

Sparks

W9OG



It's Spring Time again. Thank Goodness. Don't forget to review your storm readiness. It is tornado and bad weather season also.

Monthly Newsletter of the Tri-State Amateur Radio Society
April 2015-Issue No. 4

TARS Website: <http://www.w9og.net> Club repeaters: 146.79 and 147.15
Say "Hello" at the weekly Tri-State Emergency Net, 8:00pm Wednesdays on 146.79

Please feel to submit articles or suggestions to
Editor: ftg2pointer@gmail.com



Presidents Corner

N9OL



One Man's Opinion

Birthdays

KA9NOO Thomas Dickerson	12th
KC9UPJ Robert Hudson	23rd
W9AU Norm King	21st
KA9PHZ James "Al" Letcher	5th
WA2USA Dennis Martin	28th
KC9EMT James Utley	7th

Presentations and demonstrations

Be thinking about topics for our meeting presentations. Let us know what you want to see or do as a club.

Built something new? Have a neat item to share? Working on a project? Bring it to the meeting; we would love to see it.



We have several openings for demonstrations or lectures if you care to give one. It doesn't have to be technical or long winded, just something of general interest

Trivia Time.

Filters and signal processing

Most modern ham radios have a variety of filters that allow us to be able to receive signals better. We normally associate the word "filter" with something like your oil filter or coffee filter. These block certain components (dirt or coffee grounds) and allow other components to pass (clean oil or coffee) Filters in our radios are much more than that. Some of the earlier filters were Noise Blanking, for example. They were passive filters to take the ignition noise (pop pop pop) out of the signal. (my Ford was very bad about ignition noise) Let's look at a few common ones and what they do.

1. What is a Brick Wall Filter?
 - a. Just another name for an audio filter

- b. A circuit with very sharp cut off limits
 - c. A circuit that blocks RF and only lets the AF component pass
 - d. A filter that allows only digital signals to pass and blocks analog signals.
2. What is a notch filter
 - a. Sharply blocks a narrow band of audio frequencies and allows the rest to pass
 - b. Allows only a very narrow band of audio frequencies to pass and blocks others
 - c. Passes only frequencies associated with voice and not static or noise
 - d. Filters out static caused by lightning crashes.
 3. What is your Bandpass filter for?
 - a. Lets you select how many instruments are in each row of a marching band.
 - b. Attenuates a select band of frequencies in your audio output
 - c. Passes only a select band of frequencies in your audio output
 - d. Lets you adjust the bandwidth of your transmitted signal.
 4. What is a roofing filter?
 - a. Allows only union roofers to work on a project and excludes scabs.
 - b. Blocks very strong signals from overloading the RF stage of a receiver
 - c. Converts the IF signal to AF frequencies and filters out the undesirable noise peaks.
 - d. A filter in the IF stages of a radio that determines the frequencies passed to later stages of the radio
 5. When we refer to a filter's performance curve, what does that mean?
 - a. How round the filter is
 - b. A curve that exhibits the range of frequencies the filter will pass or block
 - c. A mathematical curve to show how frequency affects the resistance of the filter's output
 - d. A mathematical presentation of the filter using isotropic reference

compared to the real world performance of the filter in actual use.

6. What is one difference between an active and passive filter?
 - a. One gets involved and the other doesn't care.
 - b. An active filter may require an external power source
 - c. A passive filter will only pass frequencies where an active filter will either pass or reject frequencies.
 - d. An active filter is much younger than a passive filter and has more energy where the passive filter has mellowed with age.
7. What is a mechanical filter?
 - a. A hollow container with an absorption media inside that mechanically removes undesirable noise.
 - b. A device that uses the natural resonant properties of a mineral such as quartz
 - c. A device that mechanically polarizes the electronic wave forms and blocks those out of phase signals that create noise.
 - d. A noise filter that is mechanically installed in the radio and can be interchanged with either more narrow or wider frequency response
8. What is an electronic filter?
 - a. A device that filters at the atomic level using individual electron flow between atoms.
 - b. Can be either passive or active and rely on electronic components
 - c. Can be either analog or digital
 - d. Analog circuits that provide signal processing
9. What does a digital filter do?
 - a. It provides a digital read out of your frequency
 - b. It divides the signal into segments based on D (desire signal) = f (Mhz) / \log^{10} (CL) where C=capacitance in mf and L = inductance in mh)
 - c. It performs mathematical operations on a signal
 - d. Allows the digital part of the signal to pass and blocks the analog component (where most of the static and noise rides on the tips of the amplitude wave form)
10. A passive filter may contain one or more of the four basic passive components . Name three _____
11. What does your Contour filter do on your HF radio?
 - a. Lets you adjust for what you think is the most natural sounding audio
 - b. Allows you to adjust the highs and lows and bandwidth of the audio signal
 - c. Blocks static crashes from distant storms
 - d. Enhances the sideband signal by adding a small bit of the analog component for better sound.
12. What does your IF Shift control do?
 - a. It shifts gears in the IF section
 - b. It works in the IF section of the receiver to shift the signal directly from the RF section to the AF section and bypasses the IF section when a very strong signal is overloading your receiver.
 - c. It allows you to change DSP pass band and thus the pitch of the incoming signal while allowing the frequency to remain constant
 - d. It shifts the IF frequency of the receiver higher or lower to block heterodyne noise.
13. What does DSP mean?
 - a. Digital Spectrum Processing
 - b. Digital Signal Processing
 - c. Digital Selection Processing
 - d. Digital Sampling Processing
 - e. **Don't Start Playing with the knobs until you read the instructions.**
14. I see a knob that says WIDTH (or on some models (IF DSP BAND WIDTH). What does it do?
 - a. Vary the band width of the IF frequency in the Digital Signal Processor
 - b. Vary the width of the IF filter in the analog signal processing circuit

- c. Compresses the width of the IF signal so more information can be extracted from it and thus less noise.
 - d. Can either expand or narrow the band width of the IF signal in the DSP
15. OK, I see a button that says DNR. What is its stand for and what does it do?
- a. It stands for Department of Natural Resources and will notify a park ranger if Yogi Bear is stealing your picnic basket.
 - b. It stands for Digital Noise Restriction and reduces or eliminates unwanted noise from the signal
 - c. It stands for Decrease Natural Resonance and helps reduce the interference of close CW signals beating together making a heterodyne beat.
 - d. It stands for Digital Noise Reduction and gives a menu of different filters
16. I found another button on my radio marked NAR. What the heck is that one for?
- a. It stands for Notch or Amplify the RF signal (depending on if it is pushed in or out) It notches or suppresses a strong signal or amplifies a weak signal
 - b. It stands for Non-Amateur Radio. It allows the receiver to act as a general coverage receiver and receive signals out of the amateur radio bands as well. (at a slight reduction of sensitivity)
 - c. It allows you to select specific narrow band pass filters at the touch of a button independent of other band width controls.
 - d. It stands for Non American Radio and allows you to receive signals from outside the United States. Pushing it back in will block non-American traffic from interfering with your QSO.
17. Here is another one marked VRF. Now what?
- a. Variable Radio Frequency. It allows you to tune another signal on a different band for cross-band operation
 - b. Variable Radio Frequency. It allows you to tune slightly higher or lower from your transmit frequency if the other person is not right on your frequency.
 - c. Variable RF front end Filter. It allows reduction of out of band signals in crowded band conditions
 - d. Variable RF filter. It allows you to reduce the signal strength of a signal if it is over driving your receiver.
18. When I thought I had it all figured out I found a button marked ATT. What happens when I push it?
- a. It switches your phone line to an ATT carrier.
 - b. ATT stands for Automatic Tuning Tracking and allows your radio to automatically adjust for frequency drift when doing satellite communications.
 - c. ATT stands for Attenuate and allows for different levels of attenuation of strong signals
 - d. ATT stands for ATTRACT and sets your radio to send out a beacon signal to attract DX stations.
19. What kind of filter is a duplexer?
- a. It allows both analog and digital signals to be used on the same antenna
 - b. It allows one antenna to be used to conduct two way communications at the same time (duplex) on one antenna.
 - c. It allows two transmitters to transmit at the same time on one antenna.
 - d. It isolates the transmitter from the receiver so that both can operate from one antenna.
20. Bill is having a conversation on 20 meters at a field day location. Another ham a short distance away (200 ft.) is having a conversation on 40 meters. They are both causing problems with one another. What kind of filter would you recommend to help the situation?
- a. The notch filter on both radios
 - b. A band pass filter for each radio
 - c. A brick wall filter for each radio
 - d. The noise blank filter on both radios

- e. A noise filter on each radio



Interested in helping our community?

All ARES/RACES members and any Amateur interested in emergency communications are encouraged to participate

For ARES/RACES announcements you can join the Emergency Comms yahoo group at

http://groups.yahoo.com/group/emergency_comms/join

Contact Chris KE9YK or John WB9EFH for more information on how you can help out.

Chris KE9YK

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Trivia Answers: for this month

1. b a filter with sharp cut off limits and to signals outside its limits it resembles a "brick wall" and attenuates them dramatically
2. a A notch filter blocks (notches) a narrow band of frequencies allowing the rest to pass. A very good tool for notching out (removing) a squeal from two carriers transmitting together or a very close CW signal.
3. c. A bandpass filter is an electronic device or circuit that allows signals between two specific frequencies to pass, but that discriminates against signals at other frequencies. It allows you to select a portion of the audio frequencies and filters out the upper and lower frequencies that really don't carry much information.
4. d. A "Roofing filter" is simply a filter in the radio's first IF through which all signals must pass before they will be "seen" by later

receiver stages. The narrower this filter is, the less exposure later stages will have.

5. b. a curve showing the range of frequencies the filter will pass or block. Here is an example of a band pass filter curve



6. b. active filters contain components that may require external power to operate.
7. b. A device that uses a mineral such as quartz sandwiched between two transducers and takes advantage of the resonant frequency of the quartz crystal. They can make some pretty sharp (narrow) filters to block out unwanted signals.
8. b c and d Electronic filters are analog or digital circuits which perform signal processing functions, specifically to remove unwanted frequency components from the signal, to enhance wanted ones, or both.
9. c. In signal processing, a **digital filter** is a system that performs mathematical operations on a sampled, discrete-time signal to reduce or enhance certain aspects of that signal.
10. Four basic passive components are: Resistors, Capacitors, Inductors and Transformers.
11. a and b The contour filter acts in the IF portion and gently changes the IF pass band to suppress or enhance certain frequency components and thus to make the signal more pleasing or readable.
12. c. It allows you to change the pass band of the signal while allowing the pitch of the incoming signal.
13. b. DSP stands for Digital Signal Processing
14. a and d. By narrowing the band width of the IF signal you can eliminate interference but this changes the quality of the sound. You can also expand the band width to make a more natural sounding signal when interference is not a problem.
15. d. It stands for Digital Noise Reduction. Pushing this button will open up a menu of up to sixteen or more filter combinations to eliminate different noise problems.

16. it stands for NARROW and allows you to instantly select different band with filters at the touch of a button independent of other filter settings. For example: a very narrow filter is great for CW whereas a wide filter is used for AM.
17. c The VRF (variable RF Front end Filter) is a high performance RF front end pre-selector which greatly reduces out of band interference.
18. c. Attenuation filters reduce the incoming strong signals by set steps. These are independent of the RF gain control settings.
19. b and d. A **duplexer** is an electronic device that allows bi-directional (duplex) communication over a single path. In radio communications systems, it isolates the receiver from the transmitter while permitting them to share a common antenna
20. b. Each ham should attach a band pass filter on their radio. Band pass filters only allow frequencies for that particular band and reject or attenuate signals outside their limits. One should also take into consideration not to use an amplifier before the filter that could burn it out. TARS has two sets of filters for Field Day and everyone should use them.

Learn more:

<http://www.dsprelated.com/freebooks/filters/>

Also your owners manual that came with your radio (also available online) gives good instructions on the use of these filters.

Eat'n Before the Meet'n

Everyone is welcome to join us.



If you have any suggestions on where you would like for us to meet, contact Chris (KE9YK@arrl.net).

Chris KE9YK

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Vanderburgh Co. ARES/RACES Tri-State Emergency Net

Please take a few minutes at **8:00 p.m. Wednesday** evenings on 146.79 and get updated on the latest information.

On the Tri-State Emergency net you can hear the latest club information, calendar of upcoming events, topics of general interest and good old-fashioned rag chewing.

Remember to monitor the weather net on 146.79 anytime there is a severe weather watch issued from the Paducah NWS for Vanderburgh or surrounding counties. Once a warning or severe weather is reported we will go into a SKYWARN net and relay weather reports to the NWS in Paducah.

Swap Shop

I have a yaesu ft270r/e hand held for sale. It has 2 batteries and 2 chargers. 1 of the chargers is a desk top cradle. I need 100 dollars for all of it. It still looks new. It is waterproof up to 1 meter for 30 minutes. I can be reached at 812 602 1063.



Donald Land

Net Operator schedule

April	1	KC9YIL
	8	N9QVQ
	15	KE9YK
	22	KC9TYA
	29	WB9KQF
May	6	KC9YIL
	13	N9QVQ
	20	KC9TYA
	27	KE9YK

Net operators WANTED

TARS is in need of volunteers for net control operators. While we could use a couple more for the regular Wed night nets we desperately need volunteers for Skywarn/Weather nets. We have not recently had consistent weather nets I am working to change that. Weather nets are not only good for local hams to find out what coming their way but the National Weather Service depends on Hams via Skywarn to be their eyes and ears to confirm what the radar data is telling them and find out what they may be missing.

If you are interested in being a control operator contact Chris KE9YK@arri.net 626-0069. Next time there is a weather event check in on the TARS 146.79 repeater and see what is going on.

Many thanks to our award winning Net Control operators.



You provide a valuable service to the club and the community. We often fail to thank you enough for your service. Keep up the good work.

On the Wednesday night net you can hear the latest club information, calendar of upcoming events, topics of general interest and good old-fashioned rag chewing.

If you would like to help run the net please Help is always appreciated and it is fun.

Net controls: Please forward a list of your check-ins to KE9YK@arri.net thanks.

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Disclaimer:

Of course there is no such thing as coax developing a memory. This is the April Fools edition. What did you expect????

VE Test information



Test dates:

1/31/2015	7/25/2015
2/28/2015	8/29/2015
3 none	9/26/2015
4/25/2015	10 none
5/30/2015	11/28/2015
6/27/2015	12/26/2015

All ARRL examination sessions will be held at the Evansville Chapter of the American Red Cross. The ARC is located at 29 S. Stockwell Road, at the intersection of Stockwell Road and Lloyd Expressway. Sessions start promptly at 9:00 AM, Evansville time.

Those candidates wishing to earn their first Amateur Radio License, or upgrade their present valid license, need to bring the following:

1. Their original signed and valid FCC Amateur Radio License.
2. Any previously earned CSCE.
3. One copy of the license *and* CSCE.
4. Two forms of Identification, one bearing a recent photograph.
5. The current ARRL testing fee of \$15.00.

You "**must**" have your Social Security number or EIN with you

Don't forget to check out our web page www.w9og.net

2015 Club Officers and Board members

2014 Club Officers and Board members

Board of Directors

President: John Vanvorst jcvanvorst@wowway.com
812-305-4100 cell

Vice Pres: Steven Wilzbacher KC9SAW
k4saw@twc.com

[Bob Pointer N9XAW](mailto:Bob.Pointer@N9XAW) 425-2118 (2014-2015)

[Mark Thienes KC9TYA](mailto:Mark.Thienes@KC9TYA) 812-963-6455 (2014-2015)

[Terry McCreary WB9KQF](mailto:Terry.McCreary@WB9KQF) 812-760-8007 (2014-2015)

[Dave Vogel WA9C](mailto:Dave.Vogel@WA9C) 812-430-5727 (2014)

Herb Alvey KB9MZH 477-2757

Halvey1813@aol.com

ARRL Indiana Section

Section Manager: Joseph D Lawrence, K9RFZ

k9rfz@arrl.org

Tars mailing address:

TARS

P.O. Box 4521

Evansville, IN 47724

Sparks editor Bob Pointer N9XAW