



FOX CITIES AMATEUR RADIO CLUB, INC.

**QSO'ER**



P.O. Box 2346 Appleton, Wisconsin 54912

[www.fcarc.us](http://www.fcarc.us)

• **CQ CQ CQ**

Volume 20, Issue 5  
May 2007

## Communications Events

There is still one more event for May.

**May 19, 2007 - JDRF**

For more info on these events please go to [www.fcarc.us](http://www.fcarc.us) and click Calendar on the left side of the page.

## Field Day 2007

If you would like to help with field day in any way please contact one of the board members ASAP!

### **FCARC Officers**

- *President— Brian Long (KB9LRD) 730-8485*
- *Vice-President— Dave Sprangers (ND9DW)*
- *Treasurer— Karen Long (KC9BMH) 730-8485*
- *Secretary— Mike Smith (N9IAT)*
- *Membership Co-ord— Jim Wierzba (WB9OJE)*
- **Members At Large—**
- *Andy Palm (N1KSN)*
- *Rick Kosiorek (W9RIC) 735-9565*
- *Tony Mach (AB9IO)*

**FOX CITIES AMATEUR RADIO CLUB (W9ZL)**

**2007 SWAPFEST - November 4th, 2007**

**New Location at the WAVE in Grand Chute next to the Wisconsin Timberattlers stadium.**

**Hamfest Chairman: Tony Mach, AB9IO - 920-722-0482**

### **Inside this issue:**

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Check out the FCARC **6 Meter Net** Thursday nights at 8 pm on 52.570 FM

Fox Cities Amateur Radio Club, Inc.  
General Membership meeting  
Agenda for April 16th, 2007

**Board of Directors FCARC**

President: Brian, KB9LRD; Vice-President: Dave, ND9DW; Treasurer: Karen, KC9BMH

Secretary: Mike N9IAT; Membership Coordinator: Jim WB9OJE

Members at Large: Andy N1KSN, Tony AB9IO, Rick W9RIC

“Tony Mach AB9IO is our 2006 “Ham of the Year”

**Presiding:** President, Brian long KB9LRD

**Quorum count:** Vice President; Dave Sprangers ND9DW

**Call to Order: 7: 00 PM**

**Introduction of Members, Roll Call!**

*New Members: John WB9MVQ, Donald KF9JA, Walter WA9YRL, Brent N9BC, Nick KD8BTK, Jessica KC9DNL*

*Renewed Members: Len K6JDF, Bill K9RFI, Vern N9RQM, Gloria N9SVB, Karen WB9ZNA, Terry N9AOT, Chuck N9OEQ, Debbie N9VVE, Jared N0ZKC, Pat K9IK, Bill N9ZIC, Gary W9HM, Gary KC9DJQ, Tim KC9FSH, Tim AB9NB*

**Old Business:**

A.) Membership update Jim WB9OJE

B.) Dayton bus trip report, Jim WB9OJE

C.) Web site up-date Dave ND9DW.

F.) Technical Director Nominations – Rick W9RIC

G.) Wisconsin QSO Party 2007 – Brian KB9LRD

**New Business:**

A.) Nominations for Executive Board office: President, Secretary, 3 Members at Large

Nominees for the following positions are:

President: Frank Livermore N9LT; Dan Vanevenhoven N9LVS

Secretary: Mike Smith N9IAT

Membership Coordinator: Jim Wierzba WB9OJE

Members at Large:

Terry Schilling N9AOT

Andy Palm N1KSN

Tony Mach AB9IO

Tom Riederer N9UY

B.) W9ZL Trustee

**Hal Report: Andy N1KSN , Frank N9LT**

**Committee Reports:**

**Announcements:**

**MS Walk Dave ND9DW, JDRF Walk Judy W9JK, American Cancer Sole-Burner Brian KB9LRD**

**Adjourn:** (Accepting a motion to adjourn) **KC9BMH** (2nd) **KG8RF** (V: M)

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## • Membership Renewal Reminders

As a reminder only—following is a list of the membership renewals coming up this month and the following few months. If you have already renewed—thank you. If not, you can renew with Karen (KC9BMH) at the next club meeting.

- 3/1/2007 KB9ENO
- 4/1/2007 KC9GJX
- 4/1/2007 N9MSH
- 5/1/2007 N9TNW
- 5/1/2007 WD9HAE
- 5/1/2007 W9OVK
- 5/1/2007 KC9DEF
- 5/1/2007 KC9HLI
- 5/1/2007 N9IAT
- 5/1/2007 KB9YUB
- 5/1/2007 KC9IZF
- 6/1/2007 W9FBC
- 6/1/2007 AA9A
- 6/1/2007 KC9ECV

### Elmer's Contact List

This is a listing of HAMS who are willing to help other HAMS out in special areas. Feel free to contact these fellow HAMS with any questions:

Call / Name	Specialty Area	Phone #
N1KSN– Andy	CW	720-0617
W9ZC– Bob	Tech. Code	725-7974
N9OEQ– Chuck	HF & VHF Digital Modes	788-5497
N9TNW—Bill	HF & Satellite	739-6827
N9LVS—Dan	FCC Personal Data Changes	205-4899

Have something Ham related to sell? If so, contact Mike (N9IAT) at [mike@n9iat.com](mailto:mike@n9iat.com) to arrange for it's insertion in the next issue of this newsletter. We will run it in the newsletter and on-line at [www.fcarc.us](http://www.fcarc.us)

## •Upcoming Events

# VE Testing Dates

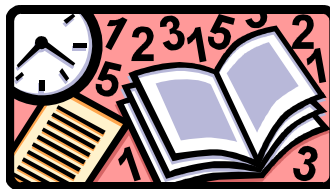
Interested in Amateur (HAM) Radio? Need to upgrade your license? The FCARC can help you with both of these.

With the exception of the November test date, all testing is done at the Red Cross Building at 1302 E. Wisconsin Ave. in Appleton. Test check in is from 8:00 am until 8:30 am. The cost is \$14.00.

Here are the dates for 2007:

**June 9, 2007**

**August 11, 2007**



### Thursday 6 Meter Net

Day: **Thursday**

Time: **8:00 pm**

Frequency: **52.570 FM**

If you would like to be a net control please contact Frank N9LT

## •Upcoming Events

May 17, 2007	Bus leaves for Dayton Ohio
May 19, 2007	JDRF
May 21, 2007	General Membership Meeting
June 23-24	Field Day!

### Wednesday 2 Meter Net

#### Net Control Operator schedule

May 9	N9LT
May 16	ND9DW
May 23	N1KSN
May 30	N9UY

Fox Cities Amateur Radio Club (W9ZL) invites everyone to tune in on Wednesday evenings at 7:30 PM on 146.76/R 100hz PL to hear the *Newsline* broadcast.

Then stick around to check into the net immediately afterwards. This is an open forum net and anything can be discussed, including; technical questions, equipment review and for swap and for sale items.

### Join me in welcoming the following new members to the club!

John WB9MVQ, Donald KF9JA, Walter WA9YRL, Brent N9BC, Nick KD8BTK, Jessica KC9DNL

#### Renewed Members:

Len K6JDF, Bill K9RFI, Vern N9RQM, Gloria N9SVB, Karen WB9ZNA, Terry N9AOT, Chuck N9OEQ, Debbie N9VVE, Jared N0ZKC, Pat K9IK, Bill N9ZIC. Gary W9HM, Gary KC9DJQ, Tim KC9FSH, Tim AB9NB

## Thank You for helping at the FCARC communication events.

### 2007 MS Walk

Author : ND9DW

I would like to thank Andy N1KSN, Vern N9RQM, Gloria N9SVB, Frank N9LT, Rick W9RIC, Judy WJ9K, Mike N9IAT, Karen WB9ZNA, Bernie N9YMC, John AB9AH and Tom N9UY for braving the viscous winds and the cool temperatures for the 2007 MS Walk at Fox Cities Stadium. More....



Beside the problems with the wind, the MS Walk communication went without any problems with Andy N1KSN as net control for the event. The only “emergency” we encountered was when the sausages went missing. After Andy polled the operators at their stations, the sausages were found hanging out at Prairie Hill Park. Tom N9UY identified these sausages as the Famous Klement’s Racing Sausages: The Bratwurst, The Polish Sausage, The Italian Sausage and the Hot Dog. As the Famous Klement’s Sausages made their way back to the finish line, we relayed their progress to the MS Walk officials who were waiting for them for photos.

The strong winds and cool temperatures could not keep the excellent communication skills of the FCARC down and everyone who helped out at the 2007 MS Walk felt the warm appreciation coming from the MS Walk committee.

Dave Sprangers ND9DW  
2007 MS Walk Chairman

### Sole Burner 2007

Author : N9LT

This year's Sole Burner was busier than ever. Crowds filled the park and streets for as far as the eye could see. The weather was good which made our operation easier...especially if you were lucky enough to enjoy some sunshine!



Thanks go to the following operators for supporting this special event.

Andy, N1KSN - Net Control at City Park  
Eric, KG8RF - River Trail  
John, N9RJZ - Mary St.  
Mike, N9IAT - Water St./Drew St. "Heart Attack Hill" or as the runners called it “Hill of Hope”  
Frank, N9LT - City Park and Lawe/College

# An Experimental 2M T-Match Antenna

By Frank Livermore, N9LT



T-Match of a 13B2

If you first think “Yagi” when you see the word *T-match* then you’re on the right track. The T-match network is commonly used in Yagi antenna designs to match the relatively low feed point impedance ( $10\Omega - 40\Omega$ ) of a yagi to the feed line. The matching system is part of the driven element of the yagi antenna typically consisting of a pair of rods paralleling the driven element and clamped at a precise length from the center.

The T-match antenna is built electrically the same way but is no powerhouse in gain and is likely 3dB or less. What it lacks in gain it makes up for in ease of construction, durability, power handling<sup>1</sup>, and bandwidth. The antenna is center-fed and constructed completely of RG-58. It would work perfectly with the VHF/UHF antenna support structure (QSO’er - April 2007). Its performance would be more than acceptable covering the Fox Valley. This antenna could also be the foundation for experiments with high-gain homebrew yagis or used for portable operation to extend the coverage of an HT.

## Experimenting

Experimenting begins with goals. The original goals were all achieved with much trial and error. Fortunately RG-58 is inexpensive. The accomplished goals are listed below.

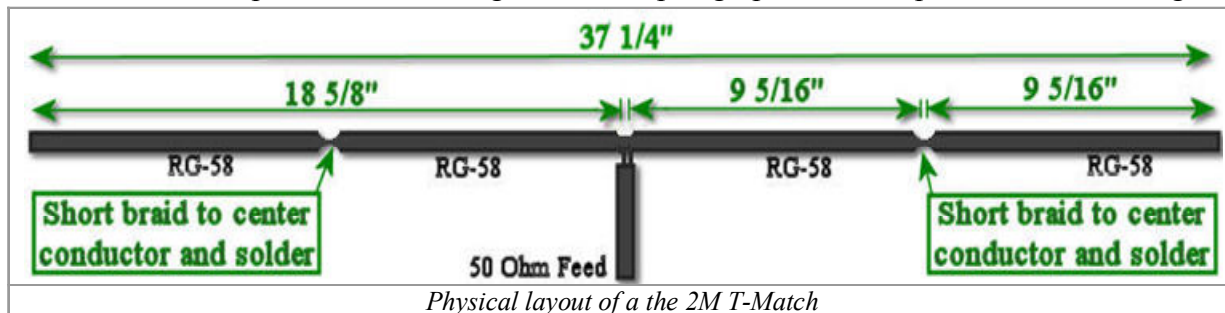
1. Better than a dipole (marginally)
2. Easy construction
3. Durable
4. Cover entire 2M band (4 Mhz BW)
5. Vertical or horizontal polarity

We began by using the usual  $\frac{468}{FMhz}$  to calculate the length of a half-wave dipole for 146.520. The calculated length is about  $38 \frac{5}{16}$ . Through experimentation we learned three things. First, the length calculation was not that simple.

We failed to take into account the velocity factor of the coax being used as a radiating element<sup>2</sup>. This reduces the size of the antenna about 3% when using RG-58/U which has a Vf of .66. Second, it is impossible to simply trim length from the ends of the antenna to adjust SWR with this type of antenna since matching heavily depends on the T-match length which is soldered into place. This antenna either works as built or does not. And last; measure carefully. We eventually discovered the “sweet spot” at  $37 \frac{1}{4}$ ”.

## Construction of the 2M T-Match

The T-match antenna is a balanced design. It’s center-fed and one element of the antenna mirrors the other. See the depiction below along with a few paragraphs of description below the image.



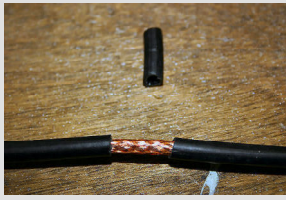
The feed line is simply  $50\Omega$  coax of your choice; generally RG-58U or A/U because it’s what you have on hand to make the antenna in the first place. It is important to keep the coax perpendicular to the antenna when testing the SWR.

Step by step instructions are listed below.

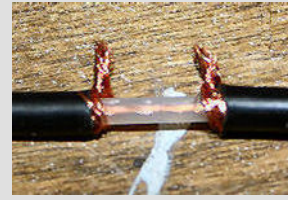
1. Carefully measure and cut a piece of RG-58 at 37 1/4"; mark the center at 18 5/8" with a pencil.

<NO PHOTO>

2. Remove about 1 inch of sheathing at the center to expose the shield.



3. Carefully cut the braided shield equally into two without going into the dielectric.



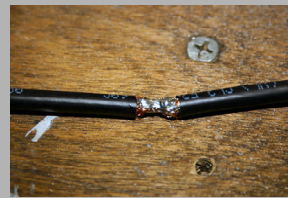
4. Measure 9 5/16" from the center. Remove sheathing and cut braided shield.



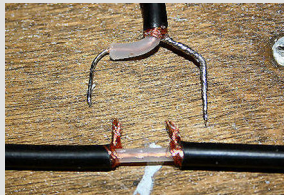
5. Cut into the dielectric to expose the center conductor. It's not necessary to remove all of the dielectric, just enough to get a good solder joint.



6. Solder the braid to the center conductor. Tape when done. This is the T-match part ☺ Now repeat steps 4 & 5 for opposite end of antenna.



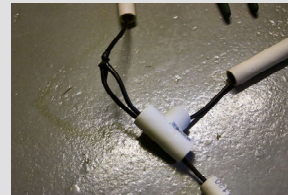
7. Return to the center. Connect the center conductor of the feed line to one side of the braid (from step 3) and the braid of the feed line to the other side.



8. Test the antenna by hanging from the ceiling with string and clear of any large metal objects. Be sure the feed line leaves the antenna perpendicularly.



9. Assemble into your favorite structure or weatherproof otherwise. Shown here is the antenna being put in the PVC support structure published April 2007 in the QSO'er.



#### Notes:

1 – Maximum power for RG-58U is 160W @ 150Mhz (est.), RG-58A/U is 145W. Consider RG-8, RG-213, RG-214, RG-217, or RG-218 for 200W+ **with** equivalent feed line.

2 – Velocity factor is the ratio of the speed of the RF signal propagating the cable to the speed of light. Different diameter coax, different dielectrics, and antenna enclosure material will affect the velocity factor and therefore will affect the design. Take this into account if you use something with a Vf different than .66.

This is a fun antenna to experiment with. Be prepared to make a couple since it takes a little skill to get them just right. Fortunately the cost is very small and they are fun to make. You could even experiment with different coax types that have various velocity factors. If your SWR is slightly high, try winding the coax 4-8 times in a 3 inch diameter and fasten with tape. This may help reduce return radiation. Happy experimenting!