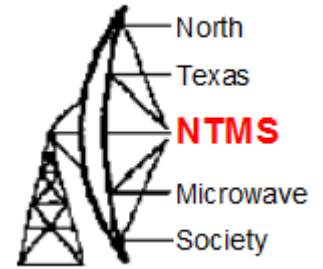


The logo for W5HN, featuring a blue vertical bar on the left with the call letters 'W5HN' in white, and a red diagonal shape extending from the top right towards the center.

NTMS Feedpoint

September 2015 Volume 29 Number 9

NTMS Web site www.ntms.org

The NTMS website contains articles of interest to our members and a calendar of NTMS related events. Please refer to it for meeting details.

Send News, articles, etc. to: ross_p@verizon.net

NTMS OFFICERS

President	Bob Gormley WA5YWC	Secretary	Eric Haskell KC4YOE
Vice President	Al Ward W5LUA	Editor	Ross K5ZSJ
Treasurer	Wes Atchison WA5TKU	Webmaster	Bob Gormley WA5YWC

NTMS Meetings and Events

September NTMS Meeting
Not held due to Labor Day Conflict

September 19-20
Second half of 10 GHz. Contest

October 3rd NTMS Meeting
St. Barnabas Presbyterian Church
Richardson, Texas 1 to 3PM

November 7th NTMS Meeting
St. Barnabas Presbyterian Church
Richardson, Texas 1 to 3 PM

December 5nd NTMS Meeting
St. Barnabas Presbyterian Church
Richardson, Texas 1 to 3 PM

NTMS Sunday Night NET
Every Sunday at 8PM local on 144.260 MHz

East Side Lunch Every Tuesday 11:30 AM
The Texas Smokhouse BBQ, on the SE corner of
Bowser and Arapaho, about a mile or two east of
Central on Arapaho

West Side Lunch Wednesdays 11:30 AM
Soda Springs BBQ
8620 Clifford Street
White Settlement, Tx. 76108

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From the 2015 President Bob Gormley WA5YWC

The first weekend of the 10 GHz and Above contest was a great success for the microwave operators in North Texas. We as a club, NTMS, saw participation that we haven't seen in many years. Let's keep the momentum going and get more participants active for the second weekend of the contest beginning September 19, 2015.

This year, I roved in a new location west of the DFW area. My rover rig consists of a homebrew 10 GHz transverter, a 40 watt TWTA and a one meter prime focus dish. But this year I added a new antenna; a 40-slot waveguide antenna mag mounted on top of my car. The antenna is homebrew and was fabricated from a piece of WR-90 waveguide. With the help of Al, W5LUA,

the antenna was measured and adjusted for best impedance matching or return loss. Two weeks earlier at the Central States VHF Society conference in Denver, CO, the waveguide antenna was measured by Kent, WA5VJB on the antenna range. It was determined the antenna had a slight downward radiation slant. Kent brought with him slices of special rigid foam and they were installed inside the waveguide. Further testing showed the radiation slant was improved. The antennas also showed a good omni-directional. The waveguide antenna worked well in the receive mode copying the K0RZ 10 GHz beacon in the mountains west of Denver.

A few days prior to the contest, Al, W5LUA and me conducted a few tests of my rover rig using the slot antenna. I drove north of Plano to a new construction site in the City of Prosper. Al was operating his home station and was copying my mobile rig well at better than 20 miles. This may not seem like a long distance, but it proved the concept of roving with an omni directional antenna.

The contest began early Saturday morning with me roving west on Hwy 380 toward Denton, TX. My first stop was in grid EM13nf and I worked W5LUA on SSB using the slot antenna at a distance of 27 km (16 mi). Next stop was in EM13kg in Denton. Again, I worked W5LUA at 50 km (31 mi) and attempted to work Wes, WA5TKU. Wes was having technical difficulties and we were not able to complete the contact. Moving west on Hwy 380, I stopped in Decatur and worked W5LUA from EM13ff at 87 km (54 mi) on SSB, still using the slot antenna. No other stations were heard from this location. From Hwy 380, I headed northwest on Hwy 287 towards Wichita Falls. Stopping in EM13cm just south of Bowie, TX, I again worked Al at a distance of 118 km (73 mi) on CW, still with the slot antenna. This seemed to be the limit of reliable communications with the slot antenna on my rooftop.

The next stop on Hwy 287 was a rest area just south of Henrietta, TX in grid EM03wr. This rest

area is very large and wide open to the southeast. I set up my tripod and one meter dish antenna and easily worked Brad, N5WCO on SSB at a distance of 166 km (103 mi) and Al, W5LUA at a distance of 156 km (97 mi). No other stations were heard and I packed up and headed to Henrietta for lunch.

Henrietta, TX is at the west end of Hwy 82 that runs east/west in north Texas. Although there were some nice horizons to the south on Hwy 82, there were no good spots to pull off the road and set up. I traveled east and found a pretty good rest stop in EM13ip. I set up again with the big dish and worked W5LUA at 86 km (53 mi), Greg AA5C at 93 km (58 mi), Kent WA5VJB at 109 km (68 mi) and Brad N5WCO at 120 km (75 mi). All of these stations were worked on SSB. The day is getting longer and I was starting to tire. One last contact for the day was made with W5LUA in EM13mk at 48 km (30 mi) with the omni antenna, just north of Pilot Point on Hwy 377. By this time, it was almost 4:30 PM and I still had a 45 minute drive home. It was a good Saturday roving North Texas.

Sunday morning I was up and roving again in the north Dallas area. I decided to only use the omni antenna for contacts. This way, I could be very mobile and move to different locations for quick contacts and never get out of the car. I worked Craig, KA6BOU in EM13rc. This was a very short distance because Craig was having technical problems with his 10 GHz gear. We were able to put each other in the log, but we were in the same grid. I also worked Al, W5LUA for a short distance of 8 km (5 mi). My next stop was a lucky call. I was traveling east on the President George Bush Turnpike toward Preston Road (Hwy 289) and noticed the Baylor Heart Hospital parking garage in Plano. I decided to check it out and see if it was a non-gated entry. It was open! I had to take the omni antenna off the top of my car, though in order to enter the low ceiling garage. I made it to the top deck and put the antenna back on the roof. I was waiting for the security guard to show up and kick me off the building, but it never

happened. Maybe, because it was Sunday and activity was light. The hospital builds surround the north and east sides of the parking garage. Therefore, my best directions were south and west. The view from this garage is awesome! No buildings close-in to obstruct the horizon. The parking garage is in EM13oa and my first contact was with Al, W5LUA at 18 km (11 mi) behind the hospital buildings. Next was Brad, N5WCO in Cedar Hill at 49 km (30 mi). Next contact was with Kent, WA5VJB in Grand Prairie at 44 km (27 mi). Ross, K5ZSJ was next at 8 km (5 mi). But the surprise of the day was a contact with Gerald, K5GW in Merit, northwest of Farmersville. Gerald positioned his very large EME dish on the horizon and we worked two way cw with signals 599 in each direction. Distance was 52 km (32 mi).

The hospital parking garage was my last location for the day and the first half of the 10 GHz contest. All in all, I made 18 QSO's, 7 individual calls worked for a total distance of 1,939 km. I drove a distance of 350 miles during this first weekend of roving. It was a great effort by all to get out and operate this year's 10 GHz contest and to support my roving around north Texas. A big thanks to everyone who participated.

Meeting Notes From the 2015 Vice President Al Ward W5LUA

The August 1st NTMS meeting was well attended despite the usual vacations and distractions that seem to keep us away from radio during the summer months. The meeting was predominantly a tune up party in anticipation of our upcoming 10 GHz and above contest August 15/16 and September 19/20. Folks in attendance at the meeting included KC4YOE, WA5JAT, N5UUE, K5ZSJ, W5EHS, KN5DK, KG5BZW, N5BRG, WA5VJB, AF8Z, WA5TKU and myself.

Noise figure equipment and a spectrum analyzer were available through 10 GHz. We had a technical roundtable with discussions around the

recent Central States VHF Society meeting in Colorado. We also talked about the results of the gain measurements on Bob Gormley's new 40 element slot antennas and Kent gave us an informal overview of beam skewing of slot antennas as one moves away from the optimum frequency. Kent used some absorber to help load the slot antenna cavity which moved the optimum frequency of operation down closer to 10368 MHz which minimized the upward tilt of the antenna. I gave a presentation on beacon reception reports with our new 40 element slot antennas on our own vehicles. Both Bob and I were able to hear the W5HN 10 GHz beacon from 30 miles out from Decatur to McKinney on Rt 380. While out in Colorado, Bob was able to hear the 50 millwatt K0RZ beacon which is at 10,000 ft elevation in the Rocky's at 46 miles and I was able to hear the K0RZ beacon at 92 miles while traveling east of Denver on I70. So they do work and should provide a lot of rover fun during the 10 GHz and above contest in the DFW area.

Hearing the K0RZ phase locked beacon rock solid on 10368.020 MHz day and night prompted me to look in to phase locking our own W5HN beacon. I talked to N5AC about setting up a VHF Apo1LO on 108.004 MHz which when multiplied by 96X in the DB6NT beacon will provide a signal on 10368.384 MHz. My biggest concern would be the spur level but we will take a close look at that. We would also have to use a pin diode switch to ID the beacon as we can no longer frequency shift key the 10 GHz beacon. According to Wes WA5TKU, we already have a Z3801 installed and running at the beacon site. All we would have to do is plumb a 10 MHz line to the roof for the beacon. Maybe easier said than done as our area to run cables is getting tighter and tighter. I would like to incorporate this change when we do the 1 watt amplifier. However, not before the August 15/16 weekend.

We also had some very interesting side group discussion about KC4YOE's 6 GHz SDR that Eric will talk about at one of our meetings this fall. This nice little SDR receives and transmits

through 6 GHz with a millwatt output and a 5 dB noise figure. The unit does need some preselection but surely can provide the basic building block for a nice microwave station.

The business meeting provided some nice welcomed discussion. Most notable was resurrecting the NTMS newsletter "Feedpoint" and the reinstatement of dues. Even though the NTMS treasury is in pretty good shape at around \$3900, the members felt it may be time to reinstate the dues to continue to support the monthly cost of meeting space, updating the beacons and the purchase of a new larger projection screen which we would donate to the church for general use. I have also heard that our projector is considered rather ancient and might need replacement. Ross K5ZSJ has volunteered to pick up the newsletter. More discussion to follow on both of these items at the October meeting.

We took a quick vote on whether or not to have a September meeting which would have been on Labor Day weekend, and it was decided to cancel the September meeting.

As a result, the next meeting of the NTMS will be on Saturday October 3rd at the St. Barnabas Presbyterian Church in Richardson.

In the mean time, I hope to work as many of you as possible in the ARRL 10 GHz and Up contests on August 15/16 from the DFW area and September 19/20 down on the Texas Gulf Coast.

73
Al W5LUA
NTMS Vice President
August 5, 2015

August Contest Report by Al W5LUA

Hello NTMS

I was pleased with the turnout this weekend. Including myself we had 10 stations operational from North Texas, including AA5C, WA5YWC,

WA5VJB, K5ZSJ, KA5BOU, N5WCO, N5QGH, K5GW, and W5RLG. Bob WA5YWC was the super rover and provided me with 10 QSOs in 10 different sub grids as well as supplying others with multiple QSOs. Ross, K5ZSJ, provided me with 3 QSOs in 3 sub grids. Greg AA5C is now operational at his new home location. Kent WA5VJB and Craig KA5BOU were operational from home. Brad N5WCO made his debut on 10 GHz with his new setup down at Cedar Hill. K5GW put his 23 ft EME antenna down on the horizon to work several of us Sunday afternoon with a booming signal. I had to do some serious arm twisting but I convinced Al W5RLG to set up his rig in his front yard and several of us worked Al just before the end of the contest. My son Bryan was up from the Houston area so I configured him with a rover setup in the neighboring sub grid and Bryan provided me with contacts on 10, 24, and 47 GHz.

Conditions were pretty good down to the Austin area Saturday morning and I was able to work Ron K5LLL at 322 km and Ben NO5K at 307 km. I tried with George K5TR and saw him several times on the waterfall but a QSO was not completed. I also tried with Tom K5VH a couple of times but conditions were not good enough. I discovered late on Sunday afternoon that my -24V power supply did not like the 12v to 110v inverter so I had to abort my proposed rover trip with my slot antenna. I am happy to report that 8 of my contacts with WA5YWC were with Bob running his 40 element slot antenna with a best DX of 118km or 73 miles. My best overall DX with Bob was at 156 km or 97 miles when he was using his dish.

As always, things don't always work out but I think we all learned something that we can do better next time. After all that's what this is all about...to have fun.

My report for the first weekend was 11 calls on 10 GHz and 1 call on 24 GHz and 1 call on 47 GHz plus a distance score of 1567 km gives me a score of 2867 points.

I would like to encourage others to report in on their setup and experiences and things we could do better next time.

73

Al W5LUA August 17, 2015

Secretary Report

Eric says everything he has is covered.

Letter from the Editor

When you do something for the first time it is the exception is that it comes out in a finished form. So it is with this newsletter. I expect to get suggestions for items that should be included. The objective is to provide basic information and also have feature articles on things of interest. If you tell me what is interesting, you are much more likely to get what you like than if you do not give feedback. So do not be bashful in telling me what you have on your mind.

I am going to attempt to include some basic information which may be a bit simple for the long experienced microwavers so that newbies can get some hints on how to go about assembling a station. The "Elmer Needed" section is a place that anyone either new or old to microwave ham radio can get questions answered. Hopefully I can make the newsletter both informative and interesting with the help of all the members of the club. Send your stuff to: ross_p@verizon.net

Sunday Net Notes From Ross, K5ZSJ

The usual discussions vary on a wide range of topics. I usually ask if the net members are going to the Tuesday lunch and we often remind each other to bring items to lunch to discuss or pass back and forth. When the weather cools, I plan to go rover with my 10 GHz. rig and try some locations for making contacts in the local area for the net. I think the experience will enhance the

contest results since we should locate good spots for rovers. If you are out of the Dallas area drop an email to ross_p@verizon.net and let us know to look especially hard in your direction and give you several calls. The net is Sunday nights, 8:00 PM on 144.60 USB.

Beacon Update

Al Ward (W5LUA) gave a description of work to be done on the Denton 10 GHz. Beacon in his meeting notes. Al presented a graph of the frequency of the beacon vs. temprature which appeared as a sloped linear line. Hopefully the work will stabilize the beacon so that we can use it to get our rigs on the call frequency with good accuracy.

A listing of beacons may be found on the NTMS website <http://ntms.org/> and click on beacons under the operating heading on the left side of the screen for frequencies and sub grid.

Beacon Frequencies as of Sept. 3 2015 Measured by zero beat in USB mode

NTMS Denton Texas Beacons
W5HN/B EM13KF45PB
N 33 13' 45.91" W 97 07' 40.65"

10368.376 MHz
5760.366 MHz
3456.369 MHz
2304.367 MHz
1296.373 MHz
902.379 MHz
432.379.7 MHz

NTMS Desert Texas Beacons
W5HN/B EM13SJ91MR
Coordinates 33.382191 and -96.420606

144.280.3 MHz
50.072.2 MHz

AA5C/B Beacons

24192.333 MHz Blue Ridge, Texas
EM13SF89TB
222.060 MHz EM13se

For Sale

Send items to ross_p@verizon.net

I have a few things forsale:

(2) new in package DEMI TCK kits. These are transverter controllers that provide IF attenuation/switching and also provide a +24VDC source for external switching relays. Latest Design. Purchased in 2015. \$30/ea.

K3TUF Band Decoder for FLEX-1500. Connects to serial port and provides (16) open collector outputs. New. \$30

G4DDK Anglian 8W 2m Power Amplifier Kit WITH Mitsubishi RA08H1317M module. New / Unbuilt Kit. Includes LPF on output. \$40

New 3-legged roof tripod, taller than most. \$40

Polyphaser IS-RCT Rotor Surge Protector. New. \$100

Parts can be picked up at meeting, or shipping can be arranged. Contact Brad N5WCO at bradcobo@gmail.com for details.

Thanks Ross!

-Brad N5WCO

Free Stuff

Send items to ross_p@verizon.net

2 Power-one linear supplies in unknown shape.
Supply #1: CP206 24v @2.8 A, +5v @2.5A, -5v @.5A

Supply #2: HCBB-75W-A 5v @ 6.0A, +12 and -12 @1.7A or +15 and -15v @1.5 A.

Will bring to next meeting. You may claim it now from Ross K5ZSJ ross_p@verizon.net

Wanted

Send items to ross_p@verizon.net

U310 low noise fet or equivalent for Mirage 2 M PA. Ross K5ZSJ ross_p@verizon.net

Elmer needed

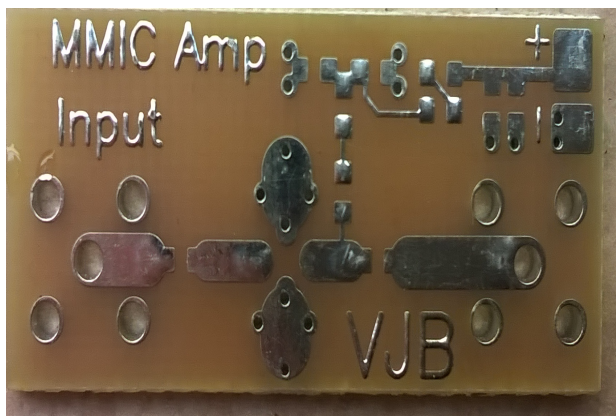
Send questions for Elmer to ross_p@verizon.net

I am plan to get an Android cell phone and want to use it for roving to get a GPS coordinates and have an application to calculate the heading to another point and also have some way to establish accurately true north to point the antenna correctly. If you have some information on this subject, please email it to me. If I can get this working, I will put the information in the feedpoint for others. I know next to nothing about cell phones so everything about them is news to me. Also, I have a friend in a fringe area for his cell phone. If any of you cell phone geeks have a suggestion for a good booster, please let me know.

Ross K5ZSJ ross_p@verizon.net

Features and Articles

KENT's MMIC BOARD



Kent is selling the MMIC amplifier project circuit

board for \$10 for 5 boards that can be a mix of coax and pig tailed boards and can be mailed. The pictured board is for SMA connectors and another board is for pig tailed coax.

Microwave Band Geosynchronous Satellite Planned

AMSAT (AMSAT.org) is planning a new microwave satellite for launch in 2017. The announcement can be viewed at:

<http://www.amsat.org/?p=4058#more-4058>

Kent is working on this project and reports that the satellite is to fly a figure eight path daily over North and South America. Since this project is in the planning stage, things may and likely will

change. I will be getting Kent to update us as information becomes available.

AMSAT Notes de WA5VJB

I am currently working on a 10.45 GHz Patch antenna array for an up coming package. They have worked out a deal where AMSAT will be allowed to place a 20 kg package on a satellite under construction. This works out great. The package will be able to use the mother ships solar cells, batteries, and thermal management systems.

Officially the package is a backup communications network for FEMA. In the event of a national emergency FEMA will have control, but, when they aren't using it!!!!

These systems are being designed for the 6 cm ham band up, and the 3 cm ham band down. I can just see all the guys going into a panic at the thought of having to build a 10 GHz receive system. Much easier than you think. There are now some common satellite LNB's coming out of Europe that are crystal controlled and in the \$20 price range. Frequency stability is good enough for SSB/CW reception. 10.450 GHz comes out at about 700 MHz, but you just set your SDR Dongle to 700 MHz, dig up an old Satellite Dish, and you are in business.

Since the satellite will in a a geosynchronous orbit rather than a geostationary orbit, the satellite will drift up and down a bit over the course of a day instead of staying in one spot. So there are advantages to finding an old PrimeStar dish which had a narrow left/right pattern, but much broader up/down beam.

Kent Britain WA5VJB/G8EMY

Activity Plans for Sept. 19-20 Microwave Contest by Al Ward, W5LUA

The response from the DFW guys and RMG guys for the first weekend was fantastic. I show the following NTMS guys were present. W5LUA, WA5YWC, WA5VJB, KA5BOU, AA5C, K5GW, N5WCO, K5ZSJ, N5QGH and W5RLG. From the RMG group I see that K5LLL, NO5K, K5VH and K5TR were present and maybe more. The DFW rovers included K5ZSJ and WA5YWC.

The second weekend of operation will take place on Sept 19 and 20. I would like to encourage everyone to get back on and try to fill in their log with a few more calls. Ross K5ZSJ will be roving again in the DFW area. I am also hoping that WA5TKU, N5BRG, WQ5S will be operational. I also believe that several guys including K5GJ may be operational from Dick K5AND's place in EM00xh as that weekend is also the annual 6M BBQ down in Austin.

Coordination will again take place on 144.260 MHz.

Bob WA5YWC will be roving down in the Gulf starting in the EL49 area looking for stations on the coast.

As it turns out, my plans are changing. I have an opportunity to work HV0A via the moon on 23, 13, and 9cm the same weekend. The Vatican is a much needed new country for me. So....I think I will stay in the DFW area and operate from home and maybe some local roving on Saturday and or Sunday afternoon. I will be looking towards BBQ hill in EM00xh both Saturday and Sunday morning starting around 7AM.

What are the plans of others?

Thanks and 73

Al W5LUA

Activity Report for First Weekend of Microwave Contest from Brad N5WCO

I've been meaning to share a few experiences from this year's 10G contest first weekend. As they say, better late than never.

My goal for this contest was to officially activate 10G at the home station. This has been a multi-year effort to get to this point and I'm happy to say that everything worked better than expected. This year has been spent putting up a short tower, building a new 10G rig and learning about and firing up an old TWT amplifier. With all that done, tested and working, all that remained was to put up the antenna and feedline. This task got pushed out to the last minute of course. Friday night before the contest, I put together the LNA and transfer relay box on the back of the 2' dish. Saturday morning, I got up early and pulled down the mast, installed the dish, ran about 60' of 1/2" Heliac, put the mast back up and bolted everything back to the rotator. By 9AM, it was time to cross my fingers and flip the switch.

I was immediately rewarded by hearing some activity. The W5HN beacon in Denton was audible and I could hear some 2m activity. I listened, adjusted and waited for awhile before working Al W5LUA at about noon. He's across town, about 63km, and signals were loud and clear on both ends. As the afternoon went on, I worked Bob WA5YWC several times as he was roving, then Kent WA5VJB and finally Greg AA5C. My longest path for the day was with Bob for 165km. While he was using his dish for this one, my other contacts with him were on his slotted waveguide omni. I'm a huge fan of that thing for roving. I found that it was very easy to peak up on his 10G signal while he was working someone else, and that allowed me to pounce just as soon as he finished. It worked great and made for easy contacts.

Sunday I tried unsuccessfully to make a few contacts with the RMG guys. I tried working George K5TR and Ben NO5K but they never could hear me on 10G. I'm running a 25W TWT

at the base of the tower, and with 60' of 1/2" Heliac, that's probably 8W at the dish. Apparently not enough to work Austin on command. On the other hand, my 100W 2m signal was strong so that was some consolation. The only 10G contact of the day was again with Bob while he was on the parking garage at Baylor.

The first weekend score was a meager 886 points, but that's a rousing success in my book. I had a great time and encourage others to join us for the second weekend.

For both of these days, I had all the gear setup at the base of the tower. It was hot and a bit noisy later in the day when all the cicadas start chirping. This was part of a test though. Since my tower is about 180' away from the indoor shack, I have built a system that will allow the transverters to stay at the base of the tower, while all of the FLEX-1500 based IF radio part of the system is indoors in the shack. This first weekend was a test of half of the system – the tower end. The next weekend will be spent indoors checking to see if the whole thing works. I need to swap out a preamp and build a little IF receive amp, but so far, it looking pretty good.

I posted some photos of the station equipment: <https://goo.gl/photos/wfNBRPWhtasApi8k8>

73 Brad N5WCO EM12ms Cedar Hill, TX

Lilburn's Rig by Rosss K5ZSJ



Lilburn Smith, W5KQJ, retired from the rigors of ham microwave and sold me his 10 and 24 GHz. rig. I have it now working and used it for the 10 GHz. and up contest. Lilburn's rig is the large box on the tail gate. It puts out about $\frac{1}{4}$ watt and has a Yaesu FT-408R 2M all mode in the large box, the 10 mw. Down East transverter, and a $\frac{1}{4}$ watt PA. For 24 GHz. it doubles the 10 GHz. to 20 GHz., mixes 24 GHz. down to be within range of a 3.5 GHz. transverter also in the big box. I do not have the 24 GHz. working yet. This arrangement turns out to be the most handy arrangement for roving since the rig is all in one box. The gray dish is mounted on a mast made of

mostly schedule 80 threaded PVC. Trying to use threaded PVC became such a hassle because the plastic threads bind and make screwing it together a chore. So I bought some short galvanized pipe nipples for ease of disassembly. The mast comes easily apart in the middle and packs nicely in the back of the truck. I am reveling in the new ease of setting up. I am working on PA for up to 8 watts, wave guide TR switch, an A32 synthesizer using a surplus HP oven oscillator out of a frequency counter, and a W5LUA low noise preamp.