Issue #2 February, 2014

"News & Views"

Your Taylorsville HAMnet newsletter

This is your newsletter. We encourage YOU to submit information that will be of benefit to our group members.

Submit ideas/articles to tville.hamnet@gmail.org

Protecting your equipment

How do you protect your equipment from transient surges caused by lightning, static discharges etc.?

In researching this topic for the newsletter, I discovered that there are a plethora of ideas and articles on this subject. There are simple ground rod recommendations to elaborate arrays of radials with multiple ground rods. Then there are topics of safety grounding and RF grounding. Both are important and deserve our consideration.

In this issue of "News & Views" we will provide you with some ideas to help you determine what you can do.

Information on two of the more popular surge protector manufacturers will be covered.

It is very unlikely that any type of protection equipment will save your equipment from a direct lightning strike. You can however provide some level of protection from transient phenomena (lightning or static buildup) with proper grounding and devices that are designed to shunt the voltage buildup to a good earth ground.

In this newsletter you will find information to help you make wise choices

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Published by Taylorsville HAMnet

Rulon Swensen, Chief culprit

Taylorsville, Utah 2014

Ham's in the park event.

April brings showers, MAY brings flowers and also Ham's setting up their stations in the park to show the public what the TAYLORSVILLE HAMnet and ham radio is all about.

This year we will to set up two stations that will communicate from one park to the other. We will put one station at the park by the pantry, out by Redwood road. The other station will be set up in the park on 2700 West, just north of the ball diamonds. We will have operators at each location to demonstrate ham radio and tell those visiting about the TAYLORSVILLE HAMnet. We will have flyers about ham radio to hand out to those who are interested.

This event will be held as part of our in person meeting on May 31st.

Let's build our group by sharing our knowledge and hobby.

Member Spotlight Bruce Holman

Bruce Holman has had his license since 2008 and has been active in the Taylorsville HAMnet since that time. He now has his General license.

Bruce has been a major supporter of our efforts in the Taylorsville Dayzz activities. He often does double duty by helping with the HAM communications and also does parade announcing along the route.

Thanks Bruce

Taylorsville Urban Iditarod

The 2014 Taylorsville Urban Iditarod will be held on March 1st beginning at 10 a.m. and ending about Noon.

Plans are in the making and the location will be given to us soon. In order to keep the event interesting, the challenges will be kept secret until the day of the event.

We will need at least 10 to 12 operators for this event. We will let you know the meeting place as soon as we know and plan to meet at 9 a.m. to allow time to get your assignments and stations.

PolyPhaser Coaxial Lightning Protectors

PolyPhaser Coaxial Lightning Protectors are designed for general, single-transmitter use in the 1.5 to 700 MHz frequency range. They are available in two mounting styles: "Bulkhead Mount" protectors have a longer connector and hardware to mount it through the grounding panel. "Flange Mount" protectors anchor to a grounding panel with both connectors parallel to that flat surface. PolyPhaser Coaxial Lightning Protectors use a DC blocked specially configured gas tube design that has no DC continuity between the two center pins. PolyPhaser's multi-strike products are designed to pass RF frequencies and block all DC. These protectors appear as a DC open between surge and protected ports and offer the best protection in the industry. PolyPhaser protectors are suitable for all types of antennas, even "floating" antennas that are not DC grounded. With PolyPhaser DC Blocked protectors, any slow voltage build up from wind driven rain, snow or dust, will not get to the equipment. As the protector reaches threshold for turn-on in a dc blocked circuit, it will go into a momentary soft turn-on as the gas barely ionizes and bleeds the static charge to ground. This does not create noise since it will not get to the arc mode and lasts only a short time.PolyPhaser protection devices have been chosen and specified by communications systems engineers and technicians for 24/7 service in broadcasting, commercial, military and government installations. Trusted by Amateur Radio operators for over 40 years, PolyPhaser Coaxial Lightning Protectors are ready for your antenna system installations.

For more information on PolyPhaser, go to their website;

www.protectiongroup.com

Transi-trap Surge Protector by Alpha Delta

Transi-Trap surge protectors are gas surge arresters designed to protect sensitive electronic equipment from damage due to the excess voltage or currents generated by transient phenomena (lightning or static buildup).

protect sensitive electronic equipment from damage due to the excess voltage or currents generated by transient phenomena (lightning or static buildup).

The elements in the Arc-Plug™ cartridge consist of two metal electrodes hermetically sealed in a rugged gas filled, ceramic cylinder. They perform as voltage-dependent switches that can reliably and repeatedly carry large currents for brief periods of time. In operation, a sufficient voltage across the element causes an arc to form between the electrodes, changing its impedance from greater than 10,000 meg-ohms to a few milliohms in less than 100 nanoseconds time. While conducting in the arc mode, the voltage across the surge arrester is less than 30 volts.

After a sufficient number of lightning pulses have been discharged through the Arc-Plug ™ cartridge, there is a gradual lowering of breakdown voltage and insulation resistance. Therefore, the Arc-Plug ™ cartridge replacement is indicated by an increase VSWR during transmitter tune-up, or by a “dead” receiver caused by an extremely strong near-miss lightning discharge shorting the Arc-Plug ™ cartridge. IN this case, the short continues to protect the equipment until cleared.

For more information about Transi-trap go to

alphadeltacom.com

Why a Ground?

A good ground system is an essential part of a good ham station for various reasons. First and foremost, grounding is for the safety of your family, home, and ham equipment. Lightning not only destroys ham radios, but often starts house fires, thereby jeopardizing the safety of your family. An elevated antenna or a tower protruding into the atmosphere naturally increases the odds of a lightning strike.

Simple ham station grounding is often done by connecting your equipment ground lug to a cold water pipe or to a rod driven into the ground.

Indeed a metallic cold water pipe can serve as a basic ground for ham gear. Since outside water pipes normally are buried well below the soil's surface, it does serve some purpose. Remember, though, that a cold water pipe ground should be considered merely one level above a no-ground system at all. You can do much better.

The goal of a good ground system is to obtain as little resistance as possible from the antenna/tower to ground and then from the radio to ground. This is often called a "Single Point Ground". A good grounding system will measure less than 12 ohms from the radio to ground.

You should consider your budget and the amount of effort that you are willing to invest to obtain a good grounding system. It is not to your advantage to be cheap or lazy – but if you decide to just use the cold water pipe method, then be prepared to buy new equipment when it doesn't do the job.

Run your coax/hard-lines to the base of your tower or antenna mast and then connect the coax shield to your ground system near the tower/mast base. This will allow the lightning to get as close to the actual ground connection before attempting to enter the house. When creating a drip bend in coax, use a minimum radius of nine inches for the curves.

Grounding-rod depths are critical. You can find the recommended grounding depth by checking your local electrical or building codes. Soil type and condition varies and can have a great affect on the performance of your grounding system so check that out. The ideal grounding situation is in having your ground system make physical contact with the water table, but this is not very likely. You do the best you can.

A notable side effect of a good ground

A fact significant to hams is that a good ground will not only increase the receiver's sensitivity, but also its transmitting propagation.

Single Point Ground

What is a Single Point Ground?

This is the "*one and only point for your equipment*" in (or outside) of the radio room where a ground connection is present.

The creation of a single point ground will be different for every installation. It can be as simple as a couple of protectors bolted together or a through-wall entrance panel, or as complex as a copper-covered wall upon which the protectors are mounted.

Whatever form your single point ground takes it must be the only ground point for all of the equipment.

The primary purpose of the external ground system is to disperse as much of the lightning energy as possible into the earth before it follows the feed line into the radio station. No matter how hard one tries, some of it will follow the coax, which is why you do your best to protect your radio equipment. The easier you make it for the strike energy to dissipate in the earth before it gets to the radio station, the less your equipment will be affected.