

# The Static

An evolving publication of the Hill  
Country Amateur Radio Club

**A word** about this issue. You will note the format has changed. The font has been changed from Arial to Calibri. I am using Libre office in lieu of Microsoft Word. Libre Office is a robust suite of programs similar to Microsoft office, except it is free. You can download it at:

<http://www.libreoffice.org/download>

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**...and now a word from the prez.**

January has been a busy month. Several club members participated in the Red Cross Radio Roundup, Harvey (K5HV) and Mort (WB2GEU) spent numerous hours repairing the N5HR repeater and thanks to their efforts some who could not participate in our Monday net now can. The club was represented at the US Track and Field National Ultra Marathon Championship. Jeff (N4YPT) and his crew are beginning the initial work for Field Day and will be giving us an update and asking for more volunteers at our next meeting. And many in the club were giving of the time to help others.

At our last meeting we discussed the Tech Corner. The club members liked the idea and would like to get it going again. In order to do this we need some members

willing to share some of their experiences, thoughts or expertise with the club members. If you would like to give a mini-class let Don (W4WJ) or I know. If you don't want to give classes but still have something to share, write it up and give it to Bob (K5YB) so he can include it in the Static. Let's get the Tech Corner going again – you all have a lot to share.

**Terry, W0HIP**

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**For you who are too young to remember**

here is a little history:

On December 16, 1947, Bell Labs researchers William Shockley, John Bardeen and Walter Brattain created an amplifier from a germanium crystal that boosted the level of an input signal by 100 times. Various researchers had tried to develop a solid-state alternative to the vacuum tubes during World War II but none had succeeded. The Bell Labs Trio demonstrated it for lab officials a week later on December 23 where Shockley deemed it a magnificent Christmas present.

Bell Labs announced the invention of the transistor six months later. The device went on to become one of the signature scientific achievements of the 20th century, ranking up with splitting the atom, manned flight, and the discovery of DNA. One

could argue, in fact, that the transistor was the most important breakthrough of the 20th century because subsequent advances in those other fields relied on the computing power made possible through integrated circuits and semiconductors. In essence, information has become a science itself.

The above article came from Amateur Radio News Online. Here's the website: <http://www.arnewsonline.org/storage/scripts/nsln1847.txt>

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**A physicist** in Arizona has proposed testing Einstein's famous equation,  $E=mc^2$  in outer space. If you're interested in reading the article, here's a link

[http://www.sciencedaily.com/releases/2013/01/130108162227.htm?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+sciencedaily%2Fstrange\\_science+%28ScienceDaily%3A+Strange+Science+News%29&utm\\_content=Google+Feedfetcher](http://www.sciencedaily.com/releases/2013/01/130108162227.htm?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+sciencedaily%2Fstrange_science+%28ScienceDaily%3A+Strange+Science+News%29&utm_content=Google+Feedfetcher)

Dang, just when we thought we had the answers, things might change.

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Antenna analyzers are an item of some contention and here is an article on the little rascals.  
How Do You Choose an Antenna Analyzer?

By Dan Romanchik, KB6NU

A reader recently e-mailed me:

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"In the past you told me you started with the Autek RF-1, and later moved to the Palstar ZM-30. I am finally getting around to thinking about purchasing an antenna analyzer, but I am stumped by the choices. In order of increasing purchase price this is what I've turned up:

- \* Autek RF-1 - \$139.95
- \* Autek RF-5 - \$229.95
- \* Rig Expert AA-54 – \$340.00
- \* Palstar ZM-30 \$399.99
- \* W4RT Electronics MiniVNA \$399.99
- \* Rig Expert AA-230PRO \$690.00
- \* Timewave Technology TZ-900S \$899.99

"How does one decide? Where does one go to find out the differences? Other than asking a fellow ham, how does one find out which one is the best antenna analyzer without paying an arm and a leg (unless the feature(s) so purchased are deemed worth the cost)?

"Thanks! 73"

When I replied, I noted that he had actually missed several other good choices:

- \* Autek VA1 – \$199.
- \* MFJ 259B - \$240.
- \* YouKits FG-01 – \$250.
- \* Comet CAA500 – \$450.

The Autek VA1 is actually the antenna analyzer that I first purchased. The MFJ

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259B is arguably the most popular antenna analyzer on the market. MFJ has several other models with different feature sets. The YouKits FG-01 is a very cute, little analyzer with a small graphical display. It is made in China and sold in the U.S. by TenTec.

So, how do you choose just one from this list? Well, I think the first thing that you have to ask yourself is how you're going to use the analyzer. If all you're going to do is to check the SWR of your HF dipoles, then buy the Autek RF-1. It's the least expensive unit, is reasonably accurate, and is small and lightweight, making it easy to use outside where your antennas are located.

If you want to do some more serious frequency analysis, then you should be looking at the W4RT mini-VNA or, if you have more cash, the Timewave TZ-900s. These instruments can help you do a lot more in-depth analysis of your antenna system. The software for the miniVNA, for example, will easily plot the SWR of a multi-band vertical antenna from 3 – 33 MHz.

Some antenna analyzers do more than just SWR. For example, what sold me first on the Autek VA1 and then on the Palstar was that they also measured reactance. So, you can use the antenna analyzer as an LC meter as well. Palstar also says that you can use the ZM-3 as a low-level signal source. While I have used my Palstar to measure inductance and capacitance, I have yet to

use it as a signal source.

Next, you need to consider what bands you'll be using it on. Many antenna analyzers only cover the HF bands. That's a bummer if you like operating 6m, or like to experiment with VHF/UHF antennas. A friend of mine bought the Palstar antenna analyzer after talking to the company at Dayton. At the time, they said that they were planning to come out with a model that covered 6m, as well as the HF bands.

Unfortunately, they never did come out with a 6m version, and he was sorely disappointed. He ended up buying a miniVNA instead. The miniVNA can be used up to 170 MHz right out of the box, and up to 1.5 GHz with an optional extender.

Asking your fellow hams about the antenna analyzers they have is actually a good way to figure out what's best for you. If you ask nicely, they might even let you borrow their analyzers or come over and show you how it works on your antennas.

Reading the reviews on eHam is also a good way to gather information before making a purchase like this. You certainly have to take the reviews there with a grain of salt, but if several reviewers mention a particularly good or particularly bad feature of a product, then it's certainly something worth taking a hard look at.

If you're new to the hobby, starting out

small and working your way up might be a good strategy. You could buy one of the less expensive models and get used to how they work, then sell it and make the leap to a more sophisticated unit. The way things are going, you should be able to sell your first antenna analyzer for at least 80% of what you paid for it.

work, then sell it and make the leap to a more sophisticated unit. The way things are going, you should be able to sell your first antenna analyzer for at least 80% of what you paid for it.

However, many of the CE6's CE7's and CE8's are not listed on [QRZ.com](http://QRZ.com). Below is a Chilean Amateur Radio Club web site that may help with some of those complete names and mailing addresses.

The March 2012 QST contains an in-depth review of four analyzers (available online to ARRL members), including the Comet CAA-500, MFJ-266, RigExpert AA-54, and the Youkits FG-01. Each analyzer reviewed had various pluses and minuses. Even if the unit you are considering was not reviewed, the article provides a guide to the kinds of questions you should be asking as you go through the selection process.

[http://gel.federachi.cl/index.php?uid=&modulo=busqueda/bus\\_indicativo](http://gel.federachi.cl/index.php?uid=&modulo=busqueda/bus_indicativo)

Kind regards de Bob K4MZ

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When he's not analyzing antennas, Dan, KB6NU blogs about amateur radio at [KB6NU.Com](http://KB6NU.Com), writes and publishes the "No-Nonsense" series of amateur radio license study guides, and just has fun with amateur radio. You can reach him by e-mail at [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com), @kb6nu on Twitter, or on 40m CW many evenings.

When we took a poll at the November meeting, there was a strong interest in DX. Some folks chase it and work it almost exclusively. Others work it casually. If you are one of the latter and want some more information on where to find it, here are some websites to guide you.

<http://dx-world.net/> is an extensive site that gives a lot of information about DXpeditions.

<http://www.dxwatch.com/> gives information about current QSOs that have been reported to the site.

If you chase DX and have a little trouble finding call signs from Chile on QRZ.com, the following may be beneficial

<http://www.dxmaps.com> graphically shows QSOs by band. This is an interesting site and you may want to spend some time browsing it.

Over the last several weeks there has been a big push by many of us to work various Chilean Provinces.

[Www.dxsummit.com](http://www.dxsummit.com) is another site that shows current QSOs that have been reported. It is similar to dxwatch.com

<http://www.ng3k.com/> offers a lot of information on contests and Dxing.

<http://www.goldtel.net/aa1v/> similar to the shoot above.

If you decide to try working some DX and you find a foreign station working other hams, listen to the exchanges before jumping in. Don't be a LID.

**...and if you need to erect a new dipole** here are some helpful instructions.

### **HOW TO STRING A DIPOLE IN A TREE.**

One important part of field expedient operations is being able to quickly install an antenna for HF operations. Wire dipole's are compact, yet efficient. It is important to get the antenna as high as possible. A method commonly employed by many groups during Field Day is to use a bow and arrow to position the support lines in a tree. These are tied to the ends of the dipole, which is then raised into position.

Here are instructions on the proper method.

1. Find a clearing with two tall trees, one on either side of the area.
2. Check area behind tree to be sure no one is there.
3. Aim arrow toward top of one tree and

shoot.

4. Can't find lost arrow, get spare and this time tie leader line to the arrow.

5. Aim arrow toward top of one tree and shoot.

6. Retrieve arrow from ground in front of you, take foot off of leader line.

7. Aim arrow toward top of one tree and shoot.

8. Find arrow hanging in tree about two feet above your outstretched hand.

9. Jump to reach arrow, land on rock.

10. Wrap ace bandage around sprained ankle.

11. Walk in woods to find a stick to reach arrow.

12. Treat poison ivy.

13. Reach up with bow to snag arrow, pull gently.

14. Find heavier string to replace broken leader line.

15. Go to step 2.

Thanks to Terry for these helpful hints.