

NTMS Feedpoint

April May 2016 Volume 30 Number 2

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 Pounders K5ZSJ
Treasurer	Wes Atchison WA5TKU	Webmaster	Bob Gormley WA5YWC

NTMS Meetings and Events

May 7th Meeting Canceled

June 11th – **HamCom Irving, Texas**
Meeting at HamCom on Saturday

June 11/12 – **ARRL VHF Contest**

July – **Tuneup, Operating, social event** TBD

August - **Tuneup, Operating, social event** TBD

September – no meeting due to Labor Day conflict

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

East Side Lunch Every Tuesday 11:30 AM
The Texas Smokehouse 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 2016 President Bob Gormley WA5YWC

Hello NTMS,

Here it is May 1st already and it's time to start looking forward to the summer and fall microwave activities. Due to family conflicts with both Al, W5LUA and myself, Al and I have decided to cancel the May NTMS meeting. Kent, WA5VJB volunteered to present a talk about circular polarization, so we'll reschedule Kent's talk for another meeting.

June brings us to Ham Com at the Irving Convention Center on the 10th and 11th. We will have a table in the main area and

possibly a time slot for a presentation on Saturday. This is still in the planning stage at this time. Ham Com will also host an outdoor tailgate area this year. Saturday is also the beginning of the ARRL June VHF contest.

As with past years, NTMS wants to help members get active on the microwave bands. By far, 10 GHz is the easiest band to become active. We will be holding construction and tune-up parties again, prior to the August and September ARRL 10 GHz and Above contests. Don't wait until the last minute to start planning your construction projects. NTMS has a lot of talented people eager to help you with your projects. Please take advantage of the resources. We want to see as many people as possible on the air this year. Last year's 10 GHz contest was a great success in regards to new stations on the air. Let's make this another great year.

October brings Microwave Update to St. Louis, MO. I know it seems like a long way off, but it will be here in no time. If you haven't attended a Microwave Update in the last few years, I encourage you to give it a thought. Believe it or not, St. Louis is only a one day's drive from DFW. Let's keep the momentum going.

73,

From the 2016 Vice President Al Ward W5LUA

Due to changing events, Bob and I have decided to cancel the May meeting of the NTMS. We plan to reschedule Kent's talk on "Circular Polarization" for a future meeting after Hamcom.

In this issue of Feedpoint, we have several articles by Wes WA5TKU, Greg AA5C and myself regarding the W5HN beacons. I encourage everyone to read them. There is a little bit of history in each one of them. We hope you find them enjoyable. Thanks to Wes and Greg.

We are continuing to encourage everyone to sign up and move over to the NTMS reflector on the Yahoo Groups web page. Once you sign up, you can get the reflector messages sent to you just like you do now or you have other options that you can choose from on the web site like grouping them into 1 email or viewing them on the yahoo site. We plan to close down the old reflector in the next couple of months. Thanks again to Brad N5WCO for setting up the NTMS Yahoo group.

Be sure to put Hamcom on your calendar. This is the usual 2 day event at the Irving Convention Center on June 10th and 11th.

<https://www.hamcom.org/>

The NTMS is working on getting a 1 hour time slot on Saturday morning so everyone could have a chance of making it home in the afternoon for the ARRL VHF contest. We have an NTMS table in the indoor fleamarket. Please contact Kent WA5VJB if you would like to put something out on the NTMS table.

Hope to see you at Hamcom.

73
Al W5LUA NTMS VP
May 3, 201

Secretary Report

By Eric Haskell KC4YOE

NTMS Meeting January 16, 2016 at Cowtown Hamfest in Fort Worth. Al, W5LUA, gave an overview of the NTMS with a some nice picture slides. Bob, WA5YWC, gave an presentation on building microwave equipment.

NTMS Meeting March 5, 2016 at Saint Barnabas in Richardson. Dave Robinson WW2R/G4FRE was visiting from England and gave a presentation about systems for remote control of ham radio transceivers. He mainly focused on RCFORB which is a free option with good performance. Dave also gave a presentation on the current state of ham contesting in the UK.

NTMS April 2 meeting at Saint Barnabas in Richardson. Kent Britain provided some free parts before the meeting. Brad Cobo Presented has most recent project a 10GHz transverter using DB6NT modules and and omni waveguide slot array antenna built by Bob Gormley, WA5YWC. Al Ward, W5LUA, gave a presentation on the his February trip to Arizona including visits with Barry Malowanchuk, VE4MA from Canada, Jim Vogler, W7CJO, John Malloy, W7JM, Alfred Green, NU8I, Jim K0KFC and Tom Whitted, WA8WZG. WA8WZG was using a section of mesh TVRO dish as an offset dish.

NTMS will have a table at Ham-com with possible meeting slot on Saturday.

There was a discussion of beacons, in particular adding a 10 GHz PA.

Letter from the Editor

This issue has been delayed by a series of happenings. Steve (WB4GHY) gave me a 13 ft. dish. I have had help from Al (W5LUA) in the disassembly of the dish and plans to make a mount for the dish. I plan to put the dish at my place near Ft. Davis, Texas for moonbounce. I am including an article about this in this issue. I plan to make the dish available to NTMS members and others that would like to try out their rigs on moonbounce but do not the place to install a dish at their QTH. True, it is over 500 miles to my place, but at 5,700 ft. it is much cooler than Dallas during summer and there are national and state parks all around and other attractions. Also, Gerald (K5GW) gave me a prop pitch motor for the dish and it is requiring disassembly and cleaning since it was sitting outside for 20 years and got water inside it. In addition to this, my email was a part of Verizon and changes to a new company created me email chaos, So, things are gradually correcting themselves and I am finally getting the Feedpoint issue out.

Send your stuff to: ross_p@verizon.net

Sunday Net Notes

From Ross, K5ZSJ

There were two new shows this last month, Jim (K5JSB) and Jay (KG5BZW). Both were located around central Ft. Worth. Jay was using the rig he

brought to the NTMS meeting. Both were low power and a bit weak. However we were able to make a QSO with both. All are welcome and encouraged to join the net.

Beacon Updates

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

Features and Articles

Desert Texas W5HN/B Beacon Report – March 24, 2016 By Al Ward W5LUA

The W5HN/B 6 and 2m beacons are located at the 180 ft level on a 400 ft plus commercial tower located in Desert, Texas. The coordinates are 33.382191 degrees north latitude and -96.420606 degrees west longitude. The grid square is EM13sj91mr. They have been located at this location for almost 30 years thanks to the generosity of Mrs. Roger Nations who owns the property where the tower is located. We have our own rack cabinet down in a building and we pay nothing for rent or power. We have a good deal which the NTMS really appreciates.

The M2 halo antennas and feedlines that we are presently using were donated some years ago by Gerald Williamson K5GW of Texas Towers down in Plano. Thank you Gerald. The original antenna was a 6m Saturn halo donated by WA5VJB and the 2m halo was homebrewed by WB5LUA. The beacons were originally built by Brad Bradfield, WB0CGH, now W0CGH, and Fred Gerken, KC5RT, who also worked at Texas Instruments in Lewisville. They

were installed on the 200 ft tower at the Lewisville Texas Instruments plant back in the 80s. When TI decided to close down the Texans Association and radio club, the beacons were acquired by NTMS. After a couple of temporary sites, the beacons settled on a somewhat permanent location in Desert, Texas starting sometime in the fall of 1987.

The beacons are still running to this day. Not bad for a couple of Hamtronics FM transmitter strips with 2N3866's in the finals! Other than a few blown 12 v power supplies and a couple of bad 2N3866 finals due to lightning strikes, they have been on the air for about 29 years!

The last I remember, the 2m beacon runs about a watt and the 6 m beacon runs about .8 watt. Based on the loss factors of 200 ft runs of 0.5 inch Times Wire Alumifoam, I believe both the 2 m and 6m beacons are running about 600 milliwatts at the antennas. The 6m beacon has been heard around the country on 6m sporadic E and the 2m beacon has been heard hundreds of miles away on tropospheric scatter. The 6m beacon is zero beat on approximately 50.072.4 MHz and the 2m beacon is zero beat on about 144.280.3MHz. They are obviously not

GPS locked so they will vary with temperature.

Both beacons sign the NTMS club call of W5HN. Our very famous local VHFer Leroy May held the call of W5HN which the NTMS was fortunate enough to acquire shortly after Leroy's death in the 90s.

What does the future hold?

My biggest concern is that my local contact that has provided us with access is about to or has retired from the Richardson Independent School District. I do have the access code but it is always nice to know someone on the inside, hihi...He hopes that he will continue on as an independent contractor providing tower support. I will follow up and see if he is enjoying retirement. I hope we won't have to find a new location for the beacons but are there any offers out there?

My second concern is that I have received some reports from neighboring hams that the signal levels seem lower than they have been in the past. Probably true based on the fact that they have been in service for almost 30 years...

I am soliciting reports from those folks that have been monitoring them for some time. Do you think they have deteriorated over time? Even though my 6 m antenna has some issues and my noise level is high, I would say the 6m beacon truly has deteriorated over time. The 2 meter seems fairly normal to me but I am only 24 miles away. I would appreciate your inputs to w5lua@sbcglobal.net

My plans over the next few weeks are to take a trip to the beacon site with a power meter and directional coupler and measure output power and return loss of the antennas. We have received a couple of amplifier donations so increasing power is not an issue. If we have an antenna issue, I don't have the desire to make the trip back up the tower to 180 ft to fix the issue. My son Bryan N5QGH and I put those halos up there years ago but since those tower rungs are x shaped instead of horizontal and hard on my feet, I have zero interest in making a return trip. Greg AA5C and Wes WA5TKU have also made the trip up the tower. Not fun, hihi!

Just thinking.....our beacons are probably eligible for QCWA membership! They have been good to us. I listen to them often, almost daily. How about you?

73 de W5LUA 3/24/2016

Status W5HN Beacons Denton, Texas

By



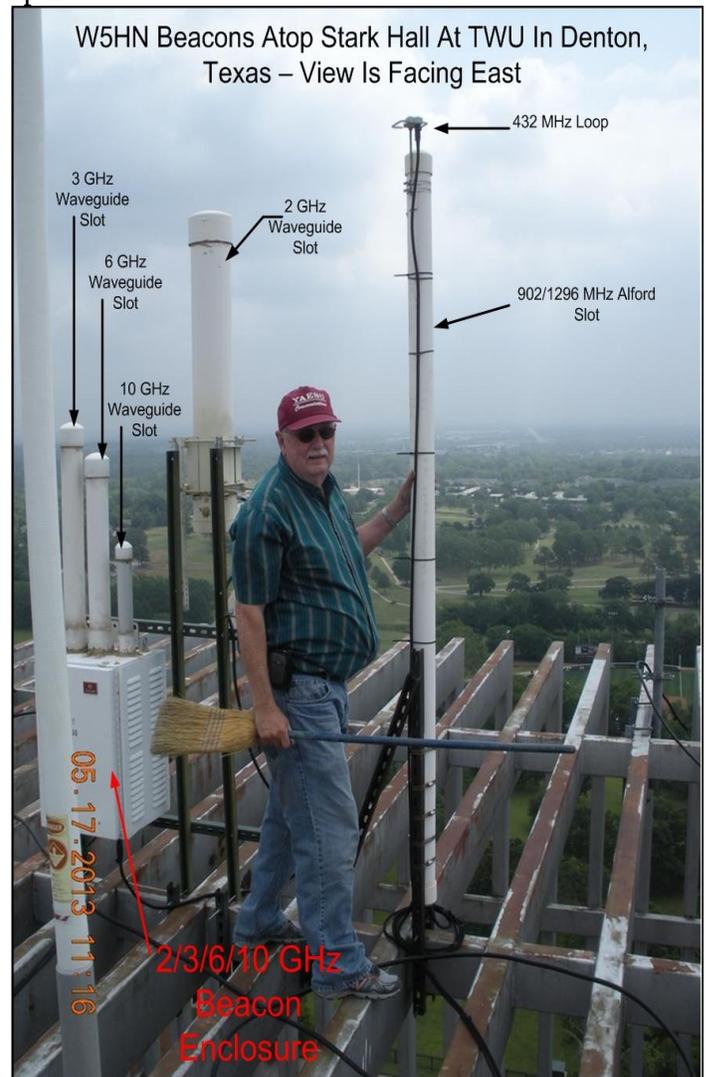
Wes Atchison WA5TKU

The W5HN beacons on top of Stark Hall on the TWU campus in Denton, Texas continue to function almost flawlessly. Currently the 432, 902, 1296, 2304, 5760 and 10368 MHz beacons are on the air. The 3456 beacon is on AI's, W5LUA, work bench being repaired.

The picture to the right identifies the microwave beacon enclosure and each antenna for the beacons operation on top of Stark Hall. The broom I am holding was just used to align the 432 beacon antenna element. Something hit or sat on one of the elements forcing them askew. Looking back over my pictures of the microwave beacon package it would appear that the current beacon hardware for the 2/3/5/10 GHz beacons have been on the air since February of 2010. They went on the air first at my QTH and then were installed at the current location later in the year. Previous to the current beacon hardware Greg, AA5C, built a beacon package for 3/5/10 GHz using the old Frequency Wes style bricks. My poor recording keeping shows that this package was on the air as early as July of 2000. The information I have on the operational dates for the 432/902/1296 MHz beacons is lacking in dates so I am not really sure of how many years they have been on the air. I am sure it is approaching 20 years. My log book review did not show a listing of these beacons (I'm bad at keeping such records). If anybody has better information on the start dates of the beacon at TWU please forward it to me. Would like update my records for a more complete history of the beacons at TWU.

Reliability of the current beacons hardware has been outstanding. The 432 beacons has been on the air continually since it first turned on. The 902 & 1296 beacons have been off the air a couple of times for repair during they life at TWU. The 2/5/10 GHz beacons have been off the air for a short time during their life on top of Stark Hall due to the failure of the 48 volt to 12 volt DC-DC power supply. The 3 GHz beacon about the same time as the DC-DC power supply. It was pulled for repair when Bob, WA5YWC,

and I replaced the DC-DC power supply with the spare.



Current future plans are to install an amplifier on the 10 GHz beacon to bring it up from about 200 mW to about 3 watts. The amplifier has been purchased and is being configured for installation. Some investigation is under way into locking the beacon local oscillators to a 10 MHz GPS locked source. Schedules for both of these additions to the beacon package are still to be determined. Watch the NTMS web page and the NTMS Yahoo Group for announcements when these changes are made.

Hope every can hear the beacons and find them useful.

AA5C 222 MHz. Beacon

By Greg AA5C

The AA5C 222 MHz beacon was built in 1999 and has been in continuous service since then. The frequency source is a surplus commercial PLL that was tunable to 222.060 MHz, the top end of the 222.050 MHz to 222.060 MHz beacon band. The beacon CW message is produced by a WW2R PIC keyer that drives a home-brew PIN diode switch. The output of the PIN switch feeds a Mitsubishi M67734 RF power module (courtesy of WW2R). A 3 dB pad between the PIN switch and the RF power module trims the input power



Figure 1 AA5C 222 MHz Beacon Electronics

to the requisite + 11 dBm input level. The PLL, PIN switch, keyer, RF power module, along with voltage regulators, are contained in the die cast

chassis shown in Figure 1 below. The die cast chassis with the beacon electronics is housed in a weather proof enclosure along with a 15 VDC power supply, a cooling fan, and a 300 MHz low pass filter (courtesy of W5LUA) to roll off harmonics. The lid off a can of spray paint was used to form the plenum for adapting the computer fan to the output duct. The unit is feed with 115 VAC. The antenna is a folded dipole made out of 0.141 inch hard line. The same line is used to for the balun. A two foot run of RG214 connects the electronics box to the antenna.

Summary details for the AA5C 222 MHz Beacon:

Location: EM13se (AA5C QTH east of Princeton, TX)
Height: 53 feet AGL
Frequency: 222.060 MHz
Output Power: 8W
Antenna: folded dipole
Polarization: horizontal
Keying: full on-off CW

The AA5C 24 GHz beacon was built in 2001 and has been in continuous service since. It was first located with the W5HN beacons on top of the dormitory at Texas Woman's University but was moved to the QTH of Graham McIntire, W5ISP about 6 years ago. The frequency source is a Frequency West MS-76 series "brick". The 112.001504 MHz reference crystal frequency is multiplied by 108 to an output frequency of 12,096.162 MHz. The output of the Frequency West "brick" is buffered with an isolator and then fed to a PIN diode switch. The output of the switch drives a W5LUA frequency doubler (courtesy of W5LUA). The output frequency of the doubler is around 24,192.324 MHz. The +7 dBm output of the doubler feeds a surplus LMDS amplifier (courtesy of W5LUA) to produce 0.5 W of RF output power. The output of the LMDS amplifier connects to a homebrew coax-to-WR42 transition to which a 12-slot WR-42 waveguide antenna is connected. A WW2R PIC keyer containing the CW message drives the PIN diode switch. Various regulators and a +13.8VDC to

-20 VDC voltage converter for the Frequency West “brick” complete the electronics suite. All electronics is housed in the “can” from a surplus cellular filter. The “can” is mounted in the inverted position. A 15VDC switching power supply at ground level is trimmed to 16.5 VDC to account for the line loss of the power feed. Summary details for the AA5C 24 GHz Beacon

Location: EM13sf (W5ISP QTH near Verona, TX)
Height: 70 feet AGL
Frequency: 24192.348 MHz @ 52°F outside temperature
Output Power: 0.5W
Antenna: 12-slot WR-42 slotted waveguide
Polarization: horizontal
Keying: full on-off CW



13 Ft. Dish Headed for the Davis Mountains

by Ross K5ZSJ

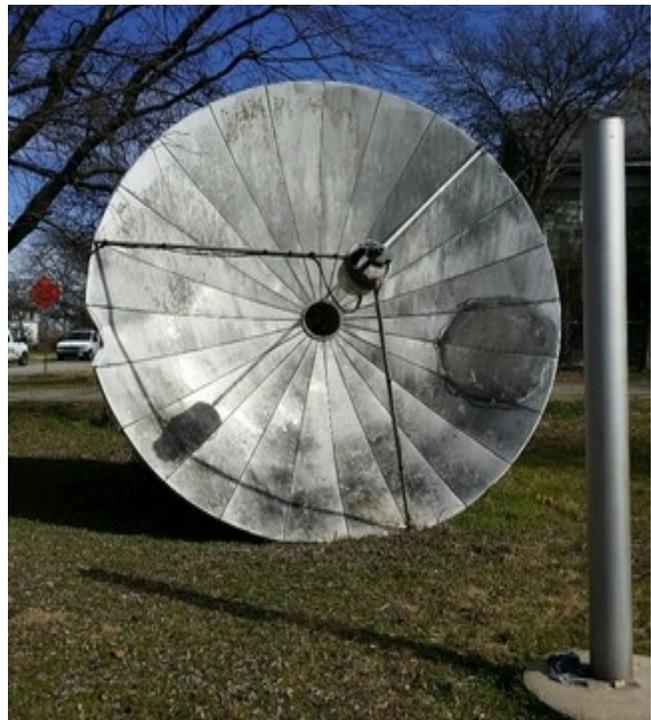
Some Interesting Products

DC to DC converter:

Tanner Electronics of Carrollton has several Vicor VI-230-CY 12 v to 24 v converter modules for sale for \$12. You can view the specifications at: <http://www.vicorpower.com/products?productType=cfg&productKey=VI-203-CY>
The power out is 50 watts for 75 watts input. Talk to Jim Tanner and say Ross sent you for a discount.

1 Ft. 10 GHz dish:

Phil of Hanger 81 in San Antonio had some nice 1 ft. 10 Gig dishes for \$20 at the Belton hamfest. Roger (N5PGH) bought four of them and brought three to the Tuesday lunch to make them available for others. The three were quickly gone. A the dish has a WR 90 feed with a N adapter on the back side of the dish. There are bubble levels and an adjustment knob to tilt the dish. I don't know if Phil has any more, but you can ask. I plan to use mine through the moon roof in my F150.



13 Ft. Dish at Van Alstyne

Steve (WB4GHY) made a 13 ft. dish available for the taking. I have 15 acres in the Davis Mountains near Ft. Davis, Texas so I got it to place on that property for moonbounce. The

location is at 5,700 ft. elevation but there are mountains surrounding it. So the only microwave opportunity of significance is moonbounce. There are good tropo locations in the region but my place is not one of them.

The picture showing the location of my place is taken from one of the surrounding mountains with a telephoto lens. The distance of the dish from my cabin indicates that I need a hamshack near the dish. The cabin roof is visible in the center right section of the picture. The cabin is partially hidden by a large pine tree. The white structure placed next to the cabin for HF and some VHF with a point on top is a church. I plan to put a shipping container close to the dish for "mission control" and mount for 10 solar cell panels on the top of the shipping container. The center of the photo shows the RV shed. I am having a tower erected by the cabin for HF and some VHF.



Dish to be Placed at Center Far Left

The plan is to put a 10 ft. section of Ron 55 and mass quantities of concrete for a base and put a prop pitch motor in the tower for azimuth rotation. Gerald (K5GW) donated a prop pitch motor that has been sitting around for 20 years in rain and needed a bit of work to get it to turn.

Al has been helping disassemble the dish and both Al and Gerald are helping make plans for the



Why the Prop Pitch Motor Wouldn't Turn

mounting and pointing of the dish. When the project is done, I will make the dish available for NTMS members and others to play radio with moonbounce. Most of us in the North Texas Metro area do not have space for such an antenna so it will be fun to use the big dish in the Texas mountains.



Al Working on the Big Dish

NTMS YAHOO EMAIL REFLECTOR

The NTMS has a new email reflector. A YahooGroup has been set up which will give us many new features:

- 1. You can see your own posts.*
- 2. You decide how to receive emails from the reflector: single emails, daily digest, only when you login, etc.*
- 3. You can attach photos to your email. Photos pasted in the email message body*

are not allowed, however.

4. There is a Photos section where you can create your own album to showcase projects you've been working on.

5. There is a Files section of the group where you can create a folder used to share documents, schematics, code, etc. with others in the group.

6. All messages are archived and searchable.

7. An online calendar and member poll feature are also available.

TO SUBSCRIBE:

There are a few ways to do this:

1. Send an email to ntms-subscribe@yahoogroups.com. Please include your full name, callsign and whether or not you are a current NTMS member. This will facilitate quick approval.

2. Send an email to ntms-owner@yahoogroups.com and a personal invitation will be sent back to you.

3. If you have a Yahoo account, log in and head over to the "Groups" section. Search for "North Texas Microwave Society". Click on the "Join Group" button. You may also go directly to <https://groups.yahoo.com/ntms> and click "Join Group".

TO POST:

Send your message to: ntms@yahoogroups.com

TO CONTACT THE LIST

ADMINISTRATOR:

Send an email to: ntms-owner@yahoogroups.com

TO UNSUBSCRIBE:

Send an email to: ntms-unsubscribe@yahoogroups.com Subject and body can be blank.

Microsoft Schemes

By Ross K5ZSJ

I use Ubuntu for this newsletter and avoid Microsoft as much as possible. However, since

hams have old programs which frequently will not work on new revisions of Windows, I took interest in the revolting development he spoke of. My friend did inform me of a scheme by Microsoft to make everyone go to Windows 10 without a choice. He sent me 3 articles on this topic that I am including in this article FYI:

http://www.cmputerworld.com/oarticle/3044518/microsoft-windows/users-seethe-as-windows-10-arrives-while-their-backs-are-turned.html#tk.rss_all

<http://www.infoworld.com/article/2995915/microsoft-windows/unwanted-win7win81-upgrades-to-win10-can-now-be-stopped.html>

<http://www.itnews.com.au/news/microsoft-starts-pushing-windows-10-upgrades-to-users-416843>

The upshot of this is that Microsoft is loading Windows 10 on your machine without your knowing it and requiring you eventually to update with no choice to decline.

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

For Sale

If you or anyone you know needs a bit more power on the low bands I have the following amps that I would like to sell:

Henry 2002A 144 Mhz amplifier 700+ watts out.
\$1000 obo

Henry 50 Mhz amplifier single 3CX800. It was a 40 Mhz RF generator but was easy to retune to 50 Mhz and has worked great for me.
700+ watts out. Has a built in forward and reverse power meter using bird slugs. Very well built. \$900 obo

Command Technologies VHF-1200 50 Mhz amplifier. Single 3CX800.
Nice compact amp. 700+ watts out. \$1100 obo

All of these amps only need about 25 to 35 watts of drive for full power or more.

I do not really want to try to ship these but I am willing to deliver and/or meet somewhere inbetween.

--

George Fremin III - K5TR
geoiiii@kkn.net
<http://www.kkn.net/~k5tr>

For Sale:

From: KENT BRITAIN <wa5vjb@flash.net>
Sent: Sunday, May 1, 2016 12:43 PM
Subject: Feedpoint ads

5 Sections Rohn 25 tower \$100
You will need to transport WA5VJB

Panoramic Adapter Taps or most Rigs by G4HUP

www.huprf.com
WA5VJB stocking distribution in the US

G4DDK VLNA Very Low Noise Preamp Kits
432-5760 MHz \$75 each www.g4ddk.com
WA5VJB stocking distributor in the US

Free Stuff or Wanted:

Send items to ross_p@verizon.net