't improve the club credit rating. Discussion on corporate credit card, dedicated funds, current operating income vs. 2006, and AARC credit rating was held.

Motion made Piet Van Weel KL2CR, seconded Diane Olson KL1MY to accept the Treasurers report as given. Motion carried unanimously.

### **VE REPORT**

No report as Jim Wiley is not in attendance.

### **TRUSTEE REPORT**

Keith Clark reported that he has been working with Log-book of the World and has approximately 800 confirmed contacts under the KL7AA call sign.

### **MEMBERSHIP REPORT**

No report as Fred Erickson is not in attendance

### **ELECTION COMMITTEE REPORT**

Richard Tweet (KL2AZ) reported that there have been two Election Committee meetings held to date where ballot design is being formalized, existing Board members have been contacted to verify their intent to be placed on the 2007 ballot. Richard reported on positions up for election and asked that interested parties contact any of the Election Committee to be placed on the ballot.

### **Correspondence**

Kathleen O'Keefe requested a report on AARC correspondence for the month. Jim Larsen reported a report from the Arctic Amateur Radio Club regarding their grant status was received. Heather Hasper reported on receipt of correspondence from the MARA group, Gordon West and the Moose Horn Amateur Radio Club. Heather also noted an invitation to the APU event had been delivered to the President. Richard Tweet reported that email correspondence relating to AARC business is printed and filed with the year's correspondence.

### **OLD BUSINESS**

#### **Hamfest 2007**

Heather Hasper reported that the prize list, ticket log, ticket purchaser info has been turned over to Bruce McCormick and Michael O'Keefe and she will no longer be involved with this event.



#### **ARRL 2008 Statewide HAMFEST**

Richard Tweet reported that the Hamfest date has had to be rescheduled to August 2nd and 3<sup>rd</sup>, 2008 to eliminate conflict with the Huntsville, Alabama Hamfest. The Sheraton Anchorage agreed to the date change and will honor the \$199 per night room rate. This moves the cancellation date to February 2, 2008. Motion made John Orella KL7LL, seconded Diane Olson to agree and concur with the date change of Hamfest 2008 to August 2<sup>nd</sup> and 3<sup>rd</sup> as negotiated by the Hamfest 2008 committee. Motion carried unanimously. Richard reported that Gordon West will be featuring our 2008 Hamfest in CQ magazine in December or January. The ARRL Executive Committee has approved this event as an Alaskan Statewide Convention under the sponsorship of the AARC, MARA, Moose Horn Amateur Radio Club and Arctic Amateur Radio Club. The Sheraton requires catering fees for the event upfront. Motion made Diane Olson KL1MY, seconded Richard Kotsch WL7CPX to approve \$16,800.00 to the Anchorage Sheraton, bringing the total venue cost to date to \$26,800.00. Motion carried unanimously. Richard reported that during the August membership meeting an advisory vote was held to indicate support for the event and 2/3 of those in attendance voted to support this event. Discussion was held on Sheraton contract details, parking issues, local events during the timeframe, additional expenses, volunteers, committee members. Please visit <http://www.akhamfest.com> for information on the event.

### **State Fair**

Kathleen O'Keefe reported that Michael O'Keefe will be buying two tables to be delivered to the booth, the volunteer schedule is set, and tickets are straightened out. A few parking tickets issues are being resolved.

### **Alarm System Installation Project**

Bruce McCormick noted all parts are here and work will be completed as his schedule allows. Volunteers for this project are welcome.

### **File cabinets**

Heather Hasper noted that Arctic Office products brought in the wrong unit and the cabinet was then purchased from Office Depot who also delivered the wrong one. Office Depot is correcting their mistake and will be delivering the correct unit.

### **Tuner for long wire antenna**

Keith Clark noted the low power tuner (<200 watts) was not connected on the CCV and the high power (<500 watts) unit possibly needs to be repaired. Discussion as to use of low power tuner needs to happen and Keith will report back at the next meeting.

### **Sale of Assets Procedure**

Kathleen O'Keefe suggested that each board member review the draft regarding the sale of assets and tabled the issue to next month for discussion. Kathleen will email copies to all board members.

### **Capital Projects**

Kathleen O'Keefe noted the report from the appointed Capital Projects Committee (Hasper/Larsen/Sheffield) is due in September. Heather Hasper handed out a draft of policy regarding project management. Of the 20 projects approved by the Board in November of 2006, 6 are incomplete, 5 have been completed and 9 have had no action to date. Jim Larsen moved that discussion on the list of incomplete projects not be reviewed as it is not useful information tonight. Heather Hasper requested to be removed from the Committee as she has fulfilled her tasks and responsibilities as part of the committee. Michael O'Keefe recommended that Heather Hasper be removed from the Committee as requested and thanked for the work and documentation performed and provided to this organization and that this topic be tabled to the September Board meeting where individuals responsible for the projects can give detailed reports as to their status. Kathleen O'Keefe allowed Heather Hasper's request and tabled this topic

until the September Board Meeting.

### **Silent Key Plaque**

Kathleen O'Keefe noted that \$500.00 has been budgeted for this task and that a champion to complete the project is requested. Diane Olson volunteered to complete this project.

### **Printing / Publications**

Alaska South Central radio brochure is updated and complete. Brochures are at the State Fair for distribution. Kathleen O'Keefe noted that printing and publications should be handled by the AARC secretary.

### **Teleconference Bridge**

Jim Larsen reported on [www.freeconference.com](http://www.freeconference.com). Richard Block noted that he utilizes Raindance and will provide cost information. Heather Hasper reported a teleconference bridge through ACS is cost prohibitive. This will be discussed further at the September meeting.

### **Inventory club property**

Jim Larsen has nothing to report. Kathleen O'Keefe noted the need to design a hand receipt for purpose of signing out club property; Jim Larsen is working on formalizing this.

### **D-Star**

Kathleen O'Keefe asked if there any continued interest in D-Star. D-Star was explained as digital radio at the amateur level. David Stevens noted more information could be presented when more equipment becomes available. Jim Wiley and Mike Romanello will be asked if there is continued interest. ICOM will do a presentation at the 2007 Hamfest. This will be revisited at the September Board meeting.

### **Ambassador Program**

Kathleen O'Keefe asked if there any continued interest in the Ambassador Program. Jim Larsen reported that the thought was to provide patches to members that make documented contacts with 10 or so visitors to the local area. Project was dropped after contest idea was brought up for the patch. An Elmer patch was also discussed. A champion for the project is requested.





### **AARC Laser Printer**

A Laser Printer for the AARC was discussed and a cost comparison of recommended printers was distributed. Discussion was held concerning use, toner costs, savings, quality, color and need. Motion made Michael O'Keefe KL7MD, seconded Diane Olson KL1MY to purchase the 4700N model. Motion passed with 9 yeas, 3 nays and 1 abstention.

### **Christmas Party**

Organizers are Rick and Lil Marvin. Christmas Party will be held December 8, 2007 at 6pm at the Sourdough Mining Company.

### **Ham Shack – O'Keefe, M**

Antenna Project – ARES Training held August 18<sup>th</sup> at the CCV Garage to install tower was lightly attended, but the main tower is up, but not complete. Paul Spatzek has volunteered to complete the antenna installation. CCV landlord needs a certificate of liability.

### **Real Estate**

Jim Larsen reported on a property of interest located at 144 East 53<sup>rd</sup>. The building sits on .43 acres, has 4500sf of parking, zoned I1. Jim will arrange a tour for Board members and interested parties to view. Financing issues are yet to be worked out. Discussion included lease/purchase, appraisals, market analysis of like properties in the area. Motion made Richard Block KL7RLB, seconded John Orella KL7LL that the AARC Real Estate Committee make an offer and tender an earnest money agreement for an offer that would be subject to approval by the Board and the membership. Motion made Heather Hasper KL7SP, seconded Diane Olson KL1MY to increase the dollar amount available to the Real Estate Committee to \$10,000.00 (from \$5000.00) to secure property when found with ALL officers approval. Motion carried unanimously.

### **Other Old Business**

Volunteer positions are available within the AARC. The AARC web site needs to be monitored, checked and updated and Corliss needs assistance. Richard Tweet volunteered to assist with this. Kathleen will forward Corliss's address to Richard.

### **Newsletter Editor**

No action needed as Heather Hasper noted she would like to continue as editor. Heather suggests a treasurer's assistant to assist the Treasurer with time consuming duties and projects.

Kathleen O'Keefe requested a volunteer to provide hospitality at meetings and events.

Jim Larsen explained why AARC would not be using HF at the State Fair this year.

Michael O'Keefe reported on the Mark V radio repair.

### **NEW BUSINESS**

#### **Program for August Membership Meeting**

Mead Treadwell will speak at the September meeting regarding the 2007-2009 International Polar Year Research Project. November will be Elections and no speaker required. December suggestion is the Alaska Tsunami Center.

#### **Approvals, KL7AA in the next month**

No approvals needed until Sweepstakes. Motion made Jim Larsen, AL7FS, and Seconded by Piet Van Weel KL2CR to reaffirm Keith Clark as Trustee for the Anchorage Amateur Radio Club to coincide with the renewed KL7AA license for a 10 year period as per AARC Bylaw 5.1.

#### **Corporate Credit Card**

Heather Hasper gave a presentation on the suggestion of obtaining an AARC corporate credit card to be utilized by Board Officers for AARC purchases. This would allow for the AARC to develop and establish credit which we do not have now. Heather has contacted approximately 7 local banks for information. Discussion included credit rating, spending limits, values, risks, and controls. This topic has been tabled to the September meeting to allow for development and review of a proposal with controls designed to protect the AARC. Heather offered to contact the banks along with the AARC Secretary to obtain risk and controls information and how each institution addresses these issues.

Motion made Diane Olson KL1MY, seconded Piet Van Weel KL2CR, that the meeting be adjourned. Motion passed unanimously. Meeting adjourned at 9:55pm

Respectfully submitted as recorded on 8/21/07 by:

Richard Tweet, KL2AZ  
Secretary



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



## 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.

## ARES TRAINING:

There will be no monthly training in September due to schedule conflict with the Anchorage HAMFEST



## Public Service Events:

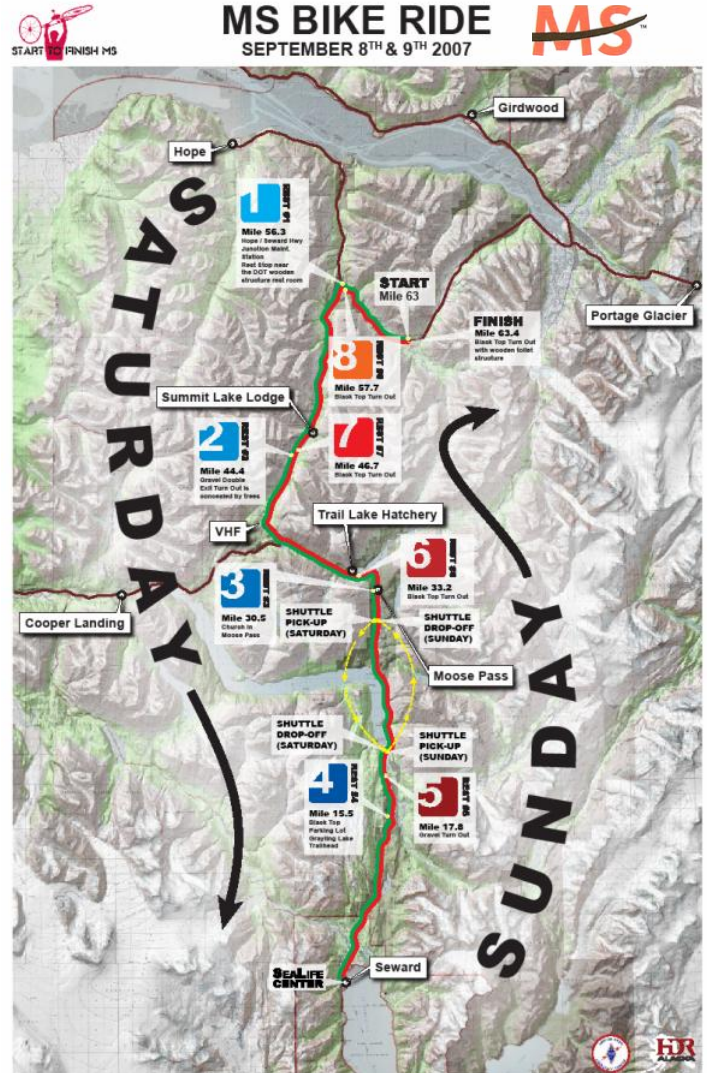


### MS 150 Bike Ride to Seward

The MS 150 is a national fundraiser for MS. MS is an autoimmune disease that affects the central nervous system. ARES operators across the nation support this event in their local community. In Alaska, the event is two days to raise money to find a cure for Multiple Sclerosis. The Alaska MS chapter holds the MS 150 along the Seward Highway from Milepost 63 to Seward on Saturday and Seward to MP 63 on Sunday.

ARES has been asked to provide communication support for this race. As many who have driven to Seward know, this is one area of the Alaska Road System not covered by any major VHF or UHF amateur radio repeater. While the technical components are still being evaluated, we will probably be setting up a portable UHF repeater along the route to try and provide the broadest coverage available. This is a great opportunity to practice and see what coverage we could have through this area should a repeater be permanently installed as well as to test our emergency preparedness ability for this region of Alaska should a large earth-

quake or avalanche occur and prevent access to this area. If you are able to volunteer for this event either day, communication checkpoints will be needed for both days. If you are able to volunteer, but don't have the radio gear, equipment is available to borrow. Volunteers who can only volunteer for one day are greatly appreciated. All volunteers are invited to attend the Banquet ceremony at the Seward Sealife Center on Saturday evening.



If you are interested in volunteering for communications for this race, please contact TJ Sheffield, KL7TS at [kl7ts@hotmail.com](mailto:kl7ts@hotmail.com) or via phone at (907) 248-3864.

## 9/26 Congregate Care Center Exercise

(3CX) MOA Emergency Operations Center

10:00 AM to 2:00 PM: Volunteers are needed; if you are available please contact Michael O'Keefe.

## ARES District 7 Contact Information

Michael O'Keefe, KL7MD

[DEC7 at alaskaares.org](http://DEC7.at.alaskaares.org)












# September 2007



## Anchorage Amateur Radio Club

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

**ANCHORAGE ARES  
DISTRICT 7 & 5  
KL7AA & KL7JFU**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
<p><i>QRP club meetings held at the Denny's at Bragaw and DeBarr.</i>  <i>Parka, meets at Peggy's restaurant, 11AM Contact: Kathy O'Keefe, KL7KO, 243-4675</i>  <i>EARS: R1 North, Contact: Ron Keesch: KL7YK@arrl.net</i></p>						1
2	3	4	5 HAMCLASS	6 	7 AARC meeting 7PM 	8 PARKA meeting 11 AM EARS: 3PM 
9 MS 150 	10 HAMCLASS	11	12 HAMCLASS	13 	14	15 HAMFEST 2007
16	17 HAMCLASS	18 AARC Board Meeting 7PM	19 HAMCLASS MARA Board Meeting 7PM	20 	21 QRP meeting 7PM 	22
23	24 HAMCLASS	25	26 HAMCLASS CCC Exercise	27 	28 MARA meeting 7PM 	29
30	<p>➤ Technician HAM Class will be M &amp; W nights from 6:30 - 9:00 PM at the American Red Cross Headquarters, 235 E 8th Avenue, Anchorage, AK. (corner of 8th &amp; Cordova)          ➤ No ARES TRAINING due to schedule conflict with the Anchorage, HAMFEST</p>					

**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



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

#### 9/3 - 9/26 HAMCLASS:

Contact: Michael O'Keefe, KL7MD, [instructor@kl7aa.net](mailto:instructor@kl7aa.net) Technician course to be held at Red Cross; 351-4038

#### 9/8 & 9/9 MS 150 Bike to Seward

Contact: TJ Sheffield, KL7TS; [kl7ts@hotmail.com](mailto:kl7ts@hotmail.com)

#### 9/15 Anchorage HAMFEST

Contact: Bruce McCormick, KL7BM, [mccorpp@gci.net](mailto:mccorpp@gci.net) 333-0340







## Data You Can Use:



### 2007 Board of Directors

**President:** Kathleen O'Keefe, KL7KO [president at kl7aa.net](mailto:president@kl7aa.net)

**Vice Pres:** Jim Larsen, AL7FS [vicepresident at kl7aa.net](mailto:vicepresident@kl7aa.net)

**Secretary:** Richard Tweet, KL2AZ [secretary at kl7aa.net](mailto:secretary@kl7aa.net)

**Treasurer:** Heather Hasper, KL7SP [treasurer at kl7aa.net](mailto:treasurer@kl7aa.net)

#### **Activities Chairman:**

Richard Kotsch, WL7CPX [activities at kl7aa.net](mailto:activities@kl7aa.net)

**Trustee:** Keith Clark, KL7MM [trustee at kl7aa.net](mailto:trustee@kl7aa.net)

#### **Membership Chairman:**

Fred Erickson, KL7FE [membership at kl7aa.net](mailto:membership@kl7aa.net)

#### **News Letter Editor:**

Heather Hasper, KL7SP [editor at kl7aa.net](mailto:editor@kl7aa.net)

### Three Year Board Members

Frank Pratt, KL7RX kl7rx at arrl.net (3rd year)

Paul Spatzek, WL7BF Paul.Spatzek at acsalaska.net (2nd Year)

Michael O'Keefe, KL7MD mok at gci.net (1st Year)

### One Year Board Members

Diane Olson, KL1MY, oldwoman\_69 at hotmail.com

TJ Sheffield - KL7TS, kl7ts at arrl.net

Edward Moses - KL1KL, kl1kl at ak.net

Jim Wiley - KL7CC jwiley at alaska.net

Piet van Weel - KL2CR pmvw at outwardfocus.net

John Orella: KL7LL, kl7ll at arrl.net

Susan Woods: NL7NN, NL7NN4606 at yahoo.com

Richard Block: KL7RLB, kl7rlb at clearwire.net

### AARC web page & Email contact addresses:

**Homepage:** <http://www.KL7AA.net/>

**Webmaster:** [webmaster at kl7aa.net](mailto:webmaster@kl7aa.net)

**Membership:** [membership at kl7aa.net](mailto:membership@kl7aa.net)

**Newsletter:** [editor at kl7aa.net](mailto:editor@kl7aa.net)

### News Letter Submissions, Information or corrections:

Submissions must be received 2 weeks before meeting

Email: [editor at 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 Feb 28, 2007

#### 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)

#### 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

### WL7CWE: Cliffside Amateur Radio Association

#### 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

KL5E Chugiak: 147.15/147.75, 123.0 Hz PL, auto-patch

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

KL7AX: South Anchorage IRLP - 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

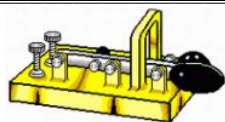
146.52 MHz Calling and Emergency frequency

147.57 MHz National DX Calling / Coordinating frequency

146.49 MHz Anchorage area simplex chat

146.43 MHz Mat-Su Valley simplex chat

147.42 MHz Peninsula simplex chat



### HF

**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

**ACWN (Alaska CW Net)** 3534, 7042 Daily @ 0700 -1000,

Net Purpose: Formal NTS traffic via CW.

**Alaska Pacific Net:** 14.292 MHz 8:00 AM M-F

**ERC HF Net:** 3.880 MHz - Sunday 8:30PM local

## Nets in Alaska:

The following nets are active in South-Central Alaska:

### VHF

**ARES Net:** 147.27/87 103.5Hz - Thursdays at 8:00 PM local

**PARKA Net** 147.30/90, 141.3 HZ Thursdays at 7:00 PM local

**No Name Net:** 146.85/.25 repeater Sundays 8:00 PM  
and 1900 - 2400 Alaska Time - AL7N or KL5T monitoring.

**Big City Simplex Net:** 146.520, 446.0, & 52.525 FM

**Grandson of SSB Net:** 144.20 USB Mondays 8:00 PM local

**Statewide LINK ARES Net:**

147.27/87 103.5Hz Sunday 8:00 PM local



## Internet Links, the favorites from our readers:

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

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

EARS <http://www.kl7air.us>

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/>

ALASKA MARS: <http://www.akmars.org>

Yukon Amateur Radio Association:

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

### Links for Propagation

<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.

**SCRC general meeting** has been suspended until further notice. No meetings are scheduled at this time.

**2<sup>nd</sup> Saturday each month: PARKA Meeting at 11:00 AM.** Polar Amateur Radio Klub is the only YL club in Alaska. All amateurs welcome. Peggy's, across from Merrill Field. Talk in on 147.30+.

**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. Contact info - PO Box 6079, Elmendorf AFB 99506 or email Ron Keech, KL7YK for information. EARS: 552-2664 (recording); Talk in on 146.67-. Email: [kl7air@qth.net](mailto:kl7air@qth.net) or [kl7yk@arrl.net](mailto:kl7yk@arrl.net)

**3<sup>rd</sup> Tuesday each month: AARC Board meeting at 7:00 PM** at Hope Cottage 540 W. International. All hams 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 at 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 Michael O'Keefe, ANC DEC: [dec@kl7aa.net](mailto:dec@kl7aa.net) HM: 243-4675 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 Tim Comfort, NL7SK, [NL7SK at arrl.net](mailto:NL7SK@arrl.net).

# 2007 HAMFEST

## 36th ANNUAL ANCHORAGE HAMFEST

**WHEN:** Saturday, September 15th, 2007, 900 AM - 5:00 PM

**WHERE:** Anchorage Senior Center

**EVENTS Include:**

**NATIONAL VENDORS:**

- **SPEAKERS**
- **VE TESTING**
- **RAFFLE PRIZES**



For More Details go to: [www.kl7aa.net/hamfest](http://www.kl7aa.net/hamfest)

**LODGING Options:** The Howard Johnson Plaza hotel in Anchorage operated by one of our local amateur radio operators is offering great rates for Anchorage.



*Go anywhere. Stay here.™*

239 West 4th Avenue  
Anchorage, AK 99501  
(907) 793-5500

<http://www.hjplazaanchorage.com/>

**September 11<sup>th</sup> - September 19<sup>th</sup>, 2007**

**\$79.00 Single/Double Occupancy**

**Group block of 20 rooms peak**

\$20 per additional guest

Rate does not include room tax, currently 12%

**CALL: Group code is: AARC**

**EVENTS Include:**

- **SPEAKERS**
- **VE TESTING**
- **RAFFLE PRIZES (\$1 each)**
- **\$5 Entry Fee (includes one general raffle prize ticket)**
- **Local Table Sales (\$10/each)**

**Grand, Grand PRIZE!**



**IC-746PRO**

**HF/50/144MHz**

**All Mode Transceiver**

### Separate Raffle Prize

- ⇒ Tickets for the grand prize will be sold at both the September 2007 AARC meetings and at the Hamfest.
- ⇒ Tickets are **\$10 / each**
- ⇒ **No Ticket Limit (This is state law for split raffles)**
- ⇒ Winner will be announced at 4PM of September 15, 2007 at the Hamfest.
- ⇒ **MUST BE PRESENT to WIN!**

Note:

After consulting with gaming regulators, it was confirmed that this type of Split pot raffle requires no pre-printed tickets and no limited ticket sales as defined in Alaska Statute: 15 AAC 160.820.



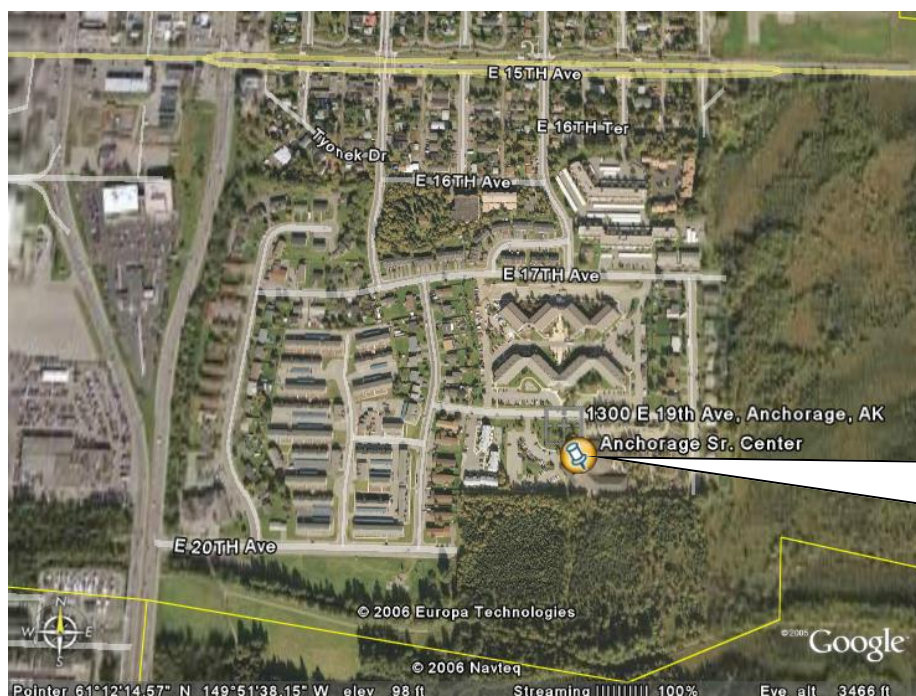
# HAMFEST 2007

## Schedule

(subject to change)

- 800 Doors open to vendors and table sales
- 900 Doors open to general members and buyers
- 1010 **SPEAKERS:** Dale Hershenberger, KL7XJ  
Challenger Learning Center & AMSAT
- 1130 - 1230 Lunch
- 1310 **SPEAKERS:** Don Bush, KL7JFT & Tom Rutigliano, NL7TZ: APRS
- 1330 **SPEAKER:** TJ Sheffield, KL7TS,  
Bicycle Mobile Stations will demonstrate in Don and Tom's session.
- 1410 **SPEAKER:** Jim Movius, KL7JM  
Antenna Modeling and Design (confirmed)
- 1510 Jim Wiley, KL7CC  
VE Testing depending on demand
- 1600 **GRAND PRIZE** drawn.
- 1630 Tear Down

*Note: Start times for speakers are ten minutes after the hour to allow people to participate in raffle prize drawings at the top of every hour.*



### Anchorage Senior Center

1300 E 19th Ave  
Anchorage, AK 99501  
(907) 258-7823

[anchorageseniorcenter.org](http://anchorageseniorcenter.org)

## CCV Tower Installation



Thanks to the efforts of a few, and I do mean a few volunteers, the CCV Tower was successfully installed on 8/18/2007. Michael O'Keefe, KL7MD, Paul Jendryk, NL7PJ, Paul Spatzek, WL7BF, Craig Severson, KL2FN, Heather, KL7SP, TJ Tobleson, KB8JXX, Mike Romanello, KL7BK, visiting ham operator Scott Honaken N7SS, and David Stevens KL7EB late in the day. The tower does not have an antenna on it at this time. .

## CLUB COATS

### COATS ARE IN!

If you ordered a coat prior to July 1, your coat has arrived. I still have about 4 more on order and hope to have them by mid September.

A few non personalized coats will be available at the ANCHORAGE HAMFEST on September 15 for purchase. Coats will be available for pickup at the September AARC Meeting!



## 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:  
<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?"

Step #5: Click on the "Subscribe" button below the information that you just entered.



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.



714

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. Must have a current club membership.

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).





# ALASKA 2008 HAMFEST

In an effort to attract National Vendors to Alaska, a date has been selected for a 2008 statewide HAMFEST. This event involves all radio clubs in Alaska and more than 3600 amateur radio operators throughout ALASKA. Representatives of the Matanuska Amateur Radio Club, the Anchorage Amateur Radio Club have worked hard to promote this event at several national events.

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



37th ANNUAL

## ALASKA HAMFEST 2008

National  
Vendors

FCC & ARRL  
Guest Speakers

QST, QST



"THE FINAL FRONTIER"  
Anchorage, ALASKA 2008  
August 2nd & 3rd, 2008



### !!!!!! DATE CHANGE UPDATE !!!!!

- ⇒ The date of the event has been moved forward to not conflict with other national Hamfests. This allows a great opportunity to combine an Alaska dream vacation with a business venture and great hobby. Please check your calendars and mark the update!
- ⇒ We have secured a venue for 2008. The Hamfest planning team received several proposals from local hotels and facilities and the team has selected the Anchorage Sheraton for the location of the 2008 Alaska Hamfest.
- ⇒ We also have secured parking outside the building for communications vehicles to allow us to demonstrate our statewide mobile communication vehicles from Kenai to Fairbanks as well as the opportunity to set up a special event station for the duration of the HAMFEST.

**NEW!** 2008 HAMFEST approved as  
ARRL STATE CONVENTION!

This has not happened in Alaska since 1978!

### Planning and Volunteers

Several people have indicated they would be willing to assist with the planning and preparation activities needed to make this be a successful amateur radio event.

### Confirmed Guests:

- **ARRL, Jim Fenstermaker** NW Division Director
- **FCC: Riley Hollingsworth**



With only **334 days left**, LESS THAN A YEAR, we are going to start having bi-monthly meetings to prepare for our guests. If you wish to be part of the planning team, please send an email to [secretary@k17aa.net](mailto:secretary@k17aa.net) so that you can be in the loop of all the upcoming schedules and events.





## THE MODULATION TIMES

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

PRSRT STD  
U.S. Postage  
PAID  
Anchorage, AK  
Permit No. 69



ARRL Affiliated  
Club for more  
than 50 years

# AMATEUR RADIO HAMFEST 2007 Grand, Grand PRIZE! IC-746PRO



- HF + 50MHz + 144MHz
- All Band Coverage
- Continuous Duty at 100W
- Digital RF Speech Compression
- Microphone Equalizer
- Digital Twin PBT



### Separate Raffle Prize

- ⇒ Tickets will be sold at both the September 2007 AARC meeting and at the Hamfest.
- ⇒ Tickets are \$10 / each, No Ticket Limit (This is state law for split raffles)
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