THE DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC.

NEWS

RD #4
GREYSTONE BUILDING
NAZARETH, PA
18064

****
* JULY 5, 1990 *
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HAVE RADIO WILL TRAVEL

NAVY CHAPLAIN TO SPEAK
by Bill K3ANS

The program for July 5 will be given by Ted Edwards, W3TB, a chaplain with the US NAVY, whose second claim to fame is that he married K3YD and Felicia his XYL.

His operations in his Navy career have allowed him to operate from all over the world including Iceland, France, Morocco, Gibraltar, Italy the Middle East.

Ted's program will include some of his more unusual experiences about radio clubs and propagation from DX locations visited in his travels with the Navy.

For those who are interested in clubs, he will talk about his 1988 visit with the Dubrovnik Radio Club (Yugoslavia) and their many activities of contesting and licensing classes. For those interested in propagation, he will talk about his two years in Iceland trying to work DX during Aurora Borealis. Although now stationed on Governors Island in New York City, Ted is from Hazelton and comes to the Lehigh Valley for contest operating at K3ANS.

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DERRIERE IN THE DELAWARE
SUNDAY JULY 22nd

Its floating time in the Delaware again and as part of our public service, the Red Cross has again asked us to act as their Safety Watch on the river. We have done this job for them for the past 5 years, and I hope that we can get enough to make it the success we have had in the past. We need two to ride the boats and at least 6 others for the rest of the time. If you can't make it for the entire day, let me know when you can do it..Please contact me with the times you can help.

de Clarence, W3PYF
RACES RADIO OFFICER

FIELD DAY 1990
by Clarence, W3PYF

The weather man said, RAIN, HEAVY AT TIMES!, but nothing like that happened. With at least 65 members of our club participating we had what I think is the best Field Day we have ever had.

With four transmitters operating, we had a raw QSO number of 2987. That is a lot of contacts. This of course included the Novice-Technician set-up which operated under the call of KA3TER. (*THIS IS BEING WRITTEN ON SUNDAY NIGHT FOLLOWING FIELD DAY.*)

The cooperation from most of the membership was terrific. We had good coverage of most positions from the start at 2:00 PM Saturday to the final at 2:00 PM on Sunday.

With every mode including packet and sunpower in operation. Everything worked great.

The antennas were hung and ready to operate within 2 1/2 hours, and this included three beams. Some bands were better than others, but as usual the 40 meter position did the best.

The food department headed by N3GMI, did great, and the cakes donated by Marcia, XYL of KA3TEQ, disappeared fast.

As one of the old members, my heart was pounding when I saw the operation at the Novice-Tech area with some of the younger members of the club, some with brand new badges right in there with the rest with their "CQ Field Day!".

Bob Kratz, KU3K, Field day chairman and his committee did an outstanding job, and the thanks of the entire club go out to those who participated in the setting up and the tearing down of the antennas and equipment.

The new logging program designed by K3CP and KD3HS, were super. Not one chance of a dupe and a quick check on every contact.

73 de Clarence, W3PYF

JUST THE MINUTES

by Blair, K3YD

The meeting was called to order by president W3PYF. The minutes of the previous meeting, having been published in the Newsletter were not read. They were approved as published.

Treasurer Roy, KA3MNY reported the following balances: Checking $2078.76; savings $3607.44 for a total $5686.30. The report was accepted on motion of K3NWM.

REPORTS:

1. A telephone BBS is now operational @KD3HS. It is carrying all info all Delaware-Lehigh Amateur Radio Club. The number is 820-9110.

2. Directors authorized the purchase of an Astron RS20A for the club digipeter. Estimated cost $90.

3. W3TDF reported Banquet Income, $625.00, Banquet Expenses $781.06, Net cost to club, R156.06.

4. The Repeater committee recommenced the purchase of a new exciter board for the 146.70 repeater, with the current unit to be sent back and held as a spare for backup use.

5. CW practice on the air has been requested. W3YXS and K3CP will co-chair this activity. They will work on a program to get this operating on the 146.775 repeater.

6. KA3VRR reported that the SAREX flight mission has been delayed at least until August. She will keep all advised.

7. The linking of the 145.11 repeaters in Nazareth and South Jersey was discussed. N3GWR will write to the sponsor of the Jersey Machine to discuss possible implementation. Discussion followed however on the problems of a wide area machine and the constant interference because of impossibility of keeping both on the same frequency.

8. AWARDS:

KU3X presented the club DX-100 award to KA3TEQ for 10 meter sideband.

W3CJI, QCWA president of Chapter 17, the Allentown,Bethlehem,Easton Chapter presented a QCWA trophy to K3CP for 1st place in the USA in the most recent QCWA party.

9. NEW MEMBERS:

KX3W, KA3OLN, KX5X and Bob Loux, and George Rodriguez. Also noted was the recent novice class graduates, KA3WLQ, KA3WJC, KB2KHF, and KB2KHG.

NEW BUSINESS:

1. Dorothy Burden, KA1LDS (mother of N5IEP) and a member of the club presented a hand made flag to president, W3PYF.

2. KU3K discussed Field Day. the following additional committee chairmen volunteered.

10/15 meter station K3NWM

Novice "Elmer" KD3HS

Following the adjournment of the regular meeting, Bill, WB1BRE, Section Manager of New Hampshire and father of N5IEP, spoke on Amateur Radio Satellite communications.

de K3YD, acting Secretary

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LETS MAKE IT WORK!

by Clarence, W3PYF

Many of us have been on the road in other areas and have tried to raise someone on a local repeater. I am not talking of repeaters in small towns, but in many of the metropolitan areas.

I have done it and I am sure that all of you have done the same, and you might as well disconnect your antenna. In most cases no answer, but one minute later some one comes on the frequency and calls a friend and the friend comes back immediately.

Lets make sure that does not happen on our 146.70 repeater. Make what everyone says it is. A "Friendly Repeater". Many times it is impossible to hold a long winded QSO when a local member calls, but when a stranger comes into the area, and most of us know those who normally frequent our repeater make it your business, the same as I do. Make them welcome, tell them of the emergency STAR ONE feature of our repeater, and welcome him or her to the area.

As one who has been in many areas, with hundreds of amateurs, and found no one even to take an emergency call, W3OK repeater should attempt to make all welcome.

Amateur Radio is what we make it, and I hope that all will feel as I do, that the visitor to the area, will be made to feel at home, if at least someone says Hello!

de W3PYF, Clarence

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*** MOBILE ANTENNA TEST **

by Barry, KU3X

The following was a test of various mobile antennas. A remote field strength meter and a trap vertical were used to take readings of the various antennas that were placed on a full size Dodge van. The base of the mobile antenna is 4'9" above ground. The first number in the column is the amount of power needed to give a half scale reading on the field strength meter. The second number is how many DB down the test antenna is from the reference antenna. A modified bug catcher antenna was used for reference on 40 meters and 75 meters. On 10, 15, and 20 meters, a quarter wave vertical was used for reference. The pick-up antenna was placed 150' away from the test antennas. This test was performed at Bethlehem Township's town park. This is not an official test site but was good enough to give fairly accurate results.

ANTENNA FREQ.	3.797	7.174	14.150	21.200	29.000
1/4 WAVE VERT	*****	*****	37 WTS 0 DB	35 WTS 0 DB	29 WTS 0 DB
BUG CATCHER	25 WTS 0 DB	30 WTS 0 DB	54 WTS - 1.6 DB	40 WTS - .6 DB	*****
M-45 SWAN	32 WTS - 1.1 DB	43 WTS - 1.6 DB	63 WTS - 2.3 DB	46 WTS - 1.2 DB	30 WTS - .1 DB
KU3X # 1	51 WTS - 3 DB	45 WTS - 1.8 DB	55 WTS - 1.7 DB	48 WTS - 1.4 DB	*****
KU3X # 2	61 WTS - 3.9 DB	59 WTS - 2.9 DB	*****	53 WTS - 1.8 DB	*****
KU3X # 3	46 WTS - 2.6 DB	41 WTS - 1.4 DB	*****	*****	*****
WEBSTER SPANNER	38 WTS - 1.8 DB	58 WTS - 2.9 DB	60 WTS - 2.1 DB	54 WTS - 1.9 DB	35 WTS - .8 DB
HUSTLER HIGH PWR	88 WTS - 5.5 DB	60 WTS - 3 DB	55 WTS* - 1.7 DB	*****	*****
HUSTLER LOW PWR	65 WTS - 4.14 DB	75 WTS - 3.9 DB	60 WTS - 2.1 DB	44 WTS - 1 DB	35WTS - .8DB
96" WHIP	*****	*****	*****	*****	39 WTS - 1.3DB
STAINLESS WHIP	*****	*****	*****	*****	33 WTS - .6 DB

* = The Hustler 20 meter high power resonator is a 75 meter low power coil form rewound with 12 gauge space wound wire to make it resonate on 20 meters.

***** = Test not done on that band at this time.

NOTE ONE : The Swan would not go to 1:1 on the 15 meter band.

NOTE TWO : The Bug Catcher was too long for 10 meter operations.

Notes about the antennas :

The quarter wave vertical that was used for a reference antenna on three of the higher bands was telescopic aluminum tubing. That set-up was not possible to be used for mobile operations but is a good portable antenna.

The Texas Bug Catcher antenna was modified by myself. When I received the antenna, it was too long to use for mobile operations. The total length of the antenna was 13 feet long. The overall height of the antenna, including the height of the mount, was 17.5 feet. Much too high for mobile operations. This antenna is not a normal Bug Catcher. I used the four foot mast but made a four foot whip instead of the eight foot whip. For 75 meter operation, I had to add a three foot capacity hat due to the fact that a shorter whip was used. This set-up was still practical for mobile operations.

The next antenna was a old Swan M-45 mobile antenna. This antenna has a shorting bar that is slid up and down the mast to change bands. The mast on this antenna is two feet long. I recommend you mount this antenna as high as possible on your vehicle or extend the length of the mast. This product is no longer made. The Webster Band Spanner uses a fiber glass covered mast with the loading coil inside. The adjustable whip, that slides inside the mast, shorts out turns on the loading coil to raise the resonant frequency. Again, this product is no longer made.

The Hustler system uses a 54 inch mast and screw on loading coils. For ten through twenty meters, the losses in the coils are not that critical. I would recommend that you buy the high power coils for best performance. This is very important on the forty meter band. As I tested the low power forty meter resonator, it got very hot and the S.W.R. increased as it got hotter. Of all the Hustler resonators that were tested at this time, that was the worst. The 96 inch fiberglass whip was tuned to the 10 meter band by cutting a few inches off of the top of the antenna. I was surprised to see that this antenna was the worst antenna tested on this band.

CONTINUED ON PAGE 6

SUPERHETERODYNES

by Van K3CP

"Ima, how would you like to learn how a superheterodyne receiver works?" asked Elmer.

Ima Lidd and Elmer had been talking about simple circuits and how they could be combined to receive radio signals. Elmer had emphasized that the combination of coils, capacitors, resistors, and solid state devices could do just about any electronic function. Elmer had said over and over that an understanding of those few components could go a long way to the understanding of most circuits. Ima had some reservations about this, however.

"I know it sounds hard to believe, Ima," said Elmer, "but with the exception of tubes, you have learned about all the parts that go into a superheterodyne receiver. We agreed not to talk about tubes as they have limited application in radio receivers today." "Yes," replied Ima Lidd, "we talked about those things and I have a fair understanding of how they work. I don't know if I am ready to learn about a superheterodyne receiver, though."

"When we are done with the next few sessions," said Elmer, "you will know how a superheterodyne receiver works. Not only how it works, but also how to trouble shoot it as well."

Ima was not convinced that he could learn how to do this. "Well", he said, "I am willing to try if you have the patience, Elmer.""Good, let's get started. It's not as difficult as you think. You already know how the signal is picked up by the antenna and the desired frequency selected by the tuned circuit. The signal is then fed into the first detector or mixer."

Elmer was ready for Ima to stop him here. He was not wrong. "Hold it, please, we never discussed a mixer before," cracked Ima. "I'll bet you're going to say that it is made up of components we talked about."

"Right you are, Ima," replied Elmer. "The first detector stage is the main difference between a superheterodyne and a T.R.F. receiver. It is composed of two circuits - a mixer and a local oscillator - and it takes the received frequency in the input end and outputs the intermediate frequency (IF)."

"Wow, that sounds complicated," said Ima.

"Well it's not necessary to understand the entire process," said Elmer. "All we need to know is what happens in there. Let's say that we wish to receive WWV on 10,000 kilohertz. The signal comes through the front end of the receiver and is fed to the mixer. There it "mixes" with a signal from the local oscillator. The frequency of the local oscillator is 10,455 kilohertz. There are four main frequencies present at the output of the first detector. They are the original two - 10,000 kHz. and 10,455 kHz. The other two are the sum of those, 20,455 kHz, and the difference 455 kHz."

"Wait a minute," interrupted Ima. "I'll bet we are going to use the 455 kHz."

Elmer was pleased. "Right you are, Ima," he replied. "That's what is known as the IF. Of course the IF can vary from one receiver to the next. Some have two or three intermediate frequencies. We separate the various frequencies by means of tuned circuits in the output of the first detector and other stages and filters. "There are problems with the superheterodyne design. For example, let's take the above case with the receiver tuned to 10,000 kHz. and the LO (Local Oscillator) tuned to 10,455 kHz. to produce a 455 kHz. IF. The 10,000 kHz. signal will come through just fine, but so will a signal at 10,910 kHz."

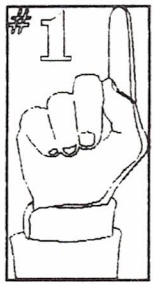
"Oh, Oh," said Ima. "That looks like trouble. Why does that happen, Elmer?"

Elmer replied, "Because both signals produce an IF of 455 kHz. Remember we said that the LO was 455 kHz from the incoming signal. Well, it can be above the signal frequency or below it. In either case it will produce an IF of 455 kHz. This unwanted frequency is known as an image. Fortunately there are ways to minimize or eliminate the image. This can be done by increasing the selectivity ahead of the first detector and in the input of the first detector itself so that the unwanted signal does not get to the mixer.

"By connecting (ganging) the tuning elements of the front end, mixer and local oscillator stages together, they can be tuned to any frequency within the tuning range of the receiver and still produce an IF of 455 kHz. "We will talk about the IF stages in our next session." "Whew," said Ima. "This has been a good session, and I do have a better understanding of how a radio works than I did before. Although, I don't think I'm ready to build one." de Van, K3CP

VAN, K3CP DOES IT!
by Clarence, W3PYF

Shown below is a letter that Van, K3CP received from Onie Woodward, W1ZEN. With regard to Van's scores in the QCWA QSO party. It speaks for itself.



W. P. Van Horn, K3CP
1454 Kelchner Rd.
Bethlehem, PA 18018

Dear Van,

Congratulations, enclosed are your Certificates for 1st Place in the Phone QSO Party and 1st United States.

Your 1st Place Plaque will be sent by UPS on May 30th. Please let me know when you receive it.

Thank you for the perfect Computer Log, it was easy checking. I have suggested to 2 people, who also used computers, that they should get in touch with you about your program. We will also make note in the Fall issue of the Journal and again with the rules in the Winter issue, that you do have a program, you are willing to share, if people will contact you about it.

Good luck next year.

Have a good summer.

73

Onie Woodward, W1ZEN
QCWA Activities Manager.

All members should remember that by the use of the program developed by Van and Robin, KD3HS, the club stands to make money. They have generously donated all proceeds on the sale of the program to our club.

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IN MEMORY

MARVIN WAGNER

W3BCA

1930 - 1990

SILENT KEY
MAY 25, 1990

DO YOU WANT TO GO RTTY?
FOR SALE!

2-CP-1,s
2-Flesher TU-170's
1-ST-6000 w/keyboard, disk unit and mso. Includes monitor 1-homemade with loop supply
1-Heath Tnc HD=4040
2-Teletype asr-28's
1-Teletype model 19 (beautiful condition)
1 AEA reader converter
1-Kantronics reader converter
2-chirptext modules
1-Ti/99a Rtty\Cw plug in program

*******ALL OFFERS CONSIDERED********
Contact Bob, WB3DTG on his .97 BBS or call him at his home. 837-9071...

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VAL S3Z
by Val, W3EFL

If the OM wants the Jr Op to get a good education today he has to pull a few strings or maybe wires, the wires to the TV, stereo,radio set and the one to his power supply.

They say history has a way of repeating itself and so does taking the advanced radio exams. We know, we flunked them both twice.

Know who the greatest inventor of all time was? He was a chap by the name of Pat Pending. You see his name on so many items including ham radio gear.

Physics teacher: "What is a good conductor of electricity?"

Jr Op: Why....er....

Teacher again: "Wire is correct. Very good. Now name a unit of electrical power?"

Jr Op: The....what....

Teacher once more: "Right again. The watt."

Hickory Dickory Dock

The mouse ran up the clock.
He then fell with a shock It was an electrical clock...-built into the Xmtr.

The Jr Op got a surprise graduation present. He was expecting a new transceiver and he ended up with a pen and pencil set.

The sales man told us that in no time the rig would pay for itself. We told him that when it does, just bring it over.

W3PYF walked into the radio dealer's store and had trouble speaking as he had laryngitis. He whispered to the salesman: "What make rigs do you handle?"

The salesclerk, not knowing why his customer was whispering, whispered back, "I handle Kenwood, ICOM, Yaseu and Drake."

I see. Do you have laryngitis too" asked Clarence. "No, sir. Just Kenwood, ICOM, Yaseu and Drake."

How about this version?

W3TDF came into the same radio store mentioned above and said to the salesman: "I just bought my gear in here this morning and found a twig in my rig." That's understandable," replied the salesman, "You see, we have branches all over the country."

CONTINUED FROM PAGE 3

MOBILE ANTENNAS, by Barry KU3X

Different versions of fiberglass antennas are available for the 11 meter band and can be cut for ten meter operation. Next, a 96 inch stainless steel whip was tried. The least amount of movement caused the S.W.R. to go crazy. After closing the door on the van, I had to wait three minutes for the antenna to stop moving to get a stable reading on the field strength meter. Can you imagine what the S.W.R. would be like driving 55 miles per hour ?

The next series of antennas were designed with readily available parts from a hardware store and Radio Shack. Hard copper tubing was used for the mast, white PVC schedule 40 pipe was used for the coil forms, 16 gauge insulated wire was used on the forms, and an adjustable three foot whip was purchased from Radio Shack. The complete system will cost less than the Hustler system and on 40 and 75 meters will outperform the Hustler system. Information for building this system is available on request.

KU3X # 1 = A five foot mast with a three foot adjustable whip was used.

KU3X # 2 = A four foot mast with a three foot adjustable whip was used. This shortened the overall length of the antenna by one foot.

KU3X # 3 = A four foot mast with a four foot adjustable whip was used. This moved the loading coil down the antenna one foot without changing the overall length of the antenna.

Where needed, a matching transformer was used to match the antenna to the feed line.

I'll be listening for your low band mobile signal.

de Barry, KU3X

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NORTHAMPTON COUNTY DISASTER DRILL 1990
by Amy, KA3IJL

As in years past, the annual Northampton County Disaster Drill was held at the Gracedale County Home. The exercise is conducted by the Northampton County Emergency Management Agency, as required by Pennsylvania Emergency Management Agency to test the capability of the county emergency service agencies to work together and to handle a large-scale emergency involving many patients with varying degrees of injury.

The "victims" were members of local Boy and Girl Scout troops. The participants include most of the area Fire and Ambulance Corps and the Delaware Lehigh Amateur Radio Club members.

In both the drill and actual emergencies, DLARC members are called upon to fulfill the important role of passing information between the emergency scene and the area hospitals.

This was accomplished in a very timely and accurate manner on the Tuesday, May 22nd drill.

Participating at the scene were N5IEP, Vern; WA3ENE, Les; KA3RBH, Bill; WD5BRP, Dave; KA3QKN, Charles, KA3MNY, Roy; and visiting KA8YWT provided the on scene assesment of the patients and their time of departure to the hospital and relayed this to KA3ONZ-Bruce in the County Communications van. KA3IJL, Amy, then passed this information on to KB3RI, Bob, and N3AWT, Ray at Easton Hospital. This year's operation went very smoothly, using simplex communications around the "disaster" site and triage area and the repeater was used for making the long jump to the Hospital.

A huge THANKS to all the members who participated and a reminder to all that all available amateurs are welcomed and encouraged to participate in all club activities. The cooperation from other local amateurs, who kept the repeater as clear as possible during the event was great. It allowed the emergency communications to be conducted without interruption or interference.

de Amy, KA3IJL

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NEW MEMBER OF FCC PERSONAL RADIO BRANCH
From Ham News Outlet

Johnny Johnston, FCC Chief Personal Radio Branch announced at the Dayton '90 FCC Forum that his branch has hired a new employee. Bill Cross also attended this form and is the latest addition to Johnston's staff.

His primary function is to answer the phone and assist callers with Amateur related matters. Johnston also said that he and Cross represent 1/2 of the FCC Personal Radio Branch staff. The other half consists of 2 senior attorneys and a word processor. While this would appear to be of benefit to the Commission and the Amateur Radio Community, he stated that the paperwork load in his branch is overwhelming.

SO YOU CAN'T BREAK THE PILE-UPS?

I have listened to people for many years saying "He or she couldn't 'Cut the Mustard'", meaning that they could not do something. It occasionally appears in print. It doesn't make sense. How can you cut mustard? Do they mean cutting the mustard plant or whatever mustard grows on?

Maybe they really mean 'Cut the Muster'. It makes sense after the spelling is changed. One of the meanings of muster is to assemble as in 'muster the men'. Cut is used sometimes to mean cannot do it as in 'he couldn't cut it'.

The phrase was used in the U. S. Army and probably in the other branches of the armed forces during World War II. I like to think that it came about this way. What do you think?

During the war when some of the troops stayed out too late and had a few drinks too many the night before they could not get up in time to make early muster (assembly). Hence, they couldn't cut (make) the muster.

So the next time you break a pile up on ten meters, you can say, "I cut the muster."

73, Van K3CP

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"THREE THOUSAND REASONS TO BECOME A HAM"

by Alan, WO4H

Please read on, I promise to be brief! My son Mike, KA3CUP, got his novice ticket at age eleven and upgraded to General a few months later. In Mid-June Mike will graduate with an MBA from the University of Georgia having majored in Journalism & Communications. He applied for several scholarships since the "OM" couldn't foot the bill for three kids in college at the same time (a malady known as pecuniary strangulation !) He applied to the FOUNDATION for AMATEUR RADIO and was awarded the first year. The following years the award increased; ----- amounting to $3000 over his undergraduate years!!!! I became a Ham for purely self serving reasons; entertainment, therapy for a hard day at the office and making friends with people having a common interest. It was also a quick entree into the many communities I have lived in through 8 transfers in 26 years. Today I am indebted to amateur radio for the several reasons above and THREE THOUSAND others..$$$$$$ ...so is Mike!

'73 DE AL, WO4H/3

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JUNE VE TESTING

by John, K3GQJ

With a large group of candidates at the June 8th session of the Delaware Lehigh Amateur Radio Club's VE testing session, the results were great.

VE's who were at the June 8 session were: K3GQJ, N3EBH, NU3L and NE3K.

Congratulations to the 18 candidates. There were 13 elements passed, and 11 Upgrades. 5 Technician, 2 General, 3 Advanced and 1 Extra.

They included the following:

Technician: KA3WTH, KA3WLP, KA3WEY, KB2KJX AND KB2KJY.

General: KA3HLO and KA3WAY.

Advanced: KA3IJL, WA3HVR, and KA3VZT.

Extra: N3GPZ.

Next session will be on July 6th.with following as Volunteer Examiners:

Robin, KD3HS; Glade WA3MVQ, Bill, NS3J and an alternate is needed for this session. If you are a registered VE, and can help please let me know.

de John, K3GQJ
DLARC VE Team Coordinator.

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LIGHTENING DAMAGE AT K3RL

(or 'SO YOU PULLED ALL THE PLUGS?')

Mike, K3RL took a direct lightening strike during a series of thunderstorms early on June 9th. He happened to be looking out of the window at the time and saw the hit. Apparently it hit the 2 meter Isopole antenna which was totally destroyed. It followed the 2m feedline into the shack (which was disconnected. It jumped from the feedline end and proceeded to arc thru the radio room. Luckily, it did not start a fire. Extensive damage to the TS-940s, MFJ TNC, 2m radios and 2m amp, 14-B, antenna tuner, color monitor, TV set, and a metal filing cabinet.

Mike will be off packet for awhile and will be using his backup C-Line until the status of the 940 is determined. K3ANS de K3WW.

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REMEMBER, JOIN OR RENEW YOUR ARRL MEMBERSHIP BY CALLING OR WRITING TO ROY, KA3MNY..THE CLUB BENEFITS FROM THIS!

DIGITAL COMMUNICATIONS

A 'Bird' in the Hand Beats 'Gnu' in the Bush - **'Reflection by Watt'**

by Joel Elston, K9TBD

This is actually a review of a wonderful piece of Digital Software - GNUPLOT by GNUWARE - a public domain interactive plotting program. The examples given here were created on my Micro-VAX II and printed on a PostScript Laser printer, however, I understand that there is a PC version available.

I chose SWR calculations as a sample to see how easy (or difficult) this system was to use. Wonderful! Is all I can say. It will handle formulae as well as X-Y data and can make multiple plots on top of one another, on-and-on!

If you look in the Bird Wattmeter booklet for their model 43 wattmeter, they expound the virtues of knowing forward and reflected power - but supply charts for converting that to VSWR. The formulae from the book are:

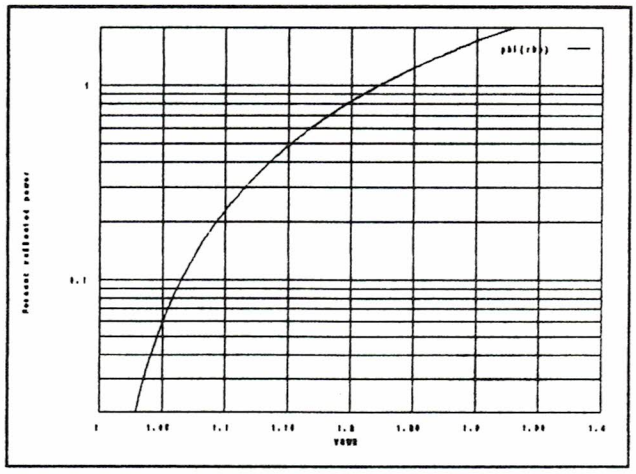
Rho = (1+sqrt(Phi))/(1-sqr(Phi)) and Phi = ((Rho-1)/(Rho+1))**2

where: Rho = VSWR and Phi = Reflected power divided by forward power

GNUPLOT Program	My Handy Reference Tables			
a) The formulae - typed as above	SWR	%Ref	%Ref	SWR
b) SET LOG Y				
c) SET XLABEL "VSWR"	1.0	0	1	1.225
d) SET YLABEL "Percent ... etc"	1.5	4	5	1.6
e) SET XRANGE [1:1.4] (for one plot)	2.0	11	10	1.9
f) SET YRANGE [1:2]	3.0	25	25	3.0
g) SET DUMMY rho	4.0	36	33	3.75
h) PLOT phi(rho)	5.0	44	50	6.0

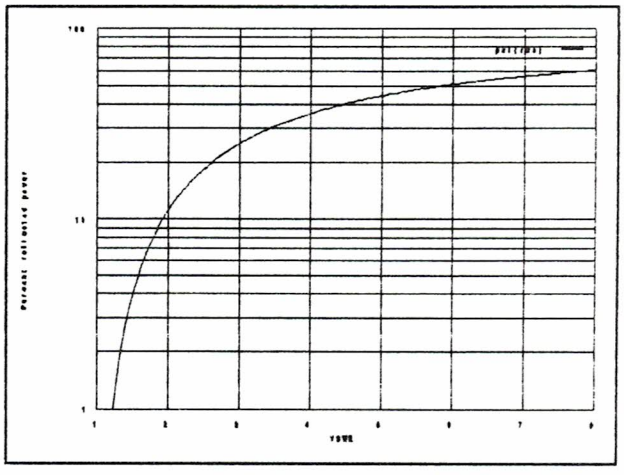
The only instructions that I had to give to GNUPLOT to get the following plots (two ranges of VSWR [1:1.4] and [1:8]) are as follows: (left of vertical line)

The program did the rest! Hope you enjoy this little reference table and chart.



VSWR Chart A % Reflected Power Range [.01:2.0]

PERCENT REFLECTED POWER



VSWR Chart B % Reflected Power Range [1:100]

PERCENT REFLECTED POWER

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WHERE ARE THEY NOW?

As of June 1st these are the call letters issued by the FCC in the Third Call area.

NOVICE	KA3WMT
TECH/GEN	N3IFB
ADVANCED	KD3SQ
EXTRA	NZ3Y

yANKEE dOODLING

CRAMOLIN®

Every once-in-a-while we all discover a really great tool, or glue, or cleaner which is really handy around the shack. After about a month, you ask yourself, "How did I ever live without this stuff?" Well, that's the case with Cramolin®, a deOxidizer made by Caig Laboratories of Escondido, CA. What's a de-oxidizer you ask, and how would I use it around the shack? Well, it really does what tuner-cleaner is supposed to do, and more.

I learned about it from a "Tech" at the Ten-Tec Service Department--he said that T-T uses it by the case! In just a couple of weeks I cleaned up an intermittent digital display, repaired a really noisy volume control which had resisted all previous cleaning efforts, solved an audio problem on SSB (dirty pin on mike connector) and generally improved station grounding!

Cramolin® is available in Ozone-safe propellant spray cans in 2% & 5% solutions (I use 5%), liquid (2%, 5% & 100%), and pastes. It is offered in two colors--Red and Blue. Red contains a cleaner & de-oxidizer, while the blue is for newly machined items and lacks the cleaner. Use is simple, spray or brush it on, wait 15 sec. to a minute, and then wipe with a lint free cloth or swab. Let me tell you, the swab comes away dirty--even from internal chassis boards. For edge connectors, switches, and potentiometers just spray in lightly, allow to drain and operate/insert a couple of times. Caig claims that use of the de-oxidizer improves conductivity so-much that switches can be operated far above rated capacity.

Cramolin® isn't cheap--a six oz. can of 5% Red runs about $9. That's a whole lot less expensive than a month of radio down-time or protracted poor-performance. You won't find it at the local parts store yet. There are a few regional dealers you might try, or you can order directly from the manufacturer.

In Philadelphia, it's sold by Chestnut Hill Audio, 149 N. 3d St, Ph. 923-3035 (The audiophiles have been using Cramolin® for a long time), or Techni-Tool, 5 Apollo Rd, Plymouth Meeting Ph. 825-4990. On the high-tax side of the Delaware River you can try Scientific Instruments Services, Inc, 1027 Old York Rd, Ringoes, NJ 201-788-5550. CAIG LABORATORIES has an address of P.O. Box J, Escondido, CA 92025, Ph (619) 743-2460. Besides Cramolin® they also offer high quality de-greasers, oilers, and high-quality solders (including Silver Solder which is needed for stainless steel work).

The company seems very customer oriented. I made a call asking for a little technical information and received a three-oz package of data, and the dealer lists for PA & NJ. Based on my experience with the product, I recommend it highly. (No, I don't own the company or know the owner.)

HAVE YOU READ THIS FAR?

If so, it's contest time. Do you know of a similar relatively unknown product which is equally handy around the shack or workshop? If so, scribble a quick note or just tell me about it. I'll compile the product recommendations into a future article. If I get at least five recommendations, I will award a can of Cramolin 5% Red to one of my information sources--award to be made by random drawing at a future club meeting.

SUMMER TIME IS LIGHTENING TIME

Remember to disconnect AC power and antenna lead-in cables every time equipment is not in use. There are a couple of other, often ignored, paths for lightening strikes, too: the telephone and Cable TV service drops. We seldom disconnect these, but the phone line is a path to the computer modem + computer + TNC + rest of the station. The TV Cable, even if underground, can carry a transient for miles. I lost a receiver from just such a "hit" 2 summers ago, in a neighborhood with underground utilities. Since then, I've used an Alpha-Delta "Transi-Trap" on the cable and have had no problems--even though I now live in a neighborhood with overhead cable lines. Again, what's cheaper, a $30 transient suppressor, or replacing a $500 TV and a $400 VCR, and a $400 FM tuner?

Of course, it goes without saying that you already have a transient suppressor on your radio's antenna input(s) to protect from surprise late-November thunder storms. Don't forget the receiver antenna input if you use a separate receiving antenna, like a Beverage.

WANTED

Meeting speaker to talk about WWV propagation bulletins (H + 18 min.), A & K indices, & HF/VHF propagation? How do all of these relate to working DX, or even ragchewing on 75? Contact Bill, K3ANS to schedule your time.

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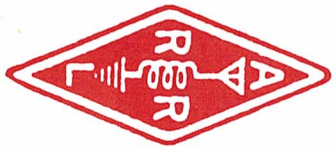



NEWS

THE DELAWARE-LEHIGH AMATEUR RADIO CLUB, INC.

RD #4
GREYSTONE BUILDING
NAZARETH, PA
18064



All Amateur Radio Operators are invited to participate in the DLARC, ARES, EMA Nets on 146.70 W3OK/rpt.
The Nets are held on Sundays at 9:30 AM and on Wednesdays at 7:00 PM.
The alternate repeater for these Nets is 145.11 W3PYF/rpt.

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1990

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NEWS STAFF

Editor - Clarence Snyder.....W3PYF..252-2109
Circulation - Dick Peischl.....KC3CR..759-0294
Digital Editor - Joel Elston.....K9TBD..252-1515
Technical Editor - Bill Van Horn.K3CP...691-5979
Yankee Doodlings - Blair Bates...K3YD...865-0687
Mailing List - Robert Mulrooney..KB3RI..253-7710
Printer - Norm Zoltack.....K3NZ...799-4044

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CLUB MEETING NIGHT

All regular meetings of the D.L.A.R.C. are held on the first Thursday of each month at 7:30 PM in the Greystone Building at Gracedale.
Phone....759-2600

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Any comments or articles contributed to this newsletter should be addressed to
CLARENCE SNYDER W3PYF, Editor
717 PORTER STREET
EASTON, PA 18042-1548