The Pileup

Newsletter of the CDXA

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AD4IE	Paul Ponak	Vice-Pres.
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W3OA	Dick Williams	Contest Mgr.
W3GQ	Paul Sturpe	Cluster Mgr.-North Area
WB4BXW	Wayne Setzer	Webmaster
K8YC	John Scott	Editor

Field Day 2010

Ric Porter, AA4SC, and
Dick Williams, W3OA

CDXA is planning on continuing its streak of very competitive Field Day entries. This year we will be operating form Ric Porter's QTH, AA4SC, in Rock Hill, South Carolina. That's just minutes off of I-77 and only seven miles south of the North Carolina/South Carolina state line. All stations will be in air conditioned space. We will be using the callsign W4DXA.

New this year, members participating at W4DXA will receive an official CDXA Field Day T Shirt. The shirt will be similar to the one modeled by K8YC in the picture below. The words "W4DXA Team, ARRL Field Day" will appear above the CDXA logo. In order to be guaranteed a shirt in your size you must sign up by June 14. See the instructions at the end of this article.

In 2007 and 2008 CDXA made history by setting two Field Day class records, Class 4E (home station, four transmitters, emergency power) in 2007 and Class 5E (home station, five transmitters, emergency power) in 2008. In 2009 we won Class 3E (home station, three transmitters, emergency power). We are out to win Class 3E again.

Here's the plan:

Time/Date: 2 p.m. Saturday, June 26th, to 2 p.m. Sunday, June 27th.
Location: QTH of AA4SC in Rock Hill, SC.
Class: 3E (home station, three transmitters, emergency power), 150 watts or less.
Stations: Three stations in the house.
One will be SSB, all bands, 160 through 10.
One will be CW, 80 through 10.
One will be CW and SSB on 40.
Antennas: 160 – Dipole
80 – Four Square, dipoles
40 – Four Square, loop, dipoles
20 – Mono bander, tribanders

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CDXA PacketCluster & Other Communication Systems	
K4MD (AR Cluster via Telnet)	k4md.no-ip.com
NA4L (AR Cluster via Telnet)	cdxa.no-ip.org
CDXA Repeater 147.18 MHz (+600)	W4DXA, Near Fort Mill, SC
World Wide Web Homepage	www.cdxa.org
Wednesday Luncheon (11:30 AM)	Skyland Family Restaurant, 4544 South Boulevard, Charlotte, NC

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15 – Tribanders
10 – Tribanders

Work Days:

Saturday, June 19th, one week before Field Day, beginning at 9 a.m.

Friday, June 25th, the day before Field Day, to complete set up.

We need operators - If you want to join our winning operation please contact Dick at w3oa@roadrunner.com or (704) 658-0915. Let him know when you can be available and your preferred operating mode(s). There is room to sleep inside on your air mattress and sleeping bag so don't be afraid to spend the night with us. And, don't forget to provide your T shirt size. **Do all this by June 14.**

Welcome New Member

Your editor was a little concerned before starting preparation for this issue that we would break the string of months wherein we could announce a new member. That string went back to September 2009. We missed new arrivals for the August 2009 issue but when I traced back to January 2009 with new members being announced each month, I decided to let it rest.

We happily welcome **Wiley Bunce, KN4ZZ**, from Wade, North Carolina this month. It looks like from Wiley's photo on QRZ.COM that he sports a linear amplifier in his shack, and with over 5700 lookups of his callsign, he must be chasing some DX! Hopefully in coming months we'll all get to know Wiley better.

The Pileup
Official Newsletter of the Carolina DX Association

Published monthly 10 times per year, excluding the months of June and December.

The purpose of the association is to secure for the members the pleasures and benefits of the association of persons having a common interest in Amateur Radio.

Members of the CDXA shall adhere to "The Amateur's Code" as published from time to time in *The ARRL Handbook for Radio Amateurs*, and shall consist of those valid licensed amateur operators having an interest in promoting amateur radio. Long distance communications (DX) is of special interest to members of the association, but said interest is not a requirement of membership.

Dues are $35 per year for those using the PacketCluster maintained by the Association, $20 otherwise, payable each December. Dues are payable by check to the Secretary/Treasurer:

Cliff Wagoner, W3ZL
P. O. Box 577
Davidson, NC 28036

Address, telephone, and email address changes should be directed to the Secretary/Treasurer at the above address or via email at: jcw53@cornell.edu.

Gee, I Didn't Know That!

There are some neat features of the CDXA website (www.cdxa.org) that the membership needs to be reminded about from time to time. Wayne Setzer as our webmaster and President Ted Goldthorpe work hard at keeping the website fresh with ever-changing home pages and features. But what of the "other" features that may go unnoticed? It is probably time that you take a careful look. Here's what you can find "behind" the tabs along the left side of the home page.

Roster: Clicking your mouse on the headers of the roster will sort that column in alphabetic order. You want to find old Joe but don't remember his callsign? Click on the "Last Name" column of the roster and look for Joe's name alphabetically. Clicking on Joe's callsign in his roster entry will bring up his QRZ.COM entry. If Joe's First Name is underlined in blue, clicking on it will bring up a picture of Joe. (If you provide YOUR photo to Wayne Setzer, you too can be viewed on the World Wide Web by your fellow CDXAers.) Clicking on anyone's email address will open your email application and put the email address in the "send to" position. The roster now has your DXCC standing, too. If your real joy is working grid squares or EME contacts, then you can edit your entry on QRZ.COM—make is as simple or complicated as you want—and then we'll all see your brag list when we click on your callsign.

K4/N4/W4 Buro: Can't remember who your buro letter manager for 4-Land is? Click on QSL Bureau and you can find out.

Boneyard: Got something to sell? Put it on the Boneyard. Need something for your station? Look in the boneyard. The Boneyard is one of the most visited pages on our website, so somebody, somewhere is looking at it, and your item for sale is reaching a wider audience than just CDXAers.

Upcoming Events: If you don't have time to chase down what contest or radio event is happening this week or month, look to the "Upcoming Events" tab to find out. Every once in a while this page is run on our home page. Did you know it is always there?

Change of Address: There's not a specific "tab" for this one, but there is a tab for "Officers". Sending an email to any of the Secretary-Treasurer, the Webmaster, or the Newsletter Editor will ensure that your email address, telephone number, or home address gets changed

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everywhere in CDXA.

Newsletter: If you "lost" your copy of the Newsletter, if you're out of town and don't have access to your email, or if you only want to look at an old newsletter for a specific article, then the Newsletter archive is the place to start. All known newsletters since the start of CDXA are there for you. If what you want has been published under the watch of K8YC, and you need help in finding the issue, drop John a line since he has 11 years of The Pileup printed at his home for ready access.

CDXA Apparel: Our standing relationship with the "Business Outfitters" unit of Lands End can be reached via this tab. Here you can order almost any item in the Lands End collection and have the CDXA logo embroidered onto the object—along with your name and callsign if you want! No need to wait for a group order.

And, there are still more tabs . . . . Check them *ALL* out!

Huff, puff, and check out that Antenna!

This is something I thought might be interesting for the Pileup. Three CDXA members and a friend got together and hiked up Crowder's Mountain to the rock ledge where the towers are (about 1575' above sea level). We deemed the antenna installation was acceptable! This is a rather taxing hike and considering that Guy Titman (W4NUS) is about 77 years old and Doug Allen (K4LY), who came up from Inman, is 70 years, we were quite pleased that we had conquered Crowder's Mountain. I put the picture of our trek on facebook (also shown below) and it got some nice comments.

--Paul Ponak, AD4IE

Ten and Twenty Years Ago . . . .

Twenty Years Ago

The CDXA repeater system was being upgraded with a preamplifier, amplifier, and a new Super Stationmaster antenna. . . . Gary Dixon (K4MQG) reported on his recently concluded trip to China with XYL Carol where he gave over 100 QSOs to east coast stations, including 15 with CDXA members, from Zone 26. Gary operated from the station of VS6DX. Besides Hong Kong, Gary took side trips to Macau and the Chinese mainland (BY). Gary observed that in Chinese cooking almost "everything" of a chicken, shrimp or whatever is used when preparing these dishes, and some of us might find this a little disturbing!

Ten Years Ago

The A52A DXpedition was active from Bhutan this month. . . .CDXA announced the availability of apparel embroidered with the CDXA logo from Lands End. This relationship exists to this day. . . . John Devoldere (ON4UN), author of ARRL's Low Band DXing addressed CDXA members and other invited local radio clubs while passing through the Carolinas on his way to Dayton. Before his address, John enjoyed a buffet meal at Gary Dixon's house and autographed copies of his book for CDXA members. CDXA presented John with a Lands End shirt embroidered with our logo.

A Year of DX

A book review by Don Daso, K4ZA

Bob Locher, W9KNI, is that rarity among hams—a good writer, one capable of capturing not only the spirit and romance of this great hobby of ours, while also explaining technical things in a simple, offhand manner. I began enjoying his work in *Ham Radio Horizons* back in the early 80s, which were later collected in the book *The Complete DXer*.

That's another "good thing" about Bob—I'm sure he was thinking of Isaac Walton when he wrote that first book, and he mentions Rudyard Kipling in this new one. You have to respect any ham, who can manage to maneuver us to these great English authors while talking about ham radio!

So, when I read that he'd published another account of his DXing activities, I ordered a copy. This book, *A Year of DX*, is his account of attempting to win the CQ-magazine-sponsored DX Marathon.

Starting January 1st of each year, the DX Marathon is

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the perfect answer for the DXer who needs that extra incentive to get on the air every day! Simply work as many countries and CQ Zones as you can during the calendar year, regardless of the band or mode. Each country and zone counts only once, so you can concentrate on working new ones, rather than working the same ones on multiple bands or modes, as the DXCC award does things.

W9KNI, now living in Grants Pass, OR, knew from the outset he'd have some tough sledding in this race, especially at the bottom of the sunspot cycle in 2008. But, of course, such obstacles never stop the deserving, nor should they, and indeed, dealing with them is not only explained and encouraged, but described in a manner that's best called uplifting. If this story doesn't motivate you, you'd better stick to ker-chunking your local 2M repeater!

Replete with analysis of his new radio (an Elecraft K3), amplifier, towers and antennas, even some thoughts on operating SSB (Bob owns Bencher, so you can guess the answers to some of the questions, right off the bat). It's a quick and fun read. The book is well worth your time and attention. And what a surprise to find locals AA4S and AA4SC both listed in the final, year-end summary results, in the top 33....

An Alligator with Ears!!!???

(Those DXers who've been around for awhile can tell you what an "alligator" is. For those who don't know, an alligator is a creature of nature with a large mouth and no ears. It is an apt term to describe some DXers! But, is there an "alligator' which listens as well as it talks? This is not a trick question, as Gary Green (W2ZV) can attest by his commentary below.)

Hi all,

I just wanted to let you know I heard my first true EME signal at home. Only having a two element 432 antenna in the attic, but having a 6" telescope and mount, I thought that building a "Cheap Yagi" for 432 might allow me to hear Arecibo with it's 1000 ft dish off the moon. Friday morning I purchased 5 ft of 3/4" PVC, and used 1/8" copper weld rod for the elements, and had a "working" 10 element antenna at 2 AM, building it after work Friday night. I used electrical tape to "mount" it on the telescope bracket Saturday at noon out on my deck, and fought "connector problems" until I ripped the connector out and hard-wired the coax to the antenna. After retaping the antenna back on the polar mount, with my GaAs-FET preamp I was able to "peak" the moon noise and "there they were" on CW (with 10 minutes to go). I got my wife to acknowledge that "yes, I hear CW" and then they were gone (and the streaming web site said they were done for the day). They were 429 to 539 with my setup, but no deep fades. Not bad for one day's work! 73's Gary (W2ZV)

(While Gary didn't test Arecibo's well known listening ability with his nifty setup, he surely knows that Arecibo's voice can be heard with a modest antenna. Ears AND mouth—what a combo! See Gary's homebrew antenna below.)

DX King News

Dick Williams, W3OA

Item 1: Full details of our DX King Contest and your chances to win a CDXA Jacket from Lands End or an AES Gift Certificate are on page 10 of the January Pileup (http://cdxa.org/pileup/Archives/cdxa1001.pdf).

Item 2: These are the scores I have for the 2010 DX King competition as of April 30:

Call	Category	Countries	Zones	Total
K5EK	Unlimited	221	40	261
W3GQ	Unlimited	220	39	259
W4HG	Unlimited	215	40	255
K4YR	Unlimited	210	40	250
W3OA	Unlimited	198	38	236
N4PQX	Unlimited	186	39	225
W7DO*	Unlimited	182	40	222
W4UFO	Unlimited	149	36	185
N2TU	Unlimited	149	35	184

Call	Category	Countries	Zones	Total
W3NC	Unlimited	147	34	181
W3ZL	Formula	140	32	172
K8YC	Unlimited	134	35	169
KZ2I*	Unlimited	133	33	166
K4ESE**	Unlimited	119	32	151
W4HLD	Unlimited	113	32	145
K4DXA	Unlimited	107	32	139
W4WNT	Formula	93	24	117
N4QVM*	Unlimited	70	23	93

* New entry this month.
** All of K4ESE's contacts were on 80 meters.

Item 3: Don't forget to send me (w3oa@roadrunner.com) your DX marathon scores as of the last day of each month after your score reaches 100.

N4QVM, John Dwiggins, and the TV he won by participating in the 2009 DX King competition. YOU can win a jacket from Lands End or a gift certificate from Amateur Electronic Supply in 2010. Jump in!

Chuckle Corner

More on the philosophy of ambiguity. . . .

I went to a bookstore and asked the sales-woman, "Where's the self-help section?" She said if she told me, it would defeat the purpose.

What if there were no hypothetical questions?

If someone with multiple personalities threatens to kill himself, is it considered a hostage situation?

Where do forest rangers go to "get away from it all?"

What do you do when you see an endangered animal eating an endangered plant?

How To Build a Multi-Tap Unun

By Dick Genaille, W4UW

(This article is a reprint of one which appeared in the April 1992 issue of CQ Magazine. The author Dick Genaille, W4UW, is a long-time member of the Carolina DX Association. It is reprinted here with permission of CQ Magazine and the author.)

The standard balun, as most amateurs know it, has certain limitations when it comes to matching the feedpoint of a dipole antenna under the height constraints imposed by many installations. The usual balun is designed for a 50 ohm input and either a 50 or 200 ohm output providing a 1:1 or a 1:4 transformation ratio. I guess that is great if the feedpoint impedance of your dipole, or other antenna, is 50 or 200 ohms. It is rare that the normal dipole antenna feedpoint impedance meets these parameters! Many amateurs connect a balun to their dipole antenna because, as the oatmeal TV commercial goes, "It's the right thing to do!" Whether it works properly or not is another question.

To prove my point let's take a look at the radiation resistance chart of Figure 1. It appears that 50 ohms would be typical for a dipole at a little over $^1/_8$ wavelength above ground. If you figure out how high that is for frequencies between 3.5 and 30 megahertz, it is doubtful that you would ever install a dipole that low to ground; e.g., about 33 feet for a 75 meter antenna and about 4 feet for a 10 meter antenna. On the other hand, with a 33 foot height (about ½ wavelength) for a 20 meter dipole you could expect to see a feedpoint impedance at resonance of about 70 ohms. Using a 50 ohm coaxial feedline, with or without a balun, would result in a mismatch and a 1.4 standing wave ratio.

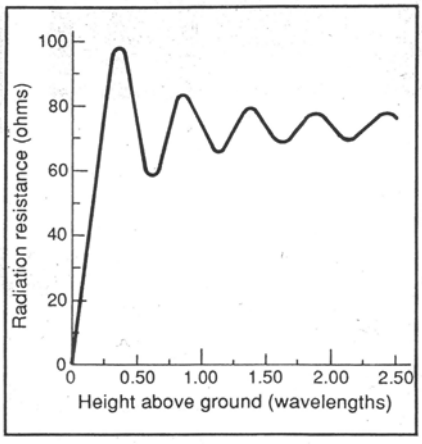

Fig. 1– Radiation resistance of horizontal half-wave dipole at various heights above ground.

How about a dipole at say, $^3/_8$ wavelength high? From the chart it would appear that the feedpoint impedance would be close to 100 ohms. That's a 2:1 mismatch to 50 ohms right there. Add the line perturbations caused by an antenna switch and anything else connected in the transmission line between your transceiver and your antenna, and you're getting awfully close to an SWR that might give your transceiver some heartburn. Add to that the additional SWR caused by shifting frequency to the upper or lower portion of the band, and you really have a problem. As pointed out by Maxwell[1], the approximate SWR values at the band edge for wire dipoles at resonance at the band center runs between 2.0 and 3.0 in the bands between 7 and 30 MHz. At 3.5 MHz it runs about 5:1 or 6:1!

In recent experiments with multiple dipoles for 40 meters and the WARC bands, as well as other bands,[2] I have found a need for matching my 50 ohm transceiver output and feedline to impedances that are somewhat higher than 50 ohms in order to maintain a favorable SWR, across the various bands, to satisfy the operational limitations of the transceiver—i.e., less than 2:1 or else! In order to determine the feedpoint impedances of various dipoles, as installed, I have used a remotely controlled bridge.[3] The multi-tap unun was developed to further assist in correctly matching my transceiver and feedline to dipole antennas. It can be used in lieu of the remotely controlled bridge, but with a little more antenna up-and-down effort.

Sevick has suggested using tapped ununs (unbalanced to unbalanced) transformers to match from 50 ohms to odd values and has suggested that the idea of a multi-tap unun is a good one which has not heretofore been exploited by many amateurs.[4] He has provided the encouragement for the work which I have done, resulting in this article. Besides helping to achieve a good match to your dipole feedpoint, the multitap unun (MTU) has an additional limited use[5] upon which I stumbled in the course of my experiments and testing and which will also be described.

Construction

Most folks don't have much of a problem winding a bifilar transformer—i.e., a simple balun or unun. Many of us have made baluns on plastic pipe pieces, ferrite rods, and ferrite cores for special applications. Most of us find tapping a coil once it is wound, especially enamel-coated wire or Teflon-coated wire, a large pain in the "derriere." Winding a multi-tap unun, or balun

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for that matter, can be done simply by making the taps before winding the coils! My MTU is an experimental one, and yours does not have to be the same electrically or physically as mine. Practice by building one like the one described, and after you get the hang of it and see how it tests out you may want to change the number of turns, the gauge of wire, and even the winding form (rod or core). If you goof up, you can't lose much. You can always reuse the rod or core and the amount of wire you wasted didn't cost much.

What you are going to build is a bifilar transformer as shown in Figure 2. The materials are readily available and are identified in the figure. The ferrite rod should be long enough to handle the bifilar winding that you want to put on it. My friendly electric motor repair shop was happy to provide me with what was left of a reel of 14 AWG enameled wire (about 40 feet) for a buck. Ferrite rods and cores are available from Amidon Associates, a frequent advertiser in most ham magazines, and from well-stocked radio stores. The switch came from my junk box, but I have seen similar switches at many hamfests at very reasonable prices.

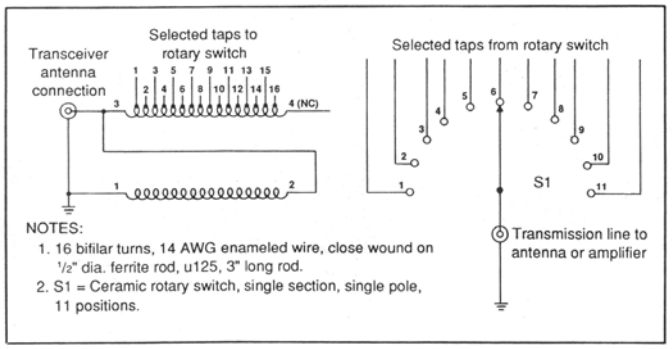

Fig. 2– Multi-tap unun (MTU). Note: MTU can be installed as shown or in reverse direction with different results per given tap selection.

You may notice that I show 16 taps on the tapped coil of the unun and only 11 connections for them on the switch. As you will see later, I connected those taps which gave me the best test results. You may wish to use other arrangements, depending on the unun you build.

The coil with the taps is fabricated first. (Let's get the harder job done first while we still have all of our patience!) Actually, it is quite simple. The layout dimensions are shown in Figure 3. What I did was simply allow enough wire between the amount required for each turn to permit me to bend the taps in the wire while it was still straight. I allowed ½ inch, which when

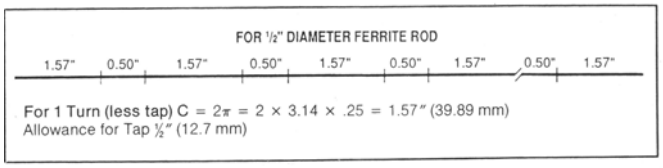

Fig. 3– Layout dimensions for MTU tapped coil. Starting with 36 inches (91.44 cm) of wire, the finished length, after folding for taps, came out to be 30¾ inches (78.1 cm) for the 16-turn tapped coil. A second length of wire was cut to 30¾ inches for the untapped coil.

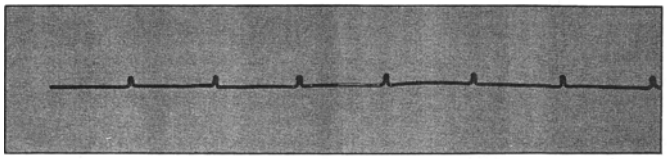

Photo 1– Coil wire after bending and forming taps.

folded gave me a ¼ inch long tap. Photo 1 shows the results. Try to keep the taps in the same plane. It works better when after you wind the tapped coil, you wind another coil next to it. Before winding the coils I applied some paint remover to the end of each tap, carefully, with a small cotton swab stick. The enamel coating needs a little convincing to come off and maybe a little coaxing with a sharp knife.

After cleaning off the end of each tap, I tinned each tap end. It's a lot easier to solder connections to the taps later when you go through this process first. I wound the coil, close wound, on a $^{31}/_{64}$ diameter rod (actually the chuck end of a $^{31}/_{64}$ inch drill bit.) The untapped coil was then wound between the tapped coil turns on the same rod. By winding the coils on a rod a hair smaller in diameter than the ½ inch ferrite rod, I was able to slide the rod into the coil for a snug fit. Presto, except for connecting the coils as shown in Figure2, a multi-tap unun.

Testing

After connecting coil ends 2 and 3 together, connect coil ends1 and 3 to a coax connector to facilitate testing. I used an SO-239 fitting, since I planned to us this type of hardware in the finished product.

Testing of the MTU was done with a simple SWR bridge which has a non-inductive 500 ohm potentiometer in the appropriate bridge arm. With the bridge set for 50 ohms, a 200 ohm noninductive resistor was connected between coil end 4 and ground. The RF signal generator was set, arbitrarily to 7 MHz, and a zero reading was noted on the bridge meter. The frequency was varied from 3.0 to 8.0 MHz and the meter remained at zero, indicating that the MTU could be used to effect a 1:4 transformation satisfactorily within this range. The

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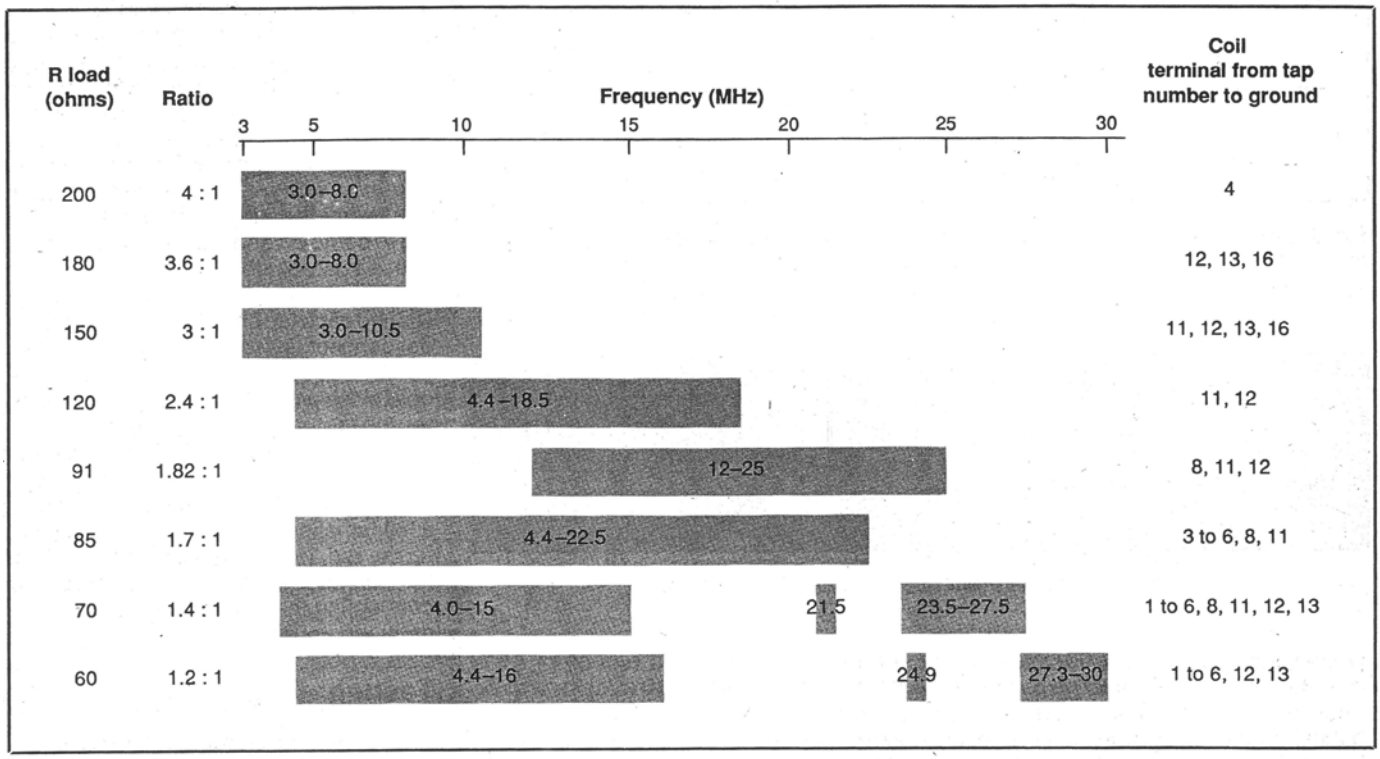

Chart 1– MTU load/ratio to 50 ohms/frequency/tap. Note: Frequency spreads shown are where a perfect match is obtained—i.e., where the SWR for a given resistive load is 1:1.

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range is affected by the number of turns, the spacing between turns, the gauge of wire, plus the form of the ferrite on which a bifilar transformer is wound.

Various noninductive resistors were connected between the taps and ground while the signal generator frequency was varied from 3.0 MHz through 30 MHz to see where the bridge meter would read zero, indicating a match between 50 ohms and the resistive load. Chart 1, on the next page, shows the results of the tests on this MTU. Bear in mind that your results might be slightly different but that is not too important. What is important is that you now have a means of matching your 50 ohm transceiver output and feedline to a number of different resistive loads at a variety of frequencies. More about this later.

The tested MTU can now be mounted in a suitable enclosure if desired. I used a $5^1/_4$" x 3" x $2^1/_8$" Radio Shack metal project enclosure with a switch-position dial plate installed to show what tap I've chosen. For convenience in making various tests I have a number of noninductive test resistors mounted in PL-259 plugs. These are my standard loads so to speak and are not used for anything else that might affect their resistance characteristics.

Application

An application block schematic is shown in Figure 4. Two uses for the MTU are shown, the first for antenna feedpoint impedance matching and the second for a matching device to make minor corrections at the output of a transceiver to lower the SWR seen by the transceiver. The MTU was developed primarily for the first use, but the second use is sort of a fallout because the MTU acts like a section of transmission line which can be used to make minor adjustments in what the transceiver sees, similar to the device described in footnote 5. While the MTU is not used in the same manner as the remotely controlled bridge described in footnote 3, it is nonetheless effective in checking for a suitable match to the feedpoint of a dipole antenna.

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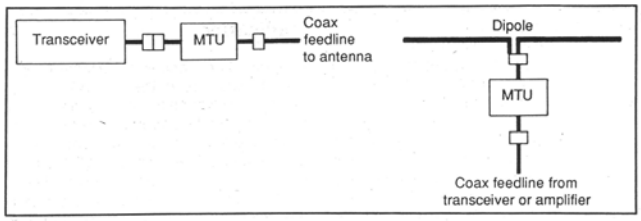

Fig. 4– MTU application block schematic.

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The ideal way to check the feedpoint impedance of a dipole, using the MTU, is to connect the MTU at the antenna feedpoint and connect the SWR bridge directly to the MTU. However, the feedpoint may not be readily accessible, and the weight of the combination is probably excessive and would cause undue sag of the antenna at midpoint.

An alternate procedure would be to determine the height of the antenna. Knowing the height, proceed to Figure 1 and determine the approximate feedpoint resistance of the dipole based on height. Let's assume that your dipole is about ½ wavelength high. From Figure 1 we can see that the feedpoint resistance should be about 70 ohms. This would occur at the resonant frequency. Looking at Chart 1 we see that we can get a match to 70 ohms in the frequency range of from 4.0 to 15 MHz by using the taps as shown. We select either of the coil taps shown and connect the MTU to the feedpoint. The resultant SWR should be 1:1, or at least very low.

From this information we can either use the MTU as is, or preferably, make another MTU with an appropriate tap or taps and in a different housing to be permanently attached to the feedpoint of the dipole. The choice is yours, and when you have gotten this far you should have a pretty good feel for what you are doing and how you want to do it.

Since a balun or unun behaves somewhat like a transmission line, I decided to try the MTU as a matching device at the transceiver output as shown in Figure 4 and similar to the coax line stretcher described in Footnote 5. I put the results into tabular form as shown in Table 1. Because of the use of proper matching at the feedpoint of my multiple dipole antenna (for 40 meters and the three WARC bands) there really was not much need to reduce the SWR at the transceiver. However, I decided to use the MTU and see what would happen.

Antenna	Freq.	Normal SWR at Paragon	SWR/w MTU connected "NORMAL"	SW Pos.	SWR/w MTU connected "REVERSE"	SW Pos.
40 Meter & WARC multiple dipoles	7.0	1.5	1.4	#1	1.4	#1
	7.15	1.0	1.0	#1,2,3	1.0	#1,2
	7.3	1.3	1.5	#1	1.05	#3,4
"	10.1	1.05	1.0	#1,2,3	1.0	#1,2,3,4
	10.125	1.05	1.0	#1,2	1.0	#1,2
"	18.068	1.1	1.25	#3,4	1.0	#3,4,5
	18.168	1.6	2.8	#3,4	1.05	#8
"	24.89	1.0	1.05	#8	1.05	#6
	24.99	1.5	1.0	#8	1.0	#4,5,6
TH6DXX	14.0	3.5	2.5	#1	2.5	#1
	14.35	1.5	2.0	#1	1.1	#4,5,6
"	21.0	3.0	2.0	#3	1.5	#13
	21.45	2.0	1.6	#4	1.1	#8
"	28.0	2.0	1.0	#5,6	1.05	#11
	29.7	3.0	1.3	#12	2.0	#6

Table I– Effect of MTU when used for improving load seen by transceiver.

When my TH6DXX beam was installed there was not too much I could do about the SWR, as it was dimensioned by the manual. In any case, the use of the MTU resulted in some improvements in the SWR at the transceiver. The SWR at the band edges was generally higher and unacceptable to the transceiver, but the MTU did help somewhat. It was interesting to note that the MTU could be connected in reverse and provide improvement in impedance transformation, albeit in some instances at different taps than in the normal direction. I don't believe that the MTU has the range of the coax line stretcher and certainly not of an antenna tuner, but it is useful when used in this manner and a real "cheapy" if it works in your installation.

The multi-tap unun can be a solution to your dipole antenna matching problems, and it is a device that is useful and inexpensive to build. Try building one and experiment yourself. You will find that multi-tap ununs have great potential in antenna work.

Footnotes

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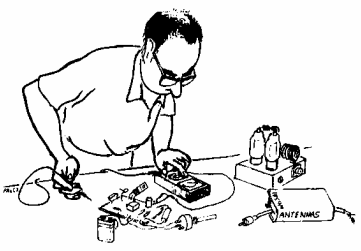

The Back Page

Will you be with us on **Field Day 2010**? We'll see if we can improve on our 2009 results. There's a "sweetener" if you participate this year. See Page 1.

What do you *really* know about the **CDXA website**? If you know about all the features outlined in the article on Page 2, then you've been a frequent visitor. If not, then maybe there's a helpful feature awaiting you.

Have you marched up **Crowder's Mountain** recently? Three CDXAers did recently, but they didn't do it merely to admire the antennas at the top. See Page 3.

One man's quest in the **DX Marathon of 2008** has been preserved for posterity. Don Daso's review of that book will stir you to read all about it. Read Don's review starting on Page 3.

The radio astronomy dish at **Arecibo** listens real well. It also talks pretty well, too. Learn about Gary Greene's (W2ZV) experience on Page 4.

Many CDXAers have a good "jump" on the **DX King** competition for 2010. See Page 5.

Dick Genaille (W4UW) is back with us in May describing how to build a **multi-tap unun** to ensure your favorite dipole antenna can be matched inexpensively to your transceiver. His article starts on Page 6.

Don't look for a Pileup in June. Your editor gets his semi-annual vacation from publishing in that month. See you in July.

Cliff Wagoner, W3ZL
P. O. Box 577
Davidson, NC 28036

jcw53@cornell.edu

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