



January 2007

Happy New Year!

President's Corner

Doyle Gantt, W4DJG

I hope everyone had a great Christmas and New Year Holiday and enjoyed your special time with family and friends.

Membership dues are due January 1. You should have received membership renewal applications long before now and I do hope you have sent this back in. Since virtually all funding for our club is generated via membership fees and repeater donations, it is important to submit your dues and repeater donations by January 1. If, by chance, you did not receive a renewal application, please send me an e-mail at W4DJG@bellsouth.net and I'll ensure you receive one or download one at www.lanierlandarc.org/downloads/applications.pdf. Please, if you haven't sent in your renewal application, take a few moments and do so now.

As we get settled into 2007, I look forward to another great year for LARC. I consider myself very fortunate to have got to know many of you personally. What a great group of folks with many talents. Together, we can accomplish anything we set our minds to. I truly think you will find many fun and enjoyable activities come about this year. All our committees are or will be working hard to make such activities become a reality. I encourage you to let us know your ideas as well. I also encourage each of you to continue to be active and supportive within the club.

Many thanks go to Chuck, W4EDT for his FB job with our Web Site and to Bob, KI4QVN for his tireless efforts to keep our newsletter going. Let these two guys know if you have input for either venue.

Also, thanks to each of you for the many efforts which enables our club to be such a great, interesting and fun organization.

Hope to see each of you at meetings and other activities.

Happy New Year to All

73

Doyle, W4DJG

New Techs !

Let's give a hearty congratulations to our four new Tech tickets effective December 3rd 2006! :

William Tuttle KI4SKM
Kimberly Tuttle KI4SKL
Rhys Tuttle KI4SKK
Jason Bales KI4SKJ

Congratulations and welcome aboard!

FCC Drops Morse Code Testing

Submitted by Bob Aldrich, KI4QVN

NEWINGTON, CT, Dec 19, 2006 -- In an historic move, the FCC has acted to drop the Morse code requirement for *all* Amateur Radio license classes. The Commission adopted the long-awaited *Report and Order (R&O)* in WT Docket 05-235, the "Morse code" proceeding, and released it December 19. The FCC *R&O* also includes an *Order on Reconsideration* in WT Docket 04-140 -- the "omnibus" proceeding. It will modify the Amateur Service rules in response to ARRL's 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. ***The effective date of the FCC's R&O will be 30 days after publication in the Federal Register -- most likely 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.

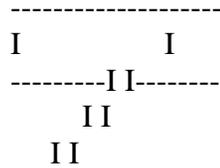
The Tech Corner: Antennas....and Tuners!

Submitted by Ed Cravey, KF4HPY

Terminated Folded Dipole

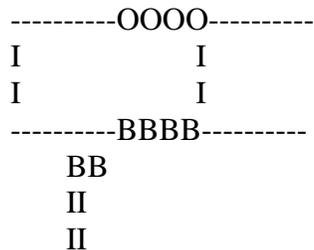
Hi all, recently I was asked to explain the Terminated Folded Dipole (TFD) and the Tilted Terminated Folded Dipole (TTFD) ; this I will try to do so, as I have some

knowledge of this antenna type. First of all I will tell of the basic folded dipole. This is an antenna designed to broaden the bandwidth around the resonant frequency. The cheapest, simplest example is a length of twinlead cut to the resonant frequency (468/F), with the conductors shorted on the ends. The twinlead feed line, of the same impedance and material, is soldered to the center of the resonant twinlead. We have made a good antenna for full 80 meter coverage with all the earmarks of a wire dipole, but having a wider bandwidth at 300 Ohm impedance instead of 75 Ohms. Here is a drawing.



Now, let us look at the TFD antenna. This is a wide band unit operating from 1.5 MHz to 30 MHz. A commercial version is the B&W Broadband Folded Dipole as used by government and military. The SWR across this range is 2:1 allowing one antenna for many frequencies. Compared to a regular wire dipole; the patterns of radiations are similar; the overall dimensions appear to be less. However, TFD's may show a loss of -1 to -6 dB (one S-unit), or may be equal in gain or exceed +1 or +2 dB at the higher frequencies as compared to a dipole. This is the quietest antenna as far as picking up noise; and is a favorite of SWL's (Short Wave Listeners). I know of 3 versions of a space friendly tilted version with cut off frequencies of 3.5, 7, and VHF 25-150 for those interested. What is the termination part? It is a series of non-inductive resistors equaling 400 Ohms for a 300 Ohm feeder with the wattage rating at 1/3 the transmitting power to be used. This allows a 100 Watt transmitter to be used with a 4:1 balun. Some units use 900 Ohm resistors and 16:1 baluns; all specialty stuff. The spacing between the wires varies with the formula for the frequency (4 to 16 inches). For the home builder the hardest thing is the building of the terminating resistor, and selection or building of the balun. How does it work??

Great, according to CO2KK, Arnie, who presented article on the VHF TTFD in CQ-VHF Oct. '97, my friend John Carver, SWL, made his own homebrew version along with 50 foot PVC mast, is very happy with his installation. And Cebik covers it quite well in his second book. Here is what it looks like.



OOOO=Resistor

BBBB=Balun

Ed Cravey, KF4HPY, 73

Tuners, what about them?

Tuners, as we all know, don't really tune an antenna, but do an impedance match of the feedline and antenna to the transceiver for low SWR and to insure the protective circuits aren't cutting back the output of the transmitter. A tuner allows you to use an antenna for more than one band. But, you have never used a tuner before and need to know how? This article is about to try to introduce you to tuners.

Tuners come in all sizes, shapes and prices. Let us start with a simple tuner. It is connected to the radio by a short coaxial cable called a jumper. The same type of cable as the feedline can be used or low loss flexible RG-8X, or RG-8M jumpers which I like. The jumper should be 50 Ohms impedance. The antenna feedline will be 50 to 75 Ohms, depending on what is available to you locally. We should be ready to start now. You are the local radio expert behind your radio; where is the SWR meter located? In the radio itself, in the tuner, or a separate meter inserted between the radio and tuner? Maybe you have an antenna analyzer or internal tuner instead? We will do the internal tuner now. These are easy, just push and hold the Tune button or just push Tune momentarily depending on the radio. There are external tuners that tune at the push of a Tune button or the press of a PTT switch on the microphone, automatically when SWR rises above 3:1. On this type of tuner the SWR will be shown on the dial or LED's.

Now we have eliminated the auto and semi-auto tuners, let us go to the manual tuner. Using the analyzer with jumper connected to tuner SO-239 labeled Transmitter, tune the radio and analyzer to, say, 7260 KHz, you will hear a buzz in the radio receiver section. This is the analyzer output, a low power signal. Remember the radio is NOT connected to the tuner or the analyzer. With the antenna and transmitter knobs at a setting designated by the tuner manufacturer, turn the Inductance knob until you see an indication of meter movement on the analyzer. Try for the lowest indication. You have entered the ballpark. Next, tweak the ANT and TRANS knobs in turn seeking a ratio of less than 3:1 on the analyzer meter. You did it, remove the analyzer, connect the radio jumper to the Trans. SO-239 on the tuner and go on the air.

Leaving the analyzer method, we have the SWR meter in the tuner or between the radio and tuner. On the newer radios a SWR bar graph is sometimes included in the dial. In any case; adjust the ANT and TRANS knobs to their designated set point and the transmitter in LOW power CW, AM or FM. Send out a signal and observe the reading on the SWR meter. Try not to mess up a frequency in use; listen before tuning up. Adjust the Inductance knob, until you see a reduction in SWR; try to get it lower. Now tweak the Ant and Trans knobs in turn for lowest SWR on the meter or graph. WARNING, Don't turn the Inductance knob while holding the PTT or Key down in HIGH Power. You WILL be able to BURN: Roller Inductor and Inductor Switch Contacts. Do all tuning in Low to Medium Power.

You don't have meters, analyzers etc., fear not. On your frequency of choice, listen for either a WEAK station or band Noise; adjust the Inductance knob for MAX Noise or MAX signal strength, while watching the S-meter and listening on headphones or speaker. Tweak the ANT and TRANS knobs for MAX Noise or Signal. This will get you close to 1.5: 1 or 1.7:1, a good field expedient. This is Tuners, the short form.

E. Cravey KF4HPY

Amateur Radio Taught in Local Schools

Submitted by Alfred Westbrook, KT4VP

Thanks to a dedicated teacher, two elementary schools in Hall County are offering Amateur Radio classes to students. Crista LeRoy KD4KPS is a teacher at Chicopee and Sugar Hill Elementary Schools. Crista has been teaching Amateur Radio classes for the past 2 years and has saw 8 of her students pass the Technician class exam and get their license. We are fortunate to have people like Crista who take a lead in helping to introduce young people to Amateur Radio. In today's high tech world there are many technologies a student may find interesting and thanks to Crista Amateur Radio is being introduced to some Hall county students. Here is the current list of Crista's students who have earned their Technician class license.

KI4EDW ----- Martha Flores

KI4EDX ----- Christian Delgado

KI4FPT ----- Jason Combs

KI4HVR ----- Jason Lee

KI4MSB ----- John Stenzel

KI4ONX ----- Christina Sasanans

KI4OSQ ----- Ulises Deras

KI4OSR ----- Brittney Knight

LARC would like to thank Crista for her hard work and we welcome all the new "Hams" to Amateur Radio. We invite and encourage all of the students to get on the radio and let us hear from you. The members of LARC are reminded to listen for these call signs and welcome the students to their new hobby.

RF Exposure

Submitted by Doyle Gantt, W4DJG

Taken from the FCC Office of Engineering and Technology web site

Amateur Radio is basically a safe activity. In recent years, however, there has been considerable discussion and concern about the possible hazards of electromagnetic radiation, including both RF energy and power-frequency (50-60 Hz) electromagnetic fields.

In 1996, the FCC announced new rules governing exposure to transmitted radio frequency signals. The new rules set new limits on the amount of RF energy people can be exposed to. They also require that some stations be evaluated to see if they are in compliance with the rules.

WHAT IS "RADIOFREQUENCY" AND MICROWAVE RADIATION?

Electromagnetic radiation consists of waves of electric and magnetic energy moving together (i.e., radiating) through space at the speed of light. Taken together, all forms of electromagnetic energy are referred to as the electromagnetic "spectrum." Radio waves and microwaves emitted by transmitting antennas are one form of electromagnetic energy. They are collectively referred to as "radio frequency" or "RF" energy or radiation. Often the term "electromagnetic field" or "radio frequency field" may be used to indicate the presence of electromagnetic or RF energy.

The RF waves emanating from an antenna are generated by the movement of electrical charges in the antenna. Electromagnetic waves can be characterized by a wavelength and a frequency. The wavelength is the distance covered by one complete cycle of the electromagnetic wave, while the frequency is the number of electromagnetic waves passing a given point in one second. The frequency of an RF signal is usually expressed in terms of a unit called the "hertz" (abbreviated "Hz"). One Hz equals one cycle per second. One megahertz ("MHz") equals one million cycles per second.

Different forms of electromagnetic energy are categorized by their wavelengths and frequencies. The RF part of the electromagnetic spectrum is generally defined as that part of the spectrum where electromagnetic waves have frequencies in the range of about 3 kilohertz (3 kHz) to 300 gigahertz (300 GHz). Microwaves are a specific category of radio waves that can be defined as radio frequency energy where frequencies range from several hundred MHz to several GHz.

WHAT IS NON-IONIZING RADIATION? "Ionization" is a process by which electrons are stripped from atoms and molecules. This process can produce molecular changes that can lead to damage in biological tissue, including effects on DNA, the genetic material. This process requires interaction with high levels of electromagnetic energy. Those types of electromagnetic radiation with enough energy to ionize biological material include X-radiation and gamma radiation. Therefore, X-rays and gamma rays are examples of ionizing radiation.

The energy levels associated with RF and microwave radiation, on the other hand, are not great enough to cause the ionization of atoms and molecules and RF energy is, therefore, is a type of non-ionizing radiation. Other types of non-ionizing radiation include visible light, infrared radiation and other forms of electromagnetic radiation with relatively low

frequencies. Often the term "radiation" is used to apply to ionizing radiation such as that associated with nuclear power plants. Ionizing radiation should not be confused with the lower-energy, non-ionizing, radiation with respect to possible biological effects, since the mechanisms of action are quite different.

Like all FCC licensees, amateur radio operators are required to comply with the FCC's guidelines for safe human exposure to RF fields. Under the FCC's rules, amateur operators can transmit with power levels of up to 1500 watts. However, most operators use considerably less power than this. Studies by the FCC and others have shown that most amateur radio transmitters would not normally expose persons to RF levels in excess of safety limits. This is primarily due to the relatively low operating powers used by most amateurs, the intermittent transmission characteristics typically used and the relative inaccessibility of most amateur antennas. As long as appropriate distances are maintained from amateur antennas, exposure of nearby persons should be well below safety limits.

To help ensure compliance of amateur radio facilities with RF exposure guidelines, both the FCC and American Radio Relay League (ARRL) have issued publications to assist operators in evaluating compliance for their stations. The FCC's publication (Supplement B to OET Bulletin 65 can be viewed and downloaded at http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

73 to all,

Doyle, W4DJG



Submitted by Bob Aldrich, KI4QVN, Secretary LARC

**The LARC will be participating in the First Annual
SPAR Winter Field Day the weekend of January 13 –
14, 2006!**

Contact any club officer if you wish to participate so we can get a head count of participants and further coordinate this event. [Click here](#) to send me your name or my email address is also at the bottom of this newsletter. Let us know ASAP! I'll pass on your info. Participation is the name of the game!

Field Day is one of the activities enjoyed by amateurs every June and offers an opportunity for camaraderie and a chance to test our ability to set up operations in less than ideal circumstances, however, emergencies and natural disasters don't always happen in the summer. To test our abilities to operate in the winter, SPAR has established a Winter Field Day event and invites all amateurs to participate.

The first Winter Field Day will be held from 12:00 noon on Saturday January 13, 2007 to 12:00 noon on Sunday January 14, 2007 local time. The object of the event is to set up emergency-style communications and make as many contacts as possible during the 24 hour period. The rules encourage as many contacts on as many bands and modes as possible, because during a real emergency, the most important factor is the ability to communicate, regardless of band, mode or distance.

The official rules can be found at the SPAR web site. The event is open to all amateurs, although we encourage everyone to join in the discussions and other activities sponsored by SPAR. Information about SPAR can be found on the SPAR Home Page. Membership is free and open to all amateurs who want to encourage technical and operating skills. You can register by going to the SPAR Forum and registering, using your amateur callsign as your user name. Please join with SPAR in promoting amateur radio and keeping our bands alive!

Proposal to Amend The LARC By-Laws:

Date 11-28-06

Proposal to amend The LARC By-Laws:

In keeping with Lanierland Amateur Radio Club's tradition to promote general interest and welfare of Amateur Radio in the community, the 2007 Executive Committee makes to the membership of the Lanierland Amateur Radio Club, our proposal to amend our By-Laws under Section II (Membership) to add and include Paragraph 2.45 that would read:

“All Amateur Radio Operators under 16 years of age, that reside in Hall and adjoining counties, will be eligible for free membership into the Lanierland Amateur Radio Club. Those persons who receive free membership will not have voting privileges and will be subject to normal club dues as outlined in paragraph 6.10 of our By-Laws at the end of the calendar year following their 16th birthday.”

We feel this is a good will gesture toward the young hams within the community and indeed fosters general interest and welfare of and for our great hobby.

**Respectfully submitted: Doyle Gantt, Alfred Westbrook, John Brandon,
Roger Gibson, and Bob Aldrich.**

Per club bylaws, this is the second required newsletter posting of this bylaw proposal before being voting on at the next meeting (January 2007). The first posting was in the December 2006 Newsletter.

December 2006 Minutes – No Meeting

Georgia Ham Events

13 Jan 2007+ GARS TechFest Gwinnett ARS <http://www.gars.org>
Talk-In: 147.075 (PL 82.5) Lawrenceville, GA
St Marguerite D'Youville Church
[85 Gloster Road NW](#)

24 Feb 2007+ Dalton ARC <http://www.w4drc.com>
Talk-In: 145.230 (-) no tone Dalton, GA
North Georgia Fairgrounds
[501 Legion Drive](#)

ARRL Yearly Event Calendar:

Date(s)	Contest	Links
January 1	Straight Key Night	Rules
6 - 7	ARRL RTTY Round-Up	Rules
20 - 22	ARRL January VHF Sweepstakes	Rules
February 17 - 18	ARRL International DX Contest (CW)	Rules
March 3 - 4	ARRL International DX Contest (Phone)	Rules

June	9 - 11	ARRL June VHF QSO Party
	23 - 24	ARRL Field Day
July	14 - 15	IARU HF World Championships
August	4 - 5	ARRL UHF Contest
	18 - 19	ARRL 10 GHz and Up Contest
September	8 - 10	ARRL September VHF QSO Party
	15 - 16	ARRL 10 GHz and Up Contest
November	3 - 5	ARRL November Sweepstakes (CW)
	17 - 19	ARRL November Sweepstakes (Phone)
	30 - 12/2	ARRL 160 Meter Contest
December	8 - 9	ARRL 10 Meter Contest EME Contest dates to be announced

Repeaters:

2 Meter 146.67 MHz - 131.8 Hz tone. Also used for Hall County ARES
 1.2 Meter 224.84 MHz - 203.5Hz tone.
 70 Centimeter 444.950 MHz + 131.8Hz tone

Nets:

ARES Net – 2000 every Wednesday night on 2 meters.
 LARC Net – 2030 every Wednesday night following the ARES net on 2 meters.

Club Meeting Information

Meeting nights are the last Tuesday of each month. As always, the meeting location is at Fire Mountain on Browns Bridge Road.

Amateur Radio News:

- [Amateur Radio Newsline](#)

- [Amateur Radio Newline w/streaming audio](#)
- [ARRL News Bulletins](#)
- [RAIN Report \(Radio Amateur Information Network\)](#)
- [W5YI News Bulletins](#)
- [AMSAT News Bulletins](#)

LARC APPAREL



LARC Embroidered Cloth Patch
22 Available
\$3.50 Each



LARC LOGO Ball Cap
(One size fits All)
4 (White) Available
\$10.00 Each



**LARC LOGO Silk Screened
cotton T-shirt (white)**
4 Medium, 1 Large and 2 XL
Available \$10.00 each

**See John Brandon, KE4PFC, LARC Treasurer for any of the
above club items.**

**Newsletter published by: Bob Aldrich, KI4QVN, Secretary / Newsletter Editor,
Lanierland ARC.**

**Newsletter inputs are welcome from any member, any time.
Please contribute!**

**Send your inputs for the newsletter or your info to participate in the
First Annual SPAR Winter Field Day in January 2007 to
Bob Aldrich, KI4QVN, Secretary, LARC**