



# BRAZOS VALLEY AMATEUR RADIO CLUB



AMATEUR RADIO FOR SOUTHWEST HOUSTON AND FORT BEND COUNTY

MARCH 2003

VOLUME 27 ISSUE 3



Good turnout of sellers and buyers for the Mix-n-Match

## Stealth Antennas Topic of March Meeting

Kevin Foto, KD5O and Ross Lawler, W5HFF presented a program on stealth antennas at the BVARC membership meeting.

## Public Service Net

*Doug Woodruff, KC5VYZ - Coordinator*

The Public Service Net meets every Monday night on 145.47 (123 PL) at 9:00 p.m. Everyone is welcome. Check-ins and that night's net control:

3/3 - 27 - Cam, K5CAM    3/10 - 28 - Kevin, KD5O  
3/17 - 28 - Joe, K5JWM    3/25 - 31 - Doug, KC5VYZ

### Net Control Operators Needed

If you are interested in helping with the Monday night net, then let me know. We have a prepared script that can get you going with a general format. If you have ideas to make the net more interesting and useful, then let me know your thoughts. To be a net control operator you must be a paid up club member and have at least a technician radio license and the desire to step out into the net world. The ARRL Audio News is a special treat of the net, but if you cannot go this part of the net, then you might find someone else to help with the Audio News piece. It is a great deal of fun and gives you experience

handling traffic, which could be valuable during times of emergencies. Contact Doug at, [KC5VYZ@arrl.net](mailto:KC5VYZ@arrl.net) for more information.



Scanner Jack, KB5TMY says farewell to the club and thanked the club for "a good ten years".

## A little bit of History

In May of 1898, 24 year old GUGLIELMO MARCONI registered Patent 777 since which the world of radio communications has not looked back. This breakthrough added tuning circuits to guarantee the independence of simultaneous communications between more than one station.

# A Detailed Look at Transmission Line Operation Via the PC

by Rick Hiller, W5RH

**Transmission Line Details**

Enter values directly, or click spinners, or click and hold spinners.

1. Choose Transmission Line, Modify Parameters if Desired.

Type: **Generic 600 ohm Open** Ro: **600** VF: **0.92** K1: **0.018971** K2: **0.000100** (Serenade equivalents) C1: **0.019682** C2: **0.003281**

2. Set Frequency, R, and X.

MHz: **7** MHz: **7** KHz: **0** Band: **328** **318** ☐ At Input ☒ At Load Matched Loss dB / 100 ft: **0.051** Plot: **K1/K2**

3. Set Line Length and Input Power.

Length: **70** Units: **Feet** Electrical Length Modulo 1/2 Wavelength: **0.5415  $\lambda$**  **194.94°** Input Watts: **5**

Results

	At Input	At Load
R	466.07	328.00
X	475.28	318.00
Z	665.67	456.85
SWR	2.471	2.492
SWR (50)	19.070	12.800

Line Zo: **600 -j 0.723**

Smith Chart:

Loss

	dB	W
Cond.	0.035	0.040
Diel.	0.000	0.001
SWR	0.016	0.018
Total	0.052	0.059

Power at Load: **4.941 W**

% of Total Loss: **68** **1** **31** Cond. Diel. SWR

☐ Show Rho in place of SWR ☐ Ignore Line Zo in calculations Prime Center: **50** (Differs from current Ro) **Make Equal** **Close**

The Smith Chart has been and still is a wonderful tool when dealing with transmission line issues. However, with my introduction to TLDetails, it might be more proper to say that the Smith Chart "was" a wonderful tool. The "manually operated" Smith Chart has been replaced, at least in my world of rudimentary transmission line work.

## What is it?

TLDetails is a freeware Windows application written by Dan McGuire, AC6LA. It is downloadable from Dan's web site at [www.qsl.net/ac6la/TLDetails.html](http://www.qsl.net/ac6la/TLDetails.html).

The program is very intuitive, although a tip is in order before you start to use the program. If you are not familiar with the nomenclature of the transmission line world, I suggest that you take some time and read through the transmission line portion of one of the antenna handbooks that are readily available. You might also want to obtain a copy of the QST article, "A Beginners Guide to Transmission Line and Antenna Tuner Modeling" too. (see references)



### What input parameters do I need to provide?

Reference the picture of the TLDetails GUI, or better yet, download the program and run it. I will lead you through it.

1. **Choose Transmission Line, Modify Parameters...**Select a coaxial or open wire feed line type. The characteristics for all of the standard types of feed lines are stored within the program, so you don't have to enter them. You can, however, modify them if you wish.

2. **Set Frequency, R and X...**pick the frequency where you intend to operate. Also, select the Z value that has been measured or modeled (more on this later) and select that it is the value at the input or at the load...this will vary depending on your set of conditions. For example: a measured Z at the shack end of a cable would be an input, as the antenna would be the load, or a feed Z from an EZNEC modeled antenna would be an input too, with the receiver end as the load. **Input** is the source of the power and **load** is the sink of the power.

3) **Set Line Length and Input Power...** select the physical line length that you have in feet, meters, wavelength, etc. **The Electrical Length** is figured automatically, based on the velocity factor for the particular transmission line. It is represented in Modulo  $\frac{1}{2}$  Wavelength format, as the properties of a transmission line repeat every  $\frac{1}{2}$  wavelength. **Input power** is important, so select your input level, QRP, QRO or anywhere in between.

### What does the program give me?

A nice feature of TLDetails is that you don't have to wait for a 'computational result'. As soon as you add or change one of the required input parameters, the program immediately produces the results. This is very beneficial, because you can instantly see how the Z or loss characteristics change as you vary any of the input parameters.

By providing the type of cable, it's length, the power level and the Z at one end, TLDetails will calculate all losses (conductor, dielectric and SWR), the power delivered to the load and the Z at the opposite end of the feed line—Essentially, everything you need to know.

All of these answers are shown in the bottom half of the GUI in the **Results** box. The two most important areas are **At Input/At Load** on the left and the **Loss** area on the right. In the middle is a rudimentary Smith Chart, so you can see the result graphically, if you are familiar with the Smith Chart's layout and meaning.

### What can TLDetails do for me?

First, it can provide you an insight into the performance of your antenna system in an area that was, in the past, typically ignored with a cursory glance, a nod and a wink. This insight is most important, for example, when you are trying to determine why your coaxial fed 80 meter dipole doesn't perform very well on 20 meters.

Second, it can help you select the best feed line for that new antenna system, whether it be a single band or multiple band design in the HF, VHF or UHF range.

Third, TLDetails can be used as a tool to complete your antenna system modeling functionality. It complements EZNEC, AO Wires or other modeling programs very well.

Fourth, it can be used as a marvelous demonstration tool during self-learning or license class instruction of transmission line theory. It provides that always needed 'Elmer' when you are trying to understand transmission line theory articles and books.

### **Some practical examples**

The primary function of the transmission line is to transfer the maximum amount of power output from the transmitter to the antenna. A very obvious no-brainer, but a totally loss less transmission line does not exist. Loss is relative, in that some transmission lines are more lossy or less lossy than others, depending on many factors. You could certainly purchase extremely low loss 1 inch hardline and use it for a transmission line in any antenna system. This would be perfectly fine except for the fact that you would be paying \$5.50 per foot. At that rate your transmission line cost would be equal to that of Yagi and the rotator—not too cost effective. But what coax can you use and still get good performance for your situation? That is what TLDetails will tell you.

### **Multi-element Yagi**

If your Cushcraft/Hy-Gain/Force 12 (pick one) 20 meter Yagi at 45 feet gives you an approximate 50 ohm feed Z, then select a coax with 50 ohm 'Ro'. RG-58, RG8X, RG-213 are good starting points. Set up TLDetails for one of these coaxes, say (58); set the Frequency at (14.05); set the length of the coax, say (120 feet).

-Since the antenna feed Z is close to that of the coaxial cable the 'impedance transformation' is minimal but the loss factor is the critical parameter. As you can see, if you are running 5 watt QRP levels, the loss will be 1.625 watts. If you are running 100 watts the loss will be 32.493 watts. Now change the coax type to RG-213 and look at the results: much lower loss, 18.541 watts and more power out, 81.459 watts, to the antenna. The choice is obvious, performance-wise, but now it is in the realm of your pocketbook—spend 30 cents a foot or 70 cents a foot. Keep in mind that this loss happens both ways (transmit AND receive).

### **Multi-band 80 meter Dipole Example**

The feed Z of a modeled 80 meter antenna is 65 ohms -j025 (load). Let's feed it with a 75 foot piece of RG-8 coax. TLDetails shows Z at the input of the coax (shack end) and the losses involved. Now, take the coax length and vary it a few feet plus or a few feet minus. Notice how the Z changes. In certain situations you will be able to vary the Z enough that your antenna tuner can match to the mismatch. Although the losses will remain, you will be able to at least match it and send the antenna the maximum power that the transmitter has to offer.

This demonstrates a well know antenna system tuning trick. If, for example, you are unable to match to your system with your tuner, simply lengthen or shorten the coax by a few feet (easiest is to add a jumper) and it will change the input Z. This alternate input Z might be just what your tuner needs to provide you a match. KK5NU's college buddy, W5DXP (see references) authored an article that uses switched, stepped transmission line length variations to match his antenna on multiple bands.

Now let's use this 80 meter antenna on 20 meters. The model predicts that it will have a feed point Z of about 1250 -j49 ohms—not close to 50 ohms at all but let's see what TLDetails tell us. Enter 1250 for R and -49 for X and select **At Load**. Look at the 'solved for' Z at the feedline



input,  $11.47 + j80.36$ . Also, and more importantly, look at the losses incurred, 2.499 dB or 43.75 watts. With 5 watts in only 2.813 watts arrive at the antenna. These high SWR caused losses occur with RG-213, a fairly low loss coax at HF frequencies.

Let's change the transmission line type and see what happens. We've all heard that open wire lines are less lossy, so let's trade out the 213 for 600 ohm open wire. This still has the impedance excursions at the input,  $305.25 + j249.85$ , but more importantly, look at the losses. They are way down, .047 dB, which is similar to losses expected of a transmission line that is being utilized near its characteristic Z. With the 600 ohm line 98.918% of the power input to the feedline arrives at the antenna versus 56.4% with 50 ohm RG-213.

From this, one can see that in a situation where an antenna is being used away from the designed frequency, it is advantageous to go for low loss open wire types. You might have to provide additional tools, such as 4:1 baluns, etc. to bring the match in to the tuner range, but your losses will be far less. For many years, one of the more popular multi-band antennas has been a 102 foot flat top fed with open wire line. Now you can see why it is such a good over-all performer. *(Note that in recent years, W4RNL has investigated the best performer for multi-banding and provides an alternate and higher performance multi-band solution. (see references))*

### **Determining your antenna's feed point Z from inside your shack.**

If you have one of the marvelous MFJ 259B, or similar Z bridges, you are one lucky antenna dude or dudette. With these empirical measuring devices and TLDetails, you have the world by the tail.

For example, say you have a 40 meter, apex up, delta loop. The feed point is  $1/4$  wavelength down from the apex (feeding for maximum low angle, vertically polarized radiation); however, the feed point just happens to be 25 feet in the air and the only test point that you have access to is the end of the coax in the shack. Lucky you, you have TLDetails and with it you can determine the feed point Z of your antenna.

Simply measure the Z at the coax's shack end with your bridge, place this Z value within TLDetails, note the transmission line type and length and you have an immediate number for the feed Z of your antenna. Plus you will know the losses occurring within the coax.

This "remote measurement" is quite helpful when you are trying to "tune in" a Yagi's gamma match or other network at the antenna feed point, especially if the antenna is not within easy reach. You can see the Z variations and take the correct tuning action. Even better, you can figure the Z value needed with a correctly adjusted gamma match and simply vary the gamma match (both L and C) until the remote measurement is what it should be.

### **Summary**

A simple rule in antenna design and implementation is that the more information you have concerning your antenna system, the better off you are. TLDetails helps you compile all of this information and formulate it into constructive data for your analysis.

There are many other ways to utilize TLDetails than the few samples I have shown. For a free piece of software it is fantastic in that it will help you make decisions on coax versus open wire, RG-58 versus 213 or it will even allow you to determine the efficiency of your antenna 'system'. For QRP'ers, it will show you just how much of that "QRP Gallon" is reaching the ether.



One final point; if you have a situation where you have multiple types of coax or transmission lines in a system, you will have to model each section separately, saving the results for each on paper and then going to the next section with a different type of transmission line. It works fine like this, but keep track of what you are doing.

I hope this article provided you with a detailed look at TLDetails and its capabilities. TLDetails is a great program and the price is definitely right. BTW, if you like the program or have any questions about it, send Dan McGuire an email He's a really great ham and would sincerely enjoy hearing from you. Let him know how his program helped you improve your antenna system.

Thanks go out to Dan for giving me permission to highlight his TLDetails program and utilize a picture from his web site. Thanks also go to Rod, K5BGB, whose professional editing expertise was heavily utilized and greatly appreciated.

In closing, when we improve our antenna systems, we attain better communication with our fellow hams. Better communication means more fun, and fun is what Amateur Radio is all about.

Enjoy.... 72,73 Rick W5RH Questions or comments to rhiller@sdiagm.com

#### References and additional reading:

- **TLDetails Software** Dan McGuire, AC6LA – [www.qsl.net/ac6la/index.html](http://www.qsl.net/ac6la/index.html)
- **A Beginners Guide to Transmission Line and Antenna Tuner Modeling** – Dean Straw, N6BV available in PDF at [www.arrl.org](http://www.arrl.org) (Membership required) or QST Jan 2001
- **W5DXP's No-Tuner, All-HF-Band, Horizontal, Center Fed Antenna** – Cecile Moor,e W5DXP [www.qsl.net/w5dxp/notuner.htm](http://www.qsl.net/w5dxp/notuner.htm)
- **TLW Transmission Line Modeling Software** ARRL Antenna Handbook 19<sup>th</sup> edition
- **Reflections II Book** – Walt Maxwell via World Radio Press
- **My Feedline Tunes My Antenna** – Byron Goodman, W1DXB
- Available in PDF at [www.arrl.org](http://www.arrl.org) (Membership required) or QST Nov. 1991
- **Suppose I Could Have Only One Wire**– web article – L. B. Cebik, W4RNL – [www.cebik.com/aledz.htm](http://www.cebik.com/aledz.htm)
- **Many additional transmission line references** – [www2.arrl.org/tis/info/reflections.html](http://www2.arrl.org/tis/info/reflections.html)

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## 2003 Club Officers:

President:  
Mike Hardwick, N5VCX  
n5vcx@worldnet.att.net

Vice President:  
Allen Brier, N5XZ  
abrier@hotmail.com

Acting Secretary/Treasurer:  
Cameron Mitchell  
k5cam@arrl.net

Corresponding Secretary:  
Joe Morgan, K5JWM  
k5jwm@att.net

One Year Board Member:  
Dave Scott, WD8RZA  
wd8rza@aol.com

Two Year Board Member:  
Ross Lawler, W5HFF  
w5hff@juno.com

Past President:  
Kevin Foto, KD5O  
foto@texas.net

## Club Happenings:

General Meeting  
Second Thursday each month,  
Sugar Land Community Center,  
224 Matlage Way

Board of Directors Meeting  
First Thursday of each month,  
Sugar Land Community Center,  
224 Matlage Way

Volunteer Examiner Program  
BVARC administers Amateur License  
Exams on the 2nd Tuesday of each  
month at the HCC Scarcella Technology  
Campus, 10141 Cash Rd. in Stafford.  
Contact John Moore, KK5NU

Eating Schedule  
Third Friday Dinner at 6:30 p.m.  
Location announced in the calendar.

Saturday morning breakfasts -  
7:00 a.m. New York Coffee Shop  
9720 Hillcroft, Houston  
7:30 a.m. Viking Den  
2939 S. Main, Stafford

Rag Chew Net  
3910 KHz +/- 3KHz Wednesdays  
at 7:00 p.m.

Public Service Net  
Monday night on 145.47 (123 PL) at  
9:00 PM

## Minutes of Brazos Valley Amateur Radio Club Board of Directors Meeting (UNAPPROVED) March 6th, 2003

**Attendees:** President, Mike Hardwick, N5VCX, 2 -Year Director/Club Elmer Ross Lawler, W5HFF, Corresponding Secretary/Treasurer, Cameron Mitchell, K5CAM, Allen Brier, N5XZ, 1-Year Director Dave Scott, WD8RZA, Recording Secretary, Joe W Morgan, K5JWM

Meeting called to order at 7:35 PM by President Mike Hardwick.

**Comments:** Ross said the new ham night was a success and that we had some new member join us. News letter needs some corrections made. Ross and Joe will start set up for Mix & Match meet, will meet at Viking Inn Saturday 15th before we go to community center

**Emergency Business:** Vice President needs to be filled and Allen Brier will join us as Vice President, Dave makes a motion for Allen Brier to be elected for Vice President, Kevin second the motion and all said I. Program for March Ross will do stealth antennas. Ross will contact K-Com for mix & match meet.

**Old Business:** Board members voted to help Orin with his legal defense fund Joe made a motion that we donate 100.00 dollars, Ross second the motion, all said Aye.

**New Business:** Field day coordinators are Orin KB5F and Allen N5XZ. Read February minutes for approval, minutes read and a motion was made by Ross and second by Dave. Ken Lee will take care of the food for Mix & Match swap meet. Cameron passed out Treasurer report and account balances report for review.

**Announcements:** Bvarc members it's time to start volunteering for field day 2003.

Membership count: 123

Adjourn: 9:20

Submitted by Recording Secretary Joe W Morgan, K5JWM

## Rag Chew Net

By Joe Morgan, K5JWM

March 2003

NOTE FREQUENCY CHANGE 3910 KHz

3910 KHz +/- 3KHz Wednesdays at 7:00 pm,

Joe Morgan, K5JWM, Net Coordinator

Just WHAT IS the Rag Chew Net? Well it's a chance for you to get on the low bands and hang out with other BVARC members, as well as hams from around the south central US! WHAT?? Don't have voice privileges? Got a short-wave receiver? Dial in and listen, then check in using the telephone number announced at the beginning of each net.

Current list of check-ins was not available at press-time.

The Brazos Valley Amateur Radio Club Board of Directors would like to thank Lockard & White Telecommunications Engineers for the printing of this newsletter.



## Amateur Radio Testing

### Results of the March 11<sup>th</sup> Testing Session

by John Moore, KK5NU

BVARC administered the ARRL-VEC Amateur Radio Examination session that was held on Tuesday, February 11th, 2002 at HCC's Scarcella Technology Campus here in Stafford.

#### Members Of The VE Team:

- Tom Graves, Jr., KD5TG
- Larry Jacobson, K5LJ
- John Moore, KK5NU
- George Ontiko, KM5VP

Fifteen examination elements were administered during the course of the evening to eleven applicants. Seven unlicensed candidates received their new Technician licenses; one received a General class license; one Technician "grandfathered" and two other Technicians upgraded to General; with the total number of elements passed being 13. The overall "pass rate" for the evening was 86.67%. Congratulations to the following who passed an exam:

- Carlos Burns - {KD5VRI}- Technician
- Andrew H. Keith- {KD5VRH}- Technician
- Todd A. Quilen - {KD5VRG}- Technician
- Ryan M. Sandel - {KL1LO}- Technician
- Eric C. Seller - {KD5VRF}- Technician
- Robert P. Supina-KC5BAM- General
- Robert M. Talbot, III-KB9WVG- General
- Philip N. Ward - {KD5VRE}- Technician
- Garold L. Wellborn - {KG6PSA}- Technician
- John M. Whitney- {KD5VRJ}- General
- William M. Woodruff-KA5YYD- General

Many thanks to all the team members and assistants who volunteer their valuable time and effort each month. All of us at BVARC thank everyone at HCC Scarcella Technology Center for making these excellent classroom facilities available to us for our exams each month.

## President's Corner

By Mike Hardwick, N5VCX, President

The 2<sup>nd</sup> Annual Mix & Match Swap Meet on March 15<sup>th</sup> was a great success. Not necessarily a financial success but event was a success. There was something at little different at this swap meet, entertainment. I asked George Toone, WB5FBJ, if he

would come out and provide entertainment at the swap meet and he eagerly accepted. George just recently moved from the Abilene area. He is the Houston director for the Texas Commission for the Blind. If you ever get a chance to talk to him, ask him about the times he was driving the cars during a parade! George is mostly active on UHF but you can hear him occasionally on VHF.

Next year's Mix & Match Swap meet is being planned now. If you are interested in helping out contact one of the board members and let them know.

Alan Briar, N5XZ, has accepted the position as Vice President. He will serve out the term that Scanner Jack vacated. The BOD thanks Alan for stepping forward and filling the position (as soon as Alan accepted, he told us that he will be gone for about 5 weeks to Russia on a project, so Ross, W5HFF will be filling in for him).

We are still looking for a replacement treasurer/corresponding secretary. Ron Eisenbrey moved to San Antonio and Cameron Mitchell has stepped up to fill it for a few months. We do need someone to fill this position so if you are interested in helping the club manage it's vast millions, contact the board and let us know.

Field Day is just around the corner and Orin Snook, KB5F is looking for people to help out for Field day. If you would like to help him plan and organize field day, contact him.

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## Public Service Events

By Mike Hardwick, N5VCX, President

Here are some events for the rest of the year. Come out and help. Put your license and radio to a good use. If you like the hobby, this is one of the best ways to promote the hobby and help a worthy cause at the same time. Remember, one of the main reasons for amateur radio is to help the community. If you are interested in any of these events, give me a call and I will send you information on the event. Call me at 713-771-4625 or e-mail n5vcx@arrl.net.



**Special Olympics Rosenberg**  
April 6th, 2002 15 operators needed, Lamar Stadium  
[kc5vyz@arrl.net](mailto:kc5vyz@arrl.net)

**MS150 Meeting** MS Office April 7th & 9th, 2003  
For MS150 Operators [hou.hams@ms150.org](mailto:houshams@ms150.org)

**Houston to Austin MS150 Bike Ride**  
Saturday & Sunday, April 12th & 13th, 2003 125  
hams needed contact Mike [n5vcx@arrl.net](mailto:n5vcx@arrl.net)  
[www.ms150.org](http://www.ms150.org), [hou.hams@ms150.org](mailto:houshams@ms150.org)

**March of Dimes Walk-a-thon**  
April 27th, 2003 15 needed at each location  
[n5vcx@arrl.net](mailto:n5vcx@arrl.net)  
U of H Main Campus  
Greenspoint Mall

U of H Clear Lake  
Cynthia Woods Pavillion  
**Shiner Bash Bike Ride**  
May 17th, 2003 15 operators needed on each leg  
[n5vcx@arrl.net](mailto:n5vcx@arrl.net)  
Houston & San Antonio & Austin to Shiner

**Arthritis Joint Walk**  
May 17th, 2003 [n5vcx@arrl.net](mailto:n5vcx@arrl.net) 10ops each location  
Memorial Herman SE  
Memorial Herman SW  
Woodlands Malls

**MS150 Bike Ride Awards & Volunteer Party**  
June ??th, 2003 MS150 Volunteers  
[hou.hams@ms150.org](mailto:houshams@ms150.org)

## Mix & Match Swap Meet, March 15<sup>th</sup>, 2003



Bud King, K5CEK attempts to sell his wares



Orin Snook, KB5F, is presented the money raised from the raffle to help his cause



Cam, K5CAM, Sonia, KC5QLH, Ross, W5HFF, and Darrel, KC5JAR handle the walk-ups



George Toone, WB5FBJ provided music and entertainment

# BRAZOS VALLEY AMATEUR RADIO CLUB

## 2003 Membership Application

Check One:

☐ New Membership ☐ Renewal ☐ Roster Update ONLY

Regular membership dues are \$20.00 a year. Lifetime Memberships are \$160.00. Additional family members may join BVARC for only \$2.00 a year each with no additional copy of the newsletter.

Name: \_\_\_\_\_ Call: \_\_\_\_\_

Additional Family Members: \_\_\_\_\_ Call: \_\_\_\_\_

Additional Family Members: \_\_\_\_\_ Call: \_\_\_\_\_

(Note: If this is a renewal, please indicate only changes in personal information. Thanks.)

Address: \_\_\_\_\_ Day Phone ( ) \_\_\_\_\_

\_\_\_\_\_ Eve Phone ( ) \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip+4: \_\_\_\_\_

e-mail address: \_\_\_\_\_

Main area of interests in amateur radio: \_\_\_\_\_

License Class:

☐ Novice ☐ General  
☐ Technician ☐ Advanced  
☐ Tech+ ☐ Extra  
☐ Former Ham ☐ Not Yet a Ham

ARRL Membership?

☐ Life  
☐ Annual  
☐ Not a member

I agree to observe the By-Laws of Brazos Valley Amateur Radio Club and rules and regulations of the Federal Communications Commission.

Signature: \_\_\_\_\_ Call: \_\_\_\_\_ Date: \_\_\_\_\_

Remittance:

Regular Membership \_\_\_\_\_ + Family Membership \_\_\_\_\_ = \$ \_\_\_\_\_

LIFE MEMBERSHIPS\* at \$160 per Person \_\_\_\_\_ = \$ \_\_\_\_\_

TOTAL = \$ \_\_\_\_\_

Please make checks payable to BRAZOS VALLEY AMATEUR RADIO CLUB and write your call sign, if any, on your check. Send this form and your check or money order to:

**Brazos Valley Amateur Radio Club**

**P.O. Box 1630**

**Missouri City TX 77459-1630**



## Calendar – April 2003

	MON	TUE	WED	THU	FRI	SAT
		1 AMSAT Net 8:00 p.m. 145.470 MHz	2 HF Net 7:00pm 3910 +/-3KHz	3 BOD Meeting 7:30 PM	4	5 See *below Special Olympics Belton Ham Expo
6	7 Net 9:00 p.m. 145.470 MHz MS150 Hams Meeting	8 VE Session 6:30 pm AMSAT Net 8:00 p.m. 145.470 MHz	9 HF Net 7:00pm 3910 +/-3KHz MS150 Hams Meeting	10 Club Meeting 7:30 pm	11	12 See *below MS150 Bike Ride
13 MS150 Bike Ride	14 Net 9:00p.m. 145.470 MHz	15 AMSAT Net 8:00 p.m. 145.470 MHz	16 HF Net 7:00pm 3910 +/-3KHz	17	18 See **below	19 See *below
20	21 Net 9:00 p.m. 145.470 MHz	22 AMSAT Net 8:00 p.m. 145.470 MHz	23 HF Net 7:00pm 3910 +/-3KHz	24	25	26 See *below
27 March of Dimes Walkathon	28 Net 9:00 p.m. 145.470 MHz	29 AMSAT Net 8:00 p.m. 145.470 MHz	30 HF Net 7:00pm 3910 +/-3KHz			

\* Saturday morning breakfasts 7.00 a.m. New York Coffee Shop. 9720 Hillcroft, Houston. 7:30 a.m. Viking Den 2939 S. Main, Stafford.

\*\* 3rd Friday Dinner: APRIL 18, 6:30p.m. at TIO PEPE'S SPANISH RESTAURANT, 5213 Cedar, in Bellaire. It is 1 block N. of Bellaire Blvd. And 1-1/2 blocks E. of Chimney Rock.

## Calendar – May 2003

SUN	MON	TUE	WED	THU	FRI	SAT
				1 BOD Meeting 7:30 PM	2	3 See *below
4	5 Net 9:00p.m. 145.470 MHz	6 AMSAT Net 8:00 p.m. 145.470 MHz	7 HF Net 7:00pm 3910 +/-3KHz	8 Club Meeting 7:30 pm	9	10 See *below
11	12 Net 9:00p.m. 145.470 MHz	13 VE Session 6:30 pm AMSAT Net 8:00 p.m.	14 HF Net 7:00pm 3910 +/-3KHz	15	16 See **below	17 See *below Arthritis Joint Walk Shiner Bash Bike Ride
18	19 Net 9:00p.m. 145.470 MHz	20 AMSAT Net 8:00 p.m. 145.470 MHz	21 HF Net 7:00pm 3910 +/-3KHz	22	23	24 See *below
25	26 Net 9:00p.m. 145.470 MHz	27 AMSAT Net 8:00 p.m. 145.470 MHz	28 HF Net 7:00pm 3910 +/-3KHz	29	30	31

\* Saturday morning breakfasts 7.00 a.m. New York Coffee Shop. 9720 Hillcroft, Houston. 7:30 a.m. Viking Den 2939 S. Main, Stafford.

3rd Friday Dinner: MAY 16, 6:30 p.m. at The HICKORY BARN BARBECUE, 11534 Wilcrest, 1-1/2 blocks N. of the S.W. FRWY.



Monthly Publication of the Brazos Valley Amateur Radio Club.  
Serving Amateur Radio for Southwest Houston and Fort Bend County

Club Call sign - KC5OIG, W5DPA  
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The Brazos Valley Amateur Radio Club (BVARC) was organized in 1978, primarily as an emergency communications group available to assist the communities of Missouri City and Stafford when required. Since that time, BVARC has grown and expanded its activities to become the most active amateur radio club in Southwest Houston and Fort Bend County.

Today, BVARC is truly a general interest club with an impressive record of Public Service. The American Radio Relay League (ARRL) has recognized the club's commitment to service with the coveted status of Special Service Club. We are proud of our members who represent some of the finest in amateur radio. Membership is not limited to licensed operators, but is open to anyone with an interest in amateur radio. Meetings are at 7:30 p.m. on the second Thursday of each month, at the Sugar Land Community Center. Talk-in assistance is available in the 145.470, and 444.550 MHz (PL 123.0) repeaters. Membership dues are \$20 per year.

BVARC administers ARRL-VEC license exam sessions on the 2nd Tuesday of each month. A Public Service Net is held at 9 PM. each Monday on the Memorial Emergency Radio Association's 145.47 & 444.55 repeaters.

To obtain information about joining BVARC or its activities, contact Ron Eisenbrey, 281-491-7823. New members and prospective hams should contact the Club's "Elmer", Ross, W5HFF at 281-342-3340 or [w5hff@juno.com](mailto:w5hff@juno.com).

**VOLUME 27 ISSUE 3**

**BRAZOS VALLEY  
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March 2003



**Don't Forget  
Next Membership Meeting, April 10th  
7:30p.m., Sugar Land Community Center**

12/1/2009 E  
Allen Mattis N5AFV  
5314 WIGTON DR  
HOUSTON TX 77096-5115

If your mailing label is  
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