



December 2003



General News

Upcoming TARS Meetings:

Inside this issue:

| | |
|------------------|--------|
| General News | 1 |
| Homebrew Housing | 1, 3-4 |
| Meeting Minutes | 2 |
| Upcoming Events | 6 |

December Meeting: The upcoming December TARS meeting will be a special dinner meeting held at Durango Steakhouse on Apalachee Parkway at 7:00pm.

January Meeting: This meeting will take place on the SECOND Thursday of the month (January 8th) at 7:00pm at the Publix on Ocala Rd. in the upstairs meeting room. Future meetings will take place at this same location on the first Thursday of the month.

HomeBrew Housing For Your Ground Plane

After building seven 70 cm antennas for the Tallahassee American Red Cross, I received multiple requests to publish my homebrew housing design. Well, a few months have passed, but here it is. Remember, "Rome wasn't built in a day" either.

There are many sources for plans to build a homebrew $\frac{1}{4}$ -wave or $\frac{5}{8}$ -wave ground plane antenna for 2 m or 70 cm. Those plans describe how to prepare the SO-239 (female UHF connector) and the elements (copper wire, brass rod, or steel coat hanger). You'll even get tips for attaching the elements and provide the formula for calculating the element lengths. But that's where the detail stops. For mounting the homebrew antenna, those plans suggest anything from a broomstick to an antenna mast, simply using a hose clamp to attach it at the PL-259 (male UHF connector). Waterproofing the antenna has been mere daubs of sealant and electrical tape. A broomstick may work for temporary installations or in a jump kit, however a more permanent installation deserves a better mounting and waterproofing solution. Here's my homebrew solution. I have a homebrew housing that is protecting a 2 m, $\frac{1}{4}$ -wave ground plane antenna, which has been mounted on my workshop for about two years.

PVC pipe and miscellaneous PVC components are assembled to create a waterproof housing that can be slipped onto a 1-1/4" antenna mast or clamped directly to a flat

Special Points of Interest:

- Your articles wanted for the newsletter.
- Note the changes to the meeting times this month and next month in "General News."

Meeting Minutes – November, 2003

November TARS meeting, 11/03/03, 7:10 p.m. Call to order by Brian (AI4AI).

The meeting was held at the Publix conference room on Ocala Street. Approximately 27 attended. Sign up sheet was not passed around.

Two guests introduced themselves – John Clark (KI4AWK) and Randy Moore (KI4AWI).

Presentation made by Patrick (W4TQI) on "PSK-31 Phase Shift Keying, 31 Baud." Handout provided and will be available on the K4TLH web site.

Carlton Wells (AG4UT) gave the Treasurer's report. The club has \$525.26 in checking and \$2885.63 in savings. Four new members joined at the previous meeting.

Committee reports:

Alan (N4KGT) announced the results of the test session. Ten took the test, which resulted in a number new or upgraded Hams.

Carl (NN5I) was not present to give report on By-laws revision for dues structure.

David (WE4RA) announced the TARS web site is up. Publix location was advertised on the site as our new meeting place. The newsletter had a compatibility problem between different versions of software (Publisher 2000 vs. 2002) and further plagued by file corruption. October news-

letter will be posted. There is a possibility of a bi-monthly newsletter on odd months.

December holiday meeting will be at Durango's Steak House on 12/04/03. Look on the K4TLH web site for details.

Moved, seconded, and passed. The January meeting was moved from January 1 to January 7, 2003, since it would have conflicted with New Year's Day.

New business:

Brian (AI4AI) announced Kent (KC4TOC) wants to divest himself of TARS equipment due to circumstances beyond his control. Carl (NN5I) wants the 38' retractable tower, rotor, and control box moved to another location. The tower may be auctioned in March. A few voiced their interest in the meeting. Dave (WE4RA) will look into a secure location, but the TARS van is Leon County property on loan to TARS and should remain in the county.

Carlton (AG4UT) announced the Inventory List has grown with more TARS property identified. Additional property and more detail are expected. The 800 MHz committee is still working on a plan for distributing the 800 MHz radio equipment donated by FDLE.

Carlton (AG4UT) will present the January program on a Near Vertical Incident Skywave antenna.

Brian (AI4AI) announced that Chip Townsend has surplus computers for possible donation to TARS. DOT surplus radio equipment is also in the works for possible donation to TARS.

Dave (KG4YZI) requested interested Hams to sign up for ARC "jump teams" for deployment to events like the downburst in Taylor County.

Moved, seconded, and passed...the meeting ended around 9 p.m.

Thanks to Carlton for taking the minutes in my absence.

John NZ4QJ



Don't forget to attend our club meetings! Your involvement is important!

Ground Plane Antenna

(Continued from page 1)

surface. The coax attaches to the antenna, routes down the PVC assembly inside, and down the antenna mast inside. You choose whether to exit out the side of the antenna mast or run the length of the mast, exiting out the bottom. I recommend exiting out the side just below the assembly to remove the weight of the coax on the connector, particularly if the antenna mast is longer than five feet. Either technique provides enough tension to hold the antenna and assembly on the antenna mast.

Parts List:

1-1/2" cap, PVC (12 inches)
 1-1/2" pipe, PVC
 1" coupler, PVC
 1"-to-3/4" reducer, PVC
 3/4" pipe, PVC (12 inches)
 PVC primer
 PVC cement
 Sealant, non-corrosive

The first task is to ensure the fit of the 1" coupler inside the 1-1/2" pipe. It may require minor reduction of its outer diameter to permit a snug fit. I used a belt sander, slowly rolling the coupler against the moving sandpaper to maintain the roundness of the coupler (a snug fit is more critical than roundness).

Having ensured the 1" coupler will fit, assembly can begin in the following order. Cement 3/4" pipe into 1"-to-3/4" reducer.

Cement 1"-to-3/4" reducer into 1" coupler.

Cement 1" coupler into 1-1/2" pipe. (Note: The 1" coupler should be completely inserted into the 1-1/2" pipe so the coupler is flush with the end of the pipe. Insert it quickly so the cement doesn't set on a partially inserted coupler. The 3/4" pipe should extend down into the 1-1/2" pipe.)

If the 3/4" pipe extends beyond the bottom of the 1-1/2" pipe, trim (if desired).

Slide 1-1/2" cap onto top of assembly to its expected position and mark the 1-1/2" pipe where the cap stops. Remove the cap.

Cut slots into top of assembly at 90-degree intervals and down each side to the mark from step 5 and past it enough for the ground radials to clear the cap. (This allows the antenna assembly to rest inside and clear of the 1-1/2" cap.)

Drill a hole in the 1-1/2" cap, centered on top. (The hole should be just large enough for the radiating, vertical element to pass through.)

Trial fit the ground plane antenna in assembly with cap in place as well. Adjust the antenna ground radials to align with the slots cut in step 6 and modify assembly for final fit. Refer to Figure 1 for a cross-section view of

how all the parts fit together.

Reserve non-corrosive sealant ("Sealing Your Connections May Be Corrosive!" TARS Newsletter, September 2003) for actual installation (i.e., after coax is connected to the antenna). Apply a generous amount of sealant around the base of the SO-239 to prevent any possibility of water intrusion into the connector and ultimately into the coax. For permanent installations also seal the radiating, vertical element at the hole in the 1-1/2" cap. The ground radials don't require sealant since water shedding down the cap will continue down the radials.

The tools you choose for this project is your choice from what you have access to. I used a belt sander, radial arm saw, and drill to fabricate the PVC. A radial arm saw or similar power saw may seem like overkill for PVC pipe, compared to a hacksaw, but it makes smooth, straight cuts. I soldered the ground radials to the flange holes of the SO-239, rather than use #4-40 bolts. This allows the antenna assembly to more easily settle into the PVC assembly. Insert a ground radial into each hole to add mechanical strength to the solder joints. Enlarge the four holes in the flange of the SO-239 to match the gauge of the ground radials as necessary. Be sure to



**Please submit
 your articles and
 announcements
 to the newsletter
 editor by the 15th
 of the month...info
 on back.**

Ground Plane Antenna

(Continued from page 3)
pre-bend the ground radials at the SO-239 for the desired angle before soldering to avoid undue stress on the solder joint. I used #10 solid copper wire for the ground radials and the radiating, vertical element.

Once you have final assembly, put your call sign on it, install it, operate it, and be

proud of it. Talk about the wonders of what copper wire, brass rod, or steel coat hanger can do when combined with PVC.

Homebrew Antenna Interest Sparked by 7-Hills 2m Sideband Net

(by Carlton Wells, AG4UT)

The Seven Hills 2m sideband net, proctored by Ivan, K4SRB has sparked another homebrew idea (i.e., a horizontally-polarized antenna). Ivan has been experimenting with a loop antenna design, stacking two of them for more gain (makes you want to "BARK" since more gain means more POWER effectively radiated). Since I sold my 13 or 17-element 2m beam over a year ago and before I had any 2m SSB equipment and interests, I'm kicking myself in the posterior now. But never fear, homebrew is here!

Two telescopic whips were tried as a simple 2m

dipole, elevated 10 feet above ground. PVC pipe and various fittings were assembled to orient and support the contraption, which was strapped to a stepladder. The objective is to have a reliable antenna, sturdily built for temporary service, and easily disassembled for compact storage and transport. Compared to a vertical, mobile antenna (18" Larsen dual-band model) mounted on my S-10 Blazer, it works better to some stations but not as well to others. Hence, back to the construction phase for more directivity and gain. Follow this saga in future newsletters to see how this sparks fires up future designs.

The Seven Hills 2m Sideband Net takes place on 144.205 MHz USB at 8:45pm (EST), or shortly after the Capital District ARES Net and Red Hills Trader Net every Sunday evening.



Thanks To All
Who Have
Submitted
Articles!



Be Sure To
Check Out The
K4TLH.NET
Forums



Amateur Radio
Around the World

We're on the Web!
<http://www.k4tlh.org>



<http://groups.yahoo.com/group/tars>

Your Officers

President:

Brian Dunworth, AI4AI

Vice-President:

Shaun Hancock, AF400

Treasurer:

Carlton W. Wells, AG4UT

Secretary:

John Love, NZ4QJ

Upcoming Events

TARS Meetings: Every first Thursday of the month at 7:00 p. m. EDT.

Friday Lunch: Every Friday, 11:30 a. m. EDT at Golden Corral on North Monroe St.

Saturday Breakfasts: Every Saturday, 8:00 a. m. EDT at Golden Corral on N Monroe St.

Capital District ARES Net: Every Sunday, 8:00 p. m. Eastern on the AE4S repeater (146.655).

North Florida ARES Net: Every morning, except Sunday on 3950 KHz at 9:00 a. m. Eastern.

North Florida Phone

Net: Every evening, on 3950 KHz at 2330 UTC.

Editorial Policy

Submitted material received by the editor from dues-paying members in good standing, on or before the 15th of the month will appear in the following month's newsletter as space permits. Articles published in *The Printed Circuit* are not representative of the views or opinions of the whole organization, and such views and opinions are of the individual author(s). Currently, the editor is Ryan Harris, KC4FSU (KC4FSU@Comcast.net) and is published by David Heupel, WE4RA (WE4RA@arrl.net).