Amateur RADIO Society News

Newsletter of The Amateur Radio Society of India (Member of IARU)
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President's message

Dear members

We are getting to the end of another year of office and planning is on for completing the accounts and sending out the notice of the AGM. The venue and date will be finalised shortly.

As usual the participation in the AGM is by members of ARSI and I would request all those who have forgotten to renew their subscriptions for the current year to please do so straight away.

I would also request every member to assist in building up the membership of the national society as that way we have the strength to deal with the administration. You must be aware that quite a substantial change in attitude has taken place at WPC and we are now able to work with them in a much more effective way. Frequency allocation is more in line with the IARU region band plans, but I am aware that there are some anomalies which have to be corrected and we are working with WPC to make the changes. More members will pave the way for greater interaction and so please each of you try and bring in one new member over the next few weeks.

The next major activity for all radio amateurs in India will be the Hamfest which is being planned for Kochi and no doubt the organizers will make every effort to make it a huge success. It will be an opportunity for all of us to have an eyeball and participate in the many events that is being planned.

We look forward to great gathering of radio amateurs not only from India but several other countries also.

Gopal, VU2GMN

From the Editor's desk

Greetings from B.R.Hills! Band condx being poor, there isn't much DX activity from here. Talking about hills, the Repeater on Doddabetta – 2,700 meters above sea-level – is a "dream-come-true" for amateurs in South India. Right now the repeater is a home-brew unit with a low sensitivity receiver but improvements are being carried out and hopefully we'll have a wider coverage in future. Congratulations to Anamalai Amateur Radio Club!

In this issue I am including a 'home brew' article by OM Jayaraman VU2JN who is an ardent home brewer. I invite articles and news/information from members for publication.

Ganesh VU2TS

NEWS FROM GWALIOR

Up Front in QST

Sloth Bear on the Air

Ajay Low, VU2JAU, Aniket Manohar, VU2UR, and Laxman Lakshmanan, VU2CLX, holding the banner announcing their WFF operation at the Daroji Sloth Bear Sanctuary.

A lecture was organized on 27th June 2011 at Defence Research and Development Organization (DRDO) Gwalior on HAM RADIO.

Om Jayu Bhide VU2JAU! delivered the lecture along with a PowerPoint presentation. More than hundred B.E. Students from different colleges around Gwalior were present. The program on HAM RADIO went on till 2.00pm. After the talk, question and answer session was held. OM Jayu answered all the queries regarding Amateur Radio. The students were taking keen interest in the hobby. Om Aniket Ashtikar who has cleared the ASOC Grade-I examination assisted VU2JAU.

It is proposed to organize a workshop on Antenna Designing in July 2011. The workshop will be conducted by VU2JAU along with other would be HAMs who has already cleared the ASOC examination and awaiting for their licences.

JOTA 40 TRX DIY Workshop by Quilon Amateur Radio League

ALL are invited!! but with a valid amateur licence.

Jota TRX is a simple SSB (LSB) only, single conversion, 40M transceiver designed by VU2DEV, OM Ramaprabhu.

It works on 12Volts Battery and outputs a Minimum Power of 15Watts average (30 watts pep) at 13.8 Volts sufficient to contact South-India and a few operators have contacted as far as Germany, South Africa etc running only a good Dipole antenna.

The proposed workshop's main aim is to promote Home Brewing. As such this project is NOT meant for beginners.

It takes place on 13th, 14th and 15th of August 2011.

Brief Tech Description:

This TRX is a single conversion ssb rig, (lsb only) The Local Oscillator (VFO) is a standard 5MHz requirement and hence the IF (Intermediate Frequency) is 12 MHz. So 12-5 = 7 MHz. Hence VFO tunes backward. That means an exact 5 MHz VFO gives 7MHz output whereas 4.9MHz VFO gives 7.1MHz. The rig is kept simple by having a separate RX and a separate TX with common VFO to give Transceive operation.

Switching is done by a Double Pole Relay and front panel switch functions as a PTT. The rig is originally meant for Scouts/Guides JOTA (Jamboree on The Air) activity and hence they needed a Send-Receive switch rather than a normal pushbutton switch.

For registration and for more details, contact VU3HLX Nakesh on 9895654344.

CU 73

de VU3PKQ

[Tnx Southgate Amateur Radio News for the above info.]

IARU Region 3 NEWS Release

Date : 19 / 07 / 2011
Author : Michael Owen - VK3KI

The IARU Region 3 Directors Chairman Michael Owen VK3KI, Directors Peter Lake ZL2AZ, Shizuo Endo JE1MUI, Prof. Rhee HL1AQQ and Gopal Madhavan VU2GMN met at the offices of JARL in Sugamo, Tokyo Japan on 14th, 15th and 16th July 2011. Also participating in his first meeting of Directors since his appointment last March as IARU

Region 3 Secretary was Ken Yamamoto JA1CJP, and all were assisted by Keigo Komuro JA1KAB, Special Advisor to the Directors.

IARU President, Timothy Ellam VE6SH, IARU Region 1 President Hans Blondeel Timmerman, PB2T, and IARU Region 2 President Reinaldo Leandro, YV5AMH also participated in the meeting. Prior to the Directors meeting Chairman Michael Owen and Secretary Ken Yamamoto visited Ho Chi Minh City, Vietnam and met with members of the Vietnam Amateur Radio Club and worked with them in preparation for the 15th Regional Conference which will, it is expected, commence there on 5th November 2012. Based on their report on their visit the IARU Region 3 Directors were enthusiastic about the planning for this Conference, which it is hoped will assist the growth of amateur radio in Vietnam. The Directors considered the role of radio amateurs in a number of disasters that had occurred in recent times in Region 3, including the tragic fires in Victoria, Australia, the earthquake in Christchurch, New Zealand and the earthquake and tsunami in Japan. They also noted that many countries in Region 3 had not yet given effect the provision included in the ITU's Radio Regulations in 2003 encouraging administrations to allow radio amateurs to prepare for and participate in disaster communications. The Directors agreed that emergency communications would be an appropriate theme for the 15th Regional Conference in Ho Chi Minh City.

The Directors spent much of their time in three working groups investigating the factual situation and exploring the options to be presented to the Member Societies in the report they were asked to present before the next Conference addressing the financial issues facing the Region that had caused such concern at the Christchurch Conference. They were reassured by the Secretary's report that they were currently working comfortably within the budget set by the Christchurch Conference. The Directors devoted some time to reviewing the preparations for WRC-12, including the upcoming APG meeting. It seems likely that there will be an amateur on three national delegations at WRC-12. The Directors discussed the future of the Monitoring System, and after hearing the comments of IARU President Tim Ellam hope that a very satisfactory solution to the concerns identified in Christchurch will be found at the next Administrative Council meeting, to be held in Sun City, South Africa next August.

QSP!

ANAMALAI AMATEUR RADIO CLUB has installed a VHF repeater at Doddabetta (Ooty) the repeater call sign is VU2IRT (Frq 144.975 minus shift). Both morning and evening VHF net are in progress, we get 18 to 25 check-ins in the morning & in 10 to 15 check-ins in evening.

Now the present Duplexer and the repeater are home brew, maximum loss in the duplexer. Being a Home brew repeater set up some of the distance stations find difficult to trigger the repeater

Our club is inviting members to donate to help in procuring a commercial duplexer. Please contact me for details.

73

K.IBRAHIM vu3irh@yahoo.com

Additional Secretary, AARC, Pollachi.

DX NEWS

8J1, JAPAN. Members of the Japan A1 Club will activate the following special callsign until November 30th (not December 31st as reported in OPDX.1013): 8J1MORSE, 8J1MORSE/2, 8J1MORSE/3, ...etc,

according to the district from which they are active. Activity is to celebrate 220th anniversary of Samuel Morse's birthday. Operations will be mainly CW, with some SSB (to explain to novices how to join the CW community). Some special awards are also available too. QSL by the Bureau or direct (SAE+IRC) to: 8J1MORSE, 1-14-1-11-B Yoshino, Higashi-ku, Nagoya, 461-0027, JAPAN. Logs will be uploaded to LoTW as well. For more details, the English rules and information are available at: http://8j1morse.a1tokai.net -or- http://8j1morse.blogspot.com

9N, NEPAL. A multi-national team, all members of Mediterraneo DX Club (MDXC), will be active as 9N0MD from Nepal during November.

Operators mentioned are Dov/4Z4DX, Ziv/4Z4OQ, Marco/CE6TBN, Gabriele/I2VGW, Pino/I8YGZ, Dario/IT9SSI, Antonello/IT9YVO, Al/IV3BSY, Giuliano/IV3RLB, Fabricio/IZ2KXC, Tony/IZ3ESV, Sergio/IZ3NXC, Ant/IZ8CCW, Luis/XE1L and Adhi/YB3MM. The pilot station will be Pino/IZ8BGY. Activity will be on all HF bands and modes. The DXpedition now has a survey on their Web page for band and mode needs at:

http://www.mdxc.org/nepal/topic1/index.html

Also, the team plans to give away trophies and prizes (see their Web for details). Look for more details and updates at:

http://www.mdxc.org/nepal/topic1/index.html

DXNL EDITOR RETIRES.

Helmut Schlaffer, DL7MAE, editor of the German "DXNewsletter" announced this past week that he is retiring after 4 and ahalf years. We wish Helmut all the best and thank him for his hard work over the past years in providing the DX community with DX information. His successor will be Alexander Derichs, DG8KAD.

3D2/R, ROTUMA DXPEDITION; SEPT 2011

The following press release was sent out by Hrane, YT1AD, on June 8th : "DXpedition to Rotuma as 3D2R -- After many monthsof careful planning, we are pleased to announce our DXpedition to Rotuma-3D2R with a large multi-national DXpedition Team. Rotuma is located inthe South Pacific Ocean and is #32 on Club Log's most wanted DXCC list.

Hrane Milosevic, YT1AD, has recently visited Fiji and has obtained thelicense of 3D2R and a landing permit. We have received the Rotuma IslandCouncil's official approval as well as from the Prime Minister'sOffice.

The team of 19 operators will meet in Fiji on September 24th, and sailto Rotuma with an arrival slated for September 27th. We will be activeon all bands and modes from September 27th to October 7th, 2011.

We will focus on the low bands at this time of the year and will makeevery effort to satisfy the needs of EU operators.

At this time, we are seeking Foundation, Club and Individual Sponsors to help us defray the costs of carrying out this DXpedition.

Our official website is: http://www.yt1ad.info/3d2r/index.html

.... 3D2R Team"

4W6A TIMOR-LESTE (EAST TIMOR) DXPEDITION (SEPTEMBER 16-26th, 2011).

<http://www.4w6a.com> PRESS RELEASE NUMBER 4 - July 5th, 2011:

The 4W6A team welcomes Bernd Länger, VK2IA, as the seventh and final member of the DXpedition. Bernd has joined the DXpedition in order to help balance the requirement for CW operation. He brings a wealth of DXpedition and contesting experience from Europe and the Asia-Pacific area.

Also joining the team, although not in Timor-Leste itself, are Col McGowan, MM0NDX, and Kev Haworth, M0TNX. Col, who is the founder and editor of the DX World website [http://dx-world.net], has been appointed as pilot while Kev will be the assistant QSL manager to Tim, M0URX. Col will be responsible for providing feedback to the team on Atauro Island. He may be contacted at dxer59@gmail.com

CDXC (Chiltern DX Club – the UK DX Foundation), the RSGB Dxpedition Fund, the German DX Foundation, the Northern California DX Foundation, the European DX Foundation, the Nippon DX Association and the Northern Illinois DX Association are the latest DX clubs and foundations that are kindly providing financial support for the DXpedition. The team is very grateful to all DX groups, companies and individuals who have offered sponsorship. All are listed with thanks on the 4W6A website at

http://www.4w6a.com/sponsors.html If you or your DX club also wish to help, there is a "Donations" page on the 4W6A website. Payments may be made by credit or debit card and you do not need to have a PayPal account yourself in order to make a donation.

4W6A will be QRV from Ataúro Island (IOTA OC-232), Timor-Leste (East Timor), from 16 to 26 September 2011. Activity will be on all bands 10 to 160 metres, using CW, SSB and RTTY. The QSL manager is M0URX, direct (SAE plus 1 IRC / $2), via the bureau, or LoTW. The entire log will be uploaded to LoTW as quickly as possible after the end of the operation or, if possible, even during the DXpedition. QSLs may also be requested using the QSL request form on the website. [Tnx OPDX]

DXpedition to Southern Sudan

Paul, N6PSE, sent out the following on July 2nd:

"In just a few short days, the people of Southern Sudan will declare their independence from Sudan and will become the new Republic of Southern Sudan.

"Vice President of South Sudan, Dr. Riek Machar Teny has announced that admission as a member state of the United Nations will take place on July 14th, 2011.

"The DX Friends and the Intrepid-DX Group continue to monitor the UN General Assembly and Security Council votes and are moving forward with our plans for a large multi-national DXpedition to take place soon after the UN admission occurs.

"Equipment has been procured and is being staged for rapid delivery to Juba, the new capital of Southern Sudan. Team members have applied for their visas and we are awaiting them now.

"We have held several successful meetings with representatives of the Government of Southern Sudan. We have been issued an amateur radio license for the purpose of this DXpedition. The Government of South Sudan is very supportive of our plans to visit Juba and to help them celebrate the birth of their new country.

"We plan to soon be in the new capital of Juba and to be ready to start our DXpedition after admission by the UN. We will have 18 operators operating 24X7 on seven active stations.

"At this time, we are seeking Foundation, Club and Individual Sponsors to help us defray the costs of carrying out this very important DXpedition. Our official website is

http://www.dxfriends.com/SouthernSudan2011/

Thank you, The Intrepid-DX Group and The DX Friends."

ARISSat-1 delayed until August

From the press office of Roscosmos:

Alexander Samokutaev, flight engineer of the International Space Station's expedition 28, informed about the planning for the upcoming Russian EVA (extra vehicular activity) in his blog in Roscosmos web.

According to Russian cosmonaut, the EVA is slated for August, pending the launch of the shuttle scheduled for July 8.

Alexander will work outside the ISS with his colleague Sergey Volkov. The cosmonauts are to perform several ISS RS refurbishing tasks, as well as to launch small satellite Kedr.

Russian cosmonauts onboard the International Space Station switched on small spacecraft Kedr on April 12, in order to commemorate the jubilee of Yury Gagarin's mission.

Small spacecraft Kedr developed under the RadioSkaf experiment bears the name adopted by Yu.A. Gagarin call sign in his historical flight, namely Kedr. The satellite's signal will be transmitted at radio amateur frequency of 145.95 MHz. Kedr has radio amateur call sign RS1S.

RadioSkaf is implemented in the framework of UNESCO's student space education program.

Kedr will transmit different signals, images, including the talks of famous Russian scientist Kostantin Tsiolkovsky, rocket Chief Designer Sergey Korolev conversation with the first cosmonaut during his 108-min historical mission, and famous Gagarin's "Go!" (Poekhali!), of course.

THE HF BEACON PROJECT

The HF Beacon project initiated by the Northern California DX foundation, along with the IARU has developed one of the most extensive HF beacon networks available to the radio amateur.

Strategically located in 18 different countries, each beacon in the network transmits in an accurately timed sequence one after the other in 10 second intervals. To keep each beacon transmitting on time, GPS receivers are linked to hardware controllers designed specifically for the NCDXF network. All 18 beacons use Kenwood TS50 transceivers and a 5 band CushCraft R5 vertical.

Each beacon transmits its CW ID followed by four one-second dashes. The call sign and the first dash are sent at 100 watts. The remaining dashes are sent at 10 watts, 1 watt and 0.1 watts. Very often we can hear the 100mW signals clearly.

Each beacon transmits every three minutes, day and night. This table gives the minute and second of the start of the first transmission within the hour for each beacon on each frequency. A transmission consists of the callsign of the beacon sent at 22 words per minute followed by four one-second dashes. The callsign and the first dash are sent at 100 watts. The remaining dashes are sent at 10 watts, 1 watt and 100 milliwatts.

Tune in o 14.100 any time and find out what you can hear! When band conditions are good, I have heard up to eight beacons…If you can hear a beacon now, send a report to: http://www.dxsummit.fi/SendSpot.aspx

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Call	Location	14.100	18.110	21.150	24.930	28.200	Operator
4U1UN	United Nations	00:00	00:10	00:20	00:30	00:40	UNRC
VE8AT	Canada	00:10	00:20	00:30	00:40	00:50	RAC/NARC
W6WX	United States	00:20	00:30	00:40	00:50	01:00	NCDXF
KH6WO	Hawaii	00:30	00:40	00:50	01:00	01:10	KH6BYU
ZL6B	New Zealand	00:40	00:50	01:00	01:10	01:20	NZART
VK6RBP	Australia	00:50	01:00	01:10	01:20	01:30	WIA
JA2IGY	Japan	01:00	01:10	01:20	01:30	01:40	JARL
RR9O	Russia	01:10	01:20	01:30	01:40	01:50	SRR
VR2B	Hong Kong	01:20	01:30	01:40	01:50	02:00	HARTS
4S7B	Sri Lanka	01:30	01:40	01:50	02:00	02:10	RSSL
ZS6DN	South Africa	01:40	01:50	02:00	02:10	02:20	ZS6DN
5Z4B	Kenya	01:50	02:00	02:10	02:20	02:30	APSK
4X6TU	Israel	02:00	02:10	02:20	02:30	02:40	IARC
OH2B	Finland	02:10	02:20	02:30	02:40	02:50	SRAL
CS3B	Madeira	02:20	02:30	02:40	02:50	00:00	ARRM
LU4AA	Argentina	02:30	02:40	02:50	00:00	00:10	RCA
OA4B	Peru	02:40	02:50	00:00	00:10	00:20	RCP
YV5B	Venezuela	02:50	00:00	00:10	00:20	00:30	RCV

Attention I-Phone/I-pad/I-pod owners! A beautiful, graphical display of where in the world the currently transmitting NCDXF/IARU beacon is located. Once synchronized, the main display will highlight the beacon transmitting on the currently set band.
http://itunes.apple.com/in/app/hf-beacons/id313919415?mt=8

A compact ATU handles 100 watts

by R. Jayaraman (VU2JN)

This note describes a compact Antenna Tuning Unit (ATU) that I assembled recently. It is capable of handling the full 100-watt output of my FT-840 transceiver. For efficient radiation of the RF power output of a HF transmitter, its output impedance, the characteristic impedance of the transmission line (usually coaxial cable), and the radiation resistance of the antenna should all be the same. Over the years, this standard impedance has evolved as 50 ohms for communication equipment -- applicable to RF transmitters, receivers, coaxial cables and even the Standing Wave Ratio bridge (SWR bridge). The departure of the impedance seen at the transmitter output from this standard value is shown by the SWR bridge. A SWR of 1.0 indicates an impedance of 50 ohms resistive.

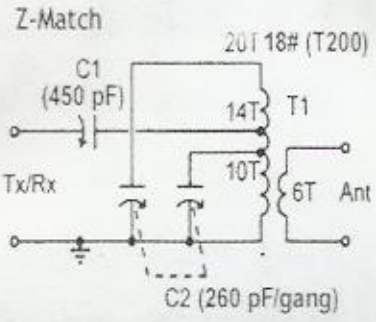


Fig.1: Z-match ATU

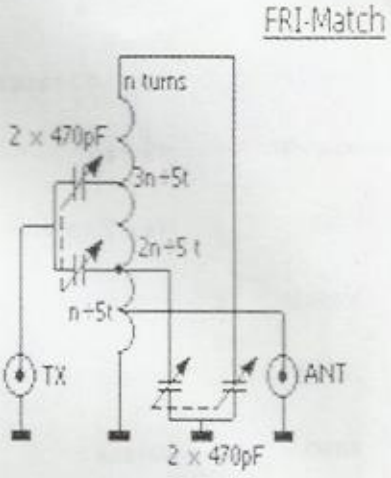


Fig.2: Fri-match ATU

An antenna, when cut for the band of operation, is said to be a resonant antenna. At the antenna end of the transmission line, the RF impedance of a resonant antenna is a pure resistance known as its 'radiation resistance' whose value, being different for different types of antennas, is not always close to 50 ohms. Moreover, when it is not 50 ohms, the coaxial cable might transform this impedance to some other value at its transceiver end. So, even a resonant antenna might be seen by the transceiver as having a SWR higher than 1.0. Because of the difficulty of putting up an antenna for each band of operation, we are often constrained to operate using a non-resonant antenna, which appears as a complex impedance made up of its 'radiation resistance' plus a significant capacitive or inductive reactance. Both these components vary with the frequency of operation.

Present-day solid-state transceivers, which have protective circuits that sense the SWR seen by the rig, would not load antennas that show a high SWR. Moreover, these transceivers make use of a bank of bandpass filters near the antenna terminals that would provide the required bandpass characteristic only when seeing a 50 ohms impedance. Therefore, these rigs need an ATU to work with antennas that show even a moderately high SWR exceeding 1.3.

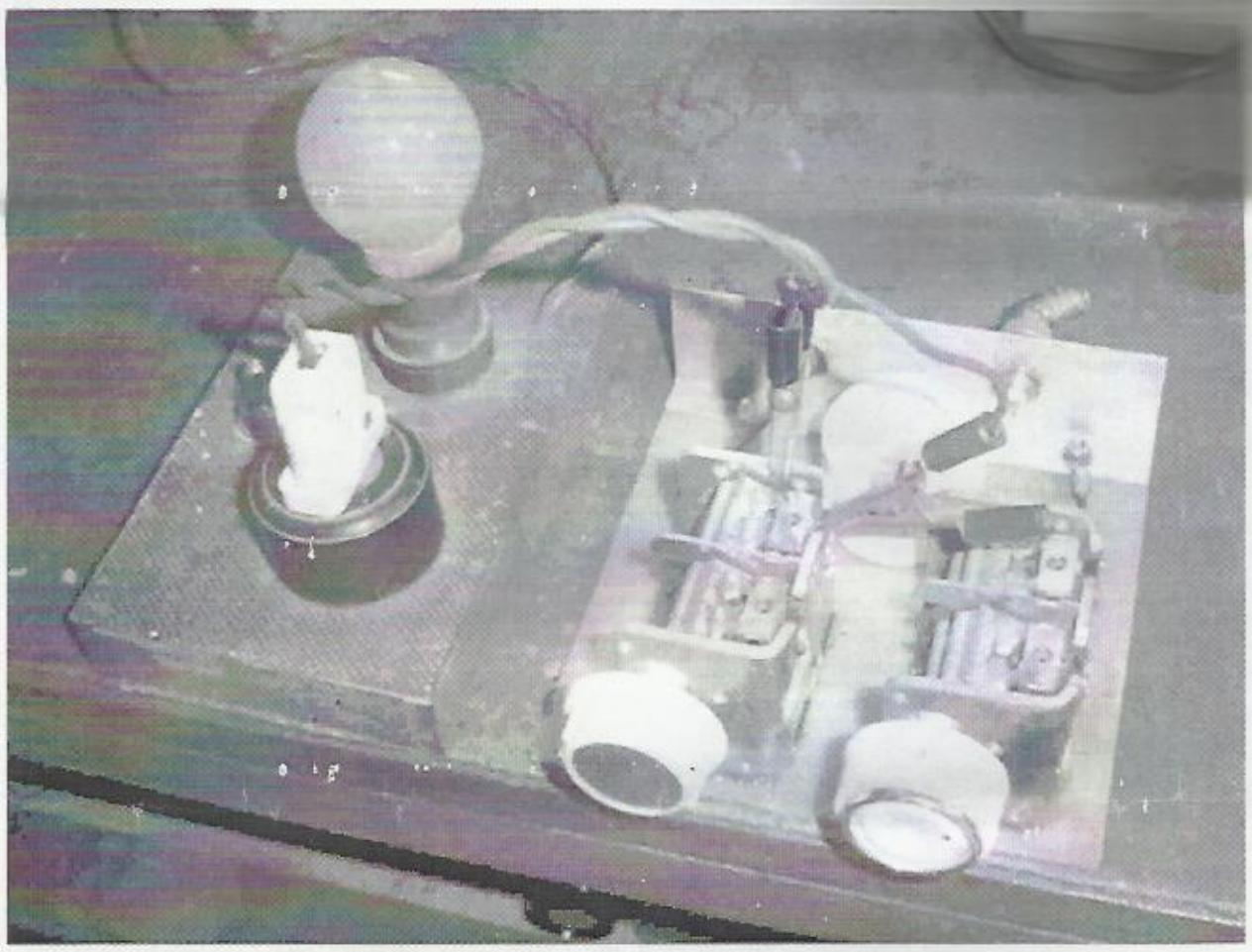
In many situations, we rely on an ATU to enable us to operate with a 'short antenna', i.e. one whose resonant frequency is higher than the frequency of operation. A short antenna appears to the transmitter as a complex impedance in which the resistive component or 'radiation resistance' is much lower than that of a resonant antenna, whereas the capacitive reactance is substantial and dominates over the resistive component. It is the job of the ATU to transform the complex antenna impedance to 50 ohms resistive as seen by the transceiver.

However, when we operate with a short antenna in this manner, a part of the transmitted power is wasted (1) as 'line radiation' from the coaxial line, and (2) as increased 'resistive losses' in the coax and the antenna due to the higher RF currents needed to radiate power from the lower 'radiation resistance' of the short antenna. The 'resistive losses' occur due to real resistance of the conductors at RF (which again is different from the resistance at DC), whereas the 'radiation resistance' of the antenna is a virtual resistance which can be calculated theoretically for any antenna (and frequency of operation), and which governs the RF power radiated by the antenna.

Long ago, when I commissioned my ham radio equipment, I was keen on building a good ATU. The general belief then was that a Rotary inductor was an essential component of the ATU. Since I couldn't locate either a rotary inductor or a 12-position antenna switch for use with a tapped inductor, my ATU project did not take off and, after a while, I lost interest in it. I was QRV only on the ham bands for which I had antennas.

About a year ago, my friend Salim, VU2LID / N8LI, who works in USA and visits India often, suggested that I try operating on 80 metres, and loaned me his SPC Transmatch, which enabled me to tune my 40-metre dipole on 80 metres. Because of the success of the 80-metre operation, my interest in ATU's got revived.

The elusive 25 uH rotary inductor was also finally located. However, the cumbersome size of the rotary inductor and its dial drive put me off, and I started surfing the internet for circuits of compact ATU's that didn't need a rotary inductor.



Condenser test setup

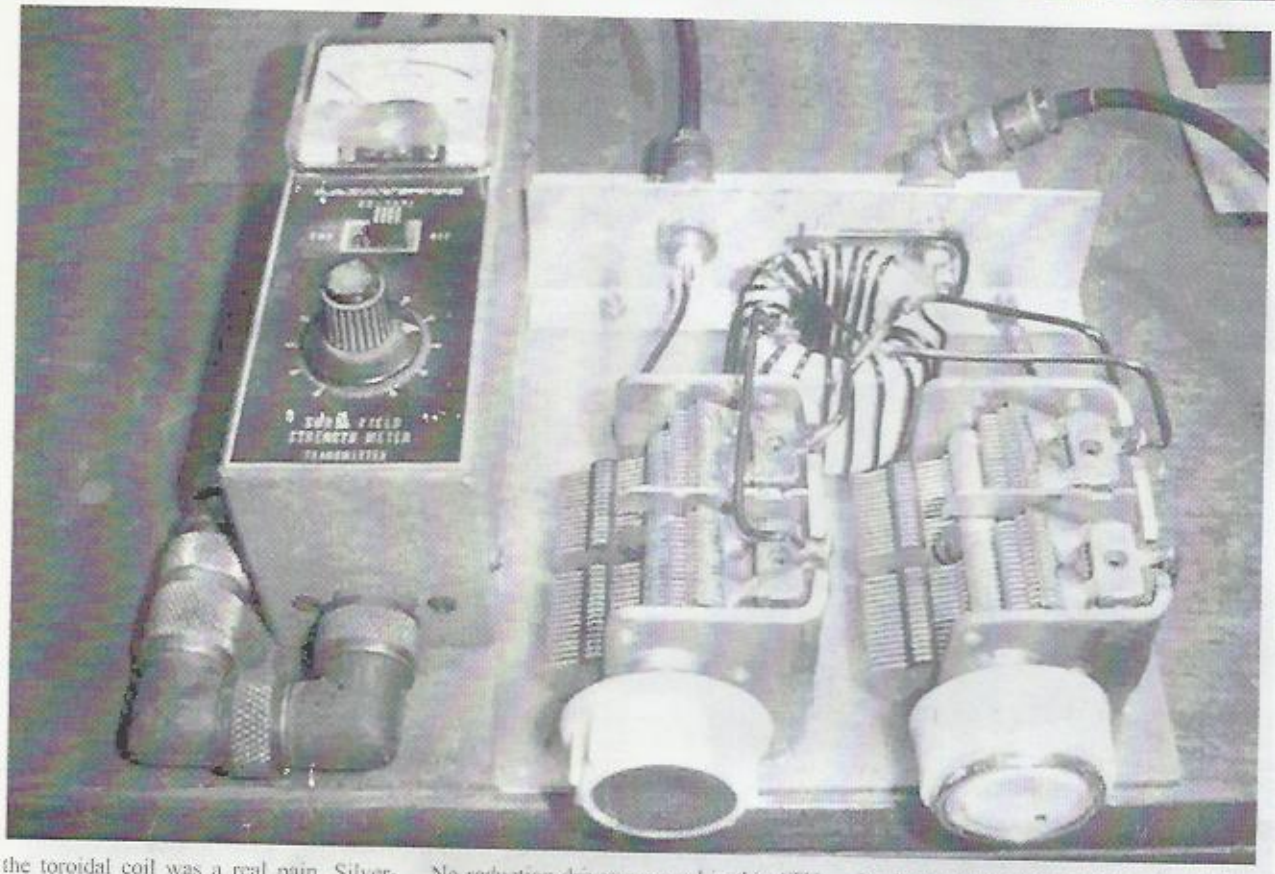
I was able to locate some articles on the Z-match ATU authored by G3VGR, VK5BR and others. Their circuit used a tapped coil (toroidal or air-core) with a link feeding the antenna (Fig.1). I tried this circuit and found that its tuning range was very limited, necessitating tricky adjustment of the total turns and taps of the coil.

Also, I didn't like the link coupling for RF power transfer. So I continued my search, and finally located the article by XS4ALL on the elegant Fri-match ATU, originally developed by PA0FRI. Fig.2 shows the circuit diagram of the Fri-match ATU. This ATU uses a single tapped coil (toroidal or air-core), which couples directly to the antenna. An interesting feature of the Fri-match ATU is that the input and output of the ATU can be interchanged. The conjugate configuration is said to work better in some situations.

A brief discussion on the use of BC-type air-variable tuning condensers for RF power transfer would be appropriate here. In many published articles, the suggested plate spacing for the variable condenser of a 1 kW ATU is around 2 mm. For RF power levels of upto about 200 watts, such wide-spaced condensers are unnecessary, especially when low-impedance antennas are used. I always test BC-type variable condensers before using them in my ham projects, by connecting a 230-volt 10-watt bulb in series with the variable condenser, then applying 230-volt AC to the combination, and turning the condenser knob to and fro to check for arcing. Fig.3 shows the test setup. A good-quality 2-gang 500-pF BC-type air-variable tuning condenser (Polar, Sanyo etc.) would generally pass this test without any arcing. This means the condenser can handle 230 volts RF, which appears to be quite adequate. In fact, it is not the plate spacing of the condenser that appears to be critical here, but rather the RF current-carrying capacity of the wiper of the condenser.

At any rate, a good BC-type air-variable condenser, tested before use and having a clean wiper, should be quite adequate for RF power levels of upto 200 watts.

I had with me 2 Nos. of 1.56 in. o.d. toroids of unknown permeability characteristics, which were found to be good for HF. I stacked the 2 toroids, wound teflon tape over them, and then wound the coil using 14- gauge enamelled copper wire. Winding



the toroidal coil was a real pain. Silver-plated multi-strand soft copper wire with teflon insulation would have made the job easier, but it is not available here. The number of turns needed for the toroidal coil depends on the core area and permeability of the core. Suggested number of turns is 15, 20 or 25. I used 20 (n) turns with taps at 4 (n/5), 8 (2n/5) and 12 (3n/5) turns.

Fig.4: The Frimatch ATU built by me

To make a long story short, my Fri-match ATU was completed in March 2011, nearly half a century after I first thought of building an ATU! Fig. 4 shows a photo of this ATU. It has just 2 controls, and no rotary inductor. It outperforms the conventional Z-match with regard to ease of tuning and tuning range, and is almost as good as the SPC Transmatch. And interestingly, so long as the Fri-match ATU is able to match an antenna within its tuning range, it is able to bring down the SWR to exactly 1.0. This is something that I had not expected from a 2-knob ATU that is free of the burden of a variable inductor.

No reduction drives are used in this ATU. Though the tuning of the condensers is very sharp, it is manageable, even for a person aged 75 years! An analog SWR bridge is needed for tune-up. A point to be kept in mind is that, if one of the condensers is very much off-tune, tuning the other condenser would not produce any dip in the reflected power. Therefore, in the absence of calibrated dials, visual monitoring of the condensers is necessary. The body of one of the condensers has a RF potential but, since it is tied to the transmitter output, there is no hand-capacitance effect.

The Fri-match ATU sits to my right near the front edge of the operating table, not far away from the FT-840 transceiver. From the antenna switch, a 70-ft. length of RG-223 coax feeds a 40-metre dipole antenna, and a 50-ft. length of RG-213 coax feeds a HY-GAIN 12AVQ 3-band ground-plane antenna. The ATU enables me to use the 40-metre dipole on 20, 40 and 80 metres, and the 12AVQ ground-plane on 10, 15, 20 and 40 metres -- all with a SWR of 1.0 as seen by the transceiver. So much so, the ATU is useful even when a resonant antenna is used for the band of operation. On 20 metres and the higher bands, I normally use the 12AVQ ground-plane. The only time I operate with a non-resonant antenna is when I use my 40-metre dipole on 80 metres. Signal reports then indicate that I am roughly 1 S-point weaker than similar stations using a 80- metre dipole. That's not bad, and I am quite happy with the performance of the ATU.

I recommend this ATU to all hams. When an ATU is available, we can fabricate a dipole, ground-plane or any other antenna simply to the dimensions suggested by theory, and dispense with the trimming of the antenna. In many situations, trimming of the antenna to lower the SWR is unscientific, because the problem is not in the antenna, but elsewhere! It is better to rely on the ATU to take care of the fine tuning of a resonant antenna.

-- VU2JN

DXCC Country/Entity Report

According to the Amateur Radio Cluster Network for the week of Sunday, 3rd-July, through Sunday, 10th-July there were 222 countries active.

Countries available:

3A, 3B8, 3D2, 3V, 3W, 4J, 4L, 4O, 4S, 4X, 5B, 5H, 5N, 5R, 5T, 5U, 5V, 5W, 5X, 5Z, 6Y, 7Q, 7X, 8P, 8R, 9A, 9G, 9H, 9J, 9K, 9M2, 9M6, 9Q, 9V, 9X, 9Y,

A2, A4, A6, A7, A9, AP, BV, BY, C3, C5, C6, C9, CE, CE9, CM, CN, CP, CT, CT3, CU, CX, D2, DL, DU, E5/s, E7, EA, EA6, EA8, EA9, EI, EK, EL, EP, ER, ES, ET, EU, EX, EY, F, FG, FJ, FK, FM, FO, FP, FR, FS, FY, G, GD, GI, GJ, GM, GU, GW, H4, HA, HB, HB0, HC, HH, HI, HK, HK0/m, HL, HP, HR, HS, HV, HZ, I, IS, J3, J5, J6, J7, J8, JA, JT, JW, JX, JY,

K, KG4, KH0, KH2, KH3, KH6, KL, KP2, KP4, LA, LU, LX, LY, LZ, OA, OD, OE, OH, OH0, OK, OM, ON, OX, OY, OZ, P2, P4, PA, PJ2, PJ4, PJ5, PJ7, PY, PY0F, PZ, R1FJ, S2, S5, SM, SP, ST, SU, SV, SV/a, SV5, SV9, T32, T7, TA, TF, TG, TI, TJ, TK, TL, TR, TT, TU, TZ, UA, UA2, UA9, UK, UN, UR,

V4, V5, V8, VE, VK, VK0M, VP2V, VP5, VP6, VP8, VP9, VQ9, VR, VU, XE, XU, XX9, YA, YB, YI, YJ, YL, YN, YO, YS, YU, YV, Z2, Z3, ZA, ZB, ZC4, ZD7, ZF, ZL, ZL7, ZP, ZS