May 2003
Volume 3
Issue 5

SMARCalling

Southwest Missouri Amateur Radio Club http://www.smarc.org

P.O. Box 11363 Springfield, MO 65808 PH: 417-886-4152

President's Corner . . .

Regular Meeting
7:00 PM
American Red Cross Building
1835 E Chestnut just East of Glenstone Ave.
3rd Monday of Every Month

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May 19th Echolink Internet Amateur Radio & "Strange Antennas" Recapped

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Public Always Welcome!

Ready to Play with STRANGE ANTENNAS ?!

Saturday morning May 10th, in front of the Evangel Library (1111 N. Glenstone - Thanks Woodie, for arranging the site and the VE testing!), starting around 8-9 AM a bunch of us will be bringing rigs, batteries, portable shade, generators, and all the normal things used during an outdoor ham radio operation, with one exception.... NO ANTENNAS ARE WELCOME...

Well, no "normal" antennas will be used. We are running the k0s Special Event. Please bring anything metal you want to tune up. Also bring a tuner, tools, or scraps of woods, etc. We'll see if it will make contacts across the country or the oceans! Everyone is welcome and encouraged to come out and play radio with us, members and non-members alike. Bring a friend or just yourself – just come out and play!

We will share the fun with people who don't have FCC-granted privileges, so don't allow the lack of an amateur radio license stop you. Control operators will be on-site. This means *anyone* can operate a radio, and just maybe be the person to make the most distant contact for the day... what an honor!

There is a practical side to all this as well. Any number of things can stop some people from being able to operate HF, ranging from severe weather knocking down towers to simply being in the wrong place at the ~~wrong~~ (right time, with this experience under your belt!) devoid of antenna.

Wouldn't it be great to know you can hook your coax to your own car or truck and talk to England?! This Special Event is the time and place to find out how to make that work. Already "been there, done that"? Come out and share your hard-won wisdom with the rest of us! Get that blood flowing. Reconfirm you still have the knack!

For More Information
(CaSe SeNsItIvE UrL)

http://www.n0ew.org/StrangeAntennas/k0s.html

See you there! *-73 de Erik, n0ew*

Upcoming Events – Write Them in Your Calendar Now & Come Play!

May, 10th	Evangel Library, Spfd, k0s, Special Event Station, "Kurt N .Sterba Strange Antenna Challenge" VE Testing Session
June, 28-29	Field Day 2003
August, 10th	w0c, Wilson Creek Battlefield Special Event Station

April 2003, SMARC MINUTES

Attendance:

Dick Higinbotham k0gl	Erik Weaver n0ew	Jerry Havel w2rrx	Woodie Moore w0ody
Lee Shafer w0tls	Stephen Shafer kc0nav	Lance Riffle kc0kbl	Ken Baremore w0krb
Mike Rains k0rfi	Bill Harmon wb0onm	Bill Harris ka0dgk	Gary Winn w0kix

Guests:

?? (My apologies to those I missed – I don't have the sign-in sheet & used my failing memory! -EW)

Business Meeting & Announcements:

Previous Minutes, and Treasurer's Report were accepted.

91 Repeater

While the new antenna and DVR have both been installed, several members report there has been occasional interference heard on the repeater. No one had any idea as to what the cause may be.

We would like to find a woman to make a number of recordings for the repeater. Studies have indicated that both men and women listen closer to a female voice than a male voice. Volunteers should contact one of the board members (see last page).

VE Testing Session

9 AM, May 10, 2003, at the Evangel Library (1111 N. Glenstone) there will be a testing session for license upgrades and new licenses. For more information contact Woodie, w0ody (see last page). This is the same date and location as the club's k0s Special Event Station.

APRIL MEETING
Understanding Antenna Tuners

Several antenna tuners were brought in, their cases cracked open, and their innerds were inspected and explained. Dick, k0gl, brought in a tuner with a larger roller inductor. Lee, w0tls, brought in a tuner specialized for wire antennas. We also had a MFJ antenna tuner with a tapped inductor (coil). Erik, n0ew, passed out a flier that provided schematics of the more common designs, along with brief explanations.

There are a few web sites I found that I wish to pass along to you. They each have some interesting and useful insights. I will also include the URLs to 10-10-International and World Radio because each has a book or two that you may wish to own. The obvious sources of information are "The ARRL Antenna Book" and "The ARRL Handbook" (the 2003 volume is certainly good). Less known it seems is "Reflections II" by Walter Maxwell, w2du, which is a "must have" although it requires repeated readings to absorb much of the information. I was pleased to see many (well, *all* that I could recall, actually) of the statement he claims to be true were in fact so stated in an engineering book I found at a yard sale. I don't pretend to understand that engineer's antenna book, but anyone can understand that a system matched (tuned) at any one point is in fact matched at every point in the system - the antenna *is tuned* not 'tricked'.

http://www.ntay.com/hars/10mtuner.html
http://www.cebik.com/radio.html
http://www.cebik.com/delta.html
http://www.cebik.com/lclatu.html
http://www.n4ekv.com/tuners.asp
http://www.wr6wr.com/
http://www.ten-ten.org/

k0s, Kurt N. Sterba, Strange Antenna Challenge

ANTENNA: (image required)_____ **LOCATION:** _____

(send images & log to erik@n0ew.org)

*Logging Information Required - "*name"* is optional*

Main = 28.500 mHz +/- 20 kHz

Your Call Sign	Date	Local Time	Freq. MHz	Their (name) Call Sign	Their Location City State / City Country	RS(T) Reports Them *	To Us **	Mode	Our Watts	Their Watts	Their Antenna

RULES: (**1**) Do **NOT** use wire or pipe as antennas; (**2**) Photo required of each antenna; (**3**) Send photos & logs to erik@n0ew.org (or n0ew@arrl.net)

* is the way we heard "Them"
** is the way they heard "Us"
"name" is optional

"k0s" -- KURT N. STERBA, STRANGE ANTENNA CHALLENGE

RULES…

1. **WE CAN NOT USE WIRE** (use as little as possible when connecting your coax to the antennas)
2. **WE CAN NOT USE PIPE** (however, you CAN fly an entire tent as an antenna)
3. **WE MUST SEND A DIGITAL IMAGE OF EACH ANTENNA USED TO ERIK, erik@n0ew.org**
4. **WE MUST PROPERLY FILL OUT THE LOG SHEETS & SEND TO ERIK, erik@n0ew.org**

Band	MHz	Feet *	1/4 W.L.	1/2 W.L.	5/8 W.L.
10 M	28.5	34.54	8'-7.2"	17'-3.25"	21'-7"
12 M	**24.95**	**39.54**	**9'-10.3"**	**19'-8.6"**	**24'-8"**
15 M	21.4	45.99	11'-6"	23'-0"	28'-9"
17 M	**18.14**	**54.26**	**13'-6.7"**	**27'-1.5"**	**33'-11"**
20 M	14.3	68.83	17'-2.5"	34'-5"	43'-0.25"
30 M	**10.125**	**97.21**	**24'-4"**	**48'-7.25"**	**60'-9"**
40 M	7.26	135.57	33'-10.7"	67'-9.5"	84.8.75"
80 M	**3.9**	**252.37**	**63'-1"**	**126'-2.25"**	**157.8.75"**
160 M	1.9	518.03	129'-6"	259'-0"	323'-9.25"

THESE ARE SOME BASIC WAVELENGTH GUIDELINES FOR "NORMAL" ANTENNAS

* Formula for above = 300 / MHz * 39.37 / 12 = FEET OF ONE FULL WAVELENGTH at selected Frequency.

Q **"DO I HAVE TO TAKE A DIGITAL PHOTO OF EACH ANTENNA?"**
A YES. WE WILL PROVIDE A QSL CERTIFICATE WITH AN IMAGE OF THE ANTENNA USED.

Q **IS THERE A WEB SITE WITH ADDITIONAL INFORMATION & HOW CAN I CONTACT ERIK?**
A CaSe SeNsItIvE: http://www.n0ew.org/StrangeAntennas/k0s.html
Cell # 766-4544, OR E-Mail erik@n0ew.org OR n0ew@arrl.net OR tinytroll@leafwerks.net

Q **CAN I RUN A k0s STATION AT MY HOUSE?**
A YES, IF YOU FOLLOW ALL THE RULES, LOG PROPERLY, AND SEND ERIK THE IMAGES & LOG.
START TIME IS 10 AM SATURDAY, MAY 10TH. END TIME IS 7 PM (LOCAL) SUNDAY, MAY 11TH.
USE "k0s" AS YOUR CALL SIGN, EXCEPT STATE YOUR CALL SIGN ONCE EACH HOUR.

Q **IS THIS OFFICIALLY SANCTIONED BY ANY GROUP?**
A YES, IT IS AN ARRL SANCTIONED SPECIAL EVENT STATION, AND IS A SMARC CLUB EVENT.

Q **DO I HAVE TO USE A SEPARATE LOG FOR EACH DIFFERENT ANTENNA?**
A YES. WRITE THE DESCRIPTION OF THE EACH ANTENNA AT THE TOP OF THE LOG.
REMEMBER TO TAKE A PHOTO (DIGITAL IS BEST) OF EACH ANTENNA USED.

Band*	10-M	12-M	15-M	17-M	20-M	30 (no voice)	40-M	75/80-M	160-M
Upper	**29.700**	**24.990**	**21.450**	**18.168**	**14.350**	**10.150**	**7.300**	**4.000**	**2.000**
Lower	**28.300**	**24.930**	**21.300**	**18.110**	**14.225**	**10.100**	**7.225**	**3.850**	**1.800**

* Frequency Ranges are for the GENERAL CLASS. No voice on 30-M and 200 watt max.

RST:

READABILITY
1 = Unreadable
2 = Barely readable
3 = Readable; considerable difficulty
4 = Readable; almost no difficulty
5 = Perfectly readable

Please - Provide & Request Only HONEST Signal Reports. This is a large part of the FUN of this Special Event!

SIGNAL STRENGTH
1 = Faint signal, barely perceptable
2 = Very weak signal
3 = Weak signal
4 = Fair signal
5 = Fairly good signal
6 = Good signal
7 = Moderately strong signal
8 = Strong signal
9 = Extremely strong signal

Tone - CW Only
1 = Very poor
9 = Is Perfect

"Tone" scale is from "1" to "9" with better quality the higher the reported number (9 is best report given). Add a "**C**" for chirp and a "**K**" for click.

This is a special event station, k0s. We are celibrating the efforts of author Kurt N. Sterba to educate his fellow hams about the wide variety of antennas we can use, and the true conditions that allow us to contact one other across the planet.

We are demonstating that many strange things can be used as antennas. This better prepares us to serve our communities during disasters, either natural or man-made. This is also a demonstration of Homeland Security Communications, and how diversified ham radio solutions can be. By practicing communications under less-than-ideal conditions, we are preparing ourselves to serve our community if needed.

We are also having fun trying out all these strange antennas!

QSL to either n0ew or w0ebe, with SASE. Our web site is: www.n0ew.org/StrangeAntennas/k0s.html

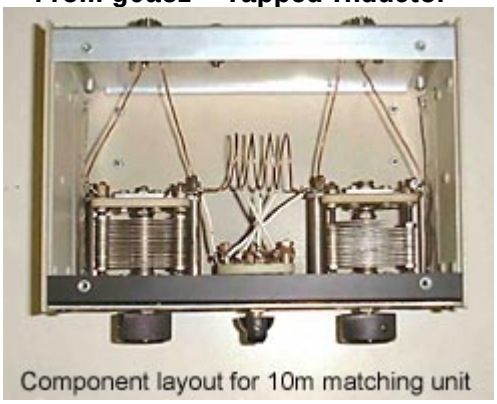
Basically the function of the antenna tuner (impedance matching unit) is to match the impedance (rate of energy flow) presented by the antenna/transmission line (coax or ladder line) to the designed impedance of the transceiver. This is accomplished by adding a "tuner" between these two. Inside your tuner reactance will be added, either capacitive or inductive, and 180 degrees out-of-phase to what is seen looking toward your antenna. This cancels the reactive power leaving a purely resistive load for the transceiver to work into. This brings to mind the question, "What is reactance, and why add more of it to eliminate it?"

Reactance is energy that does zero work. Imagine a magnetic field in which some energy is flipped from one side of the magnetic field to the other, and back again, the entire time you are transmitting. This energy is non-productive, and it is called reactance (or "imaginary" in the mathematical sense, but it does exist). It is not doing any productive work in terms of getting your signal out. In fact, it is causing a disruption in the transferring of power from your rig to the antenna (and visa versa). By adding the opposite reactance to what is presented to your rig (from the antenna) it is eliminated because it is out-of-phase (refer to our newsletter on repeaters to refresh on "phase".)

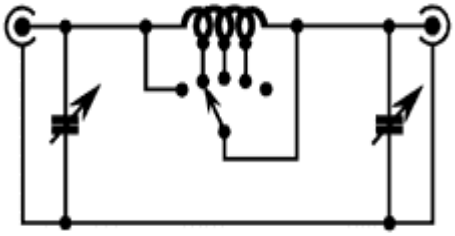
When tuning your antenna system what normally results in the best (maximum power out) match? "(Maximum signal strength) usually occurs while using the maximum C and minimum L at which a match can be obtained." – Walter Maxwell, w2du.

When you find inductor in series between the Input & Output (vs. going to ground) the network will naturally have some ability to cancel undesirable harmonics. Some feel the PI-Network offers the greatest range of matching ability (C-L-C generally matches more extreme ranges than L-C-L).

From g0aoz – Tapped Inductor



Component layout for 10m matching unit



10m matching unit

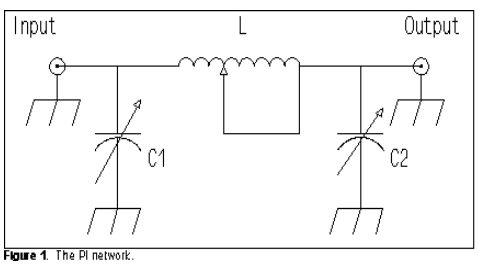


Figure 1. The PI network.

PI-Network (all three above)

From w4nal – C-L-C Network

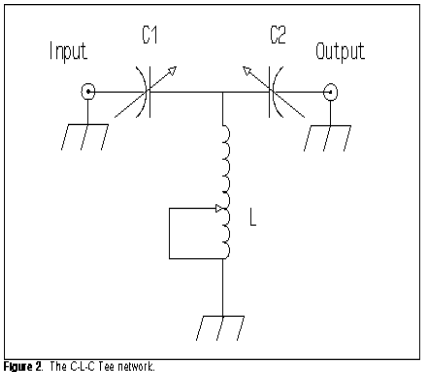


Figure 2. The C-L-C Tee network.

From w4nal – L-C-L Network

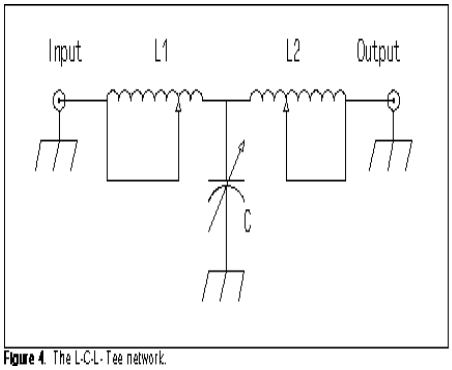


Figure 4. The L-C-L-Tee network.

From w4nal – SPC Network, and the Ultimate Transmatch (below)

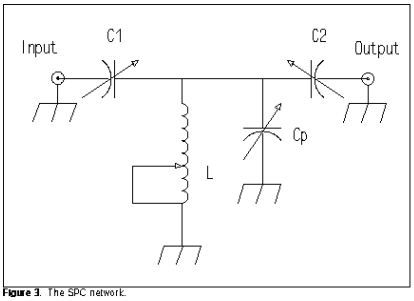


Figure 3. The SPC network.

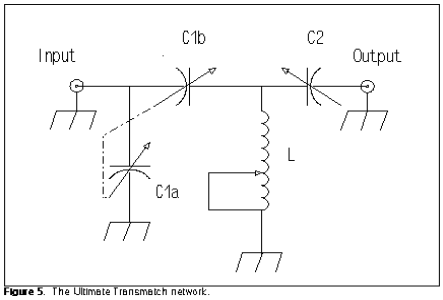


Figure 5. The Ultimate Transmatch network.

To the left you see an image from the web site of n4ekv. Notice there is no enclosure!

Once the network is matched there is essentially no RF "leakage" – that stems from stray reactance.

Southwest Missouri Amateur Radio Club

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We're on the Web!

www.smarc.org

Public Welcome!

2003 Board Members . . .

PRESIDENT:
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VICE_PRESIDENT:
Lance Riffle, KC0KBL.....890-5856

SECRETARY:
Chris Smith, KC0GOX.....883-6169

TREASURER:
Lee Shafer, W0TLS 823-8766

PUBLIC RELATIONS DIRECTOR:
Lora Smith, KC0EPD.....886-4152

DIRECTOR-AT-LARGE:
Dick Higinbotham, K0GL,725-5929

DIRECTOR-AT-LARGE:
Woodie Moore, W0ODY.....883-2248

All board members may be reached by email at:
"theircall"@smarc.org

Some Useful Web Sites

FCC ULS Info: **http://wireless.fcc.gov/uls/index.html**
Practice Tests: **http://www.qrz.com/p/testing.pl**
License Renewals: **http://www.qrz.com/i/renewals.html**
New Hams - Search for Your 1st Listing! **http://www.qrz.com/new_hams.html**
Congress: **http://www.sos.state.mo.us/library/reference/feddocs/fedcong.asp**

Membership Dues
Single $25 / year
Family $35 / year

1st Time - joining after July 1st, reduced by 50%

SMARCalling is a monthly newsletter published by and for the Southwest Missouri Amateur Radio Club, Inc. All submissions for publication must be received by the last day of the preceding month. SMARCalling reserves the right to edit all submissions for spelling and when necessary length. All comments on *SMARCalling* may be made to editor@smarc.org or by direct mail.

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