Zer0 Beat

Montgomery Amateur Radio Club Newsletter **Established 1938**

February 2006

MARC CALENDER OF EVENTS

MONTHLY CLUB MEETING every 3rd Monday 7:00 PM American Red Cross 5015 Woods Crossing Dr.

FELLOWSHIP BREAKFAST every Saturday preceding the monthly club meeting at Flip's on the corner of Perry Hill Rd. & Atlanta Hwy at 8:30 AM

FCC EXAMS

ARRL Last Saturday each month at 1:00 PM at American Red Cross, 5015 Woods Crossing Dr.
For Info contact Scott, W4SPA (334) 262-0412
Or email (w4spa@arrl.net)

CAVEC every 2nd Monday at 6:30 PM at American Red Cross, 5015 Woods Crossing Dr.
For Info contact Steve, K4NM (padgett@jschool.troy.edu) or Jim KR4JY (jeiland@knology.net)

Additional Exam Info:
http://www.arrl.org/arrlvec/examsearch.phtml?State=AL

Club Nets

Central Ala 2 meter Net and Skywarn-Emergency Net on 146.84 at 8:00 PM every Sunday night. A controlled net with information about amateur radio subjects including information bulletins, hamfest info, satellite info, local club info, weather info etc. Net managers are Clay, KC4YAU and Rick, KG4PNL.

Don 't forget your club dues.

2005 Officers

President: W4SPA-Scott Poole
Past Pres: KU4PY-Rik Doll
VP: KG4PNL-Rick Seeders
Secretary: KG4MIQ-Tim Dixon
Treasurer: K4APG-Paul St. John
Publicity: KI4CSQ-Shaun Thomas
Trustee: WD4JRB-Stuart May
Trustee: K1AZE-Lew Nyman
Trustee: K4OZN-Phil Salley
W4AP Trustee: K4TK-Tim Moore

Local Repeaters

146.840(-) W4AP Wetumpka
146.920(-) W4AP Eastdale
147.180(+) W4AP Baptist Tower (Autopatch)
444.5(+) W4AP Wetumpka--Linked to IRLP 88.5 Hz
53.350(-)W4AP Baptist Tower 100 Hz
444.450(+) WD4JRB Baptist Tower 100 Hz
(Echolink Node 212144)
446.450 (Splx) IRLP (4845) Baptist Tower 110.9 Hz
147.200(+) KE4LTT Friendship 107.2 Hz
444.575(+) KE4LTT Friendship 100 Hz
147.380(+) W4JKB Santuck 88.5 Hz
145.690 Simplex Packet
144.390 Simplex APRS

From the President's Shack

By Scott W. Poole, W4SPA

As I begin my second term as President, I'd like to reflect back on some of the past year's club activities. 2005 was another busy year for the MARC.

Once again the MARC provided communications support to the March of Dimes for their annual Walk-America event. The weather this year was dismal; as a matter of fact, there was a severe thunderstorm warning as the event staff was setting up! How realistic a training scenario can you get? But, the clouds parted long enough for the walk to take place and we were there… a little soggy, but still communicating.

The By-laws committee has made great strides toward their goal of rewriting the by-laws of the MARC. They are over two thirds of the way through the articles. Expect a final draft this Spring or early Summer.

The MARC contesting station was on the air in 2005 with Mark, WB5NMZ, at the helm, as we took part in the Alabama QSO party. We did quite well last year taking second place overall and garnering the top spot in the multi-single category. Kudos to all that pitched in!

VP Rick Seeders, KG4PNL, and I were invited to speak at a disaster preparedness workshop in Autauga County where EMA officials explained their respective roles during and after a disaster. It was extremely informative and Rick and I talked about amateur radio's part in providing communications support to government officials.

Several MARC members towed the club trailer out to Frasier UMC for the 2005 Boy and Girl Scout's Jamboree-on-the-Air or JOTA as it's better known. In spite of some minor technical difficulties, nothing a field repair couldn't fix, we were on the air with the scouts again in 2005. This year we exercised several modes including HF SSB and VHF IRLP and Echo-link. The kids loved it!

There was a MARC camping trip where about a dozen members drove up to the highest point in Alabama, Mt. Cheaha, for the weekend. While camping there, we operated an HF station and made about 50 contacts from around the US and Canada.

We assisted MARC member Scott Brown, WB8FUS, who's a professor at AUM, with a presentation of amateur radio's capabilities.

The MARC Field Day event is definitely one of the premiere events of the year. Once again in 2005, under the skillful guidance of Fred Beatty, K8AJX, and in spite of Murphy's Law, we managed to finish near the top in the state of Alabama.

Spencer, KZ4J, and Carole, WQ4V, Edwards put together a technician class license-training course in Ft. Deposit, AL. Of the students attending the class about 10 of them have become licensed hams.

The MARC Hamfest; the other premiere event of the year, was once again chaired by Rik Doll, KU4PY, and was overall, a very successful event. This is a service the MARC provides to area hams by giving vendors and customers a chance to come together in a mutually beneficial way.

Lamar Smith, KC4LZO and his daughter Sarah, KI4CXD, made a presentation of amateur radio to 6th graders at the Daniel Pratt Elementary School in Prattville. This is the second year in a row MARC members have been invited to speak at the school. These speaking engagements are fantastic opportunities to spark an interest in our hobby to young people. I know I've said it before, but these students represent the future of amateur radio and we owe it to the hobby to encourage their interest.

How could I look back to 2005 without mentioning Hurricane Katrina. It has turned out to be the largest natural disaster this country has ever known and we were right in the middle of it; not the destruction fortunately, but the recovery. For weeks and weeks after landfall there was effectively no other means of communication into or out of the affected areas other that amateur radio. Greg Sarratt, W4OZK, ARRL AL Section Manager, spent 38 straight days here in Montgomery working at the Red Cross Marshalling Center coordinating amateur radio activities across Southern AL and MS. Many MARC members pitched in to help Greg and the recovery effort by assisting either at the Marshalling Center from their own homes by monitoring HF frequencies and passing traffic. As a result of all the assistance we provided, the American Radio Relay League recognized us with 2 prestigious awards. Greg Sarratt, W4OZK, at the 2005 Hamfest, presented an ARRL Emergency Communications Commendation and an ARRL Public Service Commendation to the Montgomery Amateur Radio Club. A big thanks to everyone that helped out with the hurricane effort and helped to prove that amateur radio really is there "When All Else Fails".

Looking forward to 2006 I am extremely pleased and encouraged by many things going on within the club. Our membership roles are increasing, there is a renewed interest in group activities like fox-hunting, meetings have been very well attended, and there's lot's of activity on the local repeaters and nets. Thanks mainly to the incredible generosity of our members we have more money in the bank than we did a year ago. I have plans for two licensing classes this year; one Technician class and one General upgrade class. One item I had hoped to get started last year didn't happen, so I'm going to get it going this year… that is attaining a 501(c)3 charitable non-profit status for the club.

There are several personnel changes to note for 2006: Paul St. John, K4APG, is our new Treasurer; Clay Redden, KC4YAU, has taken over as the Central Alabama Two-Meter Net Manager; and I am now the Montgomery ARRL VE Team Liaison.

In closing, let me thank each and every one of you for the support you have given me in 2005. I look forward to working with all of you in 2006. Together, we will continue to make the Montgomery Amateur Radio Club something we can all be proud to be a part of.

From the Editor

Thanks for the input from all who contributed articles for this issue. If anyone has an article for the ***Zero Beat*** please send it before the next issue, which is planned for May, just before the Field Day month. Keep in mind that any article from a publication or news cast etc must have the writers permission before I can include it in ***ZB.***

73,
Bobby

Zero Beat is published by the Montgomery Amateur Radio Club.
Editor, N4AU. Hard Copy, W4MF and KU4PY.

Southeastern Division Leadership
Director--Frank M. Butler Jr--W4RH-- w4rh@arrl.org
Vice Director--Sandy Donahue--W4RU-- w4ru@arrl.org
Assistant Director --Alabama--Rik Doll--KU4PY--ku4py@arrl.net
Section Manager--Greg Sarratt-- W4OZK-- w4ozk@arrl.org
ARRL Alabama Section Cabinet at
Ala Section Web Page www.arrl-al.org

League Notes

By Rik Doll, KU4PY
ARRL Assistant Director
Southeastern Division

It is a new year and there are some changes to be noted. The most obvious of which is that Fred's name no longer appears at the top of this column. Fred, K8AJX, has stepped down as Assistant Director for Alabama and I have the unenviable task of following in his foot steps. No small task as Fred has been doing this job for quite a while. He has also relinquished his responsibilities as ARRL VE testing coordinator, a position that Scott Poole, W4SPA, now holds. We need to extend our sincere thanks and gratitude to Fred for a job well done.

There is another notable change in the ARRL hierarchy. President Jim Haynie, W5JPB, has decided not to seek a fourth, two year term. The Board of Directors has selected Joel Harrison, W5ZN, as his successor. In his comments just after his selection, Joel said that: "One of the things we need to do over the next few years is realize that Main Street USA is not the Main Street USA it was years ago. We all remember those days when we became interested in radio and the magic that it provided to us. The magic is still there, but Main Street has changed."
Harrison says this means focusing on doing a better job of attracting the average person on the new Main Street of today "into the magic of Amateur Radio." As we well know, Amateur Radio has always been a forum for experimenters and innovators. We learn from the past, not throw it away and keep our eyes on the horizon.

The ARRL continues to do battle, on our behalf, with the Broadband over Power Lines (BPL) initiatives and it seems as if they are making some headway. Some of the latest entries appear to have taken our concerns to heart and their new designs show promise. On another front, the FCC invites comments on the LEAGUE'S "REGULATION BY BANDWIDTH" PETITION.
Comments are due by Monday, February 6, on the ARRL's Petition for Rule Making that asks the FCC to regulate the amateur bands by necessary Bandwidth, rather than by mode. The petition, designated as RM-11306, recommends what the ARRL calls "a shift in regulatory philosophy" to encourage and enable development and refinement of digital techniques and advanced technologies. "This petition seeks for the Amateur Radio Service the flexibility to experiment with new digital transmission methods and types to be developed in the future while permitting present operating modes to continue to be used for as long as there are radio amateurs who wish to use them," the League said in its petition, filed November 14. If you are interested in commenting on this vital issue, go to the ARRL web page for instructions.

Any club member who is interested in joining the ARRL or renewing his/her membership, contact a club officer and they will tell you how you can do this so that the club will receive credit for the renewal/new membership.

I'm here as a representative for the ARRL and the hams in Alabama. Any questions or comments are welcome. I may not have the answers, but I think I know where to find them. See you in the spring and don't forget to start planning for Field Day.

*** Licensing Classes Offered **

The Montgomery Amateur Radio Club will be offering two licensing classes in the immediate future.

First, a General Class Upgrade Course will be offered to all interested individuals beginning on Thursday,
March 2nd from 6:00PM - 8:00PM and continuing for 6 weeks.
Cost for the class will be $60 and will include
an ARRL General Class License Manual, an ARRL Learning Morse Code CD-ROM, and one paid license examination.

And after that, we will be offering a Technician Class License Course starting on Thursday, April, 13th and continuing for 8 weeks until June 1st. This class will also meet from 6:00 - 8:00PM each week. Cost for the Technician course will be $50 and will include a copy of the ARRL's "Now You're Talking" textbook and one paid license examination.

If you're interested in either of the courses, contact
Scott Poole, W4SPA@arrl.net or call (334) 262-0412 to register or for more information.

Antenna Stuff!

By Tim, K4TK

Editor: A question was posed on the MARC list about antennas and this was Tim's reply. Tim is a local ***Technical coordinator*** *for the ARRL.*

CQ CQ CQ,

I have the Kenwood TS-520, 25 ft of ladder line, and wire for dipole. My question is: does it matter if the wire is run North-South or East-West or NW-SE?

What is required since I do not have an antenna tuner?
KI4CYM, Bill

Good questions Bill. First, your selection of ladder line means you're running a balanced transmission line (vs coax, which is unbalanced). However, if you don't have an antenna tuner, there will be the issue of how you will attach the ladder line to the Kenwood. Most folks do use an antenna tuner, which most tuners have attachments on them for connecting ladder line. The 520 has an SO-239 connection on it for connecting coax as I recall. The radio is looking for a 50 ohm (resistive) load impedance (and coax indicates unbalanced). Your ladder line is probably 450, 300 or 75 ohm. (I'm guessing 450 ohm, for "window" line. 300 ohm or 75 ohm if for twin lead...like used in TV). So you need some way to match the impedance of the radio (50 ohm) to the impedance of the ladder line (probably 450 ohm). Typically, some kind of balun (a device that goes from balanced to unbalanced....thus the name balun) could be used. But you would still need a short piece of coax for connection at the transmitter end. For instance, if the ladder line is 450 ohm....to go to a 50 ohm load impedance for the xmitter, you'd need a balun with a 9:1 ratio ....to match the 450 ohm to 50 ohm impedance....and match the balanced line to the unbalanced connection at the transmitter (they make 1:1 baluns for just matching balanced to unbalanced, but no change in impedance, by the way).

Editor: There are also 4:1 baluns which can match 75 ohm coax to 300 ohm balanced line.

The good news about ladder line, is that it is not as lossy as coax. So if you don't get a perfect impedance match, and you have some impedance mismatch, the ladder line typically has less loss than coax. Of course, running a shorter line (like your 25 foot line), means losses will come into play even less, plus, loss is related to frequency. At lower frequencies, ie...at 80 meters, losses will be much less than at higher frequencies, ie...at 10 meters.

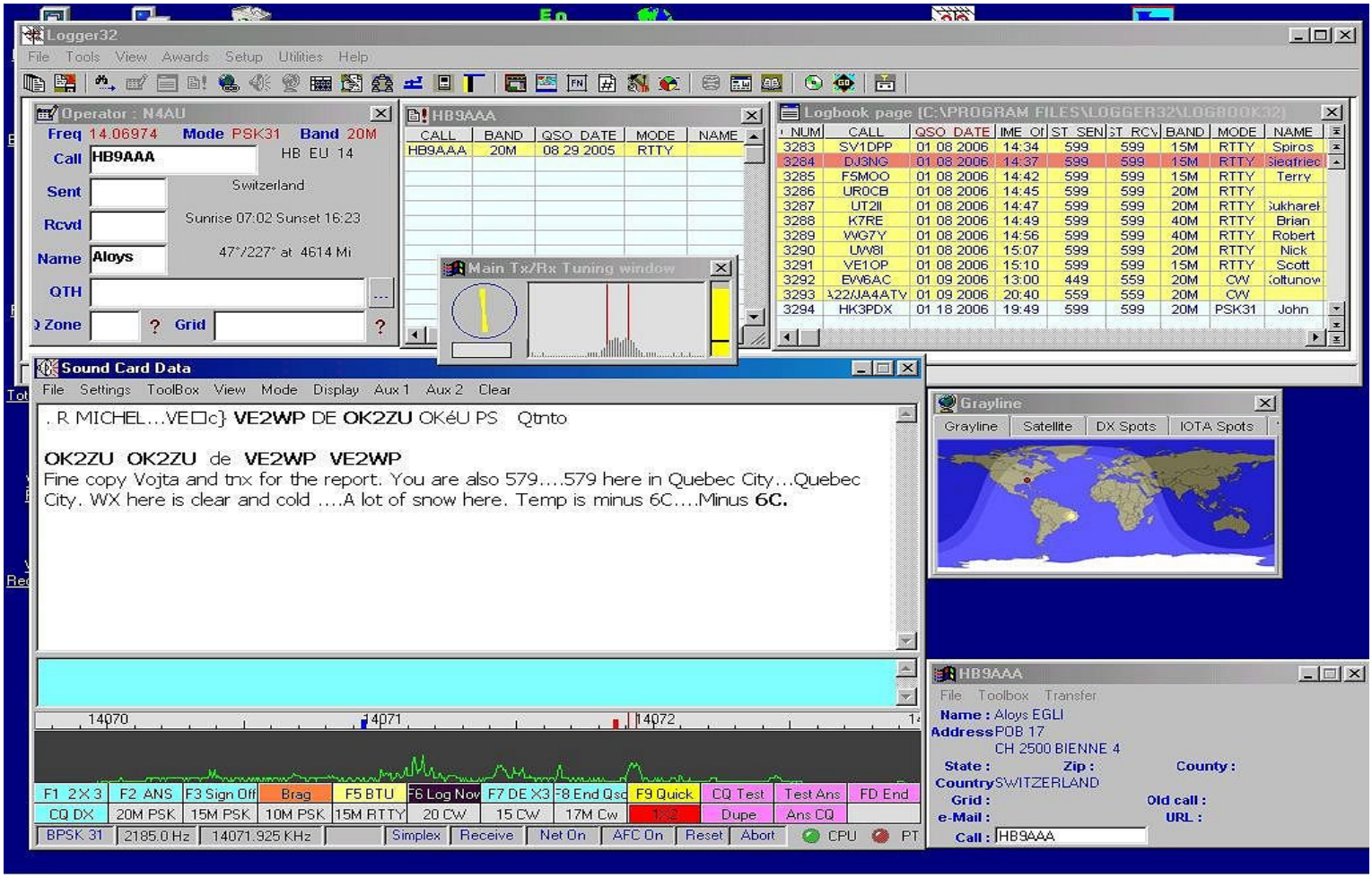
Meanwhile, you mention "wire for a dipole", so I'm assuming you will configure an antenna in a typical dipole configuration. A dipole is a balanced antenna. So your ladder line will match up with the antenna just fine (had you used coax for your transmission line, you would have needed some type of balun to properly match the balanced dipole!). By the way, a half wave dipole is nominally about 75 ohms impedance. So again, depending on your type of ladder line...you may or may not have some impedance mismatch with the antenna? The impedance of the antenna can change with its relative height above ground and other factors, like proximity of buildings and other items.

Of course, your goal, is to try and get as good of impedance match as you can get....and match the balanced and unbalanced characteristics of your antenna, transmission line, and transmitter. The EASIEST way to accomplish ALL of this, would no doubt be with the proverbial antenna tuner! But just remember, all is not lost if you don't get a perfect impedance match, especially with ladder line, which has very low loss. Unless you have a large mismatch, at HF frequencies, impedance mismatches (and SWR) aren't nearly as important as some folks have insisted in the past. You'll have some loss, but how much loss may not be of that much importance at HF. We could be talking an 'S' unit or two.

Direction of the antenna....ie....north-south, east-west...etc. Really, unless you start getting that antenna up above the ground a wavelength or two for the frequency used, the antenna won't have much directional characteristics. The ideal dipole at least half a wavelength above good earth has a radiation pattern considered to be toroidal. That is, it's maximum gain is broadside to the axis of the antenna. The gain off the ends of the antenna theoretically approaches zero. Again, this for an antenna mounted at least a half wavelength above ground. And it depends on other factors, like properties of the ground, surrounding structures that may affect antenna gain, etc. So, assuming you can indeed get your dipole up high enough to have these gain characteristics, you'd want to orient your antenna so that the broadside of your antenna faces the direction you desire to talk/receive. For instance, if you were working 80 meters, and wanted to work DX into Europe, you would want to orient your antenna more or less on a line running from 135 to 315 degrees, as Europe is roughly 45 degrees from Alabama on a Great Circle Path. (Broadside to the antenna would be approximately 90 degrees from the axis of the antenna, therefore 135-90 or .....adding 90 degrees to 315....gives the desired direction, 45 degrees...for this path). But realistically, for 80 meters, a wavelength is about 260 feet. You would need to have your antenna at least 130 feet above the ground to start seeing much directional patterns off your dipole. I doubt most folks will install a dipole 130 feet above the ground! So again, depending on what frequency you will operate and which direction you wish to talk, these are the things that determine how to orient your antenna....and...how high above ground you'd need to mount it to maximize gain (these heights are much less for say 10 meters, where a half wavelength is only about 16 feet). For most folks wanting to talk on say 20 thru 80 meters, mostly just in the US and maybe some into Europe, a simple north-south orientation would probably work fine at the nominal heights that most folks will install a dipole (like 30-60 feet above ground).

Key Klix

By Bobby, N4AU



For those interested in digital modes I figured I would show you some of the 'stuff' I'm using here. This screen snapshot is the setup of the program, Logger32, that I use here. It is a free, downloadable program and performs great. In the upper left is the box for entering contact information. If you are using PSK or RTTY, you just click on the callsign in the message window and this info is transferred to this box for you. Note, it shows the frequency, mode, and band, which is transferred from my radio (TS570) and the info tracks the radio. The lower right box is info from QRZ, which puts the name, location, grid square, etc into the log, when program is instructed to log. The center left block is the data, white background receive and blue background transmit. Under that is the spectrum for the radio (audio range) and each of the peaks on the spectrum is a PSK31 signal within the passband.

The frequency is also shown (picked up from the radio). A left click on any of the signals tunes the sound card and radio to that signal. Under the spectrum you see my macros, which only require a mouse click to initiate. These are programmable and can tune the radio, key, unkey, log plus transmit info you program into them. Example: when I click on 15M PSK, it tunes my radio to the PSK band in 15M and sets the mode to USB. For RTTY mode it sets the radio to the RTTY band and sets the mode to LSB.

The program uses the very fine MMTTY engine for the RTTY mode. All this is done through the sound card of the computer and an interface RS232 connection to the radio. If you don't use the radio control, you just need the audio connections to the radio. I use VOX, so don't need a keying circuit.

Note also the gray line map on the right center and the tuning indicator near the top. This gives a fine tuning adjustment to the signal by giving you a high resolution spectrum view of the signal. The map follows the sun based on your clock on the computer.

When the contact is done, I can click 'LOG NOW', or can program the macro to auto log the contact, which I use in contests. The program will also increment serial numbers for contests, but is not primarily a contesting program. However it is effective as a contest program. The upper center box shows previous contact with a call so can be used as a dupe checker.

Logger32 will export files in adif format for importing into another program and marks QSO's for upload to eQSL and LOTW. Note the colors in the main log. The yellows are uploaded and the redish color indicates a QSO comfirmed on LOTW or eQSL.

There are other box options, but for my setup I find the ones shown are all I need. They can be moved to any place on the screen and setup in any position you like.

The program is available from http://www.kc4elo.com/ .

G5RV Installation

and Preliminary Observations

By Tim Dixon, KG4MIQ

The best intentions sometimes get laid aside for more pressing matters. Such is the case with the G5RV (MFJ-1778, $39.95) which I had purchased over a year ago. Following the trip down to Greenville last Saturday (seemed like MARC Hamfest – Part II), I was inspired to actually proceed with the install of this multi-band HF dipole. The installation manual provides an explanation of all the detailed electrical characteristics of this particular antenna, and the overall design seems to be a good one. The G5RV is purported to transmit legal limit output power on all the HF bands. It is a 102 feet flat-top, fed with a 32.5 foot, 450 ohm ladder line matching section, and terminated with an SO-239 coaxial connector. Originally designed as a 3/2 wavelength, center-fed antenna for 20 meters, it offers acceptable performance on many other bands with the aid of a tuner. Mine came with instructions for allowing the ends to droop with only minimal effect on overall characteristics, if space is an issue. However, operation on 160 meters turns this antenna into a "capacitance hat", and requires a ground screen or radial ground system. The manual explicitly cautions of the factors involved before transmitting in this band.

I had scoped out a couple of taller trees from which I felt comfortable hanging the G5RV. A piece of scrap material from an old doorknob assembly provided enough ballast to sail over the first oak tree, with fishing line in tow. Pulling the nylon rope back across the tree was a breeze (Literally – the wind was blowing at about 20 knots all afternoon). Once the first leg was up, the second proved just as easy, giving me both ends tied off, with the ladder line dangling from the center. I oriented the G5RV along one edge of my backyard, paralleling a four foot chain-link fence, which provided a ready path to run my coax back into the house. I formed a ten-turn air core balun in the coax using an old Rubbermaid container and our beloved Duct Tape, and zip-tied it to the chain link about eighteen inches above the ground. The overall height of the center feed is about twenty-eight feet above ground, which allowed me to slope the excess toward the fence where I had run the coax. While this affects the 20 meter characteristics slightly, since the 450-ohm ladder line is an active part of the radiating pattern of the antenna, I considered it a necessary compromise to enable a functional and attractive installation.

Once I had the antenna up and the coax run into the house, I connected it to the back of my Dentron 160-10 AT tuner. I am very pleased with preliminary observations, having only checked a few bands, but I anticipate getting good use out of this antenna. Using the tuner gave me a 1.1:1 SWR on 40 meters throughout the entire band, with S9 +60dB signals not uncommon. I need to perform more analysis on other bands, specifically 20 meters, where I intend to use this antenna more frequently, but overall, I'm very pleased with the initial results.

If you're considering a relatively stealthy and high-performance dipole antenna and have the space to install it, the G5RV is definitely worthy of consideration. Overall "bang-for-the-buck" is great, installation is straightforward, and operation is simple using a tuner. NOTE: I had hoped to get pictures of the details for this article, but the rain has put a "damper" (pun-intended) on my intentions. If you'd like to see the G5RV in action, contact me, and we'll get together!

MEMBERSHIP APPLICATION
Year_____

Montgomery Amateur Radio Club – PO Box 3141 – Montgomery, AL. 36109

Renewals enter, ***name*** and ***callsign*** and any ***changes*** in status**.**

***Note: Senior Members** over 70 please send in application to keep roster updated.

New Members enter ***all*** available information**.**

Name:_____ DOB:_____ Call:_____ Class:_____ ARRL Member(Y/N)___

E-mail:_____

Family Members

Name:_____ DOB:_____ Call:_____ Class:_____ ARRL Member(Y/N)___

E-mail:_____

Name:_____ DOB:_____ Call:_____ Class:_____ ARRL Member(Y/N)___

E-mail:_____

Name:_____ DOB:_____ Call:_____ Class:_____ ARRL Member(Y/N)___

E-mail:_____

Class of License: N= Novice, T= No Code Technician, T+= Code Technician, G= General, A= Advanced, E= Extra

Address:_____

City:_____ State:_____ Zip:_____

Home Phone:_____ Work Phone:_____

Indicate Membership type below. Membership fees are *due every January 1st*. There is a 60-day grace period.

Family membership is for immediate family with 2 or more amateur radio license holders *residing at the same address.*

Associate Membership is for individuals who *do not have* an amateur radio license, but are interested in the activities of the club and are preparing for exams.

Senior Membership is for an amateur age 65 or older.

Check *type* of membership:

_____Single Membership ($20 per year)

_____Family Membership ($30 per year)

_____Senior Membership - age 65-69 ($10 per year)

_____Senior Membership - age 70+ (no charge)

_____Associate Membership ($10 per year)

The Montgomery Amateur Radio Club

Public Service Since 1938

Amateur Radio

www.arrl.org

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Montgomery, AL 36109-0141