

# The eKilo - What

Monthly Newsletter of the San Angelo Amateur Radio Club

Aug—Sep 2012



## President's Message

de Joe Kent/W5UI

The summer is almost gone (finally) and we can look forward to cooler weather. Participation in our summer activities, including Field Day, has been outstanding and once again the SAARC membership has demonstrated their commitment to making our club a meaningful and productive (as well as fun) organization. The efforts of our member instructors and VEs resulted in many new hams being licensed here in the Concho Valley and has served to bring ñnew bloodö into our ever expanding ranks.

We have scheduled several activities through the end of the year and I look forward to the opportunity of working with you all in ensuring their success.

As many of you know, Bill Tarn / AE5AW and XYL had been out of country attending to Elvia's ailing mother. Sadly, Elvia's mother recently passed away and our thoughts and prayers are with the Tarn family.

## August Meeting Minutes

de Bob Freeman/KD5PIX

The regular meeting of the San Angelo Amateur Radio Club was called to order by President Joe Kent/W5UI on August 9, 2012 at 1930 with fifteen members and two visitors (prospective hams) in attendance. The financial report was read and approved by the membership. New business discussed centered around the upcoming LilyFest Special Event Station and Hughbert Robinson / KC5NPC will take the lead in this endeavor. Split the pot earned both Jack Roberts / KB5TMY and the SAARC \$8.50 each. Jack donated his share to the clubö thank you Jack!

An anonymous donor presented the club with a check for \$150.00. The gift is greatly appreciated and will help with expenses incurred throughout the year.

The next club meeting will be held on September 13, 2012.

## New ICQ Amateur/Ham Radio Podcast Released - Good audio with Julius D Jones, W2IHY

Series Five Episode Nineteen of the ICQ Amateur / Ham Radio Podcast has been released. The latest news, listener mailbag and Martin (M1MRB) interviews Julius D Jones (W2IHY) about good audio.

- Download the episode for free at <http://www.icqpodcast.com>
- Visit the ICQ Amateur / Ham Radio Podcast Facebook page - <https://www.facebook.com/groups/19198252373/>
- Listen to streamed audio content for the technology enthusiast - <http://www.hobbytechradio.com>

- Repeater Directory Android App now available
- Coastal station VIP marks its 100 years
- Broadcaster vacates 40m amateur band
- Has 2012L broken a world record?

## HF Nets of Note de Gary Chaffin/W5ETJ

NET	DAYS	LOCAL TIMES	DIAL
Concho Valley Ragchew	M-T-W-T-F	1800 - 1900	3825
Texas Traffic Net	S-M-T-W-T-F-S	0830 - 0930	7285
7290 Traffic Net	M-T-W-T-F-S	1000 - 1200	7290
7290 Traffic Net	M-T-W-T-F	1300 - 1400	7290
Texas Traffic Net	S-M-T-W-T-F-S	1830 - 1930	3873
Central Gulf Coast Hurricane Net	S-M-T-W-T-F-S	1900 - 2000	3935
Texas ARES Net	Monday	1930 - 2000	3873
Big Bend Emergency Net	Sunday	0830 - 0930	3922
Texas Trader's Net	Sunday	0900 - 1000	7245

## A Bidirectional Coupler

By Pete Norris / KJ5SS

A fellow ham lives in a community, as I do, that does not allow certain types of antennas. Flagpoles, however, are allowed in both communities. So to avoid a hassle he used a Force 12 flagpole for RF. He recently decided to part with his flagpole and sold it to me.

The flagpole is about 15ø2ø tall, good grade 2ø aluminum tubing and painted white making a handsome flagpole to be sure. This length is close to resonance on 14 meters but as you go down to 40 m, it becomes highly capacitive. A computer model says it looks like 6-j252 Ohms and it has an efficiency of 88%. The VSWR is calculated to be 25:1 at the antenna and 10:1 at the rig with 70ø of coax resulting in 7.8 dB mismatch loss. At 75 m, where I wished to operate, it is much worse and even higher Q. The electrical length is a mere 21.7ø or about 1/16 of a wavelength.

My radio, an ICOM IC-725, is located in a bedroom 20 feet away but requires about 45 feet of coax to reach it as the cable path is up into the attic, down the outer to the ground level where it enters conduit to pass under a walk to the flagpole base. To minimize losses I decided to build matching networks.

The computer model most likely makes some assumptions I cannot meet and so the stated antenna impedance was somewhat different for my installation in both magnitude and phase angle. In short, the matching networks I designed were not close and it was clear a great deal of optimization would be necessary. As I was using the IC-725 as a source, the RF output level was high even with the RF level control set for minimum. Furthermore, to adjust the matching network, I wanted to switch the input to the network to a dummy load while I made adjustments then back to the network for the test leaving the ICOM in transmit mode and thus avoid walking back and forth to the bedroom.

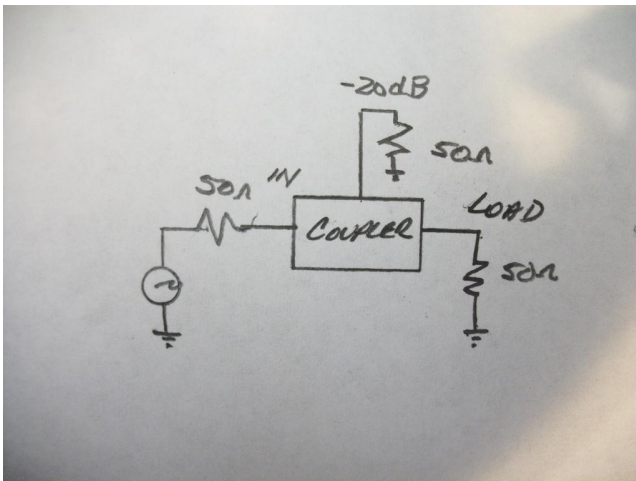


Figure 1. (-459)

To do this I decided to use a 20 dB bidirectional coupler connected as shown in the Figure 1. The load on the -20 dB output is the matching network which contains a switch to

switch from the network to a dummy load.

The coupler is bidirectional as the source and load can be interchanged without change in performance. Notice the -20 dB ports are terminated in 50 Ohms to obtain a -20 dB sample. The source remains terminated with close to 50 Ohms regardless of what the -20 dB port is loaded with.

The bidirectional coupler is shown in Figure 2 and consists of a toroid wound with some number of turns of

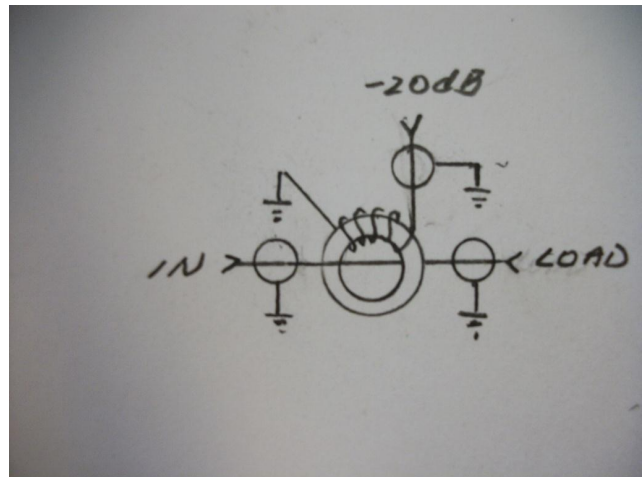


Figure 2. (-259)

an insulated wire which forms the secondary winding. The primary can be a straight wire passing through the center of the toroid and is counted as 1 turn. This configuration can be thought of as a current transformer where

$$n_2/n_1 = n_2/1 = n,$$

and, when  $n = 10$  turns,  
 $20 \cdot \log n = 20 \text{ dB}.$

This all worked so well I decided to clean up my original coupler and remake it with selectable 10, 20 and 30 dB taps. The final product is shown in the photographs. Calculations result in 3.16 and 31.6 turns for 10 and 30 dB. Starting with about 10-20 % more turns than calculated and removing turns resulted in 2 turns for 10 dB, 9 for 20 dB and 28 for 30 dB. The signal generator (Eico 324) was set to the 20 m mid-band as the adjustment frequency and midband for other tests. A two channel, 30 MHz scope was used for the measurements. The cases of the generator and scope were tied together with 04 speaker wire. The scope probes were connected across the source load (see Fig 1) and output load. The generator produced some harmonics which were, in turn, altered by the transformer. It was decided to use peak-to-peak readings even though some measurement errors would result.

The coupler performance is shown below. The individual data points are probably accurate to within +/- 1 dB considering the equipment and measurement technique.

## A Bidirectional Coupler

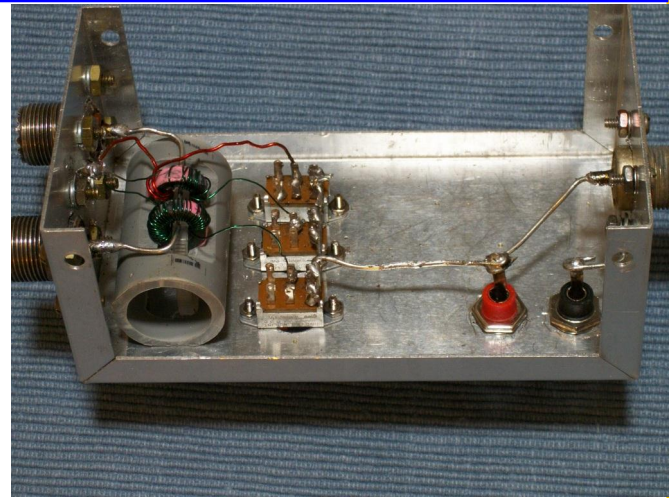
By Pete Norris / KJ5SS (Continued from Page 2)

BAND	10 dB	20 dB	30 dB
160 m	12.2	19.0	28.8
80 m	10.5	19.6	29.1
40 m	9.8	19.6	30.1
20 m	10.2	20.0	28.5
10 m	10.5	20.3	28.0

Chart

The toroid size and material determine the power handling capability and frequency range. Toroid information is available from Amidon Associates, Palomar Engineers, Micrometals Corp., Ferroxcube Corp., Fair-Rite and other websites or at electronic retailers.

The cores used were Amidon 43 material which has a frequency range of 1-50 MHz. The FT-50 size (I.D. 0.2810, Hgt. 0.1880) were in my parts box. This core size handles the primary current without saturating. The secondary wire size could be as small as AWG 34 for the 30 dB winding, 28 for 20 dB and 24 for 10 dB. Two cores were used as this was the easiest and the windings would be isolated with the 10 and 20 dB windings on one core and the 30 dB winding on the other. The photo shows core mounting used (plastic conduit) and 1 turn primary looped through the toroids. The Ro banana jacks will be discussed later.



Questions or comments? Call Pete, KJ5SS, 325-617-4387.





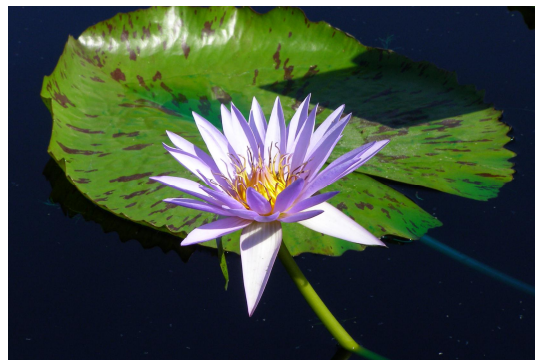
**International Lily Fest Special Event Station  
15 September 2015**

**International Lily Fest**  
September 15, 2012



**W5QX**

San Angelo, TX



This event celebrates San Angelo's unique, important, and beautiful asset—the International Waterlily Collection (an IWGS Certified Nymphaea Collection). The annual International Waterlily Collection Celebration was held on Saturday, September 15th, 2012 at Civic League Park in San Angelo, Texas from 9 a.m. until noon.

Seq	Station	Date	UTC	RST	Mode	MHz	Power

San Angelo Amateur Radio Club  
P. O. Box 4002  
San Angelo, Texas 76902

The San Angelo Amateur Radio Club will operate a Special Event Station on 15 September from 0900—1400 CST to commemorate the annual International Lily Fest held to celebrate San Angelo's unique waterlily collection. Above is an approximation of the nice certificate that Buddy Parker / KD5SBE designed specifically for the event. For the price of a SASE, each person contacted will receive an annotated copy of this certificate to add to their collection.

Hughbert Robinson / KC5NPC will head up this effort and will most likely burn some burgers and sausage. Please come out to the clubhouse at Mathis Field and help man the radios, or just be there for the camaraderie and to partake in the food and conversation. A good time will be had by all.

**Upcoming Events**

- SAARC Birthday Party - 13 October 2012
- SKYWARN Recognition Day - 1 December 2012
- SAARC Eatin' Meetin' - 13 December 2012

## For Sale

Coleman Powermate Generator, 6,250 Watt, excellent condition. Used one time for Field Day (approximately 36 hours). With wheel kitø \$400.00; Contact Joe Kent/W5UI at [joew5ui@gmail.com](mailto:joew5ui@gmail.com) or (325) 896-2038.

Kenwood TS-930SAT HF transceiver, \$400; Mirage KS-1/440 70 cm preamp, \$75; Icom AG-25 mast mount 2 meter pre-amp, \$90; Cushcraft AP-8 8-band trap vertical with radial kit \$100.00. Contact Glenn Miller/AA5PK at [aa5pk@outlook.com](mailto:aa5pk@outlook.com) or (325) 949-4775 (evenings).



### Scanner Jack's Corner de Jack Roberts/KB5TMY

**Saint Ann Tower TRS LCN** CH-1 855.4625, CH-2 856.2125, CH-3 856.4625, CH-4 856-9325, CH-5 857.4625, CH-6 858.4625, CH-7 859-4625, CH-8 859-9375.

**AEP TRS LCN Backup System** CH-1 855.1625, CH-2 Blank, CH-3 857.8125, CH-4 855-4125, CH-5 855.8625.

As always, if you have an amateur radio, scanner, all hazards (weather) radio, or digital TV converter that needs programming you may contact Jack at: (325) 651-4840 or [scannerjack1@juno.com](mailto:scannerjack1@juno.com)

## West Texas Section News

de Billy Roberts / W5NPR  
ARRL West Texas Section Manager

### ---San Angelo Ham Operator Receives Electrical Injuries---

Tom Dufresne WB5MTR San Angelo received severe electrical burns in late July while working on a commercial transmitter. A switch designed to control high voltage into the transmitter failed, severely burning his fingers. One of the fingers was burned down to the bone, causing damage to the bone and tendon. Other damage was to his thumb and a hole was burned in his stomach. I visited with J.T. Caldwell WA5ZFH, and he informed me that he was doing well and back at work, although the finger receiving bone and tendon damage may require further surgery.

Tom is the father-in-law of Clint Lannon N5MXE Midland. All of us in West Texas wish to extend to Tom and his family our prayers and best wishes for Tom's continued recovery.

### ---Next Combined ARES/MARS/RACES Exercise Scheduled---

On May 5th, the West Gulf and Delta Divisions combined ARES/MARS/RACES Exercise was conducted, emphasizing the HF amateur radio digital modes, supported by HF SSB and CW modes in areas of no digital capabilities. The next exercise will be conducted on October 27th. This exercise will be conducted much like the May 5th exercise. Any changes will be sent along in the coming months. Propagation was a problem previously, and we all hope that conditions will be more tolerable this time around.

### ---Austin SummerFest and Texas State Convention---

I attended the Austin SummerFest August 3rd & 4th and it was a good trip. I saw several West Texas Section hams including John AE5B and Carla Dyer A5ARL, Bill Bently N5POB Midland, Ron Harden WB5HGN Clyde, Randy Robinson N5JZH Abilene, Rusty Herman KB5R Alpine, Lew Wallace KB5HPJ El Paso and Bob Heiser W7IKT San Angelo. Also had good visits with West Gulf Division Director David Woolweaver K5RAV and Vice-Director John Stratton N5AUS.

Ward Silver N0AX St Louis, was the guest speaker at the West Gulf Forum, and also presented a presentation on Antennas on the opening night. The Friday night session was an addition to the SummerFest program and was well attended.

Other presentations included Software Defined Radio; DX and Contesting Forum; Weather; QRP Forum; Emergency Communication and ARES Forum; and Introduction to Army Mars.

As usual, Austin SummerFest was a complete success and the many individuals committees that worked to bring it all together are to be commended.


**Recent Programs**

<b>October '11</b>	SAARC's 87th Birthday Party
<b>January '12</b>	Fox Hunt Information, <b>Joe Kent, W5UI</b>
<b>February '12</b>	National Weather Service Information, <b>Hector Guerrero, KC5BRB</b>
<b>March '12</b>	Amateur Satellite Operations, <b>Glenn Miller, AA5PK</b>
<b>April '12</b>	Let's Keep it Safe Out There, <b>Matt Healy, W5MAT</b>
<b>May '12</b>	Field Day is Just Around The Corner, <b>Joe Kent/W5UI</b>
<b>Aug '12</b>	SAARC Officer's Duties IAW Bylaws, <b>Hughbert Robinson/KC5NPC</b>

**Upcoming Hamfests & Conventions**

Date	Event	Location	Information
08/25/2012	Gainesville Hamfest 2012	Gainesville, TX	<a href="http://gainesvillehamfest.org">http://gainesvillehamfest.org</a>
10/06/2012	HamEXPO	Belton, TX	<a href="http://beltonhamexpo.org">http://beltonhamexpo.org</a>
10/20/2012	Lufkin Hamfest 2012	Lufkin, TX	<a href="http://lufkinhamfest.com">http://lufkinhamfest.com</a>
10/26/2012	Texoma Hamorama	Ardmore, OK	<a href="http://texomahamarama.org/">http://texomahamarama.org/</a>
11/03/2012	14th Annual Coastal Bend Hamfest	Corpus Christi, TX	<a href="http://n5crp.org">http://n5crp.org</a>
11/10/2012	NC Tech 2012	Azle, TX	<a href="http://wc5c.org/">http://wc5c.org/</a>
01/12/2013	2013 Amateur Radio Fiesta	Schertz, TX	<a href="http://w5sc.org">http://w5sc.org</a>

**Solar-Terrestrial Data/Predictions at [www.qrz.com](http://www.qrz.com)**

<p><b>11 Sep 2012 0140 GMT</b>                  SFI <b>111</b> SN <b>087</b>                  A <b>004</b> K <b>0</b>                  XRY <b>88.7</b> 304A <b>147.1</b>                  Aur <b>1</b> Lat <b>67.5°</b>                  Bz <b>1.5</b> SH <b>320.1</b>                  PF <b>0.1</b> EF <b>634.0</b>                  MUF Boulder <b>23.87</b>                  EME Deg <b>Fair</b></p>		<p><b>Current Solar</b></p> <table border="0"> <tr> <td><b>Band</b></td> <td><b>Day</b></td> <td><b>Night</b></td> </tr> <tr> <td>80n-40n</td> <td>Good</td> <td>Good</td> </tr> <tr> <td>30n-20n</td> <td>Good</td> <td>Good</td> </tr> <tr> <td>17n-15n</td> <td>Fair</td> <td>Fair</td> </tr> <tr> <td>12n-10n</td> <td>Poor</td> <td>Poor</td> </tr> <tr> <td colspan="2">Geonag Field</td> <td><b>INACTIVE</b></td> </tr> <tr> <td colspan="2">Sig Noise Lvl</td> <td><b>S0-S1</b></td> </tr> <tr> <td colspan="2">CME (UTC)</td> <td><b>None</b></td> </tr> </table> <p><small>(C) P Herrman N0NBH 2012</small></p>	<b>Band</b>	<b>Day</b>	<b>Night</b>	80n-40n	Good	Good	30n-20n	Good	Good	17n-15n	Fair	Fair	12n-10n	Poor	Poor	Geonag Field		<b>INACTIVE</b>	Sig Noise Lvl		<b>S0-S1</b>	CME (UTC)		<b>None</b>
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**Emergency Communications**

de Mike Dominy/KD5URW - Emergency Coordinator

**Tom Green County ARES Net**

Meets every Monday night at 8:30 CST (2030 hr) on the 444.350 MHz (PI 162.2) (N5SVK). The net can also be reached by EchoLink at WB5VRM-R or Node 412402. Other frequencies are announced on the Concho Valley Net at 8:00 pm.

**ARES Net Report**

Date	Net Ctrl	Check-ins	Time	Freq
8/13	KD5URW	12	15	444.350
8/20	W5MAT	9	9	444.350
8/27	W5MAT	10	9	444.350
9/3	KD5URW	10	10	444.350
9/10	KD5URW	13	12	444.350

## Concho Valley Two Meter Net

<u>Date</u>	<u>NCS</u>	<u>Check-ins</u>	<u>Duration</u>
7/23	KB5FNK	13	12 min
7/30	KB5FNK	21	11 min
8/6	KB5FNK	18	15 min
8/13	KD5SBE	19	13 min
8/20	KB5TMY	13	16 min
8/27	KB5FNK	19	18 min
9/10	KB5TMY	16	21 min

This net meets every Monday night at 8 p.m. on the club's 146.94 repeater. All amateurs licensed to operate on that frequency are invited to participate.

## Concho Valley Open FM Repeaters

<b>2 Meter</b>		<b>70 centimeter</b>	
145.27-	San Angelo PL 88.5	441.750+	San Angelo PL 162.2
or PL 100.0 for local transmit		442.250+	San Angelo PL 162.2
146.72-	Eldorado PL 100.0	444.225+	Robert Lee PL 162.2
146.88-	San Angelo PL 88.5	444.350+	San Angelo PL 162.2 (Echo-Link Node)
146.94-	San Angelo PL 103.5	444.875+	Brady PL 162.2 Linked to 444.225+
147.06+	San Angelo PL 103.5		
147.34+	Robert Lee PL 88.5	147.30	San Angelo PL 88.5
146.90-	Brady PL 162.2		
146.62-	Brady PL 114.8 (Echo-Link Node)		

## Membership Renewal

Membership renewals are due in January 2012. Prices are as follows:

- Regular memberships: \$20
- Each additional family member: \$5
- Seniors (age 65+) and Juniors (under age 19): \$10
- Renewal package deal: 5 years for \$80
- Associate members: \$20



P.O. Box 4002  
San Angelo, TX 76902-4002

Get all the latest club news on the World  
Wide Web at [www.w5qx.org](http://www.w5qx.org)

### 2012 SAARC Officers:

President - Joe Kent/W5UI  
Vice President - Matt Healy/W5MAT  
Secretary/Treasurer - Bob Freeman/KD5PIX  
Emergency Coordinator - Mike Dominy/KD5URW  
Activities Manager - Hughbert Robinson/KC5NPC  
Grounds Chairman - Marcus OQuin/KF5GKC  
W5QX Trustee - Charlie Campbell/KC5EZZ

**SAARC Monthly Meetings:** 2nd Thursday,  
1930, Clubhouse, 5513 Stewart Lane

**Annual Dues:** \$20, Sr. & Jr. \$10

**The Kilo-What:** Edited by Gary Chaffin/W5ETJ at  
(325) 949-0186 or email [gchaffin@gmail.com](mailto:gchaffin@gmail.com)

**Article submission deadline:** Ten days prior  
to monthly club meeting.



*Next Meeting: 9/13/12*

*PROGRAM: "Storm Spotting: Weather Training"  
Mathis Field Clubhouse*