Volume 47, Issue 1 **January 1, 2015**

TEXAS VHF-FM SOCIETY NEWS

Texas VHF-FM Society P.O. Box 82666 Austin, TX 78708-2666

Repeater Renewals
Emails were sents out to repeater trustees. To renew your repeater online visit http://www.rfprojector.com/txvhffm and enter your callsign and password. If you have lost or forgotten your account information, please select the 'Reset Password' menu option on the left side of the page.

Society Shop
Louis Bancook, K5UUT, has opened the Society Shop. Repeater directories are available for sale. The cost for one directory is five dollars, but there is a price break if you purchase ten directories.

August 2014 Elections
Two new Directors were elected in August: Diana Taylor, KD5SXI, and Nancy Lankford McCain, K5NLM. Diana is our new Treasurer and Nancy is our new Secretary.

Treasurer Report
Checking $5860.67 Savings $34450.29 PayPal $166.33

Committees
Volunteer(s) needed to help check the grammar and spelling for future newsletter content. Please contact KA9LAY for more information.

Website Pictures Gallery
Repeater and Society related pictures are need for the newly reconstructed website. Please contact KA9LAY for more information.

The Newly Reconstructed Texas VHF-FM Society Website
by Edward M. LeBlanc, KA9LAY

Most amateur radio organizations now have some presence on the world wide web via website, Twitter, Facebook or some combination thereof. Usually a club member volunteers to maintain a website.

Reconstruction of the Society website began mid August 2014 with the goals of updating from HTML4 to HTML5, avoiding in-line style declarations, reorganizing internal structure, improving navigation and updating information.

The yellow background top navigation header contains the Society logo (which functions as a home button), icons that link to off-site locations and the main navigation menu. The off-site icons open new browser windows that link to RF Projector, Society Shop, American Radio Relay League, Facebook and Twitter. The navigation menu is a pure CSS double drop down style designed for content expansion. The top navigation header is one actually one page which is called using a PHP include function at the top of each individual page. There is one HTML page and one external CSS style sheet associated with the navigation menu. This makes navigation menu modifications easy to accomplish. The main areas of navigation are currently Membership, Repeater, Coordination, Directors and Committees. The repeater section of the navigation menu links to products written by Matt Stennett: RF Projector and repeater search.

New standards in HTML5 and CSS3 allow for easier navigation and future expansion. CSS controls the formating of the pages. Without CSS, the navigation menu would look like a list of links. CSS has grown in importance. The look and feel of every page page is now controlled by CSS. The navigation float menus, display width, link appearance and the pictures gallery animation is controlled through CSS script.

Website reconstruction was performed with "gedit" a simple text editor which is included in the Ubuntu Linux distribution; it is also available for Windows and MAC. File transfer was performed with "gFTP", a free/open source FTP client, which is available for Linux.

While most of the code is HTML5, almost all the pages are PHP. Before saving the page as a PHP file, the HTML portion of the code is checked by temporarily commenting out the PHP script, saving the page as HTML and running the code through the W3C validator; W3C also has a CSS validation service.

SEO tools encouraged the use of a favicon, robots text file, an XML sitemap, error pages, meta data tags, and H1/H2 headers; an effort was made to include these items in the website.

Special thanks to Mark Stennett for website hosting and Matt Stennet for maintaining RF Projector software service.

References

http://jigsaw.w3.org/css-validator/
http://validator.w3.org/
http://gftp.seul.org/
https://wiki.gnome.org/Apps/Gedit
http://seositecheckup.com/

Acronyms and Glossary

FTP: File Transfer Protocol
HTML: HyperText Markup Language
CSS: Cascading Style Sheets
PHP: Hypertext Preprocessor
SEO: Search Engine Optimization
W3C: World Wide Web Consortium

XML: Extensible Markup Language
Favicon: Favorite icon or bookmark icon
Robots text file: Tells search engine robots which pages to list . It also has a link to the Sitemap.
Sitemap: An XML page for search engine robots.

Android Application

RepeaterBook is a free application for Android and iPhone which allows you to find repeaters across the United States, Canada and Mexico. Once downloaded a network connection is not required, but GPS must be on for the application to work. A comprehensive selection of sorting and display options allows for customization of bands and modes you wish to display. It also displays distance, heading and full repeater details. The authors claim that RepeaterBook will always be free! I did not have a chance to test the BlueCat interface, but the application immediately pulled up the location of my repeater and nearby repeaters with reasonable accuracy. It is a wonderful application but my paper copy of the Texas repeater directory will not run out of battery power or have an electronic failure.

802.11 WiFi WEP Crack Experiment

Everyone says that WEP is not secure and should no longer be used, so I ran an experiment to determine just how easy WEP is to break. Aircrack-ng and kismet command line tools were installed in Ubuntu Linux were able to crack WEP on a test wireless router after collecting 80k packets of data transmitted by the wireless router.

First we find the name of the monitor computer's WiFi card
iwconfig

The name of the WiFi card was wlan0
sudo airmon-ng start wlan0

Now start the monitor program to find the MAC address and channel of the WEP router
sudo airodump-ng mon0

In this case the MAC address was found to be 00:18:02:7C:19:B3 and the channel was found to be 11
sudo airodump-ng -c 11 --bssid 00:18:02:7C:19:B3 -w dump mon0

After 80k packets, the dump file in the home directory can be analyzed to reveal the WEP key
sudo aircrack-ng -b 00:18:02:7C:19:B3 dump-01.cap

In the time it took to run a half hour episode of Hulu the WEP key is found. That was a fun lab.

Volume 47, Issue 1 **January 1, 2015**

An Experimental Repeater on 145.250 MHz

The 145.65/145.25 repeater pair is available for experimentation. It is a good choice when you want to learn, start small, make changes and let your repeater grow. It is also a good choice to begin with when waiting for a frequency pair to becomes available.

My first VHF repeater consisted of a power supply, a receiver, an exciter, a tone encoder/decoder board, a simple controller board, split antennae, two bandpass cavities, and double shielded coax cable. I decided to take the path other prospective repeater owners tend not to follow, the experimental 144.65 / 145.25 frequency pair.

My wife and I liked the convenience of hand-held radios, but disliked the limited range that they provided for two meter operation. The objective was to extend the communication coverage area to cover locations where we tend to frequently go.

Duplexer pass/reject cavities seemed a little pricey and I wanted something that I could easily tune myself. Used bandpass cavities were available via swap-fest and amateur radio operators on-line postings. With some bartering and an expense of one hundred dollars I secured two bandpass cavities.

Tuning was easy with a hand held set on low power, a 10 dB resistor pi pad and a home brew milliwatt meter. The resistive pi pad lowered the power out put and minimized the possible consequence of reflected power to hand held.

The receive antenna consisted of an existing chimney mounted GP-9 antenna. The transmit antenna was a home brew J-pole located just 10 feet below the receive antenna. The use of double shielded coax, a cable routing path to keep the receive antenna coax a reasonable distance from the transmit antenna, one bandpass cavity providing filtering just before the receiver, another bandpass cavity to filter to clean up the output of the exciter, provided the required isolation to make things work.

Cable television leakage in my neighborhood was significant. This was not a problem since my hand held was tone squelched and the repeater's output was so much greater. Cable leakage is a two way street; if a signal can leak out, then a signal can leak in. Cable channel 18 was affected when the repeater was in use.

This low power experimental repeater greatly extended the range of our hand held radios while providing practical experience with the basic principles of repeater operation.

I later added emergency power and continued to experiment with home brew MOSFET preamps.

When 145.210 MHz became available, I flipped the dip switches on the synthesized receiver, the synthesized exciter, adjusted the band pass cavities and started experimenting with a small power amplifier kit. Several months later I found a used WACOM Duplexer for 400 dollars and with some help from another radio operator with the proper test equipment, the repeater was operating solely on the Comet GP-9 antenna.

Volume 47, Issue 1 **January 1, 2015**

Texas VHF-FM Society Frequency Coordinators

Chairman Coordinating Committee
Mark Stennett, NA6M
P.O. Box 2283
Georgetown, Texas 78628
512-569-3445
TXVHFFM-SFC@rfprojector.com

Zone 1, Northeast Texas
440 MHz only
Paul Finch, WB5IDM
1417 Jackson Trail
Azle, TX 76020
682-465-3568
TXVHFFM-Z1UHF@rfprojector.com

Zone 3, Southeast Texas
Aaron Elekes, KE5KAF
803 Boise Way
Laredo, TX 78041
956-489-9991
TXVHFFM-Z3@rfprojector.com

Zone 5, West Texas
Jim Mellon, KA3IDN
1407 Rosewood Ave
Odessa, TX 79761
432-218-4296
TXVHFFM-Z5@rfprojector.com

Mexican Liaison
David Woolweaver, K5RAV
2210 So. 77 Sunshine Strip
Harlingen, TX 78550
956-425-3128
TXVHFFM-MEX@rfprojector.com

Zone 1, Northeast Texas
All bands except 440 Mhz
Craig Green, KV5E
2818 Emerald Drive
Mesquite, TX 75150
972-270-8234
Z1VHF@rfprojector.com

Zone 2, Southeast Texas
Mark Stennett, NA6M
P.O. Box 2283
Georgetown, Texas 78628
512-569-3445
TXVHFFM-Z2@rfprojector.com

Zone 4, Central Texas
Louis Bancook, K5UUT
2201 Four Hills CT
Pflugerville, TX 78660
512-423-0289
TXVHFFM-Z4@rfprojector.com

Link Frequencies
420Mhz, 900Mhz, 1.2GHz
Johnny Stigler, WA5ZRQ
2617 Tallow
Euless, TX 76039
214-236-0222
TXVHFFM-LINKS@rfprojector.com

Volume 47, Issue 1 **January 1, 2015**

Texas VHF-FM Society Board of Directors

President 2013 - 2015
Gerald Richmond, N5ZXJ
3210 Glenwood Drive
Temple, Texas 76502
n5zxj@txvhffm.org

Vice President 2014 -
Don Kirchner, W5DK
1717 Limestone Ledge
Spring Branch, TX 78070
w5dk@txvhffm.org

Secretary 2014 - 2016
Nancy Lankford McCain, K5NLM
7228 Normandy Rd
Fort Worth, TX 76112
secretary@txvhffm.org

Treasurer 2014 - 2016
Diana Taylor, KD5SXI
5027 Blackberry
San Antonio, Texas 78238
treasurer@txvhffm.org

News Editor 2013 - 2015
Edward LeBlanc, KA9LAY
12805 Margit Drive
Austin, Texas 78729
newseditor@txvhffm.org

Director 2013 - 2015
Louis Petit, WB5BMB
1213 15th Ave N
Texas City, Texas 77590
wb5bmb@txvhffm.org

Director 2013 - 2015
Chuck Kenworthy, WB5FWI
123 Mink Drive
San Antonio, Texas 78213
wb5fwi@txvhffm.org

Director 2014 - 2016
Rodger Williams, W5UOK
9284 CR 313
Buffalo, Texas 75831
w5uok@txvhffm.org

Director 2013 - 2015
Michael Lay, N5PTN
8710A Welser Drive
Austin, Texas 78729
n5ptn@txvhffm.org