

CHEESE BITS



W3CCX

CLUB MEMORIAL CALL



ARRL
Affiliated
Club

VOLUME XXXVIII

October 1996

Number 10

THE PREZ SEZ

By the time you read this, the Mid-Atlantic States VHF Conference and Hamarama will have gone into the history books. The Conference was our 20th annual event and if planning and preparation guarantee success this will be our best ever VHF Conference. John (KB3XG) has outdone himself in putting together a program that balances VHF operating and Commercial VHF products of interest to the weak signal and microwave community. In addition to the program a number of our members and officers are pitching in to do the detail work that will insure an enjoyable stay by all of our conference attendees. Thanks to John and his many helpers for putting together a first class event!

The Conference is only half of our annual Packrat weekend! Hamarama has become one of the largest local hamfests and is still the premier hamfest for VHF+ equipment and components. Thanks to Paul (WB3JYO) and the usual suspects for another well organized and flawless Hamarama. I hope you were able to participate in both of these events, the first weekend in October is one of the best times ever to be a Packrat.

Too much Cheese, not enough Rats! The Packrats are looking for new members! Beginning this month, the club intends to make an extra effort to entice local VHF operators to join what we believe is the best VHF/UHF/Microwave organization in the country. For some reason many new VHF'ers believe that we are an exclusive group, closed to newcomers. T 'aint so. It's true that we expect more from our members than just subscribing to our news letter. The Mt. Airy VHF Radio Club was founded on the basic principles of service and participation. The club has prospered for 40 years by holding true to those tenants and we do not intend to dilute that formula for the sake of numbers. But if you have a genuine interest in VHF and above equipment and operating we have a wealth of experience, knowledge, and fellowship that is waiting to be shared. Our current members are our best ambassadors. When you hear a new call on the bands, or meet a new to VHF ham at a flea market invite them to a meeting. The Packrats need YOU!

The upcoming October meeting should be a very special night. Steve Kostro (N2CED) the proprietor and chief engineer at Down East Microwave will be our featured speaker. Steve is responsible for many of us getting on new microwave bands and he still finds time to participate in the major VHF contests and operating events. Now if we could only convince him to join the club! This should be a very informative and entertaining program. CU at the meeting and be sure to bring a friend!

73, Phil WA3NUF

MEETINGS

Third Thursday each month at 8:00 PM
Southampton Free Library
947 E. Street Road
Southampton, PA 18966

Pack Rats **CHEESE BITS** is a publication of the Mt. AIRY VHF RADIO CLUB, INC. Southampton, PA. and is published monthly.

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DEADLINE FOR ARTICLES AND SWAP SHOP IS THE MONTHLY MEETING DATE. NON-COMMERCIAL SWAP SHOP ITEMS-FREE OF CHARGE.

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PACKRAT 222 MHz REPEATER - W3CCX/R

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MONDAY NIGHT NETS


<u>TIME</u>	<u>FREQ.</u>	<u>NET CONTROL</u>
7:30 PM	50.150 MHz	K3EOD
8:00 PM	144.150 MHz	AA2UK
8:30 PM	222.125 MHz	WB2YEH
8:30 PM	224.58R MHz	N3ITT
9:00 PM	432.110 MHz	WA3AXV
9:30 PM	1296.100 MHz	WA3NUF
10:00 PM	903.100 MHz	N3AOG

COMMITTEE CHAIRMEN

LADIES' NIGHT: N3AOG 215-443-9965
 JUNE CONTEST: WA3AXV 215-355-5730
 HAMARAMA: WB3JYO 609-538-1687
 VHF CONFERENCE: KB3XG 610-584-2489

PACKRAT BEACONS - W3CCX/B FM29JW

432.298 MHz 903.071 MHz
 1296.262 MHz 2304.034 MHz




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Calendar of Coming Events - October 1996

- 5 The 20th Annual Mid-Atlantic States VHF Conference will be held at the Quality Inn in Horsham, PA. \$10 at the door (includes HAMARAMA). For further info, contact the Conference Chairman, John Sortor, KB3XG, 610-584-2489.
- 6 Hamarama 96 will be held at the Bucks County Drive-In on Rte. 611, in Warrington, Pa.
- 10 Board of directors meeting for the Mt. Airy VHF Radio Club will be held at the QTH of Bob, W3GXB at 8:00 PM. All interested parties welcome. Call 610-346-8698 for directions.
- 12 Columbus Day
- 12-13 Pennsylvania QSO Party. See October QST page 101 for rules.
- 13 Shore Area Hamfest/ARRL NJ State Convention will be held at the Brookdale Community College in Lincroft NJ.
- 13 Columbia ARA Hamfest at the Howard County Fairgrounds in W. Friendship, MD. TI on 147.735/.135. VE Session.
- 17 Regular meeting of the Mt. Airy VHF Radio Club at the Southampton Free Library on Street Rd. in Southampton, Pa. Steve Kpstro, N2CEI, will present a describe the latest DownEast Microwave products. All VHFers are encouraged to come and enjoy the evening with us. You need not be a member to attend.
- 20 RE Hill ARA Hamfest at the Sellersville Fire Housey in Sellersville, Pa. VE exams will be held. TI on 144.710/145.310, 134.28/88, and .52.
- 21 Predicted peak of the Orionids meteor shower at 1851 UTC.
- 24 LEAP INTO THE MICROWAVES with the Packrats! 903 and above. Starting on the 4th Thursday of the month and continuing every 4th Thursday of the month operate from 8 to 10 PM local time on any band 903 MHz and above. For coordination on those difficult long haul contacts 144.260 MHz is the suggested liaison frequency. So here's your chance to fix what broke in the contest and work all those stations you missed.
- 26-27 ARRL International EME Competition. See Sept. QST page 116 for the rules. Second weekend on Nov. 23-24.
- 26-27 CQ World-Wide DX SSB Contest. See Oct. QST, page 101 for rules or CQ magazine.
- 27 Penn Wireless Association Tradefest - 96 at the Bucks County Community College north of Newtown, Pa on Swamp Road. VE exams will be held. Talk-in on 145.52 or 146.25/(-600).
- 31 Halloween

TID BITS

October Meeting Speaker: Steve Kostro, N2CEI, will talk about the latest upgrades and Mods. for 2.3 & 3.4 No Tune Transverters, DownEasts' new low noise (0.3 dB) preamps, new MIMICs that are available and 24GHz news, who is doing what and how.

In the Oct. issue of 73 magazine, Chuck, WB6JGP, in his Above and Beyond Column, describes the conversion of a Qualcomm 3036 PLL for use as a LO for 2304 MHz. Evanescent mode filters using WG-16 waveguide (1" X 0.5") as the basic structure, are also described, covering 1296 and 2304 MHz. Input and output uses sma connectors.

Anyone with new e mail capabilities should check the May 1996 issue of Cheesebits to see how to get on the Packrat Reflector. It's simple and there is no cost. If it sounds confusing, contact Joe, AA3GN, for assistance.

APPLICATIONS for MEMBERSHIP at the SEPTEMBER MEETING

Henry, N3NID, Perkiomenville, Pa.
Mark, NK8Q, Ottsville, Pa.

SWAP SHOP

(send all ads to the editor)

For Sale: KLM Echo 70 432 MHz SSB and CW Transceiver. 10 watts output with 80% completed 100 watt linear. \$90.00. Contact Jim, K3EBZ, at 215-672-5487.

Wanted: 20 to 30 ft. tower, any condition. Contact Jim, K3EBZ, at 215-672-5487.

For Sale: 55 ft. of 7/8 in. hardline (no connectors) \$35.00. Two new, in the bag, N male connectors for 7/8 in. hardline, \$25.00 ea. Commercial 440 MHz FM Amplifier, 2 w. in/30 w. out. \$35.00. Contact Chuck at 215-335-0637 or via e-mail at wa3iac@juno.com.

January Sweepstakes Challenge!

From: Ken, KP4XS, EM84xp, ramirez@emi.com

I hereby challenge all VHF enthusiasts to a "2 Man Team Contesting" contest during the next January ARRL sweepstakes. Who amongst you accepts the challenge?

Rules-

- 1- limited to 2 operators who must be the same ops for the duration of the contest.
- 2- All allocated VHF+ bands can be used.
- 3- Scoring will follow the ARRL scoring rules I.E. points per band, grid multipliers, etc.

Purpose-

- 1- To create more activity on the bands but especially on 6 meters. By having 2 ops on the air simultaneously both 6 and 2 meters can call CQ thereby accumulating the most points possible on the bread and butter bands instead of leaving 6 meters a ghost band in January.
- 2- Create friendly Team competitions
- 3- Put your strategy skills to good use. Who will operate which band? Should the 6m op do 6 and 432? should he stick to 6 only? Should the 2m op CQ simultaneously on 2 and 432 or just stick to passing to the other bands? Lots of strategy involved. Lots of technical skill required too. Does 6 meters overload the 2m station? Will I need a better 6m receiver for weak signal passes from 2? Now is the time to iron out the details.

This is a great opportunity to participate in a multiop environment and be in a "class" of its own without the headache of having dozens of ops in your shack. A contest is a bit more pleasant with a partner to high five with. C'mon you single ops with all bands! Make more points with that station of yours. Invite a contester over who doesn't have a home station. Ask one of those summer multiop operators sitting idle this winter to be your 6m op. Or maybe he can be you 2m and above op. Let's make more activity this January.

Any takers???

CHEESEBITS SUBSCRIPTIONS

Cheesebits subscriptions are available to everyone interested in activities and information from the VHF through the microwave frequencies. Subscriptions are for 1 year of 12 issues. For a subscription, send the following information:

Name: _____ Call: _____

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Town: _____ State: _____ ZIP: _____

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October 1996

Send to: SUBSCRIPTION/ADVERTISING MANAGER:
Bob Fischer, WB2YEH
7258 Walnut Avenue
Pennsauken, NJ 08110

VHF+ NEWS & ACTIVITY

By Jerome Byrd, K3GNC

VHF+ 'INVICTUS'

"Out of the RFI limitations that cover me, black as a pit from pole to pole, I thank whatever VHF+ Gods that be, for my unconquerable sole. Under the foul clutch of neighbor knocks, I have not flinched or cried out loud. Under the bluder the bludgeoning of rants, my head is bloodied but unbowed."

ON THE BANDS:

Christians 1, Lions 1. Early September brought us two hurricanes. Edward, which brought good tropo and no main-land damage, and Fran, which brought us moderate tropo and massive damage.

NO REPORTED 6 METERS EUROPEAN OPENINGS:

REPORTED ACTIVITY: (I am only reporting specific contacts that are reported to me, or my own)

(144 AND UP

No Significant Tropo on 144..up. The September VHF Contest provided almost 'January' like conditions. The following packrats were heard/worked by this operator: N3NGE, WB2YEH, WA3JUF, AA2UK(432..UP), KB3IE, N3EXA, WC2K, WA3AXV, W3GXB, N3NLA, WB2JYO, WA3AQA, N3AOG, N3ITT, KB3QM, WA3U, AA3GN, K3GNC

WHERE OH WHERE IS CARMEN SANDIEGO?

We try to add a little humor with the above title, but when we ask what has hapened to someone, we hope that people with information will come forward with information . Unfortunately, many hams fade away because of illness or personal tragedies We like to share suc information with the VHF+ community.

LET LOOSE THE DOGS OF WAR:

AA2UK'S tower projects progresses. He had 45 ft. of an expected 120 ft. up as of 9/23/96. Several Packrats and other well known VHF+ ers have obtained 30-35 watt 10 GHz self contained amplifiers from Tom - KB2AH! This will probably lead to another RFI problem , called MPI (Microwave Popcorn Interference). Neighbors and movie houses will be up-in-arms.

RON - W3OR ('last call standing') is progressing will with his VHF+ rearmament. He will probably have three towers loaded with weapons ready by the January Contest!

MARK - WB2JHG, the man who was content with 6 bands last contest, will probably be on 9 this time! An unreliable source quoted MARK as saying that he won't improve his score at the expense of crushing fellow Packrats.

KEN - KP4XS has issued a challenge to two operator Multi-Op stations for the January Contest. Ken says his partner can lick any two man team in North America!

K3GNC'S LAS VEGAS LINE ON WHO WILL MAKE THE JAN. CONTEST TOP TEN

WA8WZG -EVEN MONEY	AA2UK -EVEN MONEY	WA2TEO -EVEN MONEY
K1RZ -EVEN MONEY	WZ1V -EVEN MONEY	KD1DU -2-1
WA3AXV -2-1	WA3NUF -2-1	KE8FD -3-1
VE3KDH -3-1	W3OR -3-1	WB2DNE -10-1
WB2JYO -10-1	WB2YEH -10-1	N2SB -10-1
K1TR -20-1	WB2JHG -20-1	N3EXA -20-1
K2UOP/8 -20-1	W3ZZ -20-1	N3NGE -20-1
K3GNC -20-1 (Anyone who laughs will be severely punished!)		

Stations not listed who think they should be considered, or stations who are listed who think they should be hither/lower, send me your complete station ewuipment rendown and contest plans:

JEROME BYRD, 1530 Locust St. #31 ,Philadelphia, PA. 19102 or e-mail JBYRDK3GNC@worldnet.att.net or call me on the air or phone: (215) 226-1418

The above list will be changed each issue until the contest. GL!

LEAGUE QUESTIONS NII/SUPERNET PROPOSAL FOR 5 GHz

By: Ron Whitsel, WA3AXV, rwhitsel@aol.com

In comments filed with the FCC on a proposal to make available 350 MHz of spectrum at 5.15-5.35 GHz and 5.725-5.875 GHz for use by so-called NII/SUPERNet devices The ARRL (and other commenters) suggested that allocating 350 MHz for the devices is excessive and premature, "in view of other opportunities for high-speed data communication." The spectrum includes part of the shared Amateur Radio allocation at 5.65-5.925 GHz. The unlicensed, Part 15 devices would provide short-range, high-speed wireless digital information transfer and could support new wireless local area networks (LANs) and facilitate access to the Internet or other facets of the National Information Infrastructure. The proposal responds to Petitions for Rule Making from Wireless Information Networks Forum (WINForum) and Apple Computer Inc. ARRL also suggested the Commission's proposal for short-range Part 15 facilities is "as far as the Commission can or should go with unlicensed devices" and that anything designed for a longer range should be licensed.

In its filing, the ARRL said it's not clear just how much spectrum the applicants actually need to support initial deployment of NII/SUPERNet devices and that there is "significant evidence in the record that allocation of 350 MHz is currently not supportable." In proposing the allocation, the League said, the Commission did not rely on "any evidence of market demand."

ARRL cited comments by Pacific Telesis Group recommending that the 350 MHz of spectrum not be committed to "a service with unproven technology and untested market acceptance." Another commenter, Altstatt Associates, said that even assuming heavy traffic, occupancy should not exceed 120 MHz. That way, all NII/SUPERNet users could fit in the 5.15 to 5.35-GHz segment, thus not affecting current users (including hams) at 5.725 to 5.875 GHz.

ARRL urged that the upper 150 MHz proposed for the NII/SUPERNet devices not be made available immediately, but only after a need for the additional spectrum has been evaluated. The League also said that alternatives to NII/SUPERNet devices for wideband, high-speed data transfer over long-range paths can be found in licensed services. Duplicating those links would be "inefficient and inconsistent," the ARRL said.

The League said the proposal also failed to address interference potential to Amateur Radio and other licensed operations in the 5-GHz band.

Among other things, the FCC has proposed to limit peak effective isotropic radiated power (EIRP) for the NII/SUPERNet devices to -10 dBW (0.1 W) to provide "typical communications distances of 50 to 100 meters," the FCC said in its notice in ET Docket 96-102. The rules state the NII/SUPERNet devices "must accept any interference caused by licensed services." The petitioners had asked for higher-power, longer-range communication links, but the FCC, expressing concerns about "unacceptable interference risks to other services," decided to put forth the more modest proposal for now. But the Commission also didn't close the door to considering higher power operation at up to 1 W for community networking—as the petitioners proposed—and seeks additional comments on the issue.

The FCC has proposed a basic "listen-before-talk" protocol. Unlicensed devices would have to monitor their frequencies for at least 50 μ s to determine if they are unused and available, limit transmit time to 10 ms and wait at least 50 μ s after transmitting before resuming monitoring. (This so-called "deference time" would double each time an attempt to access the band fails, up to an upper limit of 12 ms.) Out-of-band emissions would typically have to be at least -50 dBc. Typical bandwidths could be 25 MHz or greater.

The proposed rules state that the NII/SUPERNet devices "will not be deemed to cause interference to licensed services provided the devices operate in accordance with the output power, out-of-band emissions limits and spectrum etiquette requirements" and provided the devices are indoors or use an outdoor antenna mounted no more than 15 meters above ground. (Any outside antenna mounted higher than 15 meters would have to make other accommodations, such as reduced power, to eliminate harmful interference to licensed services.) The FCC said it would establish "clear technical operating parameters" for the new service so NII/SUPERNet devices "may operate without risk of being considered sources of harmful interference." The FCC encouraged industry to develop additional standards it believes necessary.

In other comments filed earlier with the Commission, the ARRL contended the proposed application was unnecessary and duplicative of other services, including microwave and licensed and unlicensed personal communication services. In particular, the League said that Apple's allocation proposal for the 5.8-GHz band failed to sufficiently address the potential for harmful interference to amateur operations. The ARRL also said the company did not address the issue of coordination between unlicensed users and incumbents. Left unexplained, the League asserted, was why spectrum above 40 GHz would not be more appropriate. The Southern California Repeater and Remote Base Association also have opposed the allocation, expressing concerns that hams would be overpowered by commercial use and driven from the band.

The FCC declined to go along with the petitioners' proposal to create a Part 16 regulatory regime to accommodate such devices. ARRL opposed this request, arguing that the Communications Act of 1934 did not provide legal authority and that it would be unfair to licensed users to give unlicensed devices the protected status afforded licensed services and the advantages inherent in unlicensed operations.

The complete text of the proposal in ET Docket 96-102 is available via the FCC's Web site at <http://www.fcc.gov/>.

This Means "WAR"!

Waveguide Around The Rotor

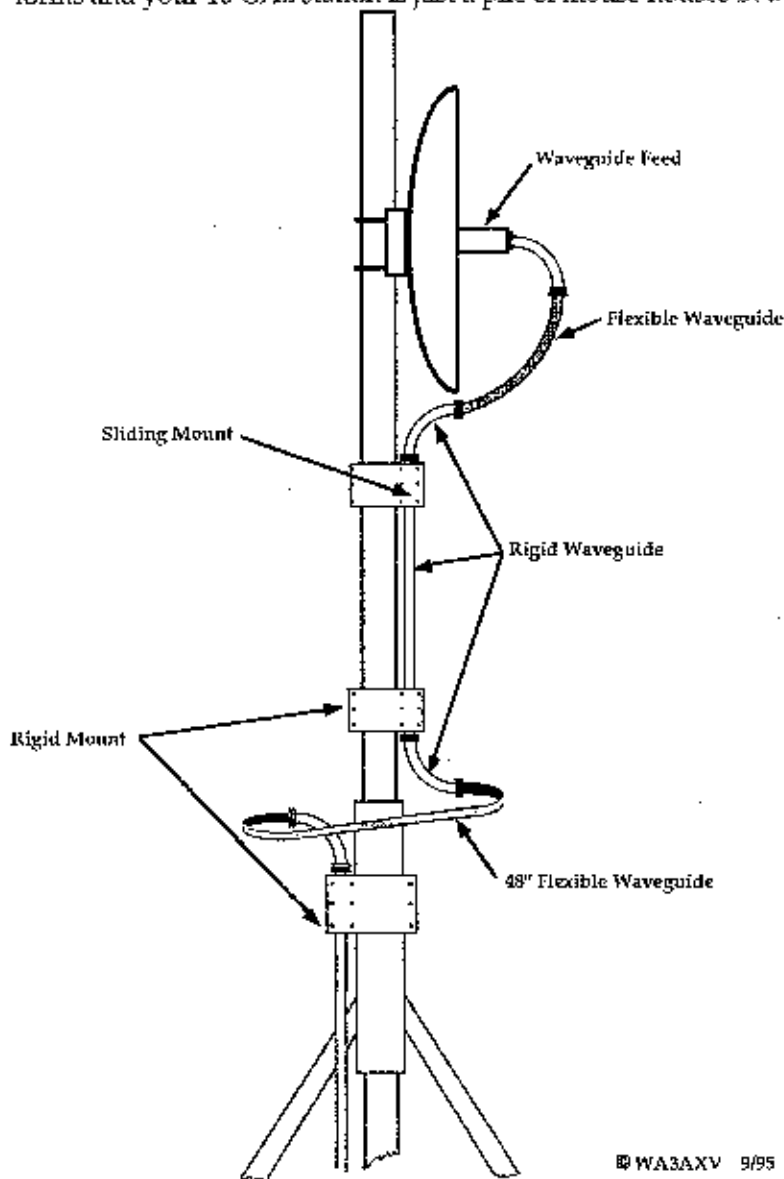
WA3AXV

Ronald J. Whitsel

Antenna installations present many challenges to the microwave enthusiast, not the least of which is the feedline. The popular solution to this problem is to operate with a portable station requiring only a very short connection from the radio to the antenna. Feedline losses are kept low and aiming the antenna is accomplished by the old 'Eyeball and Armstrong' method. This method works fine for portable operation, but is quite untenable for the home station. And besides when a good Tropo duct forms and your 10 GHz station is just a pile of mouse houses in the garage, what good is it?

A solution for the home station is to use waveguide for the feedline. One of the first problems that you encounter is the loop around the rotor. One method might be to use waveguide to coax transitions and a piece of coaxial cable for the trip around the rotor. But coaxial cable at 10 GHz is a dummy load! It would work in some limited fashion, but if you are going to the expense and time to install waveguide then you might as well go the extra mile and use waveguide all the way. But how do we do that you might ask? Fear not there is a way.

Flexible waveguide is a viable method of bridging the rotor. Once that problem is solved the rest of the installation is relatively easy. The method described here has been in use at my 10 GHz home station for over a year now with no degradation in performance. Total feedline loss from the shack to the dish is very close to 3.0 dB. Not great if it were 432 Mhz, but certainly not too shabby for a home station on 10 GHz. The total run is about 50 feet to the top of the tower and another 15 feet to the dish. I use elliptic guide to the top of the tower and then the setup shown in the drawing to the left. I don't think anyone needs to be sold on the merits of using waveguide at microwave frequencies whenever possible.



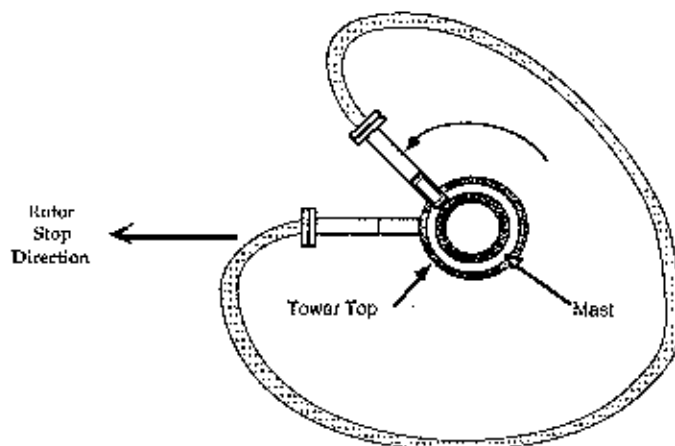
© WA3AXV 9/95

The flexible guide I used is coated with what looks to be a neoprene rubber. The rubber coating is probably the weak link in the installation. Ultraviolet radiation will most likely destroy the rubber in time. Perhaps a flexible paint coating or regular application of silicone would delay the process. The rubber is not essential to the operation of the guide, but does lend some structural stability to the corrugated metal that forms the actual waveguide. After a year there has been no problem.

The trick to making this system work is to install the flexible guide so that it coils and uncoils in a plane parallel to the ground. The traditional "rotor loop" installation will not work because the guide has very little "flex" in the plane parallel to its wide side. The only real flexibility is in the plane parallel to the narrow side of the guide. Thus if the guide is installed with its narrow side parallel to the ground, the guide will coil and uncoil to provide a full 360 degrees of rotation.

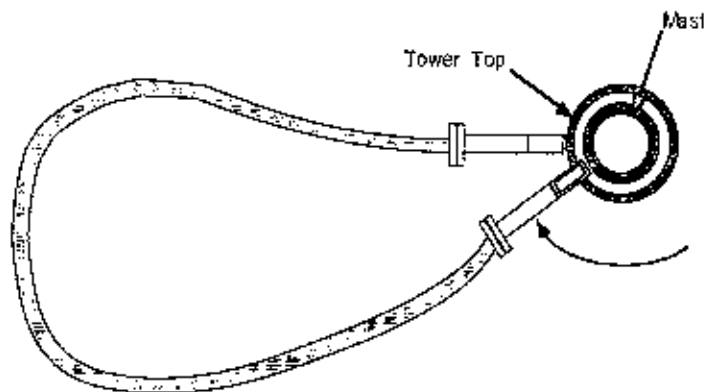
The diagram at right shows what happens when the mast is rotated in the counter clockwise direction toward the rotor stop. (Note: It is essential that the non-rotating waveguide be positioned exactly at the rotor stop position.) The guide will form a relatively tight coil around the mast when fully rotated. The 90 degree piece of waveguide must be installed such that it clears the 90 degree waveguide that is mounted on the mast. Don't use more vertical clearance than is absolutely necessary because the guide doesn't like to bend up and down.

During clockwise rotation the guide will uncoil and form a long thin loop as shown below.



Top View - Rotating Counter Clockwise

©W3ARU 9/95



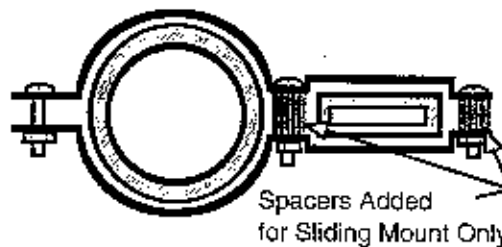
Top View - Rotating Clockwise

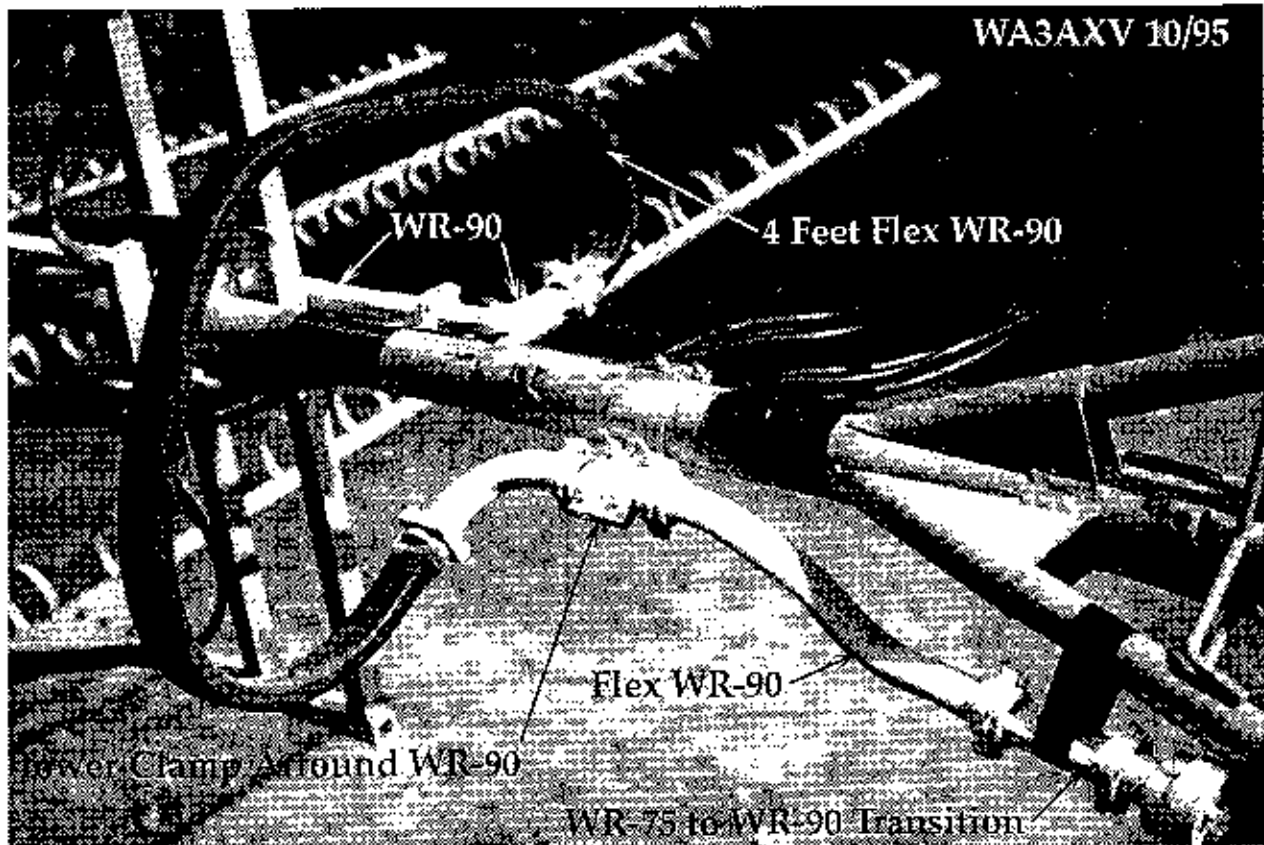
©W3ARU 9/95

The guide in this position is relatively vulnerable to wind and large birds so don't leave it 'parked' in this position. The safer parked position is with the guide wrapped around the mast to some degree.

Another area of concern is the rigid guide up the mast to the antenna. Since the mast will bend in the wind some allowance must be made for this motion. In my installation I formed a bracket out of sheet aluminum for the bottom mount such that it firmly holds the bottom of the guide about one inch out from the mast. This must be a fairly substantial clamp since it must support the entire weight of the waveguide that is on the mast. See diagram below.

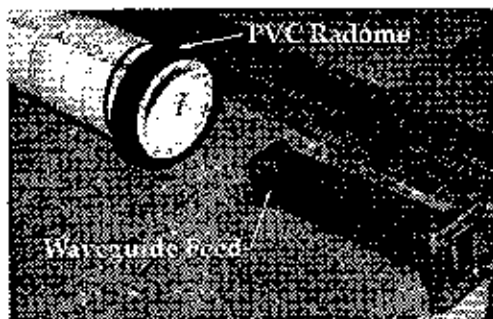
The top bracket is constructed in a similar manner except that spacers are added to prevent tightening the bracket on the waveguide side. Constructed in this manner the guide can "slip" inside the bracket when the mast bends. This method works not only when the wind is parallel to the wide side of the guide, but since the guide will bend in the opposite direction, it also works for that case as well. Also remember, the guide is copper and does some really serious expansion and contraction. This is another reason to provide for some movement. An alternative would be to use elliptic guide up the mast.





Now that you have this really low loss feedline proudly dangling from the tower top, you still have a few areas of concern. The first is condensation from the warm moist air inside the house being sucked up this really neat 'chimney' you just installed and thought it was just a feedline. The cold winter weather will condense the water vapor in the guide, from your nice warm house, and eventually form a pool of water inside. Water is not a real good dielectric. The solution is to pressurize the waveguide with dry air or nitrogen. Preparing the guide for pressurization also solves the second problem which is small critters taking up residence inside the guide. Some of these little monsters spin really nice cocoons that will ruin your operating day.

Pressure windows [1] should be installed at each end of the waveguide run. O-rings must be used between all flange joints (I found suitable O-rings at a home center). (Note: "Choke" flanges have o-ring grooves, "cover" flanges do not. Never use two choke flanges at the same joint.) Either a waveguide connector with a pressure fitting or a pressure inlet flange must be used to allow connection to a dry air or dry nitrogen system. The very least you should do is install all the "pressure components" so that you have a sealed system. The pressure windows will prevent the flow of air up the "chimney" and keep the critters out. If you live in a warm-all-the-time climate or have an unheated shack, then forget the water vapor thing. Practicing safe critter prevention, however, is always required.



I used a pyramidal waveguide feed [2] installed in a white plastic pipe (PVC) 'radome' to feed a 24 inch dish (PVC works at 10 GHz). The radome also keeps the weather and critters out of the feed. The flexible guide from the dish to the mast waveguide serves to further isolate the dish from mast movement.

Waveguide is the way to go. Most of the components are available at flea markets. With the heavy use of satellite and fiber optic links, surplus microwave link equipment should be more available than ever. Just do it!

1. Andrew Corp. Catalog #36, Page 166

2. "Parabolic Antennas and Their Feeds", Dick Comly, N3AOG, Pack Rat Notes, Sept. 1995, Page 5

New Explorer Post 73

By: Steve White, WA3IAO

Do you know a teenage boy or girl, age 14 to 20, who would enjoy exploring the many facets of Ham Radio and public service communication with a group of other interested young people? Explorer Post 73, with a special interest in Ham Radio, is now forming at the Ockanickon Scout Reservation in Pipersville, Bucks County, Pennsylvania (near Point Pleasant and Ralph Stover StatePark).

The Post already has its own Ham Radio station with call sign KB3BOY and is active on a variety of Ham bands and modes; including packet and Amateur Television. New members need not be licensed in advance as classes will be given through the Post or through local radio clubs in the area. Similar arrangements are also being made to provide convenient access to VE testing.

Adult leadership with years of experience in both Amateur Radio and Scouting are available to provide the necessary guidance and support. However, the young people themselves will have the opportunity to design a program which is relevant to their special interests and develop leadership skills in the process.

There are few hands-on activities available to young people today which can match Ham Radio for its positive effect on attitudes towards social responsibility, international goodwill, and tolerance for people with different backgrounds or physical handicaps. Young Amateur Radio operators also frequently choose educational goals and careers involving science and engineering fields.

Everyone is invited to learn more about becoming an Explorer at an Open House at the KB3BOY station at the Ockanickon Scout Reservation, 5787 State Park Road, Pipersville, PA, during the Jamboree-on-the-Air, October 19 and 20, 1996, from 1300 - 1600Hrs. local time.

The Post also welcomes inquiries from interested adults who might like to help volunteer some time with the Post or who could make equipment or other donations to improve the station and establish a loaner program for the new Hams.

For more information and directions, contact Steve White, WA3IAO, Post Advisor, at 215.343.6902, E-Mail WA3IAO@aol.com; or the Camp at 215.297.5290.

Version 2.1 of HDL ANT microwave antenna program available

By: Paul Wade, N1BWT

There was a problem with Version 2.0 of HDL_ANT, my program for microwave antenna design and calculations, which caused the output of some calculations to have significant round off errors. This has been corrected in Version 2.1. The problem was caused by using a newer version of the Borland C++ compiler for HDL_ANT version 2.0. I took the cautious approach of not changing any of the working code from version 1.0, just adding new features. However, the compiler upgrade changed the operation of the C++ function `cout.setprecision()`; I believe that the newer version compiler implements it properly. I did not notice the discrepancy when testing HDL_ANT version 2.0, but I certainly have checked version 2.1 more carefully.

Version 2.1 is available as HDLANT21.ZIP from the QEX web page, <http://www.arrl.org/qexfiles/> Please pass along the new version to those without Internet access, and feel free to pass this info along in club newsletters, etc.

TuneKit for Windows

TuneKit for Windows Filter Tuning Kit for Windows is a Electronic Filter Synthesis program and a practical filter tuning aid for actually designing and building a working filter. TuneKit is a small window module with some powerful features that include;

- 1.) Chebyshev Lowpass and Highpass Filter Synthesis from 2 to 25 poles.
- 2.) Narrow bandpass Chebyshev Inductive or Capacitive Coupled Filters from 2 to 8 poles.
- 3.) Bridged-T Notch Filters, provides rejection of 60 dB or more with practical values of inductor Q, using only 4 components.
- 4.) The Filter Data will be saved in ARRL Radio Designer 1.0 format for instant Analysis of your design. TuneKit was designed to be used as a front end for ARRL Radio Designer, There is a Stay on Top Option button for repetitive filter designing while using ARRL. (So, now you can Design and Analysis in seconds.)
- 5.) Calculates Air Core Coil Windings for a desired Inductance.
- 6.) Find the Actual Values of Inductors or Capacitors to use in your filter's tank circuits, using the Resonant Frequency Calculator and then save the values in the tuneKit.ini file for instant recall.
- 7.) Fast access to the Window's Calculator, so you don't have to hunt around your desktop. Opens as many as you want.
- 8.) Help Status Bar for On Line help of any Control in the Module. Just press and hold and the status bar reveals the function.

That's most of the features in this version, future versions will include Cauer Elliptical, Bessel, Linear Phase, Gaussian, Microstrip Combine, Cavity Tuned, Interdigital, and etc. in module form.

Hope you find TuneKit useful as part of your Filter Tool Kit. located at <http://users.aol.com/maxfro/private/>

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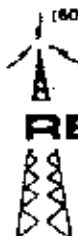
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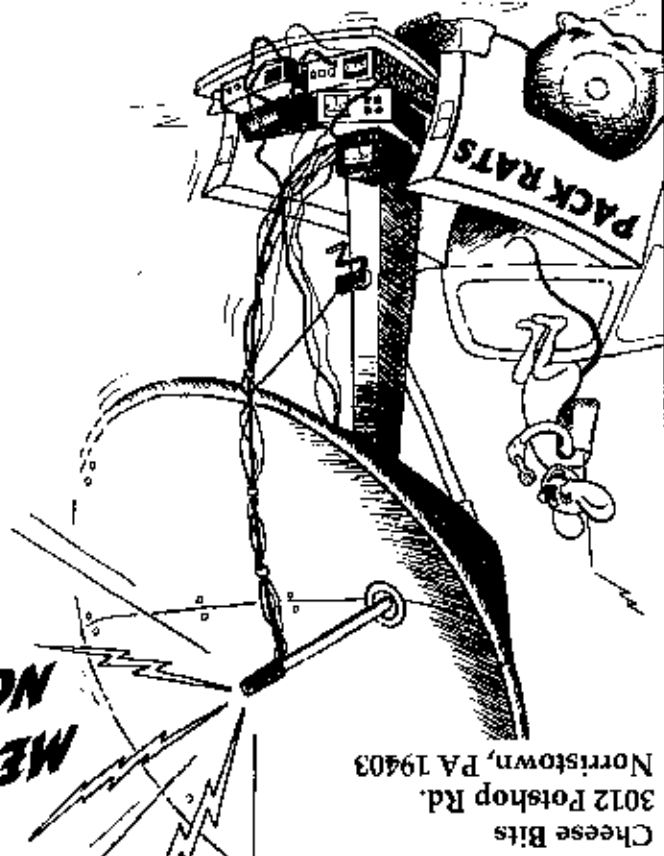
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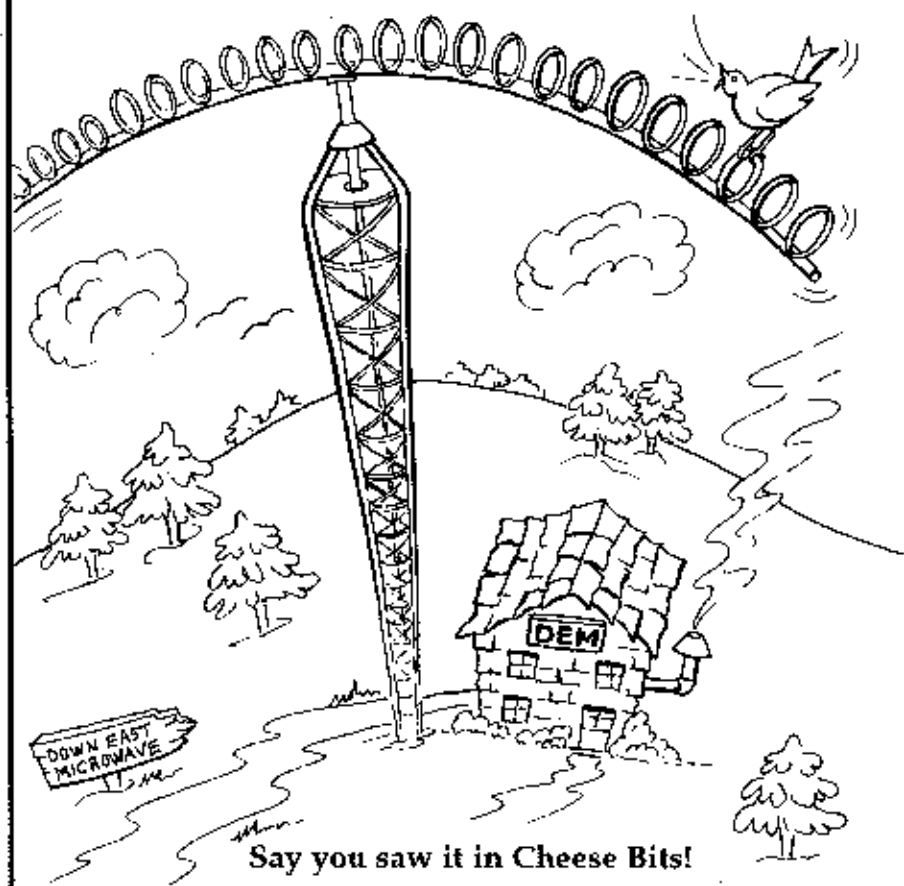
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